inepro®

PRO380-S
PRO380-Mb
PRO380-Mod



PRO380 Series MID
Three phase energy meter

User manual

Version: 2.18-8

LEAD FREE RoHS COMPLIANT

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2 Safety instructions

Information for your own safety
This manual does not contain all of the safety measures for operation of this meter because special operating conditions, local code requirements or local regulations may necessitate further measures. However, it does contain information which must be adhered to for your own personal safety and to avoid material damage. This information is highlighted by a warning triangle with an exclamation mark or a lightning bolt depending on the degree of actual or potential danger:



Warning
This means that failure to observe the instruction can result in death, serious injury or considerable material damage.



Caution
This means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

Qualified personnel
Installation and operation of the device described in this manual may only be performed by qualified personnel. Only people that are authorized to install, connect and use this device, who have the proper knowledge about labeling and grounding electrical equipment and circuits and can do so in accordance with local (safety)regulations, are considered qualified personnel in this manual.

Use for the intended purpose
This device may only be used for the application cases specified in the catalog and the user manual and only in connection with devices and components recommended and approved by Inepro Metering B.V.

Proper handling
The prerequisites for perfect, reliable operation of the product are proper transport, storage, installation and connection, as well as proper operation and maintenance. During its operation certain parts of the meter might carry dangerous voltages.

- Only use insulated tools suitable for the voltages this meter is used for.
- Do not connect while the circuit is connected to a power or current source.
- Only place the meter in a dry environment.
- The meter is intended to be installed in a Mechanical Environment 'M1', with Shock and Vibrations of low significance and Electromagnetic Environment 'E2', as per 2014/32/EC Directive. The meter is intended for indoor use. The meter shall be installed inside a suitable IP rated enclosure, in accordance with local codes and regulations.
- Do not mount the meter in an explosive area or exposed to dust, mildew and/or insects.
- Make sure the used wires are suitable for the maximum current of this meter.
- Make sure the AC wires are connected correctly before activating the current/voltage to the meter.
- Do not touch the meter's connection clamps directly with your bare hands, with metal, blank wire or other conducting material as you will risk an electric shock that could cause possible injury, serious injury or death.
- Make sure the protection covers are replaced after installation.
- Maintenance and repair of the meter should only be carried out by qualified personnel.
- Never break any seals (if present on this meter) to open the front cover as this might influence the functionality or accuracy of the meter, and will void all warranty.
- Do not drop, or allow physical impact to the meter as there are high precision components inside that may break and affect the meter measurement negatively.
- All clamps should be properly tightened.
- Make sure the wires fit properly in the connection clamps.
- If the wires are too thin it will cause a bad contact which can spark causing damage to the meter and its surroundings.

Exclusion of liability
We have checked the contents of this manual and every effort has been made to ensure that the descriptions are as accurate as possible. However, deviations from the description cannot be completely ruled out, so that no liability can be accepted for any errors or omissions in the information given. The data in this manual are checked regularly and the necessary corrections will be included in subsequent editions. If you have any suggestions, please do not hesitate to contact us.

Subject to technical modifications without notice.

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3 Foreword

Thank you for purchasing this energy meter. Inepro has a wide product range of devices. We have introduced a large number of energy meters on the market suitable for 110V AC to 400V AC (50 or 60Hz). Besides the normal energy meters we also developed our own pre-paid meters with chip card, chip card re-loaders and a complete PC management control system. For more information on other products please contact our sales department at sales@ineprometering.com or visit our website at www.ineprometering.com.

Although we produce this device according to international standards and our quality inspection is very accurate it's still possible that this device shows a defect or failure for which we do apologize. Under normal conditions your product should give you years of trouble free operation. In case there is a problem with the energy meter you should contact your distributor immediately. Most of our energy meters are sealed with a special seal. Once this seal is broken there is no possibility to claim any warranty. Therefore NEVER open an energy meter or break the seal of the device. The limited warranty is 5 years after production date, divided into various periods., after production, and only valid for production faults.

4 Certificates



EU-type examination certificate

Number **T10677** revision 6
Project number 1900682
Page 1 of 1

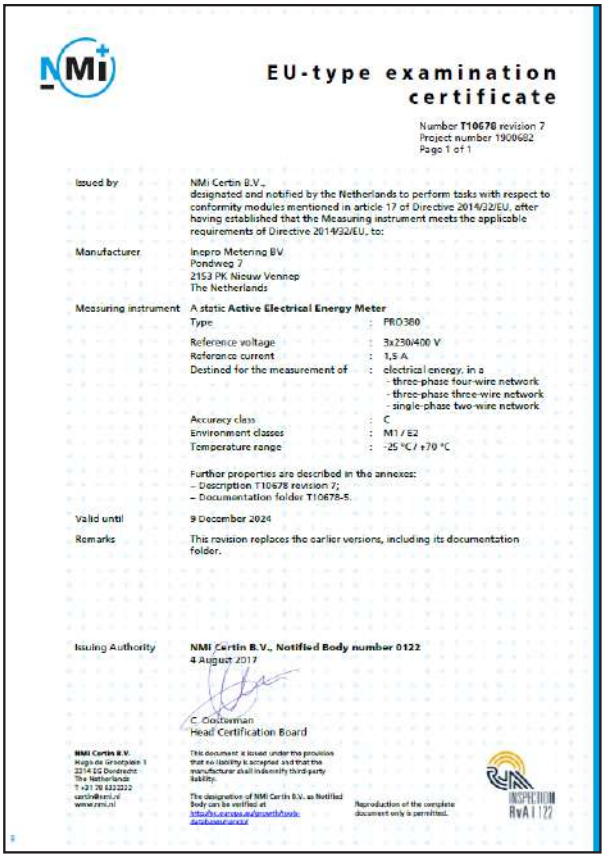
Issued by	NMi Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity modules mentioned in article 17 of Directive 2014/32/EU, after having established that the Measuring instrument meets the applicable requirements of Directive 2014/32/EU, to:
Manufacturer	Inepro Metering BV Pondweg 7 2153 PK Nieuw Vennep The Netherlands
Measuring instrument	A static **Active Electrical Energy Meter** Type : PRO380 Reference voltage : 3x230/400 V Reference current : 5 A Destined for the measurement of : electrical energy, in a - three-phase four-wire network - three-phase three-wire network - single-phase two-wire network Accuracy class : B Environment classes : M1 / E2 Temperature range : -40 °C / +70 °C
	Further properties are described in the annexes: – Description T10677 revision 6; – Documentation folder T10677-4.
Valid until	9 December 2024
Remarks	This revision replaces the earlier versions, including its documentation folder.
Issuing Authority	**NMi Certin B.V., Notified Body number 0122** 4 August 2017 C. Oosterman Head Certification Board

NMi Certin B.V.
Hugo de Grootplein 1
3314 EG Dordrecht
The Netherlands
T +31 78 6332332
certin@nmi.nl
www.nmi.nl

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EU-type examination certificate

Number **T10678** revision 7
Project number 1900682
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Issued by	NMi Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity modules mentioned in article 17 of Directive 2014/32/EU, after having established that the Measuring instrument meets the applicable requirements of Directive 2014/32/EU, to:
Manufacturer	Inepro Metering BV Pondweg 7 2153 PK Nieuw Vennep The Netherlands
Measuring instrument	A static **Active Electrical Energy Meter** Type : PRO380 Reference voltage : 3x230/400 V Reference current : 1,5 A Destined for the measurement of : electrical energy, in a - three-phase four-wire network - three-phase three-wire network - single-phase two-wire network Accuracy class : C Environment classes : M1 / E2 Temperature range : -25 °C / +70 °C
	Further properties are described in the annexes: – Description T10678 revision 7; – Documentation folder T10678-5.
Valid until	9 December 2024
Remarks	This revision replaces the earlier versions, including its documentation folder.
Issuing Authority	**NMi Certin B.V., Notified Body number 0122** 4 August 2017 C. Oosterman Head Certification Board

NMi Certin B.V.
Hugo de Grootplein 1
3314 EG Dordrecht
The Netherlands
T +31 78 6332332
certin@nmi.nl
www.nmi.nl

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inepro®

CE

We,

Inepro Metering BV

(supplier's name)

Pondweg 7
2153 PK Nieuw-Vennep
The Netherlands

(supplier's address)

declare under our sole responsibility that the product:

PRO380-S DC
PRO380-Mb DC
PRO380-Mod DC
PRO380-S CT
PRO380-Mb CT
PRO380-Mod CT

Three phase DIN rail Watt Hour meter

(Name, type or model, batch or serial number, possibly source and number of items)

to which this declaration relates in conformity with the following European harmonized and published standards at date of this declaration:

EN 50470

(Title and or number and date of issue of the applied standard(s))

Following the provisions of the Directives (if applicable):

☑ N/A

Nieuw-Vennep, 2013, Oktober 31

Place and date of issue

D. van der Vaart

Name of responsible for CE-marking

This declaration of Conformity is suitable to the European Standard EN 45014 *General Criteria for Supplier's Declaration of Conformity*. The basis for the criteria has been found in international documentation, particularly in ISO / IEC, Guide 22, 1982, *Information on manufacturer's Declaration of Conformity with standards or other technical specifications*

