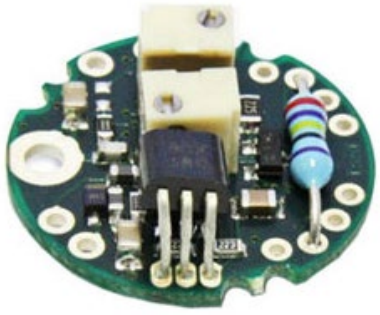
Features

- Miniature strain gauge conditioner/load cell amplifier.
- PCB format for easy fitting inside sensors or an ILE housing.
- 0-5V, ±10V, 4-20mA or 0-10V outputs available.
- Non-interaction between the trimmers make calibration fast and easy.
- High speed at 1000Hz.
- User selectable span resistor.
- Robust design with high noise immunity, reverse polarity protected.
- Optional ILE inline housing.



Description

The ICA miniature analogue amplifier range is a high-performance strain gauge signal conditioner in miniature OEM format. Designed specifically for fitting inside load cells, the ICA converts mV/V signal to 4-20mA or 0-10V analogue output. The ICA family offers high stability and fast response.

The ICA is available in 6 versions with two performance categories S and H: S = Industrial and H = Very High Stability. Of the 6 versions available, all but one is of the ICAH range which offers very low drift over wide operating temperatures. The ICA5S (two-wire) is the only ICA that is available in the industrial range.

There is an optional ILE inline stainless-steel housing available for the ICA (and DCell) amplifier range. More information can be found on the ILE on **Page 4** of this data sheet.

Typical Specification Voltage Output Amplifiers

ELECTRICAL & ENVIRONMENTAL	ICA1H (0.1-10.1V)			ICA2H (0.1-5.1V)			UNITS	NOTE REF
	MIN.	TYPICAL	MAX.	MIN.	TYPICAL	MAX.		
Supply Voltage Range	13	24	28	8.5	12	28	Volts	-
Operating Current	-	22	-	-	22	-	mA	*1*
Operating Temperature Range	-40	-	85	-40	-	85	ºC	-
Storage Temperature Range	-40	-	85	-40	-	85	ºC	-
Reverse Polarity Protection	-30	-	-	-30	-	-	Volts	-
MEASUREMENT								
Bridge Excitation	4.9	5	5.1	4.9	5	5.1	Volts	-
Bridge Impedance	350	1000	5000	350	1000	5000	Ω	-
Bridge Sensitivity	0.5	2.5	150	0.5	2.5	150	mV/V	*2*
Output Current Range	0.1	-	+10.1	0.1	-	+5.1	Volts	-
Output Load	5000	-	-	5000	-	-	Ω	-
Band Width	DC	-	1000	DC	-	1000	Hz	-
Zero Adjustment	-	±2	-	-	±2	-	%FR	-
Span Adjustment	-	±8	-	-	±8	-	%FR	-
Linearity	-	0.02	-	-	0.02	-	%FR	-
Zero Temperature Stability	-	0.0004	0.0015	-	0.0004	0.0015	±%FR/ºC	-
Span Temperature Stability	-	0.002	0.0051	-	0.002	0.0051	±%FR/ºC	-

ELECTRICAL & ENVIRONMENTAL	ICA3H (±10V)			ICA6H (±10V)			UNITS	NOTE REF
	MIN.	TYPICAL	MAX.	MIN.	TYPICAL	MAX.		
Supply Voltage Range	±13	±14	±15	14	15	18	Volts	*3 ICA6H*
Operating Current	-	22	-	-	30	-	mA	*1*
Operating Temperature Range	-40	-	85	-40	-	85	ºC	-
Storage Temperature Range	-40	-	85	-40	-	85	ºC	-
Reverse Polarity Protection	-30	-	-	-30	-	-	Volts	-
MEASUREMENT								
Bridge Excitation	4.9	5	5.1	4.9	5	5.1	Volts	-
Bridge Impedance	350	1000	5000	350	1000	5000	Ω	-
Bridge Sensitivity	0.5	2.5	150	0.5	2.5	150	mV/V	*2*
Output Current Range	-10	-	+10	-10	-	+10	Volts	-
Output Load	5000	-	-	5000	-	-	Ω	-

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Band Width	DC	-	1000	DC	-	1000	Hz	-
Zero Adjustment	-	±2	-	-	±2	-	%FR	-
Span Adjustment	-	±8	-	-	±8	-	%FR	-
Linearity	-	0.02	-	-	0.02	-	%FR	-
Zero Temperature Stability	-	0.0004	0.0015	-	0.0004	0.0015	±%FR/ºC	-
Span Temperature Stability	-	0.002	0.0051	-	0.002	0.0051	±%FR/ºC	-

