

inepro®

**PRO2-S
PRO2-2T
PRO2-Mb
PRO2-Mod**



**PRO2 Series MID
Single phase energy meter**

User manual

Product version: 2.18-3

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PRO2 - MID B&D

The PRO2 series is a range of 2 module, single phase smart energy meters consisting of 4 different types, each with their specific characteristics.

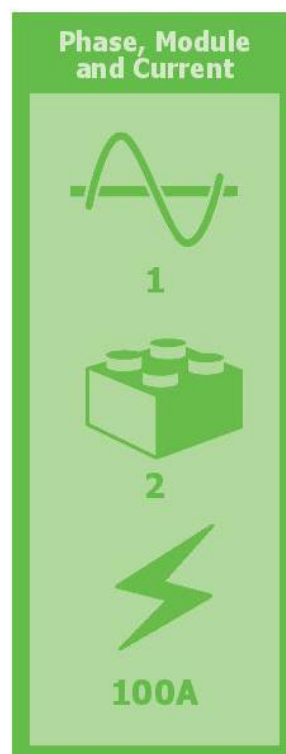
The meters have an exceptional combination of a high accuracy class (1/B) and a broad temperature range of -25°C to +55°C. Another unique feature is the I_{max} of 100 A.

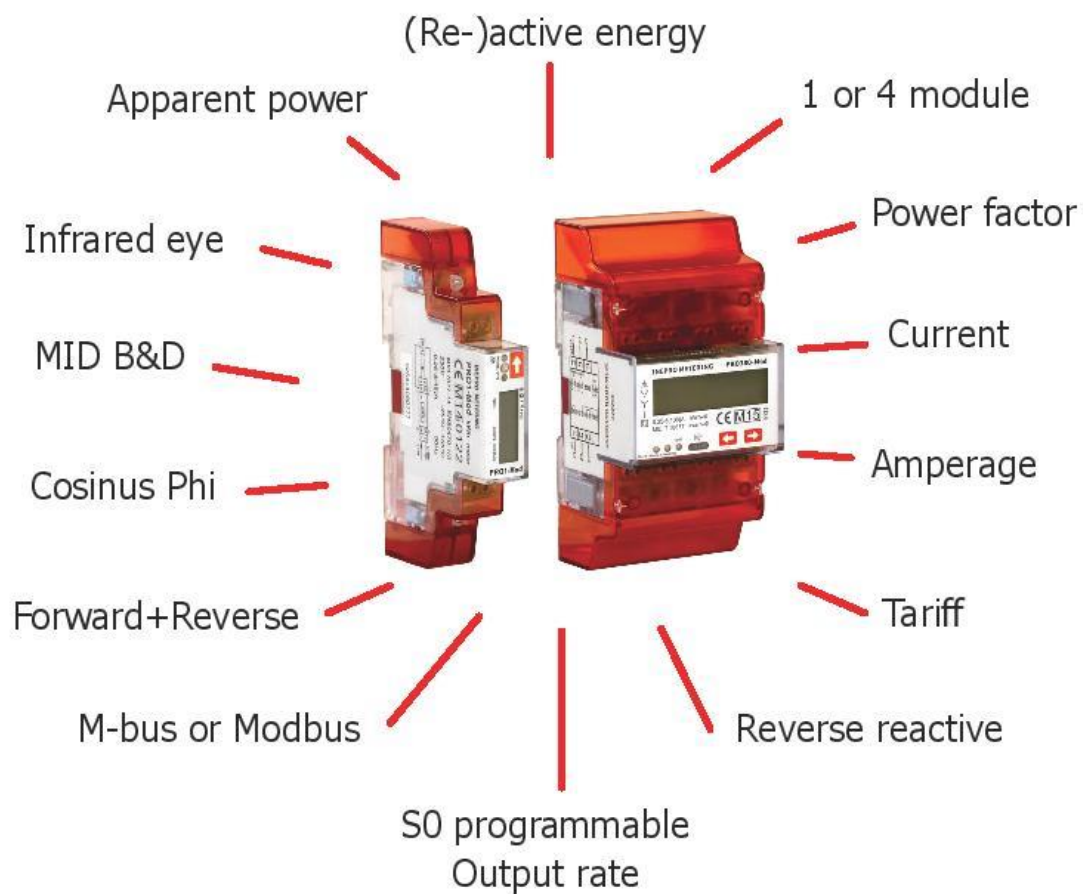
The PRO2 series is available as a standard version (with a selectable S0 output) and as a Modbus, M-bus or 2-tariff version. It can communicate and be programmed via an infrared input. The different communication modes have over 40 variables like kWh, active and reactive energy, forward and reverse energy as well as Cos phi.

