

### Probe Mounting Adaptor with Proximity System Type PA 150

#### FEATURES

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- Non-contacting measurement system based on eddy current principle
- Voltage or current output with protection against short circuits
- Removable housing, with a U-shaped retainer, that permits easier probe installation and gap adjustment
- Stainless steel rod available in lengths from 50 mm to 800 mm, with mounting position adjustable to  $\pm 10$  mm
- Choice of adapter threads and lengths
- Sealed diecast polyester housing, with choice of orientation, containing an IQS conditioner
- Range of cable fitting options
- Certified for use in explosive atmospheres



#### CHARACTERISTICS

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- Measuring range:  
2 mm or 4 mm
- Operating temperature:  
(Transducer)  $-40^{\circ}\text{C}$  to  $+180^{\circ}\text{C}$   
(Conditioner)  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- Sensitivity:  
4 mV/ $\mu\text{m}$  or 8 mV/ $\mu\text{m}$   
1.25  $\mu\text{A}/\mu\text{m}$  or 2.5  $\mu\text{A}/\mu\text{m}$
- Frequency response:  
DC to 20 kHz (-3 dB)



## DESCRIPTION

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The PA 150 consists of a complete, self-contained measuring chain, which includes a TQ 412 proximity transducer with 1 m cable, and a standard IQS 452 signal conditioner in the probe adapter housing, eliminating the need for an external extension cable.

This probe adapter permits the external mounting of the reverse mount type proximity transducer without machine disassembly, and the removable housing allows easier gap adjustment even while the machine is running.

Being designed for harsh industrial environments, the adjustable stainless steel rod and polyester housing assembly protect the transducer and the signal conditioner.

By selecting the appropriate ordering options described below, the exact system configuration and sensitivity can be found to match your particular requirements.

## SPECIFICATIONS

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### Overall Proximity System

#### OPERATION (SEE ORDERING OPTION G)

System sensitivity

- *Option G1* : 8 mV/ $\mu$ m (200 mV/mil)
- *Option G2* : 2.5  $\mu$ A/ $\mu$ m (62.5  $\mu$ A/mil)
- *Option G3* : 4 mV/ $\mu$ m (100 mV/mil)
- *Option G4* : 1.25  $\mu$ A/ $\mu$ m (31.2  $\mu$ A/mil)

Linear measuring range (typical)

- *Using Options G1 and G2* : 0.15 - 2.15 mm, corresponding to  
-1.6 V to -17.6 V output using Option G1  
15.5 mA to 20.5 mA output using Option G2
- *Using Options G3 and G4* : 0.3 - 4.3 mm, corresponding to  
-1.6 V to -17.6 V output using Option G3  
15.5 mA to 20.5 mA output using Option G4

Linearity : See system performance curves

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

Interchangeability of elements : All components in system are interchangeable

#### ENVIRONMENTAL (SEE ORDERING OPTION A)

Use in explosive atmospheres

- *EC type examination certificates* : LCIE 02 ATEX 6086 X II 2 G (Zones 1, 2) EEx ib IIC T6 to T3



