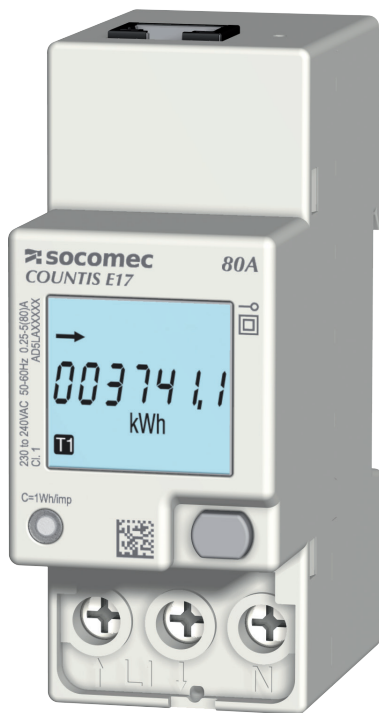


# COUNTIS E17/E18

Single-phase energy meter  
Direct - 80 A Ethernet



COUNTIS E17



COUNTIS E18 - MID



|                                                                                  |           |
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# 1. DOCUMENTATION

All documentation on the COUNTIS E17/E18 is available online at:  
[www.socomec.com/en/countis-e1x](http://www.socomec.com/en/countis-e1x)



## 2. HAZARDS AND WARNINGS

The term "device" used in the paragraphs below refers to the COUNTIS E17/E18.

The assembly, use, servicing and maintenance of this equipment must only be carried out by trained, qualified professionals.

SOCOMEK shall not be held responsible for failure to comply with the instructions in this manual.

### 2.1. Risk of electrocution, burns or explosion

- Only duly authorised and qualified personnel may work or install/uninstall the device.
- The instructions are valid together with the specific instructions for the device.
- The devices are designed only for their intended purpose as set out in the instructions.
- Only accessories authorised or recommended by SOCOMEK may be used in association with the devices.
- Before proceeding with installation, maintenance, cleaning, disassembly, connection, or maintenance work, the device and system must be cut off from the mains to avoid electrocution and damaging the system and device.
- These devices are not designed to be repaired by the user.
- For any questions related to the disposal of the device, please contact SOCOMEK.

**Failure to comply with the instructions of the device and this safety information can cause bodily injury, electric shock, burns, death or damage to property.**

### 2.2. Risk of damaging the unit

To ensure that the unit operates correctly, make sure that:

- The unit is correctly installed.
- There is a maximum voltage at the voltage input terminals of 288 VAC phase-neutral
- The network frequency indicated on the device is observed: 50 or 60 Hz.
- There is a maximum current of 80 A at the current input terminals (I1).

**Failure to respect these precautions could cause damage to the unit.**

### 2.3. Responsibility

- Assembly, connection and use must be carried out in accordance with the installation standards currently in force.
- The unit must be installed in accordance with the rules given in this manual.
- Failure to observe the rules for installing this unit may compromise the device's intrinsic protection.
- The unit must be positioned within an installation which complies with the standards currently in force.
- Any cable which needs to be replaced may only be replaced with a cable having the correct rating.

### 3. PRELIMINARY OPERATIONS

To ensure the safety of staff and the equipment, it is vital to read and absorb the contents of these instructions thoroughly before commissioning.

Check the following points as soon as you receive the package containing the unit:

- The packaging is in good condition
- The unit has not been damaged during transportation
- The device reference number conforms to your order
- The package includes:
  - 1 device
  - 1 ferrite core
  - 1 sealing kit (for COUNTIS E18)
  - 1 Quick Start guide

# 4. INTRODUCTION

## 4.1. Introducing the COUNTIS E17 / E18

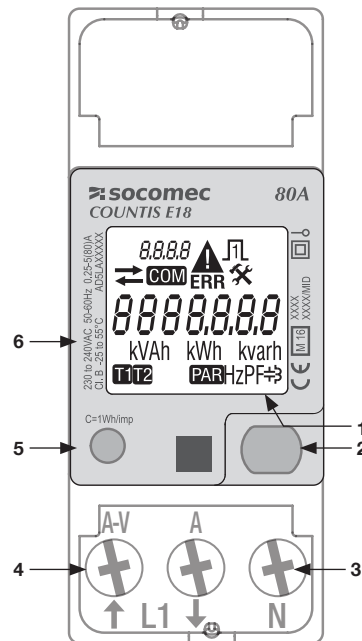
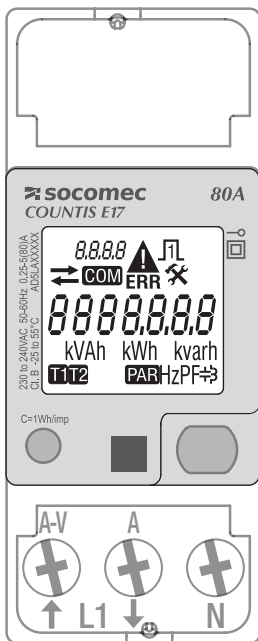
The COUNTIS E17 and E18 are modular active and reactive electrical energy meters that display consumed energy. They are designed for single-phase networks and allow a direct connection of up to 80 A. They are equipped with an Ethernet communication bus.

