

Studer Modbus Addresses

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Studer Object-Property organization

For the new Next series, all information and parameters are stored in Properties. Properties are stored in Objects, allowing to group them by subject. This system is called the ObjectModel.

Property size and type

A Property designates a specific data of the ObjectModel. This data can be of different types, and the size of the data contained in the Property can vary depending on the type. The list of property types is given in the table below:

| Type name | Type description | Modbus size |
|---------------|-------------------------------|---------------------|
| bool | Boolean | 1 register |
| int | Integer | 2 registers |
| uint | Unsigned Integer | 2 registers |
| float | Floating-point number | 2 registers |
| enum | Enumeration | 2 registers |
| bitfield | Bitfield | 2 registers |
| int64 | 64 bits Integer | 4 registers |
| uint64 | 64 bits Unsigned Integer | 4 registers |
| float64 | 64 bits Floating-point number | 4 registers |
| char[size] | String Property | 2 registers or more |
| uint8_t[size] | ByteArray Property | 2 registers or more |
| signal | Signal Property | 1 register |

The String and Byte Array Properties are used respectively to transfer strings (name of a device, serial number, etc...) and byte arrays (for example the encoding of the topology descriptor of the installation). Both types require a maximum size, given in [square brackets]).

Properties of type "Signal" allow to trigger a remote action on a device. Data byte is not significant, it can have any value.

A Property is either in "Read only" mode (R) or in "Read/write" mode (R/W).

External ID

The next system provides a system of external identifiers, used to present Objects and Properties to the user (via Modbus, as a reference on the GUI, in manuals, etc.). This external ID system can be used to uniquely identify each Property of each Object running on each control board of the next system. External IDs can be represented with the following format.



Each external identifier is mapped to one or several modbus register depending of the size of property.

- FIRST number: **The Group** (element of a system). The different objects each belong to one of the following groups:
 - 0: System
 - 1: Battery
 - 2: AC input
 - 3: FlexLoads
 - 4 to 9: unused yet, future elements

- 10 Next3
- 11 Next1
- 12 to 19: unused yet, future devices
- 20 nx gateway
- SECOND number: **The Instance** (element of a group). If several objects of the same type are present in the installation, such as two Batteries for example, the second is addressed with x.2.y.z
- THIRD number: **The Object ID** for each element. It is given in the following pages, for example for the battery group:
 - BatteryCommon: *ID = 0*
 - Battery: *ID = 1*
 - BatteryCycle: *ID = 2*
 - ...
- FOURTH number: **The Property ID** in the object. If we take the Solar object (ID64 for solar1) as an example, the different properties are each defined by an ID: *Voltage (ID0), Average Voltage (ID1), Max Voltage (ID2), Current (ID3) etc...*

Examples:

- The undervoltage level in charge of the second battery of a system with 1 Next3 is referenced with ID 1.2.2.2 (Group: 1 Battery settings, Instance: 2nd Battery, Object ID: ObjIdBattery = 2, Property Undervoltage: 2)
- The daily energy production of the 2nd PV input on the third next3 of the system is referenced with ID 10.3.62.10 (Group: 10 Next3, Instance: 3rd Next, Object ID: ObjIdSolarCommon2 = 62, Property Day energy: 10)

Addressing Studer devices

The following tables shows the address range and the corresponding Object Group instances

| Address offset | Devices | Object Group external ID |
|----------------|-------------|--------------------------|
| 1 | System | 0.1.x.x |
| 2 to 6 | Battery | 1.x.x.x |
| 7 to 8 | AcSource | 2.x.x.x |
| 9 to 13 | AcFlexLoad | 3.x.x.x |
| 14 to 28 | Next3 | 10.x.x.x |
| 29 to 58 | Next1 | 11.x.x.x |
| 59 to 60 | NextGateway | 20.x.x.x |

Correspondance between External ID and modbus addresses

Hereafter is the explanation of the correspondance between the External ID above-mentioned and the modbus addresses available in the next pages:

The "Addressing Studer devices" table is used to determine the group ID and the instance:

- **Group ID** : Using one of the device address defined under "Addressing Studer devices" allows to reach the corresponding group ID.
- **Instance** : Several device addresses are available for each group ID. Using different device addresses for a given group allows to reach the correct element of this group. For example if two batteries are available, the first one will have the first modbus device address defined for the battery group and the second one will have the second address. Note that the instance is represented by a 'x' because the number of elements by groups is unknown in advance.

The "Modbus addresses" defined in the next pages is used to determine the object ID and the property ID:

- **Object ID** : For each object, a table provides the corresponding Modbus addresses according to the required object or object ID.
- **Property ID** : In the next pages, the column ID of the property list corresponds to the property ID for the given object.

Notes:

- Some objects have properties of type "Enum", meaning that they can take different values from a given list. In this documentation, if the object has properties of type "Enum", a list of possible enum values is given after the list of properties

Please visit the whole documentation at www.studer-innotec.com.

earthing scheme

Group : System
Modbus device address : 1
External ID : 0.1.3.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|---------------------|----|----------------------------|--------------------|------|---------------|--|----------|------------|---------|
| 1200 | 2 | R:Basic W:Expert | 0 | Earthing mode selection | OffgridSelfManaged | | - | Selection of the earthing mode. | enum | R/W | 0 |
| 1202 | 1 | Expert | 1 | Disable check | false | | - | Disable the continuity and discontinuity check during on-grid and off-grid transition. | bool | R/W | - |
| 1203 | 1 | Expert | 2 | Is earthing manager master | false | | - | True if this device is the earthing manager master. | bool | R | - |
| 1204 | 1 | Basic | 3 | Relay is closed | false | | - | True if the actual state of the earthing relay is closed. | bool | R | - |
| 1205 | 2 | Basic | 4 | Earthing errors | NoError | | - | Bitfield indicating the earthing manager errors. | bitfield | R | 1 |
| 1218 | 2 | Basic | 14 | Earthing warnings | NoWarning | | - | Bietfield indicating the earthing manager warnings. | bitfield | R | 3 |

List of items of Enum 0 (EarthingModeSelection)

| Value | Label | Description |
|-------|-----------------------|--|
| 0 | Off-grid self managed | Earthing relay will automatically close during off-grid operation. |
| 1 | Solid neutral | This mode should be selected in systems where the neutral wire is not switched. In this case, a bridge needs to be wired between AC source N and AC loads N. The earthing relay remains open but the neutral to earth bonding is still checked each off-grid and on-grid transition. |
| 2 | Disabled | Earthing manager is disabled. The earthing relay remains open and the neutral to earth bonding is not checked. |

List of items of Enum 1 (Error)

| Value | Label | Description |
|-------|------------------------------|---|
| 0 | No error | No earthing error. |
| 1 | Source continuity failed OSM | Missing grounding path during connection to the source (Offgrid self managed mode). Possible root cause: the AC source does not have a neutral to earth bonding, the earth is not connected to device. |
| 2 | Source continuity failed SN | Missing grounding path (Solid neutral mode). Possible root cause: the AC source does not have a neutral to earth bonding, the earth is not connected to device or the bonding between AC source N and AC loads N is not made. |
| 4 | Relay continuity failed | Missing grounding path. Failure of the internal earthing relay: stuck open. |
| 8 | Discontinuity failed | Neutral port connected to earth. Root cause can be due to a bonding between AC source N and AC loads N, a second neutral grounding connection on AC loads or the earthing relay stuck closed. |
| 16 | Earth supply error | Error with internal earthing detection power supply. |
| 32 | Grid connection timeout | Grid connection timeout. |
| 64 | Solar disconnection timeout | Solar disconnection timeout. |
| 128 | Inconsistent request | Inconsistent request appeared in earthing process. |

List of items of Enum 3 (Warning)

| Value | Label | Description |
|-------|------------------------------|---|
| 0 | No warning | No earthing warning. |
| 1 | Source continuity failed OSM | Missing grounding path during connection to the source (Offgrid self managed mode). Possible root cause: the AC source does not have a neutral to earth bonding, the earth is not connected to device. |
| 2 | Source continuity failed SN | Missing grounding path (Solid neutral mode). Possible root cause: the AC source does not have a neutral to earth bonding, the earth is not connected to device or the bonding between AC source N and AC loads N is not made. |
| 4 | Relay continuity failed | Missing grounding path. Failure of the internal earthing relay: stuck open. |

| Value | Label | Description |
|-------|-----------------------------|---|
| 8 | Discontinuity failed | Neutral port connected to earth. Root cause can be due to a bonding between AC source N and AC loads N, a second neutral grounding connection on AC loads or the earthing relay stuck closed. |
| 16 | Earth supply error | Error with internal earthing detection power supply. |
| 32 | Grid connection timeout | Grid connection timeout. |
| 64 | Solar disconnection timeout | Solar disconnection timeout. |

energy policy

Group : System

Modbus device address : 1

External ID : 0.1.5.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------------------|----------------|------|---------------|--|------|------------|---------|
| 1800 | 2 | Basic | 0 | AC source priority | PriorityToGrid | | - | When several AC sources exists, the one that will be used is determined according to this setting. | enum | R/W | 0 |
| 1802 | 2 | ViewOnly | 1 | Currently active AC source | 0 | | - | Currently active AC source index. | int | R | - |

List of items of Enum 0 (SourcePriority)

| Value | Label | Description |
|-------|--------------------|--|
| 0 | Priority to grid | The AC source fulfilling all connexions conditions (voltage and frequency requirements) is used. If both grid and genset fulfill connexion conditions, the grid is used. |
| 1 | Priority to genset | The AC source fulfilling all connexions conditions (voltage and frequency requirements) is used. If both grid and genset fulfill connexion conditions, the genset is used. |

installation configuration

Group : System

Modbus device address : 1

External ID : 0.1.6.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------------------|----|---------------------------|---------------|------|---------------|---|----------|------------|---------|
| 2103 | 18 | R:ViewOnly W:Expert | 2 | Installation GUID | "" | | - | The GUID of this installation. | char[36] | R/W | - |
| 2121 | 1 | R:ViewOnly W:Expert | 3 | Date/time internet update | false | | - | Automatic date/time internet update. When available, internet date/time will be used to set installation date/time. | bool | R/W | - |
| 2122 | 2 | R:ViewOnly W:Expert | 4 | Country | 0 | | - | Country of this installation. | int | R/W | - |
| 2124 | 25 | R:ViewOnly W:Expert | 5 | Time zone | "UTC" | | - | Time zone of this installation (IANA ID). | char[50] | R/W | - |

all devices

Group : System

Modbus device address : 1

External ID : 0.1.7.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------|--------------------|------|---------------|--|----------|------------|---------|
| 2403 | 1 | Basic | 2 | Buzzers enabled | true | | - | Indicates all buzzers state. If disabled, buzzers don't beep when the led panel central red light is blinking. | bool | R/W | - |
| 2404 | 1 | Basic | 3 | Front panel buttons enabled | true | | - | Indicates all front panel buttons state. If disabled, pressing on the front panel buttons has no effect. | bool | R/W | - |
| 2405 | 2 | ViewOnly | 4 | Number of cmd inputs | -1 | | - | Total number of command inputs in the system. | int | R | - |
| 2407 | 2 | ViewOnly | 5 | Number of devices | 0 | | - | Number of power electronics devices. | uint | R | - |
| 2409 | 2 | ViewOnly | 6 | Number of next3 | 0 | | - | Number of next3 devices. | uint | R | - |
| 2411 | 2 | ViewOnly | 7 | Next3 status | NoWarningsOrErrors | | - | Bitfield containing the Next3 status. | bitfield | R | 0 |
| 2413 | 2 | ViewOnly | 8 | Number of next1 | 0 | | - | Number of next1 devices. | uint | R | - |
| 2415 | 2 | ViewOnly | 9 | Next1 status | NoWarningsOrErrors | | - | Bitfield containing the Next1 status. | bitfield | R | 0 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---|--|
| 1 | No warning(s) or error(s) | No warning(s) or error(s). |
| 2 | At least one device in warning | At least one device is in warning. |
| 4 | At least one device in error restarting | At least one device is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 8 | At least one device in error halted | At least one device is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

3-phase inverters

Group : System

Modbus device address : 1

External ID : 0.1.8.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------------|---------------|------|---------------|--|--------|------------|---------|
| 2703 | 1 | Basic | 2 | Turn on all phases | - | | - | Turn on all phases. | signal | W | - |
| 2704 | 1 | Basic | 3 | Turn off all phases | - | | - | Turn off all phases. | signal | W | - |
| 2705 | 1 | ViewOnly | 4 | ON/OFF state all phases | false | | - | Indicates all phases ON/OFF state. | bool | R | - |
| 2706 | 1 | Basic | 5 | Turn on L1 | - | | - | Turn on phase L1. Note that "Allow individual phase operation" (id 56) must be true to enable L1 individually. | signal | W | - |
| 2707 | 1 | Basic | 6 | Turn off L1 | - | | - | Turn off phase L1. | signal | W | - |
| 2708 | 1 | Basic | 7 | ON/OFF state L1 | false | | - | Indicates phase L1 ON/OFF state. | bool | R | - |
| 2709 | 1 | Basic | 8 | Turn on L2 | - | | - | Turn on phase L2. Note that "Allow individual phase operation" (id 56) must be true to enable L2 individually. | signal | W | - |
| 2710 | 1 | Basic | 9 | Turn off L2 | - | | - | Turn off phase L2. | signal | W | - |
| 2711 | 1 | Basic | 10 | ON/OFF state L2 | false | | - | Indicates phase L2 ON/OFF state. | bool | R | - |
| 2712 | 1 | Basic | 11 | Turn on L3 | - | | - | Turn on phase L3. Note that "Allow individual phase operation" (id 56) must be true to enable L3 individually. | signal | W | - |
| 2713 | 1 | Basic | 12 | Turn off L3 | - | | - | Turn off phase L3. | signal | W | - |
| 2714 | 1 | Basic | 13 | ON/OFF state L3 | false | | - | Indicates phase L3 ON/OFF state. | bool | R | - |
| 2717 | 2 | Basic | 15 | 3-phase system configuration | Symetric | | - | 3-phase system configuration. | enum | R/W | 0 |
| 2719 | 2 | Basic | 16 | Nominal line voltage | 398.371686 | V | [10,478] | Nominal line voltage. | float | R/W | - |
| 2721 | 2 | Basic | 17 | L1 nominal phase voltage | 230 | V | [0,275] | L1 nominal phase voltage (also used for AC input ports nominal voltage). | float | R/W | - |
| 2723 | 2 | Basic | 18 | L2 nominal phase voltage | 230 | V | [0,275] | L2 nominal phase voltage (also used for AC input ports nominal voltage). | float | R/W | - |
| 2725 | 2 | Basic | 19 | L3 nominal phase voltage | 230 | V | [0,275] | L3 nominal phase voltage (also used for AC input ports nominal voltage). | float | R/W | - |
| 2727 | 2 | Basic | 20 | Relative angle for L2 | -120 | ° | [-180,180] | L2 voltage phase angle relative to L1. | float | R/W | - |
| 2729 | 2 | Basic | 21 | Relative angle for L3 | 120 | ° | [-180,180] | L3 voltage phase angle relative to L1. | float | R/W | - |
| 2731 | 2 | Basic | 22 | Nominal frequency | 50 | Hz | [45,65] | Nominal frequency. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------------------|----|---------------------------------------|---------------|------|---------------|--|-------|------------|---------|
| 2733 | 2 | Expert | 23 | Maximum RoCoF | 10 | Hz/s | [0.5,50] | Maximal rate of change of frequency. | float | R/W | - |
| 2784 | 2 | Basic | 49 | Alternate frequency | 50 | Hz | [35,65] | Alternate frequency. See property "Cmd entry idx for alternate frequency" (id 50) for more details. | float | R/W | - |
| 2786 | 2 | Expert | 50 | Cmd entry idx for alternate frequency | 0 | | [0,10] | Index of the command input used to switch to the alternate frequency "Alternate frequency" (id 49) (a value of 0 disables remote operation). | int | R/W | - |
| 2788 | 1 | R:ViewOnly W:Expert | 51 | Allow power prod. on ACLoad | false | | - | Allows power production on ACLoad or FlexLoad ports (e.g. when solar inverter is connected on ACLoad/FlexLoad). If false, a backfeed power detection causes an error. | bool | R/W | - |
| 2789 | 2 | R:ViewOnly W:Expert | 52 | Freq. incr. to reduce produced power | 0 | Hz | [0,15] | When power is produced on ACLoad or FlexLoad port (e.g. when solar inverter is connected on on ACLoad/FlexLoad) and this power can't be absorbed by the system, the frequency must be increased to limit this power. | float | R/W | - |
| 2793 | 2 | Basic | 54 | Standby sensitivity | None | | - | Standby sensitivity. | enum | R/W | 2 |
| 2795 | 2 | Expert | 55 | Standby detection | 1 | % | [-1,10] | Standby detection expressed in % of nominal power. A negative value disables the standby. | float | R/W | - |
| 2797 | 1 | Basic | 56 | Allow individual phase operation | true | | - | Allow individual phase operation even if another phase is halted or in error state. | bool | R/W | - |
| 2798 | 2 | Expert | 57 | Overload threshold stage1 | 50 | % | [20,90] | Voltage threshold stage 1 for overload detection. | float | R/W | - |
| 2800 | 2 | Expert | 58 | Overload operate time stage1 | 0.5 | s | [0.05,3] | Overload operate time stage 1. | float | R/W | - |
| 2802 | 2 | Expert | 59 | Overload threshold stage2 | 80 | % | [40,95] | Voltage threshold stage 2 for overload detection. | float | R/W | - |
| 2804 | 2 | Expert | 60 | Overload operate time stage2 | 3 | s | [0.5,5] | Overload operate time stage 2. | float | R/W | - |
| 2806 | 2 | Expert | 61 | Overload restart delay | 1 | s | [1,10] | Delay before automatic restarting after an overload occurs. | float | R/W | - |
| 2808 | 2 | Expert | 62 | Max overloads during obs. period | 3 | | [0,30] | Maximum number of overloads allowed during the defined observation period before stopping. | int | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|---|------|---------------|---|----------|------------|---------|
| 2810 | 2 | Expert | 63 | Observation period for overloads detection | 30 | s | [5,600] | Observation period for overloads detection. | int | R/W | - |
| 2812 | 2 | Expert | 64 | Error restart delay | 3 | s | [1,10] | Delay before automatic restarting after an error. | float | R/W | - |
| 2814 | 2 | Expert | 65 | Max errors during obs. period | 5 | | [0,30] | Maximum number of errors allowed during the defined observation period before stopping. | int | R/W | - |
| 2816 | 2 | Expert | 66 | Observation period for errors detection | 60 | s | [5,600] | Observation period for errors detection. | int | R/W | - |
| 2832 | 2 | Expert | 74 | Inertial smoothing strength | 2 | | [0.1,20] | Strength of inertial smoothing feature (smoothing of transient current of genset, used to improve stability of genset during transients). | float | R/W | - |
| 2834 | 2 | ViewOnly | 75 | Status | AtLeastOnePhaseDisabled | | - | Contains the current status of the 3-phase inverter. Several values are possible simultaneously. | bitfield | R | 3 |
| 2836 | 2 | ViewOnly | 76 | Phase existence | PhaseL1Exists PhaseL2Exists PhaseL3Exists | | - | Indicates which phase(s) is(are) used for inverters / AC-Loads. | bitfield | R | 4 |

List of items of Enum 0 (ThreePhaseConfig)

| Value | Label | Description |
|-------|----------------|---|
| 0 | User defined | User defined with "L1 nominal phase voltage" (id 17), "L2 nominal phase voltage" (id 18), "L3 nominal phase voltage" (id 19), "Relative angle for L2" (id 20) and "Relative angle for L3" (id 21). |
| 1 | Symmetric | Standard symmetric three phase system with line voltage defined by "Nominal line voltage" (id 16). |
| 2 | High-leg delta | High-leg delta configuration with a line voltage u defined by "Nominal line voltage" (id 16), L1-N voltage is u/2, L2-N voltage is $u \cdot \sqrt{3}/2 \angle -90^\circ$, L3-N voltage is $u/2 \angle 180^\circ$. |

List of items of Enum 2 (StandbySensitivity)

| Value | Label | Description |
|-------|--------------|--|
| 0 | User defined | User defined standby threshold level (defined with "Standby detection" (id 55)). |
| 1 | None | None (The standby is disabled). |
| 2 | Very fine | Very fine (detection threshold is 0.1% of nominal power). |
| 3 | Fine | Fine (detection threshold is 0.3% of nominal power). |
| 4 | Coarse | Coarse (detection threshold is 1% of nominal power). |
| 5 | Very coarse | Very coarse (detection threshold is 3% of nominal power). |

List of items of Enum 3 (Status)

| Value | Label | Description |
|-------|--|---|
| 1 | At least one phase disabled | At least one phase is disabled. |
| 2 | At least one phase enabled | At least one phase is enabled. |
| 4 | At least one phase has warning(s) | At least one phase has warning(s). |
| 8 | At least one phase in error restarting | At least one phase is temporarily maintained in error and will restart automatically once the error(s) leave. |

| Value | Label | Description |
|-------|------------------------------------|---|
| 16 | At least one phase in error halted | At least one phase is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 4 (PhasesExistenceBitfield)

| Value | Label | Description |
|-------|-----------------|--|
| 1 | Phase L1 exists | Inverters / AC-Loads have an L1 phase. |
| 2 | Phase L2 exists | Inverters / AC-Loads have an L2 phase. |
| 4 | Phase L3 exists | Inverters / AC-Loads have an L3 phase. |

inverter L1

Group : System

Modbus device address : 1

External ID : 0.1.9.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 3000 | 2 | ViewOnly | 0 | Status | Disabled | | - | Enum containing the status. | enum | R | 0 |
| 3002 | 2 | ViewOnly | 1 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 1 |
| 3004 | 2 | ViewOnly | 2 | Cause of error | NoErrors | | - | Indicates the cause of error. | bitfield | R | 2 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|------------------|--|
| 0 | Enabled | The phase is enabled. |
| 1 | Disabled | The phase is disabled. |
| 2 | Error restarting | The phase is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | Error halted | The phase is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | No warnings | The phase has no warnings. |
| 1 | Overload | Overload situation. Will halt soon if the overload persists. |
| 2 | Overtemperature | Overtemperature. The power/voltage could be reduced to protect the power converter unit. |

List of items of Enum 2 (Errors)

| Value | Label | Description |
|------------|----------------------|--|
| 0 | No errors | The phase has no errors. |
| 1 | Overload | Halted due to an overload. |
| 2 | device fault | The device was stopped to protect himself against abnormal situation. |
| 4 | Communication error | Too many communication errors on studer system bus. Inverter halted for self-protection. |
| 8 | Earthing error | Earthing error detected. |
| 16 | Backfeed power error | Produced active power was detected on a loads port but not allowed by "Allow power prod. on ACLoad" (id 51). |
| 2147483648 | Other error | Inverters are stopped due ot another error. See on the GUI for more information. |

inverter L2

Group : System

Modbus device address : 1

External ID : 0.1.10.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 3300 | 2 | ViewOnly | 0 | Status | Disabled | | - | Enum containing the status. | enum | R | 0 |
| 3302 | 2 | ViewOnly | 1 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 1 |
| 3304 | 2 | ViewOnly | 2 | Cause of error | NoErrors | | - | Indicates the cause of error. | bitfield | R | 2 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|------------------|--|
| 0 | Enabled | The phase is enabled. |
| 1 | Disabled | The phase is disabled. |
| 2 | Error restarting | The phase is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | Error halted | The phase is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | No warnings | The phase has no warnings. |
| 1 | Overload | Overload situation. Will halt soon if the overload persists. |
| 2 | Overtemperature | Overtemperature. The power/voltage could be reduced to protect the power converter unit. |

List of items of Enum 2 (Errors)

| Value | Label | Description |
|------------|----------------------|--|
| 0 | No errors | The phase has no errors. |
| 1 | Overload | Halted due to an overload. |
| 2 | device fault | The device was stopped to protect himself against abnormal situation. |
| 4 | Communication error | Too many communication errors on studer system bus. Inverter halted for self-protection. |
| 8 | Earthing error | Earthing error detected. |
| 16 | Backfeed power error | Produced active power was detected on a loads port but not allowed by "Allow power prod. on ACLoad" (id 51). |
| 2147483648 | Other error | Inverters are stopped due ot another error. See on the GUI for more information. |

inverter L3

Group : System

Modbus device address : 1

External ID : 0.1.11.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 3600 | 2 | ViewOnly | 0 | Status | Disabled | | - | Enum containing the status. | enum | R | 0 |
| 3602 | 2 | ViewOnly | 1 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 1 |
| 3604 | 2 | ViewOnly | 2 | Cause of error | NoErrors | | - | Indicates the cause of error. | bitfield | R | 2 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|------------------|--|
| 0 | Enabled | The phase is enabled. |
| 1 | Disabled | The phase is disabled. |
| 2 | Error restarting | The phase is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | Error halted | The phase is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | No warnings | The phase has no warnings. |
| 1 | Overload | Overload situation. Will halt soon if the overload persists. |
| 2 | Overtemperature | Overtemperature. The power/voltage could be reduced to protect the power converter unit. |

List of items of Enum 2 (Errors)

| Value | Label | Description |
|------------|----------------------|--|
| 0 | No errors | The phase has no errors. |
| 1 | Overload | Halted due to an overload. |
| 2 | device fault | The device was stopped to protect himself against abnormal situation. |
| 4 | Communication error | Too many communication errors on studer system bus. Inverter halted for self-protection. |
| 8 | Earthing error | Earthing error detected. |
| 16 | Backfeed power error | Produced active power was detected on a loads port but not allowed by "Allow power prod. on ACLoad" (id 51). |
| 2147483648 | Other error | Inverters are stopped due ot another error. See on the GUI for more information. |

3-phase AC-Loads

Group : System

Modbus device address : 1

External ID : 0.1.12.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|--------|---------------|---|---------|------------|---------|
| 3900 | 2 | ViewOnly | 0 | Frequency | 0 | Hz | - | Frequency measured. | float | R | - |
| 3902 | 2 | ViewOnly | 4 | Line voltage L1-L2 | 0 | V | - | Line voltage L1-L2 measured. | float | R | - |
| 3904 | 2 | ViewOnly | 8 | Line voltage L2-L3 | 0 | V | - | Line voltage L2-L3 measured. | float | R | - |
| 3906 | 2 | ViewOnly | 12 | Line voltage L3-L1 | 0 | V | - | Line voltage L3-L1 measured. | float | R | - |
| 3908 | 2 | ViewOnly | 16 | Total active power | 0 | W | - | Total active power measured. | float | R | - |
| 3910 | 2 | ViewOnly | 20 | Total apparent power | 0 | VA | - | Total apparent power measured. | float | R | - |
| 3912 | 2 | ViewOnly | 24 | Angle L2 relative to L1 | 0 | degree | - | Angle L2 relative to L1 measured. | float | R | - |
| 3914 | 2 | ViewOnly | 25 | Angle L3 relative to L1 | 0 | degree | - | Angle L3 relative to L1 measured. | float | R | - |
| 3916 | 2 | ViewOnly | 26 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 3918 | 2 | ViewOnly | 27 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 3920 | 4 | ViewOnly | 28 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 3924 | 4 | ViewOnly | 29 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 3928 | 2 | ViewOnly | 30 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 3930 | 2 | ViewOnly | 31 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 3932 | 4 | ViewOnly | 32 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 3936 | 4 | ViewOnly | 33 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |
| 3940 | 2 | ViewOnly | 34 | Day runtime | 0 | h | - | Day runtime measured. | float | R | - |
| 3942 | 2 | ViewOnly | 35 | Total runtime | 0 | h | - | Total runtime measured. | float | R | - |
| 3944 | 2 | ViewOnly | 36 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 3946 | 2 | ViewOnly | 37 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 3948 | 2 | ViewOnly | 38 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 3950 | 2 | ViewOnly | 39 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 3952 | 2 | ViewOnly | 40 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 3954 | 2 | ViewOnly | 41 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 3956 | 2 | ViewOnly | 42 | Produced active power | 0 | W | - | Produced active power measured. | float | R | - |
| 3958 | 2 | ViewOnly | 44 | Consumed active power | 0 | W | - | Consumed active power measured. | float | R | - |

AC-Loads L1

Group : System

Modbus device address : 1

External ID : 0.1.13.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 4200 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 4202 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 4204 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 4206 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 4208 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 4210 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 4212 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 4214 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 4216 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 4218 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 4220 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 4222 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 4228 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 4230 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 4232 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 4236 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 4240 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 4242 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 4244 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 4248 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

AC-Loads L2

Group : System

Modbus device address : 1

External ID : 0.1.14.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 4500 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 4502 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 4504 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 4506 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 4508 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 4510 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 4512 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 4514 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 4516 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 4518 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 4520 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 4522 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 4528 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 4530 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 4532 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 4536 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 4540 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 4542 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 4544 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 4548 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

AC-Loads L3

Group : System

Modbus device address : 1

External ID : 0.1.15.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 4800 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 4802 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 4804 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 4806 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 4808 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 4810 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 4812 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 4814 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 4816 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 4818 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 4820 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 4822 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 4828 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 4830 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 4832 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 4836 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 4840 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 4842 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 4844 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 4848 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

3-phase inverters measure

Group : System

Modbus device address : 1

External ID : 0.1.16.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|--------|---------------|---|---------|------------|---------|
| 5100 | 2 | ViewOnly | 0 | Frequency | 0 | Hz | - | Frequency measured. | float | R | - |
| 5102 | 2 | ViewOnly | 4 | Line voltage L1-L2 | 0 | V | - | Line voltage L1-L2 measured. | float | R | - |
| 5104 | 2 | ViewOnly | 8 | Line voltage L2-L3 | 0 | V | - | Line voltage L2-L3 measured. | float | R | - |
| 5106 | 2 | ViewOnly | 12 | Line voltage L3-L1 | 0 | V | - | Line voltage L3-L1 measured. | float | R | - |
| 5108 | 2 | ViewOnly | 16 | Total active power | 0 | W | - | Total active power measured. | float | R | - |
| 5110 | 2 | ViewOnly | 20 | Total apparent power | 0 | VA | - | Total apparent power measured. | float | R | - |
| 5112 | 2 | ViewOnly | 24 | Angle L2 relative to L1 | 0 | degree | - | Angle L2 relative to L1 measured. | float | R | - |
| 5114 | 2 | ViewOnly | 25 | Angle L3 relative to L1 | 0 | degree | - | Angle L3 relative to L1 measured. | float | R | - |
| 5116 | 2 | ViewOnly | 26 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 5118 | 2 | ViewOnly | 27 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 5120 | 4 | ViewOnly | 28 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 5124 | 4 | ViewOnly | 29 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 5128 | 2 | ViewOnly | 30 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 5130 | 2 | ViewOnly | 31 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 5132 | 4 | ViewOnly | 32 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 5136 | 4 | ViewOnly | 33 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |
| 5140 | 2 | ViewOnly | 34 | Day runtime | 0 | h | - | Day runtime measured. | float | R | - |
| 5142 | 2 | ViewOnly | 35 | Total runtime | 0 | h | - | Total runtime measured. | float | R | - |
| 5144 | 2 | ViewOnly | 36 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 5146 | 2 | ViewOnly | 37 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 5148 | 2 | ViewOnly | 38 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 5150 | 2 | ViewOnly | 39 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 5152 | 2 | ViewOnly | 40 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 5154 | 2 | ViewOnly | 41 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 5156 | 2 | ViewOnly | 42 | Produced active power | 0 | W | - | Produced active power measured. | float | R | - |
| 5158 | 2 | ViewOnly | 44 | Consumed active power | 0 | W | - | Consumed active power measured. | float | R | - |

inverter measure L1

Group : System

Modbus device address : 1

External ID : 0.1.17.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 5400 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 5402 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 5404 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 5406 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 5408 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 5410 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 5412 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 5414 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 5416 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 5418 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 5420 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 5422 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 5428 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 5430 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 5432 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 5436 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 5440 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 5442 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 5444 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 5448 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

inverter measure L2

Group : System

Modbus device address : 1

External ID : 0.1.18.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 5700 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 5702 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 5704 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 5706 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 5708 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 5710 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 5712 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 5714 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 5716 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 5718 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 5720 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 5722 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 5728 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 5730 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 5732 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 5736 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 5740 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 5742 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 5744 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 5748 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

inverter measure L3

Group : System

Modbus device address : 1

External ID : 0.1.19.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 6000 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 6002 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 6004 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 6006 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 6008 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 6010 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 6012 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 6014 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 6016 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 6018 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 6020 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 6022 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 6028 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 6030 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 6032 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 6036 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 6040 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 6042 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 6044 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 6048 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

all 3-phase FlexLoads measure

Group : System

Modbus device address : 1

External ID : 0.1.20.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|--------|---------------|---|---------|------------|---------|
| 6300 | 2 | ViewOnly | 0 | Frequency | 0 | Hz | - | Frequency measured. | float | R | - |
| 6302 | 2 | ViewOnly | 4 | Line voltage L1-L2 | 0 | V | - | Line voltage L1-L2 measured. | float | R | - |
| 6304 | 2 | ViewOnly | 8 | Line voltage L2-L3 | 0 | V | - | Line voltage L2-L3 measured. | float | R | - |
| 6306 | 2 | ViewOnly | 12 | Line voltage L3-L1 | 0 | V | - | Line voltage L3-L1 measured. | float | R | - |
| 6308 | 2 | ViewOnly | 16 | Total active power | 0 | W | - | Total active power measured. | float | R | - |
| 6310 | 2 | ViewOnly | 20 | Total apparent power | 0 | VA | - | Total apparent power measured. | float | R | - |
| 6312 | 2 | ViewOnly | 24 | Angle L2 relative to L1 | 0 | degree | - | Angle L2 relative to L1 measured. | float | R | - |
| 6314 | 2 | ViewOnly | 25 | Angle L3 relative to L1 | 0 | degree | - | Angle L3 relative to L1 measured. | float | R | - |
| 6316 | 2 | ViewOnly | 26 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 6318 | 2 | ViewOnly | 27 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 6320 | 4 | ViewOnly | 28 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 6324 | 4 | ViewOnly | 29 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 6328 | 2 | ViewOnly | 30 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 6330 | 2 | ViewOnly | 31 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 6332 | 4 | ViewOnly | 32 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 6336 | 4 | ViewOnly | 33 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |
| 6340 | 2 | ViewOnly | 34 | Day runtime | 0 | h | - | Day runtime measured. | float | R | - |
| 6342 | 2 | ViewOnly | 35 | Total runtime | 0 | h | - | Total runtime measured. | float | R | - |
| 6344 | 2 | ViewOnly | 36 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 6346 | 2 | ViewOnly | 37 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 6348 | 2 | ViewOnly | 38 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 6350 | 2 | ViewOnly | 39 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 6352 | 2 | ViewOnly | 40 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 6354 | 2 | ViewOnly | 41 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 6356 | 2 | ViewOnly | 42 | Produced active power | 0 | W | - | Produced active power measured. | float | R | - |
| 6358 | 2 | ViewOnly | 44 | Consumed active power | 0 | W | - | Consumed active power measured. | float | R | - |

all FlexLoads measure L1

Group : System

Modbus device address : 1

External ID : 0.1.21.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 6600 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 6602 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 6604 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 6606 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 6608 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 6610 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 6612 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 6614 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 6616 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 6618 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 6620 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 6622 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 6628 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 6630 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 6632 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 6636 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 6640 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 6642 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 6644 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 6648 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

