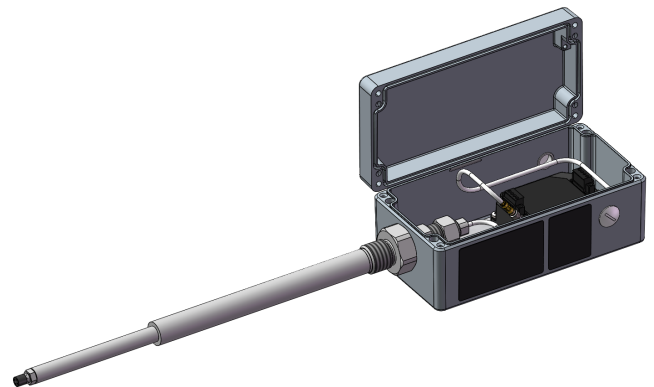


DATA SHEET

vibro-meter®

PA150 probe mounting adaptor with proximity measurement chain



KEY FEATURES AND BENEFITS

- From the vibro-meter® product line
- Non-contact measurement based on eddy-current principle
- Available in standard versions and Ex versions certified for use in hazardous areas (potentially explosive atmospheres)
- Conforms to API 670 5th edition
- Voltage or current output with protection against short circuits
- Removable housing, with a U-shaped retainer, that allows easier probe (sensor) installation and gap adjustment
- Sealed die-cast aluminium housing, with choice of orientation, containing an IQS9xx signal conditioner
- Stainless steel rod available in lengths from 50 to 800 mm, with mounting position adjustable to ± 10 mm
- Range of adaptor threads and lengths
- Choice of cable fittings (stuffing glands)

KEY FEATURES AND BENEFITS (continued)

- Frequency response: DC to 20 kHz (-3 dB)
- Linear measurement range: 2 or 4 mm
- Temperature range: -40 to +180°C for the proximity sensor
-40 to +85°C for the signal conditioner

APPLICATIONS

- Shaft relative vibration and gap/position measurement chains for machinery protection and/or condition monitoring
- Ideal for use with VM600^{Mk2}/VM600 and VibroSmart® machinery monitoring systems
- API 670 applications
- Safety-related applications
- Speed (tachometer) sensor/measurement chain for overspeed detection system (ODS) applications



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DESCRIPTION

The PA150 probe mounting adaptor with proximity measurement chain is a complete self-contained measurement chain/system, using a TQ912 and IQS900 proximity measurement chain, from Meggitt's vibro-meter® product line. This probe mounting adaptor with proximity measurement chain allows contactless measurement of the relative displacement of moving machine elements. It is particularly suitable for measuring the relative vibration and axial position of rotating machine shafts, such as those found in steam, gas and hydraulic turbines, as well as in alternators, turbo-compressors and pumps.

The PA150 probe mounting adaptor consists of a TQ912 proximity sensor with a 1 m long integral cable and an IQS900 signal conditioner in a customised housing, which eliminates the need for an EA902 extension cable.

The IQS900 signal conditioner supports optional diagnostic circuitry (that is, built-in self-test (BIST)) that automatically detects and remotely indicates problems with a measurement chain. In addition, For test purposes, the IQS900 provides a "raw" voltage output signal and supports a test voltage input signal that allow the measurement chain/system operation to be tested in situ, thereby simplifying commissioning and

troubleshooting. Refer to the TQ902/TQ912, EA902 and IQS900 proximity measurement chain data sheet for further information.

The PA150 probe mounting adaptor facilitates the external mounting of the reverse-mount TQ912 proximity sensor without machine disassembly. The removable housing makes it easier to adjust the gap, even while the machine is running.

Designed for harsh industrial environments and certified for use in hazardous areas, the adjustable stainless-steel rod and aluminium housing assembly protect the proximity sensor and the signal conditioner.

By selecting the appropriate ordering options described in this data sheet, the proximity measurement chain configuration and sensitivity can be matched to the requirements of a particular application. See **Ordering information on page 17**.

A PA150 probe mounting adaptor with proximity measurement chain can be powered by associated signal processing modules such as VM600^{Mk2}/VM600 cards or VibroSmart® modules, or other external power supply.

For specific applications, contact your local Meggitt representative.

SPECIFICATIONS

Overall proximity measurement chain

Operation (ordering option code G)

Sensitivity

- Ordering option code G1 : 8 mV/μm (200 mV/mil)
- Ordering option code G2 : 2.5 μA/μm (62.5 μA/mil)
- Ordering option code G3 : 4 mV/μm (100 mV/mil)
- Ordering option code G4 : 1.25 μA/μm (31.2 μA/mil)

Linear measurement range (typical)

- Ordering option code G1 : 0.15 to 2.15 mm, corresponding to a -1.6 to -17.6 V output
- Ordering option code G2 : 0.15 to 2.15 mm, corresponding to a -15.5 to -20.5 mA output
- Ordering option code G3 : 0.3 to 4.3 mm, corresponding to a -1.6 to -17.6 V output
- Ordering option code G4 : 0.3 to 4.3 mm, corresponding to a -15.5 to -20.5 mA output

Linearity : See **Performance curves on pages 5 and 6**

Frequency response : DC to 20 kHz (-3 dB)

Interchangeability of elements : All components in chain are interchangeable

SPECIFICATIONS *(continued)*

Environmental

Potentially explosive atmospheres

Available in Ex approved versions for use in hazardous areas (**ordering option code A5**)

⚠ For TQ912 and IQS900 proximity measurement chains intended for use in hazardous areas (potentially explosive atmospheres), each component of the sensor / measurement chain must be appropriately Ex marked.

