

ADP451EP AC Current Transducer

- Suitable for SIL 1, SIL 2 & SIL 3 rated (EN61508-2) Safety Instrumented System (SIS) loop applications
- Supply voltage options:
 - 115Vac $\pm 20\%$
 - 240Vac $\pm 20\%$
 - 24Vdc $\pm 10\%$
 - 48Vdc $\pm 10\%$
 - (110Vdc $\pm 10\%$ 'X' option available)
- RFI Protection to EN 61000-4-3:2006/A2:2010 'K' option available; (RF immunity: 20MHz-3GHz/5.25GHz $\leq 10\text{V/m}$, 80MHz-1GHz/5.6GHz $\leq 30\text{V/m}$, 889MHz/1.75GHz $\leq 40\text{V/m}$)
- Non-Smart / Non-uProcessor based, Type A instrument
- AMELEC Standard 10 year warranty

Technical Specifications

Input

AC Current ranges, typically 0-1Amp or 0-5Amps
Intermediate ranges available at no extra cost

Output

Any standard process current or voltage (dc) signals
Current source up to 20mA or Voltage source up to 10Vdc
Typical: 4-20mA (max 1200 Ω load) or 0-10Vdc (min 500 Ω load)

Isolation

1000V RMS* Input/Output/Supply/Earth
*(500Vdc if 'K' option specified)

Performance

Accuracy: $< 0.2\%$
Linearity: $< \pm 0.1\%$
Supply consumption: $< 3\text{VA}$
Input Open Circuit response: Downscale drive as std

Environmental Conditions

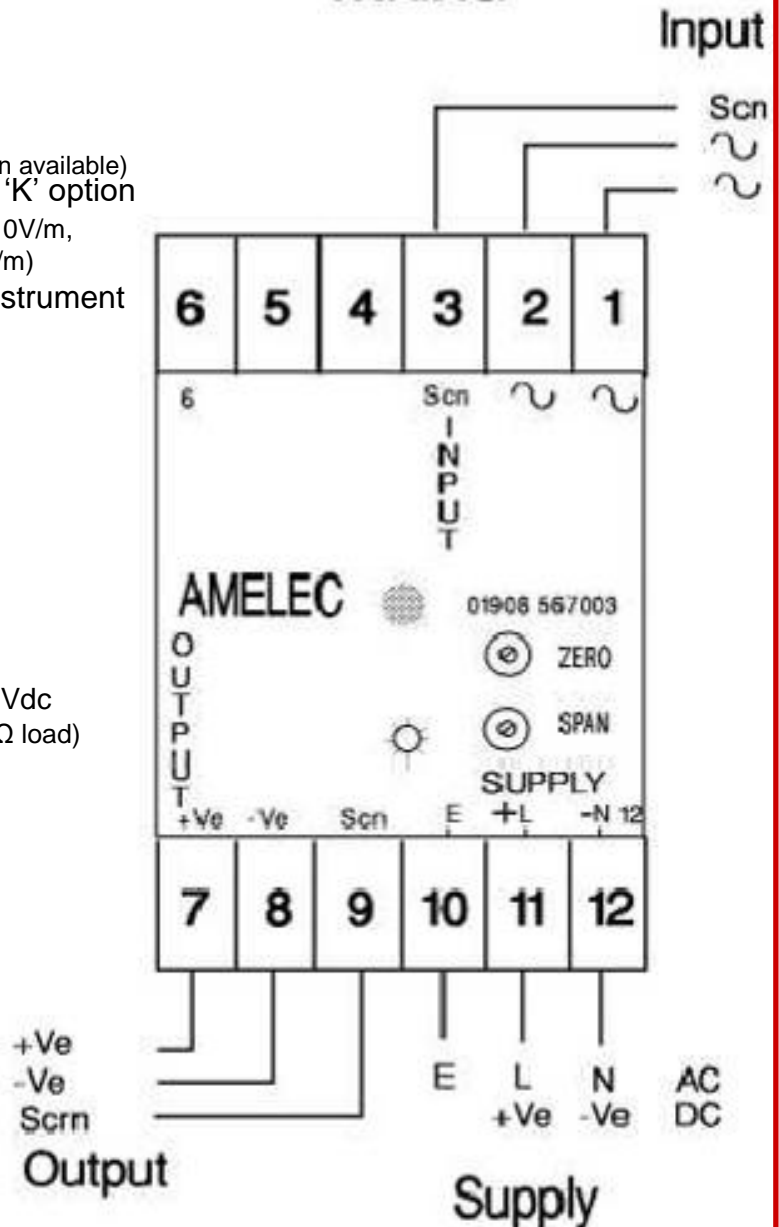
Storage Temperature: -40 to $+70^\circ\text{C}$
Operating Ambient: -15 to $+55^\circ\text{C}$
Relative Humidity: 5 – 95% RH (Non-condensing)
EMC: 2014/30/EU, EN 61326-1:2013 (Controlled EM)
(‘K’ option: EMC/EMI/RFI protection to the highest Generic Industrial Standards Test levels)

