

# Digital Panel Meter Features

RS485 MODBUS  
Communication  
(available in MFM,  
VAF and EM Series)

Pulse Output  
(24VDC, 100mA)

UL Listed



Faceplate;  
IP65 Protection Rating

7 Segment  
LED Display

Available Functions;  
Voltage, Current,  
Power, Energy,  
Frequency and  
Power Factor  
(true RMS values)

MFM374-C-CU sample meter.

Standard DIN sizes (1/4 DIN, 1/8 DIN and 1/16 DIN)

RS485 MODBUS  
Communication  
(available in MFM,  
VAF and EM Series)

Pulse Output  
(24VDC, 100mA)

Analog Bar Graph Indicator  
for Current Percentage

UL Listed



Faceplate;  
IP65 Protection Rating

Modern  
LCD Display

Available Functions;  
Voltage, Current,  
Power, Energy,  
Frequency and  
Power Factor  
(true RMS values)

MFM384-C-CU sample meter.

PART NUMBER	Supply Voltage		Phases		Functions						Display			Pulse Output	RS485 MODBUS Communication	PAGE
	110VAC	85-270VAC	1 Phase	3 Phase	Voltage	Current	Power Factor	Power	Frequency	Energy	LED	LCD	Bar Graph			
MFM384-C-CU		✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	6
MFM383A-CU		✓		✓	✓	✓	✓	✓	✓	✓		✓		✓		6
MFM379-CU		✓		✓	✓	✓	✓	✓	✓	✓	✓			✓		7
MFM074-C-CU		✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	7
VAF36A-110V-CU	✓			✓	✓	✓			✓			✓	✓			8
VAF36A-110V-CU	✓			✓	✓	✓			✓		✓					8
EM368-C-CU		✓		✓			✓	✓		✓		✓		✓	✓	9
MA12-110V-CU	✓		✓			✓					✓					10
MA12-50mV-DC-110V-CU	✓		✓			✓					✓					10
MA12-100mV-DC-110V-CU	✓		✓			✓					✓					10
MA501-110V-CU	✓		✓			✓						✓	✓			11
MA2301-110V-CU	✓			✓		✓						✓	✓			11
MV15-110V-CU	✓		✓		✓						✓					12
MV15-DC-20V-110V-CU	✓		✓		✓						✓					12
MV15-DC-200V-110V-CU	✓		✓		✓						✓					12
MV507-110V-CU	✓		✓		✓							✓	✓			13
MV2307-110V-CU	✓			✓	✓							✓	✓			13
MF16-110V-CU	✓		✓						✓		✓					14
MP14-110V-CU	✓		✓				✓				✓					14

DIGITAL PANEL METERS

# MFM Series (Multi-Function Meters)

## FEATURES

- Measurement Functions
  - 3 Ø Voltage (True RMS)
  - 3 Ø Current (True RMS)
  - 3 Ø Power Factor
  - 3 Ø Power (Active, Reactive, Apparent)
  - Energy (Active, Reactive, Apparent)
  - Frequency
- Programmable CT/ PT Primary/ Secondary
- RS485 Modbus RTU Communication
- Single Pulse Output



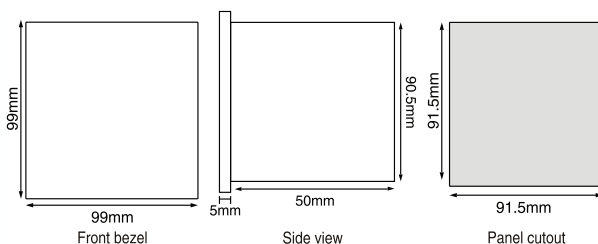
## CAT. NO.