The PRO2 series is equipped with a resettable day counter and the total energy usage can be calculated via 5 different modes.

Article number	MID	Phase	Mod.	Cur.	Com.	Display	Digits	Con. mode	S0	Back-light	Acc. Class	Tariff	S0 pulse output
0284 PRO2-S	Yes	1	2	100A	x	LCD	5+2	direct	2	Yes	B	x	Selectable ²
0285 PRO2-2T	Yes	1	2	100A	x	LCD	5+2	direct	2	Yes	B	2	Selectable ²
0286 PRO2-Mb	Yes	1	2	100A	M-bus	LCD	5+2	direct	2	Yes	B	2	Selectable ²
0287 PRO2-Mod	Yes	1	2	100A	Modbus	LCD	5+2	direct	2	Yes	B	2	Selectable ²

² selectable options: 10.000-2.000-1.000-100-10-1-0,1-0,01





5 Specifications

Casing	PC flame resistant plastic
Nominal voltage (Un)	230V AC
Operational voltage	195-253VAC
Insulation capabilities:	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV – 1,2μS waveform
Basic current (Ib)	5A
Maximum rated current (Imax)	100A
Operational current range	0,4%Ib-Imax
Overcurrent withstand	30Imax for 0,01s
Operational frequency range	50Hz ±10%
Internal power consumption	≤2W/Phase - ≤10VA/Phase
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:	
- 1.000/100/10/1/0,1/0,01 imp/kWh	31ms
- 2.000 imp/kWh < 30kW	31ms
- 2.000 imp/kWh > 30kW	15ms
- 10.000 imp/kWh < 6kW	31ms
- 10.000 imp/kWh > 6kW	15ms
- 10.000 imp/kWh > 12kW	5ms
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	-40°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 Infrared specification

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

5.4 M-bus communication specifications (PRO2-Mb only)

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

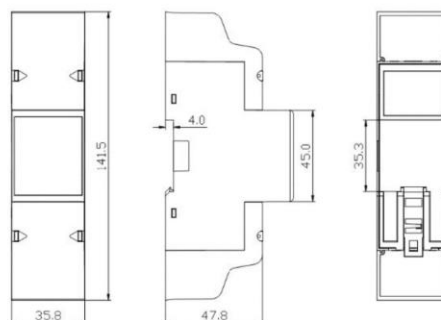
*Note that the maximum number of meters is dependent on the converter, baudrate (the higher the baudrate, the smaller the number of meters which can be used) and the circumstances under which the meters are installed.

5.5 RS485 communication specifications (PRO2-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

5.6 Dimensions

Height without protection cover	92,5 mm
Height	141,5 mm
Width	35,8 mm
Depth	63 mm
Max. diameter power connection clamps	35 mm ²
Weight	(Solid copper) 0,16 Kg (net)



5.7 Connection diagram

Connection of the wires should be done in accordance with the connection diagram as shown below:

1	Phase line in (L-IN)
3	Phase line out (L-OUT)
4	Neutral line in (N)
6	Neutral line out (N)
10 & 11	M-bus/Modbus communication contact (PRO2-Mb & PRO2-Mod only)
12 & 13	External tariff input (PRO2-2T version only)
18 & 19	Pulse output contact (S0) forward
20 & 21	Pulse output contact (S0) reverse