More specifically, for any order of a IQS9xx signal conditioner for use in an Explosive (Ex) environment with ordering option code A5 (Ex ec or Ex ia), the associated TQ9xx proximity sensor and any EA90x extension cable must also have the ordering option code A5.

Protection mode	TQ9xx	IQS9xx
Europe		
ec (Gas)	⚠ II 3 G (Zone 2) Ex ec IIC T6...T3 Gc LCIE 21 ATEX 1004 X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +90^{\circ}\text{C}$ T4: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +125^{\circ}\text{C}$ T3: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +180^{\circ}\text{C}$	⚠ II 3 G (Zone 2) Ex ec IIC T6 or T5 Gc LCIE 21 ATEX 1004 X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
ia (Gas)	Simple apparatus Suitable for IQS9xx Ex ia	⚠ II 1 G (Zones 0, 1, 2) Ex ia IIC T6 or T5 Ga LCIE 21 ATEX 3002 X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
ia (Dust)	Simple apparatus Suitable for IQS9xx Ex ia	⚠ II 1 D (Zones 20, 21, 22) Ex ia IIIC T ₂₀₀ 80°C...T ₂₀₀ 115°C Da LCIE 21 ATEX 3002 X T ₂₀₀ 80°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +50^{\circ}\text{C}$ T ₂₀₀ 95°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$ T ₂₀₀ 115°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
International		
ec (Gas)	Ex ec IIC T6...T3 Gc IECEx LCIE 21.0005X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +90^{\circ}\text{C}$ T4: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +125^{\circ}\text{C}$ T3: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +180^{\circ}\text{C}$	Ex ec IIC T6 or T5 Gc IECEx LCIE 21.0005X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
ia (Gas)	Simple apparatus Suitable for IQS9xx Ex ia	Ex ia IIC T6 or T5 Ga IECEx LCIE 21.0006X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
ia (Dust)	Simple apparatus Suitable for IQS9xx Ex ia	Ex ia IIIC T ₂₀₀ 80°C...T ₂₀₀ 115°C Da IECEx LCIE 21.0006X T ₂₀₀ 80°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +50^{\circ}\text{C}$ T ₂₀₀ 95°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$ T ₂₀₀ 115°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$

SPECIFICATIONS (continued)

Protection mode	TQ9xx	IQS9xx
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North America		
ec (Gas)	Class I, Division 2, Groups A, B, C, D T6...T3 Ex ec IIC T6...T3 Gc Class I, Zone 2, AEx ec IIC T6...T3 Gc cCSAus 80084516	Class I, Division 2, Groups A, B, C, D T6...T5 Ex ec IIC T6...T5 Gc Class I, Zone 2, AEx ec IIC T6...T5 Gc cCSAus 80084516
ia (Gas)	Simple apparatus Suitable for IQS9xx Ex ia	Class I, Division 1, Groups A, B, C, D T6 or T5 Ex ia IIC T6 or T5 Ga Class I, Zone 0, AEx ia IIC T6 or T5 Ga cCSAus 80084516
ia (Dust)	Simple apparatus Suitable for IQS9xx Ex ia	Class II, Division 1, Groups E, F, G T80°C...T115°C Ex ia IIIC T80°C...T115°C Da Zone 20, AEx ia IIIC T80°C...T115°C Da cCSAus 80084516




South Korea		
ec (Gas)	Ex ec IIC T6...T3 Gc KGS 21-GA4BO-0354X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +90^{\circ}\text{C}$ T4: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +125^{\circ}\text{C}$ T3: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +180^{\circ}\text{C}$	Ex ec IIC T6...T5 Gc KGS 21-GA4BO-0355X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
ia (Gas)	Simple apparatus Suitable for IQS9xx Ex ia	Ex ia IIC T6 or T5 Ga KGS 21-GA4BO-0353X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
ia (Dust)	Simple apparatus Suitable for IQS9xx Ex ia	Ex ia IIIC T ₂₀₀ 80°C...T ₂₀₀ 115°C Da KGS 21-GA4BO-0352X T ₂₀₀ 80°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +50^{\circ}\text{C}$ T ₂₀₀ 95°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$ T ₂₀₀ 115°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$

SPECIFICATIONS (continued)

Protection mode	TQ9xx	IQS9xx
United Kingdom*		
ec (Gas)	<p>⊕ II 3 G (Zone 2) Ex ec IIC T6...T3 Gc CML 21 UKEX 4549 X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +90^{\circ}\text{C}$ T4: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +125^{\circ}\text{C}$ T3: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +180^{\circ}\text{C}$</p>	<p>⊕ II 3 G (Zone 2) Ex ec IIC T6 or T5 Gc CML 21 UKEX 4549 X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$</p>
ia (Gas)	<p>Simple apparatus Suitable for IQS9xx Ex ia</p>	<p>⊕ II 1 G (Zones 0, 1, 2) Ex ia IIC T6 or T5 Ga CML 21 UKEX 2548 X T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$</p>
ia (Dust)	<p>Simple apparatus Suitable for IQS9xx Ex ia</p>	<p>⊕ II 1 D (Zones 20, 21, 22) Ex ia IIIC T₂₀₀ 80°C...T₂₀₀ 115°C Da CML 21 UKEX 2548 X T₂₀₀ 80°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +50^{\circ}\text{C}$ T₂₀₀ 95°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$ T₂₀₀ 115°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$</p>
*UKCA marking is not engraved/marked on the products.		