all FlexLoads measure L2

Group : System

Modbus device address : 1

External ID : 0.1.22.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 6900 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 6902 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 6904 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 6906 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 6908 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 6910 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 6912 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 6914 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 6916 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 6918 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 6920 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 6922 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 6928 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 6930 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 6932 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 6936 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 6940 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 6942 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 6944 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 6948 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

all FlexLoads measure L3

Group : System

Modbus device address : 1

External ID : 0.1.23.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 7200 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 7202 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 7204 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 7206 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 7208 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 7210 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 7212 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 7214 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 7216 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 7218 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 7220 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 7222 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 7228 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 7230 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 7232 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 7236 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 7240 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 7242 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 7244 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 7248 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

all solars common

Group : System

Modbus device address : 1

External ID : 0.1.24.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|---------|------------|---------|
| 7500 | 1 | Basic | 0 | Turn on | - | | - | Turns on solar(s). | signal | W | - |
| 7501 | 1 | Basic | 1 | Turn off | - | | - | Turns off solar(s). | signal | W | - |
| 7502 | 1 | ViewOnly | 2 | On off state | false | | - | Indicates solar(s) on/off state. | bool | R | - |
| 7503 | 1 | Expert | 3 | Enable depolarization | - | | - | Enables depolarization. | signal | W | - |
| 7504 | 1 | Expert | 4 | Disable depolarization | - | | - | Disables depolarization. | signal | W | - |
| 7505 | 2 | ViewOnly | 5 | Power | 0 | W | - | Power produced. | float | R | - |
| 7507 | 2 | ViewOnly | 8 | Previous day energy | 0 | Wh | - | Energy produced for the previous day. | float | R | - |
| 7509 | 2 | ViewOnly | 9 | Power limit | 0 | W | - | Solar(s) power limit. | uint | R | - |
| 7511 | 2 | ViewOnly | 10 | Day energy | 0 | Wh | - | Energy produced for the current day. | float | R | - |
| 7515 | 4 | ViewOnly | 12 | Resetable energy | 0 | Wh | - | Energy produced (can be reset). | float64 | R/W | - |
| 7519 | 4 | ViewOnly | 13 | Total energy | 0 | Wh | - | Total energy produced (whole life). | float64 | R | - |

all solars group

Group : System

Modbus device address : 1

External ID : 0.1.25.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------|-------------------------|------|---------------|---------------------------------|----------|------------|---------|
| 7800 | 2 | ViewOnly | 0 | Number | 0 | | - | Number of converters. | uint | R | - |
| 7802 | 2 | ViewOnly | 1 | Status | AtLeastOneSolarDisabled | | - | Bitfield containing the status. | bitfield | R | 0 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|--|---|
| 1 | At least one solar disabled | At least one solar is disabled. |
| 2 | At least one solar has warning(s) | At least one solar has warning(s). |
| 4 | At least one solar in error restarting | At least one solar is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 8 | At least one solar in error halted | At least one solar is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |
| 16 | At least one solar in night | At least one solar is in night. |
| 32 | At least one solar in dawn/dusk | At least one solar is in dawn/dusk. |
| 64 | At least one solar in production | At least one solar is in production. |
| 128 | At least one solar in production limited | At least one solar is in production limited. |
| 256 | At least one solar in solar excess | At least one solar is in production limited due to solar excess. |

system total

Group : System

Modbus device address : 1

External ID : 0.1.26.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---------------------------------|--------------------|------|---------------|---|----------|------------|---------|
| 8100 | 1 | Basic | 0 | Clear errors | - | | - | Clear all errors for this installation. Note that battery charging recovery mode will be enabled if "Charging recovery mode" (id 90) was "Disabled and activatable" (value 1) before sending this signal. | signal | W | - |
| 8101 | 1 | Basic | 1 | Turn on | - | | - | Turns on all converters. | signal | W | - |
| 8102 | 1 | Basic | 2 | Turn off | - | | - | Turns off all converters. | signal | W | - |
| 8103 | 1 | ViewOnly | 3 | On off state | false | | - | Indicates all converters on/off state. | bool | R | - |
| 8104 | 2 | ViewOnly | 4 | Source power | 0 | W | - | Power of the currently used AC source (AcSource or AcFlex used as FlexSource). | float | R | - |
| 8106 | 2 | ViewOnly | 6 | Loads+FlexLoads total power | 0 | W | - | AC Loads and FlexLoads total power (consumed - produced). | float | R | - |
| 8108 | 2 | ViewOnly | 8 | Loads+FlexLoads appar. power | 0 | VA | - | AC Loads and FlexLoads apparent power. | float | R | - |
| 8110 | 2 | ViewOnly | 10 | Warning(s) | None | | - | Bitfield containing the warning(s). | bitfield | R | 0 |
| 8112 | 2 | ViewOnly | 11 | Error(s) restarting | None | | - | Bitfield containing the error(s) restarting. | bitfield | R | 0 |
| 8114 | 2 | ViewOnly | 12 | Source day consumed energy | 0 | Wh | - | Day consumed energy of all AC sources (AcSource and AcFlex used as FlexSource). | float | R | - |
| 8116 | 2 | ViewOnly | 13 | Source day produced energy | 0 | Wh | - | Day produced energy of all AC sources (AcSource and AcFlex used as FlexSource). | float | R | - |
| 8118 | 2 | ViewOnly | 14 | Error(s) halted | None | | - | Bitfield containing the error(s) halted. | bitfield | R | 0 |
| 8120 | 2 | ViewOnly | 15 | Error(s) restarting or halted | None | | - | Bitfield containing the error(s) (restarting or halted). | bitfield | R | 0 |
| 8122 | 2 | Expert | 16 | CEI for emergency stop | 0 | | [0,10] | Index of the command entry interface used for emergency stop. (0 value disable remote operation). | int | R/W | - |
| 8124 | 2 | ViewOnly | 17 | Number of AC-Sources | 0 | | - | Number of AC sources used in the installation. How much and which used phases is shown in "Phase existence" (id 126) | int | R | - |
| 8126 | 2 | ViewOnly | 18 | Loads+FlexLoads day total ener. | 0 | Wh | - | AC Loads and FlexLoads day total energy (consumed - produced). | float | R | - |
| 8128 | 2 | ViewOnly | 19 | Number of AC-FlexLoads | 0 | | - | Number of AC FlexLoads used in the installation. How much and which used phases is shown in "Phase existence" (id 0) | int | R | - |
| 8130 | 2 | ViewOnly | 20 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 1 |
| 8132 | 2 | ViewOnly | 21 | Loads+FlexLoads consum. power | 0 | W | - | AC Loads and FlexLoads consumed power. | float | R | - |
| 8134 | 2 | ViewOnly | 22 | Loads+FlexLoads produc. power | 0 | W | - | AC Loads and FlexLoads produced power. | float | R | - |
| 8136 | 2 | ViewOnly | 25 | Loads+FlexLoads day cons. ener. | 0 | Wh | - | AC Loads and FlexLoads day consumed energy. | float | R | - |
| 8138 | 2 | ViewOnly | 26 | Loads+FlexLoads day prod. ener. | 0 | Wh | - | AC Loads and FlexLoads day produced energy. | float | R | - |

List of items of Enum 0 (WarningsErrors)

| Value | Label | Description |
|-------|--------------------------------|---------------------------------|
| 0 | None | None. |
| 1 | At least one device | At least one device. |
| 2 | At least one battery | At least one battery. |
| 4 | At least one solar | At least one solar. |
| 8 | At least one phase | At least one phase. |
| 16 | At least one source phase | At least one source phase. |
| 32 | At least one flex source phase | At least one flex source phase. |
| 64 | At least one flex load phase | At least one flex load phase. |

List of items of Enum 1 (Status)

| Value | Label | Description |
|-------|---------------------------|---|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The system is in warning. |
| 2 | In error restarting | The system is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The system is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |
| 4 | In emergency stop | The system is in emergency stop. |

all batteries common

Group : System

Modbus device address : 1

External ID : 0.1.27.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 8400 | 2 | ViewOnly | 0 | Charging power | 0 | W | - | Charging power measured. | float | R | - |
| 8402 | 2 | ViewOnly | 4 | Day charging energy | 0 | Wh | - | Day charging energy measured. | float | R | - |
| 8404 | 2 | ViewOnly | 5 | Previous day charging energy | 0 | Wh | - | Previous day charging energy measured. | float | R | - |
| 8406 | 4 | ViewOnly | 6 | Resetable charging energy | 0 | Wh | - | Resetable charging energy measured. | float64 | R/W | - |
| 8410 | 4 | ViewOnly | 7 | Total charging energy | 0 | Wh | - | Total charging energy measured. | float64 | R | - |
| 8414 | 2 | ViewOnly | 8 | Day discharging energy | 0 | Wh | - | Day discharging energy measured. | float | R | - |
| 8416 | 2 | ViewOnly | 9 | Previous day discharging energy | 0 | Wh | - | Previous day discharging energy measured. | float | R | - |
| 8418 | 4 | ViewOnly | 10 | Resetable discharging energy | 0 | Wh | - | Resetable discharging energy measured. | float64 | R/W | - |
| 8422 | 4 | ViewOnly | 11 | Total discharging energy | 0 | Wh | - | Total discharging energy measured. | float64 | R | - |
| 8426 | 2 | ViewOnly | 12 | State of Charge | 0 | % | - | State of charge measured. | float | R | - |

all batteries group

Group : System

Modbus device address : 1

External ID : 0.1.28.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------|--------------------|------|---------------|---------------------------------|----------|------------|---------|
| 8700 | 2 | ViewOnly | 0 | Number | 0 | | - | Number of batteries. | uint | R | - |
| 8702 | 2 | ViewOnly | 1 | Status | NoWarningsOrErrors | | - | Bitfield containing the status. | bitfield | R | 0 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---|---|
| 1 | No warning(s) or error(s) | No warning(s) or error(s). |
| 2 | At least one battery in warning | At least one battery is in warning. |
| 4 | At least one battery in error restarting | At least one battery is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 8 | At least one battery in error halted | At least one battery is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |
| 16 | At least one battery has charging recovery mode activatable | At least one battery has charging recovery mode activatable. |

battery common

Group : Battery

Modbus device address : 2 to 6

External ID : 1.x.1.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 0 | 2 | ViewOnly | 0 | Charging power | 0 | W | - | Charging power measured. | float | R | - |
| 2 | 2 | ViewOnly | 4 | Day charging energy | 0 | Wh | - | Day charging energy measured. | float | R | - |
| 4 | 2 | ViewOnly | 5 | Previous day charging energy | 0 | Wh | - | Previous day charging energy measured. | float | R | - |
| 6 | 4 | ViewOnly | 6 | Resetable charging energy | 0 | Wh | - | Resetable charging energy measured. | float64 | R/W | - |
| 10 | 4 | ViewOnly | 7 | Total charging energy | 0 | Wh | - | Total charging energy measured. | float64 | R | - |
| 14 | 2 | ViewOnly | 8 | Day discharging energy | 0 | Wh | - | Day discharging energy measured. | float | R | - |
| 16 | 2 | ViewOnly | 9 | Previous day discharging energy | 0 | Wh | - | Previous day discharging energy measured. | float | R | - |
| 18 | 4 | ViewOnly | 10 | Resetable discharging energy | 0 | Wh | - | Resetable discharging energy measured. | float64 | R/W | - |
| 22 | 4 | ViewOnly | 11 | Total discharging energy | 0 | Wh | - | Total discharging energy measured. | float64 | R | - |
| 26 | 2 | ViewOnly | 12 | State of Charge | 0 | % | - | State of charge measured. | float | R | - |

battery

Group : Battery

Modbus device address : 2 to 6

External ID : 1.x.2.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------------------|--------------------|------|---------------|--|----------|------------|---------|
| 300 | 2 | ViewOnly | 0 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 0 |
| 302 | 2 | ViewOnly | 1 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 1 |
| 304 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 2 |
| 306 | 2 | Expert | 3 | Target charging current low limit | 0 | A | - | Target charging current low limit sent to the power flow dispatcher. | float | R | - |
| 308 | 2 | Expert | 4 | Target charging current high limit | 0 | A | - | Target charging current high limit sent to the power flow dispatcher. | float | R | - |
| 310 | 2 | Expert | 5 | Charging current low limit | 0 | A | - | Charging current low limit sent to the power flow dispatcher. | float | R | - |
| 312 | 2 | Expert | 6 | Charging current high limit | 0 | A | - | Charging current high limit sent to the power flow dispatcher. | float | R | - |
| 314 | 2 | Expert | 7 | Target voltage max | 0 | V | - | Target voltage used to clamp "Charging current high limit" (id 6) dynamically in function of the voltage error to avoid overshoot. | float | R | - |
| 316 | 2 | Expert | 8 | Target voltage min | 0 | V | - | Target voltage used to clamp "Charging current low limit" (id 5) dynamically in function of the voltage error to avoid undershoot. | float | R | - |
| 318 | 2 | ViewOnly | 9 | Voltage | 0 | V | - | Voltage measured. | float | R | - |
| 320 | 2 | ViewOnly | 13 | Charging current | 0 | A | - | Charging current measured. | float | R | - |
| 322 | 4 | ViewOnly | 17 | Cycles number | 0 | | - | Number of cycles since the battery was configured. Note that one cycle corresponds to 'Nominal capacity' electric charges injected into the battery. | float64 | R | - |
| 326 | 2 | ViewOnly | 18 | State of health | 100 | % | - | State of health measured. | float | R | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|---------------|------|---------------|---|-------|------------|---------|
| 328 | 1 | ViewOnly | 19 | Temp available | false | | - | True if at least one battery contributor has a temperature sensor connected with non communicating battery. Not used with communicating battery. | bool | R | - |
| 329 | 2 | ViewOnly | 20 | Temp | 0 | °C | - | Temperature measured. | float | R | - |
| 331 | 1 | Expert | 24 | Manual current limits | false | | - | Useful only with communicating batteries. With non communicating batteries, the value can't be changed and is maintained to true. If enabled, "Discharging current limit" (id 25) and "Charging current limit" (id 26) can be manually set. If disabled, the limits used are those received by the bms. Note that the limits set by the user are ignored if the limits received by the bms are lower. | bool | R/W | - |
| 332 | 2 | Expert | 25 | Discharging current limit | 0 | A | [0, 1e9] | Sets the discharging current limit. | float | R/W | - |
| 334 | 2 | Expert | 26 | Charging current limit | 0 | A | [0, 1e9] | Sets the charging current limit. | float | R/W | - |
| 336 | 2 | Expert | 27 | Current limits marging factor | 0.8 | | - | With non communicating batteries, this ratio is used to keep a marging between the operating range ('Discharging current limit' and 'Charging current limit') and the 'Overcurrent' threshold. With communicating batteries, this ratio is used to keep a marging between "BMS max charging current" (id 85) and "BMS max discharging current" (id 86) and the limits actually used by the power flow dispatcher. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------------------------|---------------|------|---------------|--|----------|------------|---------|
| 338 | 2 | Expert | 28 | Conditions for energy management | AllConditions | | - | Used to select conditions used for energy management. | bitfield | R/W | 8 |
| 340 | 2 | Expert | 29 | SOC slope for limits | 0 | A/% | - | Value used to change linearly the "Target charging current low limit" (id 3) around "SOC for backup" (id 32) and the "Target charging current high limit" (id 4) around "SOC for grid feeding" (id 31) from chargingCurrentLimit to - dischargingCurrentLimit. Also used to change linearly the "Charging current high limit" (id 6) around "SOC for end of charge" (id 30) from 100% to 0%. | float | R/W | - |
| 342 | 2 | Expert | 30 | SOC for end of charge | 100 | % | - | SOC over which the "Charging current high limit" (id 6) is set to 0 if "SOC for end of charge" (value 1) is activated. This prevents the SOC to increase further even if solar power is available. Note that it's recommended to keep a value of 100% for non communicating battery. | float | R/W | - |
| 344 | 2 | Expert | 31 | SOC for grid feeding | 100 | % | - | SOC over which energy is taken from battery to be sourced into grid if "SOC for grid feeding" (value 2) is activated. Note that it's recommended to keep a value of 100% for non communicating battery. | float | R/W | - |
| 346 | 2 | Expert | 32 | SOC for backup | 0 | % | - | SOC under which energy is taken from AC source to charge batteries if "SOC for backup" (value 4) is activated. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---|---------------|-------|---------------|--|------|------------|---------|
| 348 | 1 | Expert | 33 | Adaptive SOC for backup | false | | - | Used to increase each day "Current SOC for backup" (id 38) by the quantity set via "Adaptive SOC for backup slope" (id 34) if the SOC is less than "SOC to increase adaptive SOC for backup" (id 37). "Current SOC for backup" (id 38) is also increased by 15% if an undervoltage has been detected. "Current SOC for backup" (id 38) is reset to "SOC for backup" (id 32) if the SOC is greather than or equal to "SOC to reset adaptive SOC for backup" (id 36) for at least "Time before resetting adaptive SOC for backup" (id 35) seconds. | bool | R/W | - |
| 349 | 2 | Expert | 34 | Adaptive SOC for backup slope | 0 | %/day | [0, 100] | "Current SOC for backup" (id 38) is increased each day by this amount if the SOC is less than "SOC to increase adaptive SOC for backup" (id 37) and if "Adaptive SOC for backup" (id 33) is enabled. | uint | R/W | - |
| 351 | 2 | Expert | 35 | Time before resetting adaptive SOC for backup | 0 | s | [0, 86400] | "Current SOC for backup" (id 38) is reset to "SOC for backup" (id 32) if the SOC is greather than or equal to "SOC to reset adaptive SOC for backup" (id 36) for at least this amount of time. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---|---------------|------|---------------|---|-------|------------|---------|
| 353 | 2 | Expert | 36 | SOC to reset adaptive SOC for backup | 0 | % | - | "Current SOC for backup" (id 38) is reset to "SOC for backup" (id 32) if the SOC is greather than or equal to this value during "Time before resetting adaptive SOC for backup" (id 35). | float | R/W | - |
| 355 | 2 | Expert | 37 | SOC to increase adaptive SOC for backup | 0 | % | - | "Current SOC for backup" (id 38) is increased each day by the value of "Adaptive SOC for backup slope" (id 34) if the SOC is less than this value and if "Adaptive SOC for backup" (id 33) is enabled. | float | R/W | - |
| 357 | 2 | Expert | 38 | Current SOC for backup | 0 | % | - | Indicate the current value of the SOC for backup. | float | R | - |
| 359 | 2 | Expert | 39 | Voltage for grid feeding | 0 | V | - | Voltage over which energy is taken from battery to be sourced into grid if "Voltage for grid feeding" (value 8) is activated. Note that the battery may never reach a fully charged state if this feature is activated. | float | R/W | - |
| 361 | 2 | Expert | 40 | Voltage for backup | 0 | V | - | Voltage under which energy is taken from an AC source to charge batteries if "Voltage for backup" (value 16) is activated. | float | R/W | - |
| 363 | 2 | Expert | 41 | Nominal temp | 25 | °C | [-20, 45] | Battery nominal temperature. | float | R/W | - |
| 365 | 2 | Expert | 42 | Temp coefficient | 0 | V/°C | - | Sets the temperature coefficient used to correct the charging voltage level. | float | R/W | - |
| 367 | 1 | Expert | 43 | Forced mode | false | | - | Use given values instead of automatic ones for target min/max voltages and charging current. | bool | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------------------|----|---------------------------|------------------|------|---------------|--|-------|------------|---------|
| 368 | 2 | Expert | 44 | Forced target voltage max | 0 | V | - | Forced value for "Target voltage max" (id 7) when "Forced mode" (id 43). | float | R/W | - |
| 370 | 2 | Expert | 45 | Forced target voltage min | 0 | V | - | Forced value for "Target voltage min" (id 8) when "Forced mode" (id 43). | float | R/W | - |
| 372 | 2 | Expert | 46 | Forced target current | 0 | A | - | Forced value for "Target charging current low limit" (id 3) and "Target charging current high limit" (id 4) when "Forced mode" (id 43). Please enter a positive value to set a target charging current and a negative value to set a target discharging current. | float | R/W | - |
| 374 | 2 | Expert | 47 | Limits level | 0 | | - | Limits level sent to the power flow dispatcher. | uint | R/W | - |
| 376 | 2 | Expert | 48 | Setpoints level | 0 | | - | Setpoints level sent to the power flow dispatcher. | uint | R/W | - |
| 383 | 2 | R:ViewOnly W:Studer | 52 | Communication interface | NotCommunicating | | - | Indicates if the battery is communicating or not and if yes, indicates which communication interface is used. This property must be changed only by the wizard and never by the user ! | enum | R/W | 3 |
| 385 | 2 | R:ViewOnly W:Studer | 53 | Nominal voltage | 0 | V | - | Battery nominal voltage. This property must be changed only by the wizard and never by the user ! | float | R | - |
| 389 | 2 | R:ViewOnly W:Studer | 55 | Nominal capacity | 0 | Ah | - | Battery nominal capacity. This property must be changed only by the wizard and never by the user ! | float | R/W | - |
| 391 | 2 | R:Expert W:Studer | 56 | CAN protocol | Studer | | - | Indicates which CAN protocol is used. This property must be changed only by the wizard and never by the user ! | enum | R/W | 4 |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------------------|----|--|-----------------|------|---------------|--|------|------------|---------|
| 393 | 2 | R:Expert W:Studer | 57 | RS485 protocol | ToImplement | | - | Indicates which RS485 protocol is used. This property must be changed only by the wizard and never by the user ! | enum | R/W | 5 |
| 395 | 2 | R:ViewOnly W:Studer | 58 | Manufacturer name | Weco | | - | Battery manufacturer name. This property must be changed only by the wizard and never by the user ! | enum | R/W | 6 |
| 397 | 2 | R:Expert W:Studer | 59 | Baud rate | 0 | kbps | - | Communication baud rate. This property must be changed only by the wizard and never by the user ! | uint | R/W | - |
| 400 | 2 | R:ViewOnly W:Studer | 61 | Technology | FloodedLeadAcid | | - | Battery technology. This property must be changed only by the wizard and never by the user ! | enum | R/W | 7 |
| 411 | 2 | Expert | 67 | Adaptive SOC for backup undervoltage increment | 15 | % | [0, 100] | Used to try to recharge the battery when an undervoltage has been detected. "Current SOC for backup" (id 38) is set higher than the current SOC by a quantity set via this property. This function is disabled if "Adaptive SOC for backup" (id 33) is set to false or if this value is set to 0. | uint | R/W | - |
| | | | | | | | | Used to perform periodic charges (for example in applications where the soc for grid feeding is set lower than 100%) and periodic discharges (for example in backup applications). To be able to use this function, "SOC for grid feeding" (value 2) must be activated in "Conditions for energy management" (id 28). Configuration is done via "Delay before periodical charge" (id | | | |

| Address | Size | User level | ID | Label | Default Value | | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---------------------------------|---------------|--|------|------------------|---|------|------------|---------|
| 413 | 1 | Expert | 72 | Periodical charge and discharge | true | | | - | 73), "Delay before periodical discharge" (id 98), "Time before resetting periodical (dis)charge" (id 74), "Periodical charge SOC" (id 95), "Periodical discharge SOC" (id 96) and "Use AC source during periodical (dis)charge transitions" (id 97). How it works: If the function is activated and if the SOC has not reached "Periodical charge SOC" (id 95) after "Delay before periodical charge" (id 73) seconds, "Periodical charge SOC" (id 95) is used instead of "SOC for grid feeding" (id 31). Periodic charge ends when the SOC equals "Periodical charge SOC" (id 95) for "Time before resetting periodical (dis)charge" (id 74) seconds. The working principle of the periodical discharge is the same but the properties used are "Periodical discharge SOC" (id 96) and "Delay before periodical discharge" (id 98). The use or not of AC source during the transition from the normal operation to the periodical charge or discharge is done via "Use AC source during periodical (dis)charge transitions" (id 97). Please refer to the manual for more informations. | bool | R/W | - |
| 414 | 2 | Expert | 73 | Delay before periodical charge | 604800 | | s | [3600, 31536000] | See explanation of "Periodical charge and discharge" (id 72). | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|---------------|------|---------------|---|-------|------------|---------|
| 416 | 2 | Expert | 74 | Time before resetting periodical (dis)charge | 600 | s | [0, 86400] | See explanation of "Periodical charge and discharge" (id 72). | uint | R/W | - |
| 418 | 2 | Expert | 75 | SOC for end of discharge | 0 | % | - | SOC under which "SOC < SOC for end of discharge" (value 262144) is set if "SOC for end of discharge" (value 32) is activated. The error is reset if the SOC is greater than or equal to "SOC for backup" (id 32). | float | R/W | - |
| 420 | 2 | Expert | 77 | Command entry index | 0 | | [0,10] | Index of the command entry interface. (0 value disable remote operation). | int | R/W | - |
| 422 | 1 | Expert | 84 | Ignore BMS recommended currents | false | | - | Used only with communicating batteries. If true, "BMS recommended charging current" (id 87) and "BMS recommended discharging current" (id 88) received by the BMS are ignored. | bool | R/W | - |
| 423 | 2 | Expert | 85 | BMS max charging current | 0 | A | - | Always 0 with non communicating batteries. Max charging current received by the BMS. | float | R | - |
| 425 | 2 | Expert | 86 | BMS max discharging current | 0 | A | - | Always 0 with non communicating batteries. Max discharging current received by the BMS. | float | R | - |
| 427 | 2 | Expert | 87 | BMS recommended charging current | 0 | A | - | Always 0 with non communicating batteries. Recommended charging current received by the BMS. This property is ignored if "Ignore BMS recommended currents" (id 84) is set to true. | float | R | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---|--|------|---------------|--|----------|------------|---------|
| 429 | 2 | Expert | 88 | BMS recommended discharging current | 0 | A | - | Always 0 with non communicating batteries. Recommended discharging current received by the BMS. This property is ignored if "Ignore BMS recommended currents" (id 84) is set to true. | float | R | - |
| 431 | 2 | Expert | 89 | BMS communication loss timeout | 0 | s | [2, 30] | Useful only with communicating battery. Error : "Communication lost" (value 16384) is set if the elapsed time between two consecutives frames received is greater than or equal to this value. | uint | R/W | - |
| 433 | 2 | ViewOnly | 90 | Charging recovery mode | Disabled | | - | Indicates the charging recovery mode state. | enum | R | 9 |
| 435 | 1 | Basic | 91 | Stop charging recovery mode | - | | - | Stop charging recovery mode. | signal | W | - |
| 437 | 2 | Expert | 93 | Current SOC for end of charge | 0 | % | - | Indicate the current value of the SOC for end of charge. | float | R | - |
| 439 | 2 | Expert | 94 | Current SOC for grid feeding | 0 | % | - | Indicate the current value of the SOC for grid feeding. | float | R | - |
| 441 | 2 | Expert | 95 | Periodical charge SOC | 100 | % | [0, 100] | See explanation of "Periodical charge and discharge" (id 72). Note that this value must be greater than "SOC for grid feeding" (id 31) to perform a periodical charge. | float | R/W | - |
| 443 | 2 | Expert | 96 | Periodical discharge SOC | 100 | % | [0, 100] | See explanation of "Periodical charge and discharge" (id 72). Note that this value must be lower than "SOC for grid feeding" (id 31) to perform a periodical discharge. | float | R/W | - |
| 445 | 2 | Expert | 97 | Use AC source during periodical (dis)charge transitions | AcSourceNotUsedDuringPeriodicalChargeAndDischargeTransitions | | - | Used to select if AC source is used during periodical charge and periodical discharge transitions. | bitfield | R/W | 10 |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|-----|--|---------------------------------------|------|------------------|---|-------|------------|---------|
| 447 | 2 | Expert | 98 | Delay before periodical discharge | 7776000 | s | [3600, 31536000] | See explanation of "Periodical charge and discharge" (id 72). | uint | R/W | - |
| 449 | 2 | Expert | 103 | Command entry function | ChargingCurrentLimitReducedByCmdEntry | | - | Function associated with the command entry. | enum | R/W | 11 |
| 451 | 2 | Expert | 104 | Value used when command entry is activated | 0 | | - | Value used when command entry is activated. The unit depends on the associated function of the command entry and is indicated in the description of "Command entry function" (id 103). | float | R/W | - |
| 453 | 2 | Expert | 105 | Current SOC for end of discharge | 0 | % | - | Indicate the current value of the SOC for end of discharge. | float | R | - |
| 455 | 2 | Expert | 106 | Abnormal voltage level | 0 | V | - | Useful only if at least two devices are connected to the battery. Set the voltage level at which "Abnormal measured voltage" (value 524288) is raised. The error is set if the highest battery voltage measured by one device - the lowest battery voltage measured by another device is greater than this value for 5s. If a current is flowing, the level is automatically adapted to take into account the voltage drop on the cables. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|-----|----------------------------|---------------|------|---------------|--|-------|------------|---------|
| 457 | 2 | Expert | 107 | Abnormal temperature level | 5 | °C | [1, 50] | Useful only with non communicating battery and if at least two devices are measuring the battery temperature. Set the temperature level at which "Abnormal measured temperature" (value 65536) is raised. The warning is set if the highest battery temperature measured by one device - the lowest battery temperature measured by another device is greater than this value. | float | R/W | - |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The battery is in warning. |
| 2 | In error restarting | The battery is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The battery is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Errors)

| Value | Label | Description |
|--------|------------------------------|---|
| 0 | No errors | The battery has no errors. |
| 1 | Overvoltage | An error overvoltage has been detected. |
| 2 | Undervoltage | An error undervoltage has been detected. |
| 4 | Charging overcurrent | An error charging overcurrent has been detected. |
| 8 | Discharging overcurrent | An error discharging overcurrent has been detected. |
| 16 | Charging overtemperature | An error charging overtemperature has been detected. |
| 32 | Discharging overtemperature | An error discharging overtemperature has been detected. |
| 64 | Charging undertemperature | An error charging undertemperature has been detected. |
| 128 | Discharging undertemperature | An error discharging undertemperature has been detected. |
| 256 | Contact or | The battery internal contactor is damaged. Please contact the battery manufacturer for more details. |
| 512 | Short circuit | The BMS has detected a short circuit error. |
| 1024 | BMS internal | The BMS has an internal error. Please contact the battery manufacturer for more details. |
| 2048 | Cell imbalance | A voltage imbalance error between cells has been detected. |
| 4096 | SMA general | An SMA general error has been received. Please contact the battery manufacturer for more details. |
| 8192 | Battery damaged | The BMS has detected that the battery is damaged. Please contact the battery manufacturer for more details. |
| 16384 | Communication lost | The communication with the BMS has been lost. Please check that the communication cable is correctly connected. |
| 32768 | Emergency stop | An emergency stop has been received by the BMS. |
| 65536 | Charging not allowed | Charging not allowed has been sent by the communicating battery. |
| 131072 | Discharging not allowed | Discharging not allowed has been sent by the communicating battery. |

| Value | Label | Description |
|--------|--------------------------------|--|
| 262144 | SOC < SOC for end of discharge | The SOC is lower than the SOC for end of discharge. |
| 524288 | Abnormal measured voltage | An abnormal difference between the measured voltage of the devices has been detected. Please check the tightening of the cables between the devices and the battery. |

List of items of Enum 2 (Warnings)

| Value | Label | Description |
|-------|-------------------------------|--|
| 0 | No warnings | The battery has no warnings. |
| 1 | Overvoltage | A warning overvoltage has been detected. |
| 2 | Undervoltage | A warning undervoltage has been detected. |
| 4 | Charging overcurrent | A warning charging overcurrent has been detected. |
| 8 | Discharging overcurrent | A warning discharging overcurrent has been detected. |
| 16 | Charging overtemperature | A warning charging overtemperature has been detected. |
| 32 | Discharging overtemperature | A warning discharging overtemperature has been detected. |
| 64 | Charging undertemperature | A warning charging undertemperature has been detected. |
| 128 | Discharging undertemperature | A warning discharging undertemperature has been detected. |
| 256 | Contactors | The battery internal contactors might be damaged. Please contact the battery manufacturer for more details. |
| 512 | Short circuit | The BMS has detected a short circuit warning. |
| 1024 | BMS internal | The BMS has an internal warning. Please contact the battery manufacturer for more details. |
| 2048 | Cell imbalance | A voltage imbalance warning between cells has been detected. |
| 4096 | SMA general | An SMA general warning has been received. Please contact the battery manufacturer for more details. |
| 8192 | Charging recommended | Charging the battery is recommended. |
| 16384 | Discharging recommended | Discharging the battery is recommended. |
| 32768 | Full charging recommended | Charging the battery fully is recommended. |
| 65536 | Abnormal measured temperature | An abnormal difference between the measured temperature of the devices has been detected. Please check the temperature of the battery modules on which the sensors are placed. |

List of items of Enum 3 (ComInterface)

| Value | Label | Description |
|-------|-------------------|--|
| 0 | Not communicating | The battery is not communicating. |
| 1 | CAN | The battery is communicating via CAN. |
| 2 | RS-485 | The battery is communicating via RS-485. |

List of items of Enum 4 (CanProtocol)

| Value | Label | Description |
|-------|--------|--|
| 0 | Studer | The CAN protocol implemented with this battery is the Studer protocol. |
| 1 | SMA | The CAN protocol implemented with this battery is the SMA protocol. |

List of items of Enum 5 (Rs485Protocol)

| Value | Label | Description |
|-------|--------------|---------------|
| 0 | To implement | To implement. |

List of items of Enum 6 (ManufacturerName)

| Value | Label | Description |
|-------|-------------------|--|
| 26 | Aliant Battery | The manufacturer is : Aliant Battery. |
| 16 | Archimede Energia | The manufacturer is : Archimede Energia. |

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | AutarcTech | The manufacturer is : AutarcTech. |
| 1 | BlueNova | The manufacturer is : BlueNova. |
| 2 | BMZ | The manufacturer is : BMZ. |
| 3 | BYD | The manufacturer is : BYD. |
| 4 | Cegasa | The manufacturer is : Cegasa. |
| 5 | Cosun | The manufacturer is : Cosun. |
| 6 | Discover | The manufacturer is : Discover. |
| 17 | DLG | The manufacturer is : DLG. |
| 7 | FreedomWon | The manufacturer is : FreedomWon. |
| 18 | GS HUB | The manufacturer is : GS HUB. |
| 8 | IPS | The manufacturer is : IPS. |
| 19 | Midac | The manufacturer is : Midac. |
| 9 | Pallas | The manufacturer is : Pallas. |
| 10 | PowerTech | The manufacturer is : PowerTech. |
| 11 | Pylontech | The manufacturer is : Pylontech. |
| 20 | SolarMD | The manufacturer is : SolarMD. |
| 12 | Soltaro | The manufacturer is : Soltaro. |
| 21 | Sunlight | The manufacturer is : Sunlight. |
| 13 | SuperB (with BCI) | The manufacturer is : SuperB with battery communication interface (BCI). |
| 14 | TesVolt | The manufacturer is : TesVolt. |
| 24 | TWICE | The manufacturer is : TWICE. |
| 25 | UZ Energy | The manufacturer is : UZ Energy. |
| 23 | Vision mechatronics | The manufacturer is : Vision mechatronics. |
| 15 | Weco | The manufacturer is : Weco. |
| 22 | Zruipower | The manufacturer is : Zruipower. |
| 1000 | Orion BMS | The BMS manufacturer is : Orion BMS. |
| 1001 | REC BMS (model Q BMS 16S) | The BMS manufacturer is : REC. |
| 800 | Studer protocol 250kbps | Generic 250kbps Studer protocol used for tests. |
| 801 | Studer protocol 500kbps | Generic 500kbps Studer protocol used for tests. |

