



**Models Available**

- FPM482W** DIN48x24 Digital Wattmeter
- FPM964W** DIN96x48 Digital Wattmeter

- FPM482V** DIN48x24 Digital Varmeter
- FPM964V** DIN96x48 Digital Varmeter

**Product Features**

- Active Power (Watts) or Reactive Power (Vars)
- 3½ digit red LED display
- Available in two standard DIN sizes
- Easy to wire screw type terminals

For dimensions see page 7

## Wattmeters & Varmeters

Digital Wattmeters and Varmeters are available in two DIN sizes, 48x24mm and 96x48mm, for the measurement of active power (Watts) or reactive power (Vars). The meters are panel mounting and are connected to a separate DIN rail mounted converter unit and calibrated as a complete unit to individual requirements.

All digital Wattmeters and Varmeters can be powered by a large selection of self contained AC or DC auxiliary power supplies, which all offer isolation between the measured input signal and auxiliary supply voltage. The converter unit has finger-proof terminal covers.

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**Notes:**

- Ensure that current transformers are mounted such that K faces the supply and L faces the load.
- Secondary windings of the current transformers should be earthed.
- No isolation is provided between input AC voltage and DC output on converter unit.

## Digital Wattmeters & Varmeters - for measurement of active or reactive power

**Specification**

**Accuracy:**

- Class 1.0 ( $\pm 1.0\%$  max. error)

**Input Current,  $I_n$ :**

- 0-0.2A to 0-10A direct connected
- 1A or 5A CT operated

**Input Voltage,  $U_n$ :**

- 110, 230 or 415V (-15% to +10%)
- (50 to 600V upon request)

**Frequency:**

- 50/60Hz

**Scales:**

- 0-1.000 to 0-1999 W/Var, kW/kVar or MW/MVar

**Overload:**

- 1.2 x  $I_n$  or  $U_n$  for 2 hours
- 6 x  $I_n$  for 5 seconds

**Burden:**

- Voltage circuit < 2VA per phase
- Current circuit < 1VA per phase

**Response Time:**

- < 1 second

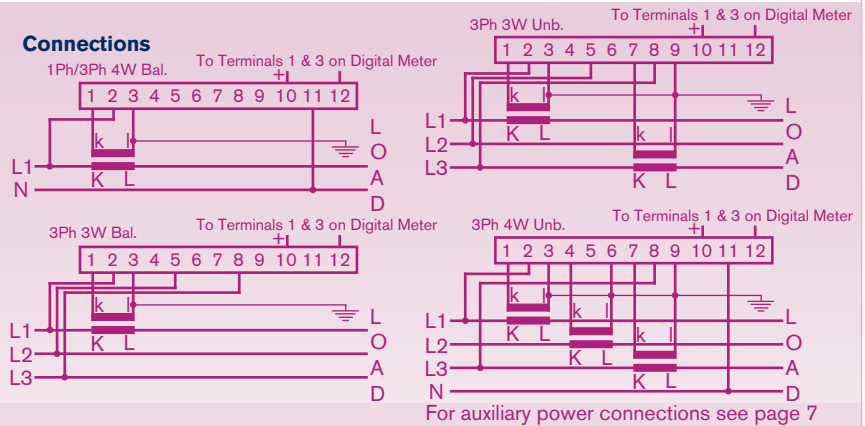
**Weight:**

- DIN48x24 90g, DIN96x48 380g
- Converter Unit 200g

**Converter Unit Enclosure:**

- 55mm wide grey ABS
- Case IP40, terminals IP20
- Fixes to 35mm DIN rail (DIN-EN 50022)

**Connections**



**Ordering information**

Code	DIN Size & Meter Type	Input & Scaling	Auxiliary
FPM482W	48 x 24mm Digital Wattmeter	-	-
FPM964W	96 x 48mm Digital Wattmeter	-	-
FPM482V	48 x 24mm Digital Varmeter	-	-
FPM964V	96 x 48mm Digital Varmeter	-	-
/1	Single Phase	-	-
/2	3 Phase 3 Wire Balanced	-	-
/3	3 Phase 3 Wire Unbalanced	-	-
/4	3 Phase 4 Wire Balanced	-	-
/5	3 Phase 4 Wire Unbalanced	-	-
Specify	-	Voltage (L-N or L-L), Current (CT Ratio) and/or Full Scale Watts/Vars	-
110/230Vac	-	110/230Vac Dual Auxiliary (96x48mm only)	-
Specify	-	12, 24, 48, 110, 230Vac	-
415Vac	-	415Vac (96x48mm only)	-
10-60Vdc	-	10-60Vdc (96x48mm only)	-
Specify	-	12, 24 or 48Vdc (48x24mm only)	-
<b>Example</b>	<b>FPM964W/5</b>	<b>230VL-N, 100/5A</b>	<b>10-60Vdc</b>