Declaration of Conformity

We

Inepro Metering BV

Of

Inepro Metering BV
Pondweg 7
2153 PK Nieuw Vennep
The Netherlands

Ensure and declare that the apparatus:

PRO380-S (direct), **PRO380-Mod** (direct), **PRO380-M-bus** (direct)

PRO380-S (CT), **PRO380-Mod** (CT), **PRO380-M-bus** (CT)

With the measurement range

230/400V, 5(100)A, 50Hz, 10.000imp/kWh (direct)

230/400V, 1,5(6)A, 50Hz, 10.000imp/kWh (CT)

are in conformity with the type as described in the

EC-type examination certificates T10677 (direct) and **T10678** (CT)

and satisfy the appropriate requirements of the Directive 2014/32/EU

September 01, 2016

Daan van der Vaart

5 Specifications

Casing	PC flame resistant plastic
Nominal voltage (Un)	230/400V AC (3~)
Operational voltage	3*230/400V ±20%
Insulation capabilities:	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV – 1,2µS waveform
Basic current (Ib)	5A (1,5A for CT version)
Maximum rated current (Imax)	100A (6A for CT version)
Operational current range	0,4%Ib-Imax
Overcurrent withstand	30Imax for 0,01s
Operational frequency range	45-60Hz
Internal power consumption	≤2W/Phase - ≤10VA/Phase (active - reactive)
Test output flash rate (RED LED)	10.000 imp/kWh
Pulse output rate	10.000/2.000/1.000/100/10/1/0,1/0,01 imp/kWh
Pulse width	
- 1.000/2.000/10.000 pulses	
o 0 – 4.999W 40ms	
o 5.000 – 9.999W 20ms	
o 10.000 – 19.999W 10ms	
o 20.000 – 39.999W 5ms	
o > 40.000W 2,5ms	
- 100 pulses	
o < 50.000W 40ms	
o > 50.000W 20ms	
- Other pulses	
o Always 40ms	
Data store	The data can be stored for more than 10 years without power

5.1 Performance criteria

Operating humidity	≤ 75%
Storage humidity	≤ 95%
Operating temperature range DC version	-40°C - +70°C
Operating temperature range CT version	-25°C - +70°C
International standard	EN50470-1/3
Accuracy class	B (=1% accuracy)
Protection against penetration of dust and water	IP51 (front side), IP20 (connection terminals)
Insulating encased meter of protective class	II

5.2 Basic errors

0,05Ib	Cosφ = 1	±1,5%
0,1Ib	Cosφ = 0,5L	±1,5%
	Cosφ= 0,8C	±1,5%
0,1Ib - Imax	Cosφ = 1	±1,0%
0,2Ib - Imax	Cosφ = 0,5L	±1,0%
	Cosφ = 0,8C	±1,0%

5.3 Infrared specification

Infrared wavelengths	900- 1000nm
Communication distance	Direct contact
Protocol	IEC62056-21:2002 (IEC1107)

5.4 M-bus communication specifications (PRO380-Mb only)

Bus type	M-bus
Baud rate	300, 600, 1200, 2400 (default), 4800 and 9600
Range	≤1000m
Downlink signal	Master to slave. Voltage modulation
Uplink signal	Slave to master. Current modulation
Cable	JYSTY (nx2x0,8)
Protocol	EN13757-3
Unit loads	± 2
Max. number of meters	64 per bus*

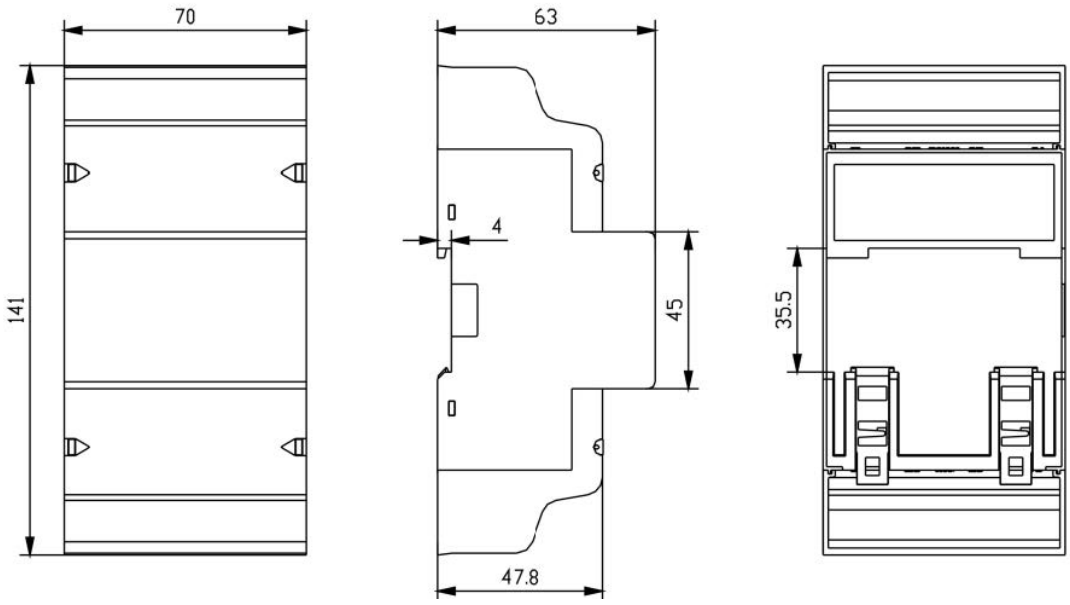
5.5 RS485 communication specifications (PRO380-Mod only)

Bus type	RS485
Protocol	MODBUS RTU with 16 bit CRC
Baud rate	1200, 2400, 4800 and 9600 (default)
Address range	1-247 user settable
Maximum bus load	60 meters per bus*
Range	1000m

*Note that the maximum number of meters is dependent on the converter, baudrate (the higher the baudrate, the smaller the number of meters which can be used) and the circumstances under which the meters are installed.

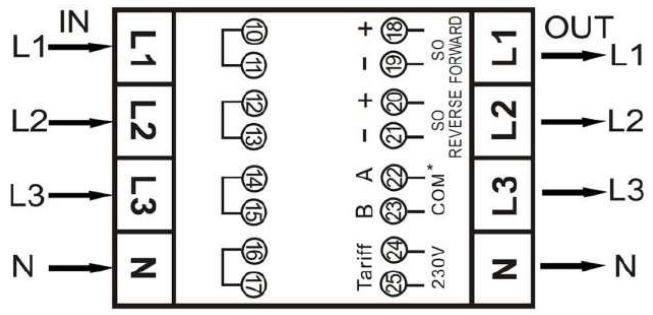
5.6 Dimensions

Height without protection cover	92,4 mm
Height	141 mm
Width	70 mm
Depth	63 mm
Max. diameter power connection clamps	25mm^2 (Flex core) 35 mm^2 (Solid copper)
Weight	0,39 Kg (net)



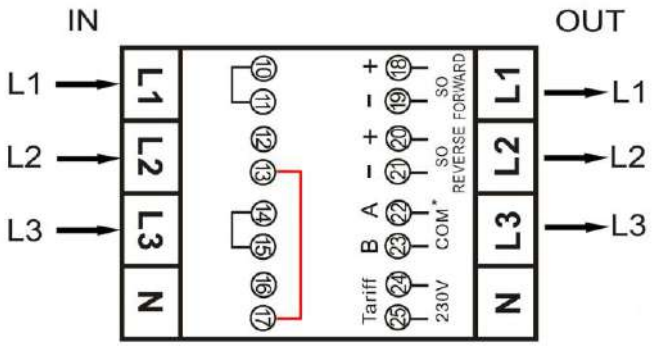
5.7 Connection diagram

PRO380 Direct connected - 3P 4W



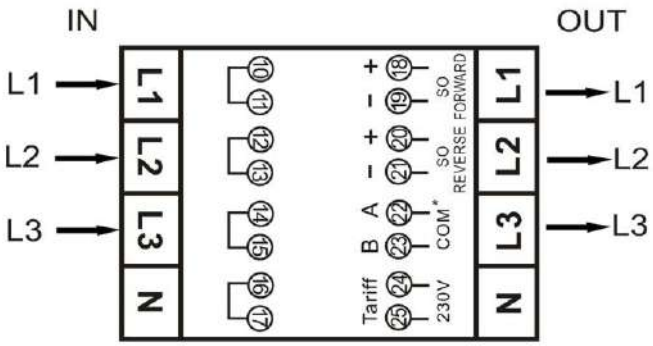
L1 (in) Phase 1 input - L1 (out) Phase 1 output
L2 (in) Phase 2 input - L2 (out) Phase 2 output
L3 (in) Phase 3 input - L3 (out) Phase 3 output
N (in) Neutral input - N (out) neutral output
10/11 not used
12/13 not used
14/15 not used
16/17 not used
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 Direct connected - 3P 3W Open Delta (Aron)



