Power meters M1M 15, M1M 20 and M1M 30

Measurement, made simple

M1M Power Meters

Introducing the new ABB multimeter and power meters ranges M1M 15, 20 and 30, an easy solution for any standard application in buildings and industry.

M1M 15, M1M 20 and M1M 30 are the new ABB ranges of multifunction meters and power meters, offering exactly what is needed to monitor the electrical system and analyze the power quality in a single device.

The new M1M power meters offer allows to easily and cost-effectively cover the main submetering and power quality monitoring requirements in commercial and industrial buildings, either small or mid/large-sized, e.g. inside power factor correction boards, motor control center or sub-distribution switchboards.

ABB's complete multimeters and network analyzers product line, now including M1M and M4M ranges, are capable to cover all needs, from basic electrical parameters measurement to advanced power quality analysis.
ABB's power meters are simple to use, with a common and intuitive user experience from installation to operations, allowing to fully exploit the reliable, IEC-compliant measurements.
Thanks to their connectivity capabilities, M1M and M4M can get leverage on the integration in ABB scalable energy and asset management solutions to monitor, optimize and control the complete electrical system, such as System pro M compact® InSite and ABB Ability™ Energy and Asset Manager cloud-computing platform.

Commercial Buildings

Industrial Plants

Public Buildings

Explore the new ranges

Three new different M1M product families, M1M 15, M1M 20 and M1M 30, have been commonly designed in order to perfectly fit in a scalable way any monitoring need, with high focus on intuitiveness, quality and common user experience. All M1M power meters are compliant to IEC 61557-12 power metering and monitoring devices (PMD) standard, ensuring reliability of all electrical parameters and power quality KPIs measurements.

M1M 15
M1M 15 is a complete multifunction meter for electrical system monitoring, mainly targeting measurement of basic electrical parameters and applications for cost allocation of energy consumptions.

M1M 20
M1M 20 is a power meter including THD and import/export (4 quadrants) measurement for basic power quality analysis applications such as power factor management and local energy generation monitoring.

M1M 30

M1M 30 is a power meter providing complete features in terms of power quality analysis such as measurement up to 40th harmonic and internal memory for datalogging, allowing to target e.g. demand management applications.

Measurement, made simple

The complete M1M range, offering all the measurement features required for basic power quality monitoring and submetering in a single power meter; making measurement simple.

Complete offer

ABB meters to cover all needs
Select in maximum 2 steps the right and most competitive power meter to cover all basic electrical system measurement needs. Thanks to integrated functionalities and communication protocols, the same product version fits an increased number of projects and wide applications range.

Easy to use

Common user experience
Common and intuitive menu structure all over the different ranges on clear and large backlit LED and LCD displays, helping to reduce the time needed to operate the power meters. Feedback on correct operations and quick reactivity on the system events are ensured by alarms icons and frontal LEDs on all product versions.

Easy to install

Optimized installation process
Compact power meters, ensuring a very limited footprint inside the panel, provide a common, vertical disposition of the terminals for easy wiring of cables directly from the sides. No special tool is required for product mounting thanks to mounting clips.

Energy Efficiency

Reliable and accurate measurement
Complete set of measurement functionalities, from multi-function meters to intermediate power meters, compliant with accuracy standard IEC 61557-12 to allow improving energy efficiency of the electrical system. Remote communication on main communication protocols, Modbus RTU and Modbus TCP/IP.

Your benefits

For distributors
- Reduce selection time of the correct product thanks to reduced range complexity
- Manage a limited number of order codes from a single supplier
- Save space needed for internal stock
- Have the product on stock when needed and reduce delivery time

For panel builders
- 1 supplier only for all measurement products covering wide range of projects
- Increase competitiveness in projects
- Reduce time needed for product selection thanks to simple range composition
- Reduce time for installation and operations
- Minimum space requirements in the panel

M1M 15, M1M 20 and M1M 30
Product overview

M1M 15

Bright display
Simple reading of the measurement data for all 3 phases on the wide LED display.

Easy navigation
LEDs on the sides to help during the navigation in the menu pages.

Common experience
Same intuitive menu structure all over the different M1M meters, with 4 pushbuttons keyboard for simplified access to the device.

Electrical system monitoring
Reliable electrical parameters measurement for basic applications compliant with IEC 61557-12, including voltage, current, frequency, power, energy.