## 4.2. Functions

- Measures and displays total and partial energy
- Dual tariff management: T1 / T2
- Electrical parameter measurements: I, U, V, f
- Power, power factor
- TCP Modbus communication
- MID version (according to reference)

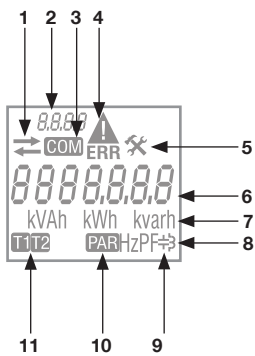
| Description               | Reference |
|---------------------------|-----------|
| COUNTIS E17               | 4850 3047 |
| COUNTIS E18 - Version MID | 4850 3048 |

## 4.3. Front panels



1. LCD display
2. ENTER key
3. Neutral connection
4. Single-phase network connection
5. Metrological LED
6. Information relating to MID certification

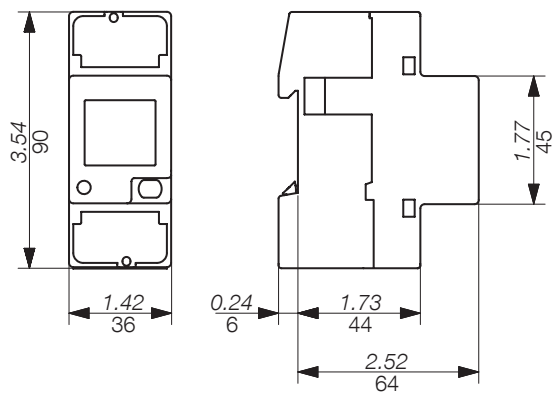
## 4.4. LCD display



1. Imported (→) or exported (←) energy or power
2. Identification of current menu
3. Active communication
4. Device malfunction. Replace the device
5. Setup menu
6. Main zone
7. Unit of measure
8. Inductive value
9. Capacitive value
10. Partial meters. Flashing = partial meter has stopped
11. Tariff display

## 4.5. Dimensions

Dimensions: *in/mm*



## 4.6. Electrical readings

### 4.6.1. Measurements

Settings vary by model.

| <b>Realtime values</b>                                                  | <b>Symbol</b> | <b>Unit of measure</b> | <b>LCD display</b> | <b>Via communication</b> |
|-------------------------------------------------------------------------|---------------|------------------------|--------------------|--------------------------|
| Neutral voltage                                                         | V             | V                      | ●                  | ●                        |
| Current                                                                 | I             | A                      | ●                  | ●                        |
| Power factor                                                            | PF            |                        | ●                  | ●                        |
| Apparent power                                                          | S             | kVA                    |                    | ●                        |
| Active power                                                            | P             | kW                     | ●                  | ●                        |
| Reactive power                                                          | Q             | kvar                   | ●                  | ●                        |
| Frequency                                                               | f             | Hz                     | ●                  | ●                        |
| Direction of current                                                    | ↻             |                        | ●                  |                          |
| <b>Logged data</b>                                                      |               |                        |                    |                          |
| Total active, reactive and apparent energy                              | Ea, Er, Eap   | kWh, kvarh, kVAh       | ●                  | ●                        |
| Total reactive, inductive and capacitive energy                         | Er            | kvarh                  | ●                  | ●                        |
| Total active and reactive energy for each tariff (T1/T2)                | Ea, Er        | kWh, kvarh             | ●                  | ●                        |
| Total apparent energy for each tariff (T1/T2)                           | Eap           | kVAh                   |                    | ●                        |
| Total reactive, inductive and capacitive energy for each tariff (T1/T2) | Er            | kvarh                  |                    | ●                        |
| Active, partial energy for each tariff (T1/T2)                          | Ea            | kWh                    | ●                  | ●                        |
| Partial active and reactive energy                                      | Ea, Er        | kWh, kvarh             | ●                  | ●                        |
| Partial apparent energy                                                 | Eap           | kVAh                   |                    | ●                        |
| Energy balance                                                          | ∑             | kWh, kvarh             |                    | ●                        |
| <b>Miscellaneous</b>                                                    |               |                        |                    |                          |
| Current tariff                                                          | T             | 1/2                    | ●                  | ●                        |
| Partial meters                                                          | BY            | START/STOP             | ●                  |                          |

### 4.6.2. Energy balance; definition

|       | <b>Formula</b>                                        |
|-------|-------------------------------------------------------|
| kWh   | (+kWh T1) - (-kWh T1) + (+kWh T2) - (-kWh T2)         |
| kvarh | (+kvarh T1) - (-kvarh T1) + (+kvarh T2) - (-kvarh T2) |



# 5. INSTALLATION

The paragraphs below describe how to install the device.

## 5.1. Recommendations and safety

Refer to the safety instructions (section "2. Hazards and warnings", page 4)

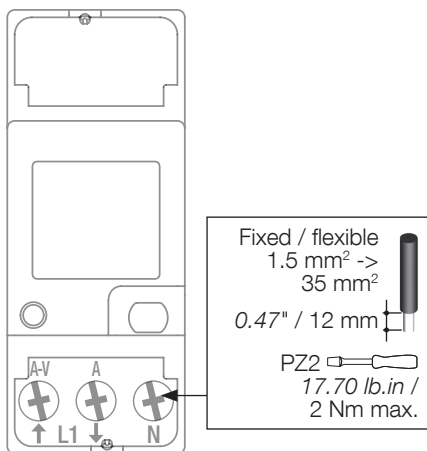
- Keep away from electromagnetic interference generator systems,
- Avoid vibrations with accelerations greater than 1 g for frequencies lower than 60 Hz.

## 5.2. DIN rail mounted

The COUNTIS E17/E18 can be mounted on a 35-mm DIN rail (EN 60715TM35). They must be used inside electrical cabinets.