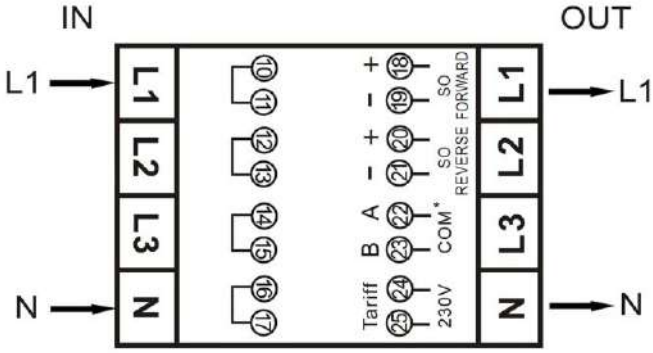
L1 (in) Phase 1 input - L1 (out) Phase 1 output
L2 (in) Phase 2 input - L2 (out) Phase 2 output
L3 (in) Phase 3 input - L3 (out) Phase 3 output
N (in) not used - N (out) not used
10/11 not used
12/13 to be connected to 16/17
14/15 not used
16/17 to be connected to 12/13
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 Direct connected - 3P 3W Delta



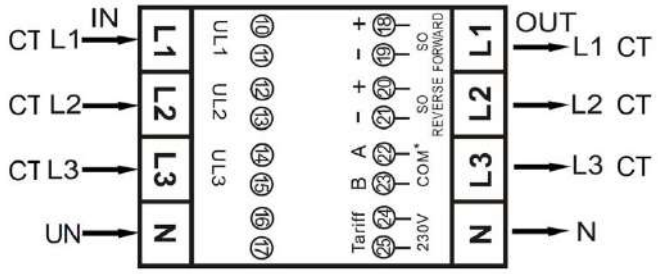
L1 (in) Phase 1 input - L1 (out) Phase 1 output
L2 (in) Phase 2 input - L2 (out) Phase 2 output
L3 (in) Phase 3 input - L3 (out) Phase 3 output
N (in) not used - N (out) not used
10/11 not used
12/13 not used
14/15 not used
16/17 not used
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 Direct connected - 1P 2W - Single phase



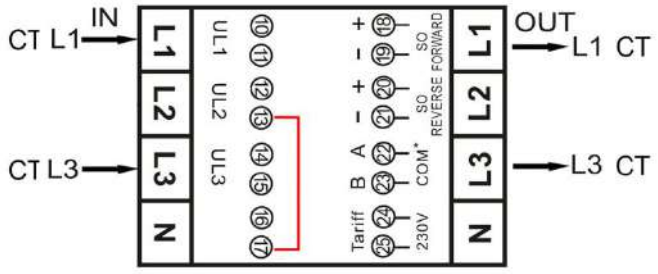
L1 (in) Phase 1 input - L1 (out) Phase 1 output
L2 (in) not used - L2 (out) not used
L3 (in) not used - L3 (out) not used
N (in) Neutral input - N (out) neutral output
10/11 not used
12/13 not used
14/15 not used
16/17 not used
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 CT - 3P 4W



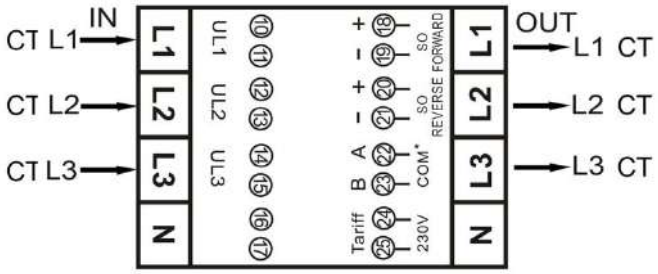
CT1 (in) Phase 1 input - CT1 (out) Phase 1 output
CT2 (in) Phase 2 input - CT2 (out) Phase 2 output
CT3 (in) Phase 3 input - CT3 (out) Phase 3 output
UN (in) Neutral input - UN (out) neutral output
10/11 Phase 1 - UL1
12/13 Phase 2 - UL2
14/15 Phase 3 - UL3
16/17 not used
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 CT - 3P 3W Open Delta (Aron)



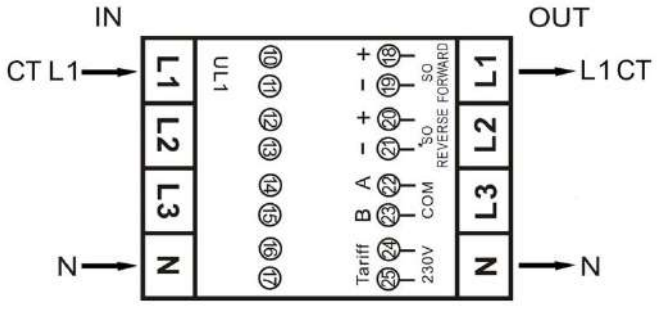
CT1 (in) Phase 1 input - CT1 (out) Phase 1 output
CT2 (in) not used - CT2 (out) not used
CT3 (in) Phase 3 input - CT3 (out) Phase 3 output
UN (in) not used - UN (out) not used
10/11 Phase 1 - UL1
12 Phase 2 - UL2
13 to be connected to 17
14/15 Phase 3 - UL3
17 to be connected to 13 (16 not used)
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 CT - 3P 3W Delta



CT1 (in) Phase 1 input - CT1 (out) Phase 1 output
CT2 (in) Phase 2 input - CT2 (out) Phase 2 output
CT3 (in) Phase 3 input - CT3 (out) Phase 3 output
UN (in) not used - UN (out) not used
10/11 Phase 1 - UL1
12/13 Phase 2 - UL2
14/15 Phase 3 - UL3
16/17 not used
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

PRO380 CT - 1P 2W - Single phase



CT1 (in) Phase 1 input - CT1 (out) Phase 1 output
CT2 (in) not used - CT2 (out) not used
CT3 (in) not used - CT3 (out) not used
UN (in) Neutral input - UN (out) neutral output
10/11 Phase 1 - UL1
12/13 not used
14/15 not used
16/17 not used
18/19 Forward pulse output contact (S0)
20/21 Reverse pulse output contact (S0)
22/23 M-bus / Modbus communication contact
24/25 External tariff input (230V)

6 Installation

Caution

- Turn off and if possible lock all sources supplying the energy meter and the equipment that is connected to it before working on it.
- Always use a properly rated voltage sensing device to confirm that power is off.

Warning

- The installation should be performed by qualified personnel familiar with applicable codes and regulations.
- Use insulated tools to install the device.
- A fuse, thermal cut-off or single-pole circuit breaker should be fitted on the supply line and not on the neutral line.

- The connecting wire, connecting the device to the outside circuit, should be sized in accordance with local regulations for the maximum amount of the current breaker or other overcurrent protection devices used in the circuit.
- An external switch or a circuit-breaker should be installed on the supply wires, which will be used to disconnect the meter and the device supplying energy. It is recommended that this switch or circuit-breaker is placed near the meter because that is more convenient for the operator. The switch or circuit-breaker should comply with the specifications of the building's electrical design and all local regulations.
- An external fuse or thermal cut-off used as an overcurrent protection device for the meter must be installed on the supply side wires. It's recommended that this protection device is also placed near the meter for the convenience of the operator. The overcurrent protection device should comply with the specifications of the building's electrical design and all local regulations.
- This meter can be installed indoor, or outdoor enclosed in a meter box which is sufficiently protected, in accordance with local codes and regulations.
- To prevent tampering, an enclosure with a lock or a similar device can be used.
- The meter has to be installed against a fire resistant wall.
- The meter has to be installed in a well-ventilated and dry place.
- The meter has to be installed in a protective box if the meter is exposed to dust or other contaminants.
- The meter can be installed and used after being tested and can be sealed afterwards.
- The device can be installed on a 35mm DIN rail.
- The meter should be installed on a location where the meter can be read easily.
- In case the meter is installed in an area with frequent surges for example due to thunderstorms, welding machines, inverters etc., the meter is required to be protected with a Surge Protection Device.
- The device should be sealed immediately after installing it in order to prevent tampering.

7 Operation

7.1 Energy flow indication

The red LED on the front panel indicates the power flow measured by the meter. When power flows, the LED will flash. The faster the LED flashes, the more power flows. For this meter, the LED will flash 10.000 times per kWh. The first display indication of the meter is either FW (forward) or RV (reverse). This page (shown below) indicates per phase the direction of the energy. In this picture phase 1 and 2 are forward and phase 3 is reverse.



7.2 Reactive energy indication

The display will show kvarh to indicate the meter is measuring reactive energy.

7.3 Tariff indication

The tariff LED will be powered off for T1 or powered on for T2.

7.4 Reading the meter

A red LED on the front panel indicates the consumption measured by the meter. When power is consumed, the LED will flash. The faster the LED flashes, the more power is consumed. For this meter, the LED will flash 10.000 times per kW.

The meter is equipped with an 8 digit LCD. For the energy consumption the meter will display 99999.99 kWh and switch to 999999.9 kWh when over this value and so on.

7.5 LCD display of the meter

The LCD is a multifunctional display, it has two rows to indicate the status of the meter. The top row shows the value, while the bottom row shows the units, phase and/or direction.



7.6 Scrolling function

7.6.1 Automatic scroll

Every 10 seconds the meter will display the next programmed data page (depending on the setting).