Typical Specification Current Output Amplifiers

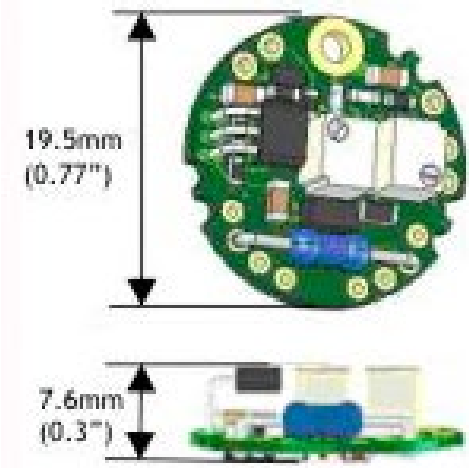
ELECTRICAL & ENVIRONMENTAL	ICA4H (4-20mA)			ICA5S (4-20mA)			UNITS	NOTE REF
	MIN.	TYPICAL	MAX.	MIN.	TYPICAL	MAX.		
Supply Voltage Range	13	24	28	7.5	24	28	Volts	*4 ICA4H*
Operating Current	26	-	42	4	-	20	mA	*1*
Operating Temperature Range	-40	-	85	-40	-	85	ºC	-
Storage Temperature Range	-40	-	85	-40	-	85	ºC	
Reverse Polarity Protection	-30	-	-	-30	-	-	Volts	-
MEASUREMENT								
Bridge Excitation	4.9	5	5.1	1.05	1.11	1.16	Volts	*5 ICA5S*
Bridge Impedance	350	1000	5000	350	1000	5000	Ω	*6 ICA5S*
Bridge Sensitivity	0.5	2.5	150	0.5	2.5	55	mV/V	*2*
Output Current Range	4	-	20	4	-	20	Volts	-
Output Load	-	-	1000	-	-	800	Ω	*7 ICA4H*
Band Width	DC	-	1000	DC	-	1000	Hz	-
Zero Adjustment	-	±2	-	-	±2	-	%FR	*5 ICA5S*
Span Adjustment	-	±8	-	-	±8	-	%FR	-
Linearity	-	0.02	-	-	0.02	-	%FR	-
Zero Temperature Stability	-	0.0004	0.0015	-	0.001	0.005	±%FR/ºC	-
Span Temperature Stability	-	0.002	0.0051	-	0.007	0.014	±%FR/ºC	-

(1) With 350Ω load cell connected. (2) Factory setting is the typical value shown. For other values, fit an alternative calibration resistor. (3) ICA6 maximum voltage can be increased to 24V with a 1000Ω load cell. (4) The ICA4 can tolerate a lower supply voltage if the output load is reduced, e.g. operation is possible at 8V provided that the load does not exceed 150Ω. (5) ICA5 with 1000Ω load cell connected. (6) ICA5 recommended bridge impedance is 1000Ω or greater. (7) 24V minimum supply/sink mode.

Typical Specification General

STORAGE TEMPERATURE	-40°C to +85°C.
OPERATING TEMPERATURE	-40°C to +85°C.
RELATIVE HUMIDITY	95% maximum, non-condensing.
CE ENVIRONMENTAL APPROVALS	European EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.

Outline Dimensions in millimetres



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Electrical Connections

For the relevant electrical connections, please refer to the product manual.

Ordering Codes

ICA1H	3-Wire 0.1-10.1V output amplifier. High Stability.
ICA2H	3-Wire 0.1-5.1V output amplifier. High Stability.
ICA3H	4-Wire ±10V output amplifier. High Stability.
ICA4H	3-Wire 4-20mA output amplifier. High Stability.
ICA5S	2-Wire 4-20mA output amplifier. Industrial Stability.
ICA6H	3-Wire ±10V output amplifier for 14-24V supply. High Stability.
ILE	Inline stainless-steel housing – see **Page 4**.

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Features

- Inline housing for ICA or DCell amplifiers.
- Small size, 56x28mm excluding glands.
- Machined from solid stainless-steel.
- IP67 rating.

Description

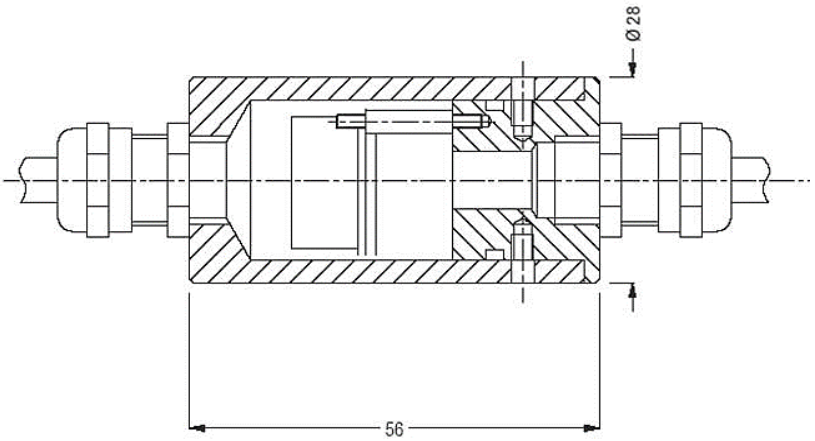
The ILE is an inline stainless-steel housing for load cell amplifiers (ICA) and digital load cell converters (DCell). The ILE enables users to quickly convert any standard load cell output.

Offering robust EMC IP67 protection, the ILE housing is an ideal way to include signal conditioning in your application without taking up much space.

Typical Specification

COVER MATERIAL	Type 304 stainless-steel.
BODY MATERIAL	Type 316 or 17-4 stainless-steel.
THREADED ENTRIES	PG7/20 TPI.
CABLE ENTRIES	PG7 EMX glands (e.g. Jacob 50.007/EMV 14mm AF).

Outline Dimensions in millimetres



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