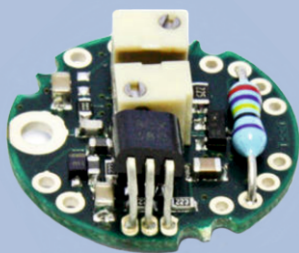




TYPE: ICA



ICA 'In-Cell' Analogue Strain Gauge Amplifier

Description

The second generation ICA (in cell amplifier) is an extremely high performance strain gauge amplifier, converting a strain gauge input to a voltage or current output.

Its sub-miniature design enables it to be fitted into the majority of transducers, for a wide range of signal conditioning for strain gauges, load cells, pressure and torque transducers.

The amplifier is available in six versions, offering a wide range of current and voltage outputs. All amplifiers have a wide operating voltage range.

Features

- Standardised mounting hole for faster and easier installation
- Standardised excitation of 5V DC
- Full CE approval
- Plated through holes for wire connections
- Maximum height 7.6mm
- Cost effective with attractive discounts on quantity orders
- Robust design, reverse short circuit protected
- Fast calibration procedure
- Can be integrated into the majority of LCM Systems sensor products

Typical Applications

- Internal amplification of strain gauge based pressure transducers
- Internal amplification of strain gauge based load cells
- Internal amplification of strain gauge based torque transducers

Specification - Voltage Output Versions

| ICA1 (0.1-10.1 volts) & ICA2 (0.1 - 5.1 volts) 3 Wire | |
|---|---|
| Power supply | ICA1: 13 to 28V DC, ICA2: 8.5 to 28V DC |
| Operating current | 22mA (note 1) |
| Operating temperature range | -40 to +85°C |
| Storage temperature range | -40 to +85°C |
| Reverse polarity protection | -30V |
| Bridge excitation | 4.9 to 5.1V |
| Bridge resistance | 350 to 5000Ω (1000Ω typical) |
| Bridge sensitivity | 0.5 to 150mV/V (2.5mV/V typical) (note 2) |
| Output voltage range | ICA1: +0.1 to +10.1V, ICA2: +0.1 to +5.1V |
| Output load | 5000Ω |
| Band width | dc to 1000Hz |
| Zero adjustment | ±2%FR |
| Span adjustment | ±8%FR |
| Linearity | 0.02%FR |
| Zero temp stability | 0.0015±%FR/°C |
| Span temp stability | 0.0051±%FR/°C |

| ICA3 (±10 volts) 4 Wire & ICA 6 (±10 volts) 3 Wire | |
|--|--|
| Power supply | ICA3: ±13 to ±15V DC, ICA6: 14 to 18V DC (note3) |
| Operating current | ICA3: 22mA, ICA6: 30mA (note 1) |
| Operating temperature range | -40 to +85°C |
| Storage temperature range | -40 to +85°C |
| Reverse polarity protection | -30V |
| Bridge excitation | 4.9 to 5.1V |
| Bridge resistance | 350 to 5000Ω (1000Ω typical) |
| Bridge sensitivity | 0.5 to 150mV/V (2.5mV/V typical) (note 2) |
| Output voltage range | -10v to +10V |
| Output load | 5000Ω |
| Band width | dc to 1000Hz |
| Zero adjustment | ±2%FR |
| Span adjustment | ±8%FR |
| Linearity | 0.02%FR |
| Zero temp stability | 0.0015±%FR/°C |
| Span temp stability | 0.0051±%FR/°C |

Notes

The voltage between either of the power supply connections and the load cell shield should not exceed 50V. Any leakage will be greater than 10M Ω. FR = full range.

Note 1 With 350Ω load cell connected

Note 2 Factory setting is the typical value shown. For other values fit an alternative calibration resistor

Note 3 ICA6 maximum voltage can be increased to 24V with 1000Ω load cell

ICA 'In-Cell' Analogue Strain Gauge Amplifier

Specification - Current Output Versions

| ICA4 (4-20mA) 3 Wire | |
|-----------------------------|---|
| Power supply | 13 to 28V DC (24V DC typical) (note 1) |
| Operating current | 26 to 42mA |
| Operating temperature range | -40 to +85°C |
| Storage temperature range | -40 to +85°C |
| Reverse polarity protection | -30V |
| Bridge excitation | 4.9 to 5.1V (note 3) |
| Bridge resistance | 350 to 5000Ω (350Ω typical) |
| Bridge sensitivity | 0.5 to 150mV/V (2.5mV/V typical) (note 2) |
| Output voltage range | 4 to 20mA |
| Output load | 1000Ω (note 3) |
| Band width | dc to 1000Hz |
| Zero adjustment | ±2%FR |
| Span adjustment | ±8%FR |
| Linearity | 0.02%FR |
| Zero temp stability | 0.0015±%FR/°C |
| Span temp stability | 0.0051±%FR/°C |

| ICA5 (4-20mA) 2 Wire | |
|-----------------------------|--|
| Power supply | 7.5 to 28V DC (24V DC typical) |
| Operating current | 4 to 20mA |
| Operating temperature range | -40 to +85°C |
| Storage temperature range | -40 to +85°C |
| Reverse polarity protection | -30V |
| Bridge excitation | 1.05 to 1.16V (1.11 typical) (note 4) |
| Bridge resistance | 350 to 5000Ω (1000Ω typical) (note 5) |
| Bridge sensitivity | 0.5 to 55mV/V (2.5mV/V typical) (note 2) |
| Output voltage range | 4 to 20mA |
| Output load | 825Ω with 24V supply |
| Band width | dc to 1000Hz |
| Zero adjustment | ±2%FR (note 4) |
| Span adjustment | ±8%FR |
| Linearity | 0.02%FR |
| Zero temp stability | 0.005±%FR/°C |
| Span temp stability | 0.014±%FR/°C |

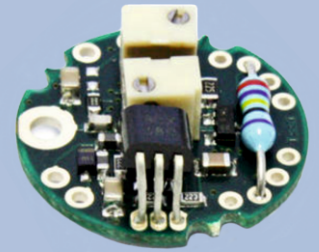
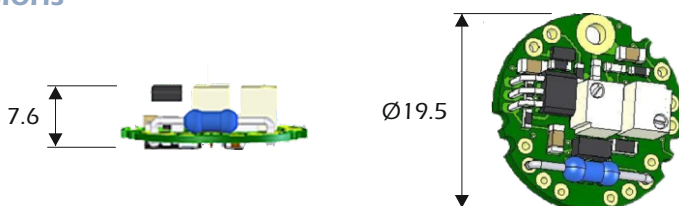
Notes

The voltage between either of the power supply connections and the load cell shield should not exceed 50V. Any leakage will be greater than 10M Ω. FR = full range.

- Note 1 The ICA4 can tolerate a lower power supply voltage if the output load is reduced e.g. operation is possible at 8V provided that the load does not exceed 150Ω.
- Note 2 Factory setting is the typical value shown. For other values fit an alternative calibration resistor
- Note 3 24V minimum supply/sink mode
- Note 4 With 1000Ω load cell connected
- Note 5 Recommend bridge impedance is 1000Ω or greater

All dimensions are in mm

Dimensions



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