7.6.2 Change scrolling time by button

- Scroll with the buttons to Program mode 2.
- Hold the right button for 3 seconds to enter the menu.
- Scroll to LCD page LCD cycle time (rt xx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select the new value 1-30 seconds.
- Confirm the new scrolling time by holding both buttons for 3 seconds.
- The LCD will show SET OK when the setting is confirmed.



7.6.3 Add/remove registers to/from automatic scroll

- Scroll to the register* that you would like to add or remove.
- Hold the right button for 5 seconds to add or remove.
- The LCD will show OK in or OK out.



**Only the registers in the sub-menu after: Current direction, Total active energy, Total reactive energy, Active power and Program mode 1 can be added or removed to/from the automatic scroll. Total active energy cannot be removed.*

7.7 Button scroll

By pressing the button for 1, 3 or 5 seconds you will go through all data pages one by one.

Set CT ratio (CT version only)
NOTE: CT ratio has to be programmed before use. Once programmed the CT ratio cannot be changed. Wrong CT ratio can cause wrong billing charges.

Select secondary current /1 or /5. Confirm by holding both buttons for 3 seconds.
Select the 4 digit primary current (0001-9995). Confirm each digit by holding both buttons for 3 seconds. The CT ratio is set when the last digit is confirmed

Automatic scroll: default 10 seconds

Total active energy



Total active power



PRO380-MB & PRO380-MOD

PRO380-MOD

Button scroll: press the buttons for less than 3 seconds to scroll. After 30 seconds of no interaction the meter goes back to automatic scroll mode.

Current direction



Total active energy



Total reactive energy



Total active power



Resettable kWh



Program mode 1 (Read only)



Program mode 2 (Write)



Program mode 3 (Write: Password protected)



Hold the right button for 3 seconds to enter the next menu. Hold the left button for 3 seconds to go back.

Display Shows:



or



Hold the right button for 3 seconds and enter 4 digit pass-word to enter program mode.

Current direction



Comb. active status word



Serial number



Software version



Software version



Total active energy



T1 active energy



T2 active energy



Total FW active energy



T1 FW active energy



T2 FW active energy



Total RV active energy



T1 RV active energy



T2 RV active energy



L1 total active energy



L1 FW active energy



L1 RV active energy



L2 total active energy



L2 FW active energy



L2 RV active energy



L3 total active energy



L3 FW active energy



L3 RV active energy



Total reactive energy



T1 reactive energy



T2 reactive energy



Total FW reactive energy



T1 FW reactive energy

T2 FW reactive energy

Total RV reactive energy

T1 RV reactive energy

T2 RV reactive energy

L1 total reactive energy

L1 FW reactive energy

L1 RV reactive energy

L2 total reactive energy

L2 FW reactive energy

L2 RV reactive energy

L3 total reactive energy

L3 FW reactive energy

L3 RV reactive energy

Total active power

L1 active power

L2 active power

L3 active power

Total apparent power

L1 apparent power

L2 apparent power

L3 apparent power

Total COS

L1 COS

L2 COS

L3 COS

Grid frequency

Total reactive power

L1 reactive power

L2 reactive power

L3 reactive power

L1 Voltage

L2 Voltage

L3 Voltage

L1 Current

L2 Current

L3 Current

Resettable kWh

Hold the right button for 5 seconds to reset.

CT rate (CT version only)

Forward S0 output

Reverse S0 output

Combination code

Modbus/M-bus ID

LCD cycle time

Baud rate

Resettable kWh

Backlight

Parity

Power down counter

Modbus/M-bus ID

Scroll with the buttons to select 3 digits. Confirm each digit by holding both buttons for 3 seconds.

LCD cycle time

Scroll with the buttons to select 1-30. Hold both buttons for 3 seconds to confirm.

Backlight

Scroll with the buttons to select on/off/button. Hold both buttons for 3 seconds to confirm.

Forward S0 output

Scroll with the buttons to select 10.000/2.000/ 1.000/100/10/1/0,1/0,01.

Hold both buttons for 3 seconds to confirm.

Reverse S0 output

Scroll with the buttons to select 10.000/2.000/ 1.000/100/10/1/0,1/0,01.

Hold both buttons for 3 seconds to confirm.

Combination code

Scroll with the buttons to select 01(F)/04(R)/ 05(F+R)/06(R-F)/09(F-R)/ 10(F-R)/11(F-R).
NOTE: Combination code 10 can only be set once!

Hold both buttons for 3 seconds to confirm.

Baud rate

Scroll with the buttons to select 300/600/ 1200/4800/9600.

Hold both buttons for 3 seconds to confirm.

Parity

Scroll with the buttons to select even/none/odd.

Hold both buttons for 3 seconds to confirm.

Power down counter

Hold both buttons for 3 seconds to confirm.

Program password

Select the new 4 digit password by choosing each digit (0-9).

Confirm each digit by holding both buttons for 3 seconds.

Hold the right button for ≥5 seconds to add or remove from the auto-matic scroll.

Display Shows:

or

Hold the right button for ≥5 seconds to enter program mode.

7.8 Backlight

The meter is equipped with a blue backlight. The backlight can be set to always on, off or button mode.

7.8.1 Change the backlight setting

- Scroll with the buttons to Program mode 2.
- Hold the right button for 3 seconds to enter the menu.
- Scroll to LCD page Backlight setting (bL xx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select button/on/off.
- Confirm the new setting by holding both buttons for 3 seconds.
- The LCD will show SET OK when the setting is confirmed.



7.9 Resettable day counter

The meter is equipped with a day counter for consumed energy. This is the energy forward calculated and can be reset to zero by the user.

7.9.1 How to reset the day counter back to 0

- Scroll to register Resettable kWh in the main menu.
- Hold the right button for 3 seconds to enter the menu.
- The value starts blinking: hold the right button for 5 seconds to reset.
- The LCD will show SET OK when the value is reset.



7.10 S0 output rate

The energy meter is equipped with two pulse outputs (forward and reverse) which are optically isolated from the inside circuit. It generates pulses in proportion to the measured consumption for purpose of remote reading or accuracy testing. The pulse output is a polarity dependent, open-collector transistor output requiring an external voltage source for correct operation. For this external voltage source, the voltage (Ui) should be lower than 27V DC. The maximum switching current (Imax) is 100mA. To connect the impulse output, connect 5-27V DC to connector 18/20 (collector), and the signal wire (S) to connector 19/21 (emitter). PRO380-CT only: the S0 pulses are always based on CT ratio 5/5.

7.10.1 How to change the S0 output rate

- Scroll with the buttons to Program mode 3.
- Hold the right button for 3 seconds to enter the menu.
- Enter the 4 digit password: scroll with the buttons and select each digit 0-9, hold the right button for 3 seconds to confirm each digit.
- Scroll to LCD page S0 output (S0 xxxxxx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select 10.000/2.000/1.000/100/10/1/0,1/0,01.
- Confirm the new setting by holding both buttons for 3 seconds.
- The LCD will show SET OK when the setting is confirmed.



7.11 Combination code

The meter allows you to display the total energy (usage) shown on the display in accordance to different calculation methods. You can use the following calculation methods for total energy:

Code	Total (active) energy
C-01	Forward only
C-04	Reverse only
C-05	Forward + Reverse
C-06	Reverse - Forward
C-09	Forward - Reverse
C-10*	Forward - Reverse
C-11	Forward - Reverse

Example of flow through the meter	
L1	+5 kWh
L2	+5 kWh
L3	-12 kWh

LCD reading and calculation of total energy							
Code	C-01	C-04	C-05	C-06	C-09	C-10*	C-11
Total	10	-12	22	-22	-2	-2	-2
Forward	10	10	10	10	10	0	10
Reverse	-12	-12	12	-12	-12	-2	-12
*Meters ordered or set afterwards to C-10 cannot be set to another calculation mode.							

S0 output per code							
Code	C-01	C-04	C-05	C-06	C-09	C-10	C-11
Forward	10		10	10	10	0	0
Reverse		12	12	12	12	2	2

7.11.1 How to change the combination code

- Scroll with the buttons to Program mode 3.
- Hold the right button for 3 seconds to enter the menu.
- Enter the 4 digit password: scroll with the buttons and select each digit 0-9, hold the right button for 3 seconds to confirm each digit.
- Scroll to LCD page Combination code (Code-xx).
- Hold the right button for 5 seconds to enter program mode. The value starts blinking: select 01/04/05/06/09/10/11.
- Confirm the new setting by holding both buttons for 3 seconds.
- The LCD will show OK when the setting is confirmed.



7.12 Modbus/M-bus ID

The Modbus ID can be set from 001 to 247, the default Modbus ID is 001. The M-bus ID can be set from 000 to 250, the default M-bus ID is 000.

7.12.1 How to change the Modbus/M-bus ID

- Scroll with the buttons to Program mode 2.
- Hold the right button for 3 seconds to enter the menu.
- Scroll to LCD page Modbus/M-bus ID (addr xxx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select 3 digits (Modbus: 001-247 or M-bus: 000-250). Confirm each digit by holding both buttons for 3 seconds.
- The LCD will show OK when the setting is confirmed.



7.13 Baud rate

The Modbus baud rate can be set from 1200 to 9600. The M-bus baud rate can be set from 300 to 9600.