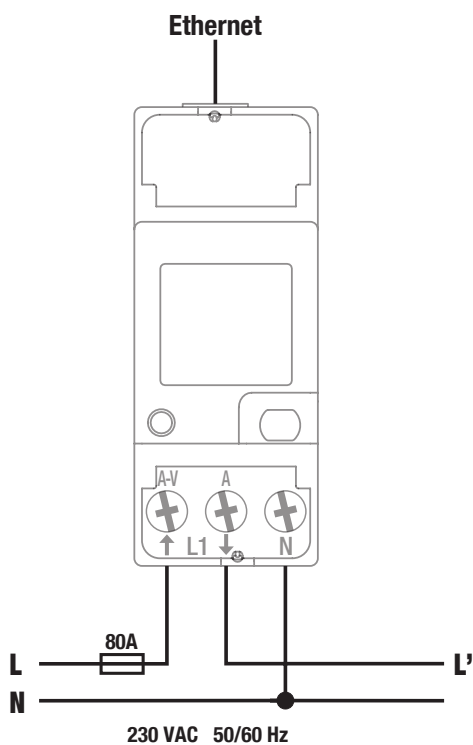
## 6. CONNECTION

### 6.1. Connecting the COUNTIS E17/E18



### 6.2. Connection to the electrical network and to the loads

The COUNTIS E17/E18 are intended for single-phase networks with neutral.



#### Ethernet

RJ45. The Ethernet cable must pass twice through the ferrite core, positioned at least 5 cm away from the device.

#### Price list

Tariff switch via communication

#### Network

L1 A-V: Phase input

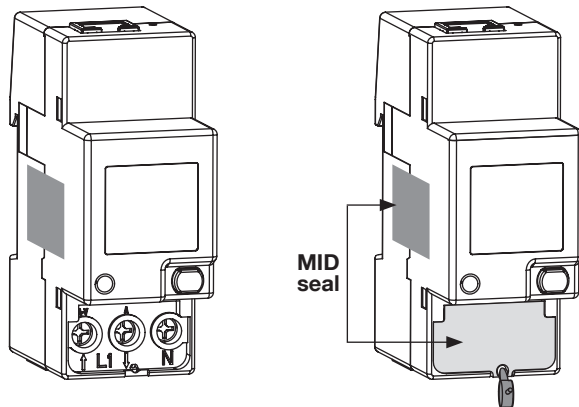
L': A: Phase output

N: Neutral connection

## 7. MID COMPLIANCE

The following points must be taken into consideration to ensure that the device is used in compliance with directive MID 2014/32/EU:

- **Type of network**  
COUNTIS E18 meters comply with the MID directive for connection to networks: 1P+N (see "6.2. Connection to the electrical network and to the loads", page 10)
- **Fitting terminal covers**  
After connecting the device, ensure that the terminal covers are fitted properly and secured by the plastic seals provided with the device.
- **Communication**  
The information provided via the TCP Modbus COM is transmitted for information only and has no legal value.
- **MID Declaration of Conformity**  
The MID Declaration of Conformity is available on the website: [www.socomec.com/en/countis-e1x](http://www.socomec.com/en/countis-e1x)



# 8. COMMUNICATION

## 8.1. General information

The Modbus communication available on the COUNTIS E17/E18 communicates via an Ethernet link which is used to operate devices from a PC or an API.

## 8.2. Communication structure

The device communicates via a Modbus protocol which involves a dialogue in accordance with a master/slave structure. Communication is via TCP (Transmission Control Protocol) through the Ethernet communication port.

The default IP address is:

IP address: 192.168.0.4

Subnet Mask: 255.255.255.000

Gateway: 192.168.0.1

Modbus address: 5

A web server lets you access the measurement data.

The broadcast communication is available for the log that stores the tariff.

## 8.3. Communication tables

The communication tables and relevant notes are available online on the COUNTIS E17/E18 documentation page at:

[www.socomec.com/en/countis-e1x](http://www.socomec.com/en/countis-e1x)




## 9. CONFIGURATION

The devices can be configured directly from the COUNTIS E17/E18 screen in programming mode or via the communication link. The paragraphs below describe configuring using the screen.


### 9.1. Onscreen configuration

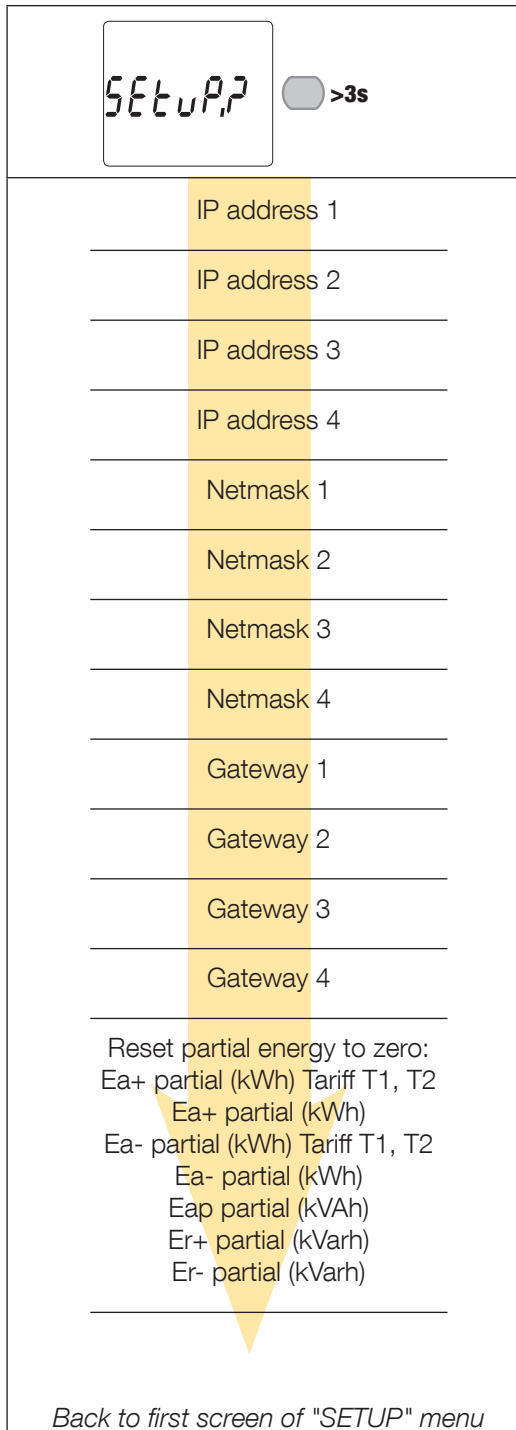
From the screen, go to programming mode to change your communication settings. How to browse through the programming mode is described in the following stages:

