

**Three-phase Digital Energy meters - BASIC**  
 Direct connection 80 A - Connection through CT .../5 A till 10.000/5 A

**Operating instructions**



**three-phase digital active energy-meter**

Code	Description
<b>AD3-80M</b>	three-phase digital with direct connection 0.25-5 (80) A - 2 tariff - 2 SO (MID calibrated)
<b>AD3-5M</b>	three-phase digital with connection by CT .../5 A, up to 10.000/5 A - 0.05-5 (6) A - 2 tariff - 2 SO (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**

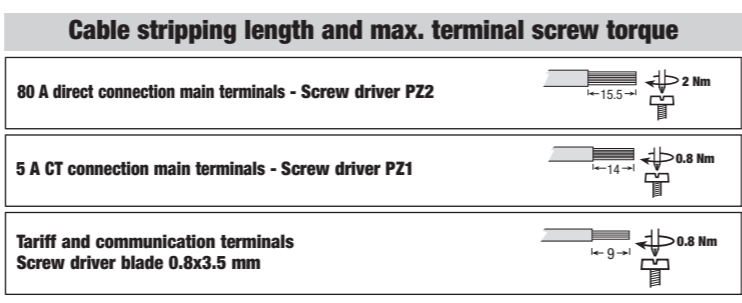
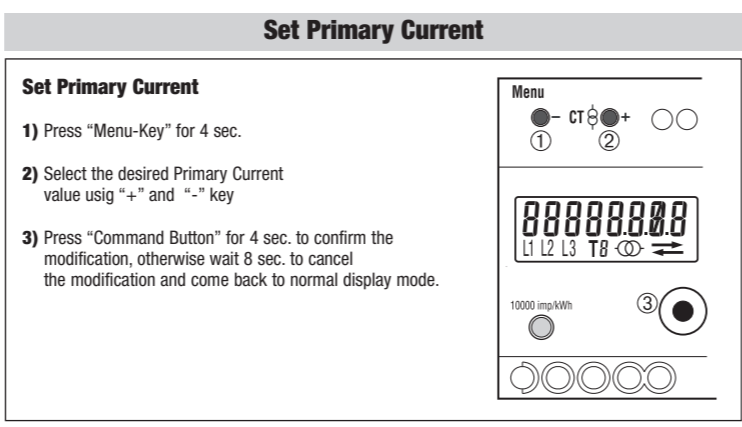
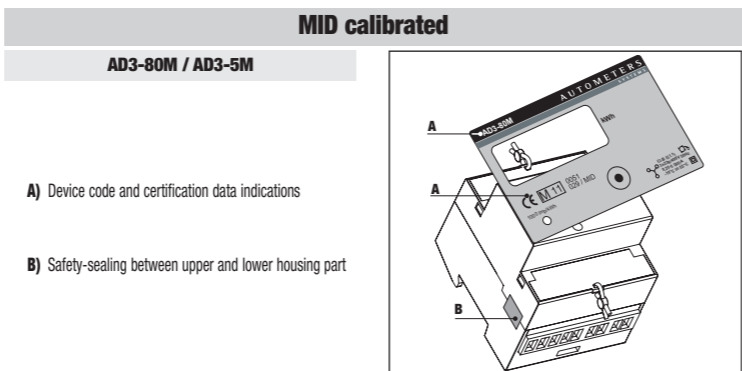
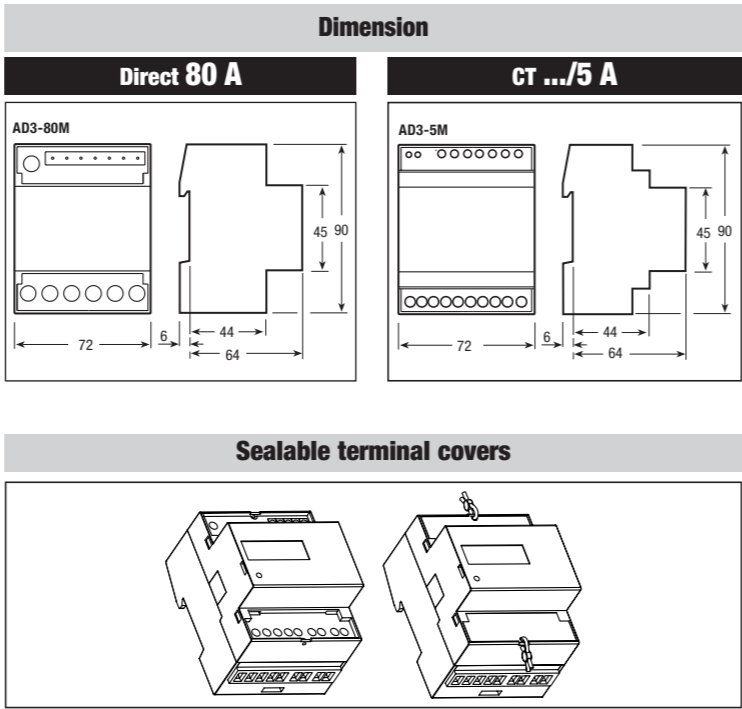
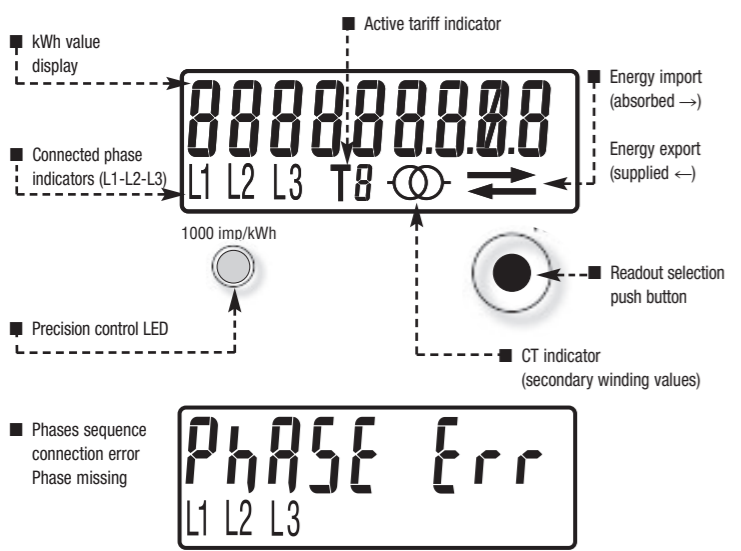
- They are displayed on the main 9 digits counter:

