

## In-Line Strain Gauge Analogue Amplifier



A small format, robust signal conditioner. Strain gauge bridge input, 4-20mA output. Digital trim pots allow semi-automatic calibration

### Product Features & Benefits

- **Quick Setup & Semi-Automatic Calibration**  
Calibration via programmer and Toolkit
- **Stable, Reliable, High Accuracy Measurement:**  
Low temperature drift & extensive EMC filtering
- **Small and Compact Design:**  
Ideal for compact installations - 80 x 24 x 15 mm
- **Customisable**  
Options to customise sensitivity, trim range and bandwidth (MOQ applies)
- **Robust Design:**  
Reverse polarity protection, short circuit protection, input and output protection
- **Fast & Easy Installation**  
Molex Lite-Trap push-in connectors for ease of installation

### Ideal Applications

- Machine Building
- Lifting & Handling
- Silo & Weighing
- Automotive



### Introduction

Housed in an IP50 in-line enclosure, Mantracourt's In-Line Amplifier (ILA) converts strain gauge or load cell inputs into a high stability 4-20 mA output.

Its small design enables it to be easily integrated into compact installations. The ILA is compatible with a wide range of inputs including strain gauges, load cells, pressure and torque transducers.

Gain and Offset calibration is performed by a dual 256-step non-volatile digital potentiometer allowing fast semi-automatic calibration via Mantracourt's proprietary Custom Programming Module and free ILA Toolkit.

Extensive EMC filtering reduces noise for reliable and safe operation.

The ILA can be customised to suit your requirements; simply select your sensitivity, trim range & bandwidth (MOQ applies). Windows drivers are available for OEM calibration. See order codes for standard variants.



### Accessories & Related Products



**ILA-PGMD**  
In-Line Amplifier  
Programmer/Calibrator



**ILA Toolkit**  
In-Line Amplifier Calibration Toolkit



**ICA4H**  
OEM Strain Gauge Converter, 4-20 mA



**ILE**  
Field enclosure for ICA analogue and DCell data converters

## Specifications

### Electrical Specifications

<b>Bridge Excitation</b>	4.90 to 5.10 V DC
<b>Bridge Impedance</b>	350 to 5000 ohms
<b>Bridge Sensitivity</b>	1, 2, 2.5, 3 and 4 mV/V standard (Note 1)
<b>Output Load</b>	1000 ohms (Note 2)
<b>Bandwidth</b>	DC to 10 kHz (Note 3)
<b>'Zero' adjustment</b>	±2 %FR
<b>'Span' adjustment</b>	±8 %FR
<b>Linearity</b>	0.02 %FR
<b>Zero Temperature Stability</b>	0.005 ±%FR/°C (at 2.5 mV/V)
<b>Gain Temperature Stability</b>	0.005 ±%FR/°C (at 2.5 mV/V)
<b>Zero trim resolution</b>	3 µA (Note 4)
<b>Gain trim resolution</b>	10 µA (Note 4)

FR=Full Range (16 mA)

Note 1: Set at time of manufacture. Other sensitivities available subject to MOQ.

Note 2: 1000 ohms max requires 24 V minimum supply

Note 3: 10k typ. User definable bandwidth up to 50 kHz (see response curves in Figure 1, tested at 2.5 mV/V)

Note 4: At 2.5 mV/V due to 256-step digital pot resolution.

### Environmental

<b>Supply Voltage Range</b>	9 to 32 V (note 1)
<b>Operating Current</b>	8 mA (note 2)
<b>Operating temperature range:</b>	-40 to 85 °C
<b>Storage temperature range</b>	-40 to 85 °C
<b>Reverse polarity protection (on power supply, input and output connections)</b>	-30 V
<b>IP Rating</b>	IP54

Note 1: For 12 V operation the maximum receiver input impedance is 400 ohms. Operation at lower supply voltages is possible but limited by receiver's input impedance e.g. for operation at 10 V the receiver's input impedance should not exceed 250 ohms or 150 ohms for 8 V operation.

Note 2: Not including excitation current and output current e.g. when connected to a 350 Ohm load cell:-

Total current = Operating current (8mA) + Excitation current (5/350 = 14mA) + Output current (20 mA FS) = 42 mA FS (typical).