| Function                                  | Where                                                     | Buttons                                                                             | Press                       |
|-------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|
| Switch menus                              | Every page except SETUP menu                              |  | Double speed (x2 < 0.5 sec) |
| Switch pages within a menu                | Every page within a menu                                  |                                                                                     | Realtime                    |
| Go to SETUP menu                          | Menu page SETUP                                           |                                                                                     | > 3 sec                     |
| Change a value/digit                      | SETUP pages                                               |                                                                                     | realtime                    |
| Confirm a value/digit                     | SETUP pages                                               |                                                                                     | Double speed (x2 < 0.5 sec) |
| Exit SETUP menu                           | SETUP Menu                                                |                                                                                     | > 3 sec                     |
| Start/stop the displayed partial meter    | Partial meter menu                                        |                                                                                     | > 3 sec                     |
| Reset the displayed partial meter to zero | Partial meter menu                                        |                                                                                     | > 3 sec                     |
| Display test                              | Every page with the exception of SETUP and partial meters |                                                                                     | > 10 sec                    |

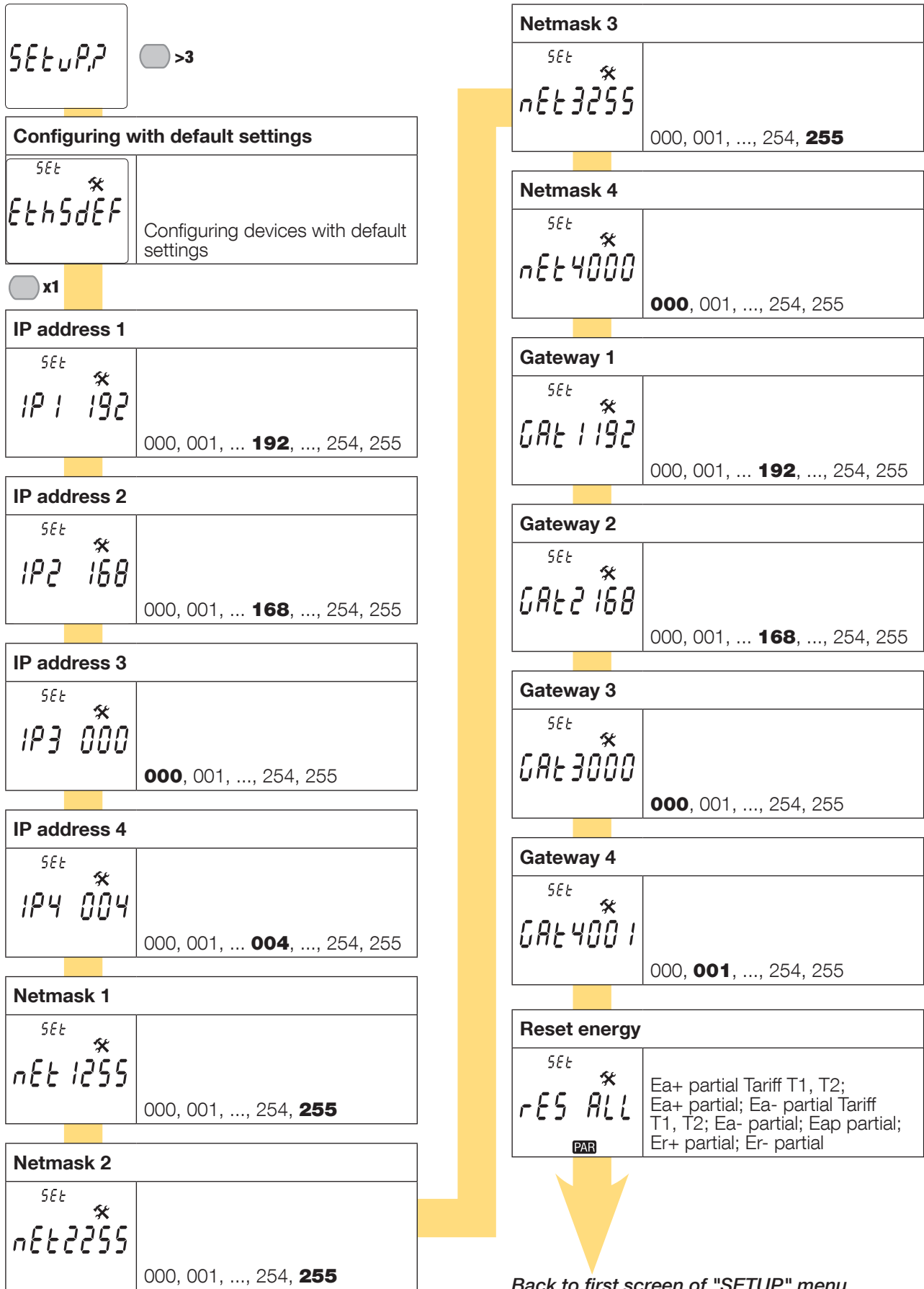
### 9.1.1. View all of the menu "SETUP"

In the SETUP menu, press "  " for 3 seconds to put the device into programming mode.

