Installation and Operating Instructions

Energy-meters three-phase - BASIC
digital active energy-meter imported and exported energies
Direct connection 80 A - Connection through CT .../5 A up to 10.000/5 A

IIST095-01 Stand 10-07-2012

Code	Description
DRB-80-3P	three-phase digital with direct connection 0.25-5 (80) A **2 tariff** - 2 S0 **(MID calibrated)**
DRB-5-3P	three-phase digital with connection by CT .../5 A, up to 10.000/5 A 0.05-5 (6) 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

• They are displayed on the main 9 digits counter:

Ref.	Energy	Unit	Symbol	ΣL	Tariff
E1	Active Import	kWh	→	•	T1
E2	Active Export	kWh	←	•	T1
E3	Active Import	kWh	→	•	T2
E4	Active Export	kWh	←	•	T2

2) LCD display pages

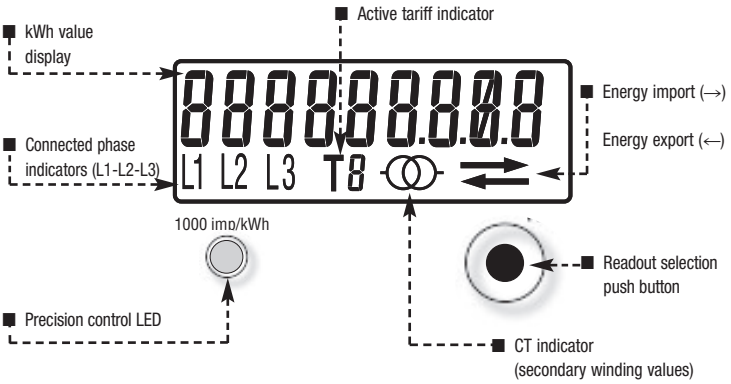
- The main page is shown at meter power on, and whenever command button is not pushed for 20 seconds. This page automatically displays the register of the energy (**E1**, **E2**, **E3** or **E4**) which is increasing at that moment; on the bottom line, the page displays the existing phases (**L1** / **L2** / **L3**), the active tariff (**T1** / **T2**) and the direction of the energy Imported (→) or exported (←).
- By pushing the command button it is possible to show:
  - The other 3 energy registers
  - The CT ratio (only for CT connection models)
  - The Firmware release
  - The Firmware Checksum
  - The display test page
- By keeping the command button pushed for at least 20 seconds it is possible:
  - For MID certified CT connection models (**DRB-5-3P**), to show the energies at CT secondary winding (**see paragraph 2.1**)
- If on display "ErrOr 01" or "ErrOr 02" appears, the meter has a fatal internal error, and is no longer working, and must be replaced

2.1) CT secondary winding energies view mode (.../5 A)

- In this mode the display temporarily shows the energies CT secondary winding. " ⓘ " this symbol flashes on the bottom line. After one minute of inactivity of command button, the display goes back to the main page.

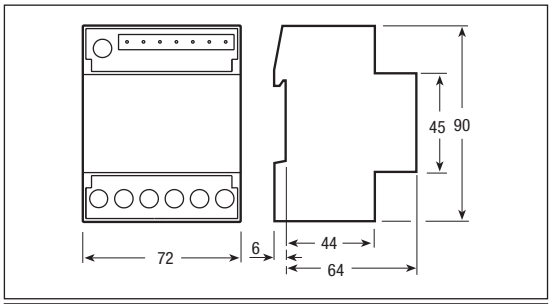
3) Display View

- Liquid crystal display

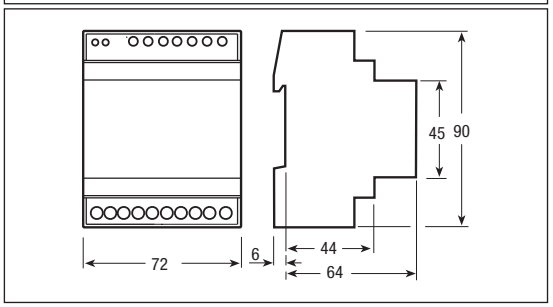


Dimension

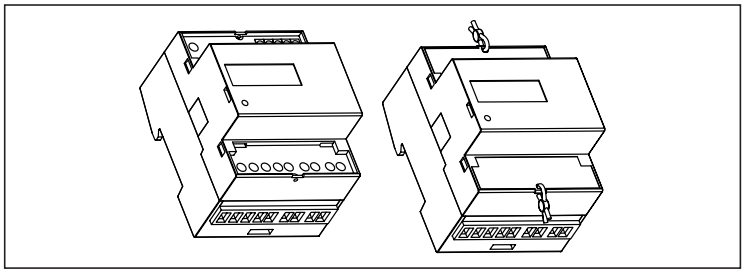
direct - 80 A



CT .../5 A



Sealable terminal coverse



Cable stripping length and max. terminal screw torque

80 A direct connection main terminals - Screw driver PZ2	15.5 mm, 2 Nm
5 A CT connection main terminals - Screw driver PZ1	14 mm, 0.8 Nm
Tariff and communication terminals Screw driver blade 0.8x3.5 mm	9 mm, 0.8 Nm