Dimensions / Mounting

Std Enclosure: 50w x 75h x 110d mm
TS35 Din Rail or Surface by corner fixing holes

‘K’ option Enclosure: 50w x 75h x 182d mm
TS35 Din Rail or Surface by optional Keyhole plate

WIRING



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AMELEC Instruments, Cochran Close, Crownhill, Milton Keynes, MK8 0AJ

ADP451EPX-(Limit) PROOF TEST / CALIBRATION CHECK PROCEDURE

AC Current Transducer 0-1Amp AC (4-20mA-Over range Limit@20.6mA o/p, 110V DC Supply)



Even small voltages can cause potentially fatal shocks; this product is only to be tested by a competent person.

The ADP451EPX is an ac current transducer/isolator, providing one analogue repeat 4-20mA output limited to 20.6mA max, please refer to the general data sheet for termination details. The instrument will have been factory calibrated and shouldn't require any further zero/span adjustments. As and when you do need to check the unit calibration, please follow the procedure below;

Equipment required

- 110V DC Power Supply Unit (PSU)
- Precision ac current generator to simulate the 0-1Amp input signal
- A digital multi-meter (DMM) to be able to check/measure the supply voltage and 4-20mA output signal
- Small instrument screwdriver with slotted flat blade head for any blindset potentiometer adjustments.

