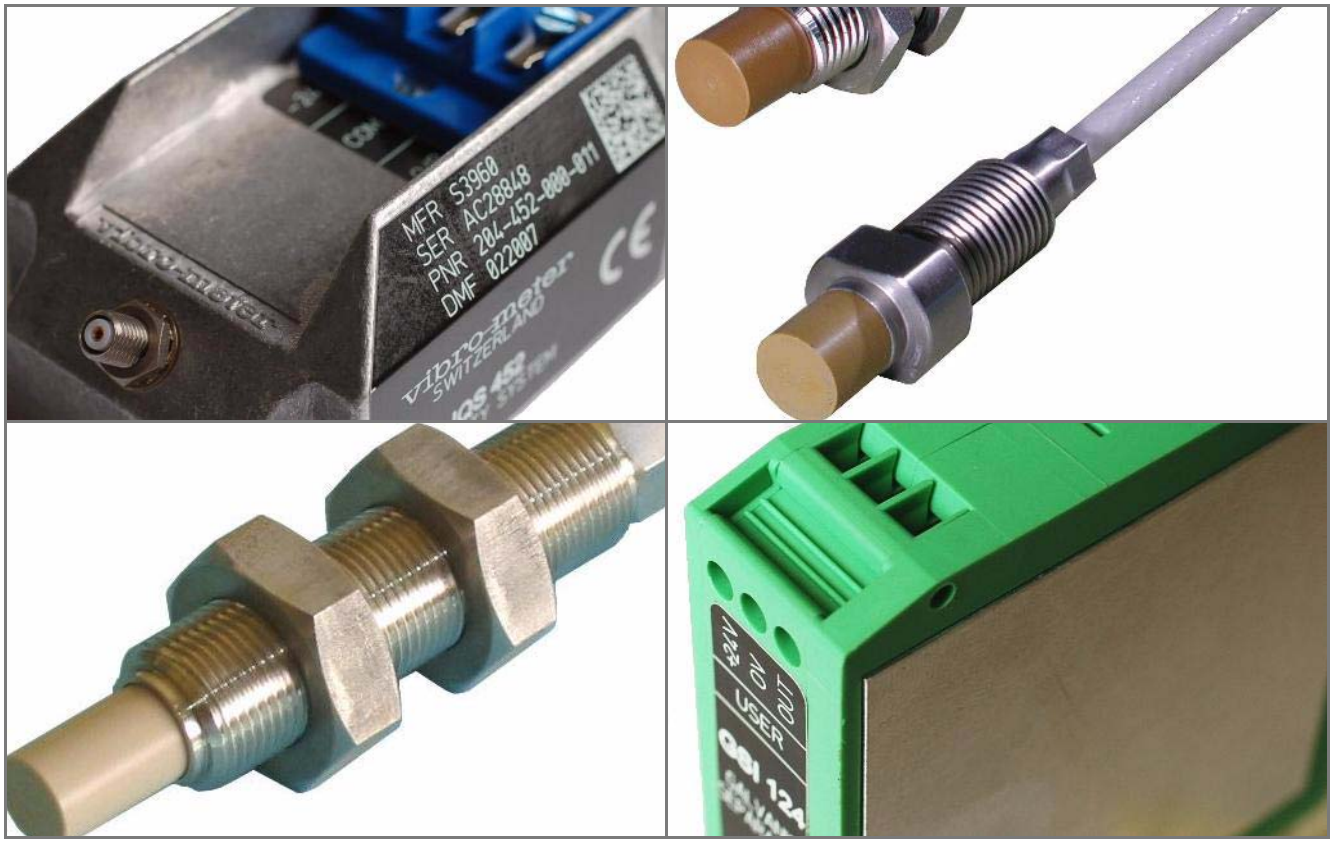
Vibro-Meter

INSTALLATION MANUAL

Proximity Measuring Systems
using
TQ 4xx Proximity Transducers
with IQS 45x Signal Conditioners



This document contains important information about products that are intended for use in potentially explosive atmospheres.

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PREFACE

About this manual

This manual describes how to install proximity measuring systems using Vibro-Meter's TQ 4xx proximity transducers and matching IQS 45x signal conditioners. It describes the installation and general use of these systems.

Who should use this manual?

The manual is intended for use by qualified installation personnel (e.g. mechanical and electrical fitters).

NOTE : Personnel involved in the installation of Vibro-Meter equipment are assumed to have the necessary technical training in electronics and/or mechanical engineering (professional certificate/diploma, or equivalent) to enable them to install the equipment correctly and safely.

Respect the instructions!

The procedures described in this manual should be strictly adhered to in order to ensure the proximity transducers and associated hardware are mounted correctly, and thus function as intended.

Personnel involved in the installation of Vibro-Meter equipment must respect general safety procedures as well as general and specific machine constructor guidelines and instructions.

Limitation of this document

Not all mounting and connecting possibilities are described in this manual. Nevertheless, several specific configurations are described in detail. These can often be adapted to specific applications. When in doubt, contact Vibro-Meter so that an optimum measurement solution can be determined.

Related documentation

Further information on products can be found in their corresponding data sheets. These documents can be obtained from your local Vibro-Meter agent.

The following document contains further information on equipment that can be used in potentially explosive atmospheres (Ex applications):

- Safety instructions and ATEX certificates for products used in potentially explosive atmospheres (Ex applications) (ref. MA_ATEX_WARN).

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TABLE OF CONTENTS

SAFETY

Symbols and styles used in this manual

The following symbols are used in this manual where appropriate:

The WARNING safety symbol

THIS INTRODUCES DIRECTIVES, PROCEDURES OR PRECAUTIONARY MEASURES WHICH MUST BE EXECUTED OR FOLLOWED. FAILURE TO OBEY A WARNING CAN RESULT IN INJURY TO THE OPERATOR OR THIRD PARTIES.

The CAUTION safety symbol

This draws the operator's attention to information, directives or procedures which must be executed or followed. Failure to obey a caution can result in damage to equipment.

The ELECTROSTATIC SENSITIVE DEVICE symbol

This indicates that the device or system being handled can be damaged by electrostatic discharges.
Refer to **Handling precautions for electrostatic sensitive devices on page xiv** **for further information.**

NOTE : This is an example of the NOTE paragraph style. This draws the operator's attention to complementary information or advice relating to products or their installation.

Important remarks on safety

Read this manual carefully and observe the safety instructions before using the equipment.

Location of safety symbols

The following safety symbols are found on the pages specified below:

THIS SYMBOL IS FOUND ON THE FOLLOWING PAGES:
xi, xii, xiii, 2-1, 2-17, 3-1, 4-1, 5-1, 6-1

This symbol is found on the following pages:
xi, xii, xiii, 1-2, 1-3, 1-5, 2-1, 3-1, 3-2, 4-2, 5-4

This symbol is found on the following page:
xi, xii, xiv

Additional remarks

Every effort has been made to include specific safety-related procedures in this manual using the symbols described above. However, operating personnel are expected to follow all generally accepted safety procedures.

Safety procedures should be communicated to all personnel who may operate any piece of equipment described in this manual.

Vibro-Meter does not accept any liability for injury or material damage caused by failure to obey any safety-related instruction or due to any modification, transformation or repair carried out on the equipment without written permission from Vibro-Meter. Any modification, transformation or repair carried out on the equipment without written permission from Vibro-Meter will invalidate any warranty.

Equipment used in potentially explosive atmospheres

THIS MANUAL COVERS EQUIPMENT THAT CAN BE USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES, AS WELL AS EQUIPMENT THAT CANNOT BE USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES.

TO ENSURE THAT THE EQUIPMENT CAN SAFELY BE USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES, IT IS ESSENTIAL TO:

- **VERIFY IT IS IDENTIFIED WITH SPECIAL MARKING DESCRIBED IN THE "EC TYPE EXAMINATION CERTIFICATE" FOR THE PRODUCT**
- **RESPECT THE CRITERIA MENTIONED IN THE SAME "EC TYPE EXAMINATION CERTIFICATE"**

AN "X" OR A "U" PLACED AFTER THE CERTIFICATE NUMBER INDICATES THAT THE EQUIPMENT IS SUBJECT TO SPECIAL CONDITIONS FOR SAFE USE. THESE CONDITIONS ARE MENTIONED IN THE "SCHEDULE" SECTION OF THE CERTIFICATE.

REFER TO THE SAFETY MANUAL (SEE RELATED DOCUMENTATION ON PAGE V FOR FURTHER INFORMATION).

General handling precautions

Vibro-Meter's proximity transducers are rugged devices which can withstand a certain amount of careless handling. Nevertheless, certain precautions should be taken when handling this equipment.

Read the following recommendations carefully before handling proximity transducers.

- Do not drop the proximity transducer onto a hard surface or subject it to violent shocks.
- Protect the body/head of the proximity transducer with plastic protective netting when it is being handled, stored or transported. Remove this protection only when mounting the proximity transducer or when inspecting/testing it.
- Check for dents when inspecting the proximity transducer as this is a sign that it could have suffered a physical shock by impact. This may have caused damage to components within the proximity transducer.
- Do not excessively bend the integral cable or associated cables. Respect the minimum bending radius quoted in the appropriate data sheet.
- When storing and using the equipment, respect the environmental specifications (temperature, humidity) quoted in the appropriate data sheet.

Handling precautions for electrostatic sensitive devices

Certain devices used in electronic equipment can be damaged by electrostatic discharges resulting from built-up static electricity. Special precautions must be taken to minimize or eliminate the possibility of these electrostatic discharges occurring.

Read the following recommendations carefully before handling electronic circuits, printed circuit boards or modules containing electronic components.

- Before handling electronic circuits, discharge the static electricity from your body by touching and momentarily holding a grounded metal object (e.g. a pipe or cabinet).
- Avoid the build-up of static electricity on your body by not wearing synthetic clothing material, as these tend to generate and store static electric charges. Cotton or cotton blend materials are preferred because they do not store static electric charges.
- Do not handle electronic circuits unless it is absolutely necessary. Only hold modules by their front panel handles.
- Do not touch printed circuit boards, their connectors or their components with conductive devices or with your hands.
- Put the electronic circuit, printed circuit board or module containing electronic components into an antistatic protective bag immediately after removing it from the system rack.

1 INTRODUCTION TO PROXIMITY MEASURING SYSTEMS

1.1 System description

This chapter provides an overview of proximity measuring systems that use Vibro-Meter's TQ 4xx proximity transducers.

Vibro-Meter's proximity measuring systems use a non-contacting measurement technique based on the eddy current effect to measure the distance between a moving (vibrating) object and a proximity transducer. Proximity transducers are generally mounted on non-vibrating surfaces. The proximity measuring system provides a signal that is directly proportional to the relative movement between the proximity transducer and the surface.

The non-contacting technique is particularly suitable for monitoring various types of rotating machinery, including:

1) The axial displacement of a machine shaft or rotor. This can be used to measure the relative shaft expansion or the condition (degree of wear) of thrust bearings.
   This corresponds to a **static** measurement.
2) The relative vibration of a machine shaft in a radial direction. These radial vibrations are caused by shaft eccentricity, due to the presence of imbalance in the rotor or resonance.
   This corresponds to a **dynamic** measurement.

Figure 1-1 shows an electrical diagram of a typical proximity measurement system, in which following elements are present:

1) TQ 4xx proximity transducer
2) EA 40x extension cable
3) IQS 45x signal conditioner
4) The target (object whose movement is to be measured)

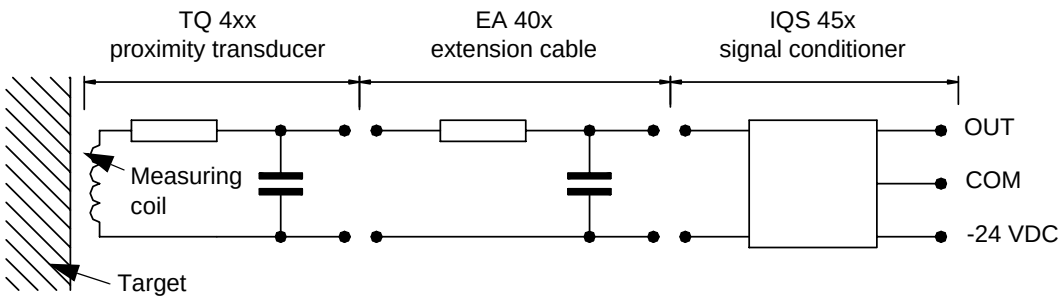


Figure 1-1: Equivalent electrical diagram of a proximity measurement system.

