

**Sensepoint / Signalpoint
Bridge to 4 – 20mA Converter**

TOTAL ENVIRONMENTAL SOLUTIONS

Ensure that you read and understand these instructions **BEFORE** operating the equipment.

Please pay particular attention to the Safety Warnings.

WARNINGS

1. This item of equipment is not designed or certified for use in hazardous areas.
2. Designed for indoor use only.
3. Not to be exposed to rain or moisture.

CAUTION

1. Use only approved parts and accessories.
2. To maintain safety standards, regular maintenance, calibration and operation of the system by qualified personnel is essential.

IMPORTANT NOTICES

1. Honeywell Analytics can take no responsibility for installation and/or use of its equipment if this is not done in accordance with the appropriate issue and/or amendment of the manual.
2. The user of this manual should ensure that it is appropriate in all details to the exact equipment to be installed and/or operated. If in doubt, the user should contact Honeywell Analytics for advice.

Honeywell Analytics reserve the right to change or revise the information supplied in this document without notice and without obligation to notify any person or organisation of such revision or change.

If further details are required which do not appear in this manual, contact Honeywell Analytics or one of their agents.

HELP US TO HELP YOU

Every effort has been made to ensure the accuracy in the contents of our documents, however, Honeywell Analytics can assume no responsibility for any errors or omissions in our documents or their consequences.

Honeywell Analytics would greatly appreciate being informed of any errors or omissions that may be found in our documents. To this end we include the following form for you to photocopy, complete and return to us so that we may take the appropriate action.

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1. INTRODUCTION

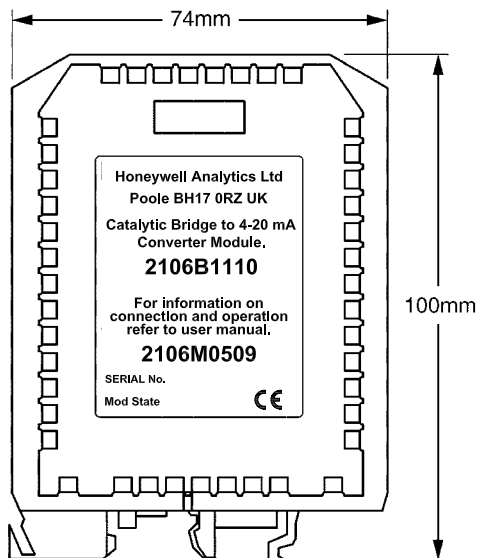
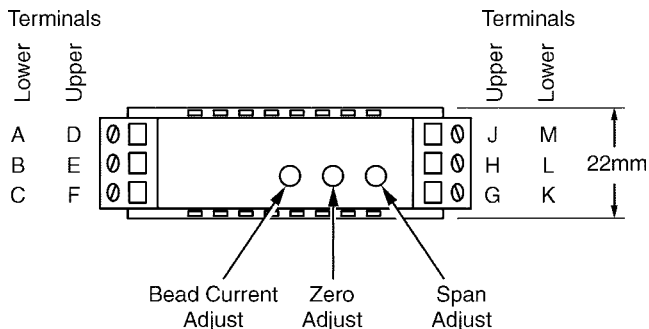
The Bridge to 4 - 20mA Converter has been specifically designed to allow the connection of catalytic bead type sensors to equipment with 4 - 20mA control loops. The unit is capable of driving bead currents up to 300mA and, with sensitivity and zero offset both being adjustable, the converter can accommodate a wide variety of bead types. In order to provide maximum flexibility the unit can be configured for both current sink and current source operation. To ease installation, the plastic enclosure is designed to fit both symmetric ('top hat' profile) and asymmetric ('G' profile) Din rails.

2. OPERATING INSTRUCTIONS

2.1 INSTALLATION

CAUTION

This product is not certified for use in hazardous areas.



2. OPERATING INSTRUCTIONS

- (1) Remove the unit from its packaging.
- (2) Make the electrical connections in accordance with the tables below:

Terminal Letter	Bead Connections
G	Bead 01.
K	Non-Sensitive bead connection.
H	Cable screen*.
L	Sensitive bead connection.
M, J	Bead current monitor (mA/mV).

Terminal Letter	Controller Connections
D	Controller cable screen*.
A	Supply voltage (+24V).
C	4 - 20mA Source (Current out of unit).
B	Supply return (0V).
F	4 - 20mA Sink (Current into unit).

*Note: Use either terminal C for current source operation **OR** terminal F for current sink operation.*

- (3) Carefully check all wiring to ensure that the unit is wired correctly to both the sensor and the controller.
- (4) Check the sink/source configuration of the controller. If the controller is set to sink then the converter module should be set to source, and visa versa.

When wiring the converter ensure that there is sufficient slack cable to allow access to the internal jumper links.

The recommended cable for both the sensor and controller interconnections is three core with overall braided screen and maximum conductor size of 2.5mm².

2. OPERATING INSTRUCTIONS

**Note: Units connected with unscreened cable may not meet the EMC requirements of EN50270.*

The enclosure can be mounted on either symmetric (top hat profile), or asymmetric (G profile) Din rails.

2.2 CONFIGURATION

Before applying power, configure the converter as follows:

- (1) Carefully remove the plastic side cover on which the product identification label is fixed.
- (2) Taking care not to bend the contact fingers, remove the top cover of the RFI screening can.
- (3) Fit the jumper on LK1 (zero adjust) to the Narrow Zero adjust position.
- (4) Fit the jumper on LK2 (span sensitivity) to the Low Sensitivity position.
- (5) Fit the jumper on LK3 (sink/source) in the required position. (ie. converter sink or source).
- (6) Using an appropriate adjusting tool, turn the Set Bead Current potentiometer anticlockwise for at least 20 full turns. This will set the bead current to minimum.

