ECLIPSE

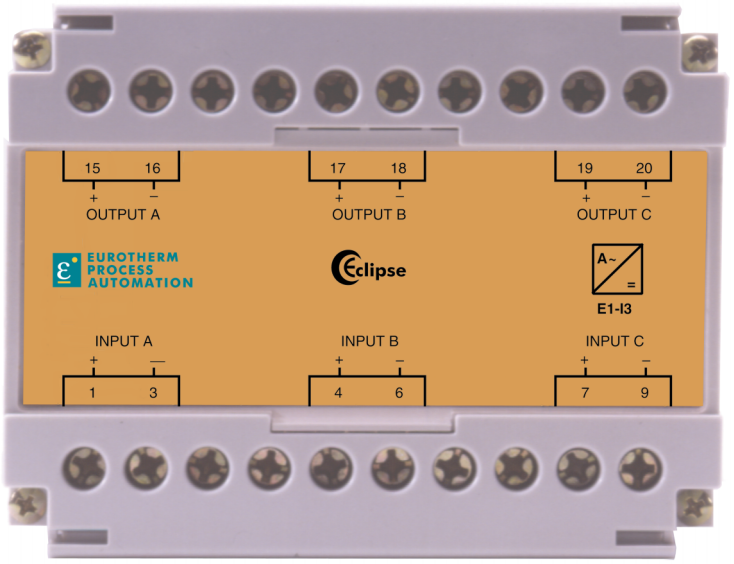
SERIES

EUROTHERM

CONTROLS
DATA MANAGEMENT
PROCESS AUTOMATION

AC Current Transducer

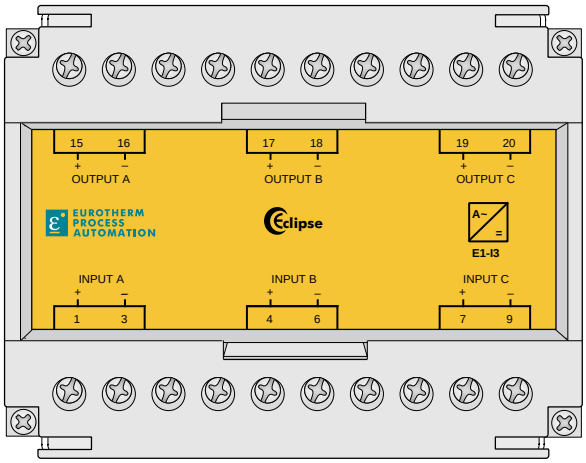
Product Data



Invensys
An Invensys company

ECLIPSE SERIES AC CURRENT TRANSDUCERS

- **Fully isolated and CE compliant**
- **Self- or auxiliary-powered**
- **High stability**
- **Full range of outputs**
- **RMS output**
- **Very low temperature coefficients**



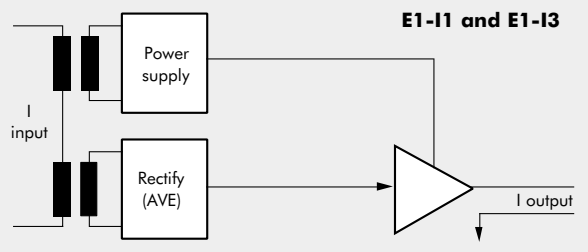
INTRODUCTION

This series of current transducers converts an ac current into a standard dc signal. The current may be directly connected (up to 10A), or via a current transformer (1A or 5A). The average sensing units are rms calibrated for use with sine waves of less than 1% distortion. The rms sensing units measure the true rms current. The self-powered unit obtains its power from the ac line being monitored and provides a range of zero-based current outputs. The auxiliary-powered units have been designed so that outputs of 4-20mA or 0-10V may be obtained.

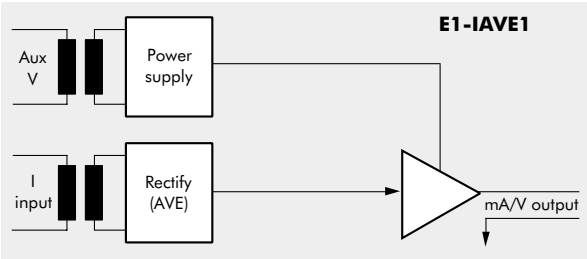
FUNCTIONAL DESCRIPTION

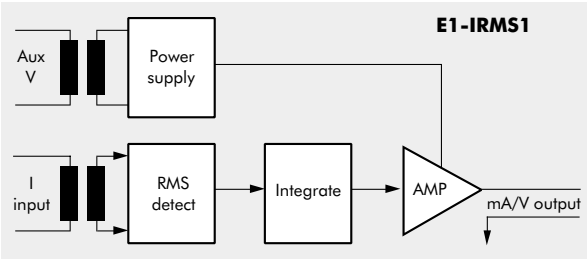
For the E1-I1, E1-I3 and E1-IAVE1 transducers the measured input is isolated and rectified to produce a proportional dc voltage. The amplifier, which is powered via an internal current transformer from the line being measured, provides the required output. The auxiliary-powered units perform in an identical manner, except that power for the output amplifier is drawn from a separate circuit, allowing both voltage and 'live' zero outputs.

