



## M2M LV

### The measure of efficiency

# The value of flexibility

## Versatility in its different applications and completeness of functions

With the new front-panel M2M network analysers, ABB offers the solution for measuring and analysing electrical parameters for all low voltage distribution systems single-phase or three-phase with or without neutral.



# M2M LV

## Technical features

Auxiliary power supply		
Voltage range	[V]	From 24 to 240 V AC/DC
Frequency range	[Hz]	45 - 65
Protection fuse		T 0.5 A from 24 V to 100 V T 0.25 A from 100 V to 240 V
Power consumption		
	[VA]	7 max
Measurement type		
		Sampling TRMS
Measurement accuracy		
Voltage		±0.5% F.S. ±1 digit
Current		±0.5% F.S. ±1 digit
Frequency		40.0 - 99.9 Hz: ± 0.2% ± 0,1 100 - 500 Hz: ± 0.2% ± 1
Power factor		± 1% ± 1 digit (from $\cos\varphi=0.3$ Inductive to $\cos\varphi=0.3$ Capacitive)
Active power		± 1% ± 0.1% F.S (from $\cos\varphi=0.3$ Inductive to $\cos\varphi=0.3$ Capacitive)
Active energy		Class 1
Measurement range		
Voltage	[V]	From 10 to 500 approx. TRMS VL-N. No decimal places
Current		From 50 mA to 5 A TRMS 2 decimal places displayed
Frequency	[Hz]	From 40 to 500 1 decimal place displayed up to 99,9 and in integers above 100
Power factor		2 decimal places displayed
Installation		
Distribution networks		Low Voltage Only M2M LV, M2M LV MODBUS Single-phase connection Three-phase with neutral - Three-phase without neutral
Current inputs	[A]	Always use external CT Primary from 1 to 10,000 A AC approx. Secondary 5 A and 1 A AC approx. N.B.: in case of CT secondary at 1 A the accuracy class is reduced to 2.5% F.S. ±1 digit, in the range 5-100% F.S.
Voltage inputs	[V]	Direct insertion up to 500 AC approx.
Protection fuse for voltage inputs	[A]	0.1
Data update frequency		
		2 times/second

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## Technical features

<b>Harmonic distortion count</b>	[Hz]	Band measurement up to 500
<b>Energy measurement</b>		
Single-phase maximum value counted		10 GWh / GVarh / GVAh
Three-phase maximum value counted		30 GWh / GVarh / GVAh
Energy balance maximum value counted		10 GWh / GVarh / GVAh with sign
Input pulses maximum energy value counted		40 GWh / GVarh
<b>Terminal characteristics</b>		
Current inputs		Cross section 6 mm <sup>2</sup> - Step 6.35 mm
Voltage inputs		Cross section 2.5 mm <sup>2</sup> - Step 7.62 mm
Impulsive outputs		Cross section 2.5 mm <sup>2</sup> - Step 5.08 mm
RS485 Serial port		Cross section 2.5 mm <sup>2</sup> - Step 5.08 mm
Relay outputs		Cross section 2.5 mm <sup>2</sup> - Step 5.08 mm
<b>Overall dimensions</b>		96 mm x 96 mm x 77 mm (Depth inside switchboard: 57 mm)
<b>Weight</b>	[Kg]	0.400 max
<b>Standards</b>		
Overall dimensions		IEC 61554
Protection degree		IEC 60529
Accuracy class		IEC 60688, IEC 61326-1, IEC 62053-21 , IEC 62053-23, IEC 62053-31.
Electrical safety		IEC 61010-1
<b>User interface</b>		
Display		Scrolling text in user-selectable language
Display type		LCD with backlighting which can be set by user
Display dimensions	[mm]	72x57
<b>Communication interface</b>		
<b>RS485 LV MODBUS</b>		
- Protocol		Modbus RTU
- Electrical standard		RS485 with optical isolation
- Baud rate		4.8, 9.6, 19.2 kbps
- Parity number		Odd, Even, None
- Stop bit		1, 2
- Address		1-247
- Connectors		4-pole terminal (integrated 120 Ohm termination)

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## Technical features

### Digital output programmed as pulse

Contact supply external voltage	[V]	48 max (peak AC/DC)
Maximum current	[mA]	100 (peak AC/DC)
Pulse duration	[ms]	50 OFF (min) / 50 ON closed contact
Pulse frequency		10 pulses/s (max)

### Digital output programmed as alarm

Contact supply external voltage	[V]	48 max (peak AC/DC)
Maximum current	[mA]	100 (peak AC/DC)
Alarm activation delay	[s]	1 - 900 s (programmable)
Alarm return hysteresis		0 - 40% (programmable)

### Hour counters

Countdown timer		Countdown of system operating time with the activation of a programmable threshold on total current. Upon expiry of the maintenance period set an icon will appear on the display.
Count-up timer		Operational time of device