The tip of the proximity transducer contains a coil, forming part of an oscillating circuit. When this is excited by a high frequency signal provided by the IQS 45x signal conditioner, a magnetic field is emitted by the coil. If an electrically conducting material is moved into this field, the characteristics of the magnetic circuit change. This causes the amplitude of the high-frequency signal present in the coil to vary. The amplitude is proportional to the distance between the tip of the transducer and the target.

Vibro-Meter's proximity measurement systems are tuned systems. The total length of the cable from the TQ 4xx proximity transducer to the IQS 45x signal conditioner is selected at the time of ordering. It is not possible to mix and match individual components from other manufacturers.

A description of the constituent components of proximity measuring systems are outlined in 1.2 - Component descriptions on page 1-3. Schematic mechanical diagrams of a range of possible proximity measuring systems are shown in 1.3 - Mechanical diagrams on page 1-6. Examples of proximity measuring systems (with options) and references to their associated wiring diagrams are listed in Table 1-1.

Table 1-1: Examples of proximity measuring systems.

Components	**Code**			
Proximity transducer with integral cable	TQ 4xx	✓	✓	✓
Probe mounting adaptor	PA 15x	*	*	*
Cable feedthrough	SG 10x	*	*	*
Extension cable	EA 40x	*	*	*
Protection tube	KS 106	*	*	*
Junction box	JB 118	*	*	*
Signal conditioner	IQS 45x	✓	✓	✓
Industrial housing	ABA15x	*	*	*
2-wire current transmission cable	K 2xx	*	*	*
Galvanic separation unit	GSI 124		*	
3-wire voltage transmission cable	K 3xx	*	*	*
Power supply and safety barrier unit	GSV 14x		*	
Power module	APF 195 or APF 196		✓	
Connecting cable	K 2xx		✓	
Electrical diagram		6-1	6-2	6-3

* optional

1.2 Component descriptions

1.2.1 TQ 4xx proximity transducers

A range of TQ 4xx proximity transducers are available, which differ in characteristics such as their mounting (standard or reverse), sensitivity, measuring range and limits, pressure capabilities and cabling requirements.

NOTE: Further information on specific proximity transducers can be found in the corresponding data sheet.

If a proximity transducer is to be used in potentially explosive atmospheres, then it is essential to use a version of the proximity measuring system that is intrinsically safe. All front-end components (ie. proximity transducers, signal conditioners, transmission cables, galvanic separation units, power supply and safety barrier units, junction boxes and probe adaptors) are available in Ex versions.

1.2.2 Integral cable

A TQ 4xx proximity transducer is equipped with a low-impedance coaxial integral cable with FEP insulation, terminated by a male miniature coaxial connector. The integral cable may require additional protection depending on the environment, such as:

1- Stainless steel flexible protection tube, double-wall spiral electrically welded (protects mechanically and is leak-tight)

2- Stainless steel flexible protection tube (protects mechanically, but is not leak-tight)

3- Stainless steel flexible protection tube enclosed in a heat shrinkable sleeve (protects electrically, but is not leak-tight)

4- KS 106 protection tube (protects mechanically and is leak-tight to protection class IP 67)

1.2.3 PA 15x probe mounting adaptors

When the layout of a machine does not allow a TQ 4xx proximity transducer to be mounted inside the housing, a probe adaptor can be used to allow mounting through the machine housing. A probe adaptor allows the transducer-target distance to be adjusted and the proximity transducer to be replaced from outside the machine housing. In this way, the machine does not have to be stopped or disassembled during adjustment.

NOTE: Refer to the specific data sheet for the specifications of a probe mounting adaptor.

1.2.4 SG 10x cable feedthroughs

When a TQ 4xx proximity transducer is mounted inside the machine housing, the integral cable can be passed through the housing using a leak-tight SG 10x cable feedthrough. An SG 10x cable feedthrough provides protection class IP 68. An SG 10x cable feedthrough consists of a double stuffing gland to secure both a coaxial cable and a stainless steel flexible protective sheathing.

NOTE: Refer to the specific data sheet for the specifications of a cable feedthrough.

1.2.5 EA 40x extension cables

An EA 40x extension cable is a low-impedance coaxial cable with FEP insulation. For some applications, a TQ 4xx proximity transducer may be delivered with an integral cable length of 5 m or 10 m. In this case, no EA 40x extension cable is necessary.

NOTE: For further information on the possible lengths of integral and extension cables refer to the proximity measuring system's data sheet.

For some applications mechanical protection for the EA 40x extension cable may be necessary. The protection available is the same as for an integral cable, except option 1 is not available (1.2.2 - Integral cable on page 1-3).

The connection between the integral cable and the EA 40x extension cable can be electrically isolated using a protective housing such as:

- The protective housing associated with the PA 151 / PA 152 probe adaptor (if included in the proximity measuring system).
- A JB 118 junction box.

Both options offer protection class IP 65 and are available in an intrinsically safe (Ex) versions.

NOTE: It is essential that the connection between the integral cable and the extension cable is electrically isolated.

1.2.6 JB 118 junction box

A JB 118 junction box offers protection class IP 65 to the connection between an integral cable and an extension cable. These junction boxes are made of polyester and are available with a range of stuffing glands.

1.2.7 IQS 45x signal conditioners

A TQ 4xx proximity transducer operates in conjunction with an IQS 45x signal conditioner. An IQS 45x signal conditioner transforms the signal from a TQ 4xx proximity transducer into a current-modulated or voltage-modulated signal. An integral cable or an EA 40x extension cable is connected to a IQS 45x signal conditioner using a female coaxial socket.

NOTE: The choice of signal type must be made at the time of ordering.

NOTE: The installation of an IQS 45x signal conditioner (set for a current-modulated signal), a 2-wire transmission cable and a GSI 124 galvanic separation unit, allows transmission over longer distances than any other solution.

1.2.8 ABA 15x industrial housings

A range of insulating polyester ABA 15x industrial housings are available, differing in characteristics such as how many signal conditioners they can contain. An ABA 15x industrial housing can be used to enclose IQS 45x signal conditioner(s) intended for use in potentially explosive atmospheres. An ABA 15x offers protection class IP 66 and contains an insulating plate to ensure that earth loop problems are avoided.

1.2.9 K 209 and K 210 current transmission cables

A K 209 or K 210 current transmission cable is used to connect an IQS 45x signal conditioner to a GSI 124 galvanic separation unit when a current-modulated IQS 45x output signal type is required. These cables are screened, 2-wire cables designed for use in harsh industrial environments. An optional flexible stainless steel protection tube (e.g. KS 106) can be used to provide additional mechanical protection to the cable if required.

K 210 cables are used in potentially explosive atmospheres for the following connections:

i) to an electronic monitoring system (zone 2)

ii) to a GSI 124 (zones 1 & 2)

K 209 cables can only be used for non-Ex applications.

A K 209 or K 210 cable can be used to connect a GSI 124 galvanic separation unit or a GSV 14x power supply and safety barrier unit to an electronic monitoring system.

1.2.10 K 309 and K 310 voltage transmission cables

A K 309 or a K 310 voltage transmission cable is used to connect an IQS 45x signal conditioner to a GSV 14x power supply and safety barrier unit when a voltage-modulated IQS 45x output signal type is sufficient. These cables are screened, 3-wire cables designed for use in harsh industrial environments. An optional flexible stainless steel protection tube (e.g. KS 106) can be used to provide additional mechanical protection to the cable if required.

K 310 cables are used in potentially explosive atmospheres for the following connections:

i) to an electronic monitoring system (zone 2)

ii) to a GSI 124 (zones 1 & 2)

K 309 cables can only be used for non-Ex applications.

1.2.11 GSI 124 galvanic separation unit

A GSI 124 galvanic separation unit is used in a 2-wire transmission system to supply power to a signal conditioner, including those located in potentially explosive atmospheres. A GSI 124 galvanic separation unit reads the signal from a signal conditioner and outputs a voltage-based signal proportional to the current delivered by the signal conditioner. This voltage signal can be used directly by an electronic monitoring system. A GSI 124 galvanic separation unit requires an external power source such as an APF 195 or APF 196 power module (1.2.13 - APF 19x power module on page 1-6).

1.2.12 GSV 14x power supply and safety barrier unit

A GSV 14X power supply and safety barrier unit is used when a 3-wire transmission technique is used and the front-end components are located in potentially explosive atmospheres. A GSV 14x provides the signal conditioner with a fully floating, current-limited DC voltage that is galvanically separated from the mains supply. A GSV 14x power supply and safety barrier unit requires an external power source such as an APF 195 or APF 196 power module (1.2.13 - APF 19x power module on page 1-6).

1.2.13 APF 19x power module

An APF 19x power module is used to power external hardware requiring a 24 V_{DC} power supply, such as a GSI 124 galvanic separation unit (1.2.11 - GSI 124 galvanic separation unit on page 1-5) or a GSV 14x power supply and safety barrier unit (1.2.12 - GSV 14x power supply and safety barrier unit on page 1-5). An APF 19x power module is installed on a DIN rail outside the rack, generally in a cubicle housing.

1.3 Mechanical diagrams

Some examples of mechanical diagrams for proximity measuring systems are shown in Figure 1-2 and Figure 1-3.

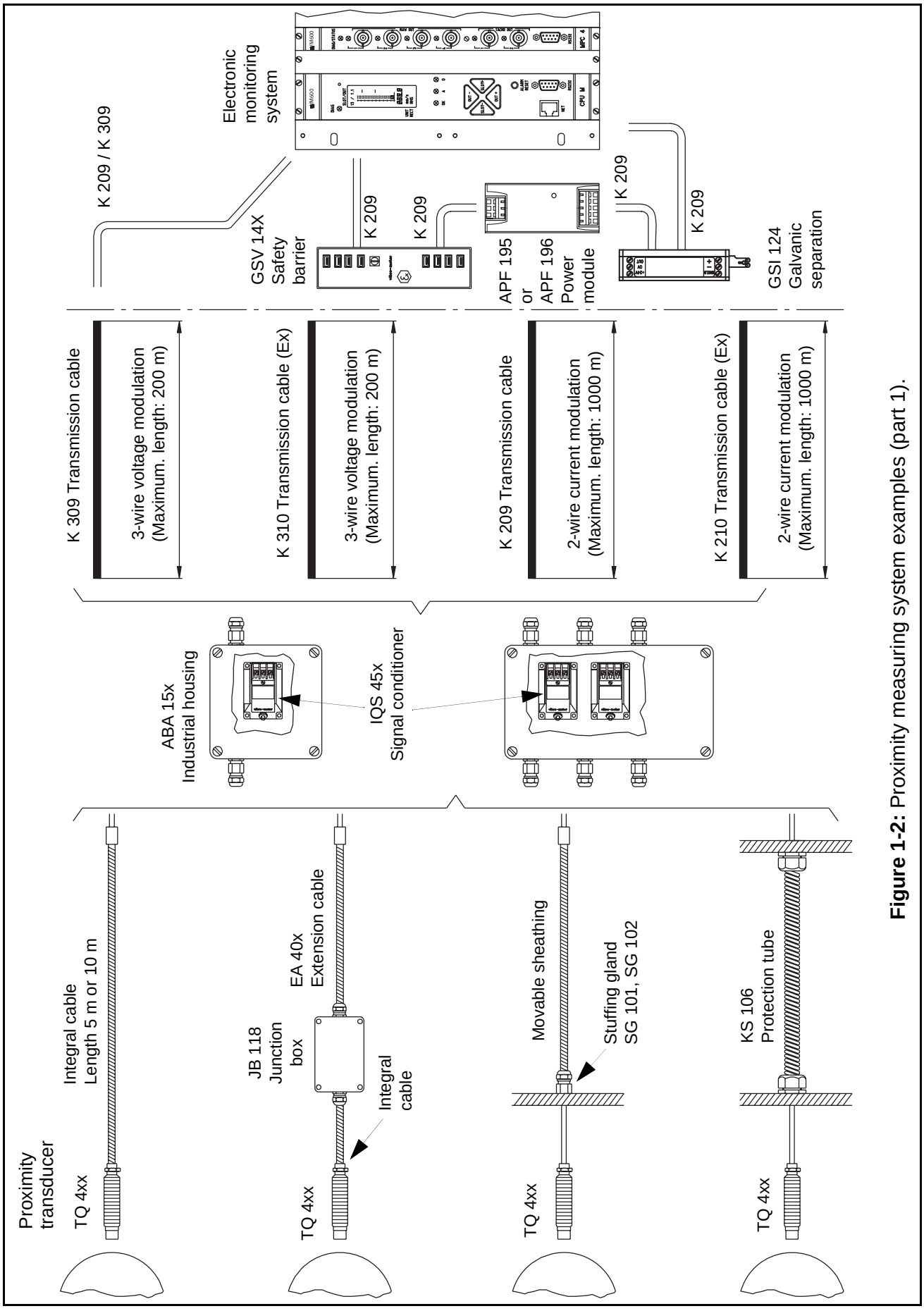


Figure 1-2: Proximity measuring system examples (part 1).

