

AD3-80MBIC

Energy Meters 3-Phase 4-Wire

Application

The AD3-80MBIC is the latest in the range of 3 phase 4 wire Din rail meters, which has MID Approval, Appendix "B" and "D" certification. This new meter has been specifically designed with communication as priority. The new AD3-80 MBIC comes with RS 485 Modbus communication (Autometers v.6 protocol) and can communicate up to 40 different value parameters.

The meter has a clear LCD display showing kWh import and export with the option of displaying two tariffs with an external time switch.

By using the Modbus channel for communication it is also possible to view via a P.C./ building management system Amps, Volts, Power factor, Frequency Maximum demand and many more parameters.

Overview

The AD3-80MBIC is a 3 phase 4 wire kwh meter, 230/400 volt 50 Hz 80 amp direct connected meter measuring active energy on import and export applications. What makes the AD3-80MBIC unique is that it has RS 485 Modbus communication built into the meter (Autometers v.6 protocol). Using the Modbus it is possible to read a lot more information such as Volts, Amps, Power Factor Frequency and Max Demand other energy parameters are also available.

Function

Display	Unit	ID	Indication	
Active Energy	Tariff 1	(M)-(k)-Wh	-	Import Indication ←
	Tariff 2	(M)-(k)-Wh	-	Export Indication →
Voltage Indication	L1,L2,L3	Will illuminate when voltage is present	-	-
Tariff	T1, T2	Will illuminate indicating present tariff	-	-
Phased Disconnection		Phase Error	-	-



Installation



The meter must be fitted in a suitable enclosure.
(See Autometers full range of enclosures).

4 Standard Module Housing

Suitable for DIN Rail Mounting Direct Connection 80 Amp

- LCD Display
- MID Certification Number
- Precision Control LED
- Terminals 1-2 External Time Switch
Terminals 1 & 2 (230 volt) are used only when you are using more than one tariff.
- Terminals 4,5,6 & 7 Modbus RTU
- Button to step through display
- Partial button for specific registers
- Technical details of Meter
- Selection buttons to set Modbus
- Supply Terminals
80 Amp Direction Connection

Technical Data

Data in compliance with EN 50470-1, EN 504470-3 and EN 62053-31

General Characteristics			Direct Connection 80A
• Housing	DIN 43880	DIN	4 Modules
• Mounting	EN 60715	35mm	DIN Rail
• Depth		mm	70
• Reference Standard	Active Energy	-	EN 50470-1-3
	Pulse Output	-	EN62053-31
Operating Features			
• Connectivity	To Single/Three-phase Network	N° Wires	4
• Storage of Energy Values and Configuration	Digital Display (EEPROM)	-	Yes
• Display Tariffs Identifier	For Active & Reactive Energy	N° 2	T1 and T2
Supply			
• Rated Control Supply Voltage Un		VAC	230
• Operating Range Voltage		V	184 ... 276
• Rated Frequency Fn		Hz	50
• Rated Power Dissipation (Max for Phase) Pv		VA (W)	<8 (0.6)
Overload Capacity			
• Voltage Un	Continuous: Phase/Phase	V	480
	1 Second: Phase:Phase	V	800
	Continuous: Phase/N	V	276
	1 Second: Phase/N	V	300
	Continuous	A	80
• Current Imax	Momentary (0.5s)	A	-
	Momentary (10ms)	A	2400
Display (Readouts)			
• Connection Errors & Phase Out	Discernible from Phase Sequence Indic.	-	Phase Err
• Display Type	LCD	No Digits	8 (1 decimal)
	Digit Dimensions	mm x mm	6,00 x 3
• Active Energy : 1 Display, 8 Digit	Tarifs 2	Wh	0.01
+ Display import or Export (Arrow)	Overflow	-	99999999.9
• Transformer Primary Current		A	-
• Display Period Refresh		S	1
Measuring Accuracy			
• Active Energy and Power	Acc. to EN 50470-3	Class 1	B
Measuring Input			
• Type of Connection			Direct
• Voltage Un	Phase/Phase	V	400
	Phase/N	V	230
• Operating Range Voltage	Phase/Phase	V	319 ... 480
	Phase/N	V	184 ... 276
• Current Iref		A	5
• Current In		A	-
• Current Imin		A	0.25
• Operating Range Current (Ist ... Imax)	Direct Connection	A	0.015 ... 80
	Transformer Connection (CT)	A	-
	Primary Current of the Transformer	A	-
	Smallest Input Step Adjus. in 5 A Steps	A	-
• Transformer Current		A	-
• Frequency		Hz	50
• Input Waveform		-	Sinusoidal
• Starting Current for Energy Measurement (Ist)		mA	15
RS 485 Modbus Output (Default Setting)			
• Baud Rate	Editable Field		9600 (1200, 2400, 4800, 19200)
• Wire Mode			2 Wire
• Modbus Type	Editable Field		RTU (1-247)
• Parity Type			Floating Point
• Data Format			High Word First
• F.P Format			Autometers v.6
• Protocol			