Press "  " to go to the different screens:



9.1.2. Detailed view of menu "SETUP"

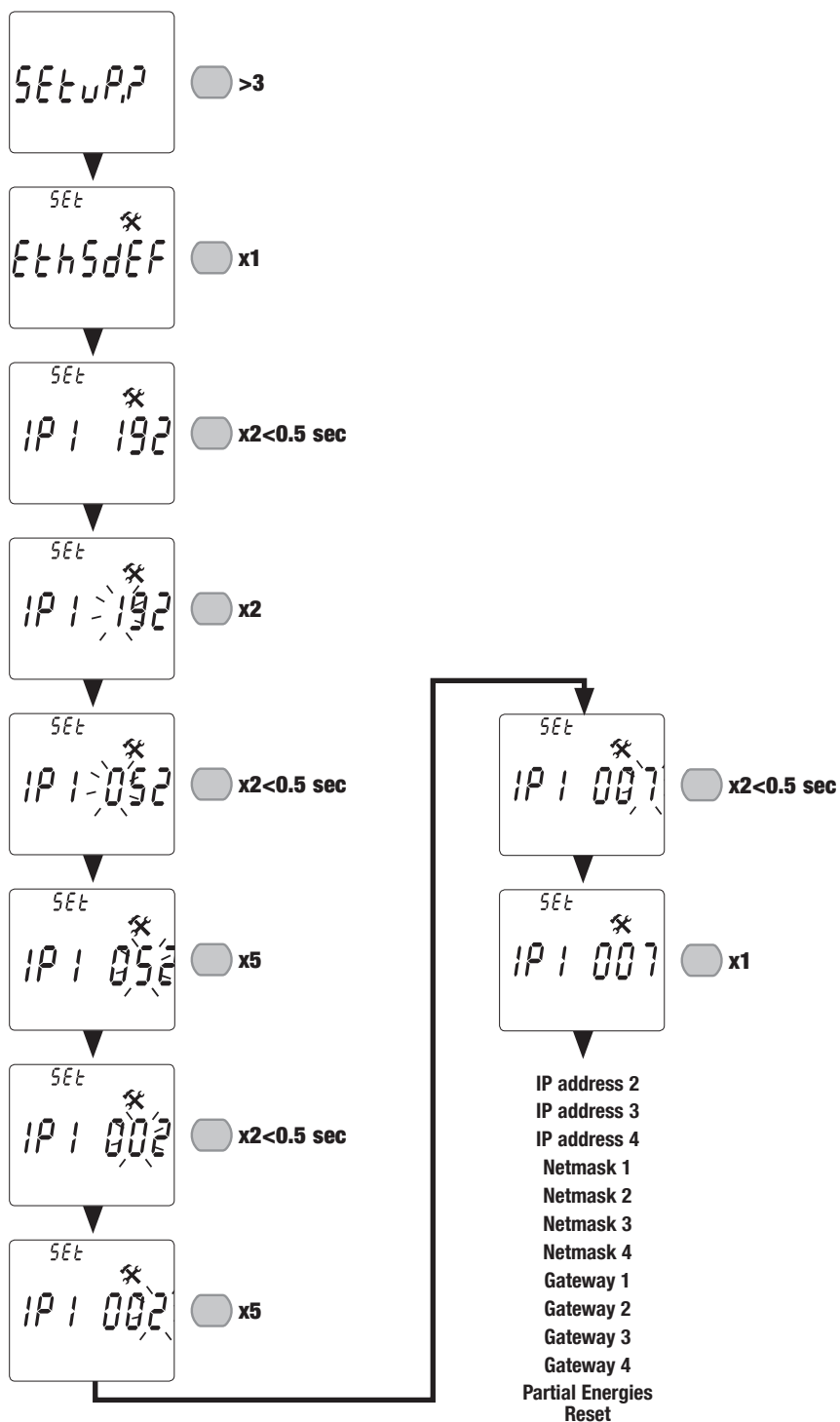


Back to first screen of "SETUP" menu

### 9.1.3. Example: setting the communication address

In "SETUP" mode (see page 14), go to the "IP address 1" screen

Example: changing the communication address to IP1 007.



**XX** = default value



# 10. USE

Switch menus by pressing "  " twice for at least 0.5 seconds.  
Press "  " to see the electrical readings or menu information.

The menus and related measurements are described in the table below:

| Tariff (Tar.)                                                                                                                                                                                                                                                                                         | Total (tot)                                                                                                                                                                                                                                                                                                                                | Partial and realtime readings (P. rt)                                                                                                                                                                                                                                                                                                                                                                                                 | Information (inFo)                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Tariff 1 - Imported and exported active energy</p> <hr/> <p>Tariff 1 - Imported and exported reactive energy</p> <hr/> <p>Tariff 2 - Imported and exported active energy</p> <hr/> <p>Tariff 2 - Imported and exported reactive energy</p> <hr/> <p><i>Back to first screen of "Tar." menu</i></p> | <p>Total imported and exported active energy</p> <hr/> <p>Total apparent energy</p> <hr/> <p>Total imported and exported inductive reactive energy</p> <hr/> <p>Total imported and exported capacitive reactive energy</p> <hr/> <p>Total imported and exported reactive energy</p> <hr/> <p><i>Back to first screen of "tot" menu</i></p> | <p>Partial imported active energy by tariff</p> <hr/> <p>Partial imported active energy</p> <hr/> <p>Partial exported active energy by tariff</p> <hr/> <p>Partial exported active energy</p> <hr/> <p>Partial imported reactive energy</p> <hr/> <p>Active and reactive power</p> <hr/> <p>Voltage</p> <hr/> <p>Current</p> <hr/> <p>Power factor</p> <hr/> <p>Frequency</p> <hr/> <p><i>Back to first screen of "P.rt" menu</i></p> | <p>Metrological firmware version</p> <hr/> <p>Non-metrological firmware version</p> <hr/> <p>Checksum of metrological firmware</p> <hr/> <p>Checksum of non-metrological firmware</p> <hr/> <p>Installed communication port</p> <hr/> <p><i>Back to first screen of "InFO" menu</i></p> |