## MFM384-C-CU

## MFM383A-CU

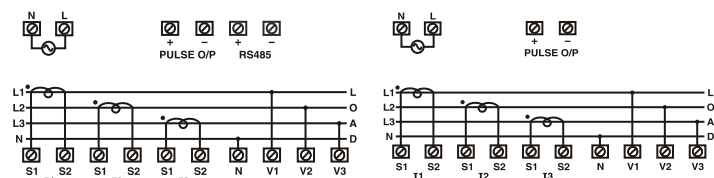
Display	MFM384-C-CU	MFM383A-CU
Display Type	LCD Display with backlight	LCD Display with backlight
Digits	4 rows of 4 digits 1 row of 8 digits for energy display	3 rows of 4 digits 1 row of 7.5 digits for energy display
Bargraph	Bargraph for current percentage	-
Display Scrolling	Automatic/ Manual	Automatic/ Manual
<b>Supply Specification</b>	85 ~ 270 VAC (50/ 60Hz)	85 ~ 270 VAC (50/ 60Hz)
<b>Input Specification</b>		
Electrical Wire System	3 Phase (3/4 wires), 2 Phase (3 wire), 1 Phase (2 wire)	3 Phase (3/4 wires), 2 Phase (3 wire), 1 Phase (2 wire)
Input Voltage Range	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)
Input Current Range	10mA ~ 5A (External CT required for current >5A)	10mA ~ 5A (External CT required for current >5A)
Frequency	45 ~ 65Hz	45 ~ 65Hz
<b>Parameter Resolution</b>		
Energy	0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M	0.01k, 0.1k, 1k depending on CT ratio x PT ratio
Power, Voltage, Current	Auto resolution	Auto resolution
Power Factor	0.001	0.001
<b>Accuracy Class</b>		
Voltage (L-N, L-L), Current	+/- 0.5% of Full-Scale Value	+/- 0.5% of Full-Scale Value
Power Factor	+/-1%	+/-1%
Frequency	0.1 Hz +/- 0.1 Hz	0.1 Hz +/- 0.1 Hz
Active, Reactive, Apparent Power	1%	1%
Active, Reactive, Apparent Energy	Class 1	Class 1
<b>Output Specifications</b>		
Pulse Output	1	1
Pulse Voltage	24 VDC max.	24 VDC max.
Pulse Current	100mA max.	100mA max.
Pulse Duration	100ms +/-5ms	100ms +/-5ms
<b>Communication</b>	RS485 MODBUS Communication	-
<b>Programmable Parameters</b>		
CT Primary	1A/ 5A ~ 10,000A (Programmable for any value)	1A/ 5A ~ 10,000A (Programmable for any value)
CT Secondary	1A/ 5A (External CT must be connected for current >5A)	1A/ 5A (External CT must be connected for current >5A)
PT Primary	100V ~ 500 kV (any value)	100V ~ 10 kV (any value)
PT Secondary	100V ~ 500 VAC (any value)	100V ~ 500 VAC (any value)
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/4 DIN, 96 mm x 96 mm	1/4 DIN, 96 mm x 96 mm
Weight	0.70 lbs (318g)	0.70 lbs (318g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



MFM Series

## TERMINAL CONNECTIONS



MFM384-C-CU

MFM383A-CU

## FEATURES

- Measurement Functions
  - 3 Ø Voltage (True RMS)
  - 3 Ø Current (True RMS)
  - 3 Ø Power Factor
  - 3 Ø Power (Active, Reactive, Apparent)
  - Energy (Active, Reactive, Apparent)
  - Frequency
- Programmable CT/ PT Primary/ Secondary
- RS485 Modbus RTU Communication
- Single Pulse Output



Please contact Altech for UL status.



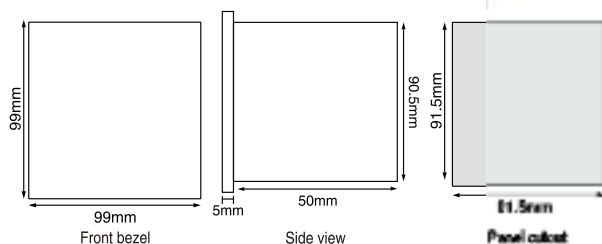
## CAT. NO.

