



SIGNAL CONDITIONER (Isolating) Type B12 - 3

- **Low-cost 3 port isolation**
- **User configurable output ranges: V, mA sink or source**
- **Scaling of process values**
- **15 V sensor / loop supply**
- **High impedance output drive option**
- **AC or low voltage (11-32 VDC, 12-24VAC) powered versions**
- **Wall or DIN rail mounting**
- **Module unplugs without disturbing wiring or breaking input current loops**
- **Analogue circuitry used throughout**



The B12-3 Signal Conditioner provides cost-effective signal booster / repeater and signal level or type converter functions. The input, outputs and power supply are electrically isolated from each other making these units ideal for preventing or solving erratic measurements due to earth loops. Options including high impedance output drive and sensor excitation / current loop power supply are available to order at no extra cost.

Typical Applications

- Overcoming problems where a common mode voltage exists between the input and output.
- Solving current loop loading problems.
- Isolating and converting dangerous voltages to safe levels.
- Converting and/or inverting signals; voltage to current or current signals to voltage.
- Interfacing sensors, transducers and transmitters with indicators, PLCs, and other process control instrumentation..

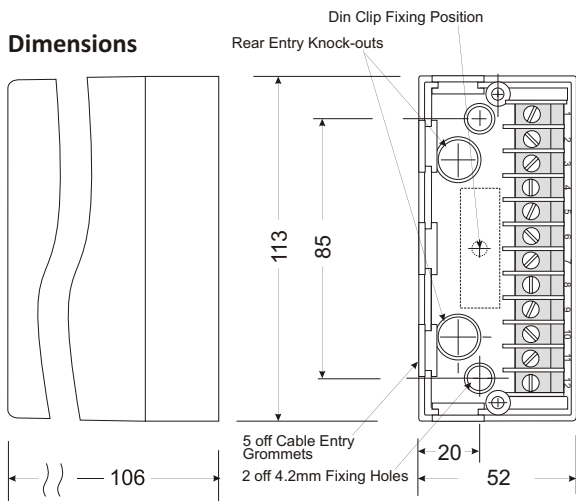
Information required when ordering

- Specify type 'B12-3'
- Input signal
- Output signal
- Supply voltage and frequency

Options

- High output drive required (mA outputs) ?
- DIN rail mounting clip required ?

Dimensions



Specifications

Notes:

1. Inputs and outputs, other than those shown, including reverse acting (e.g. 4-20mA to 20-4mA) are possible - our sales team will be pleased to advise.
2. Input ranges are factory calibrated for one type of signal and not user configurable.

Inputs

Current from 0-1mA to 0-30mA and Voltage from 0-1V to 0-250V. Typical inputs: 0-10mA (100R), 0-20mA (50R), 4-20 mA (62R), 0-5V, 1-5V, 0-10V, 2-10V (>200k)
Input impedances shown in brackets.

Input Signal No-break Loop Facility

mA input signal loops are maintained when the unit is unplugged from the base section.

Input Overrange Protection

Voltage Inputs: 250 volts RMS or DC, Current Inputs: 50mA

Outputs (user selectable *except for high output drive options*)
0-10mA (2000R), 0-20 mA (1000R), 4-20 mA (1000R)

High impedance output drive options: 0-10mA (5000R), 0-20 mA (2500R), 4-20 mA (2500R) *Maximum output impedances in ohms shown in brackets.*

0-5v, 1-5V, 0-10V, 2-10V (500R minimum)
Current sink 4-20mA @ 50 volts max.

Transmitter Excitation Supply

15VDC @ 20mA maximum

Response Time

1 sec as standard.

Isolation

The input and output are isolated from each other and from the power supply.

Maximum Voltage 250V RMS or 400V DC
Resistance between input, output or power supply
 50×10^6 ohms measured at 1000V DC.

Calibrated Accuracy

$\pm 0.1\%$ FSD at 100% when factory calibrated.
NB Error introduced by User output range changes, typically 1% but may be corrected by span control.

Linearity Error

$\pm 0.1\%$ FSD

Suppression / Elevation Error

$\pm 0.1\%$ FSD

Output Ripple

0.2% RMS of FSD

Load Resistance Effect

0.001% of span / 100 ohm change

Stability

Over 24 hours $\pm 0.1\%$ FSD, Over 1 year $\pm 0.25\%$ FSD



THIS UNIT CAN BE MAINS POWERED, AND ALL INPUTS TO IT MUST BE ISOLATED FROM DANGEROUS VOLTAGES BEFORE THE FRONT COVER IS REMOVED. LIVE TERMINALS WILL BE EXPOSED.

Continuous development may necessitate changes in these details without notice

Interference Rejection

Filtering is incorporated to attenuate R.F. and other industrial noise.

Common Mode Rejection

<0.2% error for 250V RMS 50/60 Hz, or 400V DC, common mode signals.

Temperature Coefficients

Zero: $\pm 0.02\%$ span / °C, Span: $\pm 0.02\%$ span / °C

Environmental

Temperature: operating -10 to +60°C, storage -20 to +70°C
Humidity: 0 – 95% RH non-condensing

Power Supply

AC Supply: 110, 220 or 230V $\pm 10\%$ 50/60Hz 5VA
Fuse: 100mA quick-blow (internal)

Low voltage: 11-32VDC 4 W / 12-24VAC
Fuse: 250mA anti-surge (internal)

Supply Voltage Rejection

Span change: <0.02% span / % supply change.

Safety & EMC

Safety: EN61010-1, Immunity: EN50082-1,
Emissions: EN50081-1, CE certified

Mechanical

Weight: approx. 0.5kg
Enclosure: Fire retardant materials - PPO base, ABS cover
Screw terminal wire capacity: 2 x 1.5mm²

Electrical Connections



WARNING: these details are provided for pre-sales information only. Installation must be carried out in accordance with the User Guide

Input	1	Transmitter supply (+15V)		
	2	Input Signal (+)		
	3	Input Signal (-)		
	4	(reserved)		
	5	no internal connection		
Output	6	no internal connection		
	7	mA Output (+)	Current Sink	
	8	mA Output (-)	8 (+)	
		Voltage Output (+)	9 (-)	
Supply	9	Voltage Output (-)		
	10	Earth AC	Earth	DC
	11	Neutral Mains	Negative (-)	Supply
	12	Line Supply	Positive (+)	Option

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