The E1-RMS1 transducers are true rms, capable of handling badly distorted waveforms with harmonics.



Self-powered units





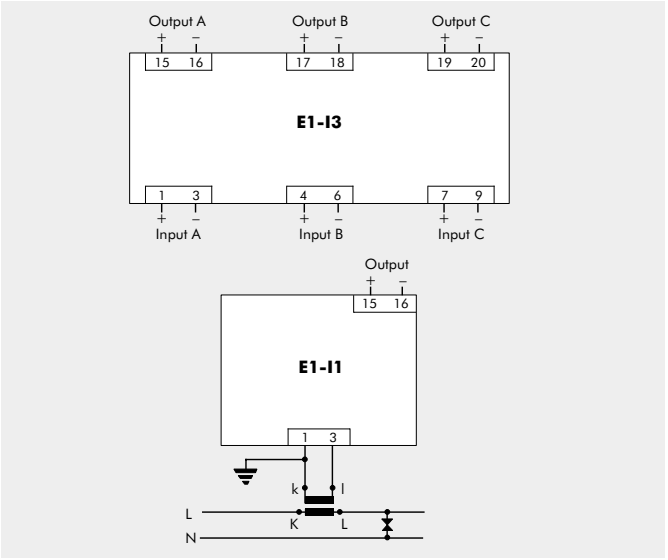
Auxiliary-powered units

STANDARDS

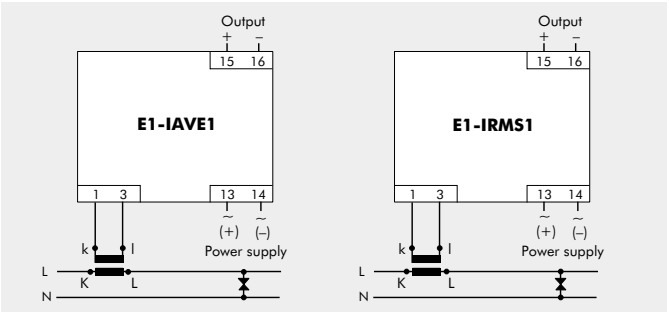
CE **Conforms to EMC Directive 89/336/EEC amended by 93/68/EEC and Low Voltage Directive 72/23/EEC**

BS EN 60688:1992	Designed to comply with Electrical measuring transducers for converting ac electrical quantities to analogue or digital signals.
IEC414:1979	Safety, high voltage insulation
IEC521:1988	Impulse voltage 5kV waveform 1,2/50uS
IEC255-21-1/3	High frequency disturbance 2.5kV common, 1kV series mode
EN50081-2	Emissions:– Industrial
EN50082-2	Immunity:– Industrial

CONNECTION AND INSTALLATION



Self-powered units



Auxiliary-powered units

WARNING: Current inputs may be direct or CT connected and for safety reasons one side of the CT secondary should be earthed. We recommend that the auxiliary supply should be fused.

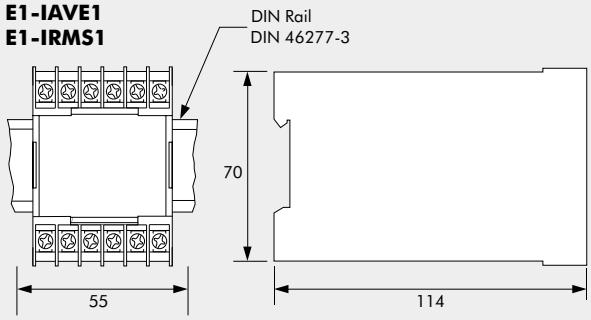
It is recommended that the transducer is housed in an enclosure (e.g. Control Panel) that does NOT allow unauthorised access as high voltages can be present on the terminals.