List of items of Enum 7 (Technology)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Flooded Lead Acid | The technology is : Flooded Lead Acid. |
| 1 | Absorbent Glass Mat (AGM) | The technology is : Absorbent Glass Mat (AGM). |
| 2 | Gel | The technology is : Gel. |

List of items of Enum 8 (ManagementOfEnergy)

| Value | Label | Description |
|-------|--------------------------|--|
| 0 | All conditions | All conditions are activated. |
| 1 | SOC for end of charge | SOC for end of charge condition is activated. Note that "SOC for grid feeding" (value 2) must be activated to activate this condition. |
| 2 | SOC for grid feeding | SOC for grid feeding condition is activated. |
| 4 | SOC for backup | SOC for backup condition is activated. |
| 32 | SOC for end of discharge | SOC for end of discharge condition is activated. Note that "SOC for backup" (value 4) must be activated to activate this condition. |
| 8 | Voltage for grid feeding | Voltage for grid feeding condition is activated. |
| 16 | Voltage for backup | Voltage for backup condition is activated. |

List of items of Enum 9 (ChargingRecoveryMode)

| Value | Label | Description |
|-------|--------------------------|--|
| 0 | Disabled | The charging recovery mode is disabled and not activatable. |
| 1 | Disabled and activatable | The charging recovery mode is disabled and can be enabled either if the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). Before activation, disconnect all the loads and ensure that the grid or genset is ready to charge the battery! |
| 2 | Enabled | The charging recovery mode is enabled. The inverters are allowed to run but only for charging the battery. The soc for backup is forced to 100%. The charging recovery mode is stopped once the battery has been recovered properly, if the signal "Stop charging recovery mode" (id 91) is sent, if the charge is prohibited by a battery warning/error or if the charging of the battery has failed (discharge current $\geq C/10$ during 2s, discharge current ≥ 0 during 120s). |

List of items of Enum 10 (UseAcSourceDuringPeriodicalChargeOrDischargeTransitions)

| Value | Label | Description |
|-------|------------------------------------|--|
| 0 | No | AC source is not used during periodical charge and periodical discharge transitions. |
| 1 | When entering periodical charge | AC source is used to charge the battery when periodical charge starts. |
| 2 | When leaving periodical charge | AC source is used to discharge the battery when periodical charge is over. |
| 4 | When entering periodical discharge | AC source is used to discharge the battery when periodical discharge starts. |
| 8 | When leaving periodical discharge | AC source is used to charge the battery when periodical discharge is over. |

List of items of Enum 11 (CmdEntryFunction)

| Value | Label | Description |
|-------|----------------------------------|--|
| 0 | Reduce charging current limit | Reduce the charging current limit to the value of "Value used when command entry is activated" (id 104) in [A] when the command entry is activated. |
| 1 | Reduce discharging current limit | Reduce the discharging current limit to the value of "Value used when command entry is activated" (id 104) in [A] when the command entry is activated. |
| 2 | SOC for end of charge | Set the SOC for end of charge to the value of "Value used when command entry is activated" (id 104) in [%] when the command entry is activated. |
| 3 | SOC for grid feeding | Set the SOC for grid feeding to the value of "Value used when command entry is activated" (id 104) in [%] when the command entry is activated. |
| 4 | SOC for backup | Set the SOC for backup to the value of "Value used when command entry is activated" (id 104) in [%] when the command entry is activated. |
| 5 | SOC for end of discharge | Set the SOC for end of discharge to the value of "Value used when command entry is activated" (id 104) in [%] when the command entry is activated. |
| 6 | Voltage for grid feeding | Set the voltage for grid feeding to the value of "Value used when command entry is activated" (id 104) in [V] when the command entry is activated. |
| 7 | Voltage for backup | Set the voltage for backup to the value of "Value used when command entry is activated" (id 104) in [V] when the command entry is activated. |

battery cycle

Group : Battery

Modbus device address : 2 to 6

External ID : 1.x.3.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|---------------|------|---------------|---|--------|------------|---------|
| 600 | 1 | Expert | 0 | Request floating | - | | - | Forces the battery cycle to go in "Floating phase" (value 2). | signal | W | - |
| 601 | 1 | Expert | 1 | Request reduced floating | - | | - | Forces the battery cycle to go in "Reduced floating phase" (value 1). This signal has no effect if "Reduced Floating" (id 5) is not enabled. | signal | W | - |
| 602 | 1 | Expert | 2 | Request absorption | - | | - | Forces the battery cycle to go in "Absorption phase" (value 4). This signal has no effect if "Absorption" (id 12) is not enabled. | signal | W | - |
| 603 | 1 | Expert | 3 | Request equalization | - | | - | Forces the battery cycle to go in "Equalization phase" (value 5). This signal has no effect if "Equalization" (id 22) is not enabled. | signal | W | - |
| 604 | 2 | Expert | 4 | Floating voltage | 0 | V | - | Battery target voltage in "Floating phase" (value 2). | float | R/W | - |
| 606 | 1 | Expert | 5 | Reduced Floating | false | | - | Enables "Reduced floating phase" (value 1). | bool | R/W | - |
| 607 | 2 | Expert | 6 | Reduced floating voltage | 0 | V | - | Battery target voltage in "Reduced floating phase" (value 1). | float | R/W | - |
| 609 | 2 | Expert | 7 | Time in floating before going in reduced floating | 0 | s | - | Time spent in "Floating phase" (value 2) before going in "Reduced floating phase" (value 1). "Reduced Floating" (id 5) must be enabled for the transition to happen. | uint | R/W | - |
| 611 | 1 | Expert | 8 | Periodical absorption | false | | - | Enables "Periodical absorption phase" (value 3). This property has no effect if "Reduced Floating" (id 5) is not enabled. | bool | R/W | - |
| 612 | 2 | Expert | 9 | Periodical absorption voltage | 0 | V | - | Battery target voltage in "Periodical absorption phase" (value 3). | float | R/W | - |
| 614 | 2 | Expert | 10 | Periodical absorption max duration | 0 | s | - | Sets "Periodical absorption phase" (value 3) max duration. Note that the duration can be lower than this value if "Absorption terminated by current" (id 19) is enabled or the duration can be higher than this value if the voltage is not maintained at "Periodical absorption voltage" (id 9). | uint | R/W | - |
| 616 | 2 | Expert | 11 | Time in reduced floating before going in periodical absorption | 0 | s | - | Time spent in "Reduced floating phase" (value 1) before going in "Periodical absorption phase" (value 3). "Periodical absorption" (id 8) must be enabled for the transition to happen. | uint | R/W | - |
| 618 | 1 | Expert | 12 | Absorption | false | | - | Enables "Absorption phase" (value 4). | bool | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---|--------------------------------------|------|---------------|--|----------|------------|---------|
| 619 | 2 | Expert | 13 | Absorption conditions | AbsorptionTriggeredByAllConditions | | - | Selects condition(s) to go in "Absorption phase" (value 4). These conditions have no effect if "Absorption" (id 12) is not enabled. | bitfield | R/W | 3 |
| 621 | 2 | Expert | 14 | Absorption voltage | 0 | V | - | Battery target voltage in "Absorption phase" (value 4). | float | R/W | - |
| 623 | 2 | Expert | 15 | Ahs discharged for asking absorption | 0 | Ah | - | "Absorption phase" (value 4) is started if the amp hours discharged since last absorption or periodical absorption is above this value, "Absorption triggered by Ahs" (value 1) in "Absorption conditions" (id 13) is set and "Absorption" (id 12) is enabled. | float | R/W | - |
| 625 | 2 | Expert | 16 | Voltage for asking absorption | 0 | V | - | "Absorption phase" (value 4) is started if the voltage is lower than this value for a duration greater than "Voltage duration before asking absorption" (id 17), "Absorption triggered by voltage" (value 4) in "Absorption conditions" (id 13) is set and "Absorption" (id 12) is enabled. | float | R/W | - |
| 627 | 2 | Expert | 17 | Voltage duration before asking absorption | 0 | s | - | "Absorption phase" (value 4) is started if the voltage is lower than "Voltage for asking absorption" (id 16) for a duration greater than this value, "Absorption triggered by voltage" (value 4) in "Absorption conditions" (id 13) is set and "Absorption" (id 12) is enabled. | uint | R/W | - |
| 629 | 2 | Expert | 18 | Absorption max duration | 0 | s | - | Sets "Absorption phase" (value 4) max duration. Note that the duration can be lower than this value if "Absorption terminated by current" (id 19) is enabled or the duration can be higher than this value if the voltage is not maintained at "Absorption voltage" (id 14). | uint | R/W | - |
| 631 | 1 | Expert | 19 | Absorption terminated by current | false | | - | Enables the function allowing to stop "Absorption phase" (value 4) or "Periodical absorption phase" (value 3) based on the battery charging current. | bool | R/W | - |
| 632 | 2 | Expert | 20 | Current to terminate absorption | 0 | A | - | "Absorption phase" (value 4) or "Periodical absorption phase" (value 3) are stopped if the "Absorption terminated by current" (id 19) is enabled and if the battery charging current is lower than this value at a battery voltage equal to "Absorption voltage" (id 14) in "Absorption phase" (value 4) or "Periodical absorption voltage" (id 9) in "Periodical absorption phase" (value 3). | float | R/W | - |
| 634 | 2 | Expert | 21 | Minimum time between absorptions | 0 | s | - | "Absorption phase" (value 4) can't be automatically started if the time since the end of the previous absorption or periodical absorption is smaller than this value. Note that this minimum waiting time is ignored if a signal is sent via "Request absorption" (id 2). | uint | R/W | - |
| 636 | 1 | Expert | 22 | Equalization | false | | - | Enables "Equalization phase" (value 5). | bool | R/W | - |
| 637 | 2 | Expert | 23 | Equalization conditions | EqualizationTriggeredByAllConditions | | - | Selects condition(s) to go in "Equalization phase" (value 5). These conditions have no effect if "Equalization" (id 22) is not enabled. | bitfield | R/W | 4 |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---|---------------------|------|---------------|--|----------|------------|---------|
| 639 | 2 | Expert | 24 | Equalization voltage | 0 | V | - | Battery target voltage in "Equalization phase" (value 5). | float | R/W | - |
| 641 | 2 | Expert | 25 | Time for asking equalization | 0 | s | - | "Equalization phase" (value 5) is started if the time since the last equalization is above this value, "Equalization triggered by period" (value 1) in "Equalization conditions" (id 23) is set and "Equalization" (id 22) is enabled. | uint | R/W | - |
| 643 | 2 | Expert | 26 | Ahs discharged for asking equalization | 0 | Ah | - | "Equalization phase" (value 5) is started if the amp hours discharged since the last equalization is above this value, "Equalization triggered by Ahs" (value 2) in "Equalization conditions" (id 23) is set and "Equalization" (id 22) is enabled. | float | R/W | - |
| 645 | 2 | Expert | 27 | Equalization duration | 0 | s | - | Sets "Equalization phase" (value 5) duration. Note that the duration can be higher than this value if the voltage is not maintained at "Equalization voltage" (id 24). | uint | R/W | - |
| 647 | 1 | Expert | 28 | Equalization after absorption | false | | - | Sets if "Equalization phase" (value 5) must be done after "Absorption phase" (value 4). | bool | R/W | - |
| 648 | 2 | Expert | 29 | Equalization current if equalization after absorption | 0 | A | - | Transition from "Absorption phase" (value 4) to "Equalization phase" (value 5) if the battery charging current is lower than this value at a battery voltage equal to "Equalization voltage" (id 24), "Equalization after absorption" (id 28) is set to true, at least one condition in "Equalization conditions" (id 23) is true and "Equalization" (id 22) is enabled. | float | R/W | - |
| 650 | 2 | ViewOnly | 30 | Phase | Floating | | - | Actual phase. | enum | R | 0 |
| 652 | 2 | Expert | 31 | Time spent in actual phase | 0 | s | - | Time spent in the actual phase. Note that the time is slow down if the battery voltage is lower than the target voltage in "Absorption phase" (value 4), "Periodical absorption phase" (value 3) or "Equalization phase" (value 5). | uint | R | - |
| 654 | 2 | Expert | 32 | Transition | NoTransition | | - | Used to indicate from which phase to which phase the battery cycle has jumped. | enum | R | 1 |
| 656 | 2 | Expert | 33 | Transition reasons | NoTransitionReasons | | - | Used to indicate the reason(s) of the transition. | bitfield | R | 2 |
| 658 | 2 | Expert | 34 | Remaining time before next absorption allowed | 0 | s | - | Stores the remaining time before "Absorption phase" (value 4) can be triggered by the condition(s) in "Absorption conditions" (id 13). The value is infinite if "Absorption" (id 12) is disabled. Note that "Absorption phase" (value 4) can be manually requested via "Request absorption" (id 2) even if this time is not 0. | uint | R | - |
| 660 | 2 | Expert | 35 | Remaining Ahs discharged before absorption triggered | 0 | Ah | - | Stores the remaining amp hours discharged before "Absorption phase" (value 4) is triggered. The value is infinite if "Absorption" (id 12) is disabled or "Absorption triggered by Ahs" (value 1) is not set. | float | R | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---|---------------|------|---------------|--|-------|------------|---------|
| 662 | 2 | Expert | 36 | Remaining time before absorption triggered by low SOC | 0 | s | - | Stores the remaining time before "Absorption phase" (value 4) is triggered by low SOC. The value is infinite if "Absorption" (id 12) is disabled, "Absorption triggered by SOC" (value 2) is not set or the SOC is greater than 80%. | uint | R | - |
| 664 | 2 | Expert | 37 | Remaining time before absorption triggered by voltage | 0 | s | - | Stores the remaining time before "Absorption phase" (value 4) is triggered by voltage. The value is infinite if "Absorption" (id 12) is disabled or "Absorption triggered by voltage" (value 4) is not set. | uint | R | - |
| 666 | 2 | Expert | 38 | Remaining time before equalization triggered by time period | 0 | s | - | Stores the remaining time before "Equalization phase" (value 5) is triggered by time period. The value is infinite if "Equalization" (id 22) is disabled or "Equalization triggered by period" (value 1) is not set. | uint | R | - |
| 668 | 2 | Expert | 39 | Remaining Ahs discharged before equalization triggered | 0 | Ah | - | Stores the remaining amp hours discharged before "Equalization phase" (value 5) is triggered. The value is infinite if "Equalization" (id 22) is disabled or "Equalization triggered by Ahs" (value 2) is not set. | float | R | - |
| 670 | 2 | Expert | 40 | Remaining time before equalization triggered by low SOC | 0 | s | - | Stores the remaining time before "Equalization phase" (value 5) is triggered by low SOC. The value is infinite if "Equalization" (id 22) is disabled, "Equalization triggered by SOC" (value 4) is not set or the SOC is greater than 80%. | uint | R | - |

List of items of Enum 0 (Phase)

| Value | Label | Description |
|-------|-----------------------------|------------------------------|
| 0 | Bulk phase | Bulk phase. |
| 1 | Reduced floating phase | Reduced floating phase. |
| 2 | Floating phase | Floating phase. |
| 3 | Periodical absorption phase | Periodical absorption phase. |
| 4 | Absorption phase | Absorption phase. |
| 5 | Equalization phase | Equalization phase. |

List of items of Enum 1 (Transition)

| Value | Label | Description |
|-------|---|--|
| 0 | No transition | For now, no transition has been detected. |
| 1 | Bulk to reduced floating | Transition from bulk to reduced floating. |
| 2 | Bulk to floating | Transition from bulk to floating. |
| 4 | Bulk to absorption | Transition from bulk to absorption. |
| 5 | Bulk to equalization | Transition from bulk to equalization. |
| 8 | Reduced floating to bulk | Transition from reduced floating to bulk. |
| 10 | Reduced floating to floating | Transition from reduced floating to floating. |
| 11 | Reduced floating to periodical absorption | Transition from reduced floating to periodical absorption. |
| 16 | Floating to bulk | Transition from floating to bulk. |

| Value | Label | Description |
|-------|---|--|
| 17 | Floating to reduced floating | Transition from floating to reduced floating. |
| 24 | Periodical absorption to bulk | Transition from periodical absorption to bulk. |
| 25 | Periodical absorption to reduced floating | Transition from periodical absorption to reduced floating. |
| 26 | Periodical absorption to floating | Transition from periodical absorption to floating. |
| 33 | Absorption to reduced floating | Transition from absorption to reduced floating. |
| 34 | Absorption to floating | Transition from absorption to floating. |
| 37 | Absorption to equalization | Transition from absorption to equalization. |
| 41 | Equalization to reduced floating | Transition from equalization to reduced floating. |
| 42 | Equalization to floating | Transition from equalization to floating. |
| 44 | Equalization to absorption | Transition from equalization to absorption. |

List of items of Enum 2 (TransitionReasons)

| Value | Label | Description |
|---------|---|--|
| 0 | No transition reasons | No transition reasons. |
| 1 | Floating requested | The reason of the transition is : floating requested. |
| 2 | Reduced floating requested | The reason of the transition is : reduced floating requested. |
| 4 | Absorption requested | The reason of the transition is : absorption requested. |
| 8 | Equalization requested | The reason of the transition is : equalization requested. |
| 16 | Reduced floating disabled | The reason of the transition is : reduced floating disabled. |
| 32 | Periodical absorption disabled | The reason of the transition is : periodical absorption disabled. |
| 64 | Period for periodical absorption reached | The reason of the transition is : period for periodical absorption reached. |
| 128 | Waiting duration in floating reached | The reason of the transition is : waiting duration in floating reached. |
| 256 | First absorption after reset | The reason of the transition is : first absorption after reset. |
| 512 | Absorption Ahs discharged reached | The reason of the transition is : absorption Ahs discharged reached. |
| 1024 | Absorption low SOC reached | The reason of the transition is : absorption low SOC reached. |
| 2048 | Absorption disabled | The reason of the transition is : absorption disabled. |
| 4096 | Absorption max. duration reached | The reason of the transition is : absorption max. duration reached. |
| 8192 | Periodical absorption max. duration reached | The reason of the transition is : periodical absorption max. duration reached. |
| 16384 | Absorption terminated by current | The reason of the transition is : absorption terminated by current. |
| 32768 | Current lower than equalization current | The reason of the transition is : current lower than equalization current. |
| 65536 | Equalization time period reached | The reason of the transition is : equalization time period reached. |
| 131072 | Equalization Ahs discharged reached | The reason of the transition is : equalization Ahs discharged reached. |
| 262144 | Equalization low SOC reached | The reason of the transition is : equalization low SOC reached. |
| 524288 | Equalization disabled | The reason of the transition is : equalization disabled. |
| 1048576 | Equalization duration reached | The reason of the transition is : equalization duration reached. |
| 2097152 | Absorption and Equalization not desired anymore | The reason of the transition is : absorption and Equalization not desired anymore. |
| 4194304 | Absorption low voltage duration reached | The reason of the transition is : absorption low voltage duration reached. |

List of items of Enum 3 (AbsorptionConditions)

| Value | Label | Description |
|-------|--|---|
| 0 | Absorption triggered by all conditions | "Absorption phase" (value 4) is triggered by all the following conditions. |
| 1 | Absorption triggered by Ahs | "Absorption phase" (value 4) is triggered if the amp hours discharged since the last absorption or periodical absorption are greater than "Ahs discharged for asking absorption" (id 15). Note that the amp hours discharged are incremented only if the discharging current is greater than C/100. |
| 2 | Absorption triggered by SOC | "Absorption phase" (value 4) is triggered based on the SOC algorithm (look at the manual for more informations). The algorithm is reset at the end of "Absorption phase" (value 4) or "Periodical absorption phase" (value 3). |

| Value | Label | Description |
|-------|---------------------------------|---|
| 4 | Absorption triggered by voltage | "Absorption phase" (value 4) is triggered if the voltage is lower than "Voltage for asking absorption" (id 16) for a duration greater than "Voltage duration before asking absorption" (id 17). |

List of items of Enum 4 (EqualizationConditions)

| Value | Label | Description |
|-------|--|--|
| 0 | Equalization triggered by all conditions | "Equalization phase" (value 5) is triggered by all the following conditions. |
| 1 | Equalization triggered by period | "Equalization phase" (value 5) is triggered if the time since last equalization is greater than "Time for asking equalization" (id 25). |
| 2 | Equalization triggered by Ahs | "Equalization phase" (value 5) is triggered if the amp hours discharged since the last equalization are greater than "Ahs discharged for asking equalization" (id 26). Note that the amp hours discharged are incremented only if the discharging current is greater than C/100. |
| 4 | Equalization triggered by SOC | "Equalization phase" (value 5) is triggered based on the SOC algorithm (look at the manual for more informations). The algorithm is reset at the end of "Equalization phase" (value 5). |

battery protection

Group : Battery

Modbus device address : 2 to 6

External ID : 1.x.4.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|-------|------------|---------|
| 900 | 2 | Expert | 0 | Undervoltage at rest | 0 | V | - | If the battery voltage is below this value when no current is flowing, warning : "Undervoltage" (value 2) is raised and if the warning is maintained for more than "Undervoltage delay before error" (id 2) seconds, error : "Undervoltage" (value 2) is raised. | float | R/W | - |
| 902 | 2 | Expert | 1 | Undervoltage at C/5 | 0 | V | - | If the battery voltage is below this value when C/5 amp is flowing, warning : "Undervoltage" (value 2) is raised and if the warning is maintained for more than "Undervoltage delay before error" (id 2) seconds, error : "Undervoltage" (value 2) is raised. | float | R/W | - |
| 904 | 2 | Expert | 2 | Undervoltage delay before error | 0 | s | [0, 3600] | Error : "Undervoltage" (value 2) is raised once the duration with warning : "Undervoltage" (value 2) reaches this value. | uint | R/W | - |
| 906 | 2 | Expert | 3 | Time for clearing UV cnt | 0 | s | [0, 3000] | The "Undervoltage cnt" (id 20) is reset once the time since the first undervoltage occurred is greater than this value and if automatic restart is not prohibited. | uint | R/W | - |
| 908 | 2 | Expert | 4 | UV nbr for perm. stop | 1 | | [1, 20] | Automatic restart is prohibited if the "Undervoltage cnt" (id 20) reaches this value. | uint | R/W | - |
| 910 | 2 | Expert | 5 | Time for clearing critical UV cnt | 0 | s | [0, 3000] | The "Critical undervoltage cnt" (id 21) is reset once the time since the first critical undervoltage occurred is greater than this value and if automatic restart is not prohibited. | uint | R/W | - |
| 912 | 2 | Expert | 6 | Critical UV nbr for perm. stop | 1 | | [1, 20] | Automatic restart is prohibited if the "Critical undervoltage cnt" (id 21) reaches this value. | uint | R/W | - |
| 914 | 2 | Expert | 7 | Voltage for clearing undervoltage | 0 | V | - | If the battery voltage is above this value, warning : "Undervoltage" (value 2) is cleared and if an automatic restart is allowed, error : "Undervoltage" (value 2) is cleared. Automatic restart is allowed if "Undervoltage cnt" (id 20) is smaller than "UV nbr for perm. stop" (id 4) and "Critical undervoltage cnt" (id 21) is smaller than "Critical UV nbr for perm. stop" (id 6). | float | R/W | - |
| 916 | 1 | Expert | 8 | BLO | false | | - | Enables the BLO (Battery Lifetime Optimizer) algorithm. | bool | R/W | - |
| 917 | 2 | Expert | 9 | BLO increment step | 0 | V | - | At each shut down by undervoltage, the undervoltage threshold is increased by this value. | float | R/W | - |
| 919 | 2 | Expert | 10 | BLO max voltage | 0 | V | - | The undervoltage threshold is increased at each shut down by undervoltage, but never higher than this value. | float | R/W | - |
| 921 | 2 | Expert | 11 | BLO reset voltage | 0 | V | - | The battery undervoltage threshold returns to its original value if the battery voltage reaches this value. | float | R/W | - |
| 923 | 2 | Expert | 12 | Overvoltage | 0 | V | - | If the battery voltage is above this value, warning : "Overvoltage" (value 1) is raised and if the warning is maintained for more than 2s, error : "Overvoltage" (value 1) is raised. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|---------------|------|---------------|--|-------|------------|---------|
| 925 | 2 | Expert | 13 | High temp for warning | 0 | °C | [-100, 100] | If the battery temperature is above this value, warnings : "Charging overtemperature" (value 16) and "Discharging overtemperature" (value 32) are raised and a current derating is applied. | float | R/W | - |
| 927 | 2 | Expert | 14 | High temp for error | 0 | °C | [-100, 100] | If the battery temperature is above this value, errors "Charging overtemperature" (value 16) and "Discharging overtemperature" (value 32) are raised and no current flow is allowed. | float | R/W | - |
| 929 | 2 | Expert | 15 | Low temp for warning | 0 | °C | [-100, 100] | If the battery temperature is below this value, warnings : "Charging undertemperature" (value 64) and "Discharging undertemperature" (value 128) are raised and a current derating is applied. | float | R/W | - |
| 931 | 2 | Expert | 16 | Low temp for error | 0 | °C | [-100, 100] | If the battery temperature is below this value, errors : "Charging undertemperature" (value 64) and "Discharging undertemperature" (value 128) are raised and no current flow is allowed. | float | R/W | - |
| 933 | 2 | Expert | 17 | Overcurrent | 0 | A | [0, 1e9] | If the battery charging/discharging current is above this value, warning : "Charging overcurrent" (value 4)/"Discharging overcurrent" (value 8) is raised and if the warning is maintained for more than 2s, error : "Charging overcurrent" (value 4)/"Discharging overcurrent" (value 8) is raised. | float | R/W | - |
| 935 | 2 | Expert | 18 | Undervoltage at rest with BLO | 0 | V | - | The undervoltage threshold when no current is flowing. Note that this value can be different from "Undervoltage at rest" (id 0) when the BLO is activated. | float | R | - |
| 937 | 2 | Expert | 19 | Undervoltage at C/5 with BLO | 0 | V | - | The undervoltage threshold when C/5 amp is flowing. Note that this value can be different from "Undervoltage at C/5" (id 1) when the BLO is activated. | float | R | - |
| 939 | 2 | Expert | 20 | Undervoltage cnt | 0 | | - | Undervoltage counter value. The counter is reset if "UV nbr for perm. stop" (id 4) is not reached and if the time since the first undervoltage occurred is greather than "Time for clearing UV cnt" (id 3). | uint | R | - |
| 941 | 2 | Expert | 21 | Critical undervoltage cnt | 0 | | - | Critical undervoltage counter value. The counter is reset if "Critical UV nbr for perm. stop" (id 6) is not reached and if the time since the first critical undervoltage occurred is greather than "Time for clearing critical UV cnt" (id 5). | uint | R | - |

SOC estimator

Group : Battery

Modbus device address : 2 to 6

External ID : 1.x.5.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|-------------|---------------|--|--------|------------|---------|
| 1226 | 2 | Expert | 13 | Peukert's exponent | 0 | | [1, 2] | Used to take into account the fact that the capacity goes down when the discharge current increases. | float | R/W | - |
| 1228 | 2 | Expert | 14 | Self-discharge rate | 0 | %Cnom/month | [0, 100] | A battery gets discharged over time even when no current is consumed. This property allows to take this phenomenon into account. | float | R/W | - |
| 1230 | 1 | Expert | 15 | End of charge synchronization | false | | - | This property activates the function of synchronization at 100 % of SOC under certain conditions of end of charge. The synchronization occurs if the voltage is above "End of charge voltage level" (id 16) and if the current is below "End of charge current level" (id 17) and this during a period defined by "Minimum time before end of charge" (id 18). | bool | R/W | - |
| 1231 | 2 | Expert | 16 | End of charge voltage level | 0 | V | - | See explanation of "End of charge synchronization" (id 15). | float | R/W | - |
| 1233 | 2 | Expert | 17 | End of charge current level | 0 | A | - | See explanation of "End of charge synchronization" (id 15). | float | R/W | - |
| 1235 | 2 | Expert | 18 | Minimum time before end of charge | 0 | s | - | See explanation of "End of charge synchronization" (id 15). | uint | R/W | - |
| 1237 | 1 | Expert | 19 | Reset SOC | - | | - | the SOC is reset to the value "Desired SOC value" (id 20) if this signal is sent. | signal | W | - |
| 1238 | 2 | Expert | 20 | Desired SOC value | 100 | % | [0, 100] | Value at which the SOC is reset if the signal "Reset SOC" (id 19) is sent. | float | R/W | - |
| 1240 | 1 | Expert | 21 | Configured as simple counter | false | | - | If true, the algorithm works as a simple coulomb counter. Note that "Self-discharge rate" (id 14) and "End of charge synchronization" (id 15) can also be used in this mode. | bool | R/W | - |

3-phase measure

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.1.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|--------|---------------|---|---------|------------|---------|
| 0 | 2 | ViewOnly | 0 | Frequency | 0 | Hz | - | Frequency measured. | float | R | - |
| 2 | 2 | ViewOnly | 4 | Line voltage L1-L2 | 0 | V | - | Line voltage L1-L2 measured. | float | R | - |
| 4 | 2 | ViewOnly | 8 | Line voltage L2-L3 | 0 | V | - | Line voltage L2-L3 measured. | float | R | - |
| 6 | 2 | ViewOnly | 12 | Line voltage L3-L1 | 0 | V | - | Line voltage L3-L1 measured. | float | R | - |
| 8 | 2 | ViewOnly | 16 | Total active power | 0 | W | - | Total active power measured. | float | R | - |
| 10 | 2 | ViewOnly | 20 | Total apparent power | 0 | VA | - | Total apparent power measured. | float | R | - |
| 12 | 2 | ViewOnly | 24 | Angle L2 relative to L1 | 0 | degree | - | Angle L2 relative to L1 measured. | float | R | - |
| 14 | 2 | ViewOnly | 25 | Angle L3 relative to L1 | 0 | degree | - | Angle L3 relative to L1 measured. | float | R | - |
| 16 | 2 | ViewOnly | 26 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 18 | 2 | ViewOnly | 27 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 20 | 4 | ViewOnly | 28 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 24 | 4 | ViewOnly | 29 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 28 | 2 | ViewOnly | 30 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 30 | 2 | ViewOnly | 31 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 32 | 4 | ViewOnly | 32 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 36 | 4 | ViewOnly | 33 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |
| 40 | 2 | ViewOnly | 34 | Day runtime | 0 | h | - | Day runtime measured. | float | R | - |
| 42 | 2 | ViewOnly | 35 | Total runtime | 0 | h | - | Total runtime measured. | float | R | - |
| 44 | 2 | ViewOnly | 36 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 46 | 2 | ViewOnly | 37 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 48 | 2 | ViewOnly | 38 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 50 | 2 | ViewOnly | 39 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 52 | 2 | ViewOnly | 40 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 54 | 2 | ViewOnly | 41 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 56 | 2 | ViewOnly | 42 | Produced active power | 0 | W | - | Produced active power measured. | float | R | - |
| 58 | 2 | ViewOnly | 44 | Consumed active power | 0 | W | - | Consumed active power measured. | float | R | - |

measure L1

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.2.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 300 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 302 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 304 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 306 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 308 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 310 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 312 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 314 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 316 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 318 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 320 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 322 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 328 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 330 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 332 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 336 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 340 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 342 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 344 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 348 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

measure L2

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.3.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 600 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 602 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 604 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 606 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 608 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 610 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 612 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 614 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 616 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 618 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 620 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 622 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 628 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 630 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 632 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 636 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 640 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 642 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 644 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 648 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

measure L3

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.4.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 900 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 902 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 904 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 906 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 908 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 910 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 912 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 914 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 916 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 918 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 920 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 922 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 928 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 930 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 932 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 936 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 940 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 942 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 944 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 948 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

