

AD3-5MBIC

Energy Meters Three-Phase

Application

The AD3-5MBIC 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 AD3-5MBIC 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 AD3-5MBIC is a 3 phase 4 wire kWh meter, 230/400 volt 50 Hz , 5 amp current transformer operated meter measuring active energy on import and export applications. What makes the AD3-5MBIC 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)-(-) kWh	-	Import Indication ←
	Tariff 2 (M) (-) kWh	-	Export Indication →
Voltage Indication	L1, L2, L3	Will illuminate when voltage is present	-
Tariff	T1, T2	Will illuminate indicating present tariff	-
Phase 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 C.T Connection 5 Amp



Technical Data

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

General Characteristics			Current Transformer 5 Amp
• Housing	DIN 43680	DIN	4 Modules
• Mounting	LN 607-5	35mm	DIN Rail
• Depth		mm	70
• Reference Standard	Active Energy Pulse Output	- -	EN 50470-1-3 EN 62053-31
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)	<9 (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
• Current I_{max}	Continuous	A	6
	Momentary (0.5s)	A	120
	Momentary (10ms)	A	-
Display (Readouts)			
• Connection Errors & Phase Out	Discriminable from Phase Sequence Indication	-	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	Units 2	Wh	0.01
• Display Import or Export (Arrow)	Overflow	-	99999999.9
• Transformer Primary Current		A	5 ... 10,000
• Display Period Refresh		S	1
Measuring Accuracy			
• Active Energy and Power	Acc. to EN 50470-3	Class 1	B
Measuring Input			
• Type of Connection			Transformer/5A
• Voltage Un	Phase/Phase	V	400
	Phase/N	V	230
• Operating Range Voltage	Phase/Phase	V	319 ... 480
	Phase/N	V	184 ... 276
• Current I_{ref}		A	-
• Current I_n		A	5
• Current I_{min}		A	0.05
• Operating Range Current (I_{st} ... I_{max})	Direct Connection	A	-
	Transformer Connection (CT)	A	0.003 ... 6
	Primary Current of the Transformer	A	5 ... 10,000
• Transformer Current	Smallest Input Step Adjust. in 5 A Steps	A	5
• Frequency		Hz	50
• Input Waveform		-	Sinusoidal
• Starting Current for Energy Measurement (I_{st})		mA	5
RS 485 Modbus Output (Default Setting)			
• Baud Rate	Editable Field		9600 (1200, 2400, 4800, 19200)
• Wire Mode			2 Wire
• Modbus Type	Editable Field		RTU (-247)
• Parity Type			Floating Point
• Data Format			High Word First
• FP Format			Autometers v.6
• Protocol			

Technical Data (Cont'd)

Optical Interfaces

• Front Side (Accuracy Control)	LED	mp/kWh	10,000
--	-----	--------	--------

Safety Acc. to EN50470-1

• Indoor Meter	-	-	Yes
• Degree of Pollution	-	-	2
• Operational Voltage	-	V	300
• AC Voltage Test (EN 50470-3, 7.2)	-	<V	4
• Impulse Voltage Test	-	1.2/50 μ s-kV	6
• Protection Class (EN 60470)	UL 94	Class	i
• Housing Material Flame Resistance	-	Class	V0
• Safety-sealing between upper and lower housing part	-	-	Yes

Connection Terminals

• Type Cage Main Current Paths	Screw Head Z-/A	POZIDRIV	PZ*
• 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 (4)
• Terminal Capacity Pulse Output	Stranded Wire with Sleeve Min. (Max.)	mm ²	1 (4)
	Solid Wire Min. (Max.)	mm ²	1 (4)
	Stranded Wire with Sleeve Min. (Max.)	mm ²	1 (4)

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	mm	±0.075	
• Degree Protection	50Hz Sinusoidal Vibration Amplitude	-	IP51(*) / IP20
	Housing when mounted in front (term.)	-	

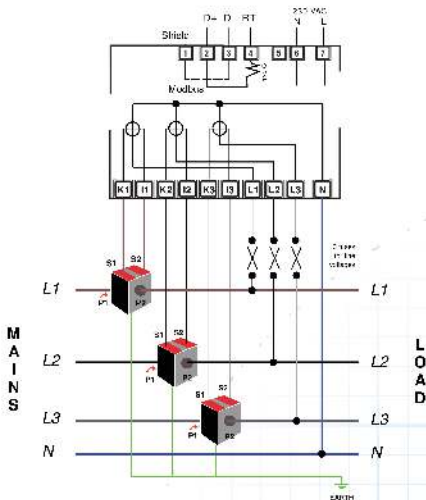
Circuit Diagrams

5 Amp CT Connection Diagram 230/400V, 50Hz

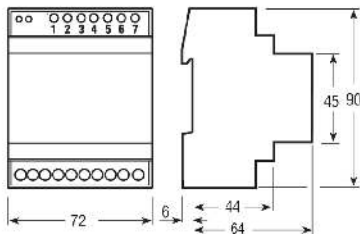
Terminals 1 and 2 (230V) are used only when you are using more than one tariff.

Terminals 6 & 7 (230V) are only used if you require 2 tariffs.

An external time switch will be required.



Dimensions



Modbus connections.

- D+ - TX- Terminal 2
- D- - TX- Terminal 3
- RT - Internal resistor

Please note for the last meter on the LAN add a link wire between terminal 3 and 4.

(* There is an internal resistor built into the meter.)

Display Registers

105672.83
L1 L2 L3 L2

Menu

Second Active Energy Page

894417.65
L1 L2 L3 L2

Menu

Third Active Energy Page

67065.13
L1 L2 L3 L1

Menu

Fourth Energy Page; In the second, third and fourth pages are represented the other.

27065.13
L1 L2 L3 L1

Menu

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.

888888.8.8
L1 L2 L3 L3

Menu

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

Menu

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

Menu

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

rEL 104

Menu

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

ch 6A2b

Menu

Autometers Systems Limited

4B Albany Road, Chorlton-cum-Hardy, Manchester, M21 0AW

Tel: +44 (0) 161 861 9056 Fax: +44 (0) 161 881 3745

www.autometers.co.uk Email: sales@autometers.co.uk

Product development is continuous and Autometers Systems Ltd reserves the right to make alterations and manufacture without notice. Products as delivered may therefore differ from the descriptions and illustrations in this publication.

Supplied by Autometers Systems Ltd, a quality assured company (ISO 9001)



Publication No: AD3-5MBIC2012