### Climatic conditions

Storage	[°C]	from -10 to +60
Operation	[°C]	from -5 to +55
Relative humidity		Max 93% (non-condensing) at 40°C

### Protection degree

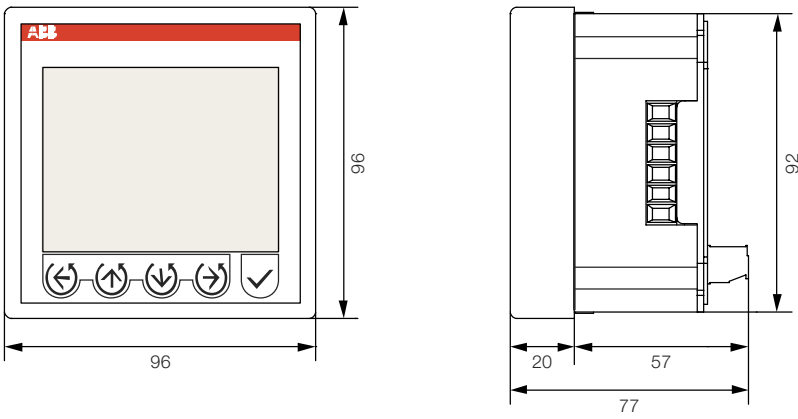
Frontal		IP50
At terminals		IP25

# M2M LV

## Order codes

Type	Description	Protocol	Serial port	ABB code	Bbn 8012542 EAN
M2M LV	2 digital outputs programmable as threshold alarms or pulses, suitable only for low voltage applications	-	-	2CSG299943R4052	999430
M2M LV MODBUS	2 digital outputs programmable as threshold alarms or pulses, suitable only for low voltage applications	Modbus RTU	RS485	2CSG296992R4052	969921

## Overall dimensions

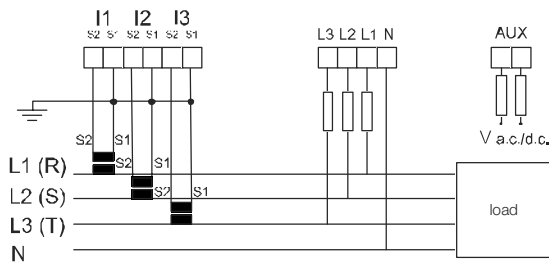


# M2M LV

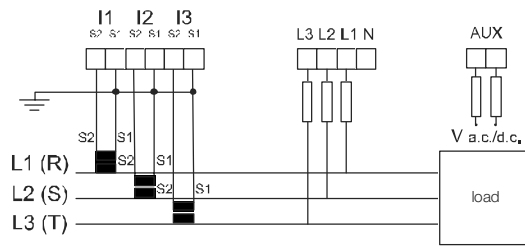
## Wiring diagrams

### Measurement input and auxiliary power supply connections

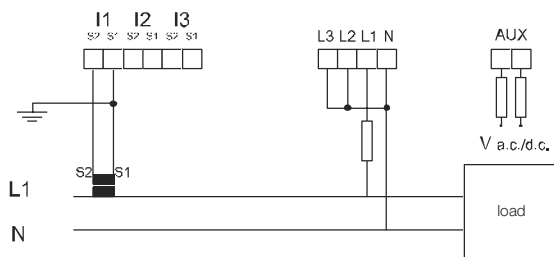
Three-phase + neutral with 3 CT



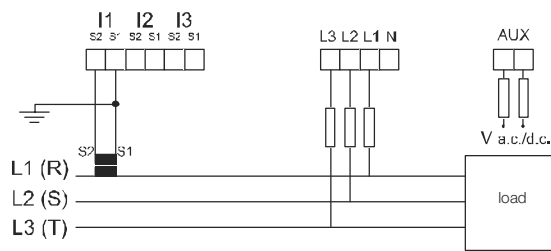
Three-phase with 3 CT



Single-phase with 1 CT

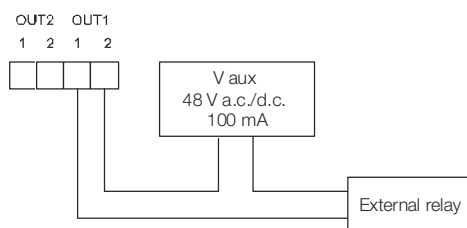


Balanced three-phase with 1 CT

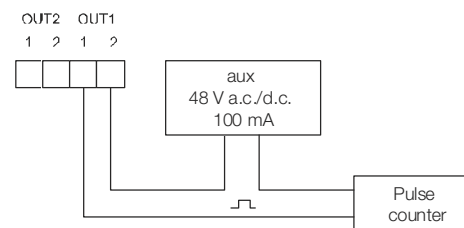


### Analogue and digital output connections, digital inputs

Digital outputs as alarms with external relay for control of loads



Digital outputs as pulses



# Contacts

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