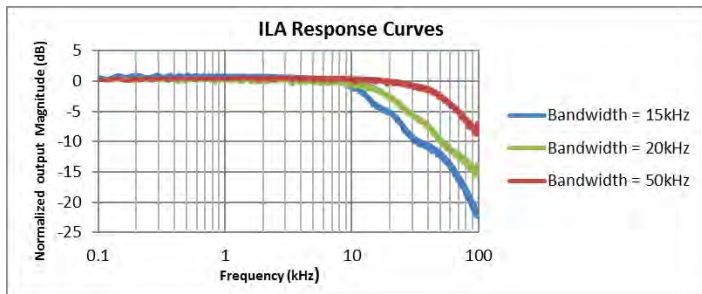


Fig 1 Typical Response Curves

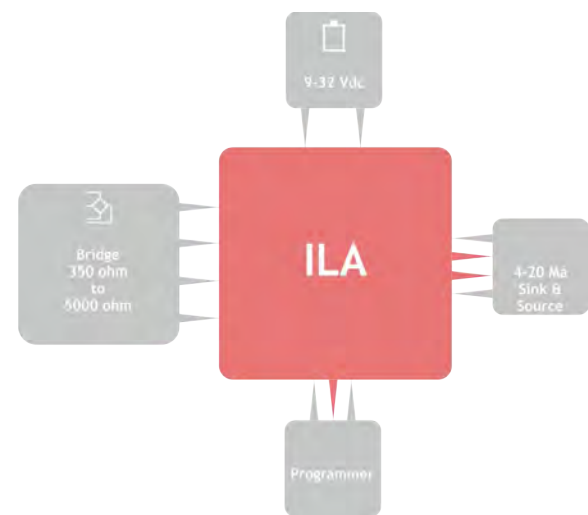
## Approvals

<b>LVD Directive</b>	2014/35/EU
<b>EMC Directive</b>	2014/30/EU
<b>RoHS Directive</b>	2011/65/EU

## Mechanical



## Electrical



## Order Codes

**ILA-SSBG-C:** In-Line Bridge Amplifier 1.0 mV/V

**ILA-SSBG-D:** In-Line Bridge Amplifier 2.0 mV/V

**ILA-SSBG-A:** In-Line Bridge Amplifier 2.5 mV/V

**ILA-SSBG-E:** In-Line Bridge Amplifier 3.0 mV/V

**ILA-SSBG-G:** In-Line Bridge Amplifier 4.5 mV/V

**Substitute 'SSBX' for 'SSBG' in the above for OEM versions, eg:**

**ILA-SSBX-A:** In-Line Bridge Amplifier OEM Board – 2.5 mV/V

**ILA-PGMX-A:** In-Line Amplifier Programmer OEM Version

**ILA-PGMD-A:** In-Line Amplifier Programmer Cased

**ILA-CAB-A:** Cable included with the programmer

**ILA Toolkit:** In-Line Amplifier Calibration Toolkit

Manual Reference: 517-947

Mantracourt Electronics Ltd  
The Drive, Farringdon  
Exeter, Devon, UK  
EX5 2JB

Tel: +44 (0)1395 232020  
Email: info@mantracourt.com  
mantracourt.com



# ILA TOOLKIT SOFTWARE

EASY TO USE, INTUITIVE TOOLKIT SOFTWARE FOR SPEEDY AND PAINLESS SET-UP

- **INTUITIVE INTERFACE** You don't have to read a manual to get started. Our well-designed interface guides you through calibration of the ILA.
- **LOGICAL** Our toolkit provides simple and fast calibration
- **WE DO THE THINKING FOR YOU** Gain and offset values are calculated based on output required
- **USE ONE, USE THEM ALL** If you're familiar with one toolkit, you'll quickly pick up the others.
- **FREE** All of our software is freely available.

## TAKE A TOUR



## WHAT CAN IT DO?

The ILA Toolkit software for Windows connects with the ILA via a programming module ILA-PGMD. The toolkit allows the ILA to be configured and provides simple:

- Manual Calibration
- Semi-automatic Calibration

## THE DASHBOARD

Intuitive navigation which is simple to use.

## DOWNLOAD & TEST-DRIVE

Visit [mantracourt.com](http://mantracourt.com)



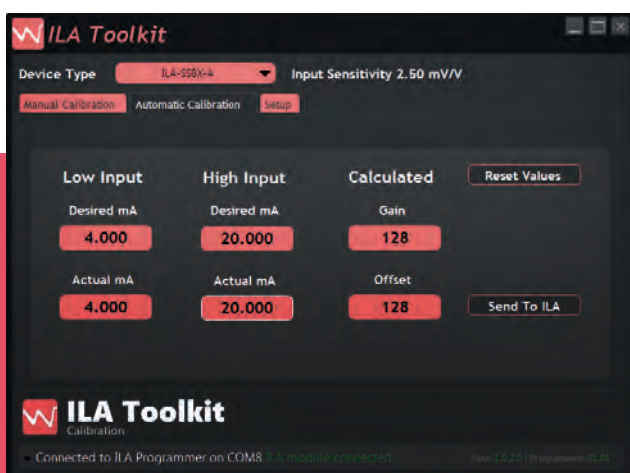
# FUNCTIONALITY SCREEN SHOTS

## MANUAL CALIBRATION



Manual calibration can simply be achieved by adjusting the virtual gain and offset potentiometers.

## SEMI-AUTOMATIC CALIBRATION



With auto calibration, you set the mA required against the actual mA. The gain and offset values are calculated based on input required.