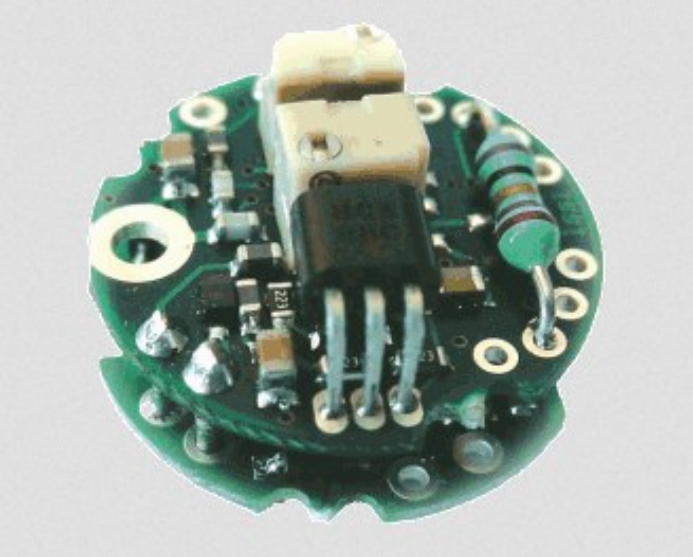
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Amplificator ICA



Amplificator ICA Producator: LCM Systems ICA In-Cell Analogue Strain Gauge Amplifier

Descriere

ICA In-Cell Analogue Strain Gauge Amplifier

Features :

- Standardised mounting hole for faster & easier installation
- Standardised excitation 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 polarity & short circuit protected
- Fast calibration procedure
- Can be integrated into the majority of LCM Systems sensor products

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

Its sub-miniature design enables it to be fitted into the majority of load cells, pressure and torque transducers.

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

LCM Systems can integrate any of the ICA range of products into the majority of our sensor range. For applications where this is not possible, we can supply a small inline enclosure (ILE), which incorporates the ICA.

Specification :

Specifications- Voltage Output Versions				
ICA1 - 3 Wire 0.1-10 volts				
Electrical and Environmental				
	Min	Typ	Max	Units (Notes)
Power Supply	13	24	30	V DC (note 1)

Operating Current	-	23	-	mA (note 2)
Operating temperature range	-40	-	85	°C
Storage temperature range	-40	-	85	°C
Reverse polarity protection	-	-	-30	V
Measurement				
Bridge excitation	4.9	5	5.1	V
Bridge resistance	330	350	5000	Ohms
Bridge sensitivity	0.5	2.5	150	mV/V (note 3)
Output voltage range	+0.1	-	+10.1	V
Output load	5000	-	-	Ohms
Band width	dc	-	1000	Hz
Zero adjustment	-	±2	-	%FR
Span adjustment	-	±8	-	%FR
Linearity	-	0.02	-	%FR
Zero temp stability	-	0.000	0.001	±%FR/°C
Span temp stability	-	0.004	0.002	±%FR/°C
ICA2 - 3 Wire 0.1-5 volts				
Electrical and Environmental				
	Min	Typ	Max	Units (Notes)
Power supply	8.5	-	28	V DC (note 1)
Operating Current	-	23	-	mA (note 2)
Operating temperature range	-40	-	85	°C
Storage temperature range	-40	-	85	°C
Reverse polarity protection	-	-	-30	V
Measurement				
Bridge excitation	4.9	5	5.1	V
Bridge resistance	330	350	5000	Ohms
Bridge sensitivity	0.5	2.5	150	mV/V (note 3)
Output voltage range	+0.1	-	+5.1	V
Output load	5000	-	-	Ohms
Band width	dc	-	1000	Hz
Zero adjustment	-	±2	-	%FR
Span adjustment	-	±8	-	%FR
Linearity	-	0.02	-	%FR
Zero temp stability	-	0.000	0.001	±%FR/°C
Span temp stability	-	0.004	0.002	±%FR/°C
ICA3 - 4 Wire ±10 volts				
Electrical and Environmental				
	Min	Typ	Max	Units (Notes)