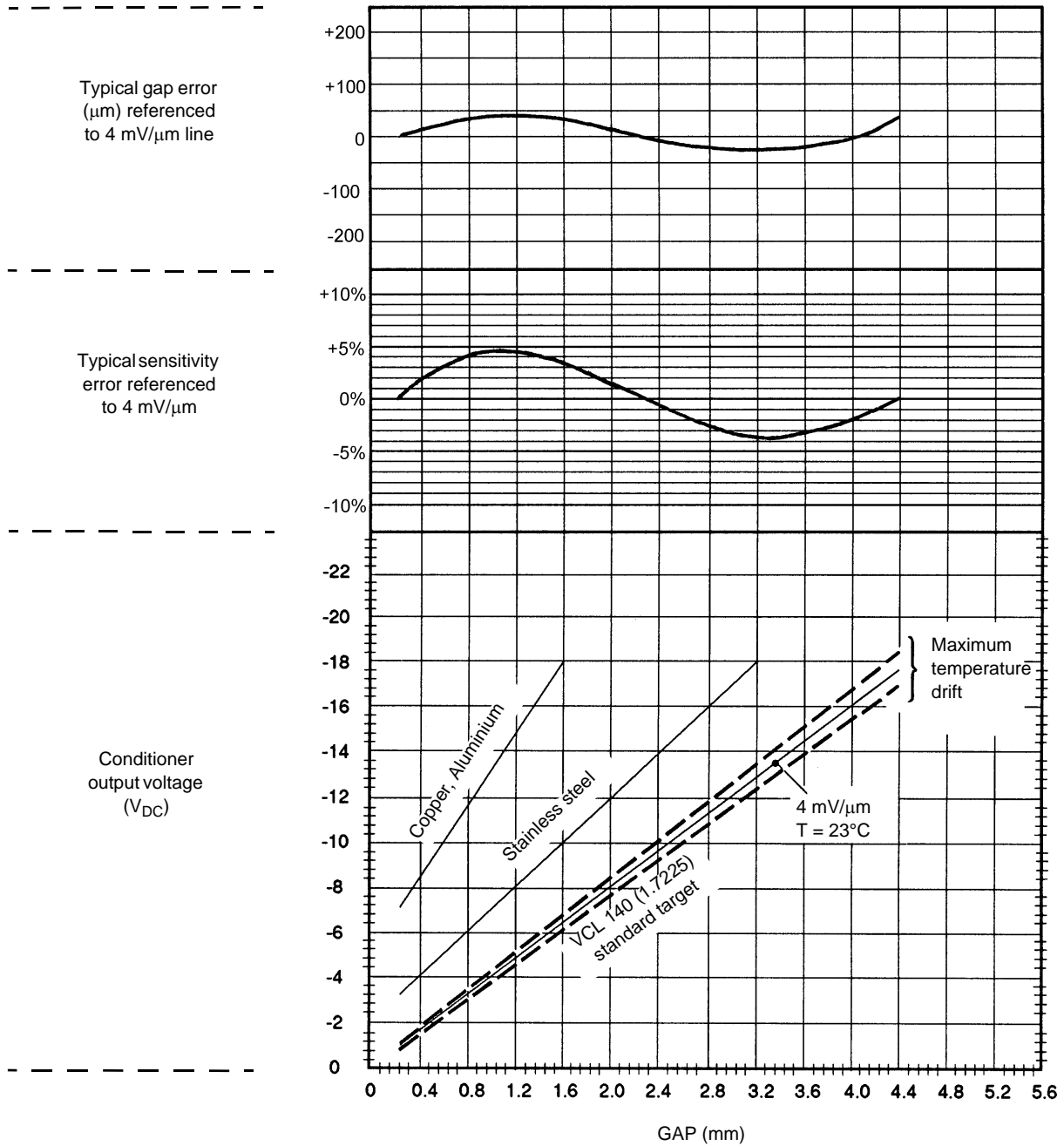
For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the "EC type examination certificate" that is available from Vibro-Meter SA on demand.

- *CSA standard* : Certificate 1514309 (LR 62075-5)  
Class I, Divisions 1 and 2, Groups A, B, C and D  
Ex ia

Electrical grounding : The proximity system ground is isolated from the machine ground.