### MFM374-C-CU

### MFM374-CU

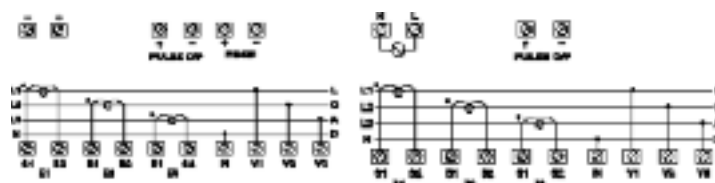
Display	MFM374-C-CU	MFM374-CU
Display Type	7 Segment LED Display	7 Segment LED Display
Digits	3 rows of 4 digits 8 digits for energy display	3 rows of 4 digits 8 digits for energy display
Bargraph	-	-
Display Scrolling	Automatic/ Manual	Automatic/ Manual
<b>Supply Specification</b>	85 ~ 270 VAC (50/ 60Hz)	85 ~ 270 VAC (50/ 60Hz)
<b>Input Specification</b>		
Electrical Wire System	3 Phase (3/4 wires), 2 Phase (3 wire), 1 Phase (2 wire)	3 Phase (3/4 wires), 2 Phase (3 wire), 1 Phase (2 wire)
Input Voltage Range	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)
Input Current Range	10mA ~ 5A (External CT required for current >5A)	10mA ~ 5A (External CT required for current >5A)
Frequency	45 ~ 65Hz	
<b>Parameter Resolution</b>		
Energy	0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M	0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M
Power, Voltage, Current	Auto resolution	Auto resolution
Power Factor	0.001	0.001
<b>Accuracy Class</b>		
Voltage (L-N, L-L), Current	+/- 0.5% of Full-Scale Value	+/- 0.5% of Full-Scale Value
Power Factor	+/-1%	+/-1%
Frequency	0.1 Hz	0.1 Hz
Active, Reactive, Apparent Power	1%	1%
Active, Reactive, Apparent Energy	Class 1	Class 1
<b>Output Specifications</b>		
Pulse Output	1	1
Pulse Voltage	24 VDC max.	24 VDC max.
Pulse Current	100mA max.	100mA max.
Pulse Duration	100ms +/-5ms	100ms +/-5ms
<b>Communication</b>	RS485 MODBUS Communication	-
<b>Programmable Parameters</b>		
CT Primary	1A/ 5A ~ 10,000A (Programmable for any value)	1A/ 5A ~ 10,000A (Programmable for any value)
CT Secondary	1A/ 5A (External CT must be connected for current >5A)	1A/ 5A (External CT must be connected for current >5A)
PT Primary	100V ~ 500 kV (any value)	100V ~ 10 kV (any value)
PT Secondary	100V ~ 500 VAC (any value)	100V ~ 500 VAC (any value)
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/4 DIN, 96 mm x 96 mm	1/4 DIN, 96 mm x 96 mm
Weight	0.71 lbs (320g)	0.71 lbs (320g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



MFM Series

## TERMINAL CONNECTIONS



MFM374-C-CU

MFM374A-CU

# VAF Series (Volt-Ampere-Frequency Meters)

## FEATURES

- Measurement Functions
  - 3 Ø Voltage (True RMS)
  - 3 Ø Current (True RMS)
  - Frequency
  - RPM
  - Run Hour
- Programmable CT Primary, PT Primary/Secondary



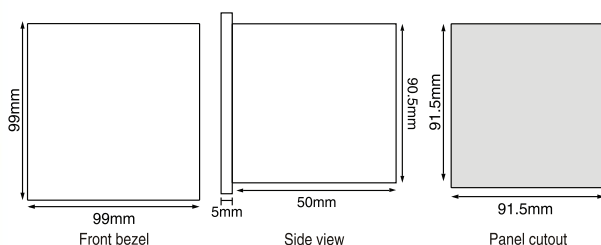
## CAT. NO.