2.3 SET UP AND CALIBRATION

- (1) Connect a voltmeter to the terminals J (negative) and M (positive).
- (2) Apply 24V to the unit and verify that the voltmeter reads approximately 170mV.

2. OPERATING INSTRUCTIONS

Note: This voltage reading can be used to set the bead current at a conversion of $1\text{mV} = 1\text{mA}$. For example, to set the bead current to 200mA , turn the bead current adjust potentiometer (RV1) slowly clockwise until the voltage reading is 200mV .

- (3) Allow the unit to warm up and stabilise.
- (4) Turn the span adjust potentiometer clockwise at least 20 full turns.
- (5) Adjust the zero adjust potentiometer until the loop current is 4mA .

Note: If it is not possible to set 4mA , reposition the jumper on LK1 to the wide zero adjust position and try again.

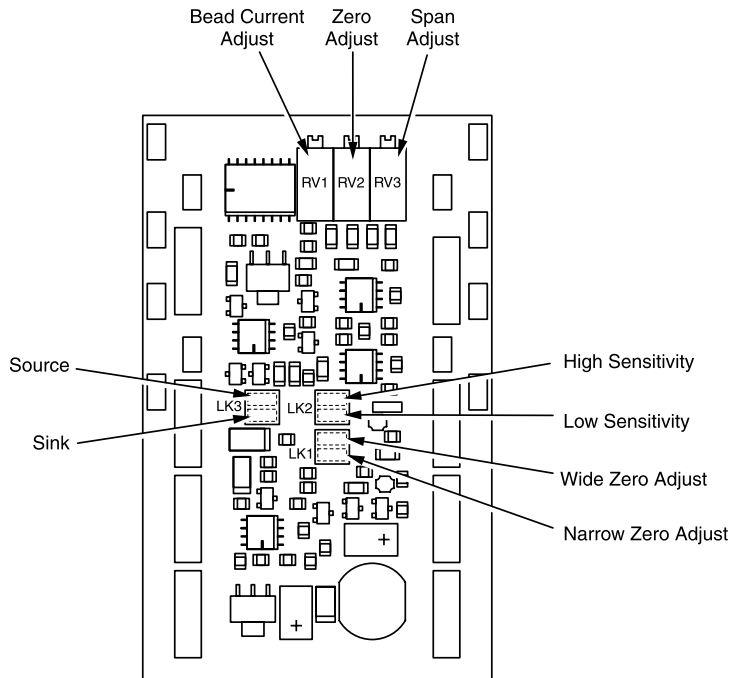
- (6) Carefully replace the RFI screen lid and plastic side cover. The unit should now be mounted on an appropriate Din rail.
- (7) Apply a target gas to the sensor and adjust the span potentiometer for the appropriate loop current. For example, if the target gas is 50% fsd, which is the recommended calibration concentration, adjust the span potentiometer for a 12mA loop current. If the loop current cannot be adjusted high enough reposition the jumper on LK2 to the high sensitivity position and try again.

Notes: 1. All jumper links may be repositioned with the unit powered up.

2. All potentiometers are nominally 20 turn end to end.

3. Maximum unit stability is achieved with LK1 set to the Narrow Zero adjust position and LK2 set to the Low sensitivity position. Where possible this link configuration should be used.

2. OPERATING INSTRUCTIONS




Link and Potentiometer Location

3. FAULT DIAGNOSIS

Symptom	Possible Fault
No voltage between Terminals J and M.	Sensor and/or wiring open circuit. Sensor not connected to correct terminals. 24V supply not connected to correct terminals. 24V supply too low. Resistance too high in 24V supply (maximum 12 ohms).
Unit will not source current.	LK3 (sink/source link) in wrong position. Controller configured as source. Loop connection made to wrong terminal (should be terminal C). Bead 01 or Non-Sensitive connection open circuit.
Unit will not sink current.	LK3 (sink/source link) in wrong position. Controller configured as sink. Loop connection made to wrong terminal (should be terminal F). Bead 01 or Non-Sensitive connection open circuit.
Bead current cannot be set high enough.	Sensor cables too long and/or resistance too high. Maximum sensor output voltage from converter 10V.
Loop current cannot be adjusted below 20 mA.	Sensitive bead connection open circuit.
Loop current cannot be adjusted down to 4mA when setting zero (Source mode).	Too great a voltage drop between the converter 0V and the controller 0V. Switch to converter sink and controller source mode of operation.

4. SPECIFICATION

Part Number:	2106B1110
Supply Voltage:	18 - 30V dc at converter.
Zero Adjust (LK1):	Wide zero adjust position gives $\pm 200\text{mV}$ of bridge offset. Narrow zero adjust position gives $\pm 30\text{mV}$ of bridge offset.
Input Sensitivity (LK2):	
High Sensitivity Position:	15mV bridge voltage gives 20mA at maximum sensitivity. 150mV bridge voltage gives 20mA at minimum sensitivity.
Low Sensitivity Position:	60mV bridge voltage gives 20mA at maximum sensitivity. 600mV bridge voltage gives 20mA at minimum sensitivity.
Sensor Current:	170mA to 300mA.
Maximum Output Voltage:	10V to sensor (terminals L and K).
Linearity:	Better than $\pm 2\%$ fsd.
Stability:	Better than $\pm 2\%$ fsd.
Operating Temperature:	0 to 50°C .
Protection:	IP 20.
 EMC:	Complies with EN50270.
Factory Default Settings:	
LK1:	Narrow zero adjust.
LK2:	Low sensitivity.
LK3:	Sink.
Bead Current:	170mA.

Please Note:

While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines. This publication is not intended to form the basis of a contract.

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