

Three-phase Digital active and reactive energy-meter with measurement of active and reactive instantaneous power, set up for communication

Direct connection 125 A



Code	Description
DRM-125-3P	three-phase digital with direct connection 0.25-5 (125) A 2 tariff - 2 S0 (MID calibrated)

WARNING

Installation must be carried out and inspected by a specialist or under his supervision. When working on the instrument, switch off the mains voltage!

1) Quantities displayed

1a) Energy

• They are displayed on the main 8 digits counter:

Ref.	Energy	Unit	Symbol	ΣL	L1	L2	L3	Tariff
E1	Active Import	MWh/kWh	→	•	•	•	•	T1
E2	Active Export	MWh/kWh	←	•	•	•	•	T1
E3	Reactive Import	Mvarh/kvarh	→	•	•	•	•	T1
E4	Reactive Export	Mvarh/kvarh	←	•	•	•	•	T1
E5	Active Import	MWh/kWh	→	•	•	•	•	T2
E6	Active Export	MWh/kWh	←	•	•	•	•	T2
E7	Reactive Import	Mvarh/kvarh	→	•	•	•	•	T2
E8	Reactive Export	Mvarh/kvarh	←	•	•	•	•	T2

1b) Power

• Powers are displayed on the bar indicator and also on the 3 digits secondary counter:

Ref.	Power	Unit	Symbol	ΣL	Tariff
P1	Active Import	MW/kW/W	→	•	T1
P2	Active Export	MW/kW/W	←	•	T1
P3	Reactive Inductive	Mvar/kvar/var	ε	•	T1
P4	Reactive Capacitive	Mvar/kvar/var	÷	•	T1
P5	Active Import	MW/kW/W	→	•	T2
P6	Active Export	MW/kW/W	←	•	T2
P7	Reactive Inductive	Mvar/kvar/var	ε	•	T2
P8	Reactive Capacitive	Mvar/kvar/var	÷	•	T2

2) Display View (see quantities displayed)

- The LCD display has a blue backlight.
- With the front push button all register will appear.

3) User informations

• A range of information is available on the display. They are divided into 4 groups:

- A Default Page (total recorded Active Energy)**
- B System Energy Registers (ΣL)**
- C Phases Energy Registers (L1, L2 and L3)**
- D Diagnostic Page**

A) Default Page (total recorded Active Energy)

- The value of the current cumulative Active 3-phase Energy is displayed. The Energy is always Active, and may be Active Import (→), Active Export (←), with Tariff T1 or T2, depending on the current Energy flowing.
- The value of instantaneous Active Power is visible (3 digits field), together with a dedicated bar-graph representing the percentage of the flowing power (10% per bar graph division)
- The nominal value of primary current (5 to 9999) appears below the energy value
- A short press of the "command button" turns the backlight ON. A further short press enables the display of system energy registers.
- If the "command button" is not pushed for 40 seconds, the backlight is automatically switched OFF, and the display returns to the default page.

B) System Energy Registers (ΣL) E1 to E8 see Table

- This group is dedicated to show the System (ΣL) Energy registers, E1 to E8, as described in the table in 1a above.
- A short press of the "command button" enables the sequential display of all 8 registers.
- if the current rate corresponds to that of energy represented on the display the power reading and the bar-graph are also displayed.
- By pressing the "command button" for at least 4 seconds, the L1 Phase Energy registers group display is enabled.
- If the "command button" is not pushed for 40 seconds, the backlight is automatically switched off, and the display returns to the default page.

C) Phases Energy Registers (L1, L2 & L3) E1 to E8 see Table

- This group is dedicated to show the Phase Registers (with the same criteria of the System Energy registers). Initially, L1 group registers are displayed.
- A short press of the "command button" enables the display of all 8 registers, one at a time
- By pressing the "command button" for at least 4 seconds, the L2 Phase Energy registers group display is enabled.
- In the same way, once selected L2 registers, one can push the button for 4 seconds and start to see the L3 registers group.
- If the "command button" is not pushed for 40 seconds, the backlight is automatically switched OFF, and the display returns to the default page
- By keeping the "command button" pushed for at least 10 seconds, the diagnostic page is enabled

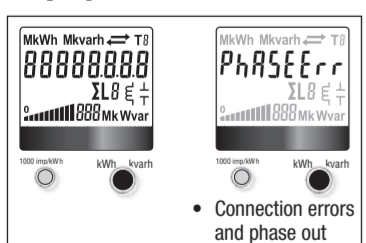
D) Diagnostic Page

- All display segments are activated, thus allowing the operator to see if the display is working correctly. By keeping the "command button" pressed, it is possible to see the Firmware Release version and the Flash Checksum
- If the "command button" is not pushed for 40 seconds, the backlight is automatically switched off, and the display returns to the default page

3.1) Error condition

- When the display shows the message "Err-D-01" or "Err-D-02", the meter has got a malfunction and must be replaced.