## VAF36A-110V-CU

## VAF39A-110V-CU

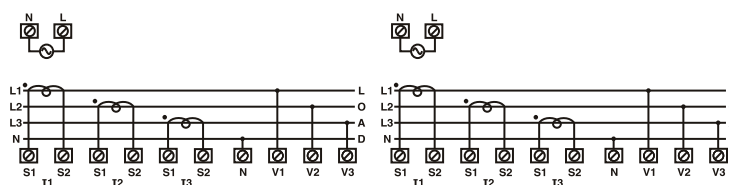
<b>Display</b>		
Display Type	LCD Display with backlight	7 Segment LED Display
Digits	3 rows of 3 digits	3 rows of 3 digits
Bargraph	Bargraph for current percentage	-
Display Scrolling	Automatic/ Manual	Automatic/ Manual
<b>Supply Specification</b>	110 VAC +/- 20% (50/60Hz)	110 VAC +/- 20% (50/60Hz)
<b>Input Specification</b>		
Electrical Wire System	3 Phase (3/4 wires)	3 Phase (3/4 wires)
Input Voltage Range	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)
Input Current Range	20mA ~ 6A (External CT required for current >5A)	20mA ~ 6A (External CT required for current >5A)
Frequency	45 ~ 65Hz	45 ~ 65Hz
<b>Parameter Resolution</b>		
Current	0.01, 0.1, 1 A/KA	0.01, 0.1, 1 A/KA
Voltage	0.1 V/KV	0.1 V/KV
RPM	0.1	0.1
Run Hour	0.1 hr (0~99999.9 hr)	0.1 hr (0~99999.9 hr)
<b>Accuracy Class</b>		
Voltage (L-N, L-L), Current	+/- 0.5% of Full-Scale Value, +/- 2 digits	+/- 0.5% of Full-Scale Value, +/- 2 digits
Average Voltage (L-N, L-L), Current	+/-0.5% of Full-Scale Value, +/- 2 digits	+/-0.5% of Full-Scale Value, +/- 2 digits
Frequency	0.1 Hz	0.1 Hz
RPM	+/- 0.5%	+/- 0.5%
Run Hour	+/- 1%	+/- 1%
<b>Output Specifications</b>		
Pulse Output	-	-
<b>Communication</b>		
	-	-
<b>Programmable Parameters</b>		
CT Primary	5A ~ 10,000A (Programmable for any value)	5A ~ 10,000A (Programmable for any value)
CT Secondary	5A fixed (External CT must be connected for current >5A)	5A fixed (External CT must be connected for current >5A)
PT Primary	100V ~ 500 kV (any value)	100V ~ 500 kV (any value)
PT Secondary	100V ~ 500 VAC (any value)	100V ~ 500 VAC (any value)
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/4 DIN, 96 mm x 96 mm	1/8 DIN, 48 mm x 96 mm
Weight	0.79 lbs (357g)	0.79 lbs (357g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



## VAF Series

## TERMINAL CONNECTIONS



## VAF36A-110V-CU

## VAF39A-110V-CU

## FEATURES

- Measurement Functions
  - **3 Ø Power (Active, Reactive, Apparent)**
  - **3 Ø Power Factor**
  - **Energy (Active, Reactive, Apparent)**
- Programmable CT Primary, PT Primary/Secondary
- RS485 Modbus RTU Communication
- Single Pulse Output