Quantity pulse output (S0) / DRB-5-3P

Automatically selected

I prim. **(A)** 5-300 A	= 100 imp/kWh
I prim. **(A)** 305-3000 A	= 10 imp/kWh
I prim. **(A)** 3005-10000 A	= 1 imp/kWh

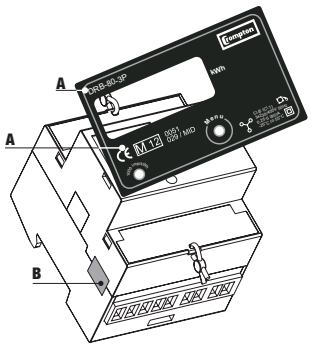
Symbols

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

MID calibrated

A) Device code and certification data indications

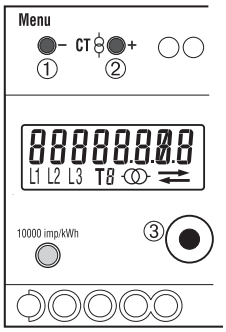
B) Tamper proof seal between upper and lower housing part



Set Primary Current

Set Primary Current

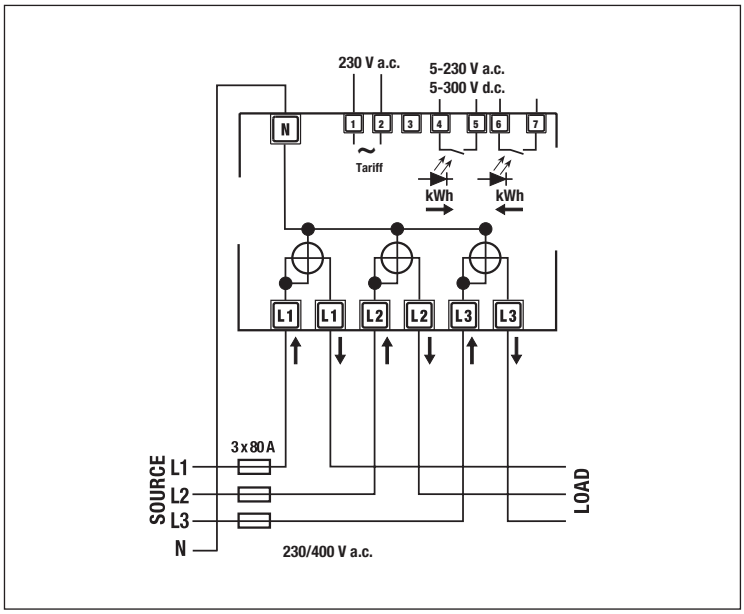
1) Press **"Menu-Key"** for 4 sec.
2) Select the desired Primary Current value usig **"+" and "-"** key
3) Press **"Command Button"** for 4 sec. to confirm the modification, otherwise wait 8 sec. to cancel the modification and come back to normal display mode.



