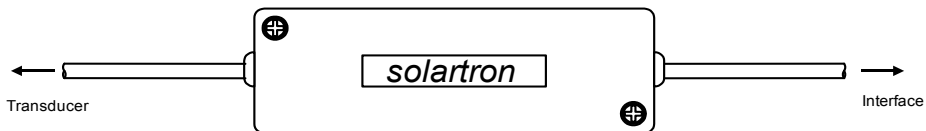




BICM - HB

(Boxed Inline Conditioning Module)
For Half Bridge Transducers Only



user leaflet

General

This BICM is a modified version of the standard BICM. It is intended for use with half bridge transducers only.

This leaflet describes BICM-HB connections and set up. Only brief information is given in this leaflet. It is assumed the user is familiar with the BICM family of products. Technical support is available if further information is required.

The BICM-HB supplied has already been fitted with the correct components and set-up to give the required output with your transducer. The BICM may require full adjustment, final trimming or be usable straight out of the box. This has been done using information supplied by you.



Ensure that your product is wired up correctly, see 'Connections' section.

Ensure that you do not apply greater than 15 V to either of the bipolar supply inputs.

Caution

Electrostatic Discharge

This equipment is susceptible to ESD (Electrostatic Discharge) when being installed or adjusted, or whenever the case cover is removed. To prevent ESD related damage, handle the conditioning electronics by its case and do not touch the connector pins. During installation, follow the guidelines below.

- Ensure all power supplies are turned off.
- If possible, wear an ESD strap connected to ground. If this is not possible, discharge yourself by touching a grounded metal part of the equipment into which the conditioning electronics is being installed.
- Connect the transducer and power supplies with the power switched off.
- Ensure any tools used are discharged by contacting them against a grounded metal part of the equipment into which the conditioning electronics is being installed.
- During setting up of the conditioning electronics, make any link configuration changes with the power supply turned off.
- Avoid touching any other components.
- Make the final gain and offset potentiometer adjustments, with power applied, using an appropriate potentiometer adjustment tool or a small insulated screwdriver.

Warnings

Do not operate in explosive atmosphere

To avoid explosion, do not operate this equipment in an explosive atmosphere.

Safety Critical Environments

This equipment is not intended for use in a safety critical environment.

CAUTION:

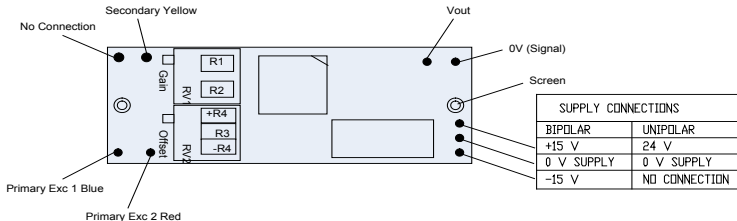
Low Voltage

This equipment operates at below the SELV and is therefore outside the scope of the Low Voltage Directive.

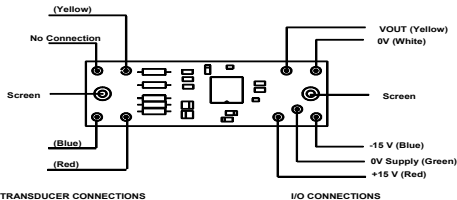
This equipment is designed to work from a low voltage DC supply. Do not operate this equipment outside of specification.

Connections

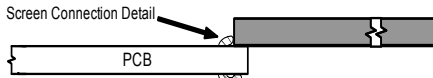
Ensure that your product is wired up correctly, see below.



Connections to PCB - 105186 (Bipolar or Unipolar)



Connections to PCB - 103766 (Bipolar only)



The screen connection also provides a measure of cable strain relief before the PCB is mounted in the case.

Bi-Polar Set-Up

Bi-polar Set-up (equal \pm VE output)

1. Null Electronics

Put a temporary short between the black* and yellow of the transducer connection. Adjust the OFFSET potentiometer to give near 0 V output as practical. Remove the temporary short.

2. Null Transducer

Move the transducer until near 0 V output is achieved. Electronics and transducer null are now aligned.

3. Set Full Scale Output

Move the transducer to the full-scale position. Adjust the GAIN potentiometer to give the required output.