Russian Federation		
ec (Gas)	<p>2Ex e IIC T6...T3 Gc X EAЭC RU C-CH.AΔ07.B.03744/21 T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +90^{\circ}\text{C}$ T4: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +125^{\circ}\text{C}$ T3: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +180^{\circ}\text{C}$</p>	<p>2Ex e IIC T6...T5 Gc X EAЭC RU C-CH.AΔ07.B.03744/21 T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$</p>
ia (Gas)	<p>Simple apparatus Suitable for IQS9xx Ex ia</p>	<p>0Ex ia IIC T6...T5 Ga X EAЭC RU C-CH.AΔ07.B.03744/21 T6: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ T5: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$</p>
ia (Dust)	<p>Simple apparatus Suitable for IQS9xx Ex ia</p>	<p>Ex ia IIIC T₂₀₀ 80°C...T₂₀₀ 115°C Da X EAЭC RU C-CH.AΔ07.B.03744/21 T₂₀₀ 80°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +50^{\circ}\text{C}$ T₂₀₀ 95°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$ T₂₀₀ 115°C: For $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$</p>

SPECIFICATIONS *(continued)*

-  For specific parameters of the mode of protection concerned and special conditions for safe use, refer to the Ex certificates that are available from Meggitt SA.
-  For an IQS9xx signal conditioner with protection mode “Ex ec” located in an Ex Zone 2, the user must ensure that the IQS9xx is installed in an industrial housing or enclosure that ensures a protection rating of at least IP54 (or equivalent).
-  For the most recent information on the Ex certifications that are applicable to this product, refer to the Ex product register (PL-1511) document that is available from Meggitt SA.

Note: Refer also to the TQ902/TQ912, EA902 and IQS900 proximity measurement chain data sheet.

Approvals

Conformity	: European Union (EU) declaration of conformity (CE marking). EAC marking, Eurasian Customs Union (EACU) certificate/ declaration of conformity
Electromagnetic compatibility (EMC)	: EN 61000-6-2:2005. EN 61000-6-4:2007 + A1:2011. EN 61326-1:2013. EN 61326-3-2:2008 (SIL).
Electrical safety	: EN/IEC 61010-1:2010. CAN/CSA C22.2 61010-1-12 / UL 61010-1:2012.
Environmental management Hazardous areas	: RoHS compliant (2011/65/EU) : Ex approved versions (see Potentially explosive atmospheres on page 3)
Functional safety	: SIL 2 in accordance with IEC 61508-1:2010 and IEC 61508-2:2010. Cat 1 PL c in accordance with ISO 13849-1:2015.
Machinery protection systems	: API 670 5th edition compliant

System (chain) calibration

Calibration temperature	: +23°C ±5°C
Target material	: VCL 140 steel (1.7225)

Note: For applications using a non-standard or special target material, performance curves can be generated and supplied. Contact Meggitt SA for further information.

Total system (chain) length

For a PA150 probe mounting adaptor with proximity measurement chain, the total system length (TSL) is the length of the TQ912 sensor's integral cable.

Total system (chain) length	: 1 m
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SPECIFICATIONS *(continued)*

Grounding

Electrical grounding : The proximity measurement chain/system ground is isolated from the machine ground

In-situ test support

Raw output : The raw output (RAW/COM) provides a "raw" voltage output signal that corresponds to the internal signals of the IQS900 signal conditioner, even if the IQS900 is configured with a current output. This allows the measurement chain/system operation from sensor to signal conditioner to be easily verified in situ.

Test input : The test input (TEST/COM) allows an AC voltage input signal to be injected at the input to the IQS900 signal conditioner in order to test the IQS900 itself and/or cabling to the monitoring system. This allows the measurement chain/system operation from signal conditioner to monitoring system to be easily verified in situ.

