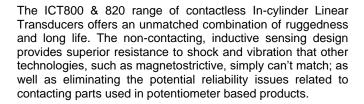


Penny & Giles In-Cylinder Linear Transducer ICT800/820

- · Robust design based on inductive technology
- Sleeve or threaded core options
- Optimal sensor length to cylinder stroke ratio
- 8mm transducer body diameter
- · Internal or external threaded flange options
- Measurement range 25-1000mm
- · Integrated signal conditioning electronics
- Analog output (ICT800) 0.5-4.5Vdc or 0.2-4.8Vdc
- CAN output (ICT820) SAE J1939
- Approaching end-of-stroke signalling
- Hydraulic fluid temperature measurement
- · Self-diagnostics and safety outputs
- Sealing to IP69K



Two core configurations provide the designer the following options. Sleeved core - cylinder rods can be simply machined to accommodate the sleeve, which also gives the option of retro-fitting existing servo-cylinders with an upgrade to ICT technology. Threaded core - provides the designer with the minimum transducer body size and simplified installation requiring minimal machining.

Because inductive sensing elements can provide measurement right up to the end-stops, there are no dead zones meaning the overall sensor length can be as close as possible to the cylinder's stroke. This, coupled with careful mechanical design, eases accommodation of the sensor into cylinders where space is at a premium. Furthermore, with a transducer body of only 8mm the ICT800 & 820 are well suited for use on small-bore



actuators; while offering a choice of internal or threaded external flange mounting configurations to suit tie-rod, welded and rear clevis-mounted cylinder types in stroke ranges from 25 to 1000mm.

The signal conditioning electronics, which can operate from a 5Vdc or an 8-30Vdc supply and across a wide temperature range, are integrated into the mounting flange and provide analog or CAN SAE J1939 output options. The analog output can be chosen to provide output ranges of 0.5-4.5Vdc or 0.2-4.8Vdc, while the CAN models have multiple Node ID, Baud Rate and Frame Rate configurations, thereby allowing simple integration with existing networks.

To maximise sensor safety, internal diagnostic circuits monitor for correct operation and if an error is detected this is communicated via an out-of-range analog signal or with a CAN message. In addition, the CAN versions are able to provide information on hydraulic fluid temperature, as well as having programmable end-stops and indication that the cylinder is approaching the end of travel, so allowing automatic soft-stopping. Dependent on electrical connector configuration, environmental protection levels of IP69K can be achieved.

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SPECIFICATIONS

SUPPLY

SUPPLY VOLTAGE 5Vdc ± 0.1Vdc and 8-30Vdc

SUPPLY CURRENT < 80mA **OVER VOLTAGE** 40Vdc REVERSE POLARITY PROTECTED Yes POWER-ON TIME < 1s

CONNECTIONS Integrated M12 connector, cable through gland or flying leads

OUTPUT - ICT800

OUTPUT VOLTAGE 0.5-4.5Vdc ±0.2% or 0.2-4.8Vdc ±0.2%

LOAD RESISTANCE 1kΩ min. SHORT CIRCUIT PROTECTION Output to GND RESOLUTION 12-bit

OUTPUT NOISE < 1mV rms INPUT/OUTPUT DELAY < 10ms FREQUENCY RESPONSE 100Hz @ -3dB

OUTPUT - ICT820

OUTPUT CAN SAE J1939

BAUD RATE 50, 125, 250, 500 or 1000 kbits/s FRAME RATE 10-100ms in steps of 10ms

RESOLUTION 13-bit **OUTPUT NOISE** ± 1-bit

INPUT/OUTPUT DELAY Selected Frame Rate

ICT800 & ICT820

LINEARITY $< \pm 0.1\%$ TEMPERATURE COEFFICIENT < ±300ppm

2m/s in ISO VG32 mineral oil **VELOCITY**

EMC Directive 2004/108/EC

OPERATING TEMPERATURE -40°C to 125°C (105°C cable version) STORAGE TEMPERATURE -40°C to 85°C limited by packing material

VIBRATION EN60068-2-64 (9gn rms)

SHOCK 2500g survival

WORKING PRESSURE 670bar **BURST PRESSURE** 1000bar

PULSED PRESSURE Obar to 470bar in 1s for 100,000 cycles **WORKING FLUIDS** Mineral, synthetic, fire retardant & ECO fluids **SEALING** IP67 M12 connector, IP69k cable & IP66 flying lead

MECHANICAL LIFE Contactless **MTTFD** 203 years

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