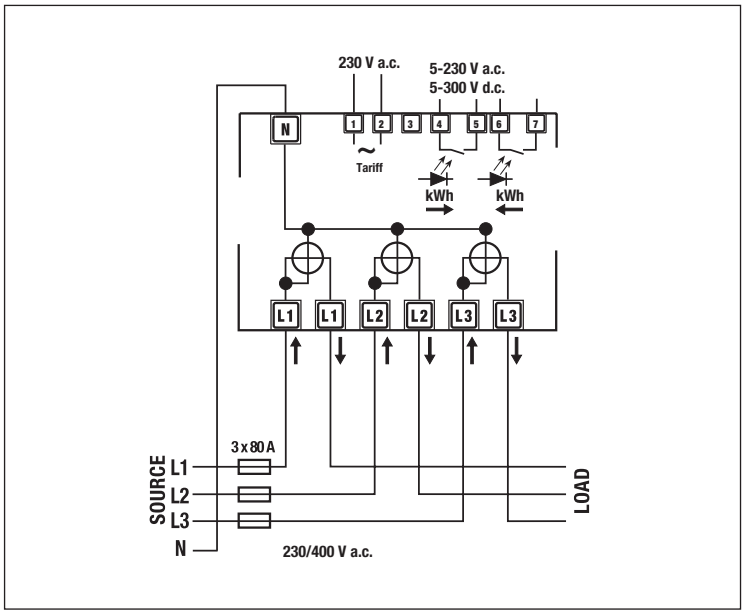
Wiring diagram

Direct - 80 A

4 wires connection, monitoring any 4 wires load



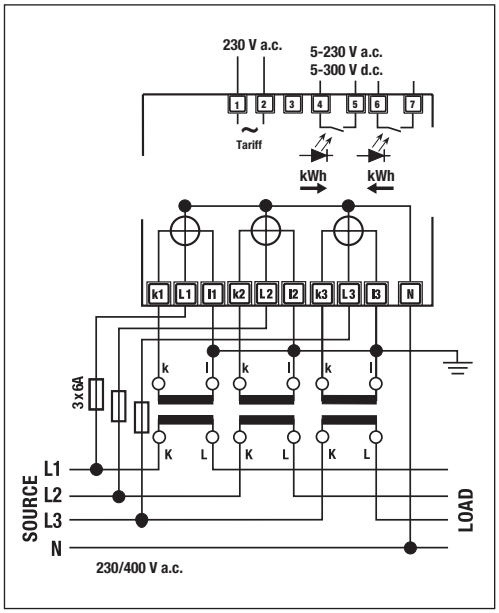
4 wires connection, monitoring any 3 wires load



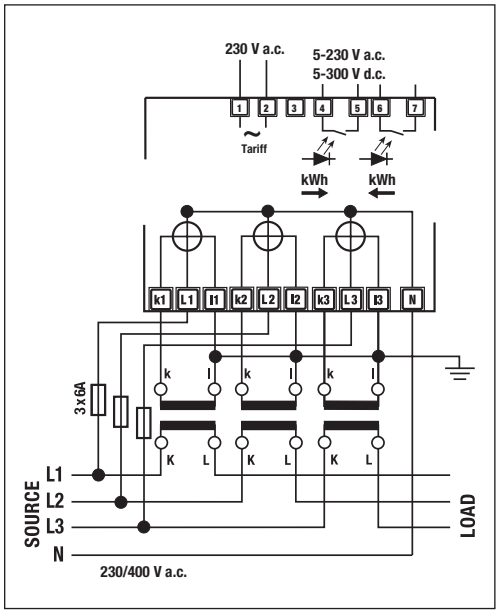
"Neutral wire must be connected to the meter"

CT .../5 A

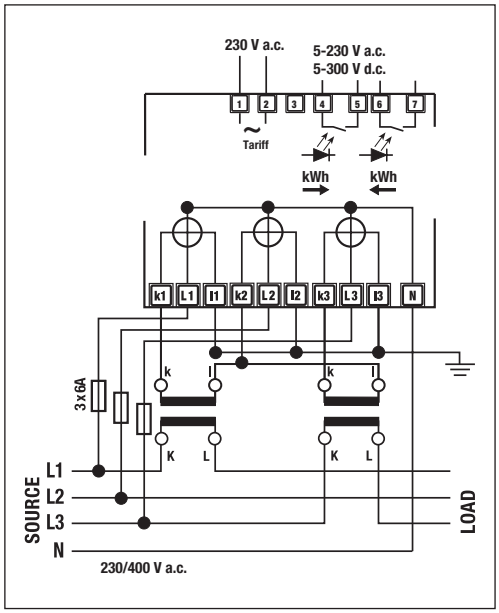
4 wires connection, monitoring any 4 wires load



4 wires connection, monitoring any 3 wires load



4 wires connection, monitoring a balanced load



"Neutral wire must be connected to the meter"

Instructions for the connection of transformer counters
A fuse of 6 A is recommended for the line protection. Current transformers must not be operated with open terminals since dangerous high voltages might occur which may result in personal injuries and property damage. In addition to this, the transformers are exposed to thermal overload.