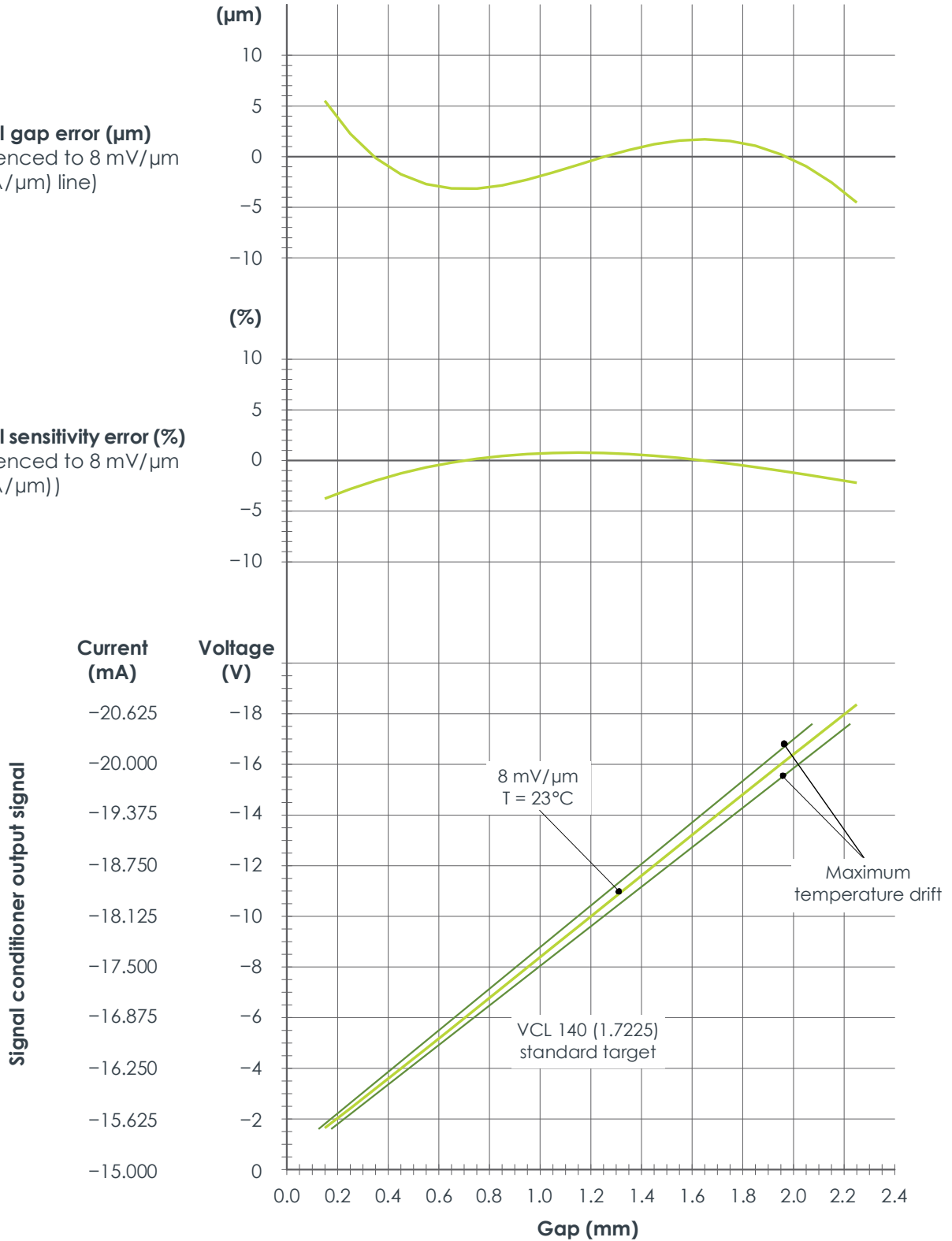
Note: See **Connectors on page 13** and refer also to the *Proximity measurement chains using TQ9xx proximity sensors installation manual* for further information

SPECIFICATIONS (continued)

Performance curves for TQ912 with IQS900 – 2 mm measurement range

Typical gap error (μm)
(Referenced to 8 mV/ μm
(2.5 $\mu\text{A}/\mu\text{m}$) line)

Typical sensitivity error (%)
(Referenced to 8 mV/ μm
(2.5 $\mu\text{A}/\mu\text{m}$))