Display



kWh kvarh
MWh Mvarh

TB

ΣL

±

⊥

⊥

⊥

⊥

⊥

⊥

⊥

⊥

⊥

- MWh/kWh display
- Mvarh/kvarh display
- Tariff Running tariff, called tariff (T1-T2)
- Phase summary line energy
- Displays capacitive, reactive power
- Displays inductive, reactive power
- Consumption Bar display (percentage of Pmax)
- Precision control LED
- Readout selection push button

88888888 • Energy value

→ • Energy export (→)
← • Energy import (←)

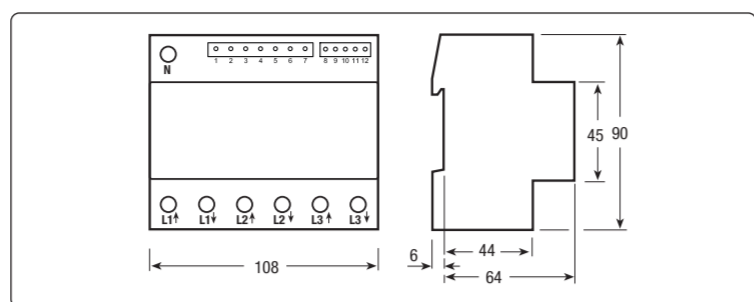
L1 • Energy line (L1-2-3)

BBB • Running active power display

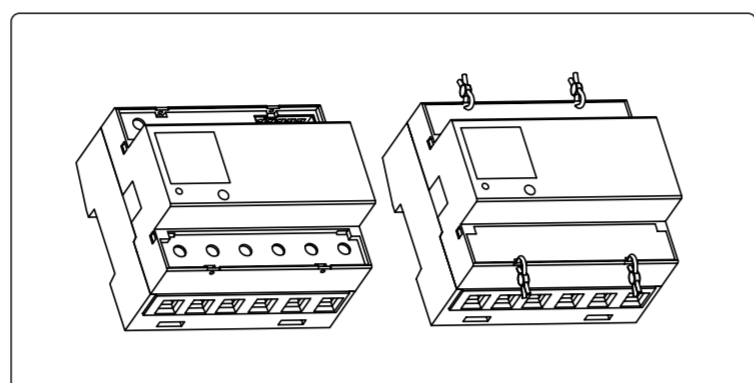
Symbols

- Measuring elements
- Reversal preventing device
- Protected by double insulation

