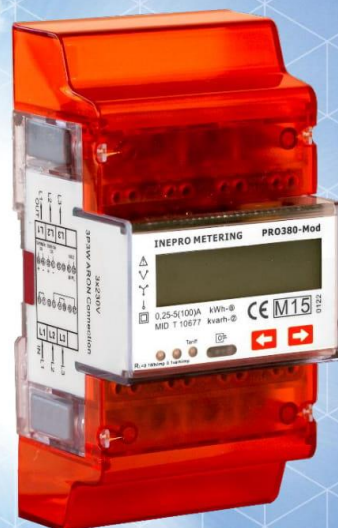


inepro®

**PRO380-S
PRO380-Mb
PRO380-Mod**



PRO 380 Series MID

DIN rail 3 phase 4 wire
DIN rail 3 phase 3 wire
energy meter

User Manual

Product version: 2.03

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PRO380 - MID CT B&D

The PRO380 CT series is a range of 4 module, three phase CT smart energy meters consisting of 3 different types each with their specific characteristics.

The meters have an exceptional combination of a high accuracy class (1/B & 0,5/C) and a broad temperature range of -25°C to +70°C.

The PRO380 CT series is available as a standard version (with a selectable S0 output) and as a Modbus or M-bus version. It can communicate and be programmed via an infrared input. The different communication modes have over 60 variables like kWh, active and reactive energy, forward and reverse energy as well as Cos phi.

The PRO380 CT is equipped with a resettable day counter and the total energy usage can be calculated via 6 different modes. You can program the CT ratio at your convenience.



Article number	MID	Phase	Mod.	Cur.	Com.	Display	Digits	Con. mode	S0	Back-light	Acc. Class	Tariff	S0 pulse output
0259 PRO380-Mb	Yes	3	4	/6A	M-bus	LCD	Var. ²	CT	2	yes	B/C	2	Selectable ¹
0260 PRO380-Mod	Yes	3	4	/6A	Modbus	LCD	Var. ²	CT	2	yes	B/C	2	Selectable ¹

¹ selectable options: 10.000-2.000-1.000-100-10-1-0.1-0.01

Modbus



The PRO380 Modbus offers a built in Modbus (RS-485) communication interface. The PRO380-Mod can communicate and be programmed via Modbus. The direct connection up to 100A and the possibility to read out over 60 variables make that the PRO380-Mod is very popular and widely used in electric vehicle (EV) chargers, photovoltaic systems and building automation.

M-Bus



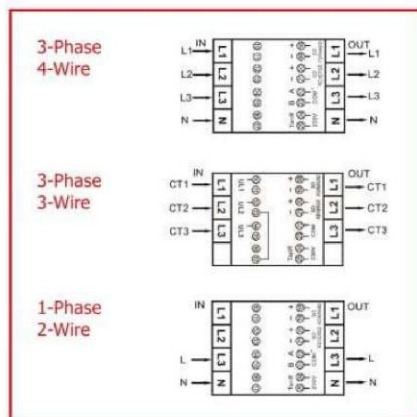
The M-bus version of the PRO380 series can be integrated in any M-bus installation in combination with all kinds of gas, water and other electricity meters. When you are looking for a very cost effective meter which makes remote reading possible, the PRO380 M-bus is the best choice. This meter is equipped with the European standard M-bus protocol.

PRO380 - MID - Modbus/M-bus

The PRO380 series is a range of 4 module, three phase smart Energy Meters consisting of 3 different types each with their specific characteristics. They have an exceptional combination of a high accuracy class (1/B) and a broad temperature range of -40°C - +70°C.

The PRO380 series is available as a standard version (with a selectable S0 output) and also as a Modbus or M-bus version. It can communicate and be programmed via an infra-red input. The different communication modes have over 60 variables like; kWh, active and reactive energy, forward and reverse energy as well as Cos phi.

The PRO380 smart energy meter is equipped with a resettable day counter and the total energy usage can be calculated via 5 different modes.



* No communication on the PRO380-S



**"The most complete 3-phase
din-rail meter in the market"**

Inepro - Metering - New-PRO-Line - S07

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
Over current 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 or 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
Version V1.19 (009D1081): 1000imp/kWh 2000imp/kWh	Fixed pulse width 30ms 0 – 46799W 20ms; ≥ 46800W 15ms.

5.1 Performance criteria

Operating humidity	≤ 75%
Storage humidity	≤ 95%
Temperature range DC version	-40°C - +70°C
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
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 Infra-red 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, 4800 and 9600 (default)
Range	≤1000m
Downlink signal	Master to slave, Voltage modulation
Uplink signal	Slave to master, Current modulation
Cable	JYSTY (n×2×0.8)
Protocol	EN13757-3
Maximum bus load	64 meters per bus*

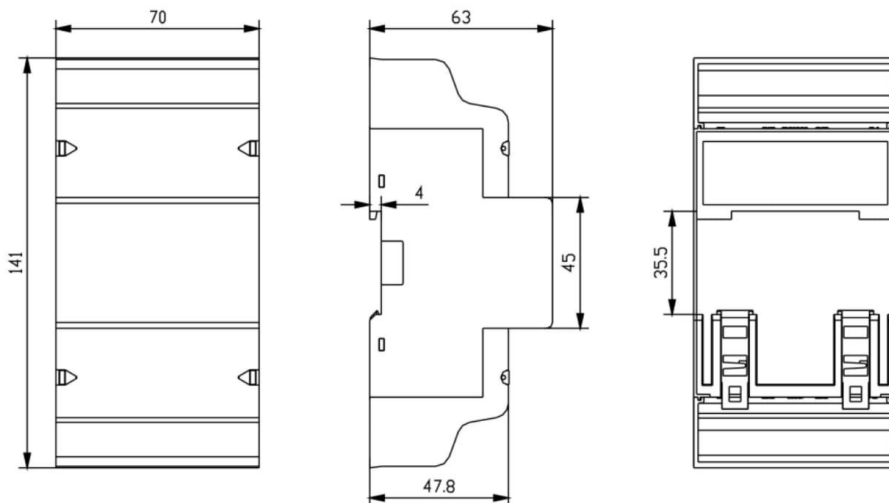
5.5 RS485 communication specifications (PRO380-Mod only)

Bus type	RS485
Protocol	MODBUS RTU with 16 bit CRC
Baud rate	1200, 2400, 4800, 9600 (default)
Address range	0-247 user settable
Maximum bus load	60 meters per bus*
Range	≤1000m

*Note that the maximum number of meters is dependent on the converter, baud rate (the higher the baud rate 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	25 mm ² (flex core) 35 mm ² (solid core)
Weight	0.39 Kg (net)



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.