Comfortable wiring
Vertical disposition of the removable terminals all over M1M range makes the cabling inside the switchboard easy to be completed.

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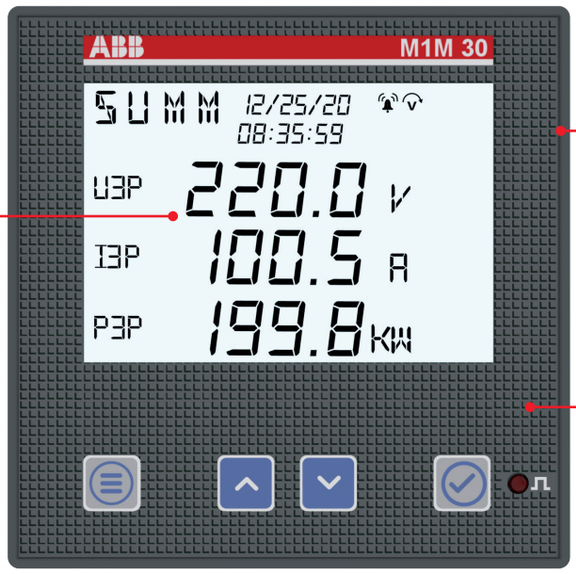
M1M 20, M1M 30

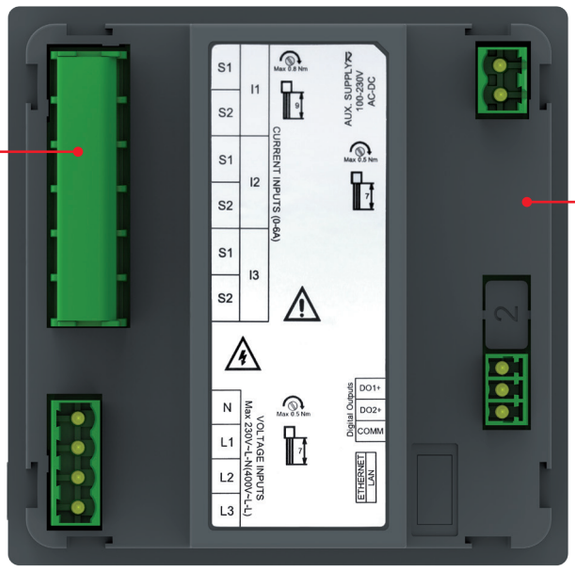
Intuitive visualization
Clear visualization of the measurements with self-guided menus on the bright backlit LCD displays.

Compact design
Only 65mm inside the switchboard to ensure optimized logistics and reduced footprint in the panel.



Manual-less configuration
Guided wizard for first commissioning helping to save time for the basic configuration.

Power quality measurement
Complete set of power quality features according to IEC 61557-12, including main KPIs and datalogger functionality on flash memory.



Remote measurement
Availability of Modbus RTU and Modbus TCP/IP communication protocols and I/O options for easy integration in any system.

M1M 15, M1M 20 and M1M 30
Technical features

	M1M 15	M1M 20	M1M 30
Auxiliary power supply			
Voltage	100-230 V AC/DC ±15%		
Frequency	50 - 60Hz		
Power Consumption	5VA max		
Installation category	CAT III 300V class per IEC 61010-1 edition 3		
Protection fuse	T1 A-277 VAC		

Measurement accuracy		
IEC 61557-12	IEC 61557-12 PMD/S/K55/1 (M1M 15, M1M 15 Modbus, M1M 20, M1M 20 Modbus, M1M 20 Ethernet, M1M 30 Modbus, M1M 30 Ethernet)	
	–	IEC 61557-12 PMD/S/K55/0.5 (M1M 20 I/O, M1M 30 I/O)
Active energy	IEC 61557-12 Class 1 (M1M 15, M1M 15 Modbus, M1M 20, M1M 20 Modbus, M1M 20 Ethernet, M1M 30 Modbus, M1M 30 Ethernet)	
	–	IEC 61557-12 Class 0.5 (M1M 20 I/O, M1M 30 I/O)
	–	IEC 62053-22 Class 0.5S (M1M 20 I/O, M1M 30 I/O)
Reactive energy	IEC 61557-12 Class 2	
Active power	IEC 61557-12 Class 1 IEC 61557-12 Class 0.5 (M1M 20 I/O, M1M 30 I/O)	
Reactive power	IEC 61557-12 Class 2	
Apparent power	IEC 61557-12 Class 1	
Voltage	IEC 61557-12 Class 1	IEC 61557-12 Class 0.5
Current	IEC 61557-12 Class 1	IEC 61557-12 Class 0.5
Frequency	IEC 61557-12 Class 0.1	
Unbalances	IEC 61557-12 Class 0.5	
Harmonics, THD (Current, voltage)	–	IEC 61557-12 Class 5

