



Models Available

- FE48PF1** DIN48 1ph/3ph4w cosØ Meter
 - FE72PF1** DIN72 1ph/3ph4w cosØ Meter
 - FE48PF3** DIN48 3ph3w cosØ Meter
 - FE72PF3** DIN72 3ph3w cosØ Meter
- (all above are complete with a converter unit)

- FE96PF1** DIN96 1ph/3ph4w cosØ Meter
 - FE96PF3** DIN96 3ph3w cosØ Meter
- (both above are self contained)

Product Features

- Power factor (cosØ) measurement
- Standard DIN square sizes
- Many options available (see page 16)

For dimensions see pages 17-18

Power Factor (cosØ) Meters

Power factor meters are suitable for the measurement of power factor (cosØ). DIN96 meters are self contained whilst all smaller units are connected to a separate converter unit and calibrated as a complete unit to individual requirements. The converter unit has finger-proof terminal covers and can be remotely DIN rail mounted.

All meters have a jewel and pivot movement which ensures reliability and accuracy. The power factor meters are available in shortscale (90°) only. Scales are non-linear, bi-directional and are calibrated from 0.5 lead to 0.5 lag.

Notes:

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

Power Factor Meters – for measurement of power factor (cosØ)

Specification

Accuracy:

- Class 1.5 (±1.5% 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 (-30% to +10%)
- (50 to 600V upon request)

Frequency:

- 50/60Hz

Scale:

- 0.5 lead to 0.5 lag

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

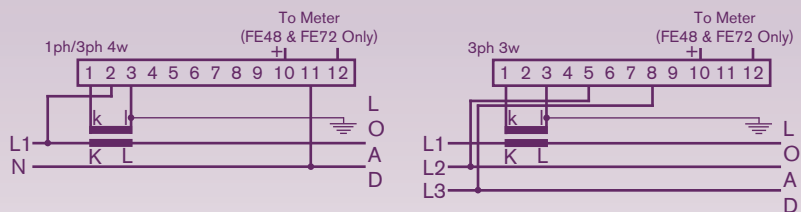
Weight:

- FE48 140g, FE72 180g, FE96 350g
- Converter unit 150g

Converter Unit Enclosure:

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

Connections



Ordering information

Code	DIN Square Size & Movement Type	Meter Type	Input
FE48PF	48 x 48mm Shortscale (90°) CosØ meter	-	-
FE72PF	72 x 72mm Shortscale (90°) CosØ meter	-	-
FE96PF	96 x 96mm Shortscale (90°) CosØ meter	-	-
1	-	Single Phase / 3 Phase 4 Wire Balanced	-
3	-	3 Phase 3 Wire Balanced	-
Specify	-	-	Voltage (L-N or L-L) and Current
Example	FE96PF	1	230VL-N, 5A

Meter Options

Meter Terminal Covers

Available for FE72 and FE96* meters is a plastic terminal cover to finger-proof the terminals.
(Order Code: **FE72TC, FE96TC**) *All FE48 meters are supplied with terminal covers

Meter Terminal Covers

Available for all sizes of FE72, FE96 and EL meter are a pair of plastic terminal covers to finger-proof the terminals.
(Order Code: **MTC**)

DIN Square Blanking Plates

Available on all sizes of meter is a black plastic blanking plate to cover a DIN square hole.
(Order code: **FE48BP, FE72BP, FE96BP**)

Adjustable Red Pointer

Available on all sizes of shortscales meter is an adjustable red pointer which can be adjusted by a screwdriver from the front fascia. Not available on longscales meters.
(Order code: **ARP**)

Calibration Certificate

Calibration certificates traceable to national standards can be supplied on all meters.
(Order code: **CALCERT**)

6x Overload

Available on all ac ammeters is an overload reading of 6x the full scale current (2x is standard).
(Order Code: **6X O/L**)

Red Line On Scale

Available on any scale is a red line marked at any point on the scale, as specified by the customer.
(Order Code: **RL@ - specify**)

Coloured Sector On Scale

One or more specified coloured (red, green, yellow) sectors on the scale are available on all meters.
(Order Code: **Coloured Sector - specify**)

Heavily Damped Movements

1A or 5A DIN96 moving iron ammeters are available with a damped viscous movement and all moving coil meters are available with an electronically damped movement.
(Order Code: **HD movement**)

IP65 Sealing

All meters are available with a front sealed to IP65 and a neoprene gasket to retain sealing against the panel.
(Order Code: **IP65**)

Gaskets

Gaskets are available for all meters.
(Order Code: **G48F, G72F, G96F**)