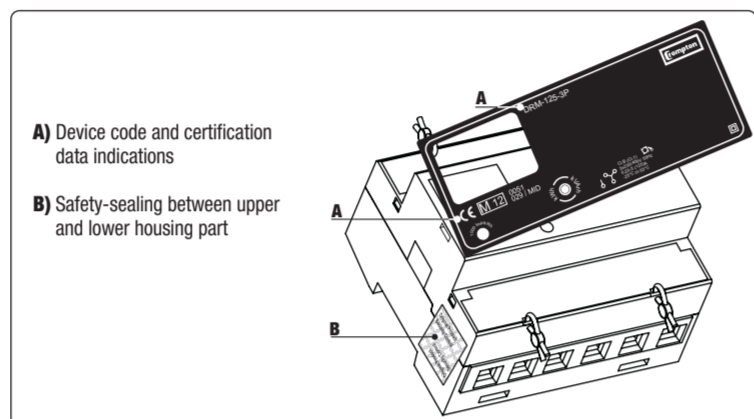
Dimension



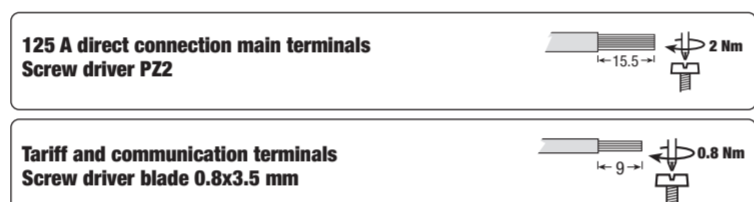
Sealable terminal cover



MID calibrated

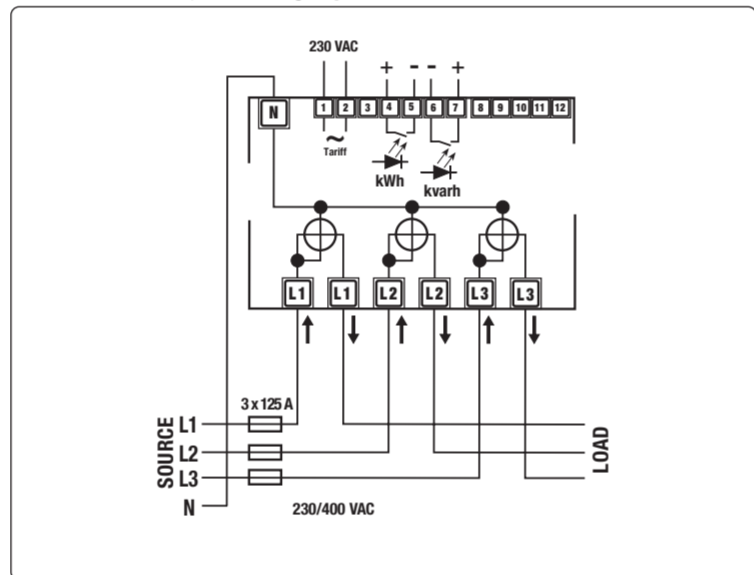


Cable stripping length and max. terminal screw torque



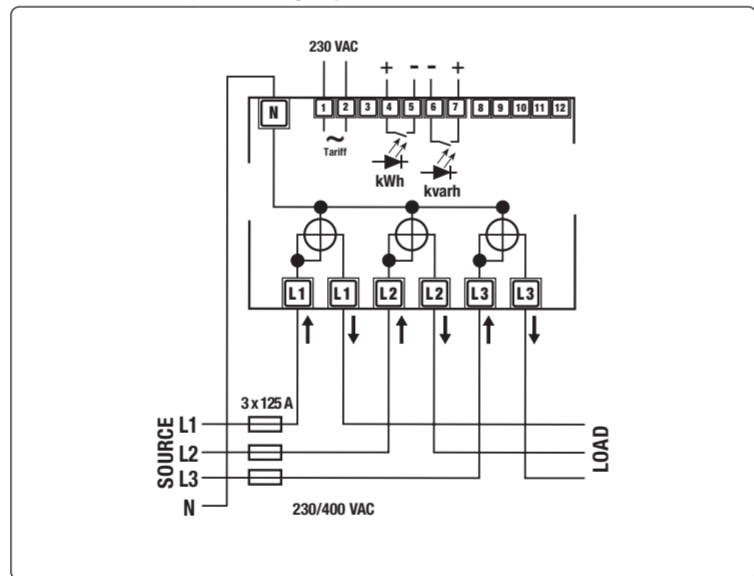
Wiring diagram

4 wires connection, monitoring any 4 wires load



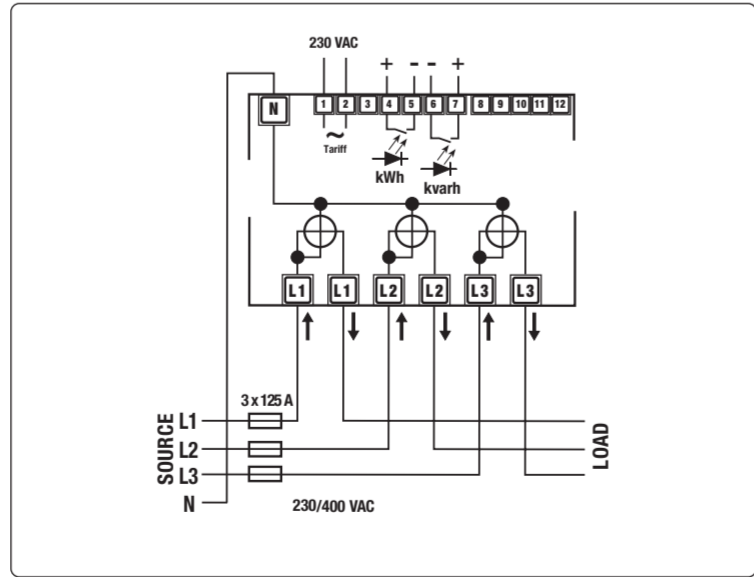
"Neutral wire must be connected to the meter"

4 wires connection, monitoring any 3 wires load



"Neutral wire must be connected to the meter"

4 wires connection, monitoring a balanced load



"Neutral wire must be connected to the meter"

