Solartron Metrology

BICM

(Boxed InLine Conditioning Module)

user manual

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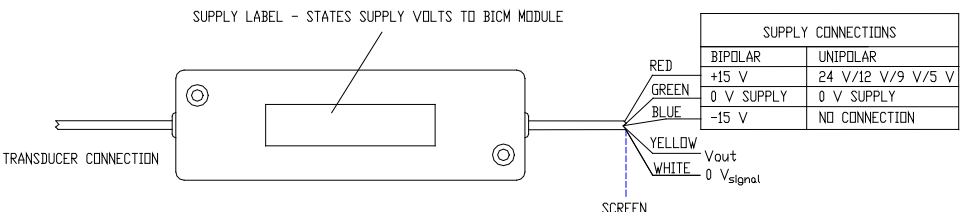
General

The BICM is a transducer conditioning unit pre-wired and calibrated to a transducer. There are no internal user adjustments.
It is available in five factory configured supply voltage versions:
Bipolar Supply (+/-15 V) or Unipolar Supply (24 V / 12 V / 9 V / 5 V)
Ensure that your product is wired up correctly, see drawing below.

The case should not be opened. There are no user adjustable parts inside.

This Leaflet describes BICM connected to any transducer. Depending on the transducer fitted there may be small changes in specification. See specification section or consult your supplier.

Connections



SUPPLY CONNECTIONS	
BIPOLAR	UNIPOLAR
+15 V	24 V/12 V/9 V/5 V
0 V SUPPLY	0 V SUPPLY
-15 V	NO CONNECTION

Note: For best 0 V output, adjust transducer position.

Electrical Connections for Standard Solartron Probes

Lumberg 5-Pin I 240^{o} DIN Connector

	BICM TYPE				
Plug	+/-15 V	24 V	12 V	9 V	5 V
Pin No.	BiPolar	UniPolar	UniPolar	UniPolar	UniPolar
1	+15 V	24 V	12 V	9 V	5 V
2	-15 V	0 V	0 V	0 V	0 V
3	0 V $_{supply}$	N/C	N/C	N/C	N/C
4	V out	V out	V out	V out	V out
5	0 V $_{signal}$	0 V $_{signal}$	0 V $_{signal}$	0 V $_{signal}$	0 V $_{signal}$
Body	Cable Screen				

Technical Specification

		Standard BICM				
		Bipolar Supply	**Unipolar Supply**			
Power Requirement						
	Voltage	±15 V ±1.5 V	24 V ±2.4 V	12 V ±1.2 V	9 V ±0.9 V	5 V ±0.5 V
	Current	±15 mA nominal	30 mA nominal	46 mA nominal	55 mA nominal	110 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 kΩ				

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 / ^{O}C	
	Temp. Co. Offset	<0.025% FRO / ^{O}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.

Technical Specification

		Standard BICM	
		Bipolar Supply	**Unipolar Supply**
Environmental			
	Operation Temperature Range	0 - 70 ^{O}C	
	Storage Temperature Range	-20 to +85 ^{O}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.

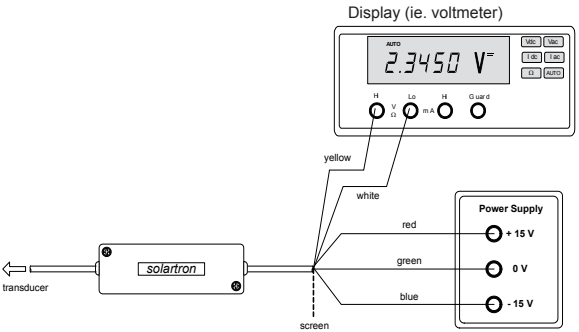
Application Notes

0 V_{signal} (green) and 0 V_{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.



Bipolar supply connections are shown.