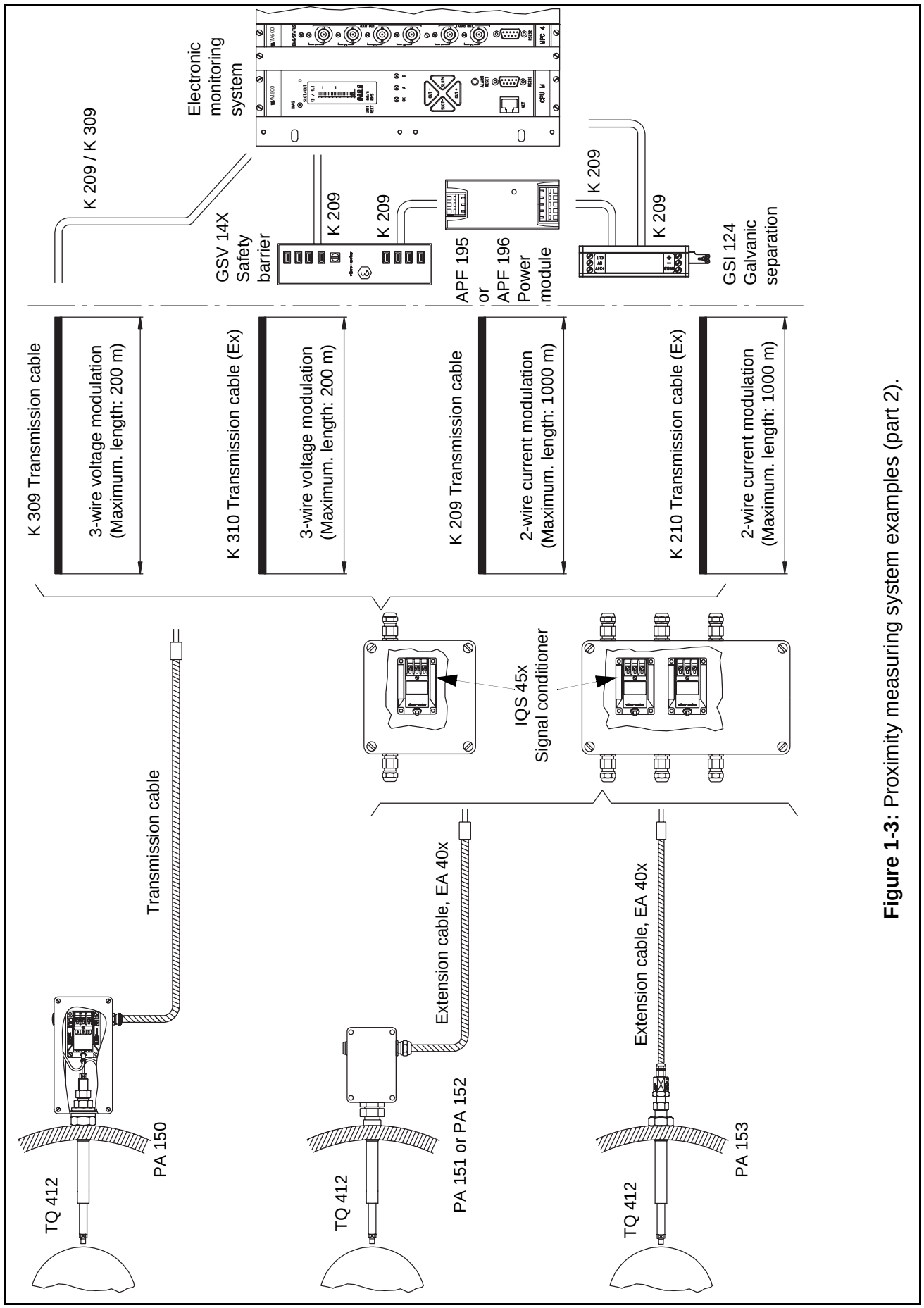


Figure 1-3: Proximity measuring system examples (part 2).

2 INSTALLING PROXIMITY TRANSDUCERS

This chapter provides general guidelines on installing and fixing a TQ 4xx proximity transducer.

NOTE: Further specific information on a particular proximity transducer can be found in the corresponding data sheet.

The information contained in this chapter applies to all TQ 4xx proximity transducers in the proximity measuring system.

2.1 General considerations

2.1.1 Requirements for equipment used in potentially explosive atmospheres

TO ENSURE THAT THE EQUIPMENT CAN SAFELY BE USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES, IT IS ESSENTIAL TO RESPECT THE CRITERIA OUTLINED IN THE "EC TYPE EXAMINATION CERTIFICATE".

AN "X" OR A "U" PLACED AFTER THE CERTIFICATE NUMBER INDICATES THAT THE EQUIPMENT IS SUBJECT TO SPECIAL CONDITIONS FOR SAFE USE. THESE CONDITIONS ARE MENTIONED IN THE "SCHEDULE" SECTION OF THE CERTIFICATE.

REFER TO A - ATEX CERTIFICATES FOR FURTHER INFORMATION.

2.1.2 Factors influencing measurements

Care should always be taken when mounting the various elements of the proximity measuring system in order to guarantee long-term reliability.

Adhere to the constraints outlined in 2.2 - Mounting constraints on page 2-3 when mounting the proximity transducer. Otherwise, the performance of the proximity measuring system may be impaired.

A proximity transducer can be mounted inside or through the machine housing, depending on the characteristics of the machine. A number of mounting accessories are available, of which only standard accessories are covered in this chapter. These instructions are not suitable for all applications and certain modifications may be required so that the accessory does not interfere with the measurement process.

NOTE: If necessary, please contact Vibro-Meter for further information on adapting a proximity measuring system.

A number of factors may cause the characteristics of a proximity measuring system to differ from the theoretical characteristics. These are principally:

- The target material used (2.1.2.1 - Influence of the target material on page 2-2)
- The ambient temperature (2.1.2.2 - Operating temperature range on page 2-2)
- Mechanical and electrical imperfections (2.1.2.3 - Runout effects on page 2-2)
- Violation of certain mounting constraints (2.2 - Mounting constraints on page 2-3)

2.1.2.1 Influence of the target material

A proximity transducer requires an electrically conducting target material. The target material can be steel, copper, aluminium, our standard VCL 140, etc. The system sensitivity and the linear part of the measuring range are heavily dependent on the target material.

NOTE: Refer to the proximity transducer's data sheet for further information on the influence of target materials on sensitivity.

2.1.2.2 Operating temperature range

The electrical conductivity and permeability of the target material, as well as the cable capacitance and other factors, are dependent on the ambient temperature. Therefore, the operating temperature can affect the precision of results.

NOTE: Refer to the proximity transducer's data sheet for further information on the maximum temperature drift.

2.1.2.3 Runout effects

The runout is the sum of two error sources stemming from a non-ideal target:

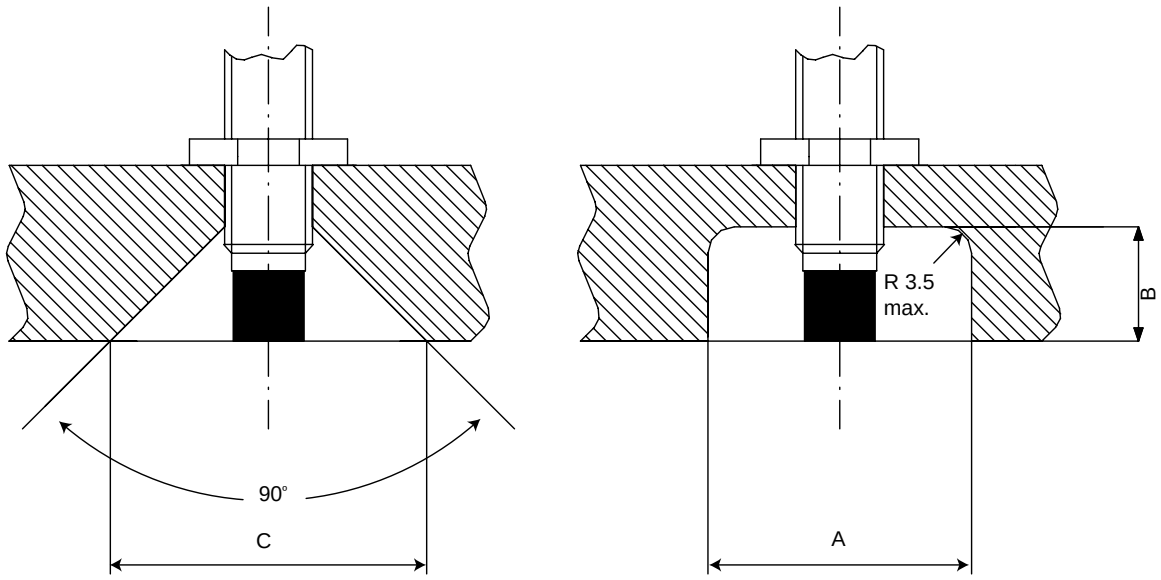
1) Mechanical runout is caused by physical imperfections in the target. In the case of a rotating shaft, this could be due to a lack of perfect coaxiality or circularity. It is also a function of the surface state, in that imperfections in the shaft's surface (scratches, etc.) will cause mechanical runout.
2) Electrical runout is mainly caused by an unequal distribution of the electrical conductivity on the shaft's surface (presence of "magnetic spots").

During measurements with a proximity transducer, runout effects lead to an apparent signal that does not exist. These effects can be eliminated digitally.

2.2 Mounting constraints

When mounting a proximity transducer, it is important to ensure that certain mounting constraints are respected, otherwise the performance of the proximity measuring system will be impaired. These constraints are shown from Figure 2-1 to Figure 2-8.