SPECIFICATIONS

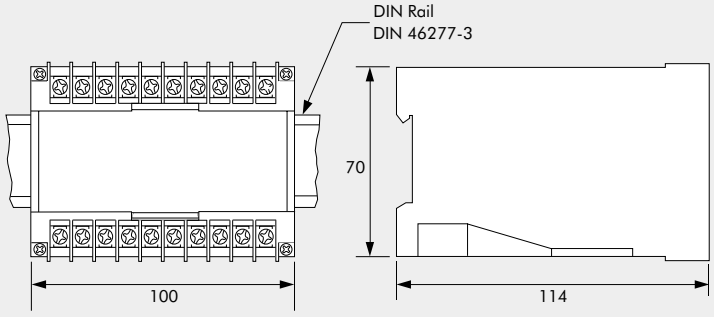
	Self-powered	Auxiliary-powered
Inputs	0-1A	0-1A
	0-5A	0-5A
	0-10A	0-10A
Overload:	2 × In continuous	2 × In continuous
	5 × In 5 secs	4 × In 10 secs
	20 × In 1 sec	20 × In 1 sec
Burden:	3.5VA	1VA
No of circuits:	1 or 3	1
Measuring range:	10-150% (I1, I3)	0-120%
Standard frequency range:	45-55Hz	45-55Hz
Outputs	0-1mA into 15kΩ	0-1mA into 10kΩ
	0-10mA into 1k5Ω	0-10mA into 1kΩ
	0-20mA into 750R	0-20mA into 500Ω
		4-20mA into 500Ω
		0-10V into 2kΩ min
Accuracy:	Class 0.5 (<5% nominal I Class 1.0)	Class 0.5
Isolation test:	2kV for 1 minute	2kV for 1 minute
Drive capability		
Current:	20mA	20mA
Voltage:	15V	10V
General specifications		
Temperature range:	–10 to +60°C	–10 to +60°C
Temperature drift:	0.005%/°C	0.02%°C
Ripple:	<2% peak-to-peak	<1% peak-to-peak
Stability:	±0.05% per annum non-accumulative	±0.05% per annum non-accumulative
Response:	0-90% in 450ms	0-90% in 300ms
Storage temperature:	–40 to 70°C	–40 to 70°C
Humidity:	Up to 90% non-condensing	Up to 90% non-condensing
Mechanical		
Weight:	375gm (1 circuit)	305gm (E1-IAVE1)
	680gm (3 circuits)	435gm (E1-IRMS1)
Dimensions:	55W × 70H × 114D mm (1 circuit)	55W × 70H × 114D mm
	100W × 70H × 114D mm (3 circuits)	
Housing:	Moulded grey ABS plastic case self extinguishing to VDE0304 Degree 1, with moulded polycarbonate terminal assembly. The case is snap mounting on top-hat rail DIN 4677-3 (CENELEC EN 50-022). On the 55mm wide housing, screw mounting is only available on request. On other sizes of housing, it is standard.	

HOUSING DETAILS

E1-I1
E1-IAVE1
E1-IRMS1



E1-I3



ORDERING INFORMATION

Self-powered current transducer

Base unit	Input range	Input frequency	O/P range & units	Auxiliary supply	Options
E1-I3	5A	50Hz	0-1mA	–	–

Auxiliary-powered current transducer

Base unit	Input range	Input frequency	O/P range & units	Auxiliary supply	Options
E1-IRMS1	5A	50Hz	4-20mA	230V	–

Examples

Base unit	**Code**
Single phase self-powered	E1-I1
Three phase self-powered	E1-I3
Single phase average auxiliary-powered	E1-IAVE1
Single phase rms auxiliary-powered	E1-IRMS1
Three phase rms auxiliary-powered	E1-IRMS3

Input range (Fn)	
1A (direct)	1A
5A (direct)	5A
10A (direct)	10A
CT ratio	Please specify

Input frequency	
50Hz	50Hz
400Hz	400Hz

Output range and units	
0-1mA	0-1mA
0-10mA	0-10mA
0-20mA	0-20mA
4-20mA *	4-20mA
0-10V *	0-10V

Auxiliary supply	**Code**
Auxiliary supply (E1-IAVE1 and E1-IRMS1)	
110V ±20%	110V
230 ±20%	230V
400 ±20%	400V
24V dc	24V
Self-powered (E1-I1 and E1-I3)	–

Options
4kV isolation tested

* Not available with self-powered units

EUROTHERM LIMITED **http://www.eurotherm.co.uk**

UK SALES OFFICE
Eurotherm Ltd
Faraday Close Durrington Worthing BN13 3PL United Kingdom
Sales and support: Tel. +44 (0)1903 205277 Fax +44 (0)1903 236465

Sales and support in over 30 countries worldwide
Enquiries/orders to:
Eurotherm Ltd Faraday Close Durrington
Worthing BN13 3PL United Kingdom
Tel. +44 (0)1903 205277 Fax +44 (0)1903 236465

CE

Part No. HA083844U001 Issue 2

Printed in England 07.01