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# **TEMPERATURE SENSORS**

## P/N's – Multiple Options (see part builder on page 2) Ex ia: IECEx TSA 08.0031X

### **RINGLINE ANALOG TRANSMITTER TEMPERATURE SENSORS**

#### **DESCRIPTION:**

Ringline 1/2/3x Analog Transmitters have been designed to work with solid state type temperature sensors. For convenience Ringway offer a range of temperature sensors, available in most popular configurations. If none of the existing parts fulfil your requirements other configurations are often possible on request. Temperature Sensor housings are made from either stainless steel or plated copper to provide a good balance of thermal conductivity, strength and process compatibility.

Ringline temperature sensors, except for the FRAS version, feature a section of cable from the head that is armoured in stainless steel for mechanical protection making them suitable for use in harsh environments. A length of unarmoured lead is provided for easy laying in ducting and termination to the desired length. Sensors with the hose barb for FRAS

protection provide an economical alternative to armoured cable variants as the flying lead may be easily cut to size during installation, eliminating the need for multiple spares of different length cables.

Sensors are typically supplied with flying leads, however Ringway also offer termination with an IEC 61076-2-104 compliant M8 circular connector to avoid excess time in skilled labour to rerun long cables if the sensor requires

replacement. The M8C option supports a detachable lead (RLTSC\_x/M8C) that is protected by a Polyamide braid that provides a good balance of mechanical protection and ability to trim with standard cutters.

#### FEATURES:

- Simple, robust and functional.
- Ultra-low power consumption. No external power supply required (Ringline powered).
- Stainless Steel housing and flexible armoring options for superior mechanical protection.
- FRAS hose connection option for economical mechanical protection.
- Quick disconnect/extension option with M8 circular connector option
- IECEx certified for use with Ringline in hazardous areas (Ex ia).
- Overall sensing range 0-110 degrees Celsius.



'FR' FRAS hose type sensor with integral hose barb

#### **APPLICATIONS:**

The sensors have been designed for monitoring the temperature of bearings and other mechanical devices. When used in conjunction with a control system incorporating Ringline, these sensors can protect against mechanical destruction and/or fire. Most lubricants break down above 90°C, continuously monitoring and trending temperature values allows problems to be detected before there is a mechanical failure. The user should always check the actual operating temperature range of their lubricants from their lubricant manufacturer.

Various sensor heads are available: Lug style, typically placed on the outside case for rotating shaft bearings or gearboxes for monitoring surface temperature; Probe type, typically installed in a drilled hole for fixed shaft style bearings and the temperature sensor located right at the tip of the probe to allow monitoring at the hottest part of the shaft.

Grease-T fittings are available for bearing applications which enable the probe sensor shaft to double as a grease line. When installed and maintained correctly these sensors have sufficient water sealing and internal isolation to meet the intrinsic safety requirements of an I.S. Ringline system.

#### SPECIFICATIONS:

#### PART NUMBERS:

Power Supply:	5V (supplied by the Ringline Analog transmitter.)	
Current Draw:	114 μA max. (~60μA typical).	Extra ca None =. /# =
Bus Isolation to Earth:	Exceeds 750V DC.	MBC = = Protected cabit Stainless Steel Heavy duty Pol Note: Where le
Measurement Range:	0°C to 110°C.	Note: For FK1 Armour type: None = Stainless Steel arr FR = FRA5 hose barb ( PA = theav; duty polyan Stem probe type: (Stem type only) None = straight probe RA = right-angled
Signal Out:	10 mV/°C	For Stem type: For Hose clamp ty Stem length (mm) Application diame (See notes 1.2, & 4) e.g. Dead shaft di Sensor head: 1).Forum of
Typical Core	Supply +: Red	6 = 6mm stem 1) Einsule at 64 = 6.4mm stem the reading. 8 = 8mm stem before the be
Colours (STD-	Sig: White	HC = Hose clamp the probe is 3 L = Lug 2) For spring B = Bolt process com
PVC):	Supply -: Black	C = Cable only spring types 6F = 6mm flat tip stem 3) FRAS not 64F = 6.4mm flat tip stem 4) For stem 1 50mm stem
	Shield: Green	SP = 8mm flat tip stem 5) Minimum i 5) Minimum i
	(See RLTX#AN_PTS	GR = Grease T (1/4' JIC) [Stem type only] GR = Grease T (1/4' JIC) [Stem type only]
	for non std cable)	SP = Spring Loaded SO = Spring Loaded c/w o-ring oil seal TH = Stainless Steel Terminal Head <i>[Stern type o</i> WF = Fixed, watertight process connection. <i>[Stern</i>

ided ided (wo-ring oil seal steel Terminal Head [Stem type only] errinht process connection. [Stem type only]

Process connection (stem type only) None = No compression fitting

= M16 x 1.5 = 1/4" BSPF = 1/4" BSPT

= Mk socket A-coded circular connector (cable only) Protected cable length: Stainless Steel armoured lead length in metres (sensor) Heavy dut Polyamide yarn in metres (cable only) Note: Where less than in use leading zero to indicate decimal point e.g. 075=0.75m Note: For FRY type this is the overall cable length coming out of the sensor

Examples: M16 1/4BSPP

Extra cable length: None = 400mm standard tail or 'FR' type; /# = Unprotected cable length in metres M8C = M8 plug A-coded circular connector (sensor) = M8 socket A-coded circular connector (cable only)

For Hose clamp type: For Lug type: For Bolt type: Application diameter (mm) Hole size (mm) e.g. 10ad shaft diameter e.g. 1030 = M10 x 30

NOTE: 1) Ensure at least 10-15mm minimum insertion to reduce external influences on the reading. Stem length dimension on standard sensors with R/A bend is from tip of sensor to back of band (total length). The stright angle portion of before the band begins is Stem length less 20mm. The right angle portion of 2) For spring loaded probe sensors this is the relaxed length protunging from the process connection. The compressed length is 15mm shorter for standard spring types and Tmm for types that include the o-ring. 3) FRAS not included – available upon request. 4) For start probes the length field must be 3 digits wide e.g. '050' for 50mm sime length 0) Minimum bot demeter is M10.

1/4BSP

mour type: one = Stainless Steel armour (PA yarn for M8C option) R = FRAS hose barb (see note 3) A = Heavy duty polyamide yarn (Other than M8C)

\*Other configurations are possible on request.

#### **TEMPERATURE SWITCHES:**

A range of temperature switch sensors are available which are suitable for switching inputs of digital Ringline transmitters to indicate high temperature. These are not Ringline specific and may be used on any application where a temperature switch is required.