Note

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TE connectivity ENERGY

Technical data

Data in compliance with EN 50470-1, EN 50470-3 and EN 62053-31			**DRB-80-3P direct connection 80 A**	**DRB-5-3P CT connection till 10.000/5 A**
General characteristics				
• Housing	DIN 43880	DIN	4 modules	4 modules
• Mounting	EN 60715	35 mm	DIN rail	DIN rail
• Depth		mm	70	70
Operating features				
• Connectivity	to three-phase network	n° wires	4	4
• Storage of energy values and configuration	digital display (EEPROM)	-	yes	yes
• Display tariffs identifier	for active energy	n° 2	T1 and T2	T1 and T2
Supply				
• Certified voltage range ***Un***		VAC	230	230
• Operating voltage range		VAC	184 ... 276	184 ... 276
• Certified frequency ***fn***		Hz	50	50
• Operating frequency range		Hz	49 ... 51	49 ... 51
• Rated power dissipation (max.) ***Pv***		VA (W)	⩽8 (0.6)	⩽8 (0.6)
Overload capability				
• Voltage ***Un***	continuous; phase/phase	VAC	480	480
	1 second: phase/phase	VAC	800	800
	continuous; phase/N	VAC	276	276
	1 second: phase/N	VAC	300	300
• Current ***Imax***	continuous	A	80	6
	momentary (0,5 s)	A	-	120
	momentary (10 ms)	A	2400	-
Display (readouts)				
• Connection errors and phase out	discernible from phase-sequence indic.	-	PHASE Err	PHASE Err
• Display type	LCD	n° digits	9 (2 decimal)	9 (2 decimal)
	digit dimensions	mm x mm	6.00 x 3	6.00 x 3
• Active energy: 1 display, 9 digit	min. measuring energy	kWh	0.01	0.01
+ display import or export (arrow)	max. measuring overflow	kWh	9999999.99	9999999.99
• Instantaneous tariff measurement	1 display, 1-digit	-	T1 or T2	T1 or T2
• Transformer primary current		A	-	5 ... 10.000
• Display period refresh		s	1	1
Measuring accuracy				
• Active energy	acc.to EN 50470-3	class	B	B
Measuring input				
• Type of connection			direct	transformer .../5 A
• Voltage ***Un***	phase/phase	VAC	400	400
	phase/N	VAC	230	230
• Operating range voltage	phase/phase	VAC	319 ... 480	319 ... 480
	phase/N	VAC	184 ... 276	184 ... 276
• Current ***Iref***		A	5	-
• Current ***In***		A	-	5
• Current ***Imin***		A	0.25	0.05
• Operating range current ***(Ist ... Imax)***	direct connection	A	0.015 ... 80	-
	transformer connection (CT)	A	-	0.003 ... 6
• Transformer current	primary current of the transformer	A	-	5 ...10.000
	smallest input step adjus. in 5 A steps	A	-	5
• Frequency		Hz	50	50
• Input waveform		-	sinusoidal	sinusoidal
• Starting current for energy measurement ***(Ist)***		mA	15	3
Pulse output S0	acc.to EN 62053-31			
• Pulse output	for active energy T1 and T2	-	yes	yes
• Quantity pulse output	for direct connection 80 A	Imp/kWh	500	-
	depending on the transf. factor.	Imp/kWh	-	100-10-1
• Pulse duration		ms	50 ±2 ms	50 ±2 ms
• Required voltage	min. (max.)	VAC (DC)	5 ... 230 ±5% (5 ... 300)	5 ... 230 ±5% (5 ... 300)
• Permissible current	pulse ON (max. 230 V AC/DC)	mA	90	90
• Permissible current	pulse OFF (leak. cur. max. 230 V AC/DC)	µA	1	1
Optical interface				
• Front side ***(accuracy control)***	LED	imp/kWh	1000	10.000
Safety acc. to EN 50470-1				
• Indoor meter		-	yes	yes
• Degree of pollution		-	2	2
• Operational voltage		VAC	300	300
• AC voltage test (EN 50470-3, 7.2)		kV	4	4
• Impulse voltage test		1.2/50 µs-kV	6	6
• Protection class (EN 50470)		class	II	II
• Housing material flame resistance	UL 94	class	V0	V0
• Safety-sealing between upper and lower housing part		-	yes	yes
Connection terminals				
• Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2	PZ1
• Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5	0.8 x 3.5
• Terminal capacity main current paths	solid wire min. (max.)	mm^2	1.5 (35)	1 (4)
	stranded wire with sleeve min. (max.)	mm^2	1.5 (35)	1 (4)
• Terminal capacity pulse output	solid wire min. (max.)	mm^2	1 (4)	1 (4)
	stranded wire with sleeve min. (max.)	mm^2	1 (2.5)	1 (4)
Environmental conditions				
• Mechanical environment		-	M1	M1
• Electromagnetic environment		-	E2	E2
• Operating temperature		°C	-10 ... +55	-10 ... +55
• Limit temperature of transportation and storage		°C	-25 ... +70	-25 ... +70
• Relative humidity (not condensation)		%	⩽80	⩽80
• Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075	±0.075
• Degree protection	housing when mounted in front (term.)	-	IP51(*)/IP20	IP51(*)/IP20

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