

Digital Metering



Global Suppliers of Measurement and Protection Equipment for Industry





DC Ammeters & Voltmeters

Models Available

FPM482DCA DIN48x24 DC Ammeter

FPM964DCA DIN96x48 DC Ammeter

FPM482DCV DIN48x24 DC Voltmeter

FPM964DCV DIN96x48 DC Voltmeter

Product Features

- 3½ digit red LED display
- Available in two standard DIN sizes
- User adjustable scale and decimal point
- 4-20mA process monitor available
- Easy to wire screw type terminals

For dimensions see page 33

DC digital ammeters and voltmeters are available in two DIN sizes, 48x24mm and 96x48mm, both featuring a 3½ digit red LED display. The meters are panel mounting and offer a wide choice of input and display options making them suitable for a large range of industrial applications.

All DC digital panel meters 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.

All DC digital panel meters are delivered fully calibrated, however adjustments to zero and span points can be made (see calibration data sheets). Optional terminal protection covers are also available.

For digital measurement of DC current, DC voltage and process signals

Specification

Accuracy:

- 0.1% ± 1 digit

Input Current, I_n :

- 0-100mA to 0-10A direct connected
- DIN48x24 0-5A maximum direct
- > 10A use shunt and mV voltmeter
- 4-20mA process signal

Input Voltage, U_n :

- 0-20mV to 0-800V direct connected
- DIN48x24 0-600V maximum
- 0-5V, 0-10V, 1-5V, 2-10V process signal

Overload:

- 2 x I_n or 1.2 x U_n continuous
- 10 x I_n or 2 x U_n for 5 seconds

Ammeter Voltage Drop:

- 20mV (direct connected)

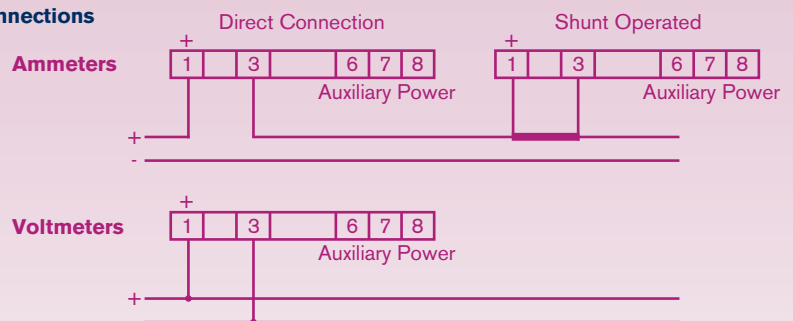
Impedance:

- Voltmeter 10kohm/Volt
- DIN48x24 4-20mA: 50ohms
- DIN96x48 4-20mA: 1ohm

Weight:

- DIN48x24 90g, DIN96x48 380g

Connections



For auxiliary power connections see page 33

Ordering information

Code	DIN Size & Meter Type	Input & Scaling	Auxiliary
FPM482DCA	48 x 24mm DC Ammeter	-	-
FPM964DCA	96 x 48mm DC Ammeter	-	-
FPM482DCV	48 x 24mm DC Voltmeter	-	-
FPM964DCV	96 x 48mm DC Voltmeter	-	-
Specify	-	0-100mA to 0-10A direct (DIN48x24 - 5A max.)	
Specify	-	> 10A use shunt & 50, 60, 75mV Voltmeter	
Specify	-	4-20mA (scaled as required)	-
Specify	-	0-20mV to 0-800V (DIN48x24 - 600V max.)	
110/230Vac	-	110/230Vac Dual Auxiliary (DIN96x48 only)	
Specify	-	12, 24, 48, 110, 230Vac	
415Vac	-	415Vac (96x48mm only)	
10-60Vdc	-	10-60Vdc (96x48mm only)	
Specify	-	12, 24 or 48Vdc (48x24mm only)	
Example	FPM482DCV	0-10Vdc / 0-100.0%	24Vdc

AC Ammeters, Voltmeters & Frequency Meters

AC digital ammeters and voltmeters are available in two DIN sizes, 48x24mm and 96x48mm, and a digital frequency meter is available in the larger size, all featuring a 3½ digit red LED display. The meters are panel mounting and offer a wide choice of input and display options making them suitable for a large range of industrial applications.

All AC digital panel meters 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.

All AC digital panel meters are delivered fully calibrated, however adjustments to zero and span points can be made (see calibration data sheets). Optional terminal protection covers are also available.