# 10.1. Detailed view of the tariff menu, "Tar."

|                                                      |  |
|------------------------------------------------------|--|
| <b>Imported active energy, tariff 1</b>              |  |
| $\xrightarrow{\text{tariff 1}}$<br>000062.2<br>kWh   |  |
| <b>Exported active energy, tariff 1</b>              |  |
| $\xleftarrow{\text{tariff 1}}$<br>000062.2<br>kWh    |  |
| <b>Imported reactive energy, tariff 1</b>            |  |
| $\xrightarrow{\text{tariff 1}}$<br>000062.2<br>kvarh |  |
| <b>Exported reactive energy, tariff 1</b>            |  |
| $\xleftarrow{\text{tariff 1}}$<br>000062.2<br>kvarh  |  |
| <b>Imported active energy, tariff 2</b>              |  |
| $\xrightarrow{\text{tariff 2}}$<br>000062.2<br>kWh   |  |
| <b>Exported active energy, tariff 2</b>              |  |
| $\xleftarrow{\text{tariff 2}}$<br>000062.2<br>kWh    |  |
| <b>Imported reactive energy, tariff 2</b>            |  |
| $\xrightarrow{\text{tariff 2}}$<br>000062.2<br>kvarh |  |

|                                                     |  |
|-----------------------------------------------------|--|
| <b>Exported reactive energy, tariff 2</b>           |  |
| $\xleftarrow{\text{tariff 2}}$<br>000062.2<br>kvarh |  |

Back to first screen of "Tar." menu

## 10.2. Detailed view of the total menu, "tot"

|                                               |  |
|-----------------------------------------------|--|
| <b>Total imported active energy</b>           |  |
| $\xrightarrow{\text{tot}}$<br>000083.2<br>kWh |  |

|                                              |  |
|----------------------------------------------|--|
| <b>Total exported active energy</b>          |  |
| $\xleftarrow{\text{tot}}$<br>000083.2<br>kWh |  |

|                                  |  |
|----------------------------------|--|
| <b>Total apparent energy</b>     |  |
| $\text{tot}$<br>000083.2<br>kVAh |  |

|                                                      |  |
|------------------------------------------------------|--|
| <b>Total imported inductive reactive energy</b>      |  |
| $\xrightarrow{\text{tot}}$<br>000083.2<br>kvarh<br>⌋ |  |

|                                                     |  |
|-----------------------------------------------------|--|
| <b>Total exported inductive reactive energy</b>     |  |
| $\xleftarrow{\text{tot}}$<br>000083.2<br>kvarh<br>⌋ |  |

|                                                      |  |
|------------------------------------------------------|--|
| <b>Total imported capacitive reactive energy</b>     |  |
| $\xrightarrow{\text{tot}}$<br>000083.2<br>kvarh<br>⌋ |  |

|                                                     |  |
|-----------------------------------------------------|--|
| <b>Total exported capacitive reactive energy</b>    |  |
| $\xleftarrow{\text{tot}}$<br>000083.2<br>kvarh<br>⌋ |  |

|                                                 |  |
|-------------------------------------------------|--|
| <b>Total imported reactive energy</b>           |  |
| $\xrightarrow{\text{tot}}$<br>000083.2<br>kvarh |  |

|                                                |  |
|------------------------------------------------|--|
| <b>Total exported reactive energy</b>          |  |
| $\xleftarrow{\text{tot}}$<br>000083.2<br>kvarh |  |

*Back to first screen of "tot" menu*

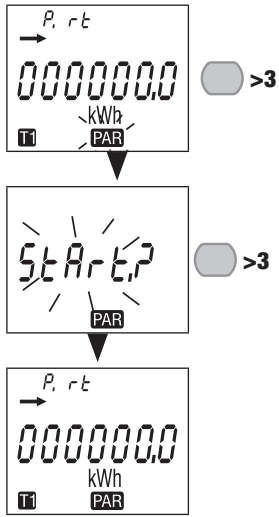
### 10.3. Detailed view of the menu for partial and realtime readings, "P. rt"

|                                                         |  |
|---------------------------------------------------------|--|
| <b>Imported partial active energy for tariff T1</b>     |  |
| <p>→ P. rt</p> <p>000083.2</p> <p>kWh</p> <p>T1 PAR</p> |  |
| <b>Imported partial active energy for tariff T2</b>     |  |
| <p>→ P. rt</p> <p>000083.2</p> <p>kWh</p> <p>T2 PAR</p> |  |
| <b>Partial imported active energy</b>                   |  |
| <p>→ P. rt</p> <p>000083.2</p> <p>kWh</p> <p>PAR</p>    |  |
| <b>Exported partial active energy for tariff T1</b>     |  |
| <p>← P. rt</p> <p>000083.2</p> <p>kWh</p> <p>T1 PAR</p> |  |
| <b>Exported partial active energy for tariff T2</b>     |  |
| <p>← P. rt</p> <p>000083.2</p> <p>kWh</p> <p>T2 PAR</p> |  |
| <b>Partial exported active energy</b>                   |  |
| <p>← P. rt</p> <p>000083.2</p> <p>kWh</p> <p>PAR</p>    |  |
| <b>Partial imported reactive energy</b>                 |  |
| <p>→ P. rt</p> <p>000083.2</p> <p>kvarh</p> <p>PAR</p>  |  |