Voltage Measurement inputs	
Voltage Range	80-265 VAC(L-N)
Type	Single-phase, three-phase (3P, 3P+N)
Rated frequency	50/60 Hz
Protection fuse	T1 A-277 VAC

Current measurement inputs	
Current input mode	Indirect insertion with CT
Rated current at secondary side of CT	1A or 5A
Range without accuracy derating	50mA-6A

	M1M 15	M1M 20	M1M 30
I/O			
Digital Output			
Number of output channels	–	2 (M1M 20 I/O only)	2
Voltage	–	5-48VDC	
Current	–	2-100mA	
Digital Input			
Number of input channels	–	2 (M1M 20 I/O only)	2 (M1M 30 I/O only)
Voltage	–	24VDC	
Mechanical properties			
Overall Dimensions	96 mm x 96 mm x 85 mm		
IP degree of protection (IEC 60529)	Front: IP51		
	Terminals: IP20		
Max. weight	345g		
Climatic conditions			
Operating temperature	-5 to 55 °C (K55 IEC61557-12)		
Storage temperature	-25 to 70 °C (K55 IEC61557-12)		
Communication protocol			
Modbus RTU	**M1M 15 Modbus**	**M1M 20 Modbus, M1M 20 I/O**	**M1M 30 Modbus, M1M 30 I/O**
Communication interface	RS485 with optical isolation		
Baud rate	9.6, 19.2, 38.4, 57.6, 115.2 kbps		
Parity number	Odd (1 stop bit), Even (1 stop bit), None (1 or 2 stop bits)		
Address	1-247		
Connector	3 pole terminal		
Modbus TCP/IP	**–**	**M1M 20 Ethernet**	**M1M 30 Ethernet**
Protocol	–	Modbus TCP/IP	
Communication interface	–	RJ45	
Standards			
Power metering and monitoring devices (PMD)	IEC 61557-12		
EMC	IEC 61326-1		
Electrical safety	IEC 61010-1		

From M1M 15 to M4M 30
Range overview

		M1M 15
	Accuracy Class (active energy)	Class 1
	IEC 61557-12 PMD	PMD/S/K55/1
Measurement	Voltage measurement range	80-265VL-N
	Direct voltage measurement up to 690VL-L	
	Current measurement via CT (.../1A and .../5A)	■
	Current measurement via Rogowski coils	
	Samples per cycle	128
Real-time	TRMS current	■
	TRMS voltage	■
	Frequency	■
	Active, Reactive and Apparent power	■
	Power factor	■
	Timers	■
Energy	Active, Reactive and Apparent energy	■
	4 quadrants Energy (Import/Export)	
	Tariffs	
Power Quality	THD (I, VLN, VLL)	
	Individual Harmonics	
	Unbalances (I, VLN, VLL)	
	Neutral current	
	Phasors, Waveforms	
Data recording and logs	Single alarms / Complex alarms with logics	
	Warnings, alarms and errors	
	Min/Max/Demand values	
	Flash memory	
	Real Time Clock (RTC)	
HMI		**LED**
	Graphs visualization	
	Homepage and favourite page	
	Password protection	■
Connectivity	Modbus RTU	■
	Modbus TCP/IP	
	Profibus DP-V0	
	BACnet/IP	
	Automatic integration in System pro M compact® InSite	■
	Automatic integration in ABB Ability™ Energy and Asset Manager	
	Bluetooth Low Energy	
	Standard I/O	
	Additional I/O (I/O version)	

M1M 20	M1M 30	M4M 20	M4M 30
Class 1 Class 0,5S (M1M 20 I/O)	Class 1 Class 0,5S (M1M 30 I/O)	Class 0,5S	Class 0,5S
PMD/S/K55/1 PMD/S/K55/0,5 (M1M 20 I/O)	PMD/S/K55/1 PMD/S/K55/0,5 (M1M 30 I/O)	PMD/S/K70/0,5	PMD/S/K70/0,5
80-265VL-N	80-265VL-N	50-400VL-N	50-400VL-N
		■	■
■	■	■	■
		■	■
128	128	128	128
■	■	■	■
■	■	■	■
■	■	■	■
■	■	■	■
■	■	■	■
■	■	■	■
■	■	■	■
■	■	■	■
			■
■	■	■	■
	40th		40th
	■		■
Calculated	Calculated	Calculated	Measured
			■
15 / -	15 / -	25 / -	25 / 4
■	■	■	■
	Basic	Basic	Advanced
	1MB		32MB
	■		■
LCD	**LCD**	**Graphic color**	**Graphic color touchscreen**
		Basic	Advanced
		■	■
■	■	■	■
■	■	■	■
■	■	■	■ (2xRJ45 for daisy-chain)
		■	■
		■	■
■	■	■	■
		■	■
		■	■
	2 Digital Outputs	2 Digital Outputs	4 configurable I/O
2 Digital Inputs 2 Digital Outputs	2 Digital Inputs 2 Digital Outputs	2 Digital Outputs 2 Configurable I/O 2 Analogue Outputs	6 Configurable I/O 2 Analogue Outputs

M1M 15, M1M 20 and M1M 30
Ordering codes

M1M 15

M1M 15

Communication Protocol	I/O	Bbn	Order details		Weight 1 piece	Pack unit
		EAN 6941593	Type code	Order code	kg	pc.
-	-	406982	M1M 15	2TAZ661010R2000	0,310	1
Modbus RTU	-	406999	M1M 15 Modbus	2TAZ661012R2000	0,315	1

M1M 20

M1M 20

Communication Protocol	I/O	Bbn	Order details		Weight 1 piece	Pack unit
		EAN 6941593	Type code	Order code	kg	pc.
-	-	407002	M1M 20	2TAZ662010R2000	0,315	1
Modbus RTU	-	407019	M1M 20 Modbus	2TAZ662012R2000	0,320	1
Modbus TCP/IP	-	407026	M1M 20 Ethernet	2TAZ662014R2000	0,335	1
Modbus RTU	2 Digital Out. 2 Digital In.	407033	M1M 20 I/O	2TAZ662012R2001	0,330	1

M1M 30

M1M 30

Communication Protocol	I/O	Bbn	Order details		Weight 1 piece	Pack unit
		EAN 6941593	Type code	Order code	kg	pc.
Modbus RTU	2 Digital Out.	407040	M1M 30 Modbus	2TAZ663012R2000	0,325	1
Modbus TCP/IP	2 Digital Out.	407057	M1M 30 Ethernet	2TAZ663014R2000	0,345	1
Modbus RTU	2 Digital Out. 2 Digital In.	407064	M1M 30 I/O	2TAZ663012R2001	0,330	1

M1M 15, M1M 20 and M1M 30
Overall dimensions

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Same dimensions for all M1M 15, 20 and 30 versions

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All measurements in mm

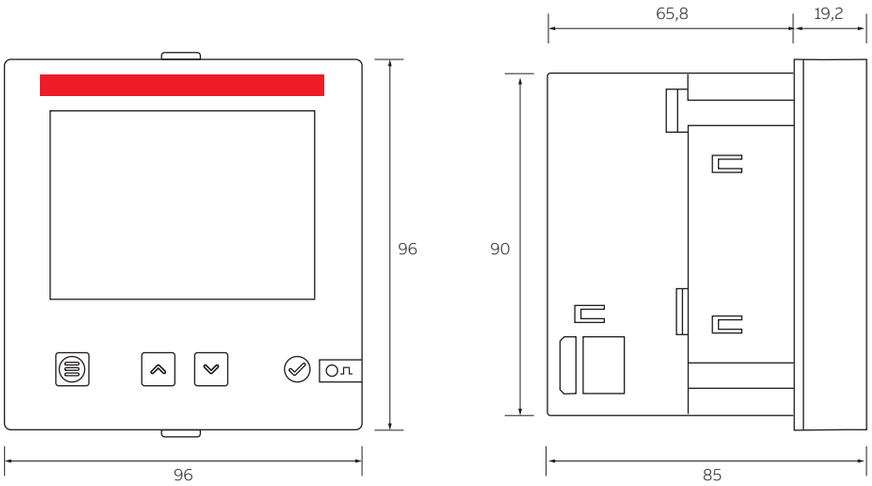

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ABB
Electrification Business Area
Smart Buildings Division

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