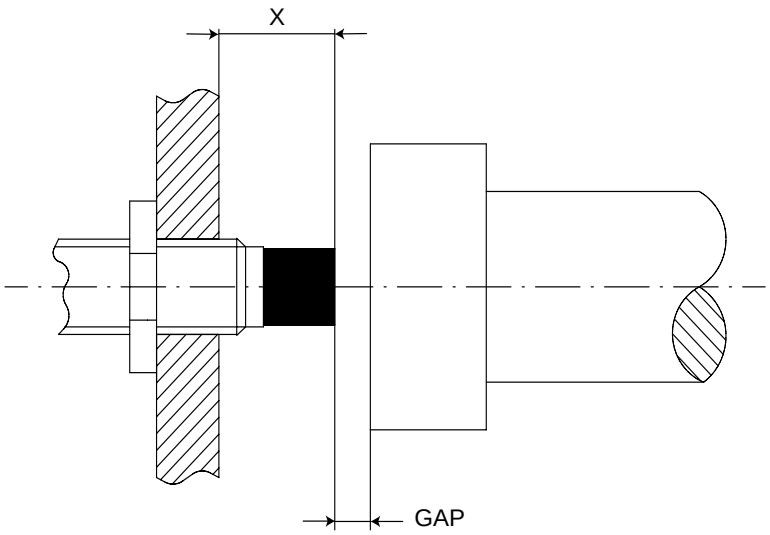
2.2.1 Free space around the head of the proximity transducer



Proximity transducer type	Minimum value for full measuring range (mm)			Minimum value for half of measuring range (mm)		
	A	B	C	A	B	C
TQ 401	20	9	30	16	6	26
TQ 402/412	34	13	46	24	10	36
TQ 403	70	23	130	54	10	70

Figure 2-1: Minimum free space around the head of the proximity transducer.

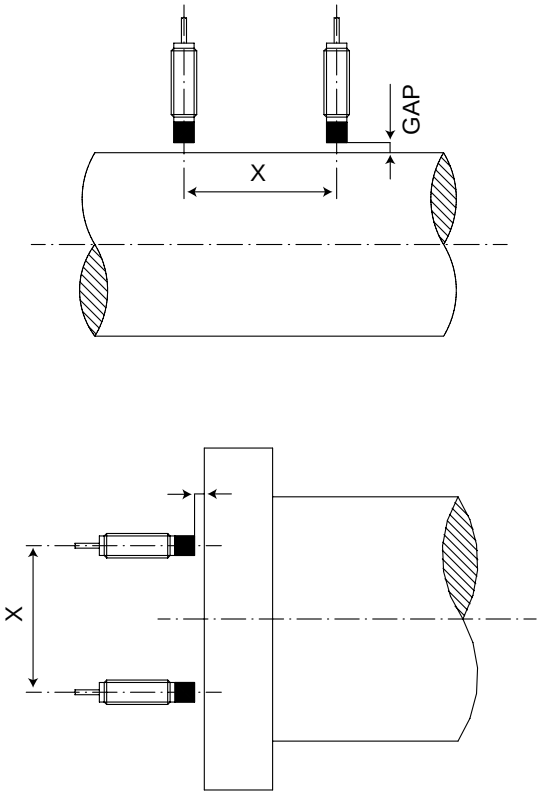
2.2.2 Distance between head of the proximity transducer and mounting support



	Minimum value of x (mm)		
Range	**TQ 401**	**TQ 402/412**	**TQ 403**
Full measuring range	9	13	23
Half of measuring range	6	10	10

Figure 2-2: Minimum distance between the head of the proximity transducer and the mounting support.

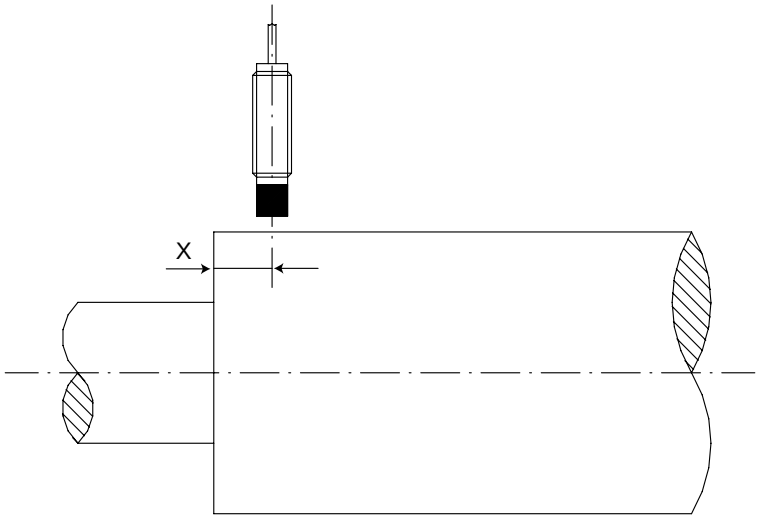
2.2.3 Distance between two proximity transducers



	Minimum value of x (mm)		
Range	**TQ 401**	**TQ 402/412**	**TQ 403**
Full measuring range	26	51	105
Half of measuring range	21	30	61

Figure 2-3: Minimum distance between two proximity transducers.

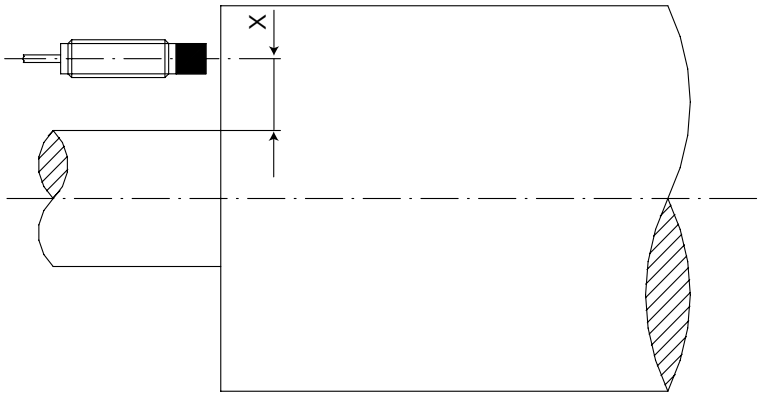
2.2.4 Proximity transducer / shoulder distance (radial measurement)



	Minimum value of x (mm)		
Range	**TQ 401**	**TQ 402/412**	**TQ 403**
Full measuring range	7	9	18
Half of measuring range	5	6	9

Figure 2-4: Minimum distance between the proximity transducer and shoulder for radial measurements.

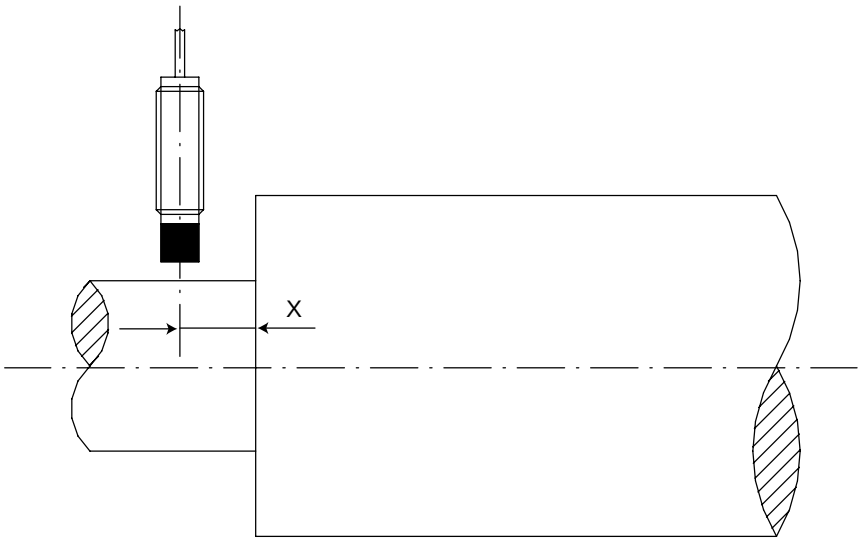
2.2.5 Proximity transducer / shoulder distance (axial measurement)



	Minimum value of x (mm)		
Range	**TQ 401**	**TQ 402/412**	**TQ 403**
Full measuring range	8	14	28
Half of measuring range	7	9	18

Figure 2-5: Minimum distance between the proximity transducer and shoulder for axial measurements.

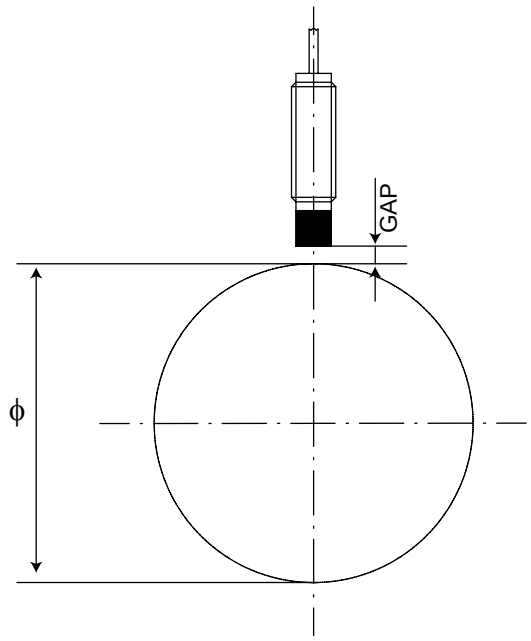
2.2.6 Proximity transducer / shaft end distance



	Minimum value of x (mm)		
Range	**TQ 401**	**TQ 402/412**	**TQ 403**
Full measuring range	8	14	28
Half of measuring range	7	9	18

Figure 2-6: Minimum distance between the proximity transducer and the shaft end.

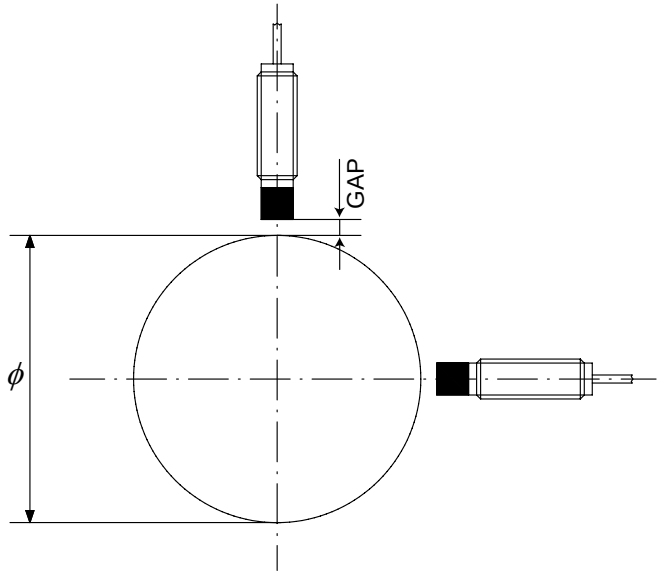
2.2.7 Shaft diameter for a single proximity transducer



Proximity transducer type	Error (%) when GAP = GAP_{max}			Error (%) when GAP = (GAP_{max}) / 2		
	Diam. 80 mm	Diam. 50 mm	Diam. 20 mm	Diam. 80 mm	Diam. 50 mm	Diam. 20 mm
TQ 401	2.5	3.5	5.5	1	1.5	2
TQ 402/412	2.5	5	10	1	1.5	3.5
TQ 403	Not applicable			Not applicable		

Figure 2-7: Measurement error for a single proximity transducer as a function of shaft diameter.

2.2.8 Shaft diameter for two proximity transducers mounted at 90°



Proximity transducer Type	Noise (μmpp) when GAP = GAP_{max}				Noise (μmpp) when GAP = (GAP_{max}) / 2			
	Diam. 90 mm	Diam. 70 mm	Diam. 50 mm	Diam. 30 mm	Diam. 80 mm	Diam. 60 mm	Diam. 40 mm	Diam. 20 mm
TQ 401	3	3	3.3	15	0.8	0.9	1	18
TQ 402/412	9	11	32	320	1.6	2	9	230
TQ 403	Not applicable				Not applicable			

Figure 2-8: Influence of shaft diameter on crosstalk noise between two proximity transducers mounted at 90°.