3-phase input config

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.5.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------------------|----|---|---------------|------|---------------|--|-------|------------|---------|
| 1203 | 2 | R:ViewOnly W:Studer | 2 | Type | TypeNone | | - | Type | enum | R/W | 0 |
| 1205 | 2 | Expert | 3 | Grid code | GridCodeNone | | - | Grid code | enum | R/W | 1 |
| 1207 | 1 | Basic | 4 | Connection allowed | true | | - | Used to allowed or not the connection to the source. | bool | R/W | - |
| 1208 | 1 | Basic | 5 | Grid-feeding allowed | true | | - | Used to allowed or not the grid-feeding. | bool | R/W | - |
| 1209 | 2 | Expert | 6 | Rated current | 32 | A | [6,80] | Rated current (minimum value of circuit breaker nominal current and grid/genset nominal current). | float | R/W | - |
| 1211 | 2 | Expert | 7 | Relative angle tolerance | 15 | ° | [5,60] | Tolerance of the relative angle inbetween phases | float | R/W | - |
| 1213 | 1 | Basic | 8 | Allow individual phase connection | true | | - | Allow individual phase connection. If false, connect only when all phases meets required conditions. | bool | R/W | - |
| 1214 | 2 | Expert | 9 | Min. discon. time before new connection | 3 | s | [0.5,5] | Minimum disconnected time before allowing a new connection. | float | R/W | - |
| 1216 | 1 | Expert | 10 | Activate inertial smoothing | false | | - | Activate transient smoothing. When severe power consumption variations occur, this can cause severe voltage and frequency fluctuation of gensets. This feature help to reduce such fluctuations. | bool | R/W | - |
| 1217 | 1 | Expert | 11 | Compensate load DC current | false | | - | Compensation of the AcLoad d.c. current | bool | R/W | - |
| 1220 | 1 | Expert | 13 | Fast envelope detection | false | | - | Enable fast loss detection based on a the comparisson of instantaneous voltage and a sinusoidal envelope. | bool | R/W | - |
| 1221 | 2 | Expert | 14 | Envelope tolerance | 20 | % | [5,60] | Size of the envelope for the fast loss detection. | float | R/W | - |
| 1224 | 2 | Expert | 16 | Anti-islanding detection level | 0.5 | % | [0.001,20] | Anti-islanding detection level used by the "vector shift" method. | float | R/W | - |
| 1226 | 2 | Expert | 17 | Anti-islanding frequency | 13 | Hz | [6,30] | Anti-islanding frequency used by the "vector shift" method. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|--|-------|------------|---------|
| 1228 | 2 | Expert | 18 | Anti-islanding perturb. amplitude | 10 | % | [0,20] | Anti-islanding perturbation amplitude used by the "vector shift" method. | float | R/W | - |
| 1230 | 2 | Expert | 19 | Anti-islanding min. amplitude | 4 | % | [0,10] | Anti-islanding minimal amplitude used by the "vector shift" method. | float | R/W | - |
| 1235 | 2 | Expert | 22 | Over-voltage curve U1 | 125 | % | [105,135] | P1 voltage of OV curve. EN 50549-1 chapter 4.5.4. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1237 | 2 | Expert | 23 | Over-voltage curve T1 | 0.1 | s | [0.1,2] | P1 time of OV curve. EN 50549-1 chapter 4.5.4. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1239 | 2 | Expert | 24 | Over-voltage curve U2 | 120 | % | [105,135] | P2 voltage of OV curve. EN 50549-1 chapter 4.5.4. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1241 | 2 | Expert | 25 | Over-voltage curve T2 | 5 | s | [0.5,60] | P2 time of OV curve. EN 50549-1 chapter 4.5.4. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1243 | 2 | Expert | 26 | Over-voltage curve U3 | 115 | % | [105,135] | P3 voltage of OV curve. EN 50549-1 chapter 4.5.4. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1245 | 2 | Expert | 27 | Over-voltage curve T3 | 60 | s | [1,120] | P3 time of OV curve. EN 50549-1 chapter 4.5.4. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1247 | 2 | Expert | 28 | Max. voltage fault onset | 115 | % | [105,120] | Maximum voltage for fault onset. EN 50549-1 chapter 4.5.4. | float | R/W | - |
| 1249 | 2 | Expert | 29 | Max. permanent voltage | 110 | % | [105,120] | Maximum permanent voltage. EN 50549-1 chapter 4.4.4. | float | R/W | - |
| 1251 | 2 | Expert | 30 | Min. permanent voltage | 85 | % | [30,95] | Minimum permanent voltage. EN 50549-1 chapter 4.4.4. | float | R/W | - |
| 1253 | 2 | Expert | 31 | Min. voltage fault onset | 85 | % | [10,95] | Minimum voltage for fault onset. EN 50549-1 chapter 4.5.3.2. | float | R/W | - |
| 1255 | 2 | Expert | 32 | Under-voltage curve T2 | 1.5 | s | [0.5,20] | P2 time of UV curve. EN 50549-1 chapter 4.5.3.2. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1257 | 2 | Expert | 33 | Under-voltage curve U1 | 15 | % | [3,90] | P1 voltage of UV curve. EN 50549-1 chapter 4.5.3.2. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1259 | 2 | Expert | 34 | Under-voltage curve T1 | 0.2 | s | [0.1,2] | P1 time of UV curve. EN 50549-1 chapter 4.5.3.2. VDE-AR-N 4105 chapter 5.7.3.2. | float | R/W | - |
| 1261 | 1 | Expert | 35 | Zero current mode | false | - | - | Zero current mode. EN 50549-1 chapter 4.7.4.2.2. VDE-AR-N chapter 5.7.3.1. | bool | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|-------|------------|---------|
| 1262 | 2 | Expert | 36 | OVRT or ZCM over-volt. threshold | 120 | % | [100,120] | Static voltage range overvoltage for zero current mode. EN 50549-1 chapter 4.7.4.2.2. Behaviour during fault (OVRT) according to VDE AR N 4105 chapter 5.7.3.1. | float | R/W | - |
| 1264 | 2 | Expert | 37 | UVRT or ZCM under-volt. threshold | 50 | % | [20,100] | Static voltage range undervoltage for zero current mode. EN 50549-1 chapter 4.7.4.2.2. Behaviour during fault (UVRT) according to VDE AR N 4105 chapter 5.7.3.1. | float | R/W | - |
| 1266 | 2 | Expert | 38 | Threshold frequency for OF | 0.2 | Hz | [0.1,10] | Threshold frequency (relative to "Nominal frequency" (id 22)) of frequency-dependant active power during over-frequency situation. Use a huge value to disable the feature. EN 50549-1 chapter 4.6.1. VDE-AR-N 4105 chapter 5.7.4.2.3 figure15. AS/NZS 4777.2 section 4.5.3.3 (f ULCO, upper limit of the continuous operation range for frequency). | float | R/W | - |
| 1268 | 2 | Expert | 39 | Statism for over-frequency | 5 | % | [2,12] | Static value of frequency-dependant active power during over-frequency situation. EN 50549-1 chapter 4.6.1. VDE-AR-N 4105 chapter 5.7.4.2.3 figure15. | float | R/W | - |
| 1270 | 2 | Expert | 40 | Intensional delay for over-freq. | 0 | s | [0,2] | Intentional delay before activation of the function of active power adjustment at over-frequency. EN 50549-1 chapter 4.6.1. | float | R/W | - |
| 1272 | 2 | Expert | 41 | Disabling threshold freq. for OF | 2 | Hz | [0,10] | Disabling threshold frequency fstop (relative to "Nominal frequency" (id 22)) of frequency-dependant active power during over-frequency situation. Disabled if value is greater or equal than "Threshold frequency for OF" (id 38). EN 50549-1 chapter 4.6.1. AS/NZS 4777.2 section 4.5.3.1 (f ULCO - f hyst, frequency for returning to continuous operation). | float | R/W | - |
| 1274 | 2 | Expert | 42 | Disabling delay for over-freq. | 0 | s | [0,600] | Disabling delay (tstop) of frequency-dependant active power during over-frequency situation. EN 50549-1 chapter 4.6.1. AS/NZS 4777.2 section 4.5.3.3. | float | R/W | - |
| 1276 | 2 | Expert | 43 | Pref for over-frequency | Pmax | | - | Power reference of frequency-dependant active power during over-frequency situation. EN 50549-1 chapter 4.6.1 | enum | R/W | 4 |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|-------------------------|------|---------------|--|-------|------------|---------|
| 1278 | 2 | Expert | 44 | Threshold frequency for UF | -0.2 | Hz | [-10,-0.1] | Threshold frequency (relative to "Nominal frequency" (id 22)) of frequency-dependant active power during under-frequency situation. Use a small value to disable the feature. EN 50549-1 chapter 4.6.2. VDE-AR-N 4105 chapter 5.7.4.2.3 figure15. AS/NZS 4777.2 section 4.5.3.2 (f LLCO, lower limit of the continuous operation range for frequency). | float | R/W | - |
| 1280 | 2 | Expert | 45 | Statism for under-freq. | 2 | % | [2,12] | Static value of frequency-dependant active power during under-frequency situation. EN 50549-1 chapter 4.6.2. VDE-AR-N 4105 chapter 5.7.4.2.3 figure15. | float | R/W | - |
| 1282 | 2 | Expert | 46 | Intensional delay for under-freq. | 0 | s | [0,2] | Intentional delay before activation of the function of active power adjustmen at under-frequency. EN 50549-1 chapter 4.6.2. | float | R/W | - |
| 1284 | 2 | Expert | 47 | Pref for under-freq. | Pmax | | - | Power reference of frequency-dependant active power during under-frequency situation. EN 50549-1 chapter 4.6.2 | enum | R/W | 4 |
| 1286 | 2 | Expert | 48 | Over-excited cos(φ) capacity | 0.6 | | [0,1] | Over-excited displacement factor minimal capacity. EN 50549-1 chapter 4.7.2.2. VDE-AR-N 4105 chapter 5.7.2.2.2 and 5.7.2.3. AS/NZS 4777.2 section 2.6 | float | R/W | - |
| 1288 | 2 | Expert | 49 | Under-excited cos(φ) capacity | 0.6 | | [0,1] | Under-excited displacement factor minimal capacity. EN 50549-1 chapter 4.7.2.2. VDE-AR-N 4105 chapter 5.7.2.2.2. AS/NZS 4777.2 section 2.6 | float | R/W | - |
| 1290 | 2 | Expert | 50 | Reactive power method | ReactivePowerMethodNone | | - | Reactive power method. EN 50549-1 chapter 4.7.2.3. VDE-AR-N 4105 chapter 5.7.2.4. | enum | R/W | 2 |
| 1292 | 2 | Expert | 51 | Reactive power setpoint | 0 | % | [-60,60] | Produced reactive power setpoint, percentage of rated active power. Negative value for a consumed reactive power. EN 50549-1 chapter 4.7.2.3.2. VDE-AR-N 4105 chapter 5.7.2.5 | float | R/W | - |
| 1294 | 2 | Expert | 52 | cos(φ) setpoint | 1 | | [0.7,1] | Displacement factor cos(φ) setpoint. EN-50549-1 chapter 4.7.2.3.2. VDE-AR-N 4105 chapter 5.7.2.4 Re:c) | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------|---------------|------|---------------|--|-------|------------|---------|
| 1296 | 2 | Expert | 53 | Reactive power direction | UnderExcited | | - | Reactive power direction (over-excited or under-excited) for displacement factor and reactive power setpoints. EN 50549-1 chapter 4.7.2.3.2. VDE-AR-N 4105 chapter 5.7.2.4 Re:c) | enum | R/W | 3 |
| 1298 | 2 | Expert | 54 | Reactive power curve Q1 | 100 | % | [0,100] | Point 1 ordinate, produced normalised reactive power of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a). AS/NZS 4777.2 section 3.3.2.3 | float | R/W | - |
| 1300 | 2 | Expert | 55 | Reactive power curve Q2 | 0 | % | [0,100] | Point 2 ordinate, produced normalised reactive power of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a). AS/NZS 4777.2 section 3.3.2.3 | float | R/W | - |
| 1302 | 2 | Expert | 56 | Reactive power curve Q3 | 0 | % | [-100,0] | Point 3 ordinate, produced normalised reactive power of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a). AS/NZS 4777.2 section 3.3.2.3 | float | R/W | - |
| 1304 | 2 | Expert | 57 | Reactive power curve Q4 | -100 | % | [-100,0] | Point 4 ordinate, produced normalised reactive power of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a). AS/NZS 4777.2 section 3.3.2.3 | float | R/W | - |
| 1306 | 2 | Expert | 58 | Reactive power curve U1 | 93 | % | [50,100] | Point 1 abscissa, normalised voltage of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a) | float | R/W | - |
| 1308 | 2 | Expert | 59 | Reactive power curve U2 | 97 | % | [50,100] | Point 2 abscissa, normalised voltage of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a) | float | R/W | - |
| 1310 | 2 | Expert | 60 | Reactive power curve U3 | 103 | % | [100,120] | Point 3 abscissa, normalised voltage of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a) | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------------------|---------------|------|---------------|---|-------|------------|---------|
| 1312 | 2 | Expert | 61 | Reactive power curve U4 | 107 | % | [100,120] | Point 4 abscissa, normalised voltage of Q(U) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re: a) | float | R/W | - |
| 1314 | 2 | Expert | 62 | React. pow. control time behaviour | 10 | s | [0.1,180] | Time behaviour of reactive power control (3 Tau of PT-1). EN 50549-1 chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.5 figure10. AS/NZS 4777.2 section 3.3.2.1 | float | R/W | - |
| 1316 | 2 | Expert | 63 | React. pow. control cos(φ) min. | 0.9 | | [0,1] | Minimum displacement factor in Q(U) mode. EN50549-1 chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.5. AS/NZS 4777.2 section 2.6 | float | R/W | - |
| 1318 | 2 | Expert | 64 | React. pow. control lock-in P | 20 | % | [0,20] | Lock-in active power in Q(U) mode, percentage of rated active power. EN 50549-1 chapter 4.7.2.3.3. VDE-AR-N 4108 chapter 5.7.2.5. | float | R/W | - |
| 1320 | 2 | Expert | 65 | React. pow. control lock-out P | 15 | % | [0,20] | Lock-out active power in Q(U) mode, percentage of rated active power. EN 50549-1 chapter 4.7.2.3.3. VDE-AR-N 4108 chapter 5.7.2.5. | float | R/W | - |
| 1322 | 2 | Expert | 66 | React. pow. curve cos(φ) OE1 | 1 | | [0.7,1] | Point 1 ordinate, over-excited displacement factor of cos(φ)=f(P) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1324 | 2 | Expert | 67 | React. pow. curve cos(φ) OE2 | 1 | | [0.7,1] | Point 2 ordinate, over-excited displacement factor of cos(φ)=f(P) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1326 | 2 | Expert | 68 | React. pow. curve cos(φ) UE3 | 1 | | [0.7,1] | Point 3 ordinate, under-excited displacement factor of cos(φ)=f(P) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1328 | 2 | Expert | 69 | React. pow. curve cos(φ) UE4 | 0.9 | | [0.7,1] | Point 4 ordinate, under-excited displacement factor of cos(φ)=f(P) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1330 | 2 | Expert | 70 | Reactive power curve P1 | 0 | % | [0,100] | Point 1 abscissa, normalised produced active power of cos(φ)=f(P) reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------------------------|---------------|------|---------------|---|-------|------------|---------|
| 1332 | 2 | Expert | 71 | Reactive power curve P2 | 0 | % | [0,100] | Point 2 abscissa, normalised produced active power of $\cos(\varphi)=f(P)$ reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1334 | 2 | Expert | 72 | Reactive power curve P3 | 20 | % | [0,100] | Point 3 abscissa, normalised produced active power of $\cos(\varphi)=f(P)$ reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1336 | 2 | Expert | 73 | Reactive power curve P4 | 50 | % | [0,100] | Point 4 abscissa, normalised produced active power of $\cos(\varphi)=f(P)$ reactive power characteristic curve. EN 50549-1 figure 16, chapter 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re: b) | float | R/W | - |
| 1338 | 2 | Expert | 74 | Over-volt. threshold stage 2 | 120 | % | [100,130] | Overvoltage threshold stage 2 [59 >>] of overvoltage protection. EN 50549-1 chapter 4.9.3.3. | float | R/W | - |
| 1340 | 2 | Expert | 75 | Over-volt. operate time stage 2 | 0.1 | s | [0,180] | Overvoltage operate time stage 2 [59 >>] of overvoltage protection. EN 50549-1 chapter 4.9.3.3. | float | R/W | - |
| 1342 | 2 | Expert | 76 | Over-volt. threshold stage 1 | 115 | % | [100,120] | Overvoltage threshold stage 1 [59 >] of overvoltage protection. EN 50549-1 chapter 4.9.3.3. | float | R/W | - |
| 1344 | 2 | Expert | 77 | Over-volt. operate time stage 1 | 0.5 | s | [0,180] | Overvoltage operate time stage 1 [59 >] of overvoltage protection. EN 50549-1 chapter 4.9.3.3. | float | R/W | - |
| 1346 | 2 | Expert | 78 | Over-volt. threshold 10min mean | 110 | % | [100,120] | Overvoltage threshold 10 min mean protection. EN 50549-1 chapter 4.9.3.4. | float | R/W | - |
| 1348 | 2 | Expert | 79 | Under-volt. threshold stage 1 | 60 | % | [10,100] | Undervoltage threshold stage 1 [27 <] of undervoltage protection. EN 50549-1 chapter 4.9.3.2. | float | R/W | - |
| 1350 | 2 | Expert | 80 | Under-volt. operate time stage 1 | 0.5 | s | [0,180] | Undervoltage operate time stage 1 [27 <] of undervoltage protection. EN 50549-1 chapter 4.9.3.2. | float | R/W | - |
| 1352 | 2 | Expert | 81 | Under-volt. threshold stage 2 | 80 | % | [10,100] | Undervoltage threshold stage 2 [27 <<] of undervoltage protection. EN 50549-1 chapter 4.9.3.2. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------------------|---------------|------|---------------|---|-------|------------|---------|
| 1354 | 2 | Expert | 82 | Under-volt. operate time stage 2 | 0.1 | s | [0,180] | Undervoltage operate time stage 12[27 <<] of undervoltage protection. EN 50549-1 chapter 4.9.3.2. | float | R/W | - |
| 1358 | 2 | Expert | 84 | Over-freq. threshold stage 1 | 1 | Hz | [0,10] | Overfrequency threshold (relative to "Nominal frequency" (id 22)) stage 1 [81 >] of overfrequency protection. EN 50549-1 chapter 4.9.3.6. | float | R/W | - |
| 1360 | 2 | Expert | 85 | Over-freq. operate time stage 1 | 1 | s | [0,100] | Overfrequency operate time stage 1 [81 >] of overfrequency protection. EN 50549-1 chapter 4.9.3.6. | float | R/W | - |
| 1362 | 2 | Expert | 86 | Over-freq. threshold stage 2 | 2 | Hz | [0,10] | Overfrequency threshold (relative to "Nominal frequency" (id 22)) stage 2 [81 >>] of overfrequency protection. EN 50549-1 chapter 4.9.3.6. | float | R/W | - |
| 1364 | 2 | Expert | 87 | Over-freq. operate time stage 2 | 0.5 | s | [0,5] | Overfrequency operate time stage 2 [81 >>] of overfrequency protection. EN 50549-1 chapter 4.9.3.6. | float | R/W | - |
| 1366 | 2 | Expert | 88 | Under-freq. threshold stage 2 | -3 | Hz | [-10,0] | Underfrequency threshold (relative to "Nominal frequency" (id 22)) stage 2 [81 <<] of underfrequency protection. EN 50549-1 chapter 4.9.3.5. | float | R/W | - |
| 1368 | 2 | Expert | 89 | Under-freq. operate time stage 2 | 0.5 | s | [0,5] | Underfrequency operate time stage 2 [81 <<] of underfrequency protection. EN 50549-1 chapter 4.9.3.5. | float | R/W | - |
| 1370 | 2 | Expert | 90 | Under-freq. threshold stage 1 | -2 | Hz | [-10,0] | Underfrequency threshold (relative to "Nominal frequency" (id 22)) stage 1 [81 <] of underfrequency protection. EN 50549-1 chapter 4.9.3.5. | float | R/W | - |
| 1372 | 2 | Expert | 91 | Under-freq. operate time stage 1 | 1 | s | [0,100] | Underfrequency operate time stage 1 [81 <] of underfrequency protection. EN 50549-1 chapter 4.9.3.5. | float | R/W | - |
| 1376 | 2 | Expert | 93 | CEI to switch to narrow freq. band | 0 | | [0,10] | Index of the command entry interface used to switching to the narrow frequency band. (0 value disable remote operation). EN 50549-1 chapter 4.9.5 | int | R/W | - |
| 1378 | 2 | Expert | 94 | Over-freq. threshold narrow band | 0.5 | Hz | [0,10] | Overfrequency threshold (relative to "Nominal frequency" (id 22)) for the narrow band of overfrequency protection. EN 50549-1 chapter 4.9.5. | float | R/W | - |
| 1380 | 2 | Expert | 95 | Over-freq. operate time narrow band | 0.5 | s | [0.1,100] | Overfrequency operate time for the narrow band of overfrequency protection. EN 50549-1 chapter 4.9.5. | float | R/W | - |
| 1382 | 2 | Expert | 96 | Under-freq. threshold narrow band | -1 | Hz | [-10,0] | Underfrequency threshold (relative to "Nominal frequency" (id 22)) for the narrow band of underfrequency protection. EN 50549-1 chapter 4.9.5. | float | R/W | - |
| 1384 | 2 | Expert | 97 | Under-freq. operate time narrow band | 0.5 | s | [0.1,100] | Underfrequency operate time for the narrow band of underfrequency protection. EN 50549-1 chapter 4.9.5. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|-----|---|---------------|-------|---------------|---|-------|------------|---------|
| 1386 | 2 | Expert | 98 | Upper volt. for auto reconnection | 110 | % | [100,120] | Upper voltage for automatic reconnection after tripping. EN 50549-1 chapter 4.10.2. | float | R/W | - |
| 1388 | 2 | Expert | 99 | Lower volt. for auto reconnection | 85 | % | [50,100] | Lower voltage for automatic reconnection after tripping. EN 50549-1 chapter 4.10.2. | float | R/W | - |
| 1390 | 2 | Expert | 100 | Upper freq. for auto reconnection | 0.2 | Hz | [0,10] | Upper frequency (relative to "Nominal frequency" (id 22)) for automatic reconnection after tripping. EN 50549-1 chapter 4.10.2. | float | R/W | - |
| 1392 | 2 | Expert | 101 | Lower freq. for auto reconnection | -0.5 | Hz | [-10,0] | Lower frequency (relative to "Nominal frequency" (id 22)) for automatic reconnection after tripping. EN 50549-1 chapter 4.10.2. | float | R/W | - |
| 1394 | 2 | Expert | 102 | Observation time for auto reconnection | 60 | s | [10,600] | Observation time for automatic reconnection after tripping. EN 50549-1 chapter 4.10.2. | float | R/W | - |
| 1396 | 2 | Expert | 103 | P increase gradient for auto reconnection | 10 | %/min | [5,3000] | Active power increase gradient when automatic reconnection after tripping or at the end of an over/under frequency situation. EN 50549-1 chapter 4.10.2. AS/NZS 4777.2 section 4.5.3 | float | R/W | - |
| 1398 | 2 | Expert | 104 | Upper volt. for start generation | 110 | % | [100,120] | Upper voltage for automatic reconnection after tripping. EN 50549-1 chapter 4.10.3. | float | R/W | - |
| 1400 | 2 | Expert | 105 | Lower volt. for start generation | 85 | % | [50,100] | Lower voltage for automatic reconnection after tripping. EN 50549-1 chapter 4.10.3. | float | R/W | - |
| 1402 | 2 | Expert | 106 | Upper freq. for start generation | 0.1 | Hz | [0,10] | Upper frequency (relative to "Nominal frequency" (id 22)) for automatic reconnection after tripping. EN 50549-1 chapter 4.10.3. | float | R/W | - |
| 1404 | 2 | Expert | 107 | Lower freq. for start generation | -0.5 | Hz | [-10,0] | Lower frequency (relative to "Nominal frequency" (id 22)) for automatic reconnection after tripping. EN 50549-1 chapter 4.10.3. | float | R/W | - |
| 1406 | 2 | Expert | 108 | Observ. time for start generation | 60 | s | [10,600] | Observation time for connection. EN 50549-1 chapter 4.10.3. | float | R/W | - |
| 1408 | 2 | Expert | 109 | P increase gradient for start generation | 3000 | %/min | [6,3000] | Active power increase gradient after connection. EN 50549-1 chapter 4.10.3. | float | R/W | - |
| 1410 | 2 | Expert | 110 | CEI to allow transfer tripping DRMO | 0 | | [0,10] | Index of the command entry interface used to allow transfer trip. DRED port index used for DRMO. (0 value disable remote operation). EN 50549-1 chapter 4.9.5. AS/NZS 4777.2 section 3.2. | int | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|-----|-------------------------------------|---|-------|---------------|--|----------|------------|---------|
| 1412 | 2 | Expert | 111 | CEI for ceasing active power | 0 | | [0,10] | Index of the command entry interface used for ceasing active power (0 value disable remote operation). EN 50549-1 chapter 4.11.1. | int | R/W | - |
| 1414 | 2 | Expert | 112 | CEI for reduction of P on setpoint | 0 | | [0,10] | Index of the command entry interface used for reduction of active power on setpoint (0 value disable remote operation). EN 50549-1 chapter 4.11.2. | int | R/W | - |
| 1416 | 2 | Expert | 113 | Reduction of P setpoint | 0 | % | [0,100] | Reduced active power in case of remote operation. EN 50549-1 chapter 4.11.2. | float | R/W | - |
| 1418 | 2 | Expert | 114 | Reduction of P setpoint slope | 0.5 | %/s | [0,500] | Slope for the reduction of active power in case of remote operation. Slope limitation is disable if this value is set to 0. EN 50549-1 chapter 4.11.2. | float | R/W | - |
| 1420 | 2 | Expert | 115 | Volt. to start produced P reduction | 103 | % | [100,130] | Voltage at which the the produced normalised active power start to be reduced. EN 50549-1 chapter 4.7.3. AS/NZS 4777.2 section 3.3.2.2 | float | R/W | - |
| 1422 | 2 | Expert | 116 | Voltage for reduced produced P | 107 | % | [100,130] | Voltage over which the produced normalised active power is reduced to "Reduced produced active power" (id 130). AS/NZS 4777.2 section 3.3.2.2 | float | R/W | - |
| 1424 | 2 | Expert | 117 | Time constant for P(U) curves | 5 | s | [1,60] | Time constant of voltage-dependant active power curves P(U). TOR Erzeuger Typ A chapter 5.3.6. EN 50549-1 chapter 4.7.3. AS/NZS 4777.2 section 3.3.2.1 | float | R/W | - |
| 1426 | 2 | Expert | 118 | Pref for P(U) curves | Pmax | | - | Power reference of voltage-dependant active power curves P(U). TOR Erzeuger Typ A chapter 5.3.6. | enum | R/W | 4 |
| 1429 | 1 | Expert | 120 | Use triphase target active power | true | | - | Use of "Target active power per phase" (id 121) instead of "Target sourced active power" (id 13). | bool | R/W | - |
| 1430 | 2 | Expert | 121 | Target active power per phase | 0 | W | [-5000,5000] | Target active power per phase. Positive when the AC source is generating active power and negative when the AC source is consuming active power. | float | R/W | - |
| 1432 | 2 | Expert | 122 | Setpoints priority level | 2 | Level | - | setpoints priority level | int | R/W | - |
| 1440 | 2 | ViewOnly | 126 | Phase existance | PhaseL1Exists PhaseL2Exists PhaseL3Exists | | - | Indicate which phase(s) is(are) used for this AcSource | bitfield | R | 5 |
| 1442 | 2 | Expert | 127 | Anti-islanding | AntilIslandingDisabled | | - | Anti-islanding function activation and choice of the detection method. | enum | R/W | 6 |
| 1444 | 2 | Expert | 128 | Anti-islanding RoCoF thresh. | 1.6 | Hz/s | [0.1,20] | Anti-islanding RoCoF threshold used by the "RoCoF tripping" method. | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|-----|-------------------------------------|---------------|------|---------------|--|-------|------------|---------|
| 1446 | 2 | Expert | 129 | Anti-isl. RoCoF operate time | 0.2 | s | [0.1,2] | Anti-islanding RoCoF operate time used by the "RoCoF tripping" method. | float | R/W | - |
| 1448 | 2 | Expert | 130 | Reduced produced active power | 100 | % | [0,100] | Reduced produced normalised active power at voltage over "Voltage for reduced produced P" (id 116). EN 50549-1 chapter 4.7.3. AS/NZS 4777.2 section 3.3.2.2 | float | R/W | - |
| 1450 | 2 | Expert | 131 | Reduced consumed active power | 100 | % | [0,100] | Reduced consumed normalised active power at voltage under "Voltage for reduced consumed P" (id 132). AS/NZS 4777.2 section 3.4.3 | float | R/W | - |
| 1452 | 2 | Expert | 132 | Voltage for reduced consumed P | 50 | % | [50,100] | Voltage under which the normalised consumed active power is reduced to "Reduced consumed active power" (id 131). AS/NZS 4777.2 section 3.4.3 | float | R/W | - |
| 1454 | 2 | Expert | 133 | Volt. to start consumed P reduction | 60 | % | [50,100] | Voltage at which the the consumed normalised active power start to be reduced. AS/NZS 4777.2 section 3.4.3 | float | R/W | - |
| 1456 | 2 | Expert | 134 | Transition frequency for OF | 0.75 | Hz | [0.1,10] | Frequency (relative to "Nominal frequency" (id 22)) where power output level is zero of frequency-dependant active power during over-frequency situation. Use a huge value to disable the feature. AS/NZS 4777.2 section 4.5.3.3 (f transition). | float | R/W | - |
| 1458 | 2 | Expert | 135 | Pmin frequency for OF | 2 | Hz | [0.1,10] | Frequency (relative to "Nominal frequency" (id 22)) where power input level is maximum of frequency-dependant active power during over-frequency situation. Use a huge value to disable the feature. AS/NZS 4777.2 section 4.5.3.3 (f Pmin). | float | R/W | - |
| 1460 | 2 | Expert | 136 | Stop-ch frequency for UF | -1 | Hz | [-10,-0.1] | Frequency (relative to "Nominal frequency" (id 22)) where power output level is zero of frequency-dependant active power during under-frequency situation. Use a huge value to disable the feature. AS/NZS 4777.2 section 4.5.3.2 (f stop-ch). | float | R/W | - |
| 1462 | 2 | Expert | 137 | Pmax frequency for UF | -2 | Hz | [-10,-0.1] | Frequency (relative to "Nominal frequency" (id 22)) where power output level is maximum of frequency-dependant active power during under-frequency situation. Use a huge value to disable the feature. AS/NZS 4777.2 section 4.5.3.2 (f Pmax). | float | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|-----|---------------------------------|------------------------|------|---------------|---|-------|------------|---------|
| 1464 | 2 | Expert | 138 | f hyst for OV/UF | 0.1 | Hz | [0.01,0.5] | Frequency hysteresis for returning in continuous operation after over/under-frequency situation. AS/NZS 4777.2 section 4.5.3.1 (f hyst). | float | R/W | - |
| 1466 | 1 | Expert | 139 | Compensate current harmonics | false | | - | Compensation of the inverter current harmonics | bool | R/W | - |
| 1467 | 2 | Expert | 140 | CEI for reduction of P at 10% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 10% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1469 | 2 | Expert | 141 | CEI for reduction of P at 20% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 20% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1471 | 2 | Expert | 142 | CEI for reduction of P at 30% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 30% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1473 | 2 | Expert | 143 | CEI for reduction of P at 40% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 40% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1475 | 2 | Expert | 144 | CEI for reduction of P at 50% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 50% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1477 | 2 | Expert | 145 | CEI for reduction of P at 60% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 60% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1479 | 2 | Expert | 146 | CEI for reduction of P at 70% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 70% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1481 | 2 | Expert | 147 | CEI for reduction of P at 80% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 80% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1483 | 2 | Expert | 148 | CEI for reduction of P at 90% | 0 | | [0,30] | Index of the command entry interface used for reduction of active power at 90% percent of the rated power (0 value disable remote operation). | int | R/W | - |
| 1485 | 2 | Expert | 149 | Phase balancing | PhaseBalancingDisabled | | - | Method used to distribute the total required power to each phase. | enum | R/W | 7 |
| 1487 | 2 | Expert | 150 | Voltage and frequency tolerance | FaultsToleranceNormal | | - | Tolerance to voltage and frequency faults. | enum | R/W | 8 |

List of items of Enum 0 (Type)

| Value | Label | Description |
|-------|--------|-------------|
| 0 | None | None |
| 1 | Grid | Grid |
| 2 | Genset | Genset |

List of items of Enum 1 (GridCode)

| Value | Label | Description |
|-------|---|--|
| 0 | None | None |
| 18 | Australia A (AS/NZS 4777.2) | Grid code for Australia region A according to AS/NZS 4777.2. |
| 19 | Australia B (AS/NZS 4777.2) | Grid code for Australia region B according to AS/NZS 4777.2. |
| 20 | Australia C (AS/NZS 4777.2) | Grid code for Australia region C according to AS/NZS 4777.2. |
| 8 | Austria (TOR Erzeuger Typ A) | Grid code for Austria according to TOR Erzeuger Typ A. |
| 4 | Belgium (C10/11 Synergrid) | Grid code for Belgium according to C10/11 Synergrid. |
| 22 | Belgium <10kW (C10/11 Synergrid) | Grid code for Belgium according to C10/11 Synergrid and with an injected power limited to 10kW. |
| 10 | Cyprus (CY EN-50549-1 EAC) | Grid code for Cyprus according to EN-50549-1 and default values provided by E.A.C (Electricity Authority of Cyprus). |
| 12 | Czech Republic (EN-50549-1) | Grid code for Czech Republic according to EN-50549-1. |
| 2 | Europe (EN-50549-1) | Grid code for Europe according to EN-50549-1. |
| 1 | Germany (VDE-AR-N 4105) | Grid code for Germany according to VDE-AR-N 4105. |
| 13 | Ireland (EN-50549-1) | Grid code for Ireland according to EN-50549-1. |
| 16 | Hungary (EN-50549-1) | Grid code for Hungary according to EN-50549-1. |
| 15 | Netherlands (EN-50549-1) | Grid code for Netherlands according to EN-50549-1. |
| 21 | New Zealand (AS/NZS 4777.2) | Grid code for New Zealand according to AS/NZS 4777.2. |
| 14 | Slovakia (EN-50549-1) | Grid code for Slovakia according to EN-50549-1. |
| 9 | Spain (RD 1699/2011, UNE 206007-1 and UNE 217002) | Grid code for Spain according to RD 1699/2011, UNE 206007-1 and UNE 217002. |
| 17 | Sweden (EN-50549-1 and EIFS 2018-2) | Grid code for Sweden according to EN-50549-1 and EIFS 2018-2. |
| 11 | Switzerland (EN-50549-1, AES RR/IPE-NR 7 - CH Type A) | Grid code for Switzerland according to EN-50549-1. |

List of items of Enum 2 (ReactivePowerMethod)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Fixed reactive power | Fixed reactive power. EN 50549-1 chapter 4.7.2.3.2. VDE-AR-N 4105 chapter 5.7.2.5. |
| 1 | Q=f(U) curve | Reactive power versus voltage characteristic curve, Q=f(U). EN 50549-1 chapter 4.7.2.3.3. VDE-AR-N 4105 chapter 5.7.2.4 Re:a) |
| 2 | Fixed cos(φ) | Fixed displacement factor cos(φ). EN 50549-1 chapter 4.7.2.3.2. VDE-AR-N 4105 chapter 5.7.2.4 Re:c) |
| 3 | cos(φ)=f(P) curve | Displacement factor versus active power characteristic curve, cos(φ)=f(P). EN 50549-1 4.7.2.3.4. VDE-AR-N 4105 chapter 5.7.2.4 Re:b) |
| 4 | None | Supply of reactive power disabled. |

List of items of Enum 3 (DisplacementFactor)

| Value | Label | Description |
|-------|---------------|---------------|
| 0 | Under-excited | Under-excited |
| 1 | Over-excited | Over-excited |

List of items of Enum 4 (PrefActivePowerResponseEnum)

| Value | Label | Description |
|-------|-----------|---|
| 0 | P maximum | Power reference of frequency/voltage-dependant active power during over/under-frequency or over-voltage situation is Pmax (nominal power of inverters). EN 50549-1 chapter 4.6.1. TOR Erzeuger Typ A chapter 5.3.6. |

| Value | Label | Description |
|-------|-------------|---|
| 1 | P momentary | Power reference of frequency/voltage-dependant active power during over/under-frequency or over-voltage situation is Pm (active power produced when the frequency cross the defined threshold). EN 50549-1 chapter 4.6.1. TOR Erzeuger Typ A chapter 5.3.6. |

List of items of Enum 5 (PhasesExistenceBitfield)

| Value | Label | Description |
|-------|-----------------|-------------------------------|
| 1 | Phase L1 exists | This AcSource has a L1 phase. |
| 2 | Phase L2 exists | This AcSource has a L2 phase. |
| 4 | Phase L3 exists | This AcSource has a L3 phase. |

List of items of Enum 6 (AntislandingMethod)

| Value | Label | Description |
|-------|----------------|---|
| 0 | Disabled | The detection of islanding situation is disabled |
| 1 | Vector shift | The detection of islanding situation is active and the "vector shift" method is used. |
| 2 | RoCoF tripping | The detection of islanding situation is active and the "RoCoF tripping" method is used. |

List of items of Enum 7 (PhaseBalancing)

| Value | Label | Description |
|-------|----------|--|
| 0 | Disabled | Disable the active balancing of AC input power of each phase. This minimizes the power losses due to power conversion efficiency but can lead to inconsistent power flow directions for individual phases. |
| 1 | Enabled | Enable the active balancing of AC input power of each phase. Powers of individual phases are well balanced but this can lead to additionnel power losses due to power conversion efficiency. |
| 2 | Smart | Smartly balance the AC input power of each phase. This reduces the power losses due to power conversion efficiency and keeps power flow directions for individual phases consistant. |

List of items of Enum 8 (FaultsTolerance)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | Custom settings | Custom settings. |
| 1 | Very sensitive | Very sensitive to voltage or frequency faults. |
| 2 | Sensitive | Sensitive to voltage or frequency faults. |
| 3 | Normal | Normal behaviour to voltage or frequency faults. |
| 4 | Robust | Robust against voltage or frequency faults. |
| 5 | Very robust | Very robust against voltage or frequency faults. |

