AUTOMETERS SYSTEMS

AD1-80MC
Energy Meters Single-Phase

Application

The energy-meters "with a green back-lighted LCD screen for perfect reading" are used to measure single-phase like in Residential, Utility and Industrial applications.

Monitoring of the energy-consumption goes via a S0 pulse output. The products can be set up to communicate with the Modbus RS485 Autometers Protocol V6 interface, used to analyze the energy-consumption to reduce the running cost to a minimum for Industrial plants and buildings like Offices, Hospitals, Universities etc.

Overview

Active energy-meters for single-phase alternating current with either 1, 7 digits digital counters.

These meters have 2 S0output generating pulses for remote processing of the energy active and reactive measurements for 2 tariff.

Function

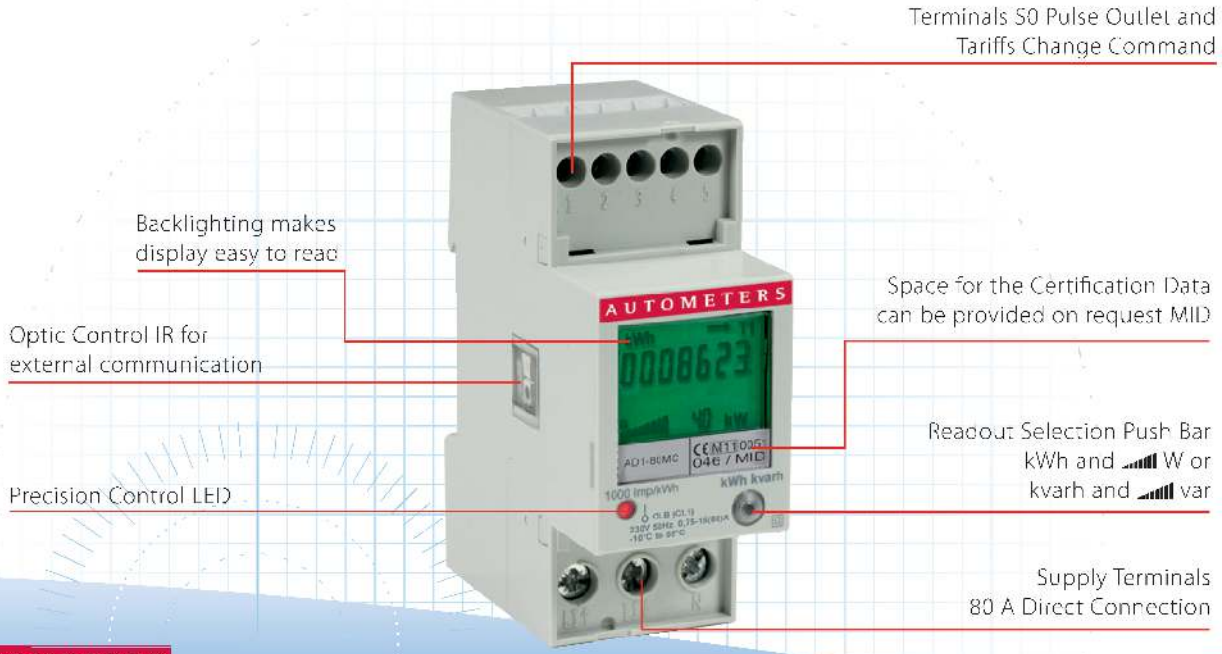
Display

		Unit	ID
Active Energy	Tariff 1	(M) (k) Wh	Energy absorbed or supplied
	Tariff 2	(M) (k) Wh	Energy absorbed or supplied
Reactive Energy	Tariff 1	(M) (k) varh	Energy absorbed or supplied
	Tariff 2	(M)-(k)-varh	Energy absorbed or supplied
Active Power		(M)-(k)-W	Utilisation and Instantaneous Value
Reactive Power		(M)-(k)-var	Utilisation and Instantaneous Value
Connection Errors			Phase Err