## SPECIFICATIONS (Continued)

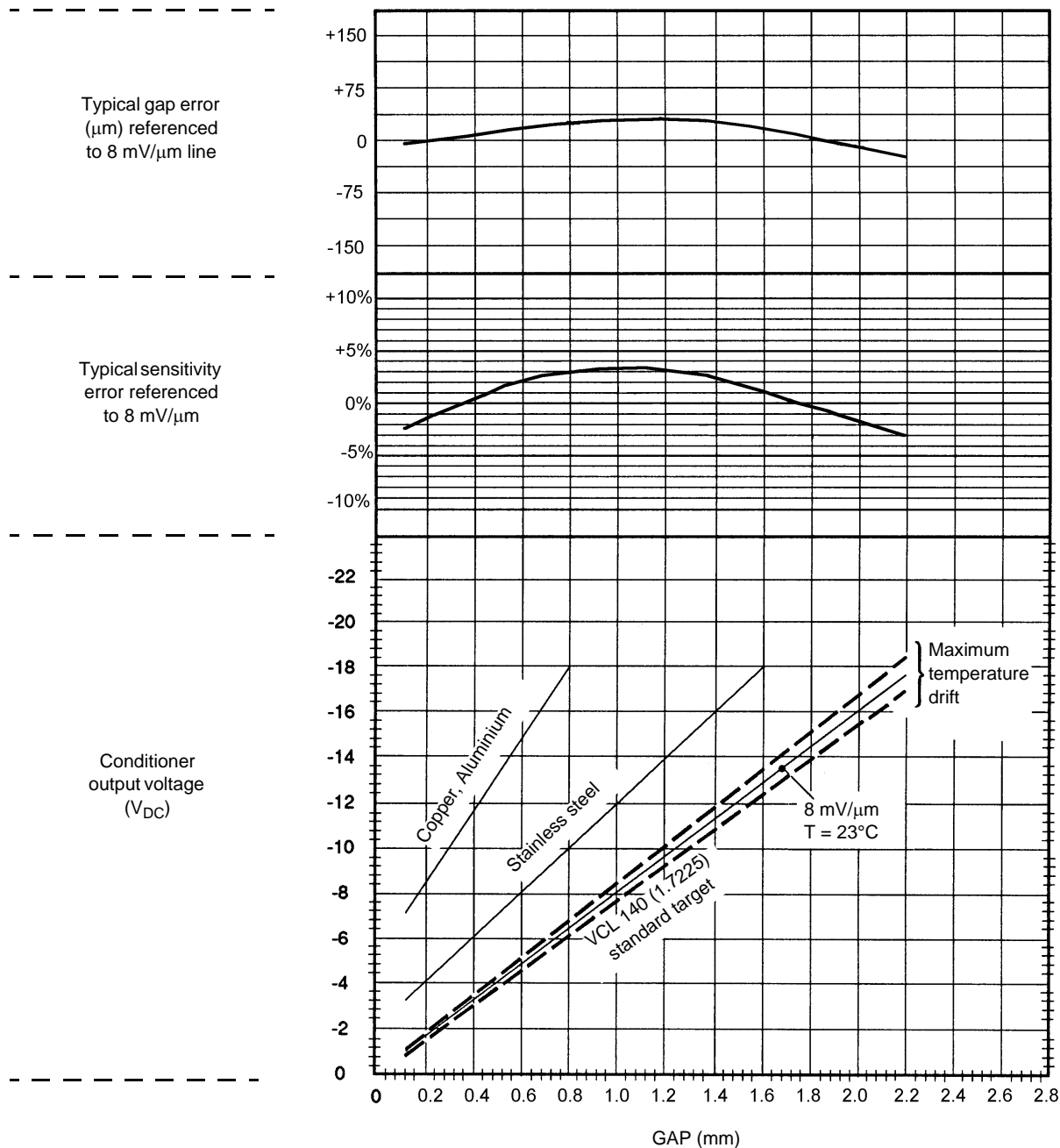
### Performance Curves for TQ 412 Transducer with IQS 452 Version 0XX or Version 1XX Conditioner



Proximity transducer: TQ 412  
 Signal conditioner: IQS 452 Version 0XX or IQS 452 Version 1XX  
 Standard target material: VCL 140 (1.7225)  
 Equivalent materials: A 37.11 (1.0065), AFNOR 40 CD4, AISI 4137

**SPECIFICATIONS** (Continued)

**Performance Curves for TQ 412 Transducer with IQS 452 Version 2XX or Version 3XX Conditioner**



Proximity transducer: TQ 412  
 Signal conditioner: IQS 452 Version 2XX or IQS 452 Version 3XX  
 Standard target material: VCL 140 (1.7225)  
 Equivalent materials: A 37.11 (1.0065), AFNOR 40 CD4, AISI 4137

**SPECIFICATIONS** (Continued)

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**TQ 412 Proximity Transducer****GENERAL**

Transducer input requirements : High-frequency power source via matching conditioner type IQS 452