Centre Zero Movement

Moving coil meters are available with a bi-directional reading, centre zero movement and scale. Moving coil meters are also available with an offset centre zero movement and scale.
(Order Code: **C/Z movement or O/Z movement**)

Suppressed Zero Movement

Moving Coil meters are available with a suppressed zero movement and scale (e.g. 15Vdc with suppressed scale from 0 to 10Vdc).
(Order Code: **S/Z movement**)

External Adjustable Trim Potentiometer

All moving coil meters are available with an external trim multi-turn potentiometer which is accessible from the back of the meter and adjusts the full scale reading by a minimum of $\pm 20\%$.
(Order Code: **EXT. TRIM. POT.**)

Polycarbonate Window

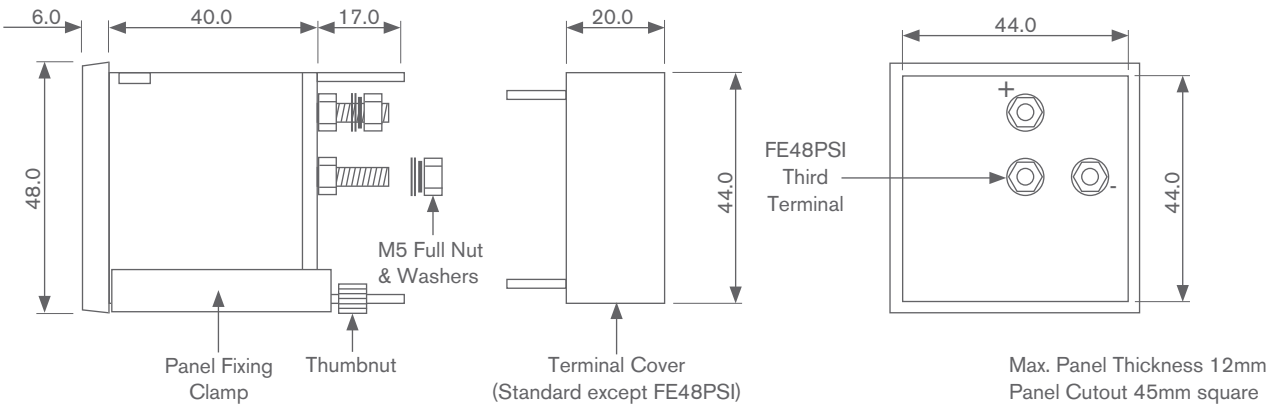
All sizes of FE meters have a glass window but a polycarbonate window is available. All sizes of EL meters have polycarbonate windows as standard.
(Order Code: **POLY window**)

Anti-Glare Window

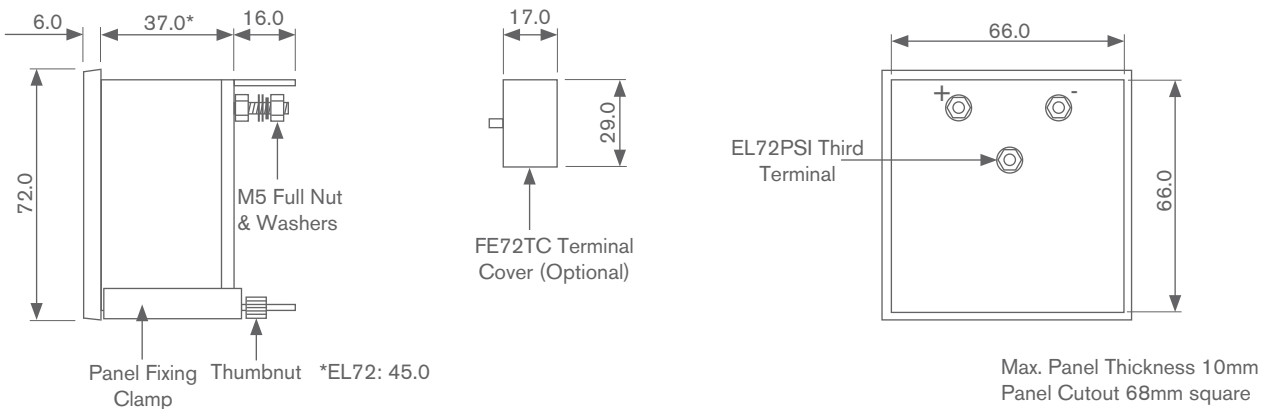
Anti-glare windows are available for all meters.
(Order Code: **AG window**)