Data in compliance with EN 50470-1, EN 50470-3, EN 62053-23, EN 62053-31

General characteristics		DRM-125-3P	
• Housing	DIN 43880	DIN	6 modules
• Mounting	EN 60715	35 mm	DIN rail
• Depth		mm	70
Operating features		n° wires	
• Connectivity	to single/three-phase network	n° wires	2-4
• Storage of energy values and configuration	digital display (EEPROM)	-	yes
• Display tariffs identifier	for active and reactive energy	n° 2	T1 and T2
Supply		VAC	
• Rated control supply voltage Un		VAC	230
• Operating range voltage		VAC	184 ... 276
• Rated frequency fn		Hz	50
• Rated power dissipation (max. for phase) Pv		VA (W)	≤8 (0.6)
Overload capability		VAC	
• Voltage Un	continuous; phase/phase	VAC	480
	1 second; phase/phase	VAC	800
	continuous; phase/N	VAC	276
	1 second; phase/N	VAC	300
	continuous	A	125
	momentary (10 ms)	A	3750
• Current Imax		A	125
		A	3750
Display (readouts)		Phase Err	
• Connection errors and phase out	discernible from phase-sequence indication	-	Phase Err
• Display type	LCD	n° digits	8 (2 decimal)
	digit dimensions	mm x mm	6.00 x 3
• Active energy: 1 display, 8 digit	tariffs 2	kWh	0.01
• + display import or export (arrow)	overflow	MWh	999999.99
• Reactive energy: 1 display, 8 digit	tariffs 2	kvarh	0.01
• + display import or export (arrow)	overflow	Mvarh	999999.99
• Instantaneous active power: 1 display, 3 digit		W, kW or MW	000 ... 999
• Instantaneous reactive power: 1 display, 3 digit		var, kvar or Mvar	000 ... 999
• Instantaneous tariff measurement		-	1
	1 display, 1-digit	-	T1 or T2
• Display period refresh		s	1
Measuring accuracy		class	
• Active energy and power	acc.to EN 50470-3	class	B
• Reactive energy and power	acc.to EN 62053-23	class	2
Measuring input		direct	
• Type of connection		-	direct
• Voltage Un	phase/phase	VAC	400
	phase/N	VAC	230
	phase/phase	VAC	319 ... 480
	phase/N	VAC	184 ... 276
• Current Iref		A	5
• Current Imin		A	0.25
• Operating range current (Ist ... Imax)	direct connection	A	0.020 ... 125
• Frequency		Hz	50
• Input waveform		-	sinusoidal
• Starting current for energy measurement (Ist)		mA	20
Pulse output S0		acc.to EN 62053-31	
• Pulse output	for active and reactive energy T1 and T2	-	yes
• Quantity pulse output		imp/kWh	500
• Pulse duration		ms	50 ±2 ms
• Required voltage	min. (max.)	VAC/(DC)	5 ... 230 ±5% (5 ... 300)
• Permissible current	pulse ON (max. 230 VAC/DC)	mA	90
• Permissible current	pulse OFF (leakage cur. max. 230 VAC/DC)	µA	1
Optical interfaces		imp/kWh	
• Front side (accuracy control)	LED	imp/kWh	1000
Safety		-	
• Indoor meter		-	yes
• Degree of pollution		-	2
• Operational voltage		VAC	300
• AC voltage test (EN 50470-3, 7.2)		kV	4
• Impulse voltage test		1.2/50 µs-kV	6
• Protection class (EN 50470)		class	II
• Housing material flame resistance	UL 94	class	V0
• Safety-sealing between upper and lower housing part		-	yes
Lateral IR interfaces		-	
• For communication moduls connection (DRM-M / DRM-MOD / DRM-KNX / DRM-LOG)		-	yes
Connection terminals		POZIDRIV	
• Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2
• Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
• Terminal capacity main current paths	solid wire min. (max.)	mm²	1.5 (50)
	stranded wire with sleeve min. (max.)	mm²	1.5 (50)
	solid wire min. (max.)	mm²	1 (4)
	stranded wire with sleeve min. (max.)	mm²	1 (2.5)
Environmental conditions		-	
• Mechanical environment		-	M1
• Electromagnetic environment		-	E2
• Operating temperature		°C	-25 ... +55
• Limit temperature of transportation and storage		°C	-25 ... +70
• Relative humidity (not condensation)		%	≤80
• Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
• Degree protection	housing when mounted in front (terminal)	-	IP51(+) / IP20

(+) For the installation in a cabinet at least with IP51 protection.

Note

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale.

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