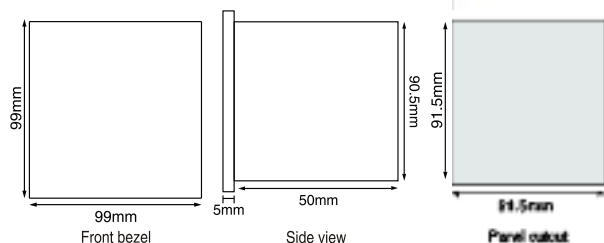


## CAT. NO.

**EM368-C-CU**

<b>Display</b>	
Display Type	LCD Display with backlight
Digits	8 digits
Bargraph	-
Display Scrolling	Automatic
<b>Supply Specification</b>	85 ~ 270 VAC (50/ 60Hz)
<b>Input Specification</b>	
Electrical Wire System	3 Phase (3/4 wires)
Input Voltage Range	11 ~ 300 VAC (Phase to Neutral) 19 ~ 519 VAC (Phase to Phase)
Input Current Range	10mA ~ 5A (External CT required for current >5A)
Frequency	45 ~ 65Hz
<b>Parameter Resolution</b>	
Energy	0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M, 10M
Power	Auto resolution
Power Factor	0.01
<b>Accuracy Class</b>	
Power Factor	+/-1%
Active, Reactive, Apparent Power	+/-1%
Active, Reactive, Apparent Energy	Class 1
<b>Output Specifications</b>	
Pulse Output	1
Pulse Voltage	24 VDC max.
Pulse Current	100mA max.
Pulse Duration	100ms +/-5ms
<b>Communication</b>	RS485 MODBUS Communication
<b>Programmable Parameters</b>	
CT Primary	1A/ 5A ~ 10,000A (Programmable for any value)
CT Secondary	1A/ 5A (External CT must be connected for current >5A)
PT Primary	100V ~ 500 kV (any value)
PT Secondary	100V ~ 500 VAC (any value)
<b>Environmental Specifications</b>	
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH
Protection Level	IP65 for Faceplate
<b>Physical Specifications</b>	
Size	1/4 DIN, 96 mm x 96 mm
Weight	0.69 lbs (312g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



**EM Series**

## TERMINAL CONNECTIONS



**EM368-C**

DIGITAL PANEL METERS

# MA12 Series (LED Ampere Meters)

## FEATURES

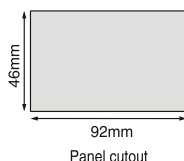
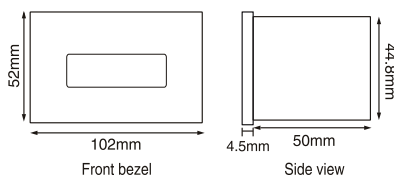
- Measurement Function
  - **1 Ø Current (True RMS)**
- Programmable CT Primary / Shunt Setting
- AC version (CT Type)
- DC version (Shunt Type, External Shunt (50mV/100mV) is required for measurement.)
- 4 Digit LED Display



## MA12-50mV-DC-110V-CU MA12-100mV-DC-110V-CU

CAT. NO.	MA12-110V-CU	MA12-50mV-DC-110V-CU MA12-100mV-DC-110V-CU
<b>Display</b>		
Display Type	7 segment LED display	7 segment LED display
Digits	4 digits	4 digits
Bargraph	-	-
Display Range	0 - 4960A	0 - 4960A
<b>Supply Specification</b>	110 VAC +/-20% (60Hz)	110 VAC +/-20% (60Hz)
<b>Input Specification</b>		
Electrical Wire System	1 Phase (2 wire)	1 Phase (2 wire)
Measurement Type	AC, CT Type (External CT required for current > 5A)	DC, Shunt Type (External shunt is required for current > 5A)
Shunt Size	-	<b>50mV (MA12-50mV)      100mV (MA12-100mV)</b>
Input Current Range	50mA ~ 5A (External CT required for current >5A)	50mA ~ 5A (External shunt required for current >5A)
Frequency Range	45 ~ 65Hz	45 ~ 65Hz
<b>Parameter Resolution</b>		
Current	0.001, 0.01, 0.1, 1A (depending on CT Primary)	0.001, 0.01, 0.1, 1A (depending on shunt setting)
Sampling Rate	3 samples / sec.	3 samples / sec.
<b>Accuracy Class</b>		
Current	+/- 0.5% of Full-Scale Value	+/- 0.5% of Full-Scale Value
<b>Output Specifications</b>		
Pulse Output	-	-
<b>Communication</b>		
	-	-
<b>Programmable Parameters</b>		
CT Primary / Shunt Setting	5, 10, 20, 30, 40, 50, 60, 75, 80, 100, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2500, 3000, 4000	5, 10, 20, 30, 40, 50, 60, 75, 80, 100, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2500, 3000, 4000
CT Secondary	5A fixed (External CT must be connected for current >5A)	-
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/8 DIN, 48 mm x 96 mm	1/8 DIN, 48 mm x 96 mm
Weight	0.37 lbs (170g)	0.37 lbs (170g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