L1 input config

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.6.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------|-----------------|------|---------------|---|----------|------------|---------|
| 1800 | 2 | ViewOnly | 0 | Status | Disconnected | | - | Enum containing the status. | enum | R | 4 |
| 1802 | 2 | ViewOnly | 1 | Unconnected reasons | NoReasons | | - | Bitfield containing the reasons why the source is not connected. | bitfield | R | 0 |
| 1804 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 1 |
| 1806 | 2 | ViewOnly | 3 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 2 |
| 1808 | 2 | ViewOnly | 4 | Causes of disconnection | NoDisconnection | | - | Bitfield containing the causes of disconnection. Note that the value is initialized to 0 (no items checked in the list) until the first connection to the source. | bitfield | R | 3 |
| 1812 | 2 | Basic | 6 | Voltage 10min mean | 0 | % | - | Compute a 10min period moving average of the voltage. | float | R | - |
| 1814 | 1 | Basic | 7 | Connection allowed | true | | - | Used to allowed or not the connection to the source. | bool | R/W | - |
| 1815 | 1 | Basic | 8 | Grid-feeding allowed | true | | - | Used to allowed or not the grid-feeding. | bool | R/W | - |
| 1816 | 2 | Expert | 9 | Max sourced active power | 3000 | W | [0,100000] | Max sourced active power sent to the power flow dispatcher. | float | R/W | - |
| 1818 | 2 | Expert | 10 | Max sinked active power | 3000 | W | [0,100000] | Max sinked active power sent to the power flow dispatcher. | float | R/W | - |
| 1820 | 2 | Expert | 11 | Max sourced reactive power | 2000 | VA | [0,100000] | Max sourced reactive power sent to the power flow dispatcher. | float | R/W | - |
| 1822 | 2 | Expert | 12 | Max sinked reactive power | 2000 | VA | [0,100000] | Max sinked reactive power sent to the power flow dispatcher. | float | R/W | - |
| 1824 | 2 | Expert | 13 | Target sourced active power | 0 | W | - | Target sourced active power sent to the power flow dispatcher. | float | R/W | - |
| 1828 | 2 | Expert | 15 | Limits level | 5 | | - | Limits level sent to the power flow dispatcher. | int | R/W | - |
| 1830 | 2 | Expert | 16 | Setpoints level | 2 | | - | Setpoints level sent to the power flow dispatcher. | int | R/W | - |

List of items of Enum 0 (UnconnectedReasons)

| Value | Label | Description |
|------------|--------------------------------------|---|
| 0 | No reasons (connected) | No reason(s) because the source is connected. |
| 1 | No voltage | No voltage detected on the source. |
| 2 | Waiting observation time | Waiting the required observation time before reconnection. |
| 4 | Individual phase not allowed | Individual phase connection is not allowed. |
| 8 | Unconnected due to the user | Unconnected due to the user. |
| 16 | Unconnected due to command entry | Unconnected due to the command entry. |
| 32 | Unconnected due to inverter | The inverter must be turned on and ready for connexion in order to connect the AC source. |
| 64 | Unconnected due to the energy policy | Another AC source is choosed accorging to the energy policy. |
| 256 | Unconnected due to another cause | Unconnected due to another cause. |
| 2147483648 | Unconnected due to an error | Unconnected due to an error. |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|---|---|
| 0 | No warnings | The source has no warning(s). |
| 1 | Active power response to overfrequency | The actual active power is limited in response to an overfrequency. |
| 2 | Active power response to underfrequency | The actual active power is limited in response to an underfrequency. |
| 4 | Reactive power response to voltage | The actual reactive power is adjusted in response to voltage fluctuation, according to the chosen method. |
| 8 | Undervoltage ride through | Undervoltage ride through. The voltage is below "Min. voltage fault onset" (id 31) but over the defined undervoltage curve. |
| 16 | Overvoltage ride through | Overvoltage ride through. The voltage is over "Max. voltage fault onset" (id 28) but under the defined overvoltage curve. |
| 32 | Power limited by increase gradient | Power is limited by the power increase gradient after a re-connection. |
| 64 | Ceasing active power | Ceasing active power. EN 50549-1 chapter 4.11.1. |
| 128 | Reduced active power on setpoint | Reduction of active power on setpoint. EN 50549-1 chapter 4.11.2. |
| 256 | Active power response to overvoltage | The actual active power is limited in response to an overvoltage. EN 50549-1 chapter 4.7.3. |

List of items of Enum 2 (Errors)

| Value | Label | Description |
|----------|------------------------|--|
| 0 | No errors | The source has no error(s). |
| 512 | Overfrequency | Frequency is over "Upper freq. for start generation" (id 106) or "Upper freq. for auto reconnection" (id 100). |
| 1024 | Underfrequency | Frequency is below "Lower freq. for start generation" (id 107) or "Lower freq. for auto reconnection" (id 101). |
| 2048 | Overvoltage | Voltage is over "Upper volt. for start generation" (id 104) or "Upper volt. for auto reconnection" (id 98). |
| 4096 | Undervoltage | Voltage is under "Lower volt. for start generation" (id 105) or "Lower volt. for auto reconnection" (id 99). |
| 8192 | Synchronization loss | A loss of synchronization between the inverter and the source has been detected. |
| 16384 | Outside of envelope | The voltage is outside of the permitted envelope defined by "Envelope tolerance" (id 14). |
| 32768 | Islanding detected | An islanded network has been detected. |
| 65536 | Phase error | The relative position inbetween phases is outside of "Relative angle tolerance" (id 7). |
| 131072 | Excessive dc voltage | DC voltage is over "Max. DC voltage" (id 12) |
| 262144 | Earthing error | An earthing error has been detected. Check the earthing scheme and configuration "Earthing mode selection" (id 0). |
| 524288 | Error relay failure 1 | A relay failure (connexion broken) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 1048576 | Synchronization failed | The synchronization has failed and will retry automaticly soon |
| 2097152 | Error relay failure 2 | A relay failure (relay on source side is stuck opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 4194304 | Error relay failure 3 | A relay failure (relay on load side is stuck opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 8388608 | Error relay failure 4 | A relay failure (both relays on source and load side are stucks opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 16777216 | Error relay failure 5 | A relay failure (one relay on source or load side is stuck closed) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 33554432 | Error relay failure 6 | A relay supervision circuit failure has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |

List of items of Enum 3 (CauseOfDisconnection)

| Value | Label | Description |
|-------|---------------------------------------|--|
| 0 | No disconnection | No disconnection happened. |
| 4 | Another phase disconnects | Another phase disconnects and individual phase connection isn't allowed. |
| 8 | Disconnected by the user | Disconnected by the user. |
| 16 | Disconnected by command entry | Disconnected by the command entry. |
| 32 | Disconnected due to inverter | The inverter must be turned on to be able to connect the AC source. |
| 64 | Disconnected due to the energy policy | Another AC source was choosed accorging to the energy policy. |
| 256 | Disconnected due to another cause | Disconnected due to another cause. |

| Value | Label | Description |
|--------|-----------------------|---|
| 512 | Overfrequency | Frequency crossed the limit defined with "Over-freq. threshold stage 1" (id 84) and "Over-freq. threshold stage 2" (id 86). |
| 1024 | Underfrequency | Frequency crossed the limit defined with "Under-freq. threshold stage 1" (id 90) and "Under-freq. threshold stage 2" (id 88). |
| 2048 | Overvoltage | Voltage crossed the limit defined with "Over-volt. threshold stage 1" (id 76) and "Over-volt. threshold stage 2" (id 74) or the overvoltage fault ride-through curve. |
| 4096 | Undervoltage | Voltage crossed the limit defined with "Under-volt. threshold stage 1" (id 79) and "Under-volt. threshold stage 2" (id 81) or the undervoltage fault ride-through curve. |
| 8192 | Synchronization loss | A loss of synchronization between the inverter and the source has been detected. |
| 16384 | Outside of envelope | The voltage is outside of the permitted envelope. |
| 32768 | Islanding detected | An islanded network has been detected. |
| 65536 | Phase error | The relative position inbetween phases is outside of "Relative angle tolerance" (id 7). |
| 131072 | Excessive dc voltage | DC voltage is over "Max. DC voltage" (id 12) |
| 262144 | Earthing fault | An earthing fault has been detected. Check the earthing scheme and configuration "Earthing mode selection" (id 0). |
| 524288 | Error relay failure 1 | A relay failure (connexion broken) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |

List of items of Enum 4 (Status)

| Value | Label | Description |
|-------|------------------|---|
| 0 | Disconnected | The source is disconnected. |
| 1 | Connected | The source is connected. |
| 2 | Error restarting | The source is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 4 | Error halted | The source is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

L2 input config

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.7.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------|-----------------|------|---------------|---|----------|------------|---------|
| 2100 | 2 | ViewOnly | 0 | Status | Disconnected | | - | Enum containing the status. | enum | R | 4 |
| 2102 | 2 | ViewOnly | 1 | Unconnected reasons | NoReasons | | - | Bitfield containing the reasons why the source is not connected. | bitfield | R | 0 |
| 2104 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 1 |
| 2106 | 2 | ViewOnly | 3 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 2 |
| 2108 | 2 | ViewOnly | 4 | Causes of disconnection | NoDisconnection | | - | Bitfield containing the causes of disconnection. Note that the value is initialized to 0 (no items checked in the list) until the first connection to the source. | bitfield | R | 3 |
| 2112 | 2 | Basic | 6 | Voltage 10min mean | 0 | % | - | Compute a 10min period moving average of the voltage. | float | R | - |
| 2114 | 1 | Basic | 7 | Connection allowed | true | | - | Used to allowed or not the connection to the source. | bool | R/W | - |
| 2115 | 1 | Basic | 8 | Grid-feeding allowed | true | | - | Used to allowed or not the grid-feeding. | bool | R/W | - |
| 2116 | 2 | Expert | 9 | Max sourced active power | 3000 | W | [0,100000] | Max sourced active power sent to the power flow dispatcher. | float | R/W | - |
| 2118 | 2 | Expert | 10 | Max sinked active power | 3000 | W | [0,100000] | Max sinked active power sent to the power flow dispatcher. | float | R/W | - |
| 2120 | 2 | Expert | 11 | Max sourced reactive power | 2000 | VA | [0,100000] | Max sourced reactive power sent to the power flow dispatcher. | float | R/W | - |
| 2122 | 2 | Expert | 12 | Max sinked reactive power | 2000 | VA | [0,100000] | Max sinked reactive power sent to the power flow dispatcher. | float | R/W | - |
| 2124 | 2 | Expert | 13 | Target sourced active power | 0 | W | - | Target sourced active power sent to the power flow dispatcher. | float | R/W | - |
| 2128 | 2 | Expert | 15 | Limits level | 5 | | - | Limits level sent to the power flow dispatcher. | int | R/W | - |
| 2130 | 2 | Expert | 16 | Setpoints level | 2 | | - | Setpoints level sent to the power flow dispatcher. | int | R/W | - |

List of items of Enum 0 (UnconnectedReasons)

| Value | Label | Description |
|------------|--------------------------------------|---|
| 0 | No reasons (connected) | No reason(s) because the source is connected. |
| 1 | No voltage | No voltage detected on the source. |
| 2 | Waiting observation time | Waiting the required observation time before reconnection. |
| 4 | Individual phase not allowed | Individual phase connection is not allowed. |
| 8 | Unconnected due to the user | Unconnected due to the user. |
| 16 | Unconnected due to command entry | Unconnected due to the command entry. |
| 32 | Unconnected due to inverter | The inverter must be turned on and ready for connexion in order to connect the AC source. |
| 64 | Unconnected due to the energy policy | Another AC source is choosed accorging to the energy policy. |
| 256 | Unconnected due to another cause | Unconnected due to another cause. |
| 2147483648 | Unconnected due to an error | Unconnected due to an error. |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|---|---|
| 0 | No warnings | The source has no warning(s). |
| 1 | Active power response to overfrequency | The actual active power is limited in response to an overfrequency. |
| 2 | Active power response to underfrequency | The actual active power is limited in response to an underfrequency. |
| 4 | Reactive power response to voltage | The actual reactive power is adjusted in response to voltage fluctuation, according to the chosen method. |
| 8 | Undervoltage ride through | Undervoltage ride through. The voltage is below "Min. voltage fault onset" (id 31) but over the defined undervoltage curve. |
| 16 | Overvoltage ride through | Overvoltage ride through. The voltage is over "Max. voltage fault onset" (id 28) but under the defined overvoltage curve. |
| 32 | Power limited by increase gradient | Power is limited by the power increase gradient after a re-connection. |
| 64 | Ceasing active power | Ceasing active power. EN 50549-1 chapter 4.11.1. |
| 128 | Reduced active power on setpoint | Reduction of active power on setpoint. EN 50549-1 chapter 4.11.2. |
| 256 | Active power response to overvoltage | The actual active power is limited in response to an overvoltage. EN 50549-1 chapter 4.7.3. |

List of items of Enum 2 (Errors)

| Value | Label | Description |
|----------|------------------------|--|
| 0 | No errors | The source has no error(s). |
| 512 | Overfrequency | Frequency is over "Upper freq. for start generation" (id 106) or "Upper freq. for auto reconnection" (id 100). |
| 1024 | Underfrequency | Frequency is below "Lower freq. for start generation" (id 107) or "Lower freq. for auto reconnection" (id 101). |
| 2048 | Overvoltage | Voltage is over "Upper volt. for start generation" (id 104) or "Upper volt. for auto reconnection" (id 98). |
| 4096 | Undervoltage | Voltage is under "Lower volt. for start generation" (id 105) or "Lower volt. for auto reconnection" (id 99). |
| 8192 | Synchronization loss | A loss of synchronization between the inverter and the source has been detected. |
| 16384 | Outside of envelope | The voltage is outside of the permitted envelope defined by "Envelope tolerance" (id 14). |
| 32768 | Islanding detected | An islanded network has been detected. |
| 65536 | Phase error | The relative position inbetween phases is outside of "Relative angle tolerance" (id 7). |
| 131072 | Excessive dc voltage | DC voltage is over "Max. DC voltage" (id 12) |
| 262144 | Earthing error | An earthing error has been detected. Check the earthing scheme and configuration "Earthing mode selection" (id 0). |
| 524288 | Error relay failure 1 | A relay failure (connexion broken) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 1048576 | Synchronization failed | The synchronization has failed and will retry automaticly soon |
| 2097152 | Error relay failure 2 | A relay failure (relay on source side is stuck opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 4194304 | Error relay failure 3 | A relay failure (relay on load side is stuck opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 8388608 | Error relay failure 4 | A relay failure (both relays on source and load side are stucks opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 16777216 | Error relay failure 5 | A relay failure (one relay on source or load side is stuck closed) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 33554432 | Error relay failure 6 | A relay supervision circuit failure has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |

List of items of Enum 3 (CauseOfDisconnection)

| Value | Label | Description |
|-------|---------------------------------------|--|
| 0 | No disconnection | No disconnection happened. |
| 4 | Another phase disconnects | Another phase disconnects and individual phase connection isn't allowed. |
| 8 | Disconnected by the user | Disconnected by the user. |
| 16 | Disconnected by command entry | Disconnected by the command entry. |
| 32 | Disconnected due to inverter | The inverter must be turned on to be able to connect the AC source. |
| 64 | Disconnected due to the energy policy | Another AC source was choosed accorging to the energy policy. |
| 256 | Disconnected due to another cause | Disconnected due to another cause. |

| Value | Label | Description |
|--------|-----------------------|---|
| 512 | Overfrequency | Frequency crossed the limit defined with "Over-freq. threshold stage 1" (id 84) and "Over-freq. threshold stage 2" (id 86). |
| 1024 | Underfrequency | Frequency crossed the limit defined with "Under-freq. threshold stage 1" (id 90) and "Under-freq. threshold stage 2" (id 88). |
| 2048 | Overvoltage | Voltage crossed the limit defined with "Over-volt. threshold stage 1" (id 76) and "Over-volt. threshold stage 2" (id 74) or the overvoltage fault ride-through curve. |
| 4096 | Undervoltage | Voltage crossed the limit defined with "Under-volt. threshold stage 1" (id 79) and "Under-volt. threshold stage 2" (id 81) or the undervoltage fault ride-through curve. |
| 8192 | Synchronization loss | A loss of synchronization between the inverter and the source has been detected. |
| 16384 | Outside of envelope | The voltage is outside of the permitted envelope. |
| 32768 | Islanding detected | An islanded network has been detected. |
| 65536 | Phase error | The relative position inbetween phases is outside of "Relative angle tolerance" (id 7). |
| 131072 | Excessive dc voltage | DC voltage is over "Max. DC voltage" (id 12) |
| 262144 | Earthing fault | An earthing fault has been detected. Check the earthing scheme and configuration "Earthing mode selection" (id 0). |
| 524288 | Error relay failure 1 | A relay failure (connexion broken) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |

List of items of Enum 4 (Status)

| Value | Label | Description |
|-------|------------------|---|
| 0 | Disconnected | The source is disconnected. |
| 1 | Connected | The source is connected. |
| 2 | Error restarting | The source is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 4 | Error halted | The source is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

L3 input config

Group : AcSource

Modbus device address : 7 to 8

External ID : 2.x.8.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------|-----------------|------|---------------|---|----------|------------|---------|
| 2400 | 2 | ViewOnly | 0 | Status | Disconnected | | - | Enum containing the status. | enum | R | 4 |
| 2402 | 2 | ViewOnly | 1 | Unconnected reasons | NoReasons | | - | Bitfield containing the reasons why the source is not connected. | bitfield | R | 0 |
| 2404 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 1 |
| 2406 | 2 | ViewOnly | 3 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 2 |
| 2408 | 2 | ViewOnly | 4 | Causes of disconnection | NoDisconnection | | - | Bitfield containing the causes of disconnection. Note that the value is initialized to 0 (no items checked in the list) until the first connection to the source. | bitfield | R | 3 |
| 2412 | 2 | Basic | 6 | Voltage 10min mean | 0 | % | - | Compute a 10min period moving average of the voltage. | float | R | - |
| 2414 | 1 | Basic | 7 | Connection allowed | true | | - | Used to allowed or not the connection to the source. | bool | R/W | - |
| 2415 | 1 | Basic | 8 | Grid-feeding allowed | true | | - | Used to allowed or not the grid-feeding. | bool | R/W | - |
| 2416 | 2 | Expert | 9 | Max sourced active power | 3000 | W | [0,100000] | Max sourced active power sent to the power flow dispatcher. | float | R/W | - |
| 2418 | 2 | Expert | 10 | Max sinked active power | 3000 | W | [0,100000] | Max sinked active power sent to the power flow dispatcher. | float | R/W | - |
| 2420 | 2 | Expert | 11 | Max sourced reactive power | 2000 | VA | [0,100000] | Max sourced reactive power sent to the power flow dispatcher. | float | R/W | - |
| 2422 | 2 | Expert | 12 | Max sinked reactive power | 2000 | VA | [0,100000] | Max sinked reactive power sent to the power flow dispatcher. | float | R/W | - |
| 2424 | 2 | Expert | 13 | Target sourced active power | 0 | W | - | Target sourced active power sent to the power flow dispatcher. | float | R/W | - |
| 2428 | 2 | Expert | 15 | Limits level | 5 | | - | Limits level sent to the power flow dispatcher. | int | R/W | - |
| 2430 | 2 | Expert | 16 | Setpoints level | 2 | | - | Setpoints level sent to the power flow dispatcher. | int | R/W | - |

List of items of Enum 0 (UnconnectedReasons)

| Value | Label | Description |
|------------|--------------------------------------|---|
| 0 | No reasons (connected) | No reason(s) because the source is connected. |
| 1 | No voltage | No voltage detected on the source. |
| 2 | Waiting observation time | Waiting the required observation time before reconnection. |
| 4 | Individual phase not allowed | Individual phase connection is not allowed. |
| 8 | Unconnected due to the user | Unconnected due to the user. |
| 16 | Unconnected due to command entry | Unconnected due to the command entry. |
| 32 | Unconnected due to inverter | The inverter must be turned on and ready for connexion in order to connect the AC source. |
| 64 | Unconnected due to the energy policy | Another AC source is choosed accorging to the energy policy. |
| 256 | Unconnected due to another cause | Unconnected due to another cause. |
| 2147483648 | Unconnected due to an error | Unconnected due to an error. |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|---|---|
| 0 | No warnings | The source has no warning(s). |
| 1 | Active power response to overfrequency | The actual active power is limited in response to an overfrequency. |
| 2 | Active power response to underfrequency | The actual active power is limited in response to an underfrequency. |
| 4 | Reactive power response to voltage | The actual reactive power is adjusted in response to voltage fluctuation, according to the chosen method. |
| 8 | Undervoltage ride through | Undervoltage ride through. The voltage is below "Min. voltage fault onset" (id 31) but over the defined undervoltage curve. |
| 16 | Overvoltage ride through | Overvoltage ride through. The voltage is over "Max. voltage fault onset" (id 28) but under the defined overvoltage curve. |
| 32 | Power limited by increase gradient | Power is limited by the power increase gradient after a re-connection. |
| 64 | Ceasing active power | Ceasing active power. EN 50549-1 chapter 4.11.1. |
| 128 | Reduced active power on setpoint | Reduction of active power on setpoint. EN 50549-1 chapter 4.11.2. |
| 256 | Active power response to overvoltage | The actual active power is limited in response to an overvoltage. EN 50549-1 chapter 4.7.3. |

List of items of Enum 2 (Errors)

| Value | Label | Description |
|----------|------------------------|--|
| 0 | No errors | The source has no error(s). |
| 512 | Overfrequency | Frequency is over "Upper freq. for start generation" (id 106) or "Upper freq. for auto reconnection" (id 100). |
| 1024 | Underfrequency | Frequency is below "Lower freq. for start generation" (id 107) or "Lower freq. for auto reconnection" (id 101). |
| 2048 | Overvoltage | Voltage is over "Upper volt. for start generation" (id 104) or "Upper volt. for auto reconnection" (id 98). |
| 4096 | Undervoltage | Voltage is under "Lower volt. for start generation" (id 105) or "Lower volt. for auto reconnection" (id 99). |
| 8192 | Synchronization loss | A loss of synchronization between the inverter and the source has been detected. |
| 16384 | Outside of envelope | The voltage is outside of the permitted envelope defined by "Envelope tolerance" (id 14). |
| 32768 | Islanding detected | An islanded network has been detected. |
| 65536 | Phase error | The relative position inbetween phases is outside of "Relative angle tolerance" (id 7). |
| 131072 | Excessive dc voltage | DC voltage is over "Max. DC voltage" (id 12) |
| 262144 | Earthing error | An earthing error has been detected. Check the earthing scheme and configuration "Earthing mode selection" (id 0). |
| 524288 | Error relay failure 1 | A relay failure (connexion broken) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 1048576 | Synchronization failed | The synchronization has failed and will retry automaticly soon |
| 2097152 | Error relay failure 2 | A relay failure (relay on source side is stuck opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 4194304 | Error relay failure 3 | A relay failure (relay on load side is stuck opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 8388608 | Error relay failure 4 | A relay failure (both relays on source and load side are stucks opened) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 16777216 | Error relay failure 5 | A relay failure (one relay on source or load side is stuck closed) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |
| 33554432 | Error relay failure 6 | A relay supervision circuit failure has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |

List of items of Enum 3 (CauseOfDisconnection)

| Value | Label | Description |
|-------|---------------------------------------|--|
| 0 | No disconnection | No disconnection happened. |
| 4 | Another phase disconnects | Another phase disconnects and individual phase connection isn't allowed. |
| 8 | Disconnected by the user | Disconnected by the user. |
| 16 | Disconnected by command entry | Disconnected by the command entry. |
| 32 | Disconnected due to inverter | The inverter must be turned on to be able to connect the AC source. |
| 64 | Disconnected due to the energy policy | Another AC source was choosed accorging to the energy policy. |
| 256 | Disconnected due to another cause | Disconnected due to another cause. |

| Value | Label | Description |
|--------|-----------------------|---|
| 512 | Overfrequency | Frequency crossed the limit defined with "Over-freq. threshold stage 1" (id 84) and "Over-freq. threshold stage 2" (id 86). |
| 1024 | Underfrequency | Frequency crossed the limit defined with "Under-freq. threshold stage 1" (id 90) and "Under-freq. threshold stage 2" (id 88). |
| 2048 | Overvoltage | Voltage crossed the limit defined with "Over-volt. threshold stage 1" (id 76) and "Over-volt. threshold stage 2" (id 74) or the overvoltage fault ride-through curve. |
| 4096 | Undervoltage | Voltage crossed the limit defined with "Under-volt. threshold stage 1" (id 79) and "Under-volt. threshold stage 2" (id 81) or the undervoltage fault ride-through curve. |
| 8192 | Synchronization loss | A loss of synchronization between the inverter and the source has been detected. |
| 16384 | Outside of envelope | The voltage is outside of the permitted envelope. |
| 32768 | Islanding detected | An islanded network has been detected. |
| 65536 | Phase error | The relative position inbetween phases is outside of "Relative angle tolerance" (id 7). |
| 131072 | Excessive dc voltage | DC voltage is over "Max. DC voltage" (id 12) |
| 262144 | Earthing fault | An earthing fault has been detected. Check the earthing scheme and configuration "Earthing mode selection" (id 0). |
| 524288 | Error relay failure 1 | A relay failure (connexion broken) has been detected and forbidden connection to the AcSource. This error must be cleared with the front panel, the nx interface or by sending a signal via the property "Clear errors" (id 0). |

List of items of Enum 4 (Status)

| Value | Label | Description |
|-------|------------------|---|
| 0 | Disconnected | The source is disconnected. |
| 1 | Connected | The source is connected. |
| 2 | Error restarting | The source is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 4 | Error halted | The source is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

3-phase measure

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.1.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|--------|---------------|---|---------|------------|---------|
| 0 | 2 | ViewOnly | 0 | Frequency | 0 | Hz | - | Frequency measured. | float | R | - |
| 2 | 2 | ViewOnly | 4 | Line voltage L1-L2 | 0 | V | - | Line voltage L1-L2 measured. | float | R | - |
| 4 | 2 | ViewOnly | 8 | Line voltage L2-L3 | 0 | V | - | Line voltage L2-L3 measured. | float | R | - |
| 6 | 2 | ViewOnly | 12 | Line voltage L3-L1 | 0 | V | - | Line voltage L3-L1 measured. | float | R | - |
| 8 | 2 | ViewOnly | 16 | Total active power | 0 | W | - | Total active power measured. | float | R | - |
| 10 | 2 | ViewOnly | 20 | Total apparent power | 0 | VA | - | Total apparent power measured. | float | R | - |
| 12 | 2 | ViewOnly | 24 | Angle L2 relative to L1 | 0 | degree | - | Angle L2 relative to L1 measured. | float | R | - |
| 14 | 2 | ViewOnly | 25 | Angle L3 relative to L1 | 0 | degree | - | Angle L3 relative to L1 measured. | float | R | - |
| 16 | 2 | ViewOnly | 26 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 18 | 2 | ViewOnly | 27 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 20 | 4 | ViewOnly | 28 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 24 | 4 | ViewOnly | 29 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 28 | 2 | ViewOnly | 30 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 30 | 2 | ViewOnly | 31 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 32 | 4 | ViewOnly | 32 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 36 | 4 | ViewOnly | 33 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |
| 40 | 2 | ViewOnly | 34 | Day runtime | 0 | h | - | Day runtime measured. | float | R | - |
| 42 | 2 | ViewOnly | 35 | Total runtime | 0 | h | - | Total runtime measured. | float | R | - |
| 44 | 2 | ViewOnly | 36 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 46 | 2 | ViewOnly | 37 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 48 | 2 | ViewOnly | 38 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 50 | 2 | ViewOnly | 39 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 52 | 2 | ViewOnly | 40 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 54 | 2 | ViewOnly | 41 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 56 | 2 | ViewOnly | 42 | Produced active power | 0 | W | - | Produced active power measured. | float | R | - |
| 58 | 2 | ViewOnly | 44 | Consumed active power | 0 | W | - | Consumed active power measured. | float | R | - |

measure L1

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.2.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 300 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 302 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 304 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 306 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 308 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 310 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 312 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 314 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 316 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 318 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 320 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 322 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 328 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 330 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 332 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 336 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 340 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 342 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 344 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 348 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

measure L2

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.3.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 600 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 602 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 604 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 606 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 608 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 610 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 612 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 614 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 616 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 618 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 620 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 622 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 628 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 630 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 632 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 636 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 640 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 642 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 644 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 648 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

measure L3

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.4.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|---------------|------|---------------|---|---------|------------|---------|
| 900 | 2 | ViewOnly | 0 | Phase voltage | 0 | V | - | Phase voltage RMS measured. | float | R | - |
| 902 | 2 | ViewOnly | 4 | Current | 0 | A | - | Current RMS measured. | float | R | - |
| 904 | 2 | ViewOnly | 8 | Active power | 0 | W | - | Active power measured. | float | R | - |
| 906 | 2 | ViewOnly | 12 | Reactive power | 0 | VAR | - | Reactive power measured. | float | R | - |
| 908 | 2 | ViewOnly | 16 | Apparent power | 0 | VA | - | Apparent power measured. | float | R | - |
| 910 | 2 | ViewOnly | 20 | Power factor | 0 | - | - | Power factor measured. | float | R | - |
| 912 | 2 | ViewOnly | 24 | Day peak power | 0 | VA | - | Peak power of the current day. | float | R | - |
| 914 | 2 | ViewOnly | 25 | Previous day peak power | 0 | VA | - | Peak power of the previous day. | float | R | - |
| 916 | 2 | ViewOnly | 26 | Day minimum active power | 0 | W | - | Minimum active power of the current day. | float | R | - |
| 918 | 2 | ViewOnly | 27 | Previous day minimum active power | 0 | W | - | Minimum active power of the previous day. | float | R | - |
| 920 | 2 | ViewOnly | 28 | Day maximum active power | 0 | W | - | Maximum active power of the current day. | float | R | - |
| 922 | 2 | ViewOnly | 29 | Previous day maximum active power | 0 | W | - | Maximum active power of the previous day. | float | R | - |
| 928 | 2 | ViewOnly | 32 | Day consumed energy | 0 | Wh | - | Consumed energy of the current day. | float | R | - |
| 930 | 2 | ViewOnly | 33 | Previous day consumed energy | 0 | Wh | - | Consumed energy of the previous day. | float | R | - |
| 932 | 4 | ViewOnly | 34 | Resetable consumed energy | 0 | Wh | - | Resetable consumed energy. | float64 | R/W | - |
| 936 | 4 | ViewOnly | 35 | Total consumed energy | 0 | Wh | - | Total consumed energy. | float64 | R | - |
| 940 | 2 | ViewOnly | 36 | Day produced energy | 0 | Wh | - | Produced energy of the current day. | float | R | - |
| 942 | 2 | ViewOnly | 37 | Previous day produced energy | 0 | Wh | - | Produced energy of the previous day. | float | R | - |
| 944 | 4 | ViewOnly | 38 | Resetable produced energy | 0 | Wh | - | Resetable produced energy. | float64 | R/W | - |
| 948 | 4 | ViewOnly | 39 | Total produced energy | 0 | Wh | - | Total produced energy. | float64 | R | - |

L1 controlled relay

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.5.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 1200 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 1201 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 1203 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 1207 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 1209 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 1211 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 1213 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 1215 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 1217 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 1219 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 1221 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 1223 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 1225 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 1227 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 1229 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 1231 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 1233 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 1235 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 1241 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 1243 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 1245 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

L2 controlled relay

Group : AcFlexLoad
Modbus device address : 9 to 13
External ID : 3.x.6.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 1500 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 1501 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 1503 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 1507 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 1509 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 1511 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 1513 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 1515 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 1517 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 1519 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 1521 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 1523 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 1525 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 1527 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 1529 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 1531 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 1533 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 1535 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 1541 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 1543 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 1545 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

L3 controlled relay

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.7.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 1800 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 1801 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 1803 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 1807 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 1809 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 1811 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 1813 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 1815 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 1817 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 1819 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 1821 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 1823 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 1825 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 1827 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 1829 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 1831 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 1833 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 1835 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 1841 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 1843 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 1845 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

L1 time control

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.8.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 2100 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 2102 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 2104 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 2106 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 2108 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 2110 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 2112 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 2114 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 2116 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 2118 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 2120 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 2122 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 2124 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 2126 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 2128 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 2130 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 2132 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 2134 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

L2 time control

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.9.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 2400 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 2402 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 2404 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 2406 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 2408 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 2410 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 2412 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 2414 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 2416 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 2418 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 2420 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 2422 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 2424 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 2426 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 2428 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 2430 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 2432 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 2434 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

L3 time control

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.10.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 2700 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 2702 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 2704 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 2706 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 2708 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 2710 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 2712 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 2714 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 2716 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 2718 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 2720 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 2722 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 2724 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 2726 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 2728 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 2730 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 2732 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 2734 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

3-phase FlexLoads

Group : AcFlexLoad
Modbus device address : 9 to 13
External ID : 3.x.11.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------------------------------|---|------|---------------|---|----------|------------|---------|
| 3000 | 2 | ViewOnly | 0 | Phase existence | PhaseL1Exists PhaseL2Exists PhaseL3Exists | | - | Indicate which phase(s) is(are) used for this AcFlexLoad | bitfield | R | 0 |
| 3002 | 1 | Basic | 1 | Allow individual phase operation | false | | - | Allow individual phase operation. Otherwise, all phases operates synchronously. | bool | R/W | - |

List of items of Enum 0 (PhasesExistenceBitfield)

| Value | Label | Description |
|-------|-----------------|---------------------------------|
| 1 | Phase L1 exists | This AcFlexLoad has a L1 phase. |
| 2 | Phase L2 exists | This AcFlexLoad has a L2 phase. |
| 4 | Phase L3 exists | This AcFlexLoad has a L3 phase. |

L1 FlexLoads

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.12.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|--------------------|------|---------------|-----------------------------------|----------|------------|---------|
| 3300 | 2 | ViewOnly | 0 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 0 |
| 3302 | 2 | ViewOnly | 1 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 1 |
| 3304 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 2 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---------------------------|---|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The FlexLoad is in warning. |
| 2 | In error restarting | The FlexLoad is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The FlexLoad is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Errors)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No errors | The FlexLoad has no errors. |
| 1 | Overtemperature | An error overtemperature has been detected. The FlexLoad relay is kept open until his temperature has decreased sufficiently. Please verify that the ventilation grilles of the device are not obstructed. |
| 2 | Overcurrent | An error overcurrent has been detected. Please verify that the current of the FlexLoad is lower than the rated current of this AC-Flex port. |
| 4 | Abnormal voltage on FlexLoad side | A voltage is measured on the FlexLoad side while the FlexLoad relay is open. Please verify that no source is connected on this AC-Flex port. |
| 8 | No voltage on FlexLoad side | No voltage is measured on the FlexLoad side while the FlexLoad relay is closed. The FlexLoad relay is probably stuck open. |

List of items of Enum 2 (Warnings)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | No warnings | The FlexLoad has no warnings. |
| 1 | Overtemperature | A warning overtemperature has been detected. The FlexLoad relay will open if his temperature doesn't drop quickly. |
| 2 | Overcurrent | A warning overcurrent has been detected. Please verify that the current of the FlexLoad is lower than the rated current of the AC-Flex port. |