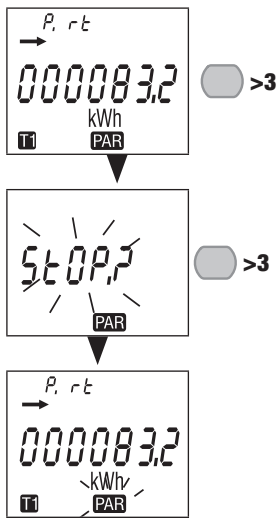
|                                                  |  |
|--------------------------------------------------|--|
| <b>Realtime active power</b>                     |  |
| <p>→ P. rt</p> <p>08.32</p> <p>kW</p>            |  |
| <b>Realtime reactive power</b>                   |  |
| <p>→ P. rt</p> <p>08.32</p> <p>kvar</p> <p>±</p> |  |
| <b>Realtime voltage</b>                          |  |
| <p>P. rt</p> <p>228.2</p> <p>V</p>               |  |
| <b>Realtime current</b>                          |  |
| <p>P. rt</p> <p>00.00</p> <p>A</p>               |  |
| <b>Realtime power factor</b>                     |  |
| <p>P. rt</p> <p>0.000</p> <p>PF±</p>             |  |
| <b>Frequency</b>                                 |  |
| <p>P. rt</p> <p>50.01</p> <p>Hz</p>              |  |

Back to first screen of "P. rt" menu

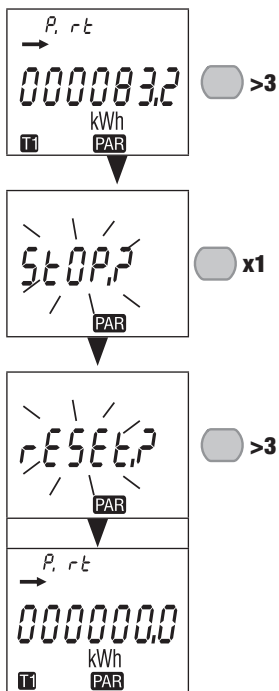
### 10.3.1. Starting up the partial energy meter



### 10.3.2. Stopping the partial energy meter



### 10.3.3. Resetting the partial energy meter to zero



## 10.4. Detailed view of the menu "info"

| Metrological firmware version |  |
|-------------------------------|--|
| <i>info</i>                   |  |
| Fr 1 1.22                     |  |

| Non-metrological firmware version |  |
|-----------------------------------|--|
| <i>info</i>                       |  |
| Fr 2 3.00                         |  |

| Checksum of metrological firmware |  |
|-----------------------------------|--|
| <i>info</i>                       |  |
| C5 1C 166                         |  |

| Checksum of non-metrological firmware |  |
|---------------------------------------|--|
| <i>info</i>                           |  |
| C52587E                               |  |

| Installed communication port |  |
|------------------------------|--|
| <i>info</i>                  |  |
| Eth                          |  |



Back to first screen of "info" menu

# 11. DIAGNOSTICS MESSAGES

The following message appears if there are connection or malfunction errors.

## 11.1. Malfunction



- If you see this message, the meter has malfunctioned and must be replaced.

# 12. ASSISTANCE

| Causes             | Solutions                                     |
|--------------------|-----------------------------------------------|
| Device not working | Check the neutral and phase cable connections |
| Error message      | Check the meter is working OK                 |

# 13. CHARACTERISTICS

| GENERAL FEATURES                    |                                                                                                                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compliant with                      | European EMC Directive No. 2014/30/EU dated 26/02/2014<br>LV Directive No. 2014/35/EU dated 26/02/2014<br>Measuring Instrument Directive MID No. 2014/32/EU dated 26/02/2014<br>EN50470-1/-3<br>IEC 62053-21/-23 |
| Frequency                           | 45 and 65 Hz                                                                                                                                                                                                     |
| Power supply                        | Self-supplied                                                                                                                                                                                                    |
| Rated dissipated power (Wmax.)      | 7.5VA (0.5W)                                                                                                                                                                                                     |
| FEATURES                            |                                                                                                                                                                                                                  |
| Single-phase connectivity           | 2 wires 230 - 400V                                                                                                                                                                                               |
| Stores energy readings and settings | In FRAM memory                                                                                                                                                                                                   |
| Identifies display of tariffs       | T1 and T2                                                                                                                                                                                                        |
| CURRENT MEASUREMENTS                |                                                                                                                                                                                                                  |
| Type                                | Single-phase - direct 80 A                                                                                                                                                                                       |
| Input consumption                   | 0.5VA max. per phase                                                                                                                                                                                             |
| Startup current (Ist)               | 20mA                                                                                                                                                                                                             |
| Minimum current (Imin)              | 0.25A                                                                                                                                                                                                            |
| Transition current (Itr)            | 0.5A                                                                                                                                                                                                             |
| Reference current (Iref)            | 5A                                                                                                                                                                                                               |
| Permanent overload (Imax)           | 80A                                                                                                                                                                                                              |
| Intermittent overload               | 30 Imax for 1/2 cycle                                                                                                                                                                                            |
| OVERLOAD CAPACITY                   |                                                                                                                                                                                                                  |
| DC voltage Un                       | 276 VAC                                                                                                                                                                                                          |
| Realtime voltage Un (1 s)           | 300 VAC                                                                                                                                                                                                          |
| DC current Imax                     | 80 A                                                                                                                                                                                                             |
| Realtime current Imax               | 30 Imax for 1/2 cycle                                                                                                                                                                                            |
| VOLTAGE MEASUREMENTS                |                                                                                                                                                                                                                  |
| Range of measurement                | 230-240V ± 20%                                                                                                                                                                                                   |
| Consumption                         | 7.5VA max                                                                                                                                                                                                        |
| Permanent overload                  | 290V phase-neutral                                                                                                                                                                                               |
| FREQUENCY MEASUREMENT               |                                                                                                                                                                                                                  |
| Frequency measurement               | 45-65 Hz                                                                                                                                                                                                         |
| ENERGY MEASUREMENT                  |                                                                                                                                                                                                                  |
| Active                              | Yes                                                                                                                                                                                                              |
| Reactive                            | Yes                                                                                                                                                                                                              |
| Total and partial reading           | Yes                                                                                                                                                                                                              |
| MID metering                        | Bidirectional with single-phase                                                                                                                                                                                  |
| Resolution                          | 10 Wh, 10 varh                                                                                                                                                                                                   |
| ENERGY ACCURACY                     |                                                                                                                                                                                                                  |
| Active energy Ea+                   | Class B (EN 50470-3) E18<br>Class 1 (IEC 62053-21)                                                                                                                                                               |
| Reactive energy Er+                 | Class 2 (IEC 62053-23)                                                                                                                                                                                           |