Technical Data (Cont'd)

Optical Interfaces

• Front Side (Accuracy Control)	LED	imp/kWh	1000
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Safety Acc. to EN50470-1

• Indoor Meter	-	-	Yes
• Degree of Pollution	-	-	2
• Operational Voltage	V	-	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 (AE3-80M / AE3-5M)	-	-	Yes

Connection Terminals

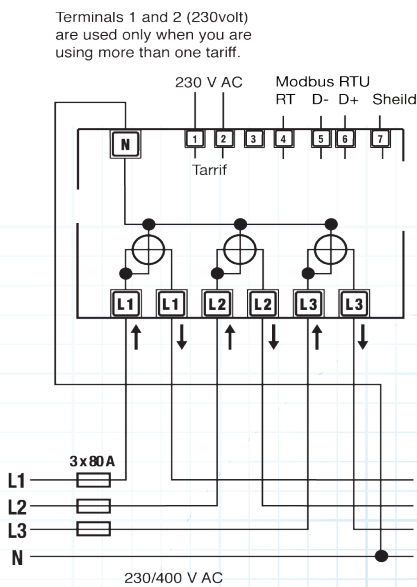
• Type Cage Main Current Paths	Screw Head Z +/-	POZIDRIV	PZ2
• Type Cage Pulse Output	Blade for Slotted Screw	mm	0.8 x 3.5
• Terminal Capacity Main Current Paths	Solid Wire Min. (Max.)	mm ²	1.5 (35)
• Terminal Capacity Pulse Outlet	Stranded Wire with Sleeve Min. (Max.)	mm ²	1.5 (35)
	Solid Wire Min. (Max.)	mm ²	1 (4)
	Stranded Wire with Sleeve Min. (Max.)	mm ²	1 (2.5)

Environmental Conditions

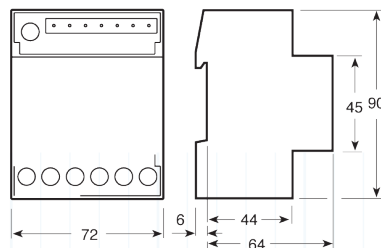
• Mechanical Environment	-	-	M1
• Electromagnetic Environment	-	-	E2
• Operating Temperature	°C	-	-10 ... +55
• Limit Temperature of Transportation/Storage	°C	-	-25 ... +70
• Relative Humidity (Not Condensation)	%	-	≤80
• Vibrations	50Hz Sinusoidal Vibration Amplitude	mm	±0.075
• Degree Protection	Housing when mounted in front (term.)	-	IP51(*) / IP20

Circuit Diagrams

3 Phase 4 Wire Connection Diagram



Dimensions



Modbus connections.

- D+ = TX+ Terminal 6
- D- = TX- Terminal 5
- RT = Internal resistor 4

Please note for the last meter on the Lan add a link connection between terminal 4 and terminal 5.
(There is an internal resistor built into the meter)

Display Registers

Second Active Energy Page
L1 L2 L3 T2
894417.65

Third Active Energy Page
L1 L2 L3 T1
67065.13

Fourth Energy Page: In the second, third and fourth pages are represented the other.
L1 L2 L3 T1
27065.13

Display Test Page: All the display segments are visible, whichever the page on the display, if no key is pushed for at least 20 sec., the main page appears again.
L1 L2 L3 T8
888888.8.8

Modbus Address Page: In the page the Modbus address appears. You can modify its value between 1 and 247. See the section *editable value*
Addr 210

Modbus Baudrate Page: In the page the Modbus baud rate appears, you can choose among 1200, 2400, 4800, 9600 and 19200 bits per second. See the *editable value*.
br 19200

Firmware Release Page: You can read the index of firmware release.
rEL 104

Firmware CheckSum Page: The checksum is periodically calculated to verify the firmware is reliable.
ch 6A2b

80 Amp Direct Connected

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