L2 FlexLoads

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.13.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|--------------------|------|---------------|-----------------------------------|----------|------------|---------|
| 3600 | 2 | ViewOnly | 0 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 0 |
| 3602 | 2 | ViewOnly | 1 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 1 |
| 3604 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 2 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---------------------------|---|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The FlexLoad is in warning. |
| 2 | In error restarting | The FlexLoad is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The FlexLoad is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Errors)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No errors | The FlexLoad has no errors. |
| 1 | Overtemperature | An error overtemperature has been detected. The FlexLoad relay is kept open until his temperature has decreased sufficiently. Please verify that the ventilation grilles of the device are not obstructed. |
| 2 | Overcurrent | An error overcurrent has been detected. Please verify that the current of the FlexLoad is lower than the rated current of this AC-Flex port. |
| 4 | Abnormal voltage on FlexLoad side | A voltage is measured on the FlexLoad side while the FlexLoad relay is open. Please verify that no source is connected on this AC-Flex port. |
| 8 | No voltage on FlexLoad side | No voltage is measured on the FlexLoad side while the FlexLoad relay is closed. The FlexLoad relay is probably stuck open. |

List of items of Enum 2 (Warnings)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | No warnings | The FlexLoad has no warnings. |
| 1 | Overtemperature | A warning overtemperature has been detected. The FlexLoad relay will open if his temperature doesn't drop quickly. |
| 2 | Overcurrent | A warning overcurrent has been detected. Please verify that the current of the FlexLoad is lower than the rated current of the AC-Flex port. |

L3 FlexLoads

Group : AcFlexLoad

Modbus device address : 9 to 13

External ID : 3.x.14.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|--------------------|------|---------------|-----------------------------------|----------|------------|---------|
| 3900 | 2 | ViewOnly | 0 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 0 |
| 3902 | 2 | ViewOnly | 1 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 1 |
| 3904 | 2 | ViewOnly | 2 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 2 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---------------------------|---|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The FlexLoad is in warning. |
| 2 | In error restarting | The FlexLoad is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The FlexLoad is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 1 (Errors)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No errors | The FlexLoad has no errors. |
| 1 | Overtemperature | An error overtemperature has been detected. The FlexLoad relay is kept open until his temperature has decreased sufficiently. Please verify that the ventilation grilles of the device are not obstructed. |
| 2 | Overcurrent | An error overcurrent has been detected. Please verify that the current of the FlexLoad is lower than the rated current of this AC-Flex port. |
| 4 | Abnormal voltage on FlexLoad side | A voltage is measured on the FlexLoad side while the FlexLoad relay is open. Please verify that no source is connected on this AC-Flex port. |
| 8 | No voltage on FlexLoad side | No voltage is measured on the FlexLoad side while the FlexLoad relay is closed. The FlexLoad relay is probably stuck open. |

List of items of Enum 2 (Warnings)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | No warnings | The FlexLoad has no warnings. |
| 1 | Overtemperature | A warning overtemperature has been detected. The FlexLoad relay will open if his temperature doesn't drop quickly. |
| 2 | Overcurrent | A warning overcurrent has been detected. Please verify that the current of the FlexLoad is lower than the rated current of the AC-Flex port. |

converter ID card

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.1.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------|---------------|------|---------------|---|----------|------------|---------|
| 4 | 8 | ViewOnly | 2 | Serial Number | "Invalid" | | - | Serial Number of this Studer Innotec device. | char[15] | R | - |
| 14 | 2 | ViewOnly | 4 | Software package version | 0 | | - | Software package version in this format : MAJOR.MIDDLE.MINOR.PATCH, encoded as follows from MSB to LSB : MAJOR (8 bits), MIDDLE (8bits), MINOR (12 bits), PATCH (4 bits). | uint | R | - |
| 18 | 4 | ViewOnly | 6 | Software revision | "" | | - | SHA-1 of the software project commit | char[7] | R | - |
| 30 | 2 | ViewOnly | 8 | ObjectModel version | 0 | | - | Version of the currently used ObjectModel in this format : MAJOR.MINOR, encoded as follows from MSB to LSB : MAJOR (16 bits), MINOR (16 bits). | uint | R | - |

transfer ID card

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.2.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------|---------------|------|---------------|---|----------|------------|---------|
| 304 | 8 | ViewOnly | 2 | Serial Number | "Invalid" | | - | Serial Number of this Studer Innotec device. | char[15] | R | - |
| 314 | 2 | ViewOnly | 4 | Software package version | 0 | | - | Software package version in this format : MAJOR.MIDDLE.MINOR.PATCH, encoded as follows from MSB to LSB : MAJOR (8 bits), MIDDLE (8bits), MINOR (12 bits), PATCH (4 bits). | uint | R | - |
| 318 | 4 | ViewOnly | 6 | Software revision | "" | | - | SHA-1 of the software project commit | char[7] | R | - |
| 330 | 2 | ViewOnly | 8 | ObjectModel version | 0 | | - | Version of the currently used ObjectModel in this format : MAJOR.MINOR, encoded as follows from MSB to LSB : MAJOR (16 bits), MINOR (16 bits). | uint | R | - |

converter application

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.3.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 605 | 2 | ViewOnly | 5 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 0 |

List of items of Enum 0 (Warnings)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No warnings | The card has no warnings. |
| 1 | Warning MCU not secure | MCU security status is unsecure. |
| 2 | Warning FPGA not configured | Unpossible to configure the FPGA. |
| 4 | Communication error on studer bus | An error occured on the studer nx communication bus. Verify that the bus termination switches are correctly positionned. |

transfer application

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.4.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 905 | 2 | ViewOnly | 5 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 0 |

List of items of Enum 0 (Warnings)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No warnings | The card has no warnings. |
| 1 | Warning MCU not secure | MCU security status is unsecure. |
| 2 | Warning FPGA not configured | Unpossible to configure the FPGA. |
| 4 | Communication error on studer bus | An error occured on the studer nx communication bus. Verify that the bus termination switches are correctly positionned. |

converter CAN node

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.7.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|------|------------|---------|
| 1802 | 2 | Expert | 1 | Status | ErrorActive | | - | Stores the node status. | enum | R | 0 |
| 1804 | 2 | Expert | 2 | Tx error counter | 0 | | - | Counter of the TX errors. | int | R | - |
| 1806 | 2 | Expert | 3 | Rx error counter | 0 | | - | Counter of the RX errors. | int | R | - |
| 1808 | 1 | ViewOnly | 4 | Bus termination status | false | | - | Bus termination status for this node. | bool | R | - |

List of items of Enum 0 (NodeStatus)

| Value | Label | Description |
|-------|---------------|-------------------------------------|
| 0 | Error active | The node is in error active state. |
| 1 | Error passive | The node is in error passive state. |
| 2 | Bus off | The node is in bus off state. |

transfer CAN node

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.8.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|------|------------|---------|
| 2102 | 2 | Expert | 1 | Status | ErrorActive | | - | Stores the node status. | enum | R | 0 |
| 2104 | 2 | Expert | 2 | Tx error counter | 0 | | - | Counter of the TX errors. | int | R | - |
| 2106 | 2 | Expert | 3 | Rx error counter | 0 | | - | Counter of the RX errors. | int | R | - |
| 2108 | 1 | ViewOnly | 4 | Bus termination status | false | | - | Bus termination status for this node. | bool | R | - |

List of items of Enum 0 (NodeStatus)

| Value | Label | Description |
|-------|---------------|-------------------------------------|
| 0 | Error active | The node is in error active state. |
| 1 | Error passive | The node is in error passive state. |
| 2 | Bus off | The node is in bus off state. |

device

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.14.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---|------|------------|---------|
| 4200 | 1 | Basic | 0 | Blink | false | | - | If set, the device LEDs will blink. | bool | R/W | - |
| 4205 | 2 | ViewOnly | 3 | Total functioning time | 0 | s | - | Total functioning time in this device's life. | uint | R | - |

next3 converter

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.17.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--------------------|------|---------------|---|----------|------------|---------|
| 5100 | 2 | ViewOnly | 0 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 1 |
| 5102 | 2 | ViewOnly | 1 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 0 |
| 5104 | 2 | Basic | 2 | Fan 1 speed | 0 | RPM | - | Revolution speed of fan 1 measured. | float | R | - |
| 5106 | 2 | Basic | 3 | Fan 2 speed | 0 | RPM | - | Revolution speed of fan 2 measured. | float | R | - |
| 5108 | 2 | Basic | 4 | Fan 3 speed | 0 | RPM | - | Revolution speed of fan 3 measured. | float | R | - |
| 5110 | 2 | Basic | 5 | Fan 4 speed | 0 | RPM | - | Revolution speed of fan 4 measured. | float | R | - |
| 5112 | 2 | Basic | 6 | Fan 5 speed | 0 | RPM | - | Revolution speed of fan 5 measured. | float | R | - |
| 5114 | 2 | Basic | 7 | External power supply current | 0 | A | - | External power supply current measured. | float | R | - |
| 5116 | 2 | Expert | 8 | Power supply voltage | 0 | V | - | Power supply voltage measured. | float | R | - |
| 5156 | 2 | ViewOnly | 28 | Warning noised ADC channels | NoAdcChannel | | - | Channels for which the noise exceeds "ADC noise warning threshold" (id 32). | bitfield | R | 2 |
| 5158 | 2 | ViewOnly | 29 | Error noised ADC channels | NoAdcChannel | | - | Channels for which the noise exceeds "ADC noise error threshold" (id 33). | bitfield | R | 2 |
| 5160 | 2 | ViewOnly | 30 | ADC channel selection | Meas40kHzUInv1 | | - | Choose which ADC channel is showed by "Noise of the selected ADC channel" (id 31) | enum | R/W | 2 |
| 5162 | 2 | ViewOnly | 31 | Noise of the selected ADC channel | 0 | ‰ | - | Noise of the ADC channel choosed by "ADC channel selection" (id 30). | float | R | - |

List of items of Enum 0 (Errors)

| Value | Label | Description |
|--------|--|---|
| 0 | No errors | No errors. |
| 1 | Fans failure | Fans failure. The power should be limited to protect against overheating. |
| 2 | Internal temperature sensor failure | Internal temperature sensor failure. The device must be serviced. The power is limited to protect against overheating. |
| 4 | Abnormal voltage detected on acLoad port | A voltage has been detected on AcLoad port before starting inverter. Check that no power source is connectect on AcLoad port. |
| 8 | AcLoad port broken connexion | The AcLoad port of this device is disconnected. |
| 16 | Battery port broken connexion | The battery port of this device is disconnected. |
| 32 | Battery contactor failure | Battery contactor failure. |
| 64 | Inverter1 overcurrent | Over current of the inverter 1. The device was halted for self-protection. |
| 128 | Inverter2 overcurrent | Over current of the inverter 2. The device was halted for self-protection. |
| 256 | Inverter3 overcurrent | Over current of the inverter 3. The device was halted for self-protection. |
| 512 | Inverter1 failure | Abnormal operation of inverter 1. The device was halted for self-protection. |
| 1024 | Inverter2 failure | Abnormal operation of inverter 2. The device was halted for self-protection. |
| 2048 | Inverter3 failure | Abnormal operation of inverter 3. The device was halted for self-protection. |
| 4096 | Inverters disconnected by residual current | A residual current has been detected and avoids the inverters to run. |
| 8192 | Solars disconnected by residual current | A residual current has been detected and avoids the solars to run. |
| 16384 | Residual current critical failure | A critical residual current failure has been detected. A "Clear errors" is necessary to restart converters. |
| 32768 | Internal power supply failure | Failure of the internal power supply. The device was halted for self-protection. |
| 65536 | Internal power supply overvoltage | Over-voltage on the internal power supply. The device was halted for self-protection. |
| 131072 | Internal power supply undervoltage | Under-voltage on the internal power supply. The device was halted for self-protection. |
| 262144 | Battery capacitors preload failed | Unable to preload the battery capacitors. Check that the battery could supply at least two amps. |

| Value | Label | Description |
|-----------|---|--|
| 524288 | Battery overvoltage | Over-voltage on the battery port. The device was halted for self-protection. |
| 1048576 | Battery undervoltage | Under-voltage on the battery port. The device was halted for self-protection. |
| 2097152 | Internal dclink overvoltage | Over voltage on the internal DcLink. The device was halted for self-protection. |
| 4194304 | Internal dclink undervoltage | Under voltage on the internal DcLink. The device was halted for self-protection. |
| 8388608 | Internal dclink voltage unbalanced | Unbalanced voltages on the internal DcLink. The device was halted for self-protection. |
| 16777216 | Internal dcdc converter failure | The internal DcDc converter failed. |
| 33554432 | Communication error | Too many communication errors on studer system bus. The device was halted for self-protection. |
| 67108864 | Battery temperature sensor in short circuit | The battery temperature sensor is defective. |
| 134217728 | Battery fault | A battery fault prevents normal operation. Please see warning(s)/error(s) of the corresponding battery for more informations. |
| 268435456 | Inverters disconnected by solar | A solar critical error has been detected and avoids the inverters to run. A "Clear errors" is necessary to restart converters. |
| 536870912 | Internal ADC noised | The device is faulty, please contact your installer for part replacement. |

List of items of Enum 1 (Status)

| Value | Label | Description |
|-------|---------------------------|---|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The device is in warning. |
| 2 | In error restarting | The device is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The device is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

List of items of Enum 2 (AdcChannel)

| Value | Label | Description |
|----------|-------------------------------------|--------------------------------------|
| 0 | - | No ADC channel is selected. |
| 1 | uInv1 sampled at 40kHz | uInv1 sampled at 40kHz. |
| 2 | uInv2 sampled at 40kHz | uInv2 sampled at 40kHz. |
| 4 | uInv3 sampled at 40kHz | uInv3 sampled at 40kHz. |
| 8 | iInv1 sampled at 40kHz | iInv1 sampled at 40kHz. |
| 16 | iInv2 sampled at 40kHz | iInv2 sampled at 40kHz. |
| 32 | iInv3 sampled at 40kHz | iInv3 sampled at 40kHz. |
| 32768 | uBat sampled at 20kHz | uBat sampled at 20kHz. |
| 16384 | uDcLinkH sampled at 20kHz | uDcLinkH sampled at 20kHz. |
| 8192 | uDcLinkL sampled at 20kHz | uDcLinkL sampled at 20kHz. |
| 512 | uAcOut1 sampled at 20kHz | uAcOut1 sampled at 20kHz. |
| 1024 | uAcOut2 sampled at 20kHz | uAcOut2 sampled at 20kHz. |
| 2048 | uAcOut3 sampled at 20kHz | uAcOut3 sampled at 20kHz. |
| 4096 | uPv1 sampled at 20kHz | uPv1 sampled at 20kHz. |
| 524288 | uPv2 sampled at 20kHz | uPv2 sampled at 20kHz. |
| 1048576 | iLPv1 sampled at 20kHz | iLPv1 sampled at 20kHz. |
| 64 | iLPv2 sampled at 20kHz | iLPv2 sampled at 20kHz. |
| 128 | uMainPowerSupply sampled at 20kHz | uMainPowerSupply sampled at 20kHz. |
| 65536 | uCapBat sampled at 20kHz | uCapBat sampled at 20kHz. |
| 256 | ulsoPS sampled at 20kHz | ulsoPS sampled at 20kHz. |
| 131072 | iExtPSCurrent sampled at 20kHz | iExtPSCurrent sampled at 20kHz. |
| 262144 | iEarth sampled at 20kHz | iEarth sampled at 20kHz. |
| 2097152 | uBatNegEarth sampled at 1kHz | uBatNegEarth sampled at 1kHz. |
| 4194304 | uPv1PosEarth sampled at 1kHz | uPv1PosEarth sampled at 1kHz. |
| 8388608 | uPv2PosEarth sampled at 1kHz | uPv2PosEarth sampled at 1kHz. |
| 16777216 | temperatureTransfoH sampled at 1kHz | temperatureTransfoH sampled at 1kHz. |

| Value | Label | Description |
|------------|--|---|
| 33554432 | temperatureBattery sampled at 1kHz | temperatureBattery sampled at 1kHz. |
| 67108864 | temperatureSelfSolar1 sampled at 1/8kHz | temperatureSelfSolar1 sampled at 1/8kHz. |
| 134217728 | temperatureSelfSolar2 sampled at 1/8kHz | temperatureSelfSolar2 sampled at 1/8kHz. |
| 268435456 | temperatureCoolerPlate1 sampled at 200Hz | temperatureCoolerPlate1 sampled at 200Hz. |
| 536870912 | temperatureCoolerPlate2 sampled at 200Hz | temperatureCoolerPlate2 sampled at 200Hz. |
| 1073741824 | temperatureBatPwr sampled at 200Hz | temperatureBatPwr sampled at 200Hz. |

device solar common

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.19.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|---------|------------|---------|
| 5700 | 1 | Basic | 0 | Turn on | - | | - | Turns on solar(s). | signal | W | - |
| 5701 | 1 | Basic | 1 | Turn off | - | | - | Turns off solar(s). | signal | W | - |
| 5702 | 1 | ViewOnly | 2 | On off state | false | | - | Indicates solar(s) on/off state. | bool | R | - |
| 5703 | 1 | Expert | 3 | Enable depolarization | - | | - | Enables depolarization. | signal | W | - |
| 5704 | 1 | Expert | 4 | Disable depolarization | - | | - | Disables depolarization. | signal | W | - |
| 5705 | 2 | ViewOnly | 5 | Power | 0 | W | - | Power produced. | float | R | - |
| 5707 | 2 | ViewOnly | 8 | Previous day energy | 0 | Wh | - | Energy produced for the previous day. | float | R | - |
| 5709 | 2 | ViewOnly | 9 | Power limit | 0 | W | - | Solar(s) power limit. | uint | R | - |
| 5711 | 2 | ViewOnly | 10 | Day energy | 0 | Wh | - | Energy produced for the current day. | float | R | - |
| 5715 | 4 | ViewOnly | 12 | Resetable energy | 0 | Wh | - | Energy produced (can be reset). | float64 | R/W | - |
| 5719 | 4 | ViewOnly | 13 | Total energy | 0 | Wh | - | Total energy produced (whole life). | float64 | R | - |

solar common 1

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.20.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|---------|------------|---------|
| 6000 | 1 | Basic | 0 | Turn on | - | | - | Turns on solar(s). | signal | W | - |
| 6001 | 1 | Basic | 1 | Turn off | - | | - | Turns off solar(s). | signal | W | - |
| 6002 | 1 | ViewOnly | 2 | On off state | false | | - | Indicates solar(s) on/off state. | bool | R | - |
| 6003 | 1 | Expert | 3 | Enable depolarization | - | | - | Enables depolarization. | signal | W | - |
| 6004 | 1 | Expert | 4 | Disable depolarization | - | | - | Disables depolarization. | signal | W | - |
| 6005 | 2 | ViewOnly | 5 | Power | 0 | W | - | Power produced. | float | R | - |
| 6007 | 2 | ViewOnly | 8 | Previous day energy | 0 | Wh | - | Energy produced for the previous day. | float | R | - |
| 6009 | 2 | ViewOnly | 9 | Power limit | 0 | W | - | Solar(s) power limit. | uint | R | - |
| 6011 | 2 | ViewOnly | 10 | Day energy | 0 | Wh | - | Energy produced for the current day. | float | R | - |
| 6015 | 4 | ViewOnly | 12 | Resetable energy | 0 | Wh | - | Energy produced (can be reset). | float64 | R/W | - |
| 6019 | 4 | ViewOnly | 13 | Total energy | 0 | Wh | - | Total energy produced (whole life). | float64 | R | - |

solar common 2

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.21.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|---------|------------|---------|
| 6300 | 1 | Basic | 0 | Turn on | - | | - | Turns on solar(s). | signal | W | - |
| 6301 | 1 | Basic | 1 | Turn off | - | | - | Turns off solar(s). | signal | W | - |
| 6302 | 1 | ViewOnly | 2 | On off state | false | | - | Indicates solar(s) on/off state. | bool | R | - |
| 6303 | 1 | Expert | 3 | Enable depolarization | - | | - | Enables depolarization. | signal | W | - |
| 6304 | 1 | Expert | 4 | Disable depolarization | - | | - | Disables depolarization. | signal | W | - |
| 6305 | 2 | ViewOnly | 5 | Power | 0 | W | - | Power produced. | float | R | - |
| 6307 | 2 | ViewOnly | 8 | Previous day energy | 0 | Wh | - | Energy produced for the previous day. | float | R | - |
| 6309 | 2 | ViewOnly | 9 | Power limit | 0 | W | - | Solar(s) power limit. | uint | R | - |
| 6311 | 2 | ViewOnly | 10 | Day energy | 0 | Wh | - | Energy produced for the current day. | float | R | - |
| 6315 | 4 | ViewOnly | 12 | Resetable energy | 0 | Wh | - | Energy produced (can be reset). | float64 | R/W | - |
| 6319 | 4 | ViewOnly | 13 | Total energy | 0 | Wh | - | Total energy produced (whole life). | float64 | R | - |

device solar group

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.22.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------|-------------------------|------|---------------|---------------------------------|----------|------------|---------|
| 6600 | 2 | ViewOnly | 0 | Number | 0 | | - | Number of converters. | uint | R | - |
| 6602 | 2 | ViewOnly | 1 | Status | AtLeastOneSolarDisabled | | - | Bitfield containing the status. | bitfield | R | 0 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|--|---|
| 1 | At least one solar disabled | At least one solar is disabled. |
| 2 | At least one solar has warning(s) | At least one solar has warning(s). |
| 4 | At least one solar in error restarting | At least one solar is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 8 | At least one solar in error halted | At least one solar is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |
| 16 | At least one solar in night | At least one solar is in night. |
| 32 | At least one solar in dawn/dusk | At least one solar is in dawn/dusk. |
| 64 | At least one solar in production | At least one solar is in production. |
| 128 | At least one solar in production limited | At least one solar is in production limited. |
| 256 | At least one solar in solar excess | At least one solar is in production limited due to solar excess. |

solar 1

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.23.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------|---------------|------|---------------|--|----------|------------|---------|
| 6900 | 2 | ViewOnly | 0 | Voltage | 0 | V | - | Voltage measured. | float | R | - |
| 6902 | 2 | ViewOnly | 3 | Current | 0 | A | - | Current measured. | float | R | - |
| 6904 | 2 | ViewOnly | 6 | Day sunshine | 0 | s | - | Sun radiation for the current day. | uint | R | - |
| 6906 | 2 | ViewOnly | 7 | Previous day sunshine | 0 | s | - | Sun radiation for the previous day. | uint | R | - |
| 6908 | 2 | ViewOnly | 8 | Status | Disabled | | - | Enum containing the status. | enum | R | 0 |
| 6910 | 2 | ViewOnly | 9 | Cause of error | NoErrors | | - | Memorizes why the converter entered "Error halted" (value 6) or "Error restarting" (value 7) state. The bitfield is cleared once the converter leaved one of these states. | bitfield | R | 1 |
| 6912 | 2 | ViewOnly | 10 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 1 |
| 6914 | 2 | ViewOnly | 11 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 2 |
| 6916 | 2 | Expert | 12 | Depolarization | NotAvailable | | - | Indicates the depolarization state. | enum | R | 3 |
| 6918 | 2 | ViewOnly | 13 | Limitation state | NotLimited | | - | Indicates if there is a limitation and the reason of the limitation. | enum | R | 4 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|------------------|--|
| 0 | Production | The solar converter is running. |
| 1 | Night | The solar converter is turned on and in night mode because very low voltage is detected. |
| 2 | Dawn/dusk | The solar converter is turned on and in dawn/dusk mode because voltage is detected but lower than the starting voltage. |
| 3 | Disabled | The solar converter is disabled. |
| 4 | Starting | The solar converter is starting. |
| 5 | Stopping | The solar converter is stopping. |
| 6 | Error halted | The solar converter is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |
| 7 | Error restarting | The solar converter is temporarily maintained in error and will restart automatically once the error(s) leaved. |

List of items of Enum 1 (Errors)

| Value | Label | Description |
|-------|-----------------------|--|
| 0 | No errors | The solar converter has no errors. |
| 1 | overvoltage | An error overvoltage has been detected. Please reduce the number of strings in serie. |
| 2 | overcurrent | An error overcurrent has been detected. |
| 4 | polarity inversion | A polarity inversion has been detected. Please verify the wiring. |
| 8 | insulation default | An insulation default has been detected. Please verify the insulation between PV+ and earth and PV- and earth. |
| 16 | stop failed | The converter stop has failed. |
| 32 | start failed | The converter start has failed. |
| 64 | device fault | The device was stopped to protect himself against abnormal situation. |
| 128 | depolarization failed | The depolarization has failed. A new attempt will be made the next time the converter leaves the "Production" (value 0) state. |

| Value | Label | Description |
|-------|-----------------|---|
| 256 | Negativ current | A negativ current has been measured. Please try to disconnect the solar panels from the device. If the error persists, the device must be serviced. |

List of items of Enum 2 (Warnings)

| Value | Label | Description |
|-------|-----------------------|--|
| 0 | No warnings | The solar converter has no warnings. |
| 1 | overvoltage | A warning overvoltage has been detected. Please consider to reduce the number of strings in serie. |
| 2 | no production for 48h | No production for 48h has been detected. |
| 4 | overtemperature | Overtemperature. The power could be reduced to protect the power converter unit. |

List of items of Enum 3 (DepolarizationState)

| Value | Label | Description |
|-------|---------------|---|
| 0 | Not available | Option is not available on this device. |
| 1 | Disabled | The depolarization is disabled. |
| 2 | Enabled | The depolarization is enabled but not currently depolarizing. |
| 3 | Depolarizing | The depolarization is currently running. |

List of items of Enum 4 (LimitationState)

| Value | Label | Description |
|-------|---------------------|---|
| 0 | Not limited | The solar converter is not limited and all the solar power is available. |
| 1 | Temperature limited | The solar converter is limited by the device temperature. |
| 2 | Max power reached | The solar converter maximum power has been reached. |
| 3 | Max current reached | The solar converter maximum current has been reached. |
| 4 | Solar excess | The solar converter is limited because the system can't absorb all the solar power. For example if the grid feeding is not allowed and the batteries are full, the solar power will be limited to the value of the loads. |

solar 2

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.24.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------|---------------|------|---------------|--|----------|------------|---------|
| 7200 | 2 | ViewOnly | 0 | Voltage | 0 | V | - | Voltage measured. | float | R | - |
| 7202 | 2 | ViewOnly | 3 | Current | 0 | A | - | Current measured. | float | R | - |
| 7204 | 2 | ViewOnly | 6 | Day sunshine | 0 | s | - | Sun radiation for the current day. | uint | R | - |
| 7206 | 2 | ViewOnly | 7 | Previous day sunshine | 0 | s | - | Sun radiation for the previous day. | uint | R | - |
| 7208 | 2 | ViewOnly | 8 | Status | Disabled | | - | Enum containing the status. | enum | R | 0 |
| 7210 | 2 | ViewOnly | 9 | Cause of error | NoErrors | | - | Memorizes why the converter entered "Error halted" (value 6) or "Error restarting" (value 7) state. The bitfield is cleared once the converter leaved one of these states. | bitfield | R | 1 |
| 7212 | 2 | ViewOnly | 10 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 1 |
| 7214 | 2 | ViewOnly | 11 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 2 |
| 7216 | 2 | Expert | 12 | Depolarization | NotAvailable | | - | Indicates the depolarization state. | enum | R | 3 |
| 7218 | 2 | ViewOnly | 13 | Limitation state | NotLimited | | - | Indicates if there is a limitation and the reason of the limitation. | enum | R | 4 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|------------------|--|
| 0 | Production | The solar converter is running. |
| 1 | Night | The solar converter is turned on and in night mode because very low voltage is detected. |
| 2 | Dawn/dusk | The solar converter is turned on and in dawn/dusk mode because voltage is detected but lower than the starting voltage. |
| 3 | Disabled | The solar converter is disabled. |
| 4 | Starting | The solar converter is starting. |
| 5 | Stopping | The solar converter is stopping. |
| 6 | Error halted | The solar converter is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |
| 7 | Error restarting | The solar converter is temporarily maintained in error and will restart automatically once the error(s) leaved. |

List of items of Enum 1 (Errors)

| Value | Label | Description |
|-------|-----------------------|--|
| 0 | No errors | The solar converter has no errors. |
| 1 | overvoltage | An error overvoltage has been detected. Please reduce the number of strings in serie. |
| 2 | overcurrent | An error overcurrent has been detected. |
| 4 | polarity inversion | A polarity inversion has been detected. Please verify the wiring. |
| 8 | insulation default | An insulation default has been detected. Please verify the insulation between PV+ and earth and PV- and earth. |
| 16 | stop failed | The converter stop has failed. |
| 32 | start failed | The converter start has failed. |
| 64 | device fault | The device was stopped to protect himself against abnormal situation. |
| 128 | depolarization failed | The depolarization has failed. A new attempt will be made the next time the converter leaves the "Production" (value 0) state. |

| Value | Label | Description |
|-------|-----------------|---|
| 256 | Negativ current | A negativ current has been measured. Please try to disconnect the solar panels from the device. If the error persists, the device must be serviced. |

List of items of Enum 2 (Warnings)

| Value | Label | Description |
|-------|-----------------------|--|
| 0 | No warnings | The solar converter has no warnings. |
| 1 | overvoltage | A warning overvoltage has been detected. Please consider to reduce the number of strings in serie. |
| 2 | no production for 48h | No production for 48h has been detected. |
| 4 | overtemperature | Overtemperature. The power could be reduced to protect the power converter unit. |

List of items of Enum 3 (DepolarizationState)

| Value | Label | Description |
|-------|---------------|---|
| 0 | Not available | Option is not available on this device. |
| 1 | Disabled | The depolarization is disabled. |
| 2 | Enabled | The depolarization is enabled but not currently depolarizing. |
| 3 | Depolarizing | The depolarization is currently running. |

List of items of Enum 4 (LimitationState)

| Value | Label | Description |
|-------|---------------------|---|
| 0 | Not limited | The solar converter is not limited and all the solar power is available. |
| 1 | Temperature limited | The solar converter is limited by the device temperature. |
| 2 | Max power reached | The solar converter maximum power has been reached. |
| 3 | Max current reached | The solar converter maximum current has been reached. |
| 4 | Solar excess | The solar converter is limited because the system can't absorb all the solar power. For example if the grid feeding is not allowed and the batteries are full, the solar power will be limited to the value of the loads. |

MPPT algorithm 1

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.25.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------|----------------|------|---------------|---|-------|------------|---------|
| 7500 | 2 | Basic | 0 | Algorithm | LeastSquareFit | | - | Used to select the MPPT algorithm. | enum | R/W | 0 |
| 7502 | 2 | Basic | 1 | Voltage setpoint | -1 | V | [0, 1000] | Converter voltage setpoint applied when "Algorithm" (id 0) is set to "Fixed voltage" (value 1). | float | R/W | - |
| 7504 | 1 | Basic | 2 | Check for global MPP | true | | - | Enables periodical check for global maximum power point to avoid power reduction due to partial shading. Note that this property is used only when "Algorithm" (id 0) is set to "Least square fit" (value 0). | bool | R/W | - |
| 7505 | 2 | Basic | 3 | Period for global MPP check | 3600 | s | [60 36000] | Sets the period for global maximum power point check. Note that this property is used only when "Algorithm" (id 0) is set to "Least square fit" (value 0). | uint | R/W | - |
| 7507 | 2 | Basic | 4 | Voltage ratio | 0.8 | | [0 1.5] | Ratio voltage setpoint/open-circuit voltage. Note that this property is used only when "Algorithm" (id 0) is set to "Fixed open-circuit voltage ratio" (value 2). | float | R/W | - |
| 7509 | 2 | Basic | 5 | Period for measuring OCV | 300 | s | [60 36000] | Sets the period for measuring open-circuit voltage. Note that this property is used only when "Algorithm" (id 0) is set to "Fixed open-circuit voltage ratio" (value 2). | uint | R/W | - |

List of items of Enum 0 (AlgoSelected)

| Value | Label | Description |
|-------|----------------------------------|---|
| 0 | Least square fit | Improved version of the well-known perturb and observe algorithm. |
| 1 | Fixed voltage | Allows the user to set manually the converter voltage setpoint. |
| 2 | Fixed open-circuit voltage ratio | Allows the user to set manually a ratio between the converter voltage setpoint and the open-circuit voltage. The converter returns periodically at the open-circuit voltage for measuring the voltage. The setpoint is then set to the measured voltage times "Voltage ratio" (id 4). |

MPPT algorithm 2

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.26.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------|----------------|------|---------------|---|-------|------------|---------|
| 7800 | 2 | Basic | 0 | Algorithm | LeastSquareFit | | - | Used to select the MPPT algorithm. | enum | R/W | 0 |
| 7802 | 2 | Basic | 1 | Voltage setpoint | -1 | V | [0, 1000] | Converter voltage setpoint applied when "Algorithm" (id 0) is set to "Fixed voltage" (value 1). | float | R/W | - |
| 7804 | 1 | Basic | 2 | Check for global MPP | true | | - | Enables periodical check for global maximum power point to avoid power reduction due to partial shading. Note that this property is used only when "Algorithm" (id 0) is set to "Least square fit" (value 0). | bool | R/W | - |
| 7805 | 2 | Basic | 3 | Period for global MPP check | 3600 | s | [60 36000] | Sets the period for global maximum power point check. Note that this property is used only when "Algorithm" (id 0) is set to "Least square fit" (value 0). | uint | R/W | - |
| 7807 | 2 | Basic | 4 | Voltage ratio | 0.8 | | [0 1.5] | Ratio voltage setpoint/open-circuit voltage. Note that this property is used only when "Algorithm" (id 0) is set to "Fixed open-circuit voltage ratio" (value 2). | float | R/W | - |
| 7809 | 2 | Basic | 5 | Period for measuring OCV | 300 | s | [60 36000] | Sets the period for measuring open-circuit voltage. Note that this property is used only when "Algorithm" (id 0) is set to "Fixed open-circuit voltage ratio" (value 2). | uint | R/W | - |

List of items of Enum 0 (AlgoSelected)

| Value | Label | Description |
|-------|----------------------------------|---|
| 0 | Least square fit | Improved version of the well-known perturb and observe algorithm. |
| 1 | Fixed voltage | Allows the user to set manually the converter voltage setpoint. |
| 2 | Fixed open-circuit voltage ratio | Allows the user to set manually a ratio between the converter voltage setpoint and the open-circuit voltage. The converter returns periodically at the open-circuit voltage for measuring the voltage. The setpoint is then set to the measured voltage times "Voltage ratio" (id 4). |

aux relay 1

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.27.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 8100 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 8101 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 8103 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 8107 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 8109 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 8111 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 8113 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 8115 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 8117 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 8119 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 8121 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 8123 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 8125 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 8127 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 8129 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 8131 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 8133 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 8135 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 8141 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 8143 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 8145 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

aux relay 2

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.28.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 8400 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 8401 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 8403 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 8407 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 8409 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 8411 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 8413 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 8415 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 8417 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 8419 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 8421 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 8423 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 8425 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 8427 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 8429 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 8431 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 8433 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 8435 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 8441 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 8443 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 8445 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

aux relay 1 time control

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.29.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 8700 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 8702 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 8704 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 8706 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 8708 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 8710 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 8712 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 8714 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 8716 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 8718 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 8720 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 8722 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 8724 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 8726 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 8728 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 8730 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 8732 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 8734 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

aux relay 2 time control

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.30.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 9000 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 9002 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 9004 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 9006 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 9008 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 9010 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 9012 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 9014 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 9016 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 9018 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 9020 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 9022 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 9024 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 9026 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 9028 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 9030 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 9032 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 9034 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

cmd input 1

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.31.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------|----------------------------|------|---------------|--|------|------------|---------|
| 9302 | 1 | ViewOnly | 2 | Current state | false | | - | Current command entry state. | bool | R | - |
| 9303 | 2 | ViewOnly | 3 | Cmd entry system index | -1 | | - | Index in the system of this command entry. | int | R | - |
| 9305 | 2 | Basic | 4 | Cmd entry configuration | ActiveWhenDryContactClosed | | - | Configuration of this command entry. | enum | R/W | 0 |