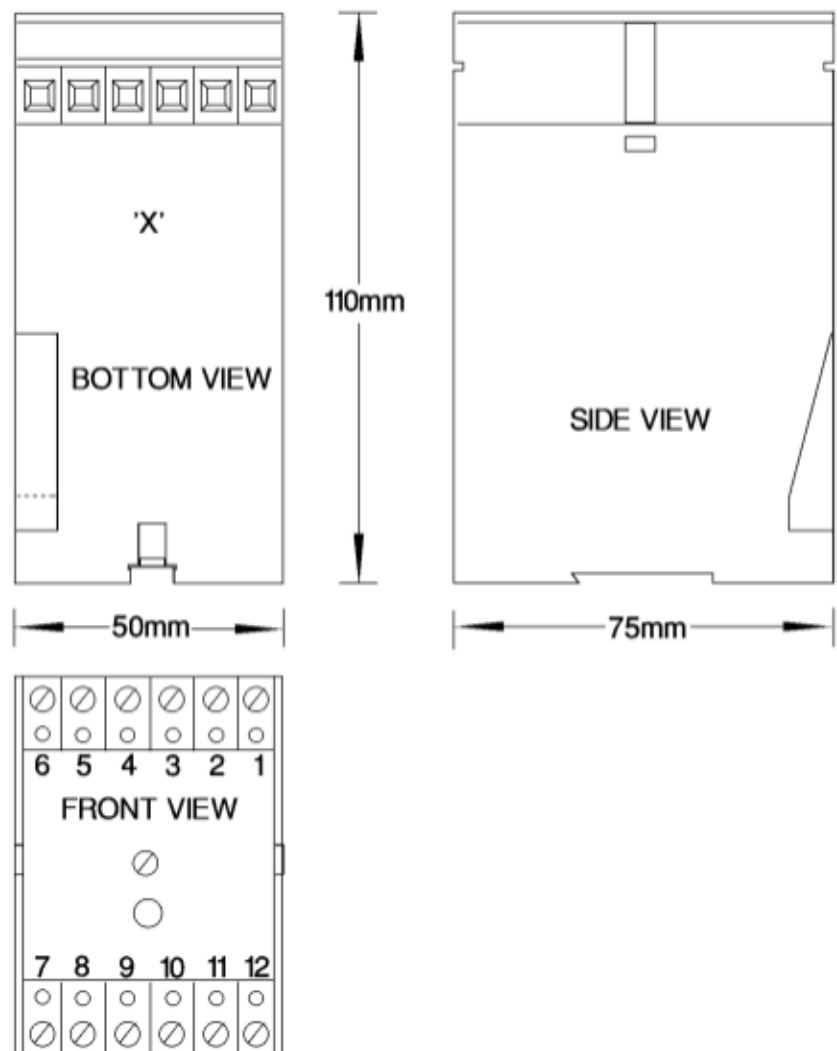
Calibration check procedure

1. Connect the 110V DC PSU to the supply terminals as shown on the general data sheet, check the front fascia power ON LED illuminates and leave on for 30 minutes to allow the unit to acclimatise.
2. Connect the current generator to the input terminals as shown on the general data sheet.
3. Set the digital multi-meter (DMM) to measure mA, and connect the DMM to the output terminals
4. Apply 10% (0.1A) of the input range from the current generator
5. Measure output on the DMM and check/adjust the Zero potentiometer to read 10% of range (5.6mA)
6. Change input generator to 100% of the range (1.0A)
7. Measure output on the DMM and check/adjust the Span potentiometer to read 100% of range (20.0mA)
8. Repeat steps 4 to 7 until the output is calibrated accurately to within +/-0.1% of span
9. Measure the output at 25% steps of the input range to ensure the output is linear
10. Apply 100% (1.0A) input, vary DC power supply by +/-10% if possible and check that the output remains stable (20mA +/-0.1%).
11. Apply 110% (1.1A) input, and check that the max output limits at 20.6mA for input over range condition.
12. Open circuit the input and check that the output drives downscale $0 > 3.8\text{mA}$.
13. End. Re-install unit to the plant safety loop wiring.
14. Should any of the above steps not be achievable, replace the suspect unit with a spare calibrated unit asap and contact AMELEC technical support team for further assistance.

For more information and/or to discuss your application, please contact our technical staff at the factory in Milton Keynes;

Postal address: Cochran Close, Crownhill, Milton Keynes, Bucks. MK8 OAJ

Tel: 01908 567003 **Fax:** 01908 566735 **Email:** sales@amelec-uk.com



NOTES:

- 1) The enclosure is a two-part thermoplastic moulding.
- 2) To separate the two parts, firm pressure should be applied at point 'X' on the top and bottom of the lower part. The front part may then be withdrawn, together with the electronics.
- 3) The front view is with the terminal cover removed.

<div>DIMENSIONS in mm</div> <div>TOLERANCES ±</div> <div>Nominal 0.4 mm</div> <div>Decimal 0.15 mm</div> <div>Unless shown otherwise</div>	Drawn: SLK	REVISION Redrawn 7/2000	TITLE: Polycarbonate Din/Surface enclosure Views of enclosure showing major dimensions.		<div>AMELEC INSTRUMENTS</div> <div>Cochran Close, Presley Way</div> <div>Crownhill, Milton Keynes, MK8 0AJ</div>	
	Checked:					
	Approved:		Used on Assembly	SCALE	DRAWING NO.	Sht 1
	Date: 6/7/00		AD series product	N.T.S.	AD STANDARD	of 1

Notes: Good Practice when installing any Din Rail mounted instrumentation

To increase the life expectancy of your din rail mounted instruments, it is recommended that the following guidelines are adhered to:

Mounting Instruments along a Din Rail

Any signal conditioning/process control modules will contain electronic components & circuits which in certain conditions have to lose their excess energy as HEAT. Suppliers of such instruments cannot predict the site conditions or situations, so to make sure that hot spots do not occur it is recommended that electronic instruments are not bunched together horizontally in groups of more than FIVE units.

A space of 5-10mm every five units max will minimise any temperature rise within that group of instruments.

If mounted vertically it is recommended that no more than two instruments are stacked together, and then with a minimum 5mm spacer between adjacent units/pairs.

Cabling/Relay Transient Suppression

The electronics in process control units are generally mounted in a small enclosure, which by the very size means that the wiring entering and leaving each enclosure is physically close together. To avoid interference from one port to another the following rules of thumb are recommended:

- a) Power cables and wires that carry transients are routed separately to the signal wiring, ideally crossing at 90° to each other.
- b) Low level signal cables are kept as screened or twisted pairs where possible. On screened cables only earth the screen at one end.
- c) Relay contacts that switch inductive loads or other arcing devices should be suppressed, ideally at or across the inductance or other source.

On DC circuits a free wheeling diode should be used, it's PIV at least 4 times the working voltage.

On AC circuits use an RC network, the values of the R and C chosen to match the L and R value of the coil itself.

These rules are very general, so if you encounter any specific problems please contact our sales support team for further assistance.

Amelec product

The Amelec Din Rail mounted instruments are available in a number of product packages:-

The Plastic enclosures; which can be DIN rail or individually Surface mounted. They can be surface mounted by the corner fixing holes or clipped to the TS35 rail (light or heavy duty).

The Metal enclosure; is supplied as standard for DIN rail mounting (TS35 heavy duty rail). An optional Keyhole plate is available to surface mount the instrument for extra rigidity.

The Panel mounted enclosure is supplied in a metal enclosure. The panel cut out needs to be approximately 1mm more than the extrusion dimensions (50mm horizontally and 75mm vertically). Two brackets from inside your panel secure the units.