Dimensions

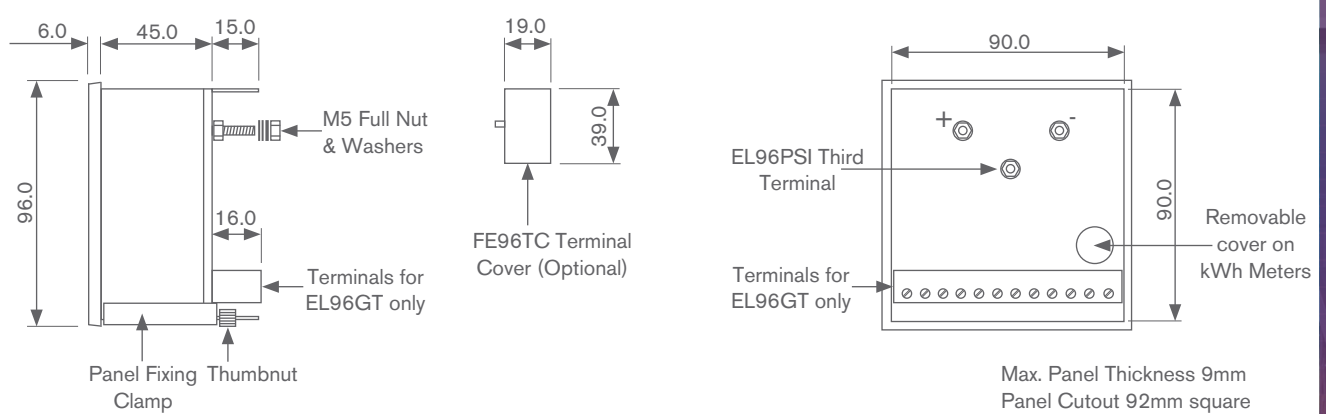
FE48 Enclosure



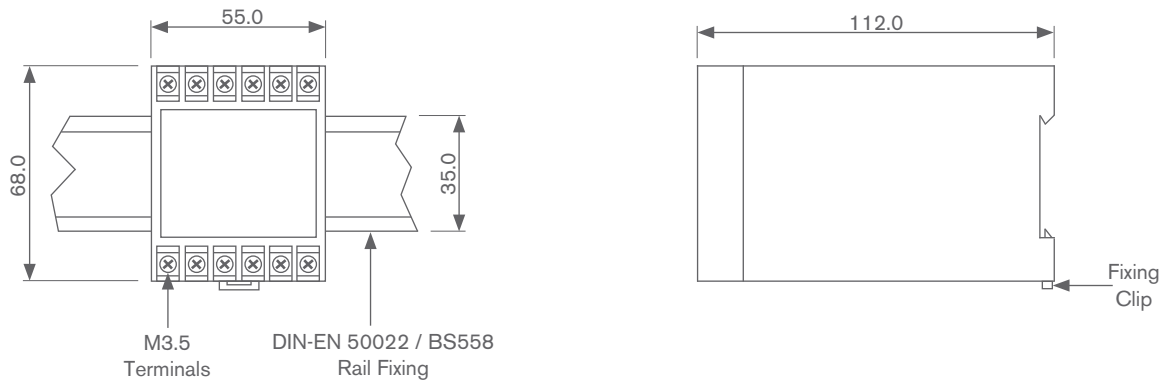
FE72/EL72 Enclosure



FE96/EL96 Enclosure



Watt/Var/cos ϕ Converter Unit Enclosure



General Specification

Reference Standards

Performance / Accuracy:	BS EN 60051-1, BS 89 and DIN 43780
Enclosure:	DIN 43700
Vibration Resistance:	DIN 43780
Measuring Ranges:	DIN 43701
Safety:	IEC 414
Dial Symbols:	IEC 51

Environmental

Calibration Temperature:	23°C
Operating Temperature:	-25°C to 50°C
Temperature Coefficient:	±0.03%/ °C
Relative Humidity:	0 - 90% non-condensing

Input

Input Burden:	See individual specifications
Overload:	See individual specifications
Response Time:	< 2seconds

Scales

Dials:	White with black legends
Reference Standard:	DIN 43802
Scale Length:	DIN48 - 37mm DIN72 - 65mm DIN96 - 90mm

Enclosure

Enclosure:	Flame retardant white ABS plastic case with black bezel Plain glass window is standard* but a polycarbonate window is available. (*Polycarbonate window is standard on EL meters)
Enclosure Code:	Case IP52 (IP65 with gasket optional) to IEC529 and BS5490
Insulation Test:	2kV rms 50Hz 1min (to IEC 414)
Markings:	CE marked

Specification subject to change without notice.