MA12 Series

## TERMINAL CONNECTIONS



MA12-110V-CU (CT Type)



MA12-mV-DC-110V-CU (Shunt Type)

230 VAC versions also available, please consult Altech.

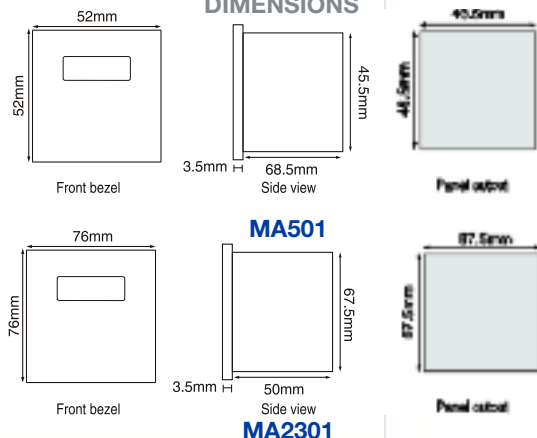
## FEATURES

- Measurement Functions
  - 1 Ø Current (True RMS)
  - 3 Ø Current (True RMS)
- Integrated selector switch for phase selection (MA2301)
- LCD Display with Backlight
- Bargraph Indicator

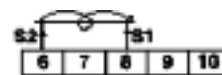


CAT. NO.	MA501-110V-CU	MA2301-110V-CU
<b>Display</b>		
Display Type	LCD display with backlight	LCD display with backlight
Digits	4 digits	4 digits
Bargraph	Analog bargraph indicator	Analog bargraph indicator
Display Range	0 ~ 6200A	0 ~ 6200A
Display Scrolling	-	manual phase selector switch
<b>Supply Specification</b>	110 VAC +/-20% (60Hz)	85 ~ 270 VAC (50/ 60Hz)
<b>Input Specification</b>		
Electrical Wire System	1 Phase (2 wire)	3 Phase/4 wire
Measurement Type	AC, CT Type (External CT required for current > 5A)	AC, CT Type (External CT required for current > 5A)
Input Current Range	50mA ~ 5A (External CT required for current >5A)	50mA ~ 5A (External CT required for current >5A)
Frequency Range	45 ~ 65Hz	45 ~ 65Hz
<b>Parameter Resolution</b>		
Current	0.001, 0.01, 0.1, 1A (depending on CT Primary)	0.001, 0.01, 0.1, 1A (depending on CT Primary)
Sampling Rate	3 samples / sec.	3 samples / sec.
<b>Accuracy Class</b>		
Current	+/- 0.5% of Full-Scale Value	+/- 0.5% of Full-Scale Value
<b>Output Specifications</b>		
Pulse Output	-	-
<b>Communication</b>		
	-	-
<b>Programmable Parameters</b>		
CT Primary	5, 10, 20, 30, 40, 50, 60, 75, 80, 100, 125, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2250, 2500, 3000, 4000, 5000	5, 10, 20, 30, 40, 50, 60, 75, 80, 100, 125, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2250, 2500, 3000, 4000, 5000
CT Secondary	5A fixed (External CT must be connected for current >5A)	5A fixed (External CT must be connected for current >5A)
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/16 DIN, 48 mm x 48mm	72 mm x 72 mm
Weight	0.25 lbs (113g)	0.40 lbs (163g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

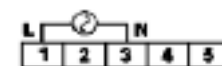
## DIMENSIONS



## TERMINAL CONNECTIONS



MA501-110V-CU



MA2301-110V-CU

230 VAC versions also available, please consult Altech.

DIGITAL PANEL METERS



# MV15 Series (LED Voltage Meters)

## FEATURES

- Measurement Function
  - 1 Ø Voltage (True RMS)
- 3 Digit LED Display



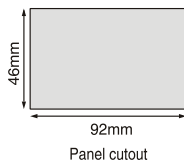
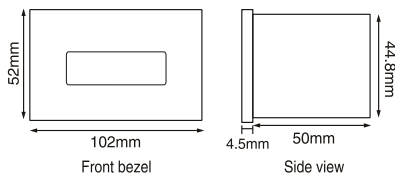
## CAT. NO.

