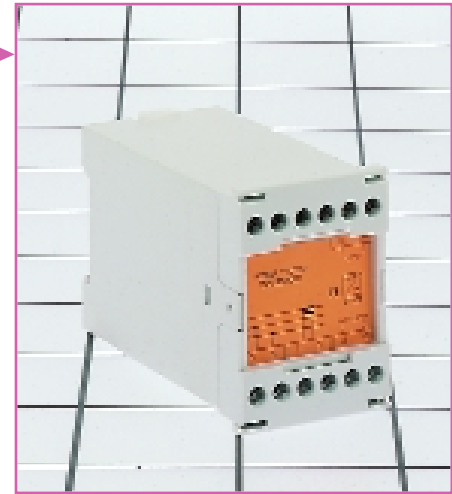


# Power Factor Transducers E1-1C0 & E1-1C3

Function: The E1-1C0 and E1-1C3 detect the electrical phase difference between the measured AC voltage and AC current signals and convert this into a signal which is then amplified into a proportional linear dc current or voltage output. The measured AC current and voltage inputs are squared up and chopped using a precision quadrature switching circuit resulting in a dual polarity pulsed current output. This is actively integrated and a symmetrical dc amplifier converts this into a true constant current output, linearly proportional to electrical degrees (non-linear to Cos-phi scale). The input and output ranges have been selected using the most commonly used specifications.



AlphaPOWER Range

## SPECIFICATIONS

**E1-1C0** Single Phase  
**E1-1C3** 3 Phase 3 Wire  
Balanced Load

### INPUTS:

#### AC Voltage Range (Standard)

110V 220V  
230V 240V  
380V 400V  
415V

**Voltage Input**  
± 20% of range

**Voltage Burden**  
0.2VA

**AC Current Range**  
1 Amp or 5 Amp  
Via a CT or direct connection  
Option: 10 Amp

**Current Input**  
40 to 150% of range

**Current Burden**  
0.8VA

**Frequency Range**  
45 to 55 Hz

Option: 60Hz or 400Hz calibration

**Range Cos Phi**  
0.5 Lead ..1..0.5 Lag

### OUTPUTS:

**Output Configuration**  
Bipolar as standard

Optional Extra: Unipolar output

#### DC Current (Bipolar)

–0.5..0..0.5mA into 10K ohms max  
–5..0..5mA into 1K ohms max  
–10..0..10mA into 500 ohms max

Option: (Unipolar)  
0.5 Lead ..1..0.5 Lag  
0..0.5..1mA into 10K ohms max  
0..5..10mA into 1K ohms max  
0..10..20mA into 500 ohms max  
4..12..20mA into 500 ohms max  
0..5..10 Volts dc into 2K ohms min

Option: (Unipolar)  
0.8 Lead ..1..0.2 Lag  
0..0.32..1mA into 10K ohms max  
0..3.2..10mA into 1K ohms max  
0..6.4..20mA into 500 ohms max  
4..9.11..20mA into 500 ohms max  
0..3.2..10 Volts dc into 2K ohms min

**Calibration Option**  
Front panel zero and span  
calibration potentiometers can be  
included as an optional extra

**Isolation**  
2KV for 1 minute  
Option: 4KV

### SUPPLY:

#### Power Supply Voltage

110 Volt AC ±20%  
230 Volt AC ±20%  
400 Volt AC ±20%

**Power Supply Burden**  
1.8VA

Optional extras include:  
non standard AC power supply, or,  
24 Volt DC power supply

### GENERAL:

**Overall Accuracy**  
Class 1.0 (±2°E)

**Load Error**  
Zero

**EMC Error (One off peak)**  
A one off –12% Vertical error can  
be experienced with a 400MHz  
signal at 10 volts per metre