2.3 Mounting a proximity transducer

2.3.1 Supports used inside the machine housing

Various mounting supports exist, a range of which are shown from Figure 2-9 to Figure 2-12. In Figure 2-9 and Figure 2-10, the mounting support has been drilled and threaded to accommodate the proximity transducer. Only one retaining nut is required in this case. A reverse mounted proximity transducer (such as a TQ 412 or TQ 432) is supplied with an integral retaining nut (Figure 2-10) The mounting support in Figure 2-11 has been drilled but not threaded. Two retaining nuts are required in this case. Figure 2-12 shows another variant in which the proximity transducer has been clamped.

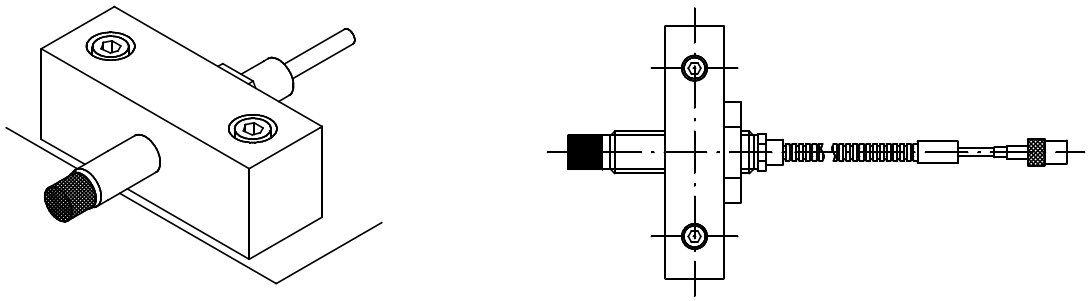


Figure 2-9: Mounting support (drilled and threaded) for a reverse mounted proximity transducer.

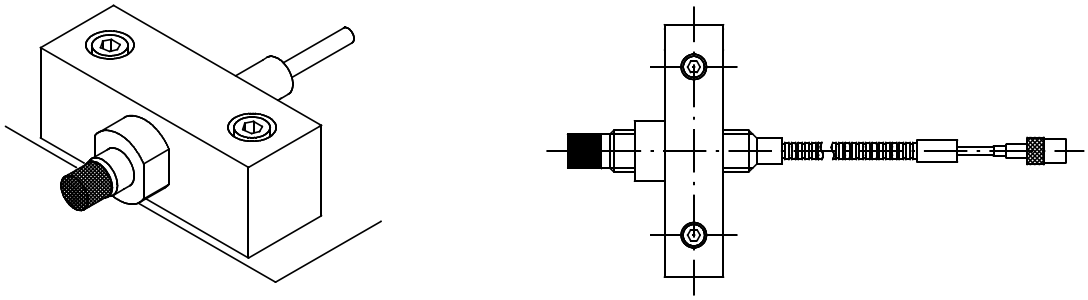


Figure 2-10: Mounting support (drilled and threaded) for a standard proximity transducer.

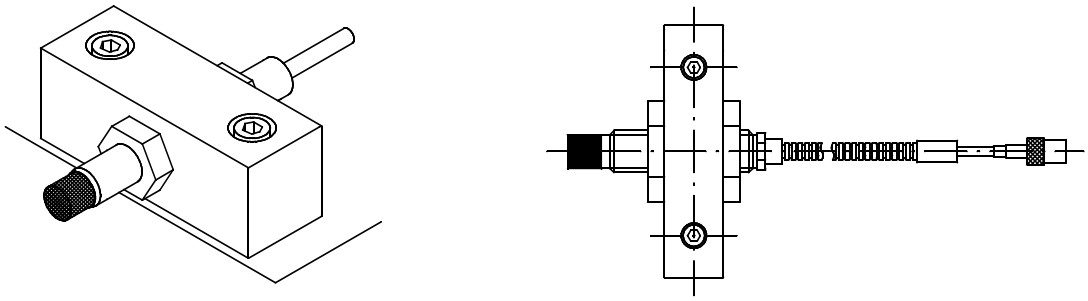


Figure 2-11: Mounting support (drilled but not threaded) requiring two retaining nuts.

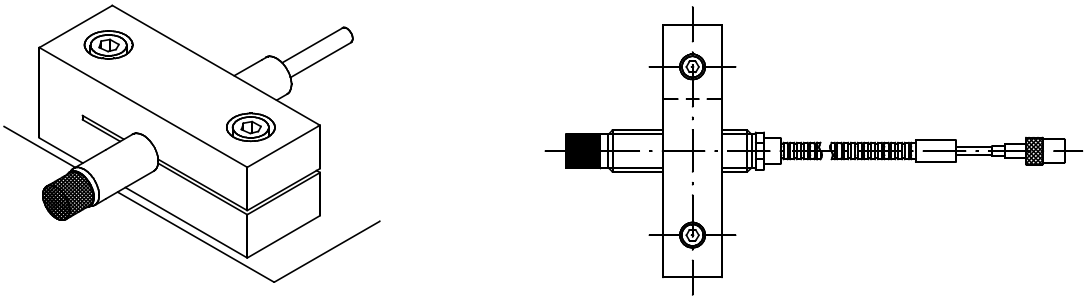


Figure 2-12: Mounting support using a clamp.

2.3.2 Probe adaptors

2.3.2.1 Mounting a PA 150 probe adaptor

The procedure below describes how to mount a PA 150 probe adaptor on a machine housing. Refer to Figure 2-13 for the references to the components.

1- Disconnect the cables from the IQS 45x signal conditioner (Ref. 7).

2- Undo the fixing bolt (Ref. 4), remove the U-plate (Ref. 9) and take the probe housing (Ref. 10) off the probe adaptor rod (Ref. 1).

3- Bore a threaded hole in the machine to match the thread of the probe adaptor (Ref. 2).

4- Apply a strip of Teflon to the thread of the adaptor (Ref. 2) before screwing it into the machine housing. This improves the leak-proof quality of the adaptor.

5- Screw the adaptor (Ref. 2) into the machine housing and ensure that it is tight using the fixing bolt (Ref. 3).

6- Set the initial gap mechanically (refer to 2.4 - Measurement and mechanical adjustment of the initial gap on page 2-18) by adjusting the probe adaptor rod (Ref. 1) using the 4-flat bolt (Ref. 6). Once the required distance is obtained, tighten the fixing nut (Ref. 5) to secure the rod.

7- Put the probe housing (Ref. 10) over the probe adaptor as far as the washer.

8- Insert the U-plate (Ref. 9) between the inside of the probe housing (Ref. 10) and the washer and tighten.

9- If not already assembled, screw the stuffing gland (Ref. 11) into the probe housing (Ref. 10).

10- Feed the transmission cable through the stuffing gland (Ref. 11) and tighten it to ensure the probe housing is leak-proof.

11- Reconnect the cables to the IQS 45x signal conditioner (4.3 - Installing an ABA 15x industrial housing on page 4-3).

12- Screw the cover (Ref. 8) onto the probe housing (Ref. 10).

2.3.2.2 Mounting PA 151 and PA 152 probe adaptors

The procedure below edescribes how to mount a PA 151 or PA 152 probe adaptor on a machine housing. Refer to Figure 2-14 for a schematic representation of the components referenced during this process.

1- Undo the fixing bolt (Ref. 4), remove the U-plate (Ref. 8) and take the probe housing (Ref. 9) off the probe adaptor rod (Ref. 1).

2- Bore a threaded hole in the machine to match the thread of the probe adaptor (Ref. 2).

3- Apply a strip of Teflon to the thread of the adaptor (Ref. 2) before screwing it into the machine housing. This improves the leak-proof quality of the adaptor.

4- Screw the adaptor (Ref. 2) into the machine housing and ensure that it is tight using the fixing bolt (Ref. 3).

5- Set the initial gap mechanically (refer to 2.4 - Measurement and mechanical adjustment of the initial gap on page 2-18) by adjusting the probe adaptor rod (Ref. 1) using the 4-flat bolt (Ref. 6). Once the required distance is obtained, tighten the fixing nut (Ref. 5) to secure the rod.

6- Put the probe housing (Ref. 9) over the probe adaptor as far as the housing fixing bolt (Ref. 3).

7- Insert the U-plate (Ref. 8) between the inside of the probe housing (Ref. 9) and the fixing bolt (Ref. 4) and tighten.

8- If not already assembled, screw the stuffing gland (Ref. 10) into the probe housing (Ref. 9).

9- Feed the integral cable or EA 40x extension cable through the stuffing gland (Ref. 10) and tighten it to ensure the probe housing is leak-proof.

10- If there is an EA 40x extension cable, then connect the EA 40x extension cable to the integral cable, as described in 3.2 - Fixing an integral or extension cable on page 3-2.

11- Screw the cover (Ref. 7) onto the probe housing (Ref. 9).

2.3.2.3 Mounting a PA 153 probe adaptor

The procedure below describes how to mount a PA 153 probe adaptor on a machine housing. Refer to Figure 2-15 for a schematic representation of the components referenced during this process.

1- Bore a threaded hole in the machine to match the thread of the probe adaptor (Ref. 2).

2- Apply a strip of Teflon to the conical thread of the adaptor (Ref. 2) before screwing it into the machine housing. This improves the leak-proof quality of the adaptor.

3- Screw the adaptor (Ref. 2) into the machine housing and ensure that it is tight before tightening the fixing bolt (Ref. 3).

4- Unscrew the stuffing gland support (Ref. 5) from the probe adaptor rod (Ref. 1).

5- Set the initial gap mechanically (refer to 2.4 - Measurement and mechanical adjustment of the initial gap on page 2-18) by adjusting the probe adaptor rod (Ref. 1) using the 4-flat bolt (Ref. 6). Once the required distance is obtained, tighten the fixing nut (Ref. 4) to secure the rod.

6- Screw the stuffing gland support (Ref. 5) onto the probe adaptor rod (Ref. 1).

7- Tighten the stuffing gland to the cable.

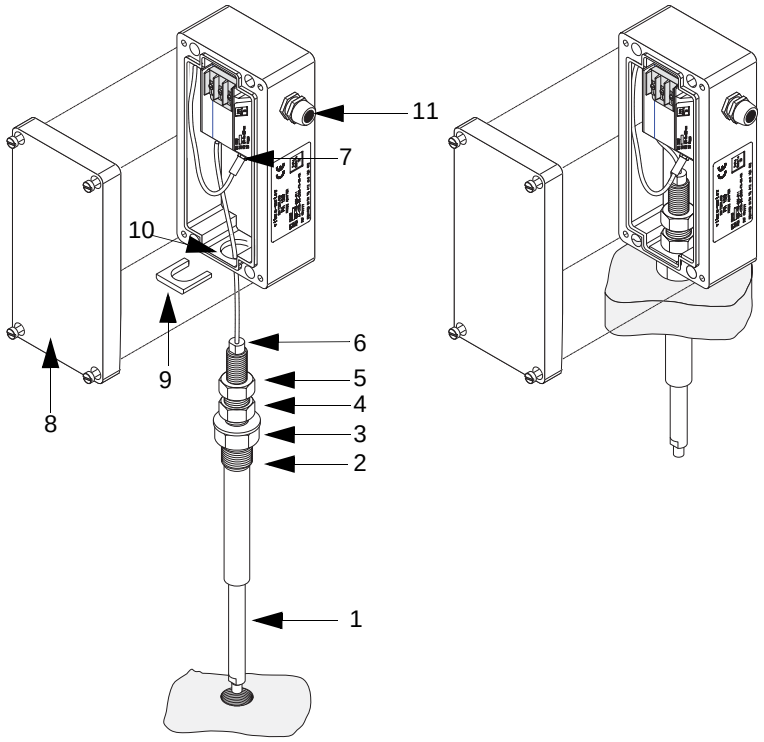


Figure 2-13: Mounting a PA 150 probe adaptor.