## MV15-110V-CU

## MV15-DC-20V-110V-CU MV15-DC-200V-110V-CU

<b>Display</b>		
Display Type	7 segment LED Display	7 segment LED Display
Digits	3 digits	3 digits
Bargraph	—	—
Display Range	0 - 516V	0 - 516V
<b>Supply Specification</b>	110 VAC +/-20% (60Hz)	110 VAC +/-20% (60Hz)
<b>Input Specification</b>		
Electrical Wire System	1 Phase (2 wire)	1 Phase (2 wire)
Input Voltage Range	50 ~ 516 VAC	<b>0 ~ 20 VDC (MV15-20V) 0 ~ 200 VDC (MV15-200V)</b>
Frequency	50/60 Hz	50/60 Hz
Input Impedance	1 MΩ (+/-5%)	1 MΩ (+/-5%)
<b>Parameter Resolution</b>		
Voltage	1V	1V
Sample Rate	3 samples / sec.	3 samples / sec.
<b>Accuracy Class</b>		
Voltage	+/- 0.5% of Full-Scale Value	+/- 0.5% of Full-Scale Value
<b>Output Specifications</b>		
Pulse Output	—	—
<b>Communication</b>	—	—
<b>Programmable Parameters</b>	—	—
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/8 DIN, 48 mmx 96 mm	1/8 DIN, 48 mmx 96 mm
Weight	0.38 lbs (170g)	0.38 lbs (170g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



MV15 Series

## TERMINAL CONNECTIONS



MV15-110V-CU (AC Type)



MV15-DC-20V-110V-CU (DC Type)  
MV15-DC-200V-110V-CU (DC Type)

230 VAC versions also available, please consult Altech.

## FEATURES

- Measurement Functions
  - 1 Ø Voltage (True RMS)
  - 3 Ø Voltage (True RMS)
- Integrated selection switch for Phase Selection (MV2307)
- LCD Display with Backlight
- Bargraph Indicator



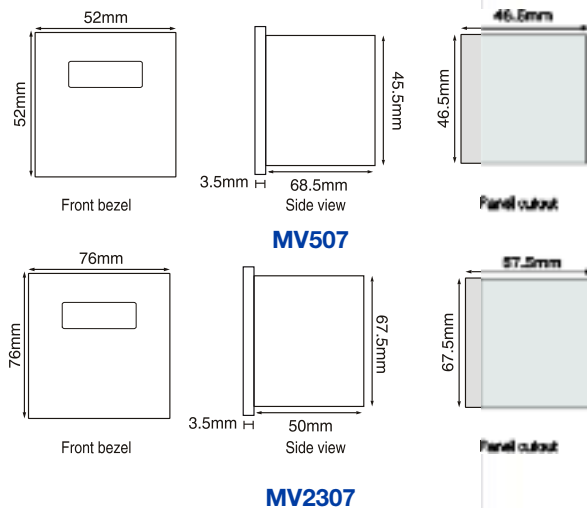
## CAT. NO.