# General Specification

## Environmental

Operating Temperature: 0°C to 60°C (Calibration temperature 23°C)  
 Storage Temperature: -10°C to 70°C  
 Temperature Coefficient: < 100ppm/ °C  
 Relative Humidity: 0 - 85% non-condensing  
 Warm Up Time: 1 minute

## Display

Digit & Display: 3½ digit (1999) red LED (cosØ meter 3 digit)  
 Digit Height: 10.2mm high (FPM482), 14.2mm high (FPM964)  
 Decimal Point: Internally selectable  
 Sampling Time: Approx 0.4 sec (FPM482), 1 sec (FPM964)  
 Over Input Indication: '1'  
 Polarity: Automatic with (-) indicating negative inputs  
 Measuring Mode: Dual slope  
 Input Mode: Floating  
 Noise Elimination Ratio: CMRR over 86dB 50/60Hz

## Enclosure

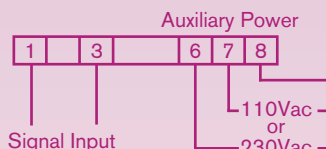
Enclosure: Flame retardant black ABS plastic case  
 Enclosure Code: Case IP54 (IP65 with gasket optional) to IEC529  
 Insulation Test: 2kV rms 50Hz 1min input/auxiliary (to IEC 414)  
 2kV rms 50Hz 1min terminals/case (FPM482)  
 4kV rms 50Hz 1min terminals/case (FPM964)  
 Markings: CE marked

Specification subject to change without notice.

## Auxiliary Power Connections

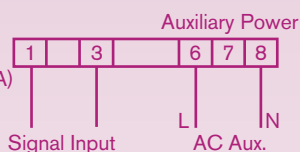
### FPM964 Standard Dual AC Auxiliary Supply

110/230Vac ±20% (Burden < 3VA)



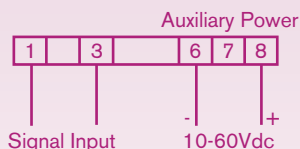
### FPM964 Non Standard AC Auxiliary Supply

12Vac, 24Vac, 48Vac, 110Vac, 230Vac ±20% (Burden < 3VA)



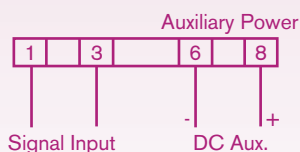
### FPM482 Standard AC Auxiliary Supply

12Vac (±10%)  
 24Vac, 48Vac, 110Vac, 230Vac ±20% (Burden < 3VA)



### FPM964 DC Auxiliary Supply

10-60Vdc (Burden < 2W)

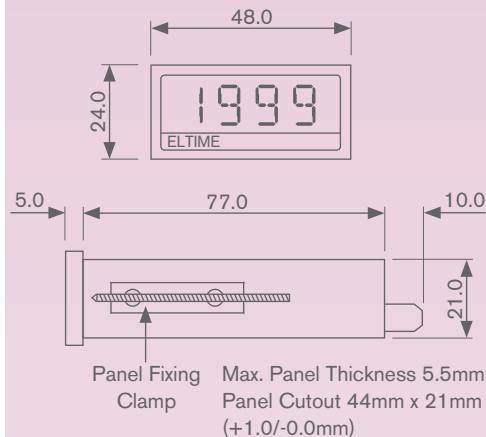


### FPM482 DC Auxiliary Supply

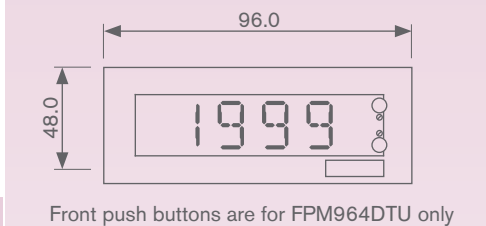
12Vdc (±10%), 24Vdc, 48Vdc ±20% (Burden < 2W)

## Dimensions

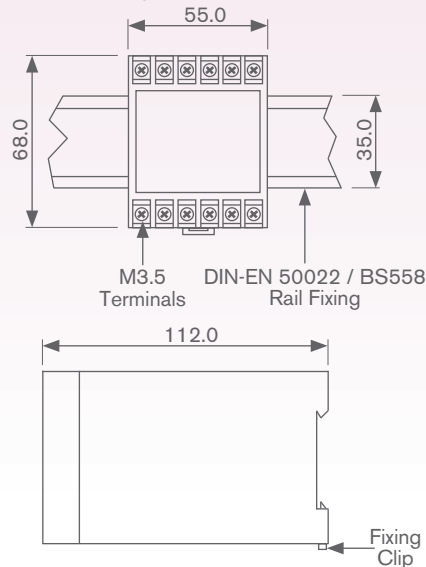
### FPM482 Enclosure



### FPM964 Enclosure



### Watt/Var/CosØ Converter Unit and DTU Relay Unit Enclosure



All dimensions in mm