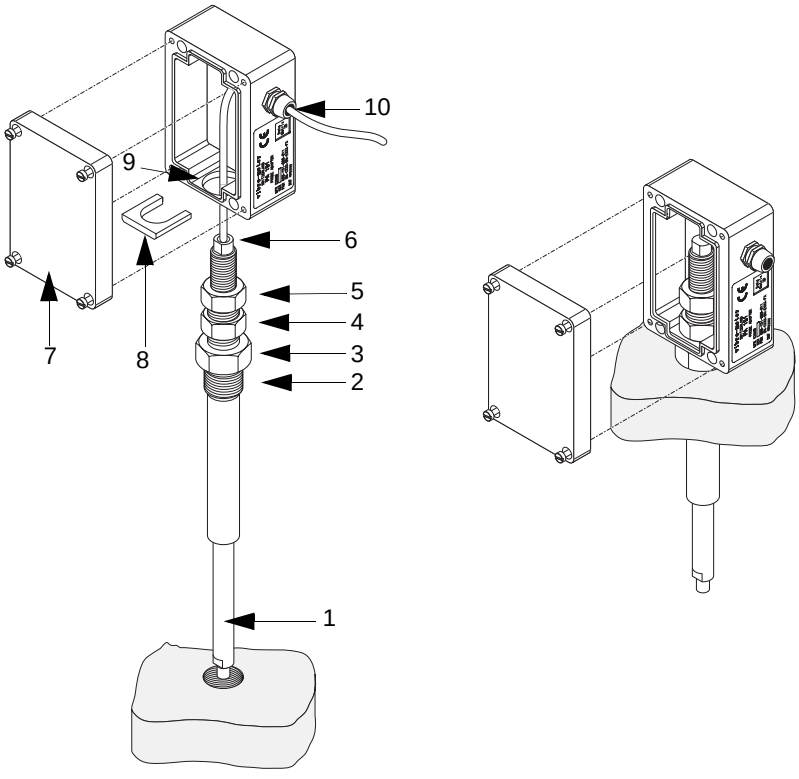


Figure 2-14: Mounting a PA 151 or PA 152 probe adaptor.

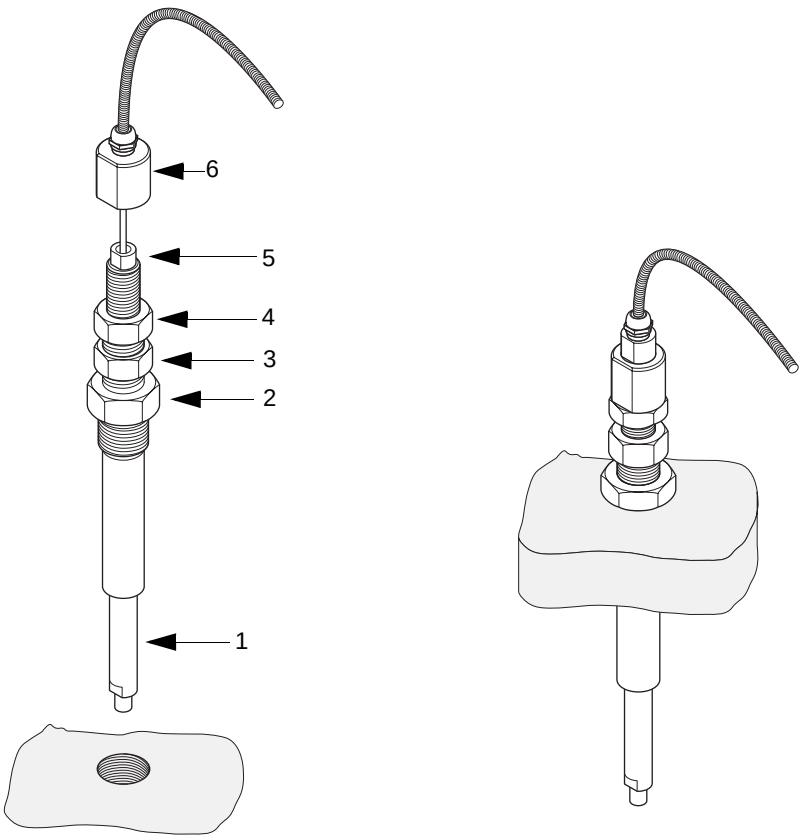


Figure 2-15: Mounting a PA 153 probe adaptor.

2.3.3 Cable feedthroughs

2.3.3.1 Mounting a cable feedthrough

BEFORE MOUNTING A CABLE FEEDTHROUGH, THE MACHINE HOUSING SHOULD BE PREPARED WITH A THREADED HOLE TO MATCH THE CABLE FEEDTHROUGH'S ADAPTOR. REFER TO THE SG 10X DATA SHEET FOR THE DIMENSIONS OF THE ADAPTOR, AND ANY FURTHER INFORMATION.

The thread of the SG 10x cable feedthrough should be made leak-tight by adding a strip of Teflon before screwing it into the machine housing as shown in Figure 2-16.

2.3.3.2 Connecting cables to a cable feedthrough

Cable feedthroughs are composed of a double stuffing gland to secure both a coaxial cable (Ref. 1, Figure 2-17) and a stainless steel flexible protective sheathing (Ref. 2, Figure 2-17).

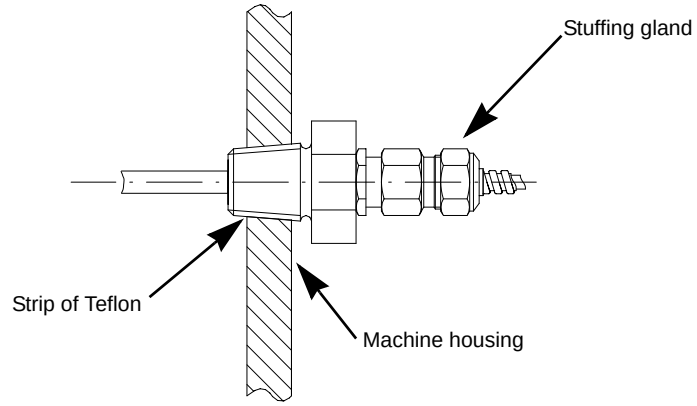


Figure 2-16: Mounting a SG 10x cable feedthrough.

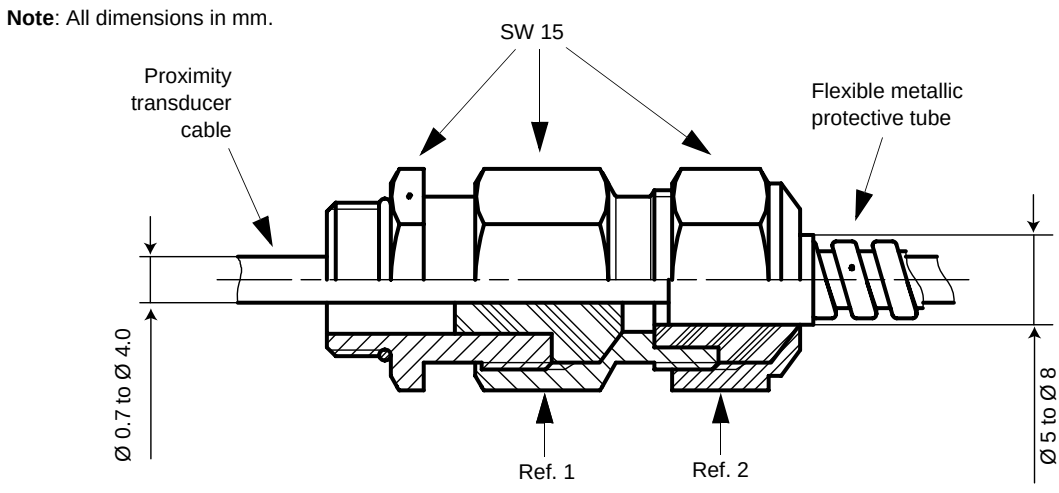


Figure 2-17: Connecting cables to a SG 10x cable feedthrough.

2.4 Measurement and mechanical adjustment of the initial gap

Mechanical adjustment of the initial gap should be made whilst installing a TQ 4xx proximity transducer by adjusting the distance between the tip of the proximity transducer and the target whilst the machine is switched off. The initial gap can be measured mechanically by inserting a feeler gauge of the required thickness between the tip of the proximity transducer and the target. The proximity transducer can then be adjusted as required.

The transducer-target distance must always lie within the measuring range of the proximity transducer for it to function correctly. Thus, a knowledge of the approximate magnitude of the relative movement between the proximity transducer and the target is necessary, as well as the direction of movement. If the direction of movement alternates (e.g. relative vibration measurement), the initial gap should be set in the middle of the proximity transducer's measuring range (see Figure 2-18 (a) for a TQ 402 proximity transducer). If the direction of movement tends to be in one direction only (e.g. axial position measurement), the initial gap should be set at one end of the proximity transducer's measuring range, depending on the direction of movement anticipated (see Figure 2-18 (b) for a TQ 402 proximity transducer).

In either case, it is important to leave sufficient safety margin to prevent the proximity transducer touching the target. The following initial gaps are suggested:

TQ 401, TQ 402 / TQ 412 (sensitivity 8 mV/µm)	:0.2 mm
TQ 402 / TQ 412 (sensitivity 4 mV/µm), TQ 422 / TQ 432	:0.3 mm
TQ 403, TQ 423	:0.75 mm

NOTE: Further specific information on measuring range specifications can be found in the corresponding data sheet.

NOTE: If an electrical adjustment of the initial gap is to be made (4.4 - Electrical adjustment of the initial gap on page 4-5), then do not fix the proximity transducer using an industrial adhesive at this stage.

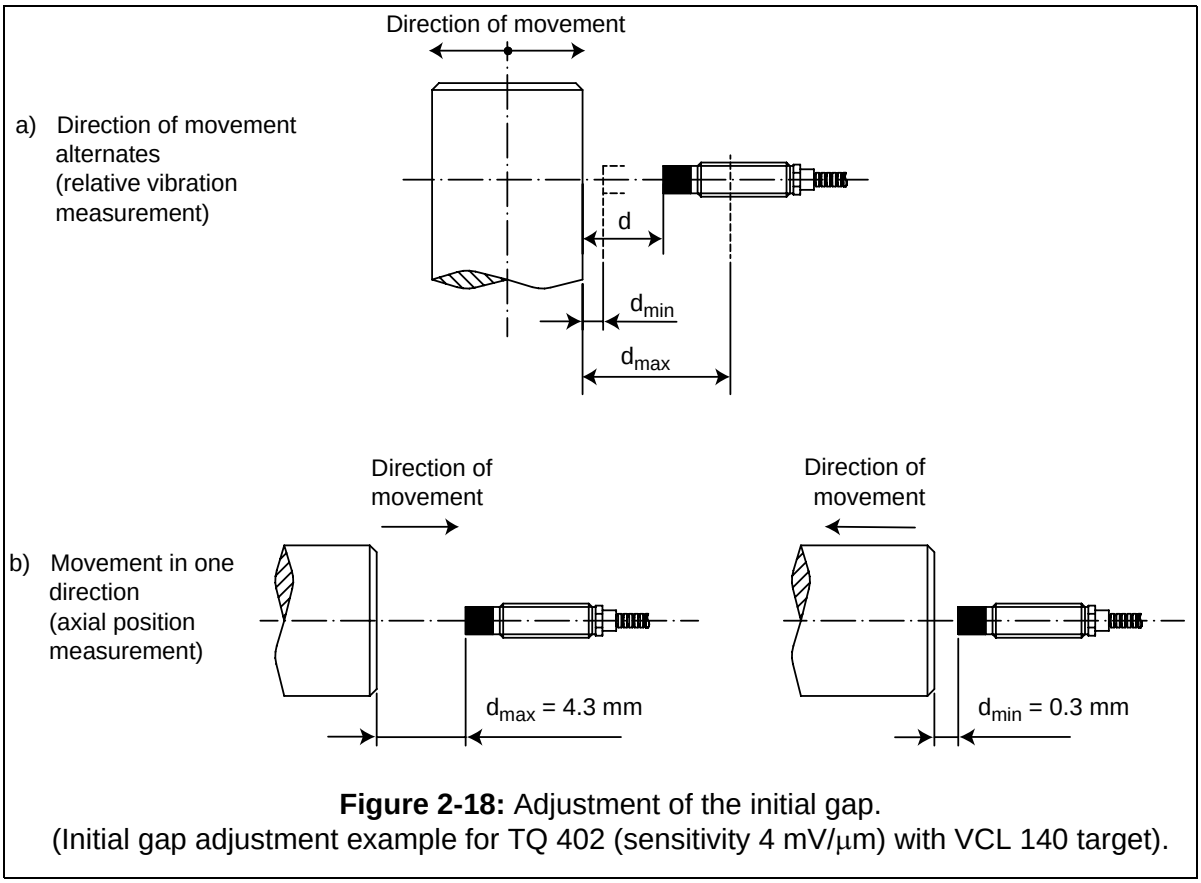


Figure 2-18: Adjustment of the initial gap.
(Initial gap adjustment example for TQ 402 (sensitivity 4 mV/µm) with VCL 140 target).