7.13.1 How to change the baud rate

- Scroll with the buttons to Program mode 3.
- Hold the right button for 3 seconds to enter the menu.
- Enter the 4 digit password: scroll with the buttons and select each digit 0-9, hold the right button for 3 seconds to confirm each digit.
- Scroll to LCD page Baud rate (bd xxxx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select 9600/4800/2400/1200/600/300.
- Confirm the new setting by holding both buttons for 3 seconds.
- The LCD will show OK when the setting is confirmed.



7.14 Parity

The Modbus parity can be set to even, none or odd. The M-bus parity is always even.

7.14.1 How to change the parity

- Scroll with the buttons to Program mode 3.
- Hold the right button for 3 seconds to enter the menu.
- Enter the 4 digit password: scroll with the buttons and select each digit 0-9, hold the right button for 3 seconds to confirm each digit.
- Scroll to LCD page Parity (PAr xxxx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select even/none/odd.
- Confirm the new setting by holding both buttons for 3 seconds.
- The LCD will show OK when the setting is confirmed.



7.15 Power down counter

The power down counter registers the number of times that the meter has been turned off.

7.15.1 How to reset the power down counter

- Scroll with the buttons to Program mode 3.
- Hold the right button for 3 seconds to enter the menu.
- Enter the 4 digit password: scroll with the buttons and select each digit 0-9, hold the right button for 3 seconds to confirm each digit.
- Scroll to LCD page Power down counter (P00 - xxxx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: hold both buttons for 3 seconds to reset.
- The LCD will show OK when the value is reset.



7.16 Password

Program mode 3 is protected with a password. The default password is 0000.

7.16.1 How to change the password

- Scroll with the buttons to Program mode 3.
- Hold the right button for 3 seconds to enter the menu.
- Enter the 4 digit password: scroll with the buttons and select each digit 0-9, hold the right button for 3 seconds to confirm each digit.
- Scroll to LCD page Password (PAS _xxxx).
- Hold the right button for 5 seconds to enter program mode.
- The value starts blinking: select each digit 0-9, confirm each digit by holding both buttons for 3 seconds.
- The LCD will show OK when the setting is confirmed.



7.17 CT ratio setting (PRO380-CT only)

NOTE! CT ratio has to be programmed before use. Once programmed the CT ratio cannot be changed. A wrong CT ratio can cause wrong billing charges.

7.17.1 How to set the CT ratio

- Turn on the meter: display shows SEt Ct - Ctx 0005.
- Select secondary current /1 or /5.
- Hold both buttons for 3 seconds to confirm.
- Select the 4 digit primary current (0001-9999).
- Confirm each digit by holding both buttons for 3 seconds.
- The CT ratio is set and stored when the last digit is confirmed.



8 Troubleshooting

Caution

- During repair and maintenance, do not touch the meter connecting clamps directly with your bare hands, with metal, blank wire or other conducting material as that will cause an electric shock and possibly cause injury, serious injury or even death.
- Turn off and if possible lock all sources supplying the energy meter and the equipment that is connected to it before opening the protection cover and working on it.
- Turn off and lock all power supply to the energy meter and the equipment to which it is installed before opening the protection cover to prevent the hazard of electric shock.

Warning

- Maintenance or repair should only be performed by qualified personnel familiar with applicable codes and regulations.
- Use insulated tools to maintain or repair the meter.
- Make sure the protection cover is in place after maintenance or repair.
- The case is sealed, failure to observe this instruction can result in damage to the meter.

Problem	Possible cause	Check/solution
The red consumption LED is not flashing (PULSE LED).	There is no load connected to the meter. The load on the line is very low.	Connect a load to the meter. Check with an Ohm-meter if the load value is very low.
The register doesn't count.	There is almost no load connected to the meter.	Check if the red consumption LED is flashing.
No pulse output.	The pulse output is not supplied with DC power. The pulse output is not connected correctly.	Check the external voltage source (Ui) is 5-27V DC with a voltage meter. Check if the connection is correct: the 5-27V DC should be connected to the collector connection (pin 18/20+) and the signal wire (S) to the emitter connection (pin 19/21-).
The pulse output rate is wrong.	Is the correct pulse rate set via the infrared software or in Program mode 3?	Download or request the software and use the infrared eye which can be bought seperately.
If none of the above works, please contact technical support		

8.1 Errors / Diagnostics display

The meter is equipped with a display field that shows errors and diagnostics. It consists of the character S followed by 2 + 3 digits. The meaning of each digit is as follows:



- First digit: Program status (0 fail / 1 passed)
- Second digit: Eeprom status (0 fail / 1 passed)
- Third digit: Phase A status (0 not available / 1 available)
- Fourth digit: Phase B status (0 not available / 1 available)
- Fifth digit: Phase C status (0 not available / 1 available)

If the first or second digit shows a 0 (zero); then please return the meter, as the meter is malfunctioning.
If the third, fourth or fifth digit shows a 0 (zero); please check the wiring for power issues.

8.2 Technical support

For questions about one of our products please contact:

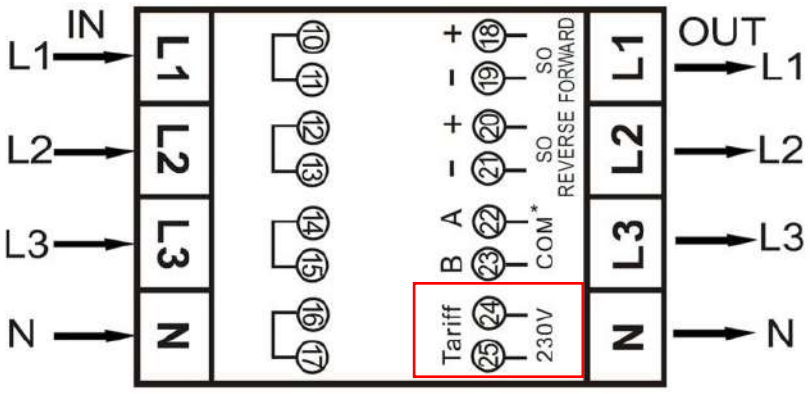
- Your local Inepro Metering distributor
- Email: support@ineprometering.com
- Website: www.ineprometering.com

Appendix 1 - PRO380 2 tariff function

A1.1 How to switch between T1 and T2

The meter is equipped with 2 tariff functionality which need to be activated by an external voltage connected to the terminals 24/25.

This is an AC voltage between 24 and 25:



Appendix 2 - PRO380-Mb

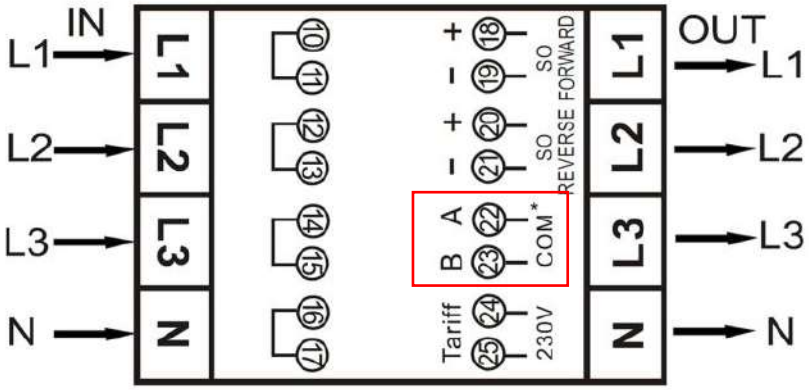
A2.1 Communicating via the M-bus output

The PRO380-Mb meter is equipped with an M-bus port, the data can be read out via this port. The communication protocol conforms to the EN13757-3 standard.

The meter can communicate with your PC. In order to read out the meter registers first install and configure the PC software. Use an M-bus level converter to connect the PC and the meter. The cable should be connected to terminals 22 and 23. The default communication address of the meter is 00.

The defaults for M-bus communication are:

- Baud rate 2400
- 8 data bits
- Even parity
- 1 stop bit



The secondary addressing (253/FD) is preset to the last 8 digits of the serial number printed on the side of the meter. However this can be changed to a more convenient number through IR or M-bus communication.

The baud rate can be changed to values 9600, 4800, 1200, 600 and 300 baud. Data, parity and stop bit cannot be changed.

For the registers used in the meter and how to interpreted the data, please use the M-bus register map on the next page.