Example: \pm 10 V output from a AX/2.5/SH. Move the tip OUT by 2.5 mm from NULL (as set in step 2) and adjust GAIN to give +10 V.

Uni-Polar Set-Up

Uni-Polar Set-up (0V to +VE or -VE output)

1. Null Electronics and Transducer.
Perform steps 1 and 2 above
2. Set Full Scale Output Range
Move the transducer to the full-scale position. Adjust the GAIN potentiometer to give 1/2 required output.
Example: 0-10 V output from a AX/2.5/SH. Move the tip OUT by 2.5 mm from NULL as set in step 2 and adjust GAIN to give +5 V.
3. Set Offset
With the transducer still at the full-scale position (from step 2) adjust the OFFSET potentiometer to give the required output i.e. +10 V.
4. Final checks
Move between the NULL position and the FS position to confirm set up.

Note: It may only be possible to set the output accurately at the two calibration points. This is due to non-linearity within the transducer.

*If Black wire not used, connect between PCB pad and Yellow.

Technical Specification

		Standard BICM	
		Bipolar Supply	Unipolar Supply
Power Requirement			
Voltage		$\pm 15 \text{ V} \pm 1.5 \text{ V}$	$24 \text{ V} \pm 2.4 \text{ V}$
Current		$\pm 15 \text{ mA nominal}$	30 mA nominal
Transducer Excitation			
Primary Voltage		2 Vrms nominal	
Primary Frequency ¹		5 kHz typical	
Primary Current		10 mA nominal	
Signal Input			
Input Voltage Range		Up to 2.5 Vrms	
Input Load Resistance		100 k Ω	

2.0: Technical Specification

		Standard BICM	
		Bipolar Supply	Unipolar Supply
Signal Output			
	Voltage Output	Up to ± 10 V	
	Current Output	11 mA	
	Output Ripple	<14 mVrms	
	Output Offset	100%	
	Temp Co. Gain	<0.03% FRO / °C	
	Temp. Co. Offset	<0.025% FRO / °C	
	Warm up Time	15 minutes recommended	
	Linearity ² (electronics only)	<0.1% FRO	
	Bandwidth (-3 dB) ³	250 Hz typical	

¹ Other frequencies are available on request.

² The electronics has a specification of <0.1%, the overall linearity is dominated by the transducer.

³ Other bandwidths available on request.

2.0: Technical Specification

		Standard BICM	
		Bipolar Supply	Unipolar Supply
Environmental			
	Operation Temperature Range	0 - 70 °C	
	Storage Temperature Range	-20 to +85 °C	
	IP Rating	IP40	
Mechanical and Connections			
	Connections	Solder pad or factory fit	
	Enclosure Size	98.5 x 30.5 x 13.0 mm	
	Weight	30 g	
	Material	ABS	

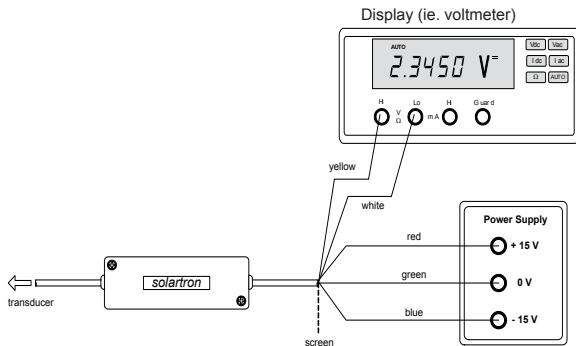
Cable Lengths

All specification limits assume a nominal 3 m cable length between transducer and BICM. The BICM can be mounted up to 10 m from the transducer, but this may result in reduced performance. Not all transducers can cope with long cable lengths. Cable from the BICM to the processing unit or display should be limited to 100 m.

Application Notes

$0 V_{\text{signal}}$ (green) and $0 V_{\text{supply}}$ (white) are connected together at the BICM.

Use of the separate $0 V$ connections will minimise power supply currents affecting signal output readings.



It is usual to connect cable screen to power supply $0 V$.

This may not be the best option for all installations as it depends on the arrangement of $0 V$ connections, ground connections etc.

Unipolar supply connections shown