Ref.	Energy	Unit	Symbol	ΣL	Tariff
<b>E1</b>	Active Absorbed	kWh	→	•	T1
<b>E2</b>	Active Supplied	kWh	←	•	T1
<b>E3</b>	Active Absorbed	kWh	→	•	T2
<b>E4</b>	Active Supplied	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 absorbed (→) or supplied (←).
  - 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 (AD3-5M), to show the energies at CT secondary winding (see paragraph 2.1)
  - If on display "Err0- 01" or "Err0- 02" appears, the meter has a fatal internal error, and is no longer working, and must be replaced

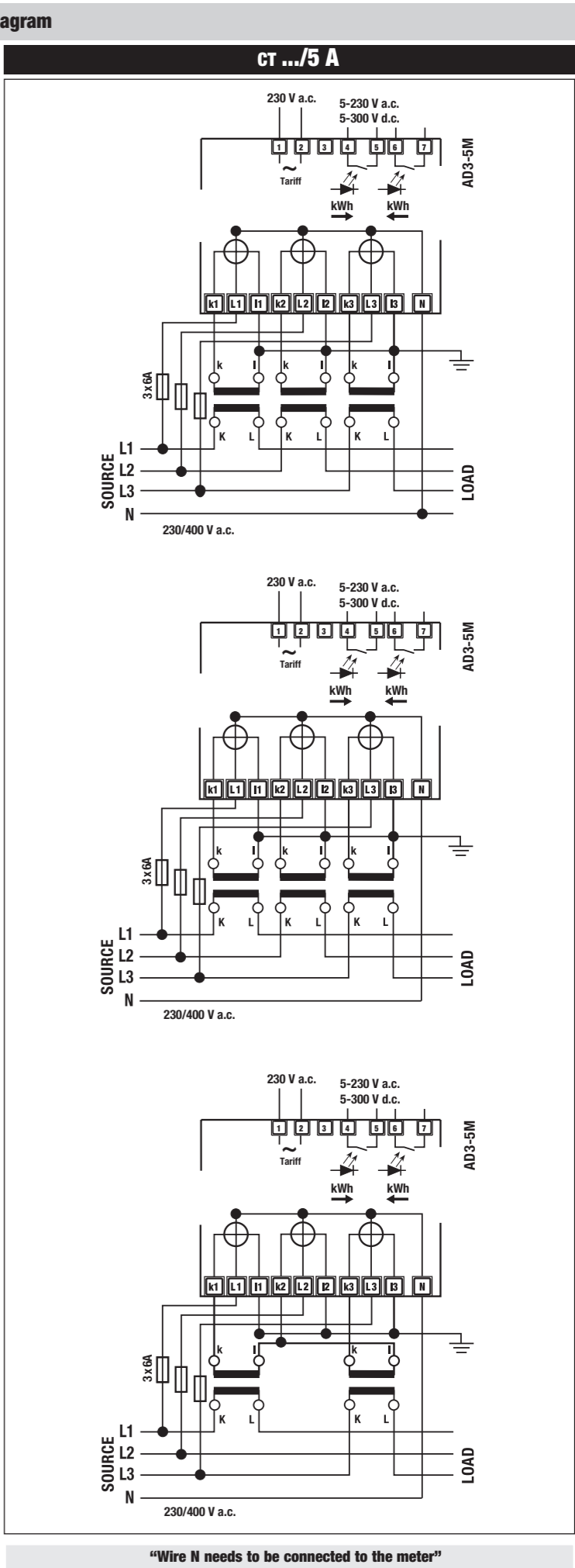
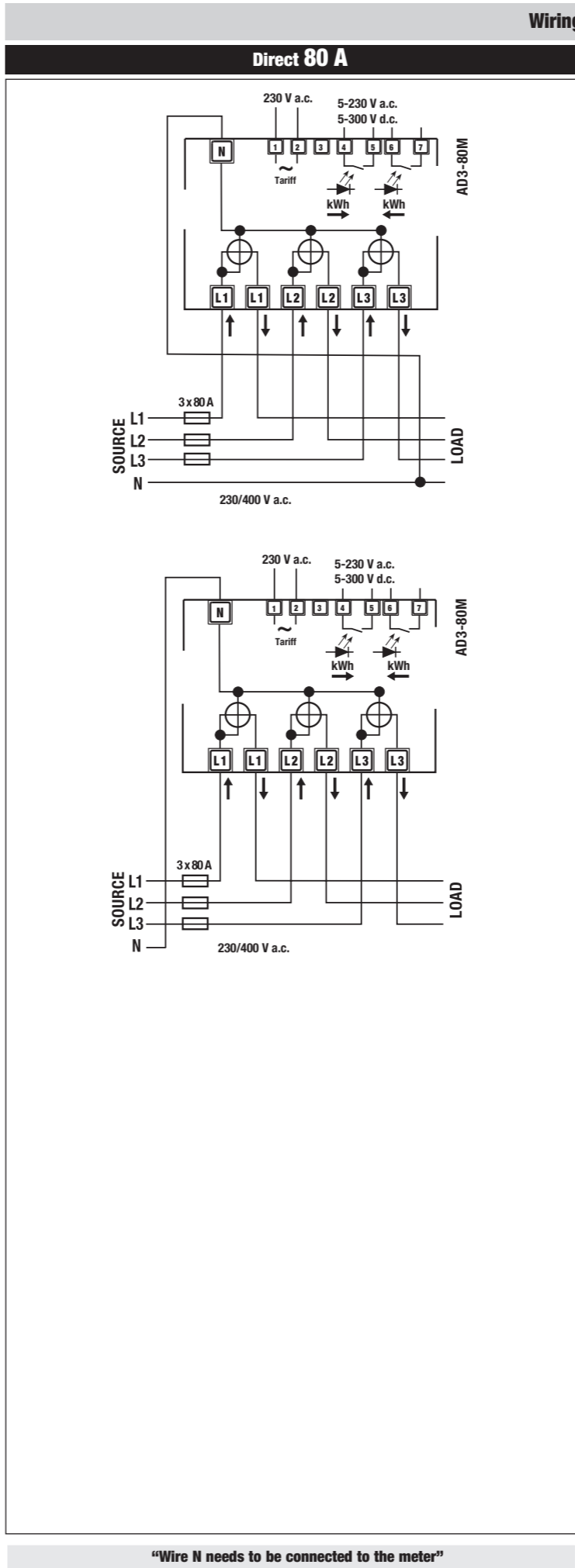
- 2.1) CT secondary winding energies view mode (.../5 A)**
- In this mode the display temporarily shows the energies CT secondary winding.
  - "⊙" this symbol flashes on the bottom line
  - After one minute of inactivity of command button, the display goes back to the main page.