More detailed information on M-Bus can be found:
www.m-bus.com

A2.2 M-bus register map

M-bus Command	Contents	M-bus register header DIF	M-bus register VIF	Response/example	Remarks
1. REQ UD2: 10 5B xx				68 xx xx 68 08 xx 72	68 **[data length]** 68 08 **[address]** 72 **[header]** **[datablocks]** **[checksum]** 16
	Serial number	**Header**		46 02 02 19	
	Manufacturer ID			CD 25	
	Version			01	Same as the mayor version of the software
	Medium			02	Electricity
	Acces number			04	Every time the meter is read this number is increased by 1 up to 255, then it becomse 0 again
	Status			00	00 = OK 02 = error
	Signature			00 00	Always 00 00
Datablocks	Total forward active energy	04	03	15 CD 5B 07	123456789 Wh
	Forward active energy T1	84 10	03	15 CD 5B 07	123456789 Wh
	Forward active energy T2	84 20	03	15 CD 5B 07	123456789 Wh
	Forward active energy T3	84 30	03	15 CD 5B 07	123456789 Wh
	Forward active energy T4	84 80 10	03	15 CD 5B 07	123456789 Wh
	Total reverse active energy	04	83 3C	15 CD 5B 07	123456789 Wh
	Reverse active energy T1	84 10	83 3C	15 CD 5B 07	123456789 Wh
	Reverse active energy T2	84 20	83 3C	15 CD 5B 07	123456789 Wh
	Reverse active energy T3	84 30	83 3C	15 CD 5B 07	123456789 Wh
	Reverse active energy T4	84 80 10	83 3C	15 CD 5B 07	123456789 Wh
	Total kWh (resettable)	04	83 FC 10	15 CD 5B 07	123456789 Wh
	Forward reactive energy	04	FB 82 73	15 CD 5B 07	123456,789 kVARh
	Reverse reactive energy	04	FB 82 F3 3C	15 CD 5B 07	123456,789 kVARh
	L1 voltage	02	FD C7 FC 01	E4 59	230,12 V
	L2 voltage	02	FD C7 FC 02	E4 59	230,12 V
	L3 voltage	02	FD C7 FC 03	E4 59	230,12 V
	L1 current	03	FD D9 FC 01	1B 87 01	100123 mA
	L2 current	03	FD D9 FC 02	1B 87 01	100123 mA
	L3 current	03	FD D9 FC 03	1B 87 01	100123 mA
	Total active power	03	2B	87 D6 12	1234567 W
	L1 active power	03	AB FC 01	87 D6 12	1234567 W
	L2 active power	03	AB FC 02	87 D6 12	1234567 W
	L3 active power	03	AB FC 03	79 29 ED	-1234567 W
	Total reactive power	03	FB 14	87 D6 12	1234,567 kVAR
	L1 reactive power	03	FB 94 FC 01	87 D6 12	1234,567 kVAR
	L2 reactive power	03	FB 94 FC 02	87 D6 12	1234,567 kVAR
	L3 reactive power	03	FB 94 FC 03	87 D6 12	1234,567 kVAR
	Total apparent power	03	FB 34	87 D6 12	1234,567 kVA
	Total power factor	0A	FD 3A	00 01	1,00
	Grid frequency	03	FB 2C	37 C7 00	50,999Hz
	Tariff	09	7C 01 54	01	T1
	CT rate (only for CT version)	0A	FD 3A	05 95 99	9995/5
	Checksum			xx xx	xx 16

Default	
Baudrate	2400
Databits	8
Parity	Even
Stopbit	1
Address	00
Broadcast primary address	FE (only for read)

CRC settings without checksum	
Start byte REQ UD2	2
Start byte write commands	5
CRC type	SUM
Terminating symbol	16
HEX	-
Low byte first	-
1 byte	-

CRC settings with checksum	
No CRC	-

Write

Contents	Command part 1	Address	Command part 2	New value	Response	Remarks
Baudrate	68 03 03 68 53	01	-	BB	E5 (new Baud 2400)	B8 = 300; B9 = 600; BA = 1200; BB = 2400; BC = 4800; BD = 9600
Primary address	68 06 06 68 53	01	51 01 7A	01	E5 (new id 01)	000 - 247 write in HEX
Secondary address	68 09 09 68 53	01	51 0C 79	15 01 23 45	E5 (new address 1501 2345)	4 bytes BCD same as read
Tariff mode	68 08 08 68 53	01	51 09 7C 01 54	02	E5 (tariff 2)	T1 = 01 ; T2=02
Combined code	68 07 07 68 53	01	51 09 FD 3A	05	E5 (combined code 05)	01, 04, 05, 06, 09, 10 and 11
S0 rate	68 0A 0A 68 53	01	51 0C FD 3A	00 00 01 00	E5 (S0 rate 100)	10.000 / 2.000 / 1.000 / 100 / 10 / 1 / 0,1 / 0,01
Resettable kWh	68 09 09 68 53	01	51 0C 04	00 00 00 00	E5	Value is ignored, always set to 0
Reset power down counter	68 08 08 68 53	01	51 0A FD 60	00 00	E5	Value is ignored, always reset to 0

SND NKE	10 40	01	-	-	E5	Can be send to primary or secondary address and resets all communication values

Selecting slave by secondary addressing	Serial number	Manufacturer ID	Generation version	Medium
68 0B 0B 68 53 FD 52	aa aa aa aa	bb bb	cc	dd
Input	01 00 07 13	25 CD	01	02
Remarks	13070001	-	Major version of the software	Electricity

Appendix 3 - PRO380-Mod

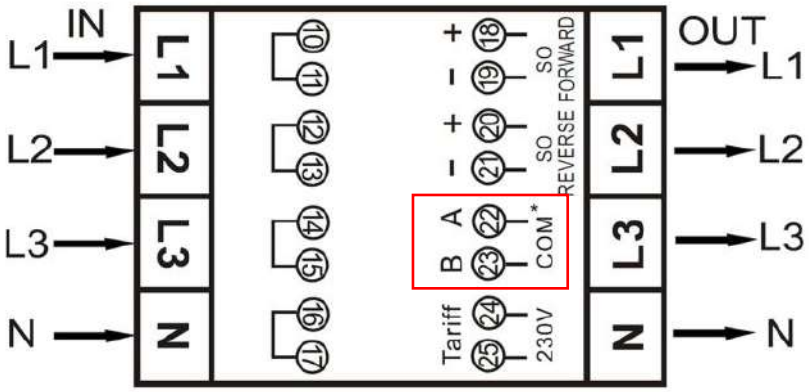
A3.1 Communicating via the Modbus output

The meter can communicate with your PC. In order to read out the meter registers first install and configure the PC software. Use an RS485 level converter to connect the PC and the meter. The cable should be connected to terminals 22 and 23. The default communication address of the meter is 01.

The PRO380-Mod can be connected for Modbus communication. The Modbus implementation used is Modbus basic (standard). This means the following:

- Baud rate 9600
- 8 data bits
- Even parity
- 1 stop bit

The baud rate can be lowered to values 4800, 2400, 1200, 600 and 300. The parity can be set to none or odd. Data and stopbit cannot be changed.



When connecting the meter through a serial converter (RS485) for testing, please be aware that because of not implementing the complete Modbus infrastructure, there will be a need to put an additional resistor (120 ohms/ 0,25 watts) across the terminals (22 & 23) on the meter side.

For the registers used in the meter and how to interpreted the data, please use the Modbus register map on the next pages. Please note that the old (V1.14) Modbus registers still can be used. You can find the old Modbus register map on www.ineprometering.com/manuals/new.

More info on Modbus can be found:
Physical: http://www.modbus.org/docs/Modbus_over_serial_line_V1_02.pdf
Protocol: http://www.modbus.org/docs/Modbus_Application_Protocol_V1_1b3.pdf

A3.2 Modbus register map

Reg. address	Content	Function code	Register length	Unit	Data type
4000	Serial number	03	2	-	HEX
4002	Meter code	03	1	-	HEX
4003	Modbus ID	03	1	-	Signed
4004	Baud rate	03	1	-	Signed
4005	Protocol version	03	2	-	Float ABCD
4007	Software version	03	2	-	Float ABCD
4009	Hardware version	03	2	-	Float ABCD
400B	Meter amps	03	1	A	Signed
400C	CT ratio	03	1	A	HEX
400D	S0 output rate	03	2	imp/kWh	Float ABCD
400F	Combination code	03	1	-	Signed
4010	LCD cycle time	03	1	sec.	HEX
4011	Parity setting	03	1	-	Signed
4012	Current direction	03	1	-	ASCII
4013	L2 Current direction	03	1	-	ASCII
4014	L3 Current direction	03	1	-	ASCII
4015	Error code*	03	1	-	Signed
4016	Power down counter	03	1	-	Signed
4017	Present quadrant	03	1	-	Signed
4018	L1 Quadrant	03	1	-	Signed
4019	L2 Quadrant	03	1	-	Signed
401A	L3 Quadrant	03	1	-	Signed
401B	Checksum	03	2	-	HEX
401D	Active status word	03	2	-	HEX
401F	CT mode	03	1	A	Signed

Reg. address	Content	Function code	Register length	Unit	Data type
5000	Voltage*	03	2	V	Float ABCD
5002	L1 Voltage	03	2	V	Float ABCD
5004	L2 Voltage	03	2	V	Float ABCD
5006	L3 Voltage	03	2	V	Float ABCD
5008	Grid frequency	03	2	Hz	Float ABCD
500A	Current*	03	2	A	Float ABCD
500C	L1 Current	03	2	A	Float ABCD
500E	L2 Current	03	2	A	Float ABCD
5010	L3 Current	03	2	A	Float ABCD
5012	Total active power	03	2	kW	Float ABCD
5014	L1 Active power	03	2	kW	Float ABCD
5016	L2 Active power	03	2	kW	Float ABCD
5018	L3 Active power	03	2	kW	Float ABCD
501A	Total reactive power	03	2	kvar	Float ABCD
501C	L1 Reactive power	03	2	kvar	Float ABCD
501E	L2 Reactive power	03	2	kvar	Float ABCD
5020	L3 Reactive power	03	2	kvar	Float ABCD
5022	Total apparent power	03	2	kVA	Float ABCD
5024	L1 Apparent power	03	2	kVA	Float ABCD
5026	L2 Apparent Power	03	2	kVA	Float ABCD
5028	L3 Apparent Power	03	2	kVA	Float ABCD
502A	Power factor	03	2	-	Float ABCD
502C	L1 Power factor	03	2	-	Float ABCD
502E	L2 Power factor	03	2	-	Float ABCD
5030	L3 Power factor	03	2	-	Float ABCD