Power supply	±13	-	±15	V DC (note 1)
Operating Current	-	23	-	mA (note 2)
Operating temperature range	-40	-	85	°C
Storage temperature range	-40	-	85	°C
Reverse polarity protection	-	-	-30	V
Measurement				
Bridge excitation	4.9	5	5.1	V
Bridge resistance	330	350	5000	Ohms
Bridge sensitivity	0.5	2.5	150	mV/V (note 3)
Output voltage range	-10	-	+10	V
Output load	5000	-	-	Ohms
Band width	dc	-	1000	Hz
Zero adjustment	-	±2	-	%FR
Span adjustment	-		±8	-
Linearity	-	0.02	-	%FR
Zero temp stability	-	0.0002	0.001	±%FR/°C
Span temp stability	-	0.002	0.005	±%FR/°
ICA6 - 4 Wire ±10 volts				
Electrical and Environmental				
	Min	Typ	Max	Units (Notes)
Power supply	14	-	18	V DC (note 1)
Operating Current	-	30	-	mA (note 2)
Operating temperature range	-40	-	85	°C
Storage temperature range	-40	-	85	°C
Reverse polarity protection	-	-	-30	V
Measurement				
Bridge excitation	4.9	5	5.1	V
Bridge resistance	330	350	5000	Ohms
Bridge sensitivity	0.5	2.5	150	mV/V (note 3)
Output voltage range	-10	-	+10	V
Output load	5000	-	-	Ohms
Band width	dc	-	1000	Hz
Zero adjustment	-	±2	-	%FR
Span adjustment	-	±8	-	%FR
Linearity	-	0.02	-	%FR
Zero temp stability	-	0.0002	0.001	±%FR/°C
Span temp stability	-	0.002	0.005	±%FR/°C
Notes				

Note 1	ICA6 Max Voltage can be increased to 24V with 1000R load cell.			
Note 2	With 350R load cell connected.			
Note 3	Factory setting is the typical value shown. For other values fit an alternative calibration resistor (see manual).			
General 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 Ohms.				
FR = Full Range				
Specifications - Current Output Versions				
ICA4 - 3 Wire 4-20mA				
Electrical and Environmental				
	Min	Typ	Max	Units (Notes)
Power supply	10	24	30	V DC
Operating Current	27	-	43	mA (note 1)
Operating temperature range	-40	-	85	°C
Storage temperature range	-40	-	85	°C
Reverse polarity protection	-	-	-30	V
Measurement				
Bridge excitation	4.9	5	5.1	V (note 3)
Bridge resistance	330	350	5000	Ohms(note 4)
Bridge sensitivity	0.5	2.5	150	mV/V (note 5)
Output current range	4	-	20	mA
Output load	-	-	250	Ohms(note 6)
Band width	dc	-	1000	Hz
Zero adjustment	-	±2	-	%FR(note 3)
Span adjustment	-	±8	-	%FR
Linearity	-	0.02	-	%FR
Zero temp stability	-	0.000	0.001	±%FR/°C
Span temp stability	-	0.002	0.005	±%FR/°C
ICA5 - 2 Wire 4-20mA				
Electrical and Environmental				
	Min	Typ	Max	Units (Notes)
Power supply	7.5	24	30	V DC (note 1)
Operating Current	4	-	20	mA (note 2)
Operating temperature range	-40	-	85	°C

Extended operating temperature range	-40	-	125	°C (note 3)
Storage temperature range	-40	-	125	°C
Reverse polarity protection	-	-	-30	V
Measurement				
Bridge excitation	1.05	1.11	1.16	V (note 4)
Bridge resistance	350	1000	5000	Ohms (note 5)
Bridge sensitivity	0.5	2.5	55	mV/V (note 6)
Output voltage range	4	-	20	mA
Output load	-	-	800	Ohms (note 7)
Band width	dc	-	1000	Hz
Zero adjustment	-	±2	-	%FR (note 3)
Span adjustment	-	±8	-	%FR
Linearity	-	0.02	-	%FR
Zero temp stability	-	0.001	0.005	±%FR/°C
Span temp stability	-	0.007	0.014	±%FR/°C
Notes				
Note 1	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 250 Ohms in sink mode or 150 Ohms in source mode.			
Note 2	With 350 Ohm load cell connected (ICA5 1000 Ohm) (recommended).			
Note 3	With reduced supply voltage (see manual).			
Note 4	ICA5 with 1000 Ohms load cell connected.			
Note 5	ICA5 recommended bridge impedance is 1000 Ohms.			
Note 6	Factory setting is the typical value shown. For other values an alternative calibration resistor (see manual).			
Note 7	ICA4 only: The maximum			
General 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 Ohms.				
FR = Full Range				
Enclosure				
Fit into circular holes 19.5mm diameter with 7.6mm height				
Controls				
Offset & gain pot +SOT resistors for mV/V sensitivity (gain)				
CE & Environmental				

Storage temperature	refer to above specifications			
Operating temperature	refer to above specifications			
Relative humidity	95% maximum non condensing			
Safety/Low Voltage Directive	2006/95/EC			
EMC Directive	2004/108/EC			

Specifications- Voltage Output Versions

ICA1 - 3 Wire 0.1-10 volts

Electrical and Environmental

Measurement

ICA2 - 3 Wire 0.1-5 volts

Electrical and Environmental

ICA3 - 4 Wire ±10 volts

Electrical and Environmental

Measurement

ICA6 - 4 Wire ±10 volts

Electrical and Environmental

Measurement

Notes

General Notes

Specifications - Current Output Versions

ICA4 - 3 Wire 4-20mA

Electrical and Environmental

Measurement

ICA5 - 2 Wire 4-20mA

Electrical and Environmental

Measurement

Notes

General Notes

CE & Environmental