McLaren ELECTRONIC SYSTEMS

INTERFACE
BRIDGE AMPLIFIER

The bridge amplifier converts the differential millivolt output of a bridge sensor, such as a strain gauge pressure sensor or accelerometer, to an output in the range of 0 to 5V. It also provides a stabilised supply voltage for sensor excitation. Various amplifier gains are available to suit particular sensors and other gain values can be supplied on request. The positive input must always be higher than the negative input. For example, if a negative load is to be measured, an external offset must be applied to ensure that the differential input is always positive. The sensor is screened and encapsulated.

Electrical

- Gain and input voltages are shown in the order details
- Total thermal shift ≤0.4mV/℃
- Supply voltage 7 to 16V DC
- Supply current less than 6mA (excluding sensor loads)
- Excitation voltage for sensors 5±0.002V
- Output impedance less than 50 ohm
- Sensor bridge impedance must be at least 350 ohm
- Insulation resistance greater than 10 Mohm @ 50V DC

Cable and Connection Definition

- Input cable 24 AWG screened
- Output cable 22 AWG un-screened
- Cable length is shown on the order details but any length is available on request
- Various automotive and military standard connectors are available
- Input Connection

Red wire	Pin A	Pin 1	Excitation supply
Green wire	Pin B	Pin 2	Sensor Signal +
Blue wire	Pin C	Pin 3	Sensor Signal –
Black wire	Pin D	Pin 4	Ground
Screen	Pin F	Pin 5	Screen

- Output Connection

Red wire	Pin A	Pin 1	Supply
White wire	Pin B	Pin 2	Output Signal
Green wire	Pin C	Pin 3	Ground

Application

- Amplification of bridge sensor signals

Mechanical

- Weight less than 60g (including cable)
- Aluminium body hard anodised and dyed black

Design and manufacture is in-house, so if our existing designs do not suit your application, we can provide cost effective customised parts to suit even the most demanding application. No engineering charges are made for simple modifications such as customer specific connectors, cable protection and cable lengths. Please contact our technical consultancy service who will be pleased to help.

Environmental

- Resistant to standard motorsport fluids
- Maximum humidity 100%
- Operating temperature -50 to 125℃
- Compensated temperature 0 to 125℃
- DR25 jacketed input cable, Viton jacketed output cable
- Vibration 50 to 2500Hz @ 40g 8hrs per axis

EMI/RFI Suppression

The circuit is housed in an aluminium shell. The battery supply and amplified output each have a 2.2nF in-line suppression filter which is terminated to the cable screen. For added suppression, the screen should be connected to the star ground point on the vehicle.

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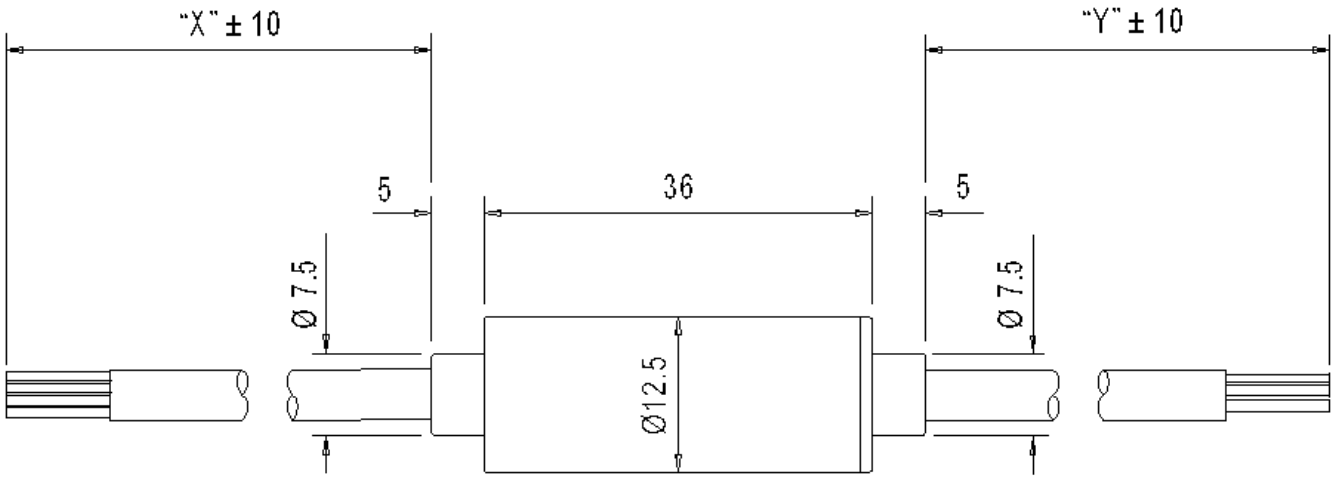

Gain	Input for 1±0.1V Output	Input for 4±0.1V Output	Dim "X"	Dim "Y"	Order Code
50	20mV	80mV	500mm	500mm	O 030 200 009 006
200	5mV	20mV	500mm	500mm	O 030 200 009 000
300	3.333mV	13.333mV	500mm	500mm	O 030 200 009 002
400	2.5mV	10mV	500mm	500mm	O 030 200 009 003
500	2mV	8mV	500mm	500mm	O 030 200 009 004
600	1.666mV	6.666mV	500mm	500mm	O 030 200 009 005

Other gain and offset values are available

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