**ENVIRONMENTAL**

Temperature ranges

- *Transducer* : -40°C to +180°C with drift < 5% (operation)  
+180°C to +220°C with drift > 5% (short-term survival)
  - *Cable* : -100°C to +200°C
  - *Connector* : -65°C to +85°C
  - *Heat shrinkable sleeve*  
*(modified Polyolefin)* : -55°C to +135°C
- Protection class (according to IEC 529 and DIN 40050) : The tip of the transducer is rated IP 68  
The connection between the transducer body and its integral cable is rated IP 64
- Transducer construction : Wire coil Ø 8 mm, Torlon (polyamide-imide) tip, encapsulated in stainless steel body (AISI 316L) with high-temperature epoxy glue
- Integral cable : FEP covered 70 Ω coaxial cable, Ø 3.6 mm
- Connector : Miniature coaxial male connector type AMP 1-330 723-0  
NB : This should be hand-tightened only when connecting

**SYSTEM CALIBRATION**

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

Note : If special calibration is required, please define the alloy precisely or supply a sample of alloy (min. Ø 50 mm / 1 cm thick)

**SPECIFICATIONS** (Continued)

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**IQS 452 Signal Conditioner**

**OUTPUT CHARACTERISTICS**

Voltage output, 3-wire configuration

- *Voltage at min. GAP* : -1.6 V
- *Voltage at max. GAP* : -17.6 V
- *Dynamic range* : 16 V
- *Output impedance* : 500  $\Omega$
- *Short-circuit current* : 45 mA

Current output, 2-wire configuration

- *Current at min. GAP* : 15.5 mA
- *Current at max. GAP* : 20.5 mA
- *Dynamic range* : 5 mA

Output capacitance : 1 nF

Output inductance : 100  $\mu$ H

**SUPPLY**

Voltage : -20 V to -32 V

Current : 13  $\pm$  1 mA (25 mA max.)

Supply input capacitance : 1 nF

Supply input inductance : 100  $\mu$ H

**ENVIRONMENTAL CHARACTERISTICS**

(According to DIN 40040)

Temperature range

- *Operation* : -30°C to +70°C
- *Storage* : -40°C to +80°C

Humidity

- *Operation and storage* : Max. 95% non condensing

Vibration

- *Operation and storage* : 2 g peak between 10 Hz and 500 Hz

Protection class : IP 40

**PHYSICAL CHARACTERISTICS**

Construction material : Injection moulded aluminium, anodized

**ELECTRICAL CONNECTIONS**

Input : Stainless steel coaxial female socket

Output and power : Screw terminal strip

**SPECIFICATIONS** *(Continued)*

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**Probe Adapter****ENVIRONMENTAL (SEE ORDERING OPTION A)**

Use in explosive atmospheres : Standard or explosive versions

**ROD (SEE ORDERING OPTION C)**

Material : Stainless steel 1.4301

Length : See Ordering Information

Probe mounting thread : M10 x 1

**ADAPTER ASSEMBLY (SEE ORDERING OPTIONS D & E)**

Material : Stainless steel 1.4305

Adapter length and mounting thread : See Ordering Information

O-ring seal : Viton (FPM), Ø 13 x 1.5 mm

**CABLE FITTINGS (SEE ORDERING OPTION F)**

Stuffing gland : See Ordering Information

Material

• *Option F1* : Nickel-plated brass

Available in Ex-approved version for use in hazardous locations

• *Environment* : II 2 G/D (Zones 1, 2) EEx e II



For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the "EC type examination certificate" that is available from Vibro-Meter SA on demand.