List of items of Enum 0 (ConfigurationEnum)

| Value | Label | Description |
|-------|-------------------------------------|---|
| 0 | Active when dry contact closed | The function associated with this remote entry is active when the dry contact is closed. |
| 1 | Active when dry contact opened | The function associated with this remote entry is active when the dry contact is opened. |
| 2 | Active when a voltage is supplied. | The function associated with this remote entry is active when a voltage is supplied. |
| 3 | Active when no voltage is supplied. | The function associated with this remote entry is active when no voltage is supplied. |
| 4 | DRED port for DRM0 | Port used with a Demand Response Enabling Device for the Demand Response Mode 0 (Australain/New Zeland standard). |

cmd input 2

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.32.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------|----------------------------|------|---------------|--|------|------------|---------|
| 9602 | 1 | ViewOnly | 2 | Current state | false | | - | Current command entry state. | bool | R | - |
| 9603 | 2 | ViewOnly | 3 | Cmd entry system index | -1 | | - | Index in the system of this command entry. | int | R | - |
| 9605 | 2 | Basic | 4 | Cmd entry configuration | ActiveWhenDryContactClosed | | - | Configuration of this command entry. | enum | R/W | 0 |

List of items of Enum 0 (ConfigurationEnum)

| Value | Label | Description |
|-------|-------------------------------------|---|
| 0 | Active when dry contact closed | The function associated with this remote entry is active when the dry contact is closed. |
| 1 | Active when dry contact opened | The function associated with this remote entry is active when the dry contact is opened. |
| 2 | Active when a voltage is supplied. | The function associated with this remote entry is active when a voltage is supplied. |
| 3 | Active when no voltage is supplied. | The function associated with this remote entry is active when no voltage is supplied. |
| 4 | DRED port for DRM0 | Port used with a Demand Response Enabling Device for the Demand Response Mode 0 (Australain/New Zeland standard). |

battery contributor

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.33.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------|---------------|------|---------------|---|-------|------------|---------|
| 9900 | 2 | ViewOnly | 0 | Charging current | 0 | A | - | Charging current measured. | float | R | - |
| 9902 | 2 | ViewOnly | 1 | Temp sensor | Disconnected | | - | Indicates the temperature sensor state. | enum | R | 0 |
| 9904 | 2 | ViewOnly | 2 | Temp | -30 | °C | - | Temperature measured. | float | R | - |
| 9910 | 2 | ViewOnly | 5 | Voltage | 0 | V | - | Voltage measured. | float | R | - |

List of items of Enum 0 (State)

| Value | Label | Description |
|-------|--------------|--|
| 0 | Disconnected | The temperature sensor is disconnected. |
| 1 | Connected | The temperature sensor is connected. |
| 2 | ShortCircuit | The temperature sensor has a problem. A short circuit has been detected. |

RS 485i bus

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.34.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|-----------------|------|---------------|--|------|------------|---------|
| 10202 | 1 | ViewOnly | 1 | Bus termination status | false | | - | Bus termination status for this communication bus. | bool | R | - |
| 10203 | 2 | Expert | 2 | Baudrate | Baudrate9600bps | | - | Connection baudrate. | enum | R/W | 1 |
| 10205 | 2 | Expert | 3 | Parity | ParityEven | | - | Parity type to be used. | enum | R/W | 2 |
| 10207 | 2 | Expert | 4 | Stop bits | StopBitsOne | | - | Number of stop bits per transmitted character. | enum | R/W | 3 |
| 10209 | 2 | Expert | 5 | Data bits | DataBitsData8 | | - | Number of data bits per transmitted character. | enum | R/W | 4 |

List of items of Enum 1 (BaudrateType)

| Value | Label | Description |
|------------|------------------|---|
| 9600 | 9600bps | Baudrate set to 9600bps. |
| 19200 | 19200bps | Baudrate set to 19200bps. |
| 38400 | 38400bps | Baudrate set to 38400bps. |
| 115200 | 115200bps | Baudrate set to 115200bps. |
| 4294967295 | Not configurable | The baudrate is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 2 (ParityType)

| Value | Label | Description |
|------------|------------------|---|
| 0 | None | No parity. |
| 2 | Even | Parity even. |
| 3 | Odd | Parity odd. |
| 4 | Space | Parity space. |
| 5 | Mark | Parity mark. |
| 4294967295 | Not configurable | The parity is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 3 (StopBitsType)

| Value | Label | Description |
|------------|------------------|---|
| 1 | One | One stop bit. |
| 2 | Two | Two stop bits. |
| 3 | One and a half | One and half stop bit. |
| 4294967295 | Not configurable | The stop bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 4 (DataBitsType)

| Value | Label | Description |
|-------|-------|-----------------|
| 5 | Five | Five data bits. |
| 6 | Six | Six data bits. |

| Value | Label | Description |
|------------|------------------|---|
| 7 | Seven | Seven data bits. |
| 8 | Eight | Eight data bits. |
| 4294967295 | Not configurable | The data bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

CANi bus

Group : Next3

Modbus device address : 14 to 28

External ID : 10.x.35.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|-----------------|------|---------------|--|------|------------|---------|
| 10502 | 1 | ViewOnly | 1 | Bus termination status | false | | - | Bus termination status for this communication bus. | bool | R | - |
| 10503 | 2 | Expert | 2 | Baudrate | Baudrate9600bps | | - | Connection baudrate. | enum | R/W | 1 |
| 10505 | 2 | Expert | 3 | Parity | ParityEven | | - | Parity type to be used. | enum | R/W | 2 |
| 10507 | 2 | Expert | 4 | Stop bits | StopBitsOne | | - | Number of stop bits per transmitted character. | enum | R/W | 3 |
| 10509 | 2 | Expert | 5 | Data bits | DataBitsData8 | | - | Number of data bits per transmitted character. | enum | R/W | 4 |

List of items of Enum 1 (BaudrateType)

| Value | Label | Description |
|------------|------------------|---|
| 9600 | 9600bps | Baudrate set to 9600bps. |
| 19200 | 19200bps | Baudrate set to 19200bps. |
| 38400 | 38400bps | Baudrate set to 38400bps. |
| 115200 | 115200bps | Baudrate set to 115200bps. |
| 4294967295 | Not configurable | The baudrate is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 2 (ParityType)

| Value | Label | Description |
|------------|------------------|---|
| 0 | None | No parity. |
| 2 | Even | Parity even. |
| 3 | Odd | Parity odd. |
| 4 | Space | Parity space. |
| 5 | Mark | Parity mark. |
| 4294967295 | Not configurable | The parity is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 3 (StopBitsType)

| Value | Label | Description |
|------------|------------------|---|
| 1 | One | One stop bit. |
| 2 | Two | Two stop bits. |
| 3 | One and a half | One and half stop bit. |
| 4294967295 | Not configurable | The stop bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 4 (DataBitsType)

| Value | Label | Description |
|-------|-------|-----------------|
| 5 | Five | Five data bits. |
| 6 | Six | Six data bits. |

| Value | Label | Description |
|------------|------------------|---|
| 7 | Seven | Seven data bits. |
| 8 | Eight | Eight data bits. |
| 4294967295 | Not configurable | The data bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

ID card

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.1.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------|---------------|------|---------------|---|----------|------------|---------|
| 4 | 8 | ViewOnly | 2 | Serial Number | "Invalid" | | - | Serial Number of this Studer Innotec device. | char[15] | R | - |
| 14 | 2 | ViewOnly | 4 | Software package version | 0 | | - | Software package version in this format : MAJOR.MIDDLE.MINOR.PATCH, encoded as follows from MSB to LSB : MAJOR (8 bits), MIDDLE (8bits), MINOR (12 bits), PATCH (4 bits). | uint | R | - |
| 18 | 4 | ViewOnly | 6 | Software revision | "" | | - | SHA-1 of the software project commit | char[7] | R | - |
| 30 | 2 | ViewOnly | 8 | ObjectModel version | 0 | | - | Version of the currently used ObjectModel in this format : MAJOR.MINOR, encoded as follows from MSB to LSB : MAJOR (16 bits), MINOR (16 bits). | uint | R | - |

application

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.2.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 305 | 2 | ViewOnly | 5 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 0 |

List of items of Enum 0 (Warnings)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No warnings | The card has no warnings. |
| 1 | Warning MCU not secure | MCU security status is unsecure. |
| 2 | Warning FPGA not configured | Unpossible to configure the FPGA. |
| 4 | Communication error on studer bus | An error occured on the studer nx communication bus. Verify that the bus termination switches are correctly positionned. |

CAN node

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.4.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|------|------------|---------|
| 902 | 2 | Expert | 1 | Status | ErrorActive | | - | Stores the node status. | enum | R | 0 |
| 904 | 2 | Expert | 2 | Tx error counter | 0 | | - | Counter of the TX errors. | int | R | - |
| 906 | 2 | Expert | 3 | Rx error counter | 0 | | - | Counter of the RX errors. | int | R | - |
| 908 | 1 | ViewOnly | 4 | Bus termination status | false | | - | Bus termination status for this node. | bool | R | - |

List of items of Enum 0 (NodeStatus)

| Value | Label | Description |
|-------|---------------|-------------------------------------|
| 0 | Error active | The node is in error active state. |
| 1 | Error passive | The node is in error passive state. |
| 2 | Bus off | The node is in bus off state. |

device

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.7.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---|------|------------|---------|
| 1800 | 1 | Basic | 0 | Blink | false | | - | If set, the device LEDs will blink. | bool | R/W | - |
| 1805 | 2 | ViewOnly | 3 | Total functioning time | 0 | s | - | Total functioning time in this device's life. | uint | R | - |

next1

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.10.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--------------------|------|---------------|---|----------|------------|---------|
| 2700 | 2 | ViewOnly | 0 | Status | NoWarningsOrErrors | | - | Enum containing the status. | enum | R | 1 |
| 2702 | 2 | ViewOnly | 1 | Errors | NoErrors | | - | Bitfield containing the errors. | bitfield | R | 0 |
| 2732 | 2 | Basic | 16 | Fan 1 speed | 0 | RPM | - | Revolution speed of fan 1 measured. | float | R | - |
| 2734 | 2 | Basic | 17 | Fan 2 speed | 0 | RPM | - | Revolution speed of fan 2 measured. | float | R | - |
| 2736 | 2 | Basic | 18 | Fan 3 speed | 0 | RPM | - | Revolution speed of fan 3 measured. | float | R | - |
| 2742 | 2 | Basic | 21 | External power supply current | 0 | A | - | External power supply current measured. | float | R | - |

List of items of Enum 0 (Errors)

| Value | Label | Description |
|-------|---|---|
| 0 | No errors | No errors. |
| 1 | Fans failure | Fans failure. The power should be limited to protect against overheating. |
| 2 | Internal temperature sensor failure | Internal temperature sensor failure. The device must be serviced. The power is limited to protect against overheating. |
| 4 | Abnormal voltage detected on acLoad port | A voltage has been detected on AcLoad port before starting inverter. Check that no power source is connectect on AcLoad port. |
| 8 | AcLoad port broken connexion | The AcLoad port of this device is disconnected. |
| 16 | Battery port broken connexion | The battery port of this device is disconnected. |
| 32 | Inverter overcurrent | Over current of the inverter. The device was halted for self-protection. |
| 64 | Inverter failure | Abnormal operation of inverter. The device was halted for self-protection. |
| 128 | Internal power supply failure | Failure of the internal power supply. The device was halted for self-protection. |
| 256 | Internal power supply overvoltage | Over-voltage on the internal power supply. The device was halted for self-protection. |
| 512 | Internal power supply undervoltage | Under-voltage on the internal power supply. The device was halted for self-protection. |
| 1024 | Battery overvoltage | Over-voltage on the battery port. The device was halted for self-protection. |
| 2048 | Battery undervoltage | Under-voltage on the battery port. The device was halted for self-protection. |
| 4096 | Communication error | Too many communication errors on studer system bus. The device was halted for self-protection. |
| 8192 | Battery temperature sensor in short circuit | The battery temperature sensor is defective. |
| 16384 | battery fault | A battery fault prevents normal operation. Please see warning(s)/error(s) of the corresponding battery for more informations. |

List of items of Enum 1 (Status)

| Value | Label | Description |
|-------|---------------------------|---|
| 0 | No warning(s) or error(s) | No warning(s) or error(s). |
| 1 | In warning | The device is in warning. |
| 2 | In error restarting | The device is temporarily maintained in error and will restart automatically once the error(s) leaved. |
| 3 | In error halted | The device is maintained in error until either the "Clear errors" button is pressed on the user interface, the device front panel button is pressed shortly or a signal is sent via the property "Clear errors" (id 0). |

aux relay 1

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.11.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 3000 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 3001 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 3003 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 3007 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 3009 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 3011 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 3013 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 3015 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 3017 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 3019 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 3021 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 3023 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 3025 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 3027 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 3029 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 3031 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 3033 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 3035 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 3041 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 3043 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 3045 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

aux relay 2

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.12.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|------------------|---|----------|------------|---------|
| 3300 | 1 | ViewOnly | 0 | Is connected | false | | - | Shows the relay current state. | bool | R | - |
| 3301 | 2 | ViewOnly | 1 | Position | SafeStateOff | | - | Current position. | enum | R | 5 |
| 3303 | 2 | ViewOnly | 2 | Errors | NoErrors | | - | Relay aux list of errors. | enum | R | 6 |
| 3307 | 2 | Basic | 4 | Operating mode | ManualOff | | - | Selection of controlled relay operating mode. | enum | R/W | 0 |
| 3309 | 2 | Basic | 5 | Auto mode selection | PresetBatVolt | | - | Selection of the automatic configuration. | enum | R/W | 1 |
| 3311 | 2 | Basic | 6 | Safe state selection | SafeOff | | - | Selection of the controlled relay safe state position in case of problem or undetermined condition. | enum | R/W | 2 |
| 3313 | 2 | Basic | 7 | Bat. volt. act. thresh. voltage | 42 | V | [32,70] | Pre-set battery voltage activation threshold voltage. | float | R/W | - |
| 3315 | 2 | Basic | 8 | Bat. volt. deact. thresh. volt. | 52 | V | [32,70] | Pre-set battery voltage deactivation threshold voltage. | float | R/W | - |
| 3317 | 2 | Basic | 9 | Bat. SOC act. thresh. SOC | 10 | % | [0,100] | Pre-set battery SOC activation threshold SOC. | uint | R/W | - |
| 3319 | 2 | Basic | 10 | Bat. SOC deact. thresh. SOC | 90 | % | [0,100] | Pre-set battery SOC deactivation threshold SOC. | uint | R/W | - |
| 3321 | 2 | Basic | 11 | Bat. temp. act. thresh. temp. | 50 | °C | [0,150] | Pre-set battery temperature activation threshold temperature. | uint | R/W | - |
| 3323 | 2 | Basic | 12 | Bat. temp. deact. thresh. temp. | 30 | °C | [0,150] | Pre-set battery temperature deactivation threshold temperature. | uint | R/W | - |
| 3325 | 2 | Basic | 13 | Bat. charg. state states select. | None | | - | Pre-set battery charging state selection of the triggering states. Multiple choice possible. | bitfield | R/W | 8 |
| 3327 | 2 | Basic | 14 | Power ac power selection | AcSourceAll | | - | Pre-set power ac selection of the source/load active power for comparison. | enum | R/W | 3 |
| 3329 | 2 | Basic | 15 | Power ac activ. thresh. power | 1000 | W | [-200000,200000] | Pre-set power ac activation threshold power. | float | R/W | - |
| 3331 | 2 | Basic | 16 | Power ac deact. thresh. power | 0 | W | [-200000,200000] | Pre-set power ac deactivation threshold power. | float | R/W | - |
| 3333 | 2 | Basic | 17 | Sol. exc. on-grid act. thresh. power | 1000 | W | - | Pre-set solar excess on-grid activation threshold power. | float | R/W | - |
| 3335 | 2 | Basic | 18 | Sol. exc. on-grid deact. thresh. power | 500 | W | - | Pre-set solar excess on-grid deactivation threshold power. | float | R/W | - |
| 3341 | 2 | Basic | 21 | Cmd entry select index | 0 | | [0,10] | Index of the command entry interface used to control the relay. | uint | R/W | - |
| 3343 | 2 | Basic | 22 | Errors and warnings select signal | TrigOnErrorsHalted | | - | Pre-set errors and warnings selection of the triggering signal. | bitfield | R/W | 4 |
| 3345 | 2 | Basic | 23 | Source selection | OnAcSource1Connection | | - | Pre-set on source selection. | enum | R/W | 9 |

List of items of Enum 0 (OperatingMode)

| Value | Label | Description |
|-------|------------|---|
| 0 | Manual Off | Relay is permanently deactivated (position NC). |

| Value | Label | Description |
|-------|-----------|--|
| 1 | Manual On | Relay is permanently activated (position NO). |
| 2 | Auto | Relay is activated according to a preset conditional mode. |

List of items of Enum 1 (AutoMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Battery voltage | Relay is activated when the battery voltage reaches the activation threshold voltage. Relay is deactivated when the battery voltage reaches deactivation threshold voltage. |
| 1 | Battery SOC | Relay is activated when the battery SOC (state of charge) reaches the activation threshold SOC. Relay is deactivated when the SOC voltage reaches deactivation threshold SOC. |
| 2 | Battery temperature | Relay is activated when the battery temperature reaches the activation threshold temperature. Relay is deactivated when the battery temperature reaches deactivation threshold temperature. |
| 3 | Battery charg. state | Relay is activated depending on battery charging state. |
| 4 | Power AC | Relay is activated when the active power AC reaches the activation threshold power. Relay is deactivated when the power AC reaches the deactivation threshold power. The power used for this comparison can be selected between AcSource, AcFlexSource or AcLoad. |
| 5 | On-Source | Relay is activated when the device is operating on a source. The type of source can be selected with "Source selection" (id 23) |
| 12 | Off-Source | Relay is activated when the device is operating and not connected to a source (offgrid). |
| 6 | Solar excess on-grid | Relay is activated with the following conditions: the activation threshold power is reached on AC Source, the transfer is connected to the AC source (ongrid). Relay is disabled once one of the following condition is true: AC source power reaches the deactivation power threshold, the inverter is offgrid. |
| 7 | Solar excess | Relay is activated when at least one solar converter in the system is limited due to a solar excess. |
| 8 | Schedule time | Relay is activated during a daily time frame. |
| 9 | Cmd entry | Relay is activated depending on command entry state. It is possible to combine the 2 command entries using boolean logic. |
| 10 | Errors and warnings | Relay is activated using the device errors and/or the warnings. |
| 11 | Ext bypass | Relay is activated when all phases of the inverter are connected to AC-Load and working. The purpose of this function is for example to enable an external bypass. |

List of items of Enum 2 (SafeState)

| Value | Label | Description |
|-------|-------------|--|
| 0 | Safe Off | Relay is deactivated in case of undetermined condition or problem. |
| 1 | Safe On | Relay is activated in case of undetermined condition or problem. |
| 2 | Last manual | Relay takes the state of the last manual operation in case of undetermined condition or problem. |

List of items of Enum 3 (PresetPacSelection)

| Value | Label | Description |
|-------|--------------------|---|
| 0 | Ac source all | Power detection on AcSource. Total active power on all phases. |
| 1 | Ac source L1 | Power detection on AcSource L1. |
| 2 | Ac source L2 | Power detection on AcSource L2. |
| 3 | Ac source L3 | Power detection on AcSource L3. |
| 4 | Ac flex source all | Power detection on AcFlex configured as source. Total active power on all phases. |
| 5 | Ac flex source L1 | Power detection on AcFlex configured as source on L1. |
| 6 | Ac flex source L2 | Power detection on AcFlex configured as source on L2. |
| 7 | Ac flex source L3 | Power detection on AcFlex configured as source on L3. |
| 8 | Ac flex load all | Power detection on AcFlex configured as Load. Total active power on all phases. |
| 9 | Ac flex load L1 | Power detection on AcFlex configured as Load on L1. |
| 10 | Ac flex load L2 | Power detection on AcFlex configured as Load on L2. |
| 11 | Ac flex load L3 | Power detection on AcFlex configured as Load on L3. |
| 12 | Ac load all | Power detection on AcLoad. Total active power on all phases. |

| Value | Label | Description |
|-------|------------|----------------------------------|
| 13 | Ac load L1 | Power detection on AcLoad on L1. |
| 14 | Ac load L2 | Power detection on AcLoad on L2. |
| 15 | Ac load L3 | Power detection on AcLoad on L3. |

List of items of Enum 4 (PresetErrorsWarnings)

| Value | Label | Description |
|-------|---------------------------|--|
| 0 | Trig on all conditions | Activation triggered by all conditions. |
| 1 | Trig on warnings | Activation triggered by warnings. |
| 2 | Trig on errors restarting | Activation triggered by errors restarting. |
| 4 | Trig on errors halted | Activation triggered by errors halted. |

List of items of Enum 5 (RelayState)

| Value | Label | Description |
|-------|-------------------|---|
| 0 | Safe state opened | Actual position of relay: safe state on. |
| 1 | Safe state closed | Actual position of relay: safe state off. |
| 2 | Rel. man. opened | Actual position of relay: Manually opened. |
| 3 | Rel. man. closed | Actual position of relay: Manually closed. |
| 4 | Rel. auto. opened | Actual position of relay: Automatically opened. |
| 5 | Rel. auto. closed | Actual position of relay: Automatically closed. |

List of items of Enum 6 (Errors)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | No error | No error. |
| 1 | No hysteresis | Different trigger values are required in order to have an hysteresis. |
| 2 | Property access error | Failed to access to the required property. |
| 3 | Undefined error | Undefined error. |

List of items of Enum 8 (BatChargeState)

| Value | Label | Description |
|-------|-----------------------|---|
| 0 | None | Battery charging state: no charging state selected. |
| 1 | Bulk | Battery charging state: bulk. |
| 2 | Reduced floating | Battery charging state: reduced floating. |
| 4 | Floating | Battery charging state: floating. |
| 8 | Periodical absorption | Battery charging state: periodical absorption. |
| 16 | Absorption | Battery charging state: absorption. |
| 32 | Equalization | Battery charging state: equalization. |

List of items of Enum 9 (PresetOnSourceSelect)

| Value | Label | Description |
|-------|-----------------------------|---|
| 0 | On AC-Source1 connection | Activate relay when connected to AC-Source1 |
| 1 | On AC-Source2 connection | Activate relay when connected to AC-Source2 |
| 2 | On any AC-Source connection | Activate relay when connected to either sources |

aux relay 1 time control

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.13.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 3600 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 3602 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 3604 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 3606 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 3608 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 3610 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 3612 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 3614 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 3616 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 3618 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 3620 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 3622 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 3624 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 3626 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 3628 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 3630 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 3632 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 3634 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

aux relay 2 time control

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.14.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------------------|--|------|---------------|---|----------|------------|---------|
| 3900 | 2 | Expert | 0 | Time controlled mode | Bypass | | - | Time Controlled object working mode. | enum | R | 0 |
| 3902 | 2 | Basic | 1 | Temp restr. act. min delay | 0 | s | - | Temporal restriction minimum delay before activation. The signal must be high during all this period. | uint | R/W | - |
| 3904 | 2 | Basic | 2 | Temp restr. deact. min delay | 0 | s | - | Temporal restriction minimum delay before deactivation. The signal must be low during all this period. | uint | R/W | - |
| 3906 | 2 | Basic | 3 | Temp restr. act. min time | 0 | s | - | Temporal restriction output signal minimum activation time. | uint | R/W | - |
| 3908 | 2 | Basic | 4 | Temp restr. deact. min time | 0 | s | - | Temporal restriction output signal minimum deactivation time. | uint | R/W | - |
| 3910 | 2 | Basic | 5 | Temp restr. act. max time | -1 | s | - | Temporal restriction output signal maximum activation time. | int | R/W | - |
| 3912 | 2 | Basic | 6 | Temp restr. act. allowed hour1 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 1. Given in seconds from midnight. | uint | R/W | - |
| 3914 | 2 | Basic | 7 | Temp restr. act. allowed hour2 | 43200 | s | [0,86399] | Temporal restriction daily time range hour 2. Given in seconds from midnight. | uint | R/W | - |
| 3916 | 2 | Basic | 8 | Temp restr. act. allowed week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Temporal restriction allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 3918 | 2 | Basic | 9 | Sch. time starting date | 18250 | days | - | Schedule time starting date. Given in days since 01.01.1970. | uint | R/W | - |
| 3920 | 2 | Basic | 10 | Sch. time starting time | 43200 | s | [0,86399] | Schedule time activation starting hour. Given in seconds from midnight. | uint | R/W | - |

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------------|--|------|---------------|--|----------|------------|---------|
| 3922 | 2 | Basic | 11 | Sch. time ending time | 43200 | s | [0,86399] | Schedule time activation ending hour. Given in seconds from midnight. | uint | R/W | - |
| 3924 | 2 | Basic | 12 | Sch. time selected week day | Monday Tuesday Wednesday Thursday Friday Saturday Sunday | | - | Schedule time allowed week days. Given in a binary format such as each bits represents a day: (MSB) M T W T F S S (LSB). | bitfield | R/W | 2 |
| 3926 | 2 | Basic | 13 | Sch. time recurrence weeks | 1 | | - | Schedule time activation weeks recurrences. | uint | R/W | - |
| 3928 | 2 | Basic | 14 | Range of recurrence selection | NoEndDate | | - | Schedule time selection of recurrence before deactivation. | enum | R/W | 1 |
| 3930 | 2 | Basic | 15 | Sch. time ending date | 18251 | days | - | Schedule time activations ending date. Given in days since 01.01.1970. | uint | R/W | - |
| 3932 | 2 | Basic | 16 | Sch. time nbr of occurrences | 1 | | - | Schedule time number of occurrences. | uint | R/W | - |
| 3934 | 1 | Basic | 17 | Reset time controlled | - | | - | Reset all time controlled counters. For exampe the occurences counts. | signal | W | - |

List of items of Enum 0 (TimeControlledMode)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | Bypass | The time controlled block is bypassed. No time restriction is applied to the input signal. |
| 1 | Temporal restriction | Temporal restriction is applied to the input signal. |
| 2 | Schedule time | The output is enabled and disabled according to scheduled conditions. |

List of items of Enum 1 (RangeOfRecurrence)

| Value | Label | Description |
|-------|----------------------|--|
| 0 | No end date | The scheduled activation-desactivation is indefinitely repeated. |
| 1 | End after occurrence | The scheduled activation-desactivation is repeated a given number of times "Sch. time nbr of occurrences" (id 16). |
| 2 | End date | The scheduled activation-desactivation is repeated until a given date "Sch. time ending date" (id 15). |

List of items of Enum 2 (WeekDays)

| Value | Label | Description |
|-------|-----------|-----------------------|
| 64 | Monday | The day is Monday. |
| 32 | Tuesday | The day is Tuesday. |
| 16 | Wednesday | The day is Wednesday. |
| 8 | Thursday | The day is Thursday. |
| 4 | Friday | The day is Friday. |
| 2 | Saturday | The day is Saturday. |
| 1 | Sunday | The day is Sunday. |

cmd input 1

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.15.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------|----------------------------|------|---------------|--|------|------------|---------|
| 4202 | 1 | ViewOnly | 2 | Current state | false | | - | Current command entry state. | bool | R | - |
| 4203 | 2 | ViewOnly | 3 | Cmd entry system index | -1 | | - | Index in the system of this command entry. | int | R | - |
| 4205 | 2 | Basic | 4 | Cmd entry configuration | ActiveWhenDryContactClosed | | - | Configuration of this command entry. | enum | R/W | 0 |

List of items of Enum 0 (ConfigurationEnum)

| Value | Label | Description |
|-------|-------------------------------------|---|
| 0 | Active when dry contact closed | The function associated with this remote entry is active when the dry contact is closed. |
| 1 | Active when dry contact opened | The function associated with this remote entry is active when the dry contact is opened. |
| 2 | Active when a voltage is supplied. | The function associated with this remote entry is active when a voltage is supplied. |
| 3 | Active when no voltage is supplied. | The function associated with this remote entry is active when no voltage is supplied. |
| 4 | DRED port for DRM0 | Port used with a Demand Response Enabling Device for the Demand Response Mode 0 (Australain/New Zeland standard). |

cmd input 2

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.16.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-------------------------|----------------------------|------|---------------|--|------|------------|---------|
| 4502 | 1 | ViewOnly | 2 | Current state | false | | - | Current command entry state. | bool | R | - |
| 4503 | 2 | ViewOnly | 3 | Cmd entry system index | -1 | | - | Index in the system of this command entry. | int | R | - |
| 4505 | 2 | Basic | 4 | Cmd entry configuration | ActiveWhenDryContactClosed | | - | Configuration of this command entry. | enum | R/W | 0 |

List of items of Enum 0 (ConfigurationEnum)

| Value | Label | Description |
|-------|-------------------------------------|---|
| 0 | Active when dry contact closed | The function associated with this remote entry is active when the dry contact is closed. |
| 1 | Active when dry contact opened | The function associated with this remote entry is active when the dry contact is opened. |
| 2 | Active when a voltage is supplied. | The function associated with this remote entry is active when a voltage is supplied. |
| 3 | Active when no voltage is supplied. | The function associated with this remote entry is active when no voltage is supplied. |
| 4 | DRED port for DRM0 | Port used with a Demand Response Enabling Device for the Demand Response Mode 0 (Australain/New Zeland standard). |

battery contributor

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.17.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------|---------------|------|---------------|---|-------|------------|---------|
| 4800 | 2 | ViewOnly | 0 | Charging current | 0 | A | - | Charging current measured. | float | R | - |
| 4802 | 2 | ViewOnly | 1 | Temp sensor | Disconnected | | - | Indicates the temperature sensor state. | enum | R | 0 |
| 4804 | 2 | ViewOnly | 2 | Temp | -30 | °C | - | Temperature measured. | float | R | - |
| 4810 | 2 | ViewOnly | 5 | Voltage | 0 | V | - | Voltage measured. | float | R | - |

List of items of Enum 0 (State)

| Value | Label | Description |
|-------|--------------|--|
| 0 | Disconnected | The temperature sensor is disconnected. |
| 1 | Connected | The temperature sensor is connected. |
| 2 | ShortCircuit | The temperature sensor has a problem. A short circuit has been detected. |

RS 485i bus

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.18.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|-----------------|------|---------------|--|------|------------|---------|
| 5102 | 1 | ViewOnly | 1 | Bus termination status | false | | - | Bus termination status for this communication bus. | bool | R | - |
| 5103 | 2 | Expert | 2 | Baudrate | Baudrate9600bps | | - | Connection baudrate. | enum | R/W | 1 |
| 5105 | 2 | Expert | 3 | Parity | ParityEven | | - | Parity type to be used. | enum | R/W | 2 |
| 5107 | 2 | Expert | 4 | Stop bits | StopBitsOne | | - | Number of stop bits per transmitted character. | enum | R/W | 3 |
| 5109 | 2 | Expert | 5 | Data bits | DataBitsData8 | | - | Number of data bits per transmitted character. | enum | R/W | 4 |

List of items of Enum 1 (BaudrateType)

| Value | Label | Description |
|------------|------------------|---|
| 9600 | 9600bps | Baudrate set to 9600bps. |
| 19200 | 19200bps | Baudrate set to 19200bps. |
| 38400 | 38400bps | Baudrate set to 38400bps. |
| 115200 | 115200bps | Baudrate set to 115200bps. |
| 4294967295 | Not configurable | The baudrate is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 2 (ParityType)

| Value | Label | Description |
|------------|------------------|---|
| 0 | None | No parity. |
| 2 | Even | Parity even. |
| 3 | Odd | Parity odd. |
| 4 | Space | Parity space. |
| 5 | Mark | Parity mark. |
| 4294967295 | Not configurable | The parity is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 3 (StopBitsType)

| Value | Label | Description |
|------------|------------------|---|
| 1 | One | One stop bit. |
| 2 | Two | Two stop bits. |
| 3 | One and a half | One and half stop bit. |
| 4294967295 | Not configurable | The stop bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 4 (DataBitsType)

| Value | Label | Description |
|-------|-------|-----------------|
| 5 | Five | Five data bits. |
| 6 | Six | Six data bits. |

| Value | Label | Description |
|------------|------------------|---|
| 7 | Seven | Seven data bits. |
| 8 | Eight | Eight data bits. |
| 4294967295 | Not configurable | The data bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

CANi bus

Group : Next1

Modbus device address : 29 to 58

External ID : 11.x.19.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|-----------------|------|---------------|--|------|------------|---------|
| 5402 | 1 | ViewOnly | 1 | Bus termination status | false | | - | Bus termination status for this communication bus. | bool | R | - |
| 5403 | 2 | Expert | 2 | Baudrate | Baudrate9600bps | | - | Connection baudrate. | enum | R/W | 1 |
| 5405 | 2 | Expert | 3 | Parity | ParityEven | | - | Parity type to be used. | enum | R/W | 2 |
| 5407 | 2 | Expert | 4 | Stop bits | StopBitsOne | | - | Number of stop bits per transmitted character. | enum | R/W | 3 |
| 5409 | 2 | Expert | 5 | Data bits | DataBitsData8 | | - | Number of data bits per transmitted character. | enum | R/W | 4 |

List of items of Enum 1 (BaudrateType)

| Value | Label | Description |
|------------|------------------|---|
| 9600 | 9600bps | Baudrate set to 9600bps. |
| 19200 | 19200bps | Baudrate set to 19200bps. |
| 38400 | 38400bps | Baudrate set to 38400bps. |
| 115200 | 115200bps | Baudrate set to 115200bps. |
| 4294967295 | Not configurable | The baudrate is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 2 (ParityType)

| Value | Label | Description |
|------------|------------------|---|
| 0 | None | No parity. |
| 2 | Even | Parity even. |
| 3 | Odd | Parity odd. |
| 4 | Space | Parity space. |
| 5 | Mark | Parity mark. |
| 4294967295 | Not configurable | The parity is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 3 (StopBitsType)

| Value | Label | Description |
|------------|------------------|---|
| 1 | One | One stop bit. |
| 2 | Two | Two stop bits. |
| 3 | One and a half | One and half stop bit. |
| 4294967295 | Not configurable | The stop bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 4 (DataBitsType)

| Value | Label | Description |
|-------|-------|-----------------|
| 5 | Five | Five data bits. |
| 6 | Six | Six data bits. |

| Value | Label | Description |
|------------|------------------|---|
| 7 | Seven | Seven data bits. |
| 8 | Eight | Eight data bits. |
| 4294967295 | Not configurable | The data bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