## MV507-110V-CU

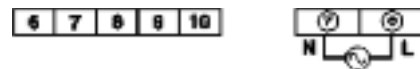
## MV2307-110V-CU

Display	MV507-110V-CU	MV2307-110V-CU
Display Type	LCD display with backlight	LCD display with backlight
Digits	3 digits	3 digits
Bargraph	Analog style bargraph indicator	Analog style bargraph indicator
Display Range	0 - 516V	0 - 516V
Display Scrolling	-	manual phase selector switch
<b>Supply Specification</b>	110 VAC +/-20% (60Hz)	110 VAC +/-20% (60Hz)
<b>Input Specification</b>		
Electrical Wire System	1 Phase (2 wire)	3 Phase/4 wire
Input Voltage Range	50 ~ 516 VAC	50 ~ 516 VAC
Frequency	60 Hz	60 Hz
Input Impedance	1 MΩ (+/-5%)	1 MΩ (+/-5%)
<b>Parameter Resolution</b>		
Voltage	1V	1V
Sample Rate	3 samples / sec.	3 samples / sec.
Run Hour		
<b>Accuracy Class</b>		
Voltage	+/- 0.5% of Full-Scale Value	+/- 0.5% of Full-Scale Value
<b>Output Specifications</b>		
Pulse Output	-	-
<b>Communication</b>		
	-	-
<b>Programmable Parameters</b>		
	-	-
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/16 DIN, 48 mm x 48mm	72 mm x 72 mm
Weight	0.36 lbs (165g)	0.43 lbs (194g), 0.45 lbs (206g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS



## TERMINAL CONNECTIONS



MV507



MV2307

230 VAC versions also available, please consult Altech.

# MF16 Series (Frequency Meter) - MP14 Series (Power Factor Meter)

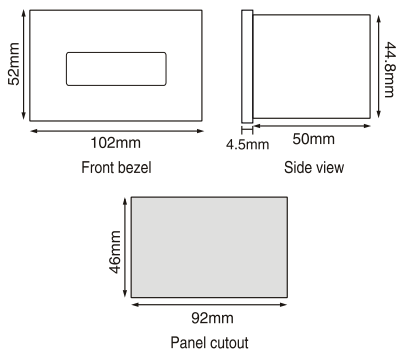
## FEATURES

- Measurement Function
  - **Frequency (MF16)**
  - **Power Factor (MP16)**
- 4 Digit LED Display



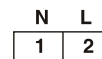
CAT. NO.	MF16-110V-CU	MP14-110V-CU
<b>Display</b>		
Display Type	7 segment LED Display	7 segment LED Display
Digits	4 digits	4 digits
Bargraph	-	-
Display Range	45.00 ~ 65.00 Hz	-1.000 ~ +1.000
<b>Supply Specification</b>	110 VAC +/- 20% (60Hz)	110 VAC +/- 20% (60Hz)
<b>Input Specification</b>		
Electrical Wire System	1 Phase (2 wire)	1 Phase (2 wire)
Input Current Range	-	0.25 ~ 6A
Frequency Range	45 ~ 65 Hz	50/60Hz
<b>Parameter Resolution</b>		
Frequency	0.01 Hz	-
Power Factor	-	0.001
<b>Accuracy Class</b>		
Frequency	+/- 0.05Hz	-
Power Factor	-	+/- 0.05% +/- 2 digits
<b>Output Specifications</b>		
Pulse Output	-	-
<b>Communication</b>	-	-
<b>Programmable Parameters</b>	-	-
<b>Environmental Specifications</b>		
Temperature	Operating: -10°C~55°C, Storage: -20°C~ 75°C	Operating: -10°C~55°C, Storage: -20°C~ 75°C
Humidity	Up to 85% RH	Up to 85% RH
Protection Level	IP65 for Faceplate	IP65 for Faceplate
<b>Physical Specifications</b>		
Size	1/8 DIN, 48 mmx 96 mm	1/8 DIN, 48 mmx 96 mm
Weight	0.37 lbs (170g)	0.37 lbs (170g)
Terminal Size Acceptability and Torque	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)	20-14 AWG (0.5 - 2.5mm <sup>2</sup> ), 6-7 lb-in. (0.68 - 0.79Nm)

## DIMENSIONS

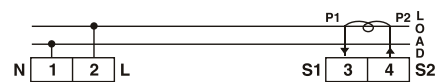


MF / MP Series

## TERMINAL CONNECTIONS



MF16-110V-CU



MP14-110V-CU

230 VAC versions also available, please consult Altech.