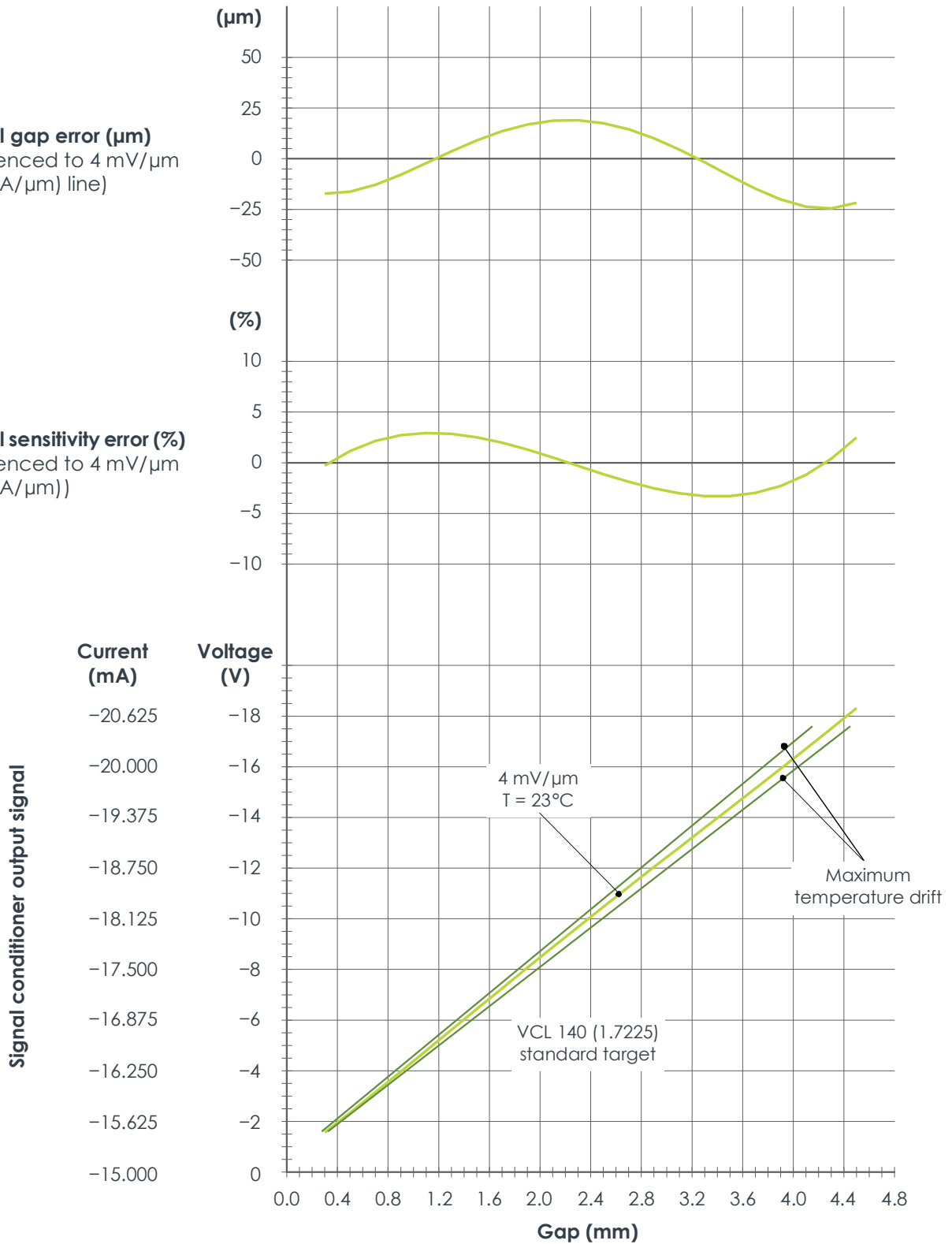
Proximity sensor: TQ912
Signal conditioner: IQS900 (ordering option code G1 or G2)
Standard target material: VCL 140 (1.7225)
Equivalent materials: A 37.11 (1.0065), AFNOR 40 CD4, AISI 4140

SPECIFICATIONS (continued)

Performance curves for TQ912 with IQS900 – 4 mm measurement range

Typical gap error (μm)
(Referenced to 4 mV/ μm
(1.25 $\mu\text{A}/\mu\text{m}$) line)

Typical sensitivity error (%)
(Referenced to 4 mV/ μm
(1.25 $\mu\text{A}/\mu\text{m}$))



Proximity sensor: TQ912
 Signal conditioner: IQS900 (ordering option code G3 or G4)
 Standard target material: VCL 140 (1.7225)
 Equivalent materials: A 37.11 (1.0065), AFNOR 40 CD4, AISI 4140

SPECIFICATIONS *(continued)*

TQ912 proximity sensor

General

Sensor input requirements : High-frequency power source from an IQS900 signal conditioner

Environmental

Temperature range

- Sensor : -40 to 180°C (-40 to 356°F) operating.
180 to 220°C (356 to 428°F) short-term survival for 2 hours max.

- Sensor and cabling : **Temperature for use in an Ex Zone: see Potentially explosive atmospheres on page 3**

- Cabling and connector : -40 to 200°C (-40 to 392°F)

Measurement drift

- Sensor and cabling with a total system (chain) length of 1 m : <5% for -30 to 150°C (-22 to 302°F)

Pressure between sensor tip and body : 6 bar (100 psid) max.

Protection rating (according to IEC 60529) : The head of the sensor (sensor tip and integral cable) is rated IP68

Vibration (according to IEC 60068-2-26) : 5 g peak between 10 and 500 Hz

Shock acceleration (according to IEC 60068-2-27) : 15 g peak (half sine-wave, 11 ms duration)

Physical characteristics

Sensor construction : Wire coil Ø8 mm, PPS (polyphenylene sulfide) high-performance thermoplastic tip, crimped to a stainless-steel body (AISI 316L)

Integral cable : FEP covered 70 Ω coaxial cable, Ø3.6 mm

Connector : Self-locking miniature coaxial connector (male).
Note: When connecting, this should be hand-tightened until locked.

SPECIFICATIONS *(continued)*

IQS900 signal conditioner

Current output (2-wire signal transmission)

Current at min. / max. gap	: -15.5 mA / -20.5 mA
Measurement range	: 5 mA (corresponding to 2 or 4 mm)
Output sensitivity	: See Operation (ordering option code G) on page 2 and Ordering information on page 17
Nominal output signal	
• Without diagnostics	: -15.5 to -20.5 mA
• With diagnostics	: -15.5 to -20.5 mA indicates normal operation. Other current values (>-15.5 or <-20.5 mA) indicate a problem with the measurement chain (sensor, cabling and/or signal conditioner).
Output impedance	: $>60\text{ k}\Omega$. Note: Recommended monitoring system input impedance: $\leq 350\ \Omega$.