Reg. address	Content	Function code	Register length	Unit	Data type
6000	Total active energy	03	2	kWh	Float ABCD
6002	T1 Total active energy	03	2	kWh	Float ABCD
6004	T2 Total active energy	03	2	kWh	Float ABCD
6006	L1 Total active energy	03	2	kWh	Float ABCD

6008	L2 Total active energy	03	2	kWh	Float ABCD
600A	L3 Total active energy	03	2	kWh	Float ABCD
600C	Forward active energy	03	2	kWh	Float ABCD
600E	T1 Forward active energy	03	2	kWh	Float ABCD
6010	T2 Forward active energy	03	2	kWh	Float ABCD
6012	L1 Forward active energy	03	2	kWh	Float ABCD
6014	L2 Forward active energy	03	2	kWh	Float ABCD
6016	L3 Forward active energy	03	2	kWh	Float ABCD
6018	Reverse active energy	03	2	kWh	Float ABCD
601A	T1 Reverse active energy	03	2	kWh	Float ABCD
601C	T2 Reverse Active Energy	03	2	kWh	Float ABCD
601E	L1 Reverse active energy	03	2	kWh	Float ABCD
6020	L2 Reverse active energy	03	2	kWh	Float ABCD
6022	L3 Reverse active energy	03	2	kWh	Float ABCD
6024	Total reactive energy	03	2	kvarh	Float ABCD
6026	T1 Total reactive energy	03	2	kvarh	Float ABCD
6028	T2 Total reactive energy	03	2	kvarh	Float ABCD
602A	L1 Total reactive energy	03	2	kvarh	Float ABCD
602C	L2 Total reactive energy	03	2	kvarh	Float ABCD
602E	L3 Total reactive energy	03	2	kvarh	Float ABCD
6030	Forward reactive energy	03	2	kvarh	Float ABCD
6032	T1 Forward reactive energy	03	2	kvarh	Float ABCD
6034	T2 Forward reactive energy	03	2	kvarh	Float ABCD
6036	L1 Forward reactive energy	03	2	kvarh	Float ABCD
6038	L2 Forward reactive energy	03	2	kvarh	Float ABCD
603A	L3 Forward reactive energy	03	2	kvarh	Float ABCD
603C	Reverse reactive energy	03	2	kvarh	Float ABCD
603E	T1 Reverse reactive energy	03	2	kvarh	Float ABCD
6040	T2 Reverse reactive energy	03	2	kvarh	Float ABCD
6042	L1 Reverse reactive energy	03	2	kvarh	Float ABCD
6044	L2 Reverse reactive energy	03	2	kvarh	Float ABCD
6046	L3 Reverse reactive energy	03	2	kvarh	Float ABCD
6048	Tariff	03	1	-	Signed
6049	Resettable day counter	03	2	kWh	Float ABCD

Write

Reg. address	Content	Function code	Register length	Unit	Data type
4003	Modbus ID	06	1	-	Signed
Command:	01 06 4003 000A (new ID: 10)		01~247 - 01 default - 00 broadcast		
4004	Baud rate	06	1	-	Signed
Command:	01 06 4004 25 80 (new Baudrate: 9600)		300 - 600 - 1200 - 4800 - 9600		
400D	S0 output rate	10	2	imp/kWh	Float ABCD
Command:	01 10 400D 0002 04 41 20 00 00 (new S0: 10)		10.000 - 2.000 - 1.000 - 100 - 10 - 1 - 0,1 - 0,01		
400F	Combination code	06	1	-	Signed
Command:	01 06 400F 000A (new code: 10 F-R)		01, 04, 05, 06, 09, 10, 11		
4010	LCD cycle time	06	1	sec.	HEX
Command:	01 06 4010 0025 (new time: 25 sec.)		01~30		
4011	Parity setting	06	1	-	Signed
Command:	01 06 4011 0002 (new parity: none)		01: even - 02: none - 03: odd		
4016	Power down counter	06	1	-	Signed
Command:	01 06 4016 0000		Reset to 0		
6048	Tariff	06	1	-	Signed
Command:	01 06 6048 0002 (new tariff: 2)		01: T1 - 02: T2 - 11: T1 not saved - 12: T2 not saved		
6049	Resettable day counter	10	1	kWh	Float ABCD
Command:	01 10 6049 0002 04 0000 0000		Reset to 0		

**PRO1 only*

Appendix 4 - Infrared PC software

All PRO380-series meters are capable to be read out and configured by IR. The standard used is IRDA (IEC62056-21:2002 (IEC1107)).

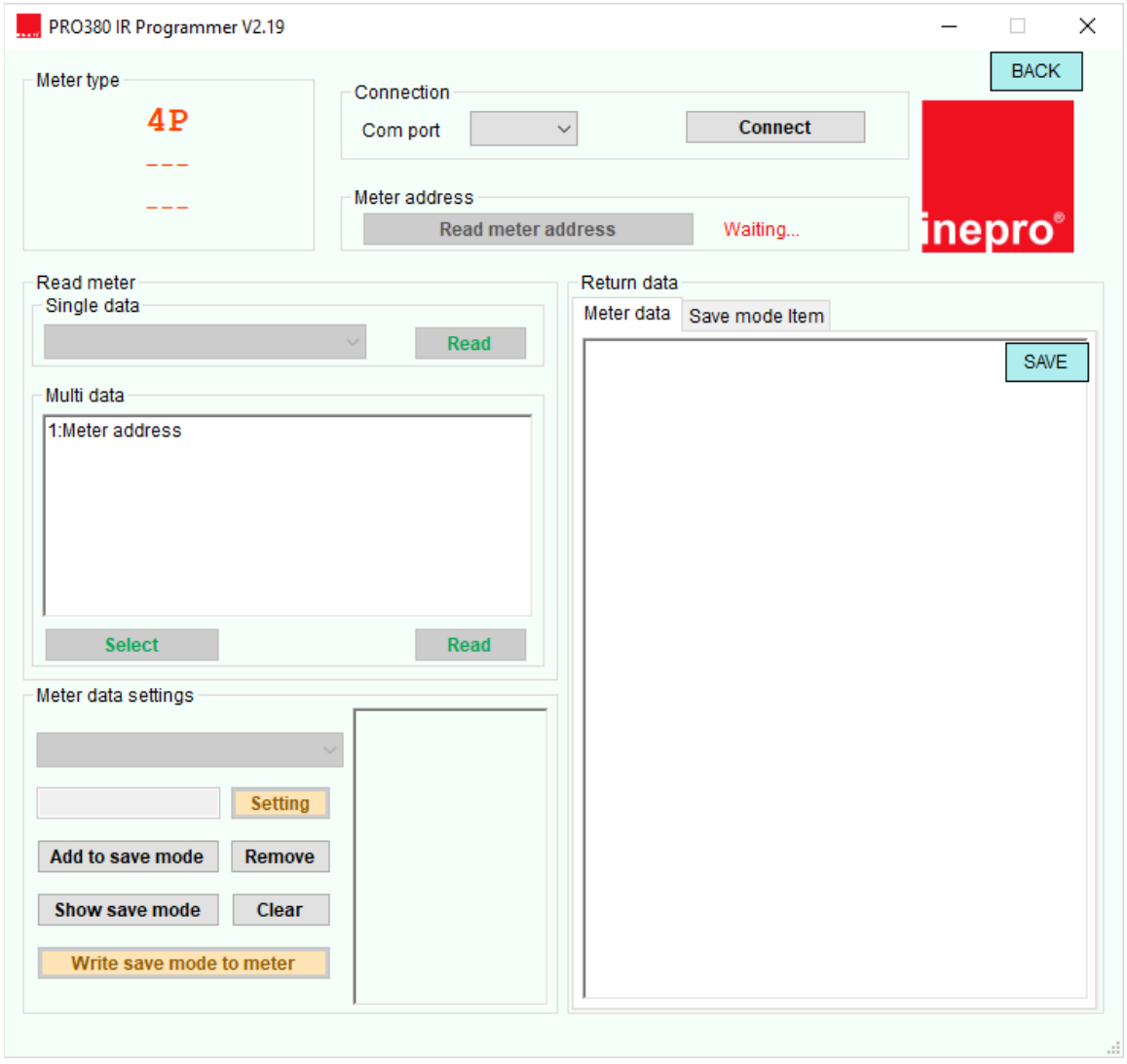
IR converter and accompanying software are sold separately. Please contact your dealer.

You can download the infrared software from www.ineprometering.com/download.

Infrared PC software

Connect the meter to the PC using the Inepro Infrared eye and PRO380 bracket.
1. Open the Inepro metering IR software program and select PRO380.