Communication Modules

Modbus RS485
Autometers Protocol V6

2 Standard Module Housing *Suitable for DIN Rail Mounting*
Direct Connected 80 A



AD1-80MC Energy Meters Single-Phase

Technical Data

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

			Direct Connection 80A
General Characteristics			
• Housing	DIN 43880	DIN	4 Modules
• Mounting	EN 60715	35mm	DIN Rail
• Depth		mm	70
• Reference Standard	Active Energy	-	EN 50470-1-3
	Reactive Energy - Pulse Output		EN 62053-23-31
Operating Features			
• 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 & 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 (0.5)
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	460
• Current ***Imax***	Continuous	A	80
	Momentary (0.5s)	A	-
	Momentary (10ms)	A	>400
Display (Readouts)			
• Connection Errors & Phase Out	Discernible from Phase Sequence Indic.	-	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	Wh	0.01
+ Display Import or Export (Arrow)	Overflow	MWh	999999.99
• Reactive Energy: 1 Display, 8 Digit	Tariffs 2	varh	0.01
1 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 Measurment	1 Display, 1 Digit		T1 or T2
• Transformer Primary Current		A	-
• Display Period Refresh		S	1
Measuring Accuracy			
• Active Energy and Power	Acc. to EN 50470-3	Class 1	1
• Reactive Energy and Power	Acc. to EN 62053 23	Class 2	2
Measuring Input			
• Type of Connection			Direct
• Voltage ***Un***	Phase/Phase	V	400
	Phase/N	V	230
• Operating Range Voltage	Phase/Phase	V	310 ... 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	-
• Transformer Current	Primary Current of the Transformer	A	-
	Smallest Input Step Adjus. in 5 A Steps	A	-
• Frequency		Hz	50
• Input Waveform		-	Sinusoidal
• Starting Current for Energy Measurment ***(Ist)***		mA	15
Pulse Ourput S0			
• Pulse Output	Acc. to EN 62053-31 for Act. and React. Energy T1 and T2		Yes
• Quantity Pulse Output	For Direct Connection 80A	Imp/kWh	500
	Depending on the Transf. Factor	Imp/kWh	-
• Pulse Duration		ms	30 +2ms
• Required Voltage	Min./(Max.)	VAC (DC)	5 ... 230 +5% (5...400)
• Permissible Current	Pulse ON (Max 230V AC/DC)	mA	90
• Permissible Current	Pulse OFF (Leak Curr. Max. 230V AC/DC)	uA	1

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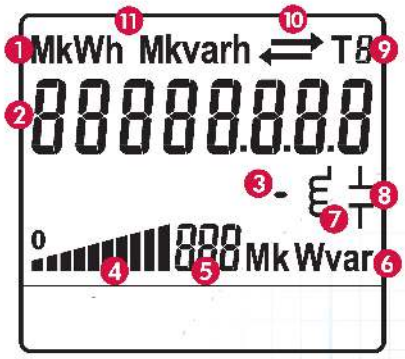
Technical Data (Cont'd)

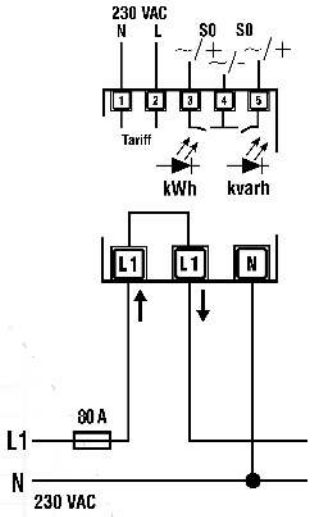
Optical Interfaces			
• Front Side ***(Accuracy Control)***	LED	imp/kWh	1000
Safety Acc. to EN50470-1			
• Indoor Meter			Yes
• Degree of Pollution		-	2
• Operational Voltage		V	300
• AC Voltage Test (EN 50470-3, 7.2)		kV	4
• Impulse Voltage Test		1.2/50 µs kV	6
• Protection Class (EN 50470)		Class	II
• Housing Material Flame Resistance	UL 94	Class	V0
• Safety-sealing between upper and lower housing part **(Mod. 282331-282141)**			Yes
Adapator for Communication			
• Plug and Play Technology			•
• LAN (TCP/IP) Interface	ethernet 802.3	-	10/100 Mbps
• Modbus RTU, ASCII Interface	RS-485 - 3 Wires	-	up to 19.200 bps
• M-Bus Interface	2 Wires	-	up to 9.600 bps
• DIB KNX Interface	EIB Standard		up to 9.600 bps
• SD-Card Datalogger		-	1 to 8 Gigabytes
Connection Terminals			
• Type Cage Main Current Paths	Screw Head Z 1/-	POZ DRIV	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 (35)
	Stranded Wire with Sleeve Min. (Max.)	mm²	1.5 (35)
• Terminal Capacity Pulse Output	Solid Wire Min. (Max.)	mm²	0.14 (2.5)
	Stranded Wire with Sleeve Min. (Max.)	mm²	0.14 (1.5)
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 Sinusodial Vibration Amplitude	mm	+0.075
• Degree Protection	Housing when mounted in front (term.)		IP51(*) / IP20

Display



1. (M)-(k)-Wh Display
2. Energy Value
3. Displays if Balance Energy is Negative
4. Consumption Bar Display (Percentage of ***Pmax***)
5. Running Active or Reactive Power Display
6. Power Unit
7. Displays Inductive and Reactive Power
8. Displays Capacitative and Reactive Power
9. Running Tariff
10. Power Import (absorbed -->) Power Export (supplied <--)
11. kvarh Display

Circuit Diagrams



Dimensions