**Stability**  
±0.5% per annum N.A.

**Ripple**  
<1% peak to peak

**Response Time**  
300mS (0 to 90% of span)

**Temperature Coefficient**  
±0.2% of span / °C 10°C

**Operating Temperature Range**  
–10 to +60°C

**Storage Temperature Range**  
–40 to +70°C

**Operating/Storage Humidity  
Range**  
0 to 90% RH non-condensing

**Mounting**  
Standard 35mm DIN rail

**Housing Protection**  
ABS plastic case self extinguishing  
to VDE 0304 Degree 1

**Weight**  
E1-1C0 400 gms  
E1-1C3 400 gms

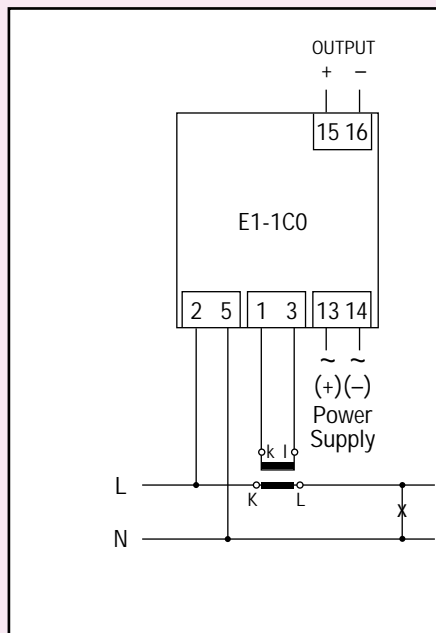


LEE-DICKENS LTD

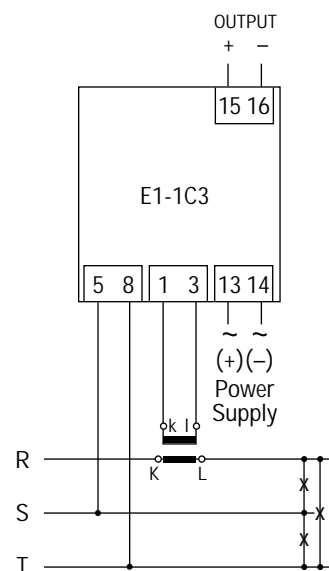
Desborough, Kettering, Northants NN14 2QW U.K.  
Tel: (01536) 760156 Fax (01536) 762552

## TERMINATION DETAILS

Single Phase Load



3 Phase 3 Wire Balanced Load

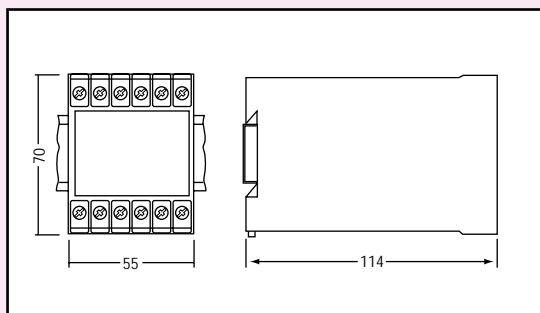


Although type E1-1C3 is specified for 3 Phase 3 Wire Balanced load applications, we recommend that it is also used in 3 and 4 wire unbalanced load systems as it gives "a good indication" of the system power factor.

The voltage inputs may be directly or VT connected and one side of the VT secondary should be earthed. We recommend that the voltage inputs and power supply are fused. Current inputs may be directly or CT connected and for safety one side of the CT secondary should be earthed.

Screening of the Output Signal Cable: To avoid damage to the electronics, we recommend that the output cable to the meter is screened (earth one end only) and not run near cables carrying high currents.

## MECHANICAL DETAILS



## ORDERING DETAILS

- Specify instrument code, i.e. E1-1C3
- Specify power supply, i.e. 415 Volt AC
- Specify input frequency, i.e. 50 Hz
- Specify input voltage, i.e. 380 Volt AC
- Specify Phase Angle Range, i.e. 0.5 Lead/Lag
- Specify output required, i.e. -0.5 to +0.5mA
- Specify any of the optional extras required