Voltage output (3-wire signal transmission)

Voltage at min. / max. gap	: -1.6 V / -17.6 V
Measurement range	: 16 V (corresponding to 2 or 4 mm)
Output sensitivity	: See Operation (ordering option code G) on page 2 and Ordering information on page 17
Nominal output signal	
• Without diagnostics	: -1.6 to -17.6 V
• With diagnostics	: -1.6 to -17.6 V indicates normal operation. Other voltage values (>-1.6 or <-17.6 V) indicate a problem with the measurement chain (sensor, cabling and/or signal conditioner).
Output impedance (small signal)	: $<100\ \Omega$ at DC. $<300\ \Omega$ at 20 kHz. Note: Recommended monitoring system input impedance: $\geq 50\text{ k}\Omega$. The low output impedance enables operation with a wider range of galvanic separation units / safety barriers, without loss of performance. For example, an IQS900 (output impedance $100\ \Omega$) connected to a third-party galvanic isolator (input impedance $10\text{ k}\Omega$) will see 1% max. signal loss due to impedance matching.
Protection	: Short-circuit (35 mA), overvoltage ($\pm 33\text{ V}_{\text{DC}}$ typical)
Output voltage swing	: -0.05 to -22.5 V with a $50\text{ k}\Omega$ load and a -24 V_{DC} power supply. -0.05 to -21.5 V with a $10\text{ k}\Omega$ load and a -24 V_{DC} power supply.

Raw output (RAW/COM)

Output voltage range	: -0.8 to -8.8 V (nominal)
Output impedance	: $<15\text{ k}\Omega$ up to 20 kHz. $<10\text{ k}\Omega$ for DC measurement. Note: Recommended test equipment input impedance: $>1\text{ M}\Omega$.
Protection	: Short-circuit, overvoltage ($\pm 33\text{ V}_{\text{DC}}$ typical)

SPECIFICATIONS *(continued)*

Test input (TEST/COM)

Transfer function

- Main current output (TEST input to -24V/COM output) : Current output (mA) = $V_{TEST} (V) \times 0.5$
- Main voltage output (TEST input to O/P/COM output) : Voltage output (V) = $V_{TEST} (V) \times 1.6$
- Test voltage output (TEST input to RAW/COM output) : V_{RAW} output (V) = $V_{TEST} (V) \times 0.8$

Input impedance

: 500 k Ω .

Note: Recommended test equipment output impedance: >5 k Ω .

Protection

: Overvoltage ($\pm 33 V_{DC}$ typical)

Power supply (to IQS900)

Input voltage range

- With a current output signal (2-wire signal transmission) : -24 V_{DC} (nominal).
-18 to -30 V_{DC} (range).
- With a voltage output signal (3-wire signal transmission) : -24 V_{DC} (nominal).
-19 to -30 V_{DC} (range).

Current consumption

: -25 mA max.

(with nominal 24 V_{DC} supply)

-15.5 mA standby.

Overvoltage protection (diode)

: $\pm 33 V_{DC}$ typical

Note: The IQS900 should be powered (energised) using a limited-power, low-voltage power supply such as a sensor power supply output provided a VM600^{Mk2}/VM600 or VibroSmart[®] monitoring and/or protection system, a GSI127 galvanic separation unit or other suitable power supply.

In safety-related applications, an IQS900 must be powered using a limited-power, low-voltage power supply with a safe limitation of -30 V_{DC} (nominal), even in the event of a single fault with the power supply.

Environmental

Temperature

- Operating and storage : -40 to 85°C (-40 to 185°F)

Humidity

: 0 to 95%, non-condensing

Protection rating

: IP20.

(according to IEC 60529)

Note: The IQS900 is suitable for indoor use only unless it is installed in an industrial housing or enclosure that ensures a higher level of environmental protection.

Flammability

: UL94 V-0

Vibration

: 5 g peak between 10 and 500 Hz

(according to IEC 60068-2-6)

Shock acceleration

: 15 g peak (half sine-wave, 11 ms duration)

(according to IEC 60068-2-27)

SPECIFICATIONS *(continued)*

Connectors

Self-locking miniature coaxial connector (bidirectional)	: 1 contact for sensor-side signal: sensor (connects to the TQ912 sensor's integral cable)
Screw-terminal connector (input)	: 4 contacts for test signals: raw output (RAW/COM) and test input (TEST/COM)
Screw-terminal connector (output)	: 4 contacts for monitor-side signals: measurement output (O/P/COM) and power supply input (-24V/COM)
Screw-terminal connectors	
• Clamping range (min. to max.)	: 0.2 to 1.5 mm ² (24 to 16 AWG)
• Tightening torque (min. to max.)	: 0.2 to 0.25 N•m (0.15 to 0.18 lb-ft) for conductor screws. 0.2 to 0.3 N•m (0.15 to 0.22 lb-ft) for mounting-flange screws.

Note: The IQS900 features removal screw-terminal connectors that can unplugged from the main body of its housing to simplify installation and mounting.