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3 INSTALLING CABLES

This chapter provides general guidelines on installing cables in proximity measuring systems.

NOTE: Further information on a specific cable can be found in the corresponding data sheet.

The information contained in this chapter applies to installing the following:

- Integral cables
- EA 40x extension cables
- K 2xx or K 3xx transmission cables
- K 2xx connecting cables

Information on connecting cables is described in the following sections:

- 2.3.3.2 - Connecting cables to a cable feedthrough on page 2-17
- 5.3.2 - Connecting cables to a GSI 124 galvanic separation unit on page 5-3
- 5.4 - Replacing a GSV 14x or a GSI 123 with a GSI 124 on page 5-4

3.1 General precautions

3.1.1 Cables in potentially explosive atmospheres

THE LENGTHS OF ALL CABLES INSTALLED IN POTENTIALLY EXPLOSIVE ATMOSPHERES MUST BE DETERMINED AS PER THE CRITERIA OUTLINED IN THE EC TYPE EXAMINATION CERTIFICATE FOR THE PRODUCT.

3.1.2 Minimum bending radius

It is essential that the minimum bending radius is respected when connecting and fixing an integral cable, extension cable, transmission cable or connecting cable.

NOTE: Further specific information on the minimum bending radius of a specific cable can be found in the corresponding data sheet.

Failure to respect the minimum bending radius of a cable can lead to permanent cable damage.

3.1.3 Total system length

The combined length of the integral cable and the EA 40x extension cable must be one of the appropriate possible lengths defined by Vibro-Meter.

NOTE: Further specific information on the total system lengths available for a specific proximity system can be found in the corresponding data sheet.

Never shorten or lengthen an integral cable or extension cable. The original system length must be conserved. Otherwise, calibration of the proximity measuring system will be inaccurate.

3.1.4 Operating temperature range

The temperature where the cable is installed must not exceed the cable's operating temperature range.

NOTE: For further information on the temperature range of a specific cable, refer to the corresponding data sheet.

3.1.5 Minimizing sources of electromagnetic interference

Signals in the proximity measuring system are sensitive to electromagnetic interference (EMI). This is particularly true near the proximity transducer, where signal levels are low. Interference can come from a variety of sources including power cables, strong magnetic fields, motors, switching gear, portable phones and walkie-talkies.

The following precautions must be taken to reduce the effects of EMI:

1- Use appropriate grounding techniques. Always conform to the electrical connection diagrams in this manual (Figure 6-1 to Figure 6-3).

2- Electrically isolate (shield) each proximity measuring system from all others.

3- If possible, place cables in a grounded steel protection tube to provide additional electrical and mechanical protection.

4- Do not run signal cables through conduits used for other purposes such as power cables or communications lines.

3.1.6 Cable conduits

Cable conduits provide mechanical and electrical protection. All signal wiring should be run through conduits that are reserved for only one type of cable. Do not mix signal wiring with power cables or communications lines.

The conduit must be well grounded according to industry standards in order to provide protection against EMI.

The conduit should be reasonably waterproof to prevent water or other liquids entering it. If there is a risk of this happening, or of condensation forming in the conduit, then adequate drainage should be provided.

3.2 Fixing an integral or extension cable

Under no circumstances should the integral cable or extension cable be shortened. Any excess cable should be passed in a loop before the junction box and fixed using cable clamps.

An integral cable and an EA 40x extension cable can be connected using their matching miniature coaxial connectors.

Cable movements (such as vibration/resonance) cause a signal to be generated in the cable, which can cause interference in the measured signal. Therefore, it is essential that these cables are clamped at regular intervals to limit their movement both inside and outside the machine housing (Figure 3-1:). The following intervals are recommended:

- 100 mm for a cable mounted on a vibrating structure (>10 g)
- 200 mm for a cable mounted on a non-vibrating structure

Outside the machine housing it is possible to use a rigid metal cable duct rather than clamping the cable.

It is advisable to use heat-shrinkable sleeves to ensure that the connectors do not become loose. This may occur when the connectors are in close proximity to the machine being measured and are thus susceptible to vibrations produced by the machine.

NOTE: The proximity transducer mounting support and the proximity transducer should not be disassembled once the proximity measuring system has been installed, otherwise the transducer-target distance will be altered and the cable may become twisted.

3.3 Fixing a transmission or connecting cable

Refer to section 3.1 - General precautions on page 3-1 before continuing with the installation. The cables covered in this section are:

- K 3xx or K 2xx transmission cables between an IQS 45x signal conditioner and a GSI 124 galvanic separation unit or a GSV 14x power supply and safety barrier unit
- K 2xx connecting cables between the GSI 124 galvanic separation unit or GSV 14x power supply and safety barrier unit and the electronic monitoring system

All cables listed above can be mounted according to standards for low-voltage installations. However, care should be taken to minimize the effects of EMI (3.1.5 - Minimizing sources of electromagnetic interference on page 3-2).

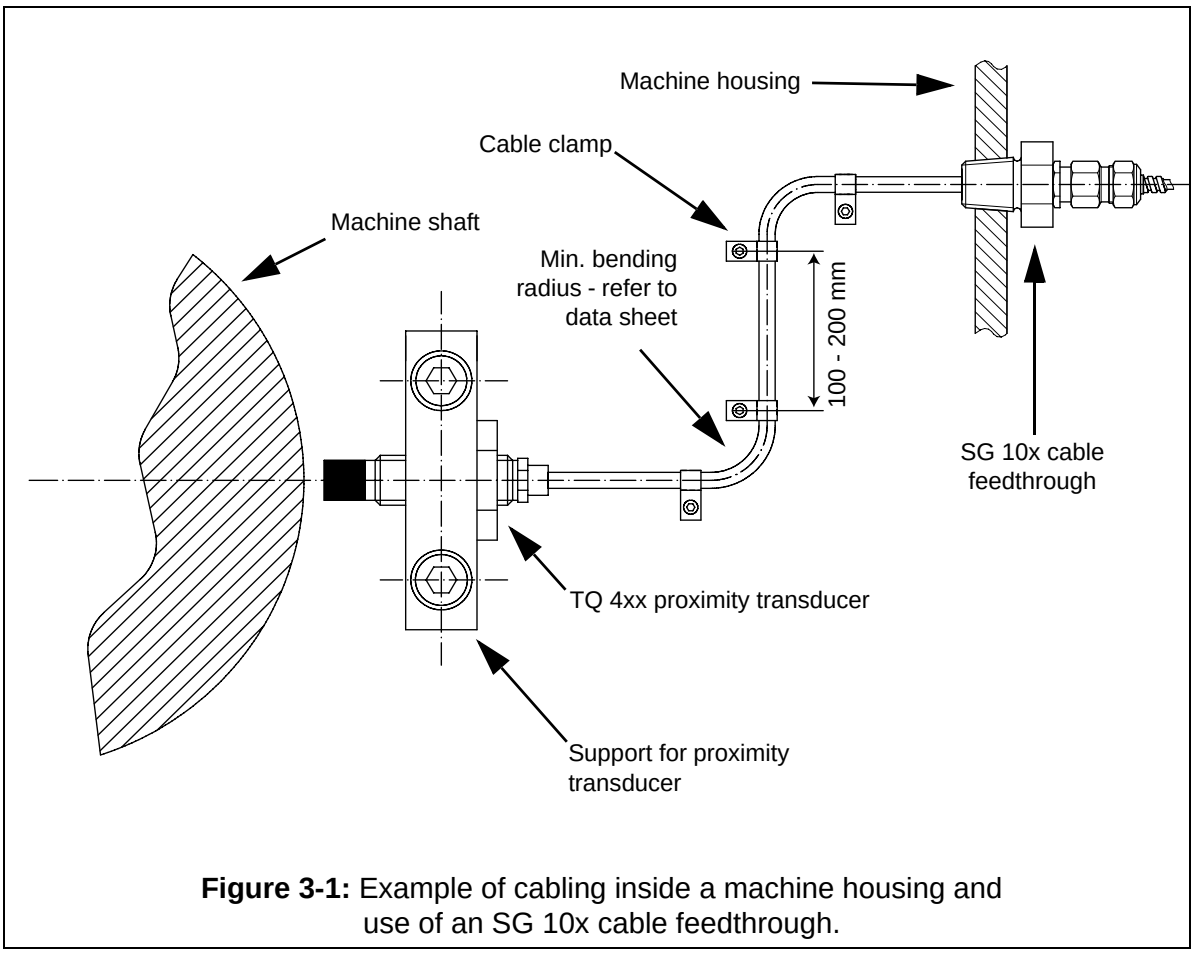

Figure 3-1: Example of cabling inside a machine housing and use of an SG 10x cable feedthrough.

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4 INSTALLING JUNCTION BOXES, INDUSTRIAL HOUSINGS AND CONDITIONERS

This chapter provides general guidelines on installing a JB 118 junction box or an ABA 15x industrial housing in a proximity measuring system.

NOTE: Further specific information on a junction box or industrial housing can be found in the corresponding data sheet.

The information contained in this chapter applies to the following components in the proximity measuring system:

- A JB 118 junction box used to connect an integral cable to an EA 40x extension cable (see 4.2 - Installing a junction box. on page 4-2).
- An ABA 15x Industrial housing containing an IQS 45x signal conditioner (see 4.3 - Installing an ABA 15x industrial housing on page 4-3).

4.1 General precautions

4.1.1 Junctions boxes in potentially explosive atmospheres

JB 116 JUNCTION BOXES ARE MADE OF DIE CAST POLYESTER CAN BE INSTALLED IN POTENTIALLY EXPLOSIVE ATMOSPHERES. ALL OTHER JUNCTION BOXES THAT ARE NOT CERTIFIED MUST NOT BE INSTALLED IN EXPLOSIVE ATMOSPHERES.

4.1.2 Industrial housing in potentially explosive atmospheres

ABA 15X INDUSTRIAL HOUSINGS ARE MADE OF POLYESTER REINFORCED WITH FIBREGLASS CAN BE INSTALLED IN POTENTIALLY EXPLOSIVE ATMOSPHERES. ALL OTHER INDUSTRIAL HOUSINGS THAT ARE NOT CERTIFIED MUST NOT BE INSTALLED IN POTENTIALLY EXPLOSIVE ATMOSPHERES.

4.1.3 Operating temperature range

The temperature were a junction box or an industrial housing is installed must lie permanently within it's operating temperature range.

NOTE: Further information on the operating temperature range of a junction box or an industrial housing can be found in the corresponding data sheet.

Only install a junction box at a location where the temperature lies permanently within the temperature range of the cables connected within it.

Only install an industrial housing at a location where the temperature lies permanently within the temperature range of the signal conditioner housed within it.

NOTE: Further information on the operating temperature range of a cable or a signal conditioner can be found in the corresponding data sheet.