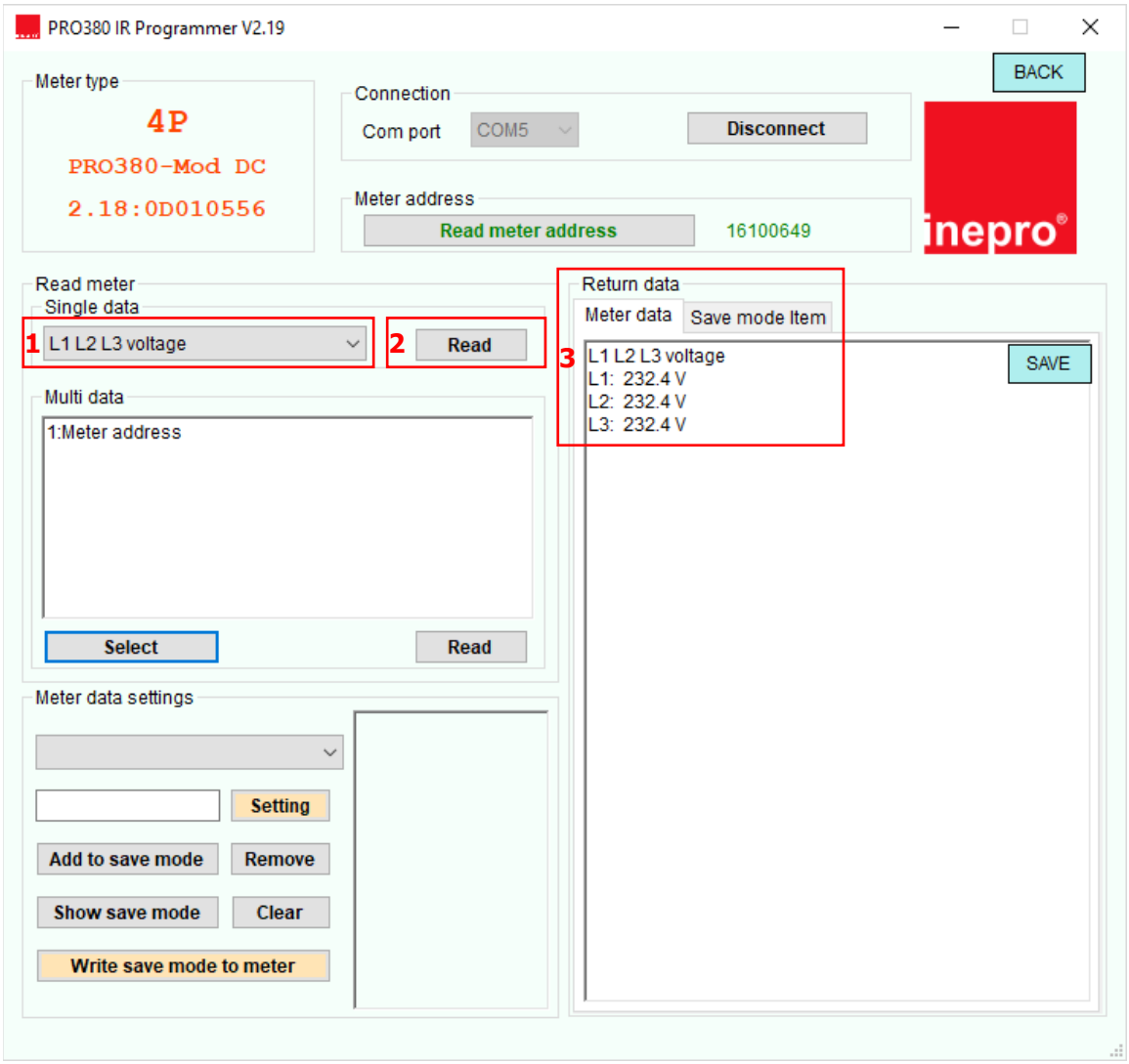
Connect the meter

1. Select the correct COM port.
2. Press Connect.
3. Click on Read meter address.
4. The serial number of the connected meter will appear under meter address.



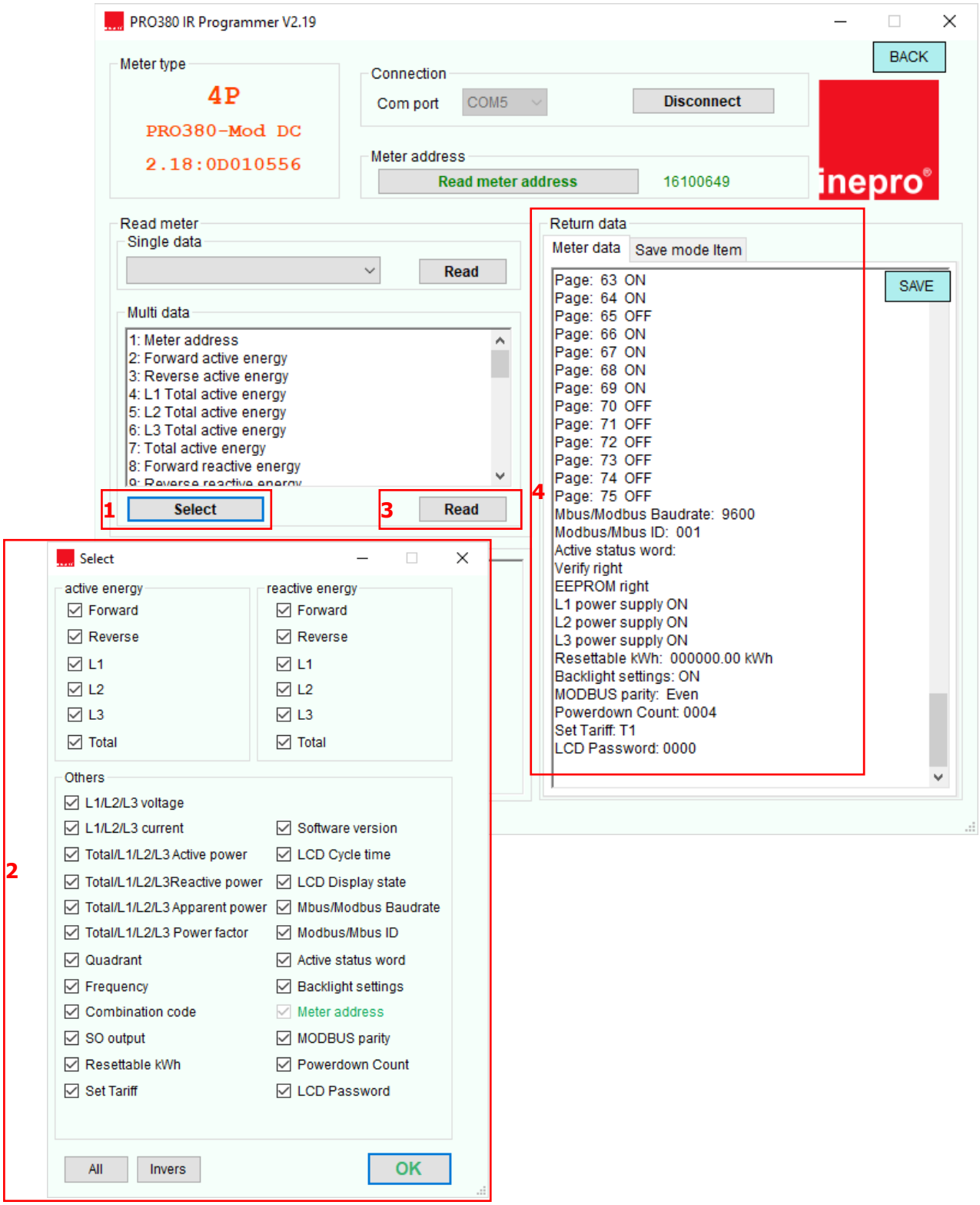
Read single data

1. Select the value that you would like to read, in the dropdown menu under Read meter - Single data.
2. Press Read.
3. The meter data will be displayed under Return data - Meter data.



Read multi data

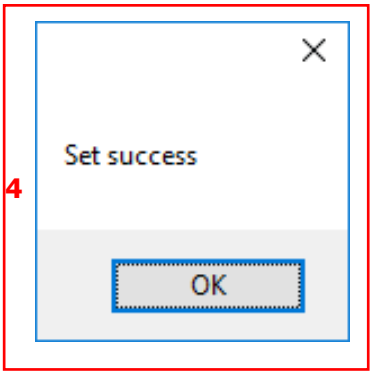
1. Press select.
2. Select the values that you would like to read.
3. Press Read.
4. The meter data will be displayed under Return data - Meter data.



Meter data settings

1. Select the register that you would like to program.
2. Select the new value.
3. Press Setting.
4. The software will show Set success when the setting is confirmed.





Save mode

1. Select the register that you would like to program.
2. Select the new value.
3. Press Add to save mode.
- Select the next register that you would like to program and add to save mode.
4. Press Show save mode.
5. The save mode will be displayed under Return data - Save mode item.
6. Press Write save mode to meter to write the new values to the meter.
7. The software will show Set success when the setting is confirmed.