| <b>TARIFF for Ea+</b>                       |                                                                      |
|---------------------------------------------|----------------------------------------------------------------------|
| Tariff management                           | Yes (via communication)                                              |
| Number of tariffs managed                   | 2                                                                    |
| <b>METROLOGICAL LED (Ea+)</b>               |                                                                      |
| Pulse value                                 | 1000 pulses / kWh                                                    |
| Colour                                      | Red                                                                  |
| <b>PULSE OUTPUT</b>                         |                                                                      |
| Type                                        | Opto-isolated - 5 ... 27VDC 27mA according to EN 62053-31            |
| Pulse weight                                | 100 Wh                                                               |
| <b>DISPLAY</b>                              |                                                                      |
| Type                                        | 7-digit LCD with backlight                                           |
| Refresh time                                | 1 s                                                                  |
| Backlight activation time                   | 10 s                                                                 |
| Active energy: 1 display, 7-digit           | 000000.0 - 999999.9 kWh                                              |
| Reactive energy: 1 display, 7-digit         | 000000.0 - 999999.9 kvarh                                            |
| Apparent energy: 1 display, 7-digit         | 000000.0 - 999999.9 kVAh                                             |
| Realtime active power: 1 display, 4-digit   | 00.00 - 99.99 kW                                                     |
| Realtime reactive power: 1 display, 4-digit | 00.00 - 99.99 kvar                                                   |
| Realtime voltage: 1 display, 4-digit        | 000.0 ... 999.9 V                                                    |
| Realtime current: 1 display, 4-digit        | 00.00 ... 99.99 A                                                    |
| Power factor: 1 display, 4-digit            | 0.001-1.000                                                          |
| Frequency: 1 display, 4-digit               | 45.00-65.00 Hz                                                       |
| <b>COMMUNICATION</b>                        |                                                                      |
| Ethernet                                    | Full duplex                                                          |
| Protocol                                    | Modbus TCP, HTTP, NTP, DHCP                                          |
| Baudrate                                    | 10/100 Mbps                                                          |
| Web server password                         | Username: admin / password: Admin<br>Username: user / password: user |
| Default IP address                          | 192.168.0.4                                                          |
| Default Gateway IP address                  | 192.168.0.1                                                          |
| Default netmask                             | 255.255.255.000                                                      |
| Default slave address                       | 5                                                                    |
| <b>SAVING</b>                               |                                                                      |
| Energy registers                            | In FRAM memory                                                       |
| <b>ENVIRONMENTAL CONDITIONS</b>             |                                                                      |
| Mechanical environment                      | M1                                                                   |
| Electromagnetic environment                 | E2                                                                   |
| Operating temperature range                 | -25°C to +55°C                                                       |
| Storage temperature                         | -25°C to 75°C                                                        |
| Humidity                                    | ≤ 80%                                                                |
| Installation                                | Internal (box/cabinet)                                               |
| Vibrations                                  | ±0.075 mm                                                            |

| <b>HOUSING</b>                         |                                                       |
|----------------------------------------|-------------------------------------------------------|
| Dimensions W x H x D (mm)              | Modular - width of 2 modules (DIN 43880) 36 x 90 x 64 |
| Installation                           | On DIN rail (EN 60715)                                |
| Connection capacity, tightening torque | See chapter "6. Connection", page 10                  |
| Protection index                       | Front: IP51 - casing: IP20                            |
| Insulation class                       | Class II (EN 50470-1)                                 |
| Weight                                 | 215 g                                                 |

## 14. GLOSSARY OF ABBREVIATIONS

|         |                                       |
|---------|---------------------------------------|
| info    | Menu information                      |
| Fr1     | Metrological firmware version         |
| Fr2     | Non-metrological firmware version     |
| CS1.    | Checksum of metrological firmware     |
| CS2.    | Checksum of non-metrological firmware |
| tAr.    | Tariff menu                           |
| tot     | Total menu                            |
| P. rt   | Partial and realtime readings menu    |
| SEtUP.  | Setup menu                            |
| rES ALL | Reset partial energy                  |
| SAVE?   | Confirm selection                     |
| Y       | Save and exit                         |
| N       | Exit without saving                   |
| C       | Continue without saving               |
| EthSEF  | Default settings                      |
| IP1     | IP address 1                          |
| IP2     | IP address 2                          |
| IP3     | IP address 3                          |
| IP4     | IP address 4                          |
| nET1    | Netmask 1                             |
| nET2    | Netmask 2                             |
| nET3    | Netmask 3                             |
| nET4    | Netmask 4                             |
| GAt1    | Gateway 1                             |
| GAt2    | Gateway 2                             |
| GAt3    | Gateway 3                             |
| GAt4    | Gateway 4                             |

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