4.2 Installing a junction box.

REFER TO 4.1- GENERAL PRECAUTIONS BEFORE INSTALLING A JUNCTION BOX.

When connecting cables in a metallic junction box, care should be taken to ensure their connectors do not touch the box. Insulating the connectors with a heat-shrinkable sleeve will prevent this. In the case of the JB 118 and PA 150 this is not necessary as these boxes are made of polyester.

4.2.1 Mounting a JB 118 junction box

During the installation refer to Figure 4-1 for part references

1- Choose a vibration-free place to mount the junction box.

2- Check the distance between the holes on the junction box, then drill and tap appropriate holes in the machine surface.

NOTE : For the dimensions of a different junction box refer to the corresponding data sheet.

3- Remove the cover of the junction box (see Figure 4-1).

4- Mount the junction box on the mounting surface using the screws provided.

5- Before putting the cover back on tthe junction box, make the electrical connections.

6- Fix the cover back on the junction box.

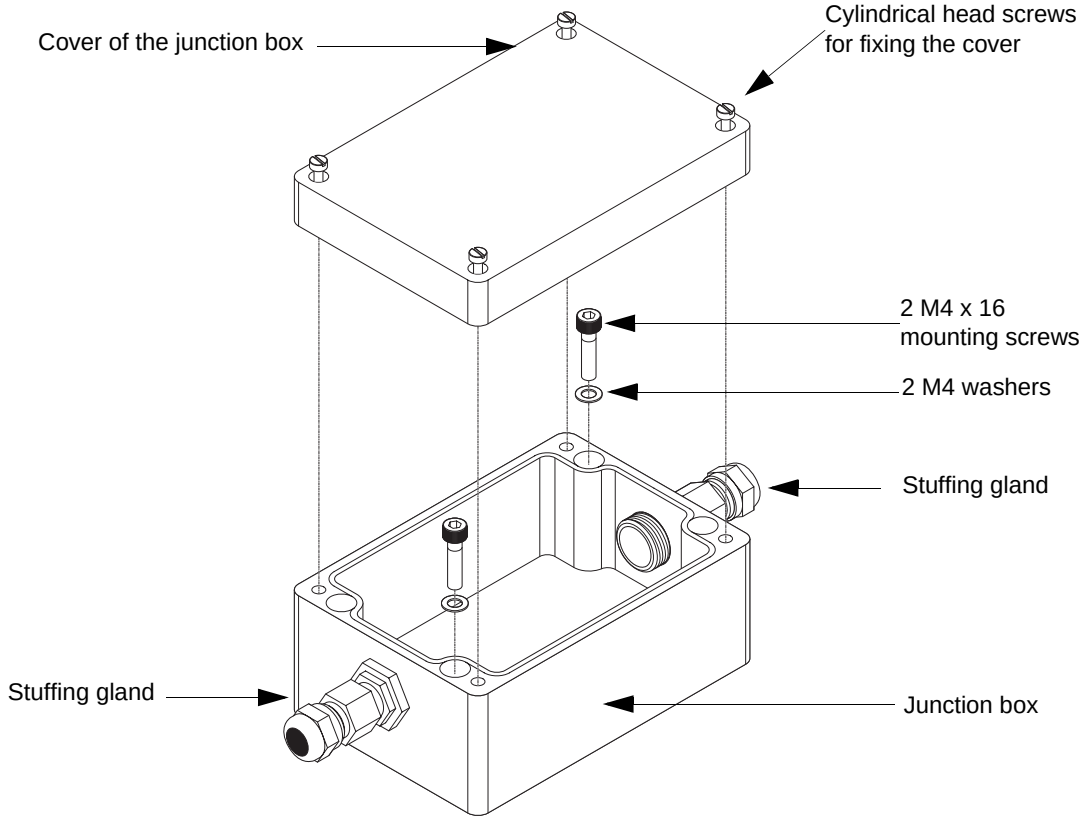

Figure 4-1: Mounting a JB 118 junction box.

4.3 Installing an ABA 15x industrial housing

REFER TO 4.1- GENERAL PRECAUTIONS BEFORE INSTALLING AN INDUSTRIAL HOUSING.

Figure 4-2 shows the constituent components of an ABA 15x industrial housing containing an IQS 45x signal conditioner. If connecting cables to an IQS 45x signal conditioner using a PA 150 probe adaptor, refer to Figure 4-3 for a diagram of the constituent components.

NOTE: The IQS 45x housing is linked to the “Signal COM” terminal. Therefore, the IQS 45x must be mounted on or in a device that insulates it from GND (ground).

4.3.1 Mounting an ABA 15x industrial housing

1- Choose a vibration-free place to mount the industrial housing.

2- Check the distance between the holes on the industrial housing, then drill and tap appropriate holes.

NOTE : For the dimensions of a different industrial housing refer to the corresponding data sheet.

3- Remove the cover of the industrial housing.

4- Mount the industrial housing on the mounting surface using the screws provided.

5- Fix the IQS 45x signal conditioner to the housing's base plate using the screws provided.

6- Before putting the cover back on the housing, make the electrical connections.

7- Fix the cover back on the industrial housing.

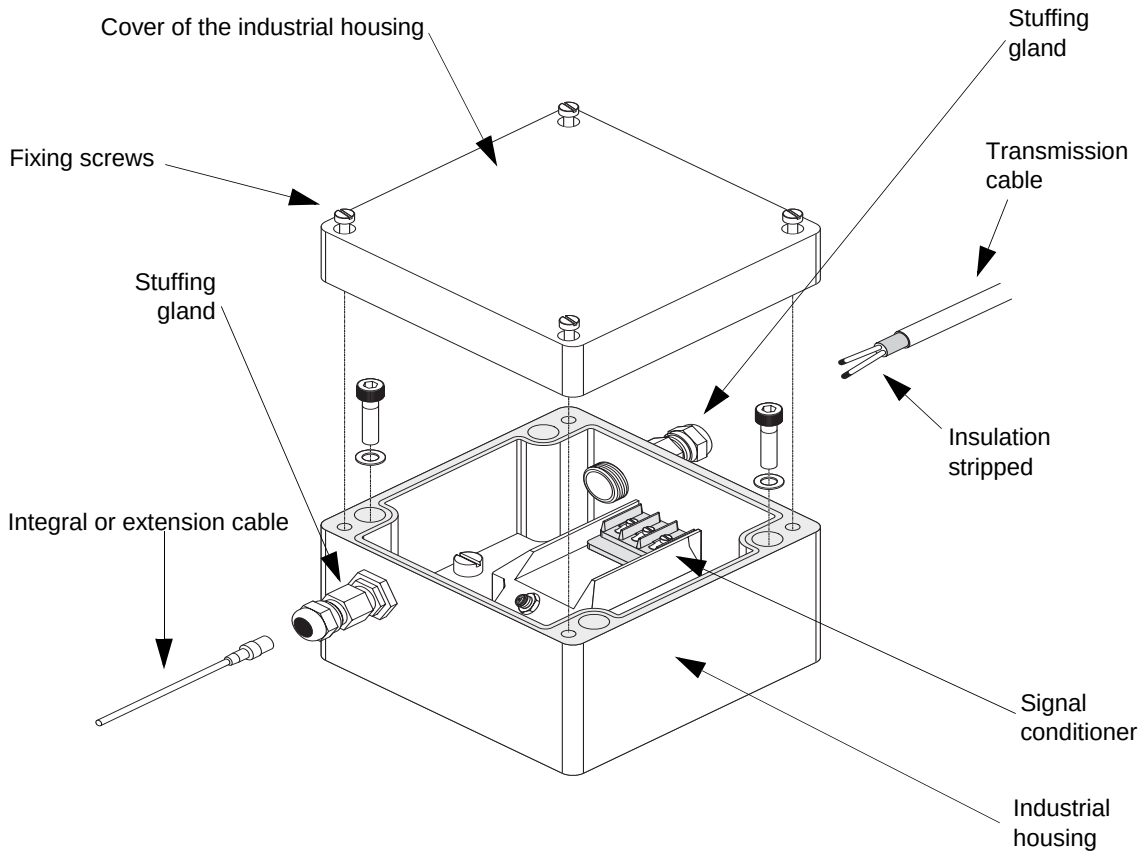

Figure 4-2: Mounting and connecting cables to an IQS 45x signal conditioner using an ABA 15x industrial housing.

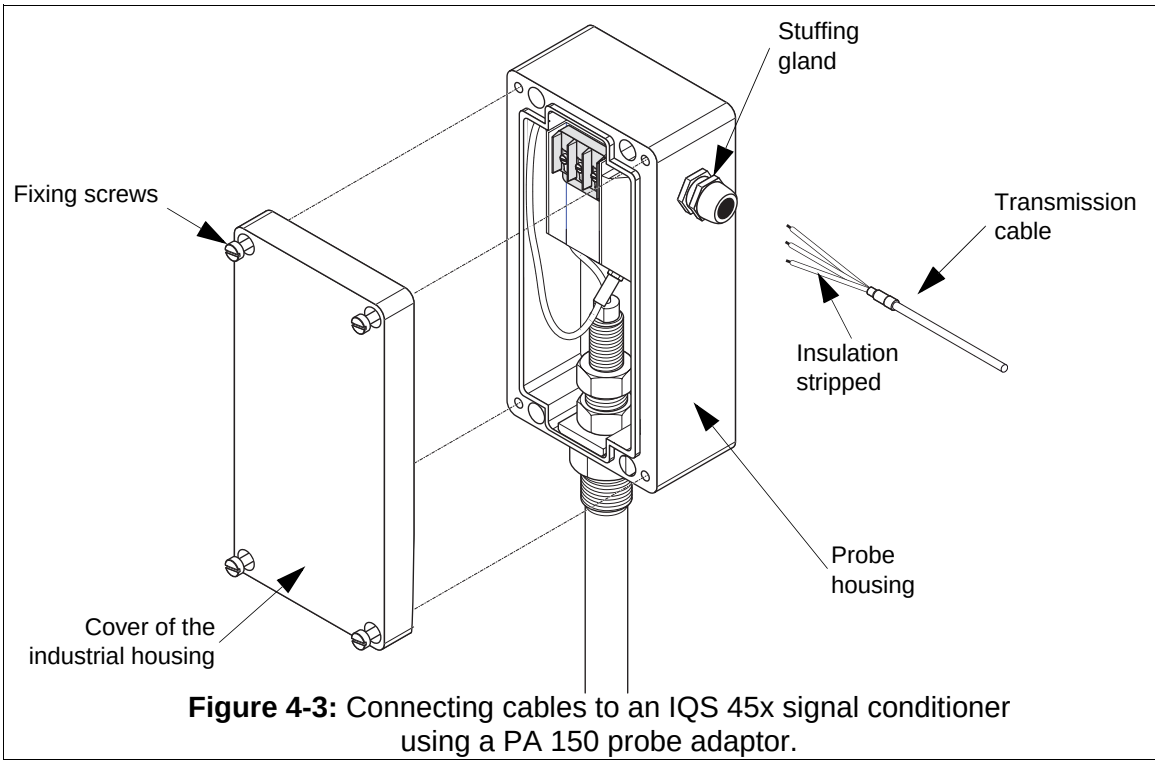

Figure 4-3: Connecting cables to an IQS 45x signal conditioner using a PA 150 probe adaptor.

4.4 Electrical adjustment of the initial gap

Assuming that the initial gap was set mechanically in the linear part of the measuring range (see 2.4 - Measurement and mechanical adjustment of the initial gap on page 2-18), the output voltage of the proximity measuring system is normally around -9 V. Figure 4-4 shows that if the distance between the target and the proximity transducer varies temporally, then the AC voltage component superimposed on the DC component corresponds to the initial gap.

Figure 4-5 shows the voltage-distance characteristics for targets made of VCL 140 steel and other metals. In practice, the target may be made of a different alloy, so it will have its own unique voltage-distance characteristics.

NOTE: For the true measuring range of the proximity measuring system refer to the proximity transducer's data sheet.