Physical characteristics

Electrical connections	: Self-locking miniature coaxial connector and removable screw-terminal connectors (see Connectors on page 13)
Housing material	: Injection-moulded aluminium, painted
Dimensions	: See Mechanical drawings on page 16 and Ordering information on page 17

SPECIFICATIONS *(continued)*

Probe mounting adaptor

Environmental – potentially explosive atmospheres (ordering option code A)

Available in Ex approved versions for use in hazardous areas

Rod (ordering option code C)

Material : Stainless steel 1.4301
 Length : See **Ordering information on page 17**
 Probe (sensor) mounting thread : M10 × 1

Adaptor assembly (ordering option codes D and E)

Material : Stainless steel 1.4305
 Adaptor length and mounting thread : See **Ordering information on page 17**
 O-ring seal : Viton® (FPM), Ø13 × 1.5 mm

Cable fittings (ordering option code F)


Cable fittings (stuffing glands) : See **Ordering information on page 17**
 Material (ordering option code F1) : Nickel-plated brass

Available in Ex approved versions for use in hazardous areas

Cable fittings (stuffing glands)

Type of protection Ex e: increased safety		
Europe	EC type examination certificate	II 2 G/D (Zones 1, 2 / 21, 22) Ex e II / Ex t III
International	IECEx certificate of conformity	II 2 G/D (Zones 1, 2 / 21, 22) Ex e II / Ex t III

 For specific parameters of the mode of protection concerned and special conditions for safe use, refer to the Ex certificates that are available from Meggitt SA.

 For the most recent information on the Ex certifications that are applicable to this product, refer to the Ex product register (PL-1511) document that is available from Meggitt SA.

Operation (ordering option code G)

Proximity measurement chain sensitivity : See **Ordering information on page 17**

SPECIFICATIONS *(continued)*

Housing (ordering option code H)

Material	: Aluminium alloy
Orientation	
• Ordering option code H1	: 0° (longitudinal)
• Ordering option code H2	: 90° (perpendicular)
Cover	: Sealed with a nitrile rubber (NBR) gasket
Colour	: Grey (RAL 7001)
Temperature range	: See the temperature ranges of individual measurement chains components: TQ912 on page 10 and IQS900 on page 12
Protection rating (according to IEC 60529)	: IP65
Impact resistance (according to EN 50014)	: >7 joules

Available in Ex approved versions for use in hazardous areas

Housing

Type of protection Ex e: increased safety		
Europe	EC type examination certificate	II 2 G/D (Zones 1, 2 / 21, 22) Ex e II / Ex t III
International	IECEx certificate of conformity	II 2 G/D (Zones 1, 2 / 21, 22) Ex e II / Ex t III

For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the Ex certificates that are available from Meggitt SA.

For the most recent information on the Ex certifications that are applicable to this product, refer to the Ex product register (PL-1511) document that is available from Meggitt SA.

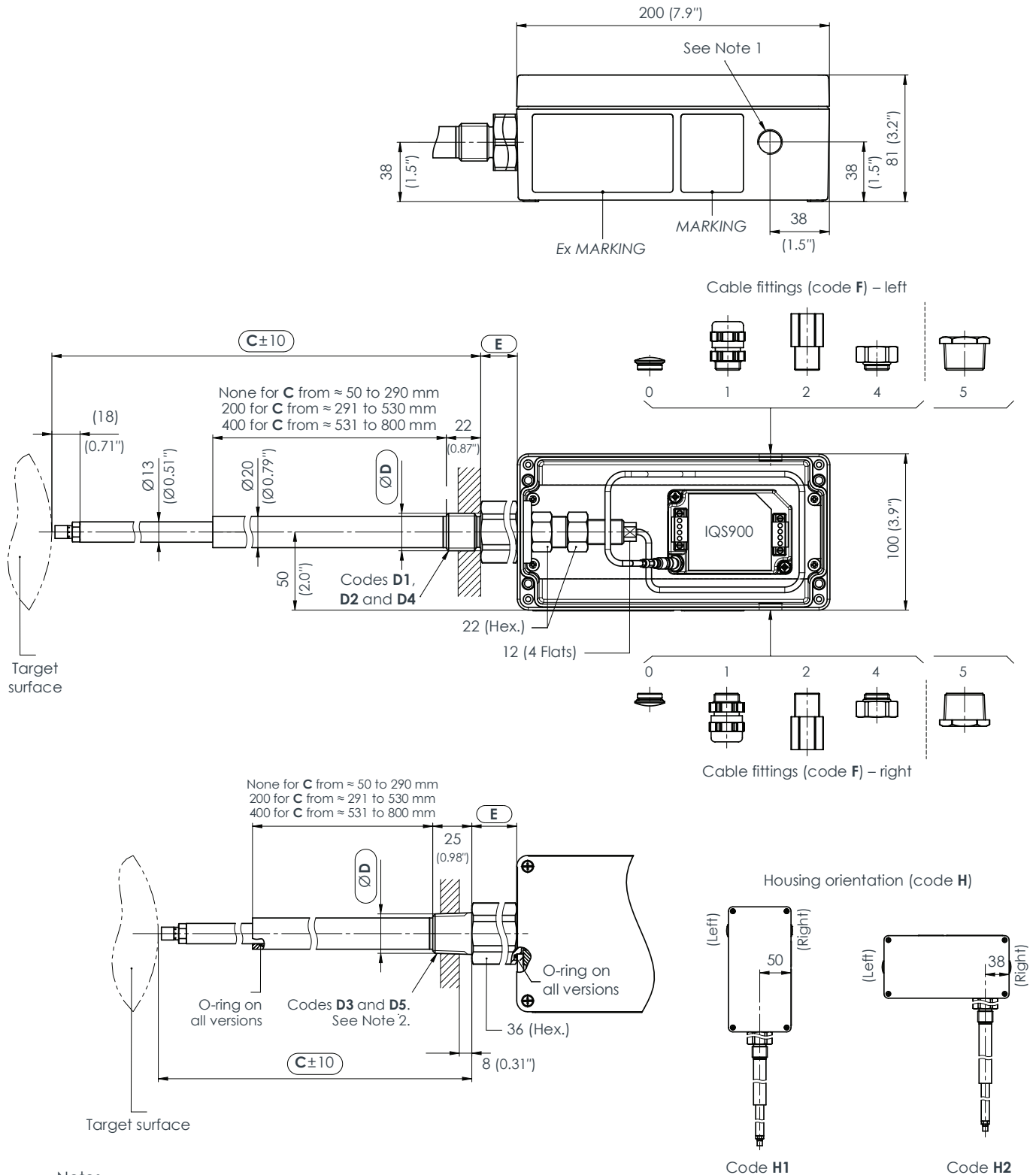
Approvals

Conformity	: European Union (EU) declaration of conformity (CE marking)
Hazardous areas	: Ex approved (see Environmental – potentially explosive atmospheres (ordering option code A) on page 14)

Note: See also **Approvals on page 6**.

MECHANICAL DRAWINGS

PA150 probe mounting adaptor with proximity measurement chain



Notes

All dimensions are in mm (in) unless otherwise stated.

- For Cable fitting codes F0 to F4 (left and/or right), the housing has M16 \times 1.5 thread (left and/or right, as appropriate).
For Cable fitting code F55 (left and right), the housing has 3/4" NPT thread (left and right, as appropriate).
- For versions with NPT threads (3/4" or 1" NPT) only, that is, Adaptor thread codes D3 and D5.
See also **Ordering information on page 17**.

ORDERING INFORMATION

To order please specify

Type : PA150
 Designation : Probe mounting adaptor with proximity measurement chain
 Ordering number (PNR) : See below

Ordering number:

800 - 150 - 000 - 111



Environment (A)	
Standard	1
Explosive (Ex)	5

Diagnostics (B)	
Without diagnostics	1
With diagnostics (SIL)	2

Rod length (C)	
Each 1 mm, from 50 to 800 mm	
50 mm min.	50
800 mm max.	800

Adaptor thread (D)	
M24	1
7/8" - 14UNF	2
3/4" NPT	3
G 3/4"	4
1" NPT	5

Adaptor length (E)	
15 mm	15
105 mm	105
195 mm	195

Housing orientation (H)	
0° (longitudinal)	1
90° (perpendicular)	2

System sensitivity (G)		Measurement range
1	8 mV/μm	2 mm
2	2.5 μA/μm	
3	4 mV/μm	4 mm
4	1.25 μA/μm	

Left	Right	Cable fitting (F)
0	0	M16 × 1.5 opening with plug
1	1	M16 × 1.5 cable fitting / stuffing gland for Ø4 to 11 mm cable
2	2	M16 × 1.5 / PG9 adaptor
4	4	M16 × 1.5 / M20 × 1.5 adaptor for Ø12 mm max. cable
55		3/4" NPT openings with plugs

Notes
 For use in hazardous areas (potentially explosive atmospheres), each component of a sensor / measurement chain (TQ912 and IQS900) must be appropriately Ex certified, that is, with ordering option code A5.
 See also the notes in **Mechanical drawings on page 16.**

Notes: F1x / Fx1 (left/right) allow a Ø7.2 mm connector to be fed through.
 F2x / Fx2 (left/right) support PG9 cabling protection.
 F4x / Fx4 (left/right) support M20 × 1.5 cabling protection.
 Cable fitting options 0, 1, 2 and 4 can be specified independently for each side. For example, F02 is permitted.
 Cable fitting option 5 cannot be specified independently and must be the same for each side. That is, F55 only.

ACCESSORIES

KS107	Flexible conduit (protection tube)	: Refer to corresponding data sheet
SG102	Cable feedthrough	: Refer to corresponding data sheet
SG164	Cable feedthrough	: Refer to corresponding data sheet

RELATED PRODUCTS

PA151	Probe mounting adaptor	: Refer to corresponding data sheet
PA152	Probe mounting adaptor (high temperature)	: Refer to corresponding data sheet
PA153	Probe mounting adaptor	: Refer to corresponding data sheet
TQ902/TQ912, EA902 and IQS900	Proximity measurement chain	: Refer to corresponding data sheet
TQ402/TQ412, EA402 and IQS450	Proximity measurement system	: Refer to corresponding data sheet

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Sales offices

Meggitt has offices in more than 30 countries. For a complete list, please visit our website.

Local representative

Head office

Meggitt SA
Route de Moncor 4
Case postale
1701 Fribourg
Switzerland

Tel: +41 26 407 11 11

Fax: +41 26 407 13 01

energy@ch.meggitt.com

www.meggittsensing.com/energy

www.meggitt.com