ID card

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.1.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------|---------------|------|---------------|---|----------|------------|---------|
| 4 | 8 | ViewOnly | 2 | Serial Number | "Invalid" | | - | Serial Number of this Studer Innotec device. | char[15] | R | - |
| 14 | 2 | ViewOnly | 4 | Software package version | 0 | | - | Software package version in this format : MAJOR.MIDDLE.MINOR.PATCH, encoded as follows from MSB to LSB : MAJOR (8 bits), MIDDLE (8bits), MINOR (12 bits), PATCH (4 bits). | uint | R | - |
| 18 | 4 | ViewOnly | 6 | Software revision | "" | | - | SHA-1 of the software project commit | char[7] | R | - |
| 30 | 2 | ViewOnly | 8 | ObjectModel version | 0 | | - | Version of the currently used ObjectModel in this format : MAJOR.MINOR, encoded as follows from MSB to LSB : MAJOR (16 bits), MINOR (16 bits). | uint | R | - |

application

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.2.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|----------|---------------|------|---------------|-----------------------------------|----------|------------|---------|
| 305 | 2 | ViewOnly | 5 | Warnings | NoWarnings | | - | Bitfield containing the warnings. | bitfield | R | 0 |

List of items of Enum 0 (Warnings)

| Value | Label | Description |
|-------|-----------------------------------|--|
| 0 | No warnings | The card has no warnings. |
| 1 | Warning MCU not secure | MCU security status is unsecure. |
| 2 | Warning FPGA not configured | Unpossible to configure the FPGA. |
| 4 | Communication error on studer bus | An error occured on the studer nx communication bus. Verify that the bus termination switches are correctly positionned. |

CAN node

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.3.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---------------------------------------|------|------------|---------|
| 602 | 2 | Expert | 1 | Status | ErrorActive | | - | Stores the node status. | enum | R | 0 |
| 604 | 2 | Expert | 2 | Tx error counter | 0 | | - | Counter of the TX errors. | int | R | - |
| 606 | 2 | Expert | 3 | Rx error counter | 0 | | - | Counter of the RX errors. | int | R | - |
| 608 | 1 | ViewOnly | 4 | Bus termination status | false | | - | Bus termination status for this node. | bool | R | - |

List of items of Enum 0 (NodeStatus)

| Value | Label | Description |
|-------|---------------|-------------------------------------|
| 0 | Error active | The node is in error active state. |
| 1 | Error passive | The node is in error passive state. |
| 2 | Bus off | The node is in bus off state. |

device

Group : NextGateway
Modbus device address : 59 to 60
External ID : 20.x.4.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|---------------|------|---------------|---|------|------------|---------|
| 900 | 1 | Basic | 0 | Blink | false | | - | If set, the device LEDs will blink. | bool | R/W | - |
| 905 | 2 | ViewOnly | 3 | Total functioning time | 0 | s | - | Total functioning time in this device's life. | uint | R | - |

gateway module

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.5.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------------|------------------|------|---------------|--|----------|------------|---------|
| 1200 | 2 | ViewOnly | 0 | Errors | ErrorNoError | | - | Current errors. | bitfield | R | 0 |
| 1202 | 2 | ViewOnly | 1 | Warnings | WarningNoWarning | | - | Current warnings. | bitfield | R | 1 |
| 1206 | 2 | ViewOnly | 3 | eMMC total size | 0 | KiB | - | Total size of eMMC main area. | uint | R | - |
| 1210 | 2 | ViewOnly | 5 | Number of USB partitions | 0 | | - | Number of mounted USB partitions. | uint | R | - |
| 1216 | 2 | ViewOnly | 7 | CPU temperature | 0 | °C | - | The current temperature of the CPU chip. | float | R | - |
| 1220 | 2 | Basic | 10 | Internet status | Disconnected | | - | The internet connection status. | enum | R | 4 |

List of items of Enum 0 (Errors)

| Value | Label | Description |
|-------|----------|-------------------------------|
| 0 | No error | No error is currently active. |

List of items of Enum 1 (Warnings)

| Value | Label | Description |
|-------|----------------------------|--|
| 0 | No warning | No warning is currently active. |
| 1 | eMMC end-of-life warning | eMMC chip pre-EndOfLife is in Warning state (80% reserved blocks used). |
| 2 | eMMC end-of-life urgency | eMMC chip pre-EndOfLife is in Urgent state (90% reserved blocks used). |
| 4 | eMMC lifetime warning | eMMC chip lifetime is 80% - 90% used. |
| 8 | eMMC lifetime urgency | eMMC chip lifetime is 90% - 100% used. |
| 16 | CPU over-temperature | CPU chip is in over-temperature. |
| 32 | High eMMC write rate | High write rate detected on eMMC chip. |
| 64 | High USB write rate | High write rate detected on USB chip. |
| 128 | Low eMMC lifetime estimate | Low lifetime estimate for eMMC chip. |
| 256 | No USB drive | Missing USB drive. Please insert the drive in one of the USB ports. |
| 512 | Low USB drive space | Free space on USB drive is low. Please remove files in order to free up space. |

List of items of Enum 4 (InternetStatus)

| Value | Label | Description |
|-------|-----------------|--|
| 0 | Disconnected | The interfaces are disconnected. |
| 1 | Connected | Connected to internet. |
| 2 | No connectivity | Interface available but no connectivity. |
| 3 | No DNS server | Internet connection but no DNS server. |
| 4 | Local only | Local connection only, no internet connection. |
| 5 | No route | The route is missing. |

HMI display

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.6.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------------|---------------|------|---------------|--|---------|------------|---------|
| 1500 | 2 | ViewOnly | 0 | Display brightness | 20 | /20 | [6,20] | Display brightness. | int | R/W | - |
| 1502 | 2 | Basic | 1 | Sleep delay | 100 | s. | [0,900] | Sleep delay in seconds. | int | R/W | - |
| 1504 | 4 | Expert | 2 | Unlock code | "0000" | | d{4,6} | Unlock code to be entered when exiting sleep mode. Used only if "Use slider for unlocking after sleep" option is disabled. | char[7] | R/W | - |
| 1508 | 2 | Expert | 3 | Unlock mechanism | Slider | | - | Unlock mechanism used when exiting sleep mode. | enum | R/W | 0 |
| 1514 | 2 | ViewOnly | 6 | Display ON time | 0 | s. | - | Total time this display was turned ON. | uint | R | - |

List of items of Enum 0 (UnlockMechanism)

| Value | Label | Description |
|-------|--------------|--|
| 0 | Numeric code | A numeric code will be asked for unlocking. |
| 1 | Slider | A slider will need to be pulled for unlocking. |

RS 485i bus

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.7.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|-----------------|------|---------------|--|------|------------|---------|
| 1802 | 1 | ViewOnly | 1 | Bus termination status | false | | - | Bus termination status for this communication bus. | bool | R | - |
| 1803 | 2 | Expert | 2 | Baudrate | Baudrate9600bps | | - | Connection baudrate. | enum | R/W | 1 |
| 1805 | 2 | Expert | 3 | Parity | ParityEven | | - | Parity type to be used. | enum | R/W | 2 |
| 1807 | 2 | Expert | 4 | Stop bits | StopBitsOne | | - | Number of stop bits per transmitted character. | enum | R/W | 3 |
| 1809 | 2 | Expert | 5 | Data bits | DataBitsData8 | | - | Number of data bits per transmitted character. | enum | R/W | 4 |

List of items of Enum 1 (BaudrateType)

| Value | Label | Description |
|------------|------------------|---|
| 9600 | 9600bps | Baudrate set to 9600bps. |
| 19200 | 19200bps | Baudrate set to 19200bps. |
| 38400 | 38400bps | Baudrate set to 38400bps. |
| 115200 | 115200bps | Baudrate set to 115200bps. |
| 4294967295 | Not configurable | The baudrate is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 2 (ParityType)

| Value | Label | Description |
|------------|------------------|---|
| 0 | None | No parity. |
| 2 | Even | Parity even. |
| 3 | Odd | Parity odd. |
| 4 | Space | Parity space. |
| 5 | Mark | Parity mark. |
| 4294967295 | Not configurable | The parity is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 3 (StopBitsType)

| Value | Label | Description |
|------------|------------------|---|
| 1 | One | One stop bit. |
| 2 | Two | Two stop bits. |
| 3 | One and a half | One and half stop bit. |
| 4294967295 | Not configurable | The stop bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 4 (DataBitsType)

| Value | Label | Description |
|-------|-------|-----------------|
| 5 | Five | Five data bits. |
| 6 | Six | Six data bits. |

| Value | Label | Description |
|------------|------------------|---|
| 7 | Seven | Seven data bits. |
| 8 | Eight | Eight data bits. |
| 4294967295 | Not configurable | The data bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

CANi bus

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.8.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------|-----------------|------|---------------|--|------|------------|---------|
| 2102 | 1 | ViewOnly | 1 | Bus termination status | false | | - | Bus termination status for this communication bus. | bool | R | - |
| 2103 | 2 | Expert | 2 | Baudrate | Baudrate9600bps | | - | Connection baudrate. | enum | R/W | 1 |
| 2105 | 2 | Expert | 3 | Parity | ParityEven | | - | Parity type to be used. | enum | R/W | 2 |
| 2107 | 2 | Expert | 4 | Stop bits | StopBitsOne | | - | Number of stop bits per transmitted character. | enum | R/W | 3 |
| 2109 | 2 | Expert | 5 | Data bits | DataBitsData8 | | - | Number of data bits per transmitted character. | enum | R/W | 4 |

List of items of Enum 1 (BaudrateType)

| Value | Label | Description |
|------------|------------------|---|
| 9600 | 9600bps | Baudrate set to 9600bps. |
| 19200 | 19200bps | Baudrate set to 19200bps. |
| 38400 | 38400bps | Baudrate set to 38400bps. |
| 115200 | 115200bps | Baudrate set to 115200bps. |
| 4294967295 | Not configurable | The baudrate is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 2 (ParityType)

| Value | Label | Description |
|------------|------------------|---|
| 0 | None | No parity. |
| 2 | Even | Parity even. |
| 3 | Odd | Parity odd. |
| 4 | Space | Parity space. |
| 5 | Mark | Parity mark. |
| 4294967295 | Not configurable | The parity is automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 3 (StopBitsType)

| Value | Label | Description |
|------------|------------------|---|
| 1 | One | One stop bit. |
| 2 | Two | Two stop bits. |
| 3 | One and a half | One and half stop bit. |
| 4294967295 | Not configurable | The stop bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

List of items of Enum 4 (DataBitsType)

| Value | Label | Description |
|-------|-------|-----------------|
| 5 | Five | Five data bits. |
| 6 | Six | Six data bits. |

| Value | Label | Description |
|------------|------------------|---|
| 7 | Seven | Seven data bits. |
| 8 | Eight | Eight data bits. |
| 4294967295 | Not configurable | The data bits are automatically configured by a communicating battery connected to this external communication bus and therefore the value cannot be changed. |

internal rootfs partition

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.9.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|---|------|------------|---------|
| 2400 | 2 | ViewOnly | 0 | Partition media | MediaInvalid | | - | Media on which this partition is located. | enum | R | 0 |
| 2402 | 2 | ViewOnly | 1 | File system | FilesystemInvalid | | - | File system of this partition. | enum | R | 1 |
| 2404 | 2 | ViewOnly | 2 | Total size | 0 | KiB | - | Total size of this partition. | uint | R | - |
| 2406 | 2 | ViewOnly | 3 | Used size | 0 | KiB | - | Used size of this partition. | uint | R | - |

List of items of Enum 0 (PartitionMedia)

| Value | Label | Description |
|-------|-----------------|-------------------------|
| 0 | Invalid | Invalid. |
| 1 | Internal memory | Internal memory (eMMC). |
| 2 | USB memory | USB memory drive. |

List of items of Enum 1 (PartitionFilesystem)

| Value | Label | Description |
|-------|---------|--------------------|
| 0 | Invalid | Invalid. |
| 1 | FAT32 | FAT32 file system. |
| 2 | ext4 | ext4 file system. |

internal config partition

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.10.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|---|------|------------|---------|
| 2700 | 2 | ViewOnly | 0 | Partition media | MediaInvalid | | - | Media on which this partition is located. | enum | R | 0 |
| 2702 | 2 | ViewOnly | 1 | File system | FilesystemInvalid | | - | File system of this partition. | enum | R | 1 |
| 2704 | 2 | ViewOnly | 2 | Total size | 0 | KiB | - | Total size of this partition. | uint | R | - |
| 2706 | 2 | ViewOnly | 3 | Used size | 0 | KiB | - | Used size of this partition. | uint | R | - |

List of items of Enum 0 (PartitionMedia)

| Value | Label | Description |
|-------|-----------------|-------------------------|
| 0 | Invalid | Invalid. |
| 1 | Internal memory | Internal memory (eMMC). |
| 2 | USB memory | USB memory drive. |

List of items of Enum 1 (PartitionFilesystem)

| Value | Label | Description |
|-------|---------|--------------------|
| 0 | Invalid | Invalid. |
| 1 | FAT32 | FAT32 file system. |
| 2 | ext4 | ext4 file system. |

internal data partition

Group : NextGateway
Modbus device address : 59 to 60
External ID : 20.x.11.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|---|------|------------|---------|
| 3000 | 2 | ViewOnly | 0 | Partition media | MediaInvalid | | - | Media on which this partition is located. | enum | R | 0 |
| 3002 | 2 | ViewOnly | 1 | File system | FilesystemInvalid | | - | File system of this partition. | enum | R | 1 |
| 3004 | 2 | ViewOnly | 2 | Total size | 0 | KiB | - | Total size of this partition. | uint | R | - |
| 3006 | 2 | ViewOnly | 3 | Used size | 0 | KiB | - | Used size of this partition. | uint | R | - |

List of items of Enum 0 (PartitionMedia)

| Value | Label | Description |
|-------|-----------------|-------------------------|
| 0 | Invalid | Invalid. |
| 1 | Internal memory | Internal memory (eMMC). |
| 2 | USB memory | USB memory drive. |

List of items of Enum 1 (PartitionFilesystem)

| Value | Label | Description |
|-------|---------|--------------------|
| 0 | Invalid | Invalid. |
| 1 | FAT32 | FAT32 file system. |
| 2 | ext4 | ext4 file system. |

USB partition 1

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.12.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|---|------|------------|---------|
| 3300 | 2 | ViewOnly | 0 | Partition media | MediaInvalid | | - | Media on which this partition is located. | enum | R | 0 |
| 3302 | 2 | ViewOnly | 1 | File system | FilesystemInvalid | | - | File system of this partition. | enum | R | 1 |
| 3304 | 2 | ViewOnly | 2 | Total size | 0 | KiB | - | Total size of this partition. | uint | R | - |
| 3306 | 2 | ViewOnly | 3 | Used size | 0 | KiB | - | Used size of this partition. | uint | R | - |

List of items of Enum 0 (PartitionMedia)

| Value | Label | Description |
|-------|-----------------|-------------------------|
| 0 | Invalid | Invalid. |
| 1 | Internal memory | Internal memory (eMMC). |
| 2 | USB memory | USB memory drive. |

List of items of Enum 1 (PartitionFilesystem)

| Value | Label | Description |
|-------|---------|--------------------|
| 0 | Invalid | Invalid. |
| 1 | FAT32 | FAT32 file system. |
| 2 | ext4 | ext4 file system. |

USB partition 2

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.13.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|---|------|------------|---------|
| 3600 | 2 | ViewOnly | 0 | Partition media | MediaInvalid | | - | Media on which this partition is located. | enum | R | 0 |
| 3602 | 2 | ViewOnly | 1 | File system | FilesystemInvalid | | - | File system of this partition. | enum | R | 1 |
| 3604 | 2 | ViewOnly | 2 | Total size | 0 | KiB | - | Total size of this partition. | uint | R | - |
| 3606 | 2 | ViewOnly | 3 | Used size | 0 | KiB | - | Used size of this partition. | uint | R | - |

List of items of Enum 0 (PartitionMedia)

| Value | Label | Description |
|-------|-----------------|-------------------------|
| 0 | Invalid | Invalid. |
| 1 | Internal memory | Internal memory (eMMC). |
| 2 | USB memory | USB memory drive. |

List of items of Enum 1 (PartitionFilesystem)

| Value | Label | Description |
|-------|---------|--------------------|
| 0 | Invalid | Invalid. |
| 1 | FAT32 | FAT32 file system. |
| 2 | ext4 | ext4 file system. |

USB partition 3

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.14.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|---|------|------------|---------|
| 3900 | 2 | ViewOnly | 0 | Partition media | MediaInvalid | | - | Media on which this partition is located. | enum | R | 0 |
| 3902 | 2 | ViewOnly | 1 | File system | FilesystemInvalid | | - | File system of this partition. | enum | R | 1 |
| 3904 | 2 | ViewOnly | 2 | Total size | 0 | KiB | - | Total size of this partition. | uint | R | - |
| 3906 | 2 | ViewOnly | 3 | Used size | 0 | KiB | - | Used size of this partition. | uint | R | - |

List of items of Enum 0 (PartitionMedia)

| Value | Label | Description |
|-------|-----------------|-------------------------|
| 0 | Invalid | Invalid. |
| 1 | Internal memory | Internal memory (eMMC). |
| 2 | USB memory | USB memory drive. |

List of items of Enum 1 (PartitionFilesystem)

| Value | Label | Description |
|-------|---------|--------------------|
| 0 | Invalid | Invalid. |
| 1 | FAT32 | FAT32 file system. |
| 2 | ext4 | ext4 file system. |

Modbus server

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.15.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|------------------------------|---------------|------|---------------|---|------|------------|---------|
| 4200 | 2 | Expert | 0 | Base address | 0 | | [0,135] | Base address for first object group instance. | uint | R/W | - |
| 4202 | 2 | Expert | 1 | Modbus TCP port | 502 | | [0,65535] | The TCP port number. | uint | R | - |
| 4214 | 2 | Expert | 3 | Modbus TCP server status | ModbusUnknown | | - | The current status of the connection to the Modbus TCP server | enum | R | 0 |
| 4216 | 2 | Expert | 4 | Modbus RTU server status | ModbusUnknown | | - | The current status of the connection to the Modbus RTU server | enum | R | 0 |
| 4218 | 2 | Expert | 5 | Modbus mode | ModeOff | | - | The current modbus server selected. | enum | R/W | 1 |
| 4220 | 1 | Expert | 6 | Write persistently by Modbus | false | | - | Force writing persistently using Modbus. | bool | R/W | - |

List of items of Enum 0 (ModbusStatus)

| Value | Label | Description |
|-------|---------------------|---|
| 0 | Unknown | Unknown status. |
| 1 | Bad interface | Modbus server not connected due to a bad interface. |
| 2 | Connecting | Modbus server connection in progress. |
| 3 | Ready and listening | Modbus server ready and listening. |
| 4 | Closing | Modbus server is closing. |
| 5 | Client connected | Modbus TCP client connected to the server. |

List of items of Enum 1 (Mode)

| Value | Label | Description |
|-------|-------|-----------------------------|
| 0 | Off | No modbus server. |
| 1 | RTU | Modbus server RTU selected. |
| 2 | TCP | Modbus server TCP selected. |

Modbus user level

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.16.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------|----------------|------|---------------|--|---------|------------|---------|
| 4500 | 2 | ViewOnly | 0 | User level | UserLevelBasic | | - | Current user level. | uint | R | - |
| 4502 | 4 | ViewOnly | 1 | User level code input | "0" | | d{1,6} | Please enter here the user level code for changing the user level. | char[7] | R/W | - |

terms and conditions

Group : NextGateway
Modbus device address : 59 to 60
External ID : 20.x.17.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------------------|----|-----------------------|---------------|------|---------------|--|----------|------------|---------|
| 4800 | 6 | R:ViewOnly W:Studer | 0 | Accepted version | "" | | - | Version of the Terms and Conditions that have been accepted by the user. | char[12] | R/W | - |
| 4806 | 2 | R:ViewOnly W:Studer | 1 | Acceptation date/time | 0 | | - | Date and time of the customers acceptation of the Terms and Conditions. | uint | R/W | - |
| 4808 | 2 | R:ViewOnly W:Studer | 2 | Acceptation extent | NoAcceptation | | - | Extent of the customer acceptation to the Terms and Conditions. | bitfield | R/W | 0 |
| 4810 | 4 | R:ViewOnly W:Studer | 3 | Acceptation origin | 0 | | - | Origin of acceptance. | uint64 | R/W | - |

List of items of Enum 0 (Acceptation)

| Value | Label | Description |
|-------|----------------|--|
| 0 | Not accepted | User refuses all terms and conditions. |
| 1 | Fully accepted | User accepts all terms and conditions. |

ethernet network interface

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.18.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|-----------------------|----|-------------------|---------------------|------|---------------|--|----------|------------|---------|
| 5102 | 2 | Basic | 1 | Interface status | StatusInvalid | | - | Current status of the interface. | enum | R | 0 |
| 5104 | 10 | Expert | 2 | Interface name | "" | | - | The internal name of this interface. | char[20] | R | - |
| 5114 | 10 | ViewOnly | 3 | Hardware address | "00:00:00:00:00:00" | | - | The hardware (MAC) address of this interface. | char[20] | R | - |
| 5124 | 10 | ViewOnly | 4 | IP address | "0.0.0.0" | | - | The current IP (v4) address of this interface. | char[20] | R | - |
| 5134 | 10 | Expert | 5 | Net mask | "0.0.0.0" | | - | The net mask of this interface. | char[20] | R | - |
| 5144 | 10 | Expert | 6 | Broadcast address | "0.0.0.0" | | - | The broadcast address of this interface. | char[20] | R | - |
| 5154 | 2 | R:ViewOnly W:Basic | 7 | Interface mode | ModeInvalid | | - | The current interface mode selected (WLAN only). | enum | R/W | 1 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|----------------|------------------------------|
| 0 | Invalid | Interface is invalid. |
| 1 | Down | Interface is down. |
| 2 | Up | Interface is up. |
| 3 | Up and running | Interface is up and running. |

List of items of Enum 1 (Mode)

| Value | Label | Description |
|-------|-----------------|---------------------------------|
| 0 | Invalid | No mode selected. |
| 1 | Wireless client | Interface mode wireless client. |
| 2 | Access point | Interface mode access point. |

wifi network interface

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.19.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|-----------------------|----|-------------------|---------------------|------|---------------|--|----------|------------|---------|
| 5402 | 2 | Basic | 1 | Interface status | StatusInvalid | | - | Current status of the interface. | enum | R | 0 |
| 5404 | 10 | Expert | 2 | Interface name | "" | | - | The internal name of this interface. | char[20] | R | - |
| 5414 | 10 | ViewOnly | 3 | Hardware address | "00:00:00:00:00:00" | | - | The hardware (MAC) address of this interface. | char[20] | R | - |
| 5424 | 10 | ViewOnly | 4 | IP address | "0.0.0.0" | | - | The current IP (v4) address of this interface. | char[20] | R | - |
| 5434 | 10 | Expert | 5 | Net mask | "0.0.0.0" | | - | The net mask of this interface. | char[20] | R | - |
| 5444 | 10 | Expert | 6 | Broadcast address | "0.0.0.0" | | - | The broadcast address of this interface. | char[20] | R | - |
| 5454 | 2 | R:ViewOnly W:Basic | 7 | Interface mode | ModeInvalid | | - | The current interface mode selected (WLAN only). | enum | R/W | 1 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|----------------|------------------------------|
| 0 | Invalid | Interface is invalid. |
| 1 | Down | Interface is down. |
| 2 | Up | Interface is up. |
| 3 | Up and running | Interface is up and running. |

List of items of Enum 1 (Mode)

| Value | Label | Description |
|-------|-----------------|---------------------------------|
| 0 | Invalid | No mode selected. |
| 1 | Wireless client | Interface mode wireless client. |
| 2 | Access point | Interface mode access point. |

external network interface

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.20.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|-----------------------|----|-------------------|---------------------|------|---------------|--|----------|------------|---------|
| 5702 | 2 | Basic | 1 | Interface status | StatusInvalid | | - | Current status of the interface. | enum | R | 0 |
| 5704 | 10 | Expert | 2 | Interface name | "" | | - | The internal name of this interface. | char[20] | R | - |
| 5714 | 10 | ViewOnly | 3 | Hardware address | "00:00:00:00:00:00" | | - | The hardware (MAC) address of this interface. | char[20] | R | - |
| 5724 | 10 | ViewOnly | 4 | IP address | "0.0.0.0" | | - | The current IP (v4) address of this interface. | char[20] | R | - |
| 5734 | 10 | Expert | 5 | Net mask | "0.0.0.0" | | - | The net mask of this interface. | char[20] | R | - |
| 5744 | 10 | Expert | 6 | Broadcast address | "0.0.0.0" | | - | The broadcast address of this interface. | char[20] | R | - |
| 5754 | 2 | R:ViewOnly W:Basic | 7 | Interface mode | ModeInvalid | | - | The current interface mode selected (WLAN only). | enum | R/W | 1 |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|----------------|------------------------------|
| 0 | Invalid | Interface is invalid. |
| 1 | Down | Interface is down. |
| 2 | Up | Interface is up. |
| 3 | Up and running | Interface is up and running. |

List of items of Enum 1 (Mode)

| Value | Label | Description |
|-------|-----------------|---------------------------------|
| 0 | Invalid | No mode selected. |
| 1 | Wireless client | Interface mode wireless client. |
| 2 | Access point | Interface mode access point. |

gateway user level

Group : NextGateway
Modbus device address : 59 to 60
External ID : 20.x.21.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------------|----------------|------|---------------|--|---------|------------|---------|
| 6000 | 2 | ViewOnly | 0 | User level | UserLevelBasic | | - | Current user level. | uint | R | - |
| 6002 | 4 | ViewOnly | 1 | User level code input | "0" | | d{1,6} | Please enter here the user level code for changing the user level. | char[7] | R/W | - |

gateway webportal

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.22.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--|-----------------------|------|---------------|--|--------|------------|---------|
| 6300 | 2 | ViewOnly | 0 | Webportal connection status | WebportalUnknown | | - | The current status of the connection to the Webportal. | enum | R | 0 |
| 6302 | 2 | ViewOnly | 1 | Webportal datalog synchronization status | DatalogSynchroUnknown | | - | The current Webportal datalog synchronization status. | enum | R | 1 |
| 6304 | 2 | Expert | 2 | Effective date of the certificate | 0 | s | - | Absolute timestamp for certificate's effective date as number of seconds since Epoch (01.01.1970). | uint | R | - |
| 6306 | 2 | Expert | 3 | Expiry date of the certificate | 0 | s | - | Absolute timestamp for certificate's expiry date as number of seconds since Epoch (01.01.1970). | uint | R | - |
| 6308 | 1 | Basic | 4 | Send debug data to Studer | - | | - | Upload all debug data to Studer Innotec servers. | signal | W | - |
| 6309 | 1 | Basic | 5 | Webportal control as read-only | true | | - | Used to set the properties access to read-only for Webportal control. | bool | R/W | - |

List of items of Enum 0 (WebportalConnectionStatus)

| Value | Label | Description |
|-------|--------------------------|---|
| 0 | Unknown | Unknown status. |
| 1 | Connecting | Connection to Webportal is in progress. |
| 2 | Connected | Webportal is connected and paired with the installation. |
| 3 | Connected but not paired | Webportal is connected but not paired with the installation. |
| 4 | Error at initialization | Webportal is not connected due to initialization error. |
| 5 | Host not found | Webportal cannot be contacted, host not found. |
| 6 | Connection refused | Webportal cannot be contacted, connection refused. |
| 7 | Timeout | Webportal cannot be contacted, timeout. |
| 8 | Communication failed | Communication with the Webportal failed. |
| 9 | Device disabled | Device is disabled and cannot communicate with the Webportal. |
| 10 | Assignment error | Webportal communication failed, unable to assign link. |
| 11 | Bad firmware | Webportal communication failed due to bad firmware. |
| 12 | Bad date/time | Webportal communication failed, bad date/time on device. |
| 13 | Error unknown | Webportal connection is in error state due to unknown cause. |
| 14 | Connection lost | Connection with the Webportal lost. |
| 15 | Connected (read-only) | Webportal is connected but in read-only. |

List of items of Enum 1 (WebportalDatalogSynchroStatus)

| Value | Label | Description |
|-------|--------------------|--|
| 0 | Unknown | Unknown status. |
| 1 | Synchronized | Datalog is synchronized with the Webportal. |
| 2 | Synchronizing... | Datalog synchronization with the Webportal is in progress. |
| 3 | Unreachable server | Webportal Datalog server cannot be reached. |
| 4 | No USB drive | Synchronization is impossible since USB drive is missing. |

| Value | Label | Description |
|-------|------------------------|---|
| 5 | Synchronization failed | There was an error during the synchronization process. |
| 6 | Partially synchronized | Datalog is synchronized with the Webportal, but some files could not be uploaded. |

USB interface 1

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.23.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|--|------|------------|---------|
| 6602 | 2 | ViewOnly | 1 | USB device type | UsbDeviceNoDevice | | - | Type of device connected to this USB port. | enum | R | 0 |

List of items of Enum 0 (UsbDeviceType)

| Value | Label | Description |
|-------|----------------------|---|
| 0 | No device | No device is plugged in. |
| 1 | Unknown | An unknown device is plugged in. |
| 2 | Memory drive | A USB memory drive is plugged in. |
| 3 | Mounted memory drive | A USB memory drive is plugged in and mounted. |
| 4 | Audio | An audio device is plugged in. |
| 5 | HID | A human interface device is plugged in. |
| 6 | Image drive | An image drive is plugged in. |
| 7 | USB Hub | A USB hub is plugged in. |
| 8 | Bluetooth | A bluetooth device is plugged in. |
| 9 | Wifi | A wifi device is plugged in. |
| 10 | Modem | A modem is plugged in. |

USB interface 2

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.24.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|--|------|------------|---------|
| 6902 | 2 | ViewOnly | 1 | USB device type | UsbDeviceNoDevice | | - | Type of device connected to this USB port. | enum | R | 0 |

List of items of Enum 0 (UsbDeviceType)

| Value | Label | Description |
|-------|----------------------|---|
| 0 | No device | No device is plugged in. |
| 1 | Unknown | An unknown device is plugged in. |
| 2 | Memory drive | A USB memory drive is plugged in. |
| 3 | Mounted memory drive | A USB memory drive is plugged in and mounted. |
| 4 | Audio | An audio device is plugged in. |
| 5 | HID | A human interface device is plugged in. |
| 6 | Image drive | An image drive is plugged in. |
| 7 | USB Hub | A USB hub is plugged in. |
| 8 | Bluetooth | A bluetooth device is plugged in. |
| 9 | Wifi | A wifi device is plugged in. |
| 10 | Modem | A modem is plugged in. |

USB interface 3

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.25.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|--|------|------------|---------|
| 7202 | 2 | ViewOnly | 1 | USB device type | UsbDeviceNoDevice | | - | Type of device connected to this USB port. | enum | R | 0 |

List of items of Enum 0 (UsbDeviceType)

| Value | Label | Description |
|-------|----------------------|---|
| 0 | No device | No device is plugged in. |
| 1 | Unknown | An unknown device is plugged in. |
| 2 | Memory drive | A USB memory drive is plugged in. |
| 3 | Mounted memory drive | A USB memory drive is plugged in and mounted. |
| 4 | Audio | An audio device is plugged in. |
| 5 | HID | A human interface device is plugged in. |
| 6 | Image drive | An image drive is plugged in. |
| 7 | USB Hub | A USB hub is plugged in. |
| 8 | Bluetooth | A bluetooth device is plugged in. |
| 9 | Wifi | A wifi device is plugged in. |
| 10 | Modem | A modem is plugged in. |

USB interface 4

Group : NextGateway
Modbus device address : 59 to 60
External ID : 20.x.26.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|-----------------|-------------------|------|---------------|--|------|------------|---------|
| 7502 | 2 | ViewOnly | 1 | USB device type | UsbDeviceNoDevice | | - | Type of device connected to this USB port. | enum | R | 0 |

List of items of Enum 0 (UsbDeviceType)

| Value | Label | Description |
|-------|----------------------|---|
| 0 | No device | No device is plugged in. |
| 1 | Unknown | An unknown device is plugged in. |
| 2 | Memory drive | A USB memory drive is plugged in. |
| 3 | Mounted memory drive | A USB memory drive is plugged in and mounted. |
| 4 | Audio | An audio device is plugged in. |
| 5 | HID | A human interface device is plugged in. |
| 6 | Image drive | An image drive is plugged in. |
| 7 | USB Hub | A USB hub is plugged in. |
| 8 | Bluetooth | A bluetooth device is plugged in. |
| 9 | Wifi | A wifi device is plugged in. |
| 10 | Modem | A modem is plugged in. |

HMI settings

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.27.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|--------------|---------------|------|---------------|---|------|------------|---------|
| 7800 | 2 | Basic | 0 | Language | English | | - | Language used for the user interface. | enum | R/W | 0 |
| 7802 | 2 | Basic | 1 | Default view | Synoptic | | - | Default view that will be displayed at startup. | enum | R/W | 1 |

List of items of Enum 0 (StuLanguage)

| Value | Label | Description |
|-------|----------|-------------|
| 31 | English | English. |
| 37 | Français | Français. |
| 42 | Deutsch | Deutsch. |
| 58 | Italiano | Italiano. |
| 111 | Español | Español. |

List of items of Enum 1 (DefaultView)

| Value | Label | Description |
|-------|-----------|--|
| 0 | Dashboard | Default view will be the Dashboard view. |
| 1 | Synoptic | Default view will be the Synoptic view. |

system view

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.28.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---------------------|----------------|------|---------------|---|------|------------|---------|
| 8100 | 2 | ViewOnly | 0 | Installation status | MonitorRunning | | - | Installation status. | enum | R | 0 |
| 8102 | 2 | Basic | 1 | Node Status | 0 | | - | Status of the nodes provided by the installation monitor. | uint | R | - |

List of items of Enum 0 (InstallStatus)

| Value | Label | Description |
|-------|-------------------------|--|
| 0 | Monitor running | InstallationMonitor is not started yet. |
| 1 | Reading topology | Topology import, user-triggered or automatic, when InstallationMonitor is not started. |
| 2 | Writing topology | Topology export, automatic (wizard) or user-triggered, when Installation is not started. |
| 3 | Writing configuration | Installation configuration export, automatic (wizard), when Installation is not started. |
| 4 | Started | Installation is started. |
| 5 | Reading configuration | Installation configuration import, user-triggered or automatic, when InstallationMonitor is started. |
| 6 | Configuration R/W error | Configuration Read/Write operation failed. Stuck in this error state until user resets. |

gateway webcommand

Group : NextGateway

Modbus device address : 59 to 60

External ID : 20.x.29.ID

List of properties

| Address | Size | User level | ID | Label | Default Value | Unit | Min-Max range | Description | Type | Read/Write | Enum ID |
|---------|------|------------|----|---------------|--------------------|------|---------------|------------------------------------|------|------------|---------|
| 8421 | 2 | Expert | 2 | Server status | StatusDisconnected | | - | Web interface server status. | enum | R | 0 |
| 8423 | 2 | Expert | 3 | Connections | 0 | | - | Number of established connections. | uint | R | - |

List of items of Enum 0 (Status)

| Value | Label | Description |
|-------|---------------------|---|
| 0 | Disconnected | The server is disconnected. |
| 1 | Ready and listening | The server is ready and listening. |
| 2 | Connected | The server has at least one connection established. |