**OPERATION (SEE ORDERING OPTION G)**

System Sensitivity : See Ordering Information

**HOUSING (SEE ORDERING OPTION H)**

Material : Aluminium alloy

Orientation

• *Option H1* : Longitudinal

• *Option H2* : Perpendicular

Cover : Sealed by NBR gasket

Colour : Grey (RAL 7001)

Protection class : IP 65 according to DIN 60529

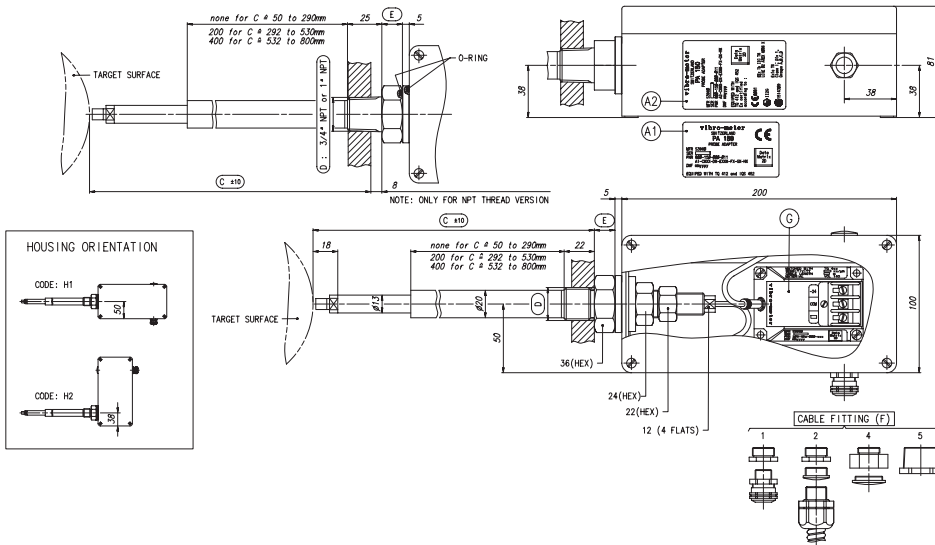
Temperature range : See Specifications of individual components

Impact resistance : > 7 Joules (EN 50014)

Use in explosive atmospheres

• *EC type examination certificates* : II 2 G (Zones 1, 2) EEx e II

**DIMENSIONS**



**ORDERING INFORMATION**

To order please specify :

Type and designation : PA 150 probe mounting adapter with proximity measuring chain  
 Ordering number : See below

**Ordering Number :**

800 - 150 - 000 - 01 - **A** - **C** - **D** - **E** - **F** - **G** - **H**

ENVIRONMENT (A)	
Standard	1
Explosive	2

ROD LENGTH (C)	
Each 2 mm from 50 to 800	
Min. 50 mm	050
Max. 800 mm	800

For Options C and E see note for NPT thread version

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

ADAPTER LENGTH (E)	
15 mm	015
105 mm	105
195 mm	195

HOUSING ORIENTATION (H)	
Longitudinal	1
Perpendicular	2

SYSTEM SENSITIVITY (G)	
1	8 mV/μm (range 2 mm)
2	2.5 μA/μm (range 2 mm)
3	4 mV/μm (range 4 mm)
4	1.25 μA/μm (range 4 mm)

CABLE FITTING (F)	
0	NO HOLE
1	Stuffing gland M12 x 1.5 for cable Ø4 to 8 mm + 1 plug
2	2 x PG9 for KS 106 + 2 plugs
4	2 x M20 x 1.5 + 2 plugs
5	2 x 3/4" NPT + 2 plugs

### REPLACEMENT ORDERING INFORMATION

#### TQ Proximity Probe

TQ TYPE	VERSION	ORDERING NUMBER
TQ 412 (with 1 m integral cable)	Standard	111-412-000-11
	Exi	111-412-000-12

#### IQS Signal Conditioner

IQS TYPE	SENSITIVITY	VERSION	ORDERING NUMBER
IQS 452, versions M0XX or M1XX (1 m cable version)	4mV/ $\mu$ m	Standard	204-452-000-05
		Exi	204-452-000-07
	1.25 $\mu$ A/ $\mu$ m	Standard	204-452-000-15
		Exi	204-452-000-17
IQS 452, versions M2XX or M3XX (1 m cable version)	8mV/ $\mu$ m	Standard	204-452-000-25
		Exi	204-452-000-27
	2.5 $\mu$ A/ $\mu$ m	Standard	204-452-000-35
		Exi	204-452-000-37

**Note :** For full product options of the PA 150, see Ordering Information.



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