- 3) Display View**
- Liquid crystal display



**Quantity pulse output (SO) for AE3-5M**

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



**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.

Technical data

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

General characteristics

4 modules	DIN	DIN 43880
DIN rail	35 mm	EN 60715
70	mm	70

Operating features

4	n° wires	to three-phase network
yes	-	digital display (EEPROM)
yes	n° 2	for active energy

Supply

230	V a.c.	Rated control supply voltage <i>Un</i>
184 ... 276	V	Operating range voltage
50	Hz	Rated frequency <i>fn</i>
≤8 (0.6)	VA (W)	Rated power dissipation (max. for phase) <i>Pv</i>

Overload capability

480	V	continuous: phase/phase
800	V	1 second: phase/phase
276	V	continuous: phase/N
300	V	1 second: phase/N
80	A	continuous
120	A	momentary (0.5 s)
-	A	momentary (10 ms)

Current *I<sub>max</sub>*

PHASE Err	-	discernible from phase-sequence indic.
PHASE Err	n° digits	LCD
6,00 x 3	mm x mm	digit dimensions
0.01	kWh	2 tariffs
9999999,99	kWh	overflow
T1 or T2	-	1 display, 1-digit
T1 or T2	A	Transformer primary current
5 ... 10000	-	Display period refresh

Measuring accuracy

B	class 1	acc. to EN 50470-3
direct	-	Type of connection
400	V	phase/phase
230	V	phase/N
319 ... 480	V	phase/phase
184 ... 276	V	phase/N

Measuring input

transformer .../5 A	direct	type of connection
400	V	Voilage <i>Un</i>
230	V	phase/N
319 ... 480	V	phase/phase
184 ... 276	V	phase/N

Operating range voltage

5	A	Current <i>I<sub>ref</sub></i>
5	A	Current <i>I<sub>n</sub></i>
0.05	A	Current <i>I<sub>min</sub></i>
0.015 ... 80	A	Operating range current ( <i>I<sub>st</sub> ... I<sub>max</sub></i> )
0.003 ... 6	A	direct connection
0.003 ... 6	A	transformer connection (CT)
5 ... 10000	A	primary current of the transformer
5	A	smallest input step adjus. in 5 A steps

Frequency

50	Hz	Input waveform
sinusoidal	-	Starting current for energy measurement ( <i>I<sub>st</sub></i> )
15	mA	acc. to EN 62053-31

Pulse output 50

yes	-	for active energy import (absorbed →) and export (supplied ←) T1 and T2
yes	imp/kWh	Quantity pulse output
500	imp/kWh	for direct connection 80 A
depending on the transf. factor.	imp/kWh	Pulse duration
30 ±2 ms	ms	Required voltage
min. ... max.	min. ... max.	Permissible current
V a.c. (d.c.)	V a.c./d.c.)	Permissible current
5 ... 230 ±5% (5 ... 300)	5 ... 230 ±5% (5 ... 300)	Pulse OFF (leak cur. max. 230 V a.c./d.c.)
90	mA	Front side ( <i>accuracy control</i> )
1	µA	LED

Safety acc. to EN 50470-1

yes	-	Indoor meter
yes	-	Degree of pollution
2	-	Operational voltage
300	V	AC voltage test (EN 50470-3, 7.2)
4	kV	Impulse voltage test
6	1,2/50 µs-kV	Protection class (EN 50470)
II	class	Housing material flame resistance
V0	class	UL 94
yes	-	Safety-sealing between upper and lower housing part (mod. AE3-80M / AE3-5M)

Connection terminals

PZ1	PZ2	POZIDRIV
0.8 x 3.5	0.8 x 3.5	mm
1 (4)	1.5 (35)	mm²
1 (4)	1.5 (35)	mm²
1 (4)	1.5 (35)	mm²
1 (4)	1 (4)	mm²
1 (4)	1 (4)	mm²
1 (4)	1 (4)	mm²

Environmental conditions

M1	M1	-
E2	E2	-
-10 ... +55	-10 ... +55	°C
-25 ... +70	-25 ... +70	°C
≤80	≤80	%
±0.075	±0.075	mm
50 Hz sinusoidal vibration amplitude housing when mounted in front (term.)	-	-

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

AD3-80M	AD3-5M	
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