Models Available

FPM482ACA DIN48x24 AC Ammeter

FPM964ACA DIN96x48 AC Ammeter

FPM482ACV DIN48x24 AC Voltmeter

FPM964ACV DIN96x48 AC Voltmeter

FPM964F DIN96x48 Frequency meter

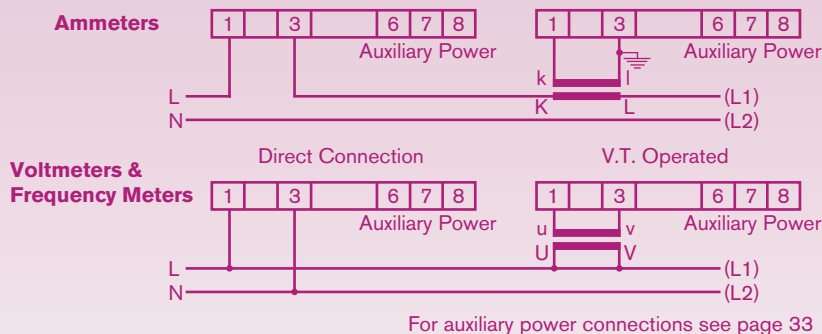
Product Features

- 3½ digit red LED display
- Available in two standard DIN sizes
- User adjustable scale and decimal point
- Easy to wire screw type terminals

For dimensions see page 33

For digital measurement of AC current, AC voltage and frequency signals

Connections



Ordering information

Code	DIN Size & Meter Type	Input & Scaling	Auxiliary
FPM482ACA	48 x 24mm AC Ammeter	—	—
FPM964ACA	96 x 48mm AC Ammeter	—	—
FPM482ACV	48 x 24mm AC Voltmeter	—	—
FPM964ACV	96 x 48mm AC Voltmeter	—	—
FPM964F	96 x 48mm Frequency meter	—	—
Specify	—	0-100mA~ to 0-10A~ direct (48x24mm - 5A~ max.)	
Specify	—	1A or 5A from a CT (scaled as required)	
Specify	—	0-20mV~ to 0-800V~ (48x24mm - 600V~ max.)	
Specify	—	0-199.9Hz or 0-1999Hz @ 30-600Vac (FPM964F)	
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)	
Example	FPM964ACA	800/5A	110/230Vac

Specification

Accuracy:

- DIN48x24 0.1% ± 1digit
- DIN96x48 0.25% ± 1digit

Input Current, I_n :

- 0-100mA~ to 0-10A~ direct connected
- DIN48x24 0-5A~ maximum direct
- 1A or 5A CT operated

Input Voltage, U_n :

- 0-20mV~ to 0-800V~ direct connected
- DIN48x24 0-600V~ maximum

Overload:

- 2 x I_n or 1.2 x U_n continuous
- 10 x I_n or 2 x U_n for 5 seconds

Ammeter Burden:

- DIN48x24 1A: 0.2VA, 5A: 1VA
- DIN96x48 1A: 1VA, 5A: 0.5VA

Voltmeter Impedance:

- 10kohm/Volt (DIN48x24)
- 1kohm/Volt (DIN96x48)

Weight:

- DIN48x24 90g, DIN96x48 400g



Wattmeters & Varmeters

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 33

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.

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

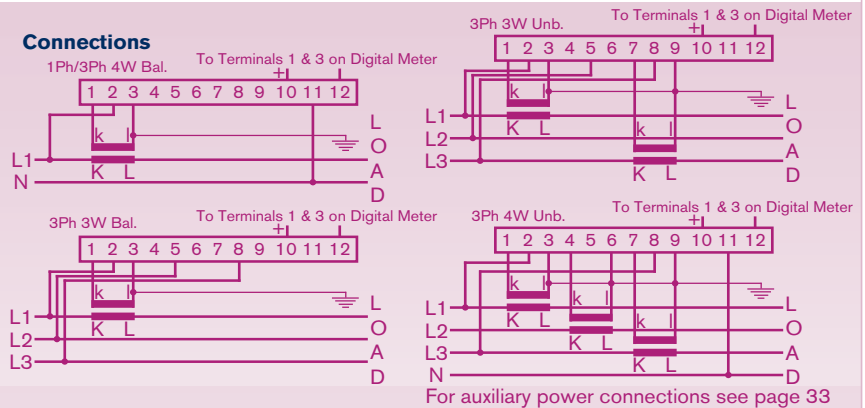
Weight:

- 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)	-
Example	FPM964W/5	230VL-N, 100/5A	10-60Vdc