MP-FEA1

Energy Monitor Main Unit

*Please note that accessories depicted in the image are for illustrative purposes only and may not be included with the product.

Specifications

Model			MP-FEA1
Measurement specifications	Electrical service type		1-phase 2-wire, 1-phase 3-wire, 3-phase 3-wire, 3-phase 4-wire (switchable)
	Number of measurement circuits		1 (up to 2 circuits with the 1-phase 2-wire setting *1)
Input specifications	Primary-side rated current, In		When using specialized CT MP-FEC100: 100 A Or, general CT (secondary-side rated input current 1 A) *2 When using specialized CT MP-FEC250: 250 A Or, general CT (secondary-side rated input current 1 A) *2 When using specialized CT MP-FEC600: 600 A Or, general CT (secondary-side rated input current 1 A) *2 When using specialized CT MP-FEC50M: 50 A When using specialized CT MP-FEC100M: 100 A
	Over current withstand capability		1.2 times the primary-side rated current (can be applied consecutively), 10 times the primary-side rated current (for 1 second or less)
	Rated input voltage (direct input)	1-phase 2-wire	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: 100 to 277 VAC (L-N) · MP-FEC50M/MP-FEC100M in use: 100 to 240 VAC (L-N)
		1-phase 3-wire	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: 100 to 240 VAC (L-N), 200 to 480 VAC (L-L) · MP-FEC50M/MP-FEC100M in use: 100 to 240 VAC (L-N), 200 to 480 VAC (L-L)
		3-phase 3-wire	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: 173 to 480 VAC (L-L) · MP-FEC50M/MP-FEC100M in use: 173 to 240 VAC (L-L)
		3-phase 4-wire	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: 100 to 277 VAC (L-N), 173 to 480 VAC (L-L) · MP-FEC50M/MP-FEC100M in use: 100 to 240 VAC (L-N), 173 to 415 VAC (L-L)
	Maximum permissible voltage to earth		· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: 480 VAC to earth · MP-FEC50M/MP-FEC100M in use: 240 VAC to earth
	Input voltage fluctuation range		−15% to +15% of the rated input voltage
	Rated input frequency		50/60 Hz
Displayable range/ Display resolution (Main Unit)	Voltage		Display resolution 0.1 [V]
	Current		Display resolution 0.001 [A]
	Active power/reactive power/apparent power		-8942.400 to +8942.400 [kW/kvar/kVA], display resolution 0.001 [kW/kvar/kVA]
	Active energy/reactive energy/apparent energy		0.000 to 999999.999 [kWh/kvarh/kVAh], display resolution 0.001 [kWh/kvarh/kVAh]
	Power factor (PF)		-1.00 to 1.00, display resolution 0.01
	Frequency		0.0 to 90.0 [Hz], display resolution 0.1 [Hz]
Measurement accuracy	Voltage		±0.5% of RD (within rated input voltage) *3
	Current		· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: ±0.5% of RD (5% ≤ In ≤ 120%), ±1.0% of RD (1% ≤ In < 5%) *2 *3 · MP-FEC50M/MP-FEC100M in use: ±0.5% of F.S. *3

	Active energy	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: Compliant with IEC 62053-22 §7.9 table 3 class 0.5 *2 *3 Power factor 1: ±0.5% of RD (5% ≤ In ≤ 120%), ±1.0% of RD (1% ≤ In < 5%) Power factor 0.5 inductive: ±0.6% of RD (10% ≤ In ≤ 120%), ±1.0% of RD (2% ≤ In < 10%) Power factor 0.8 capacitive: ±0.6% of RD (10% ≤ In ≤ 120%), ±1.0% of RD (2% ≤ In < 10%) · MP-FEC50M/MP-FEC100M in use: ±1.0% of RD (1% ≤ In ≤ 120%) *3
	Reactive energy	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: Compliant with IEC 62053-23 §7.9 table 3 class 2 *2 *3 Reactive power factor 1: ±2.0% of RD (5% ≤ In ≤ 120%), ±2.5% of RD (1% ≤ In < 5%) Reactive power factor 0.5 inductive or capacitive: ±2.0% of RD (10% ≤ In ≤ 120%), ±2.5% of RD (5% ≤ In < 10%) Reactive power factor 0.25 inductive or capacitive: ±2.5% of RD (10% ≤ In ≤ 120%) · MP-FEC50M/MP-FEC100M in use: ±2.0% of RD (5% ≤ In ≤ 120%) *3
	Apparent energy	· MP-FEC100/MP-FEC250/MP-FEC600, or general CT in use: ±0.5% of RD (5% ≤ In ≤ 120%), ±1.0% of RD (1% ≤ In < 5%) *2 *3 · MP-FEC50M/MP-FEC100M in use: ±1.0% of RD (5% ≤ In ≤ 120%) *3 *4
	Effect of ambient temperature	±0.03%/K *3 *5
	Effect of harmonics	±0.5% of RD *3 *6
	Power factor (PF)	±0.01 *3
	Power	±0.1 [Hz] *3
Current consumption		36 mA
Withstand voltage		Across all terminals and housing: 2500 VAC for 1 minute Across voltage measurement terminal and communication terminal: 2500 VAC for 1 minute Across CT input terminal and communication terminal (When using a specialized CT): 2500 V for 1 minute
Insulation resistance		Across all terminals and housing: 20 MΩ min. (500 VDC) Across voltage measurement terminal and CT input terminal and across communication terminal: 20 MΩ min. (500 VDC)
Environmental resistance	Ambient temperature	-5 to +55°C 23 to 131°F (no freezing)
	Relative humidity	35%RH to 85%RH (no condensation)
	Measurement category	II
	Altitude	2500 m or less
	Pollution degree	2
	Mounting method	DIN rail mounting
	Vibration resistance	10 to 500 Hz, power spectral concentration: 0.033G²/Hz, XYZ axes
	Shock resistance	150 m/s², 2 times each for X, Y, and Z axes
Material		Polycarbonate
Weight		Approx. 110 g 3.88 oz

*1 When measuring two circuits, use a power supply with the same voltage and phase for the two circuits. Also, use CTs of the same model.
*2 Primary-side rated current: 1 to 2000 A, secondary-side rated input current: 1 A, nominal cross-sectional area: 0.2 mm² to 1.5 mm² 0.0003 in² to 0.0023 in². However, when a general CT is used, the requirements of the EU Directive(s) and CSA Certification are not met.
*3 This value assumes an ambient temperature of 23°C 73.4°F and the rated frequency. The accuracy of the CT is not included. Also, the display may be offset by an amount equal to the display resolution.
*4 Displays a guideline value when the total apparent energy is displayed with multiple energy monitors used.
*5 Excluding the time for warm up after starting communication and the temperature fluctuations attributable to measurement current fluctuations.
*6 Error when the second, third, fifth, seventh, ninth, eleventh, and thirteenth harmonics are superimposed on the base wave with current content of 30% and voltage content of 5%.

Dimensions

* Download CAD file or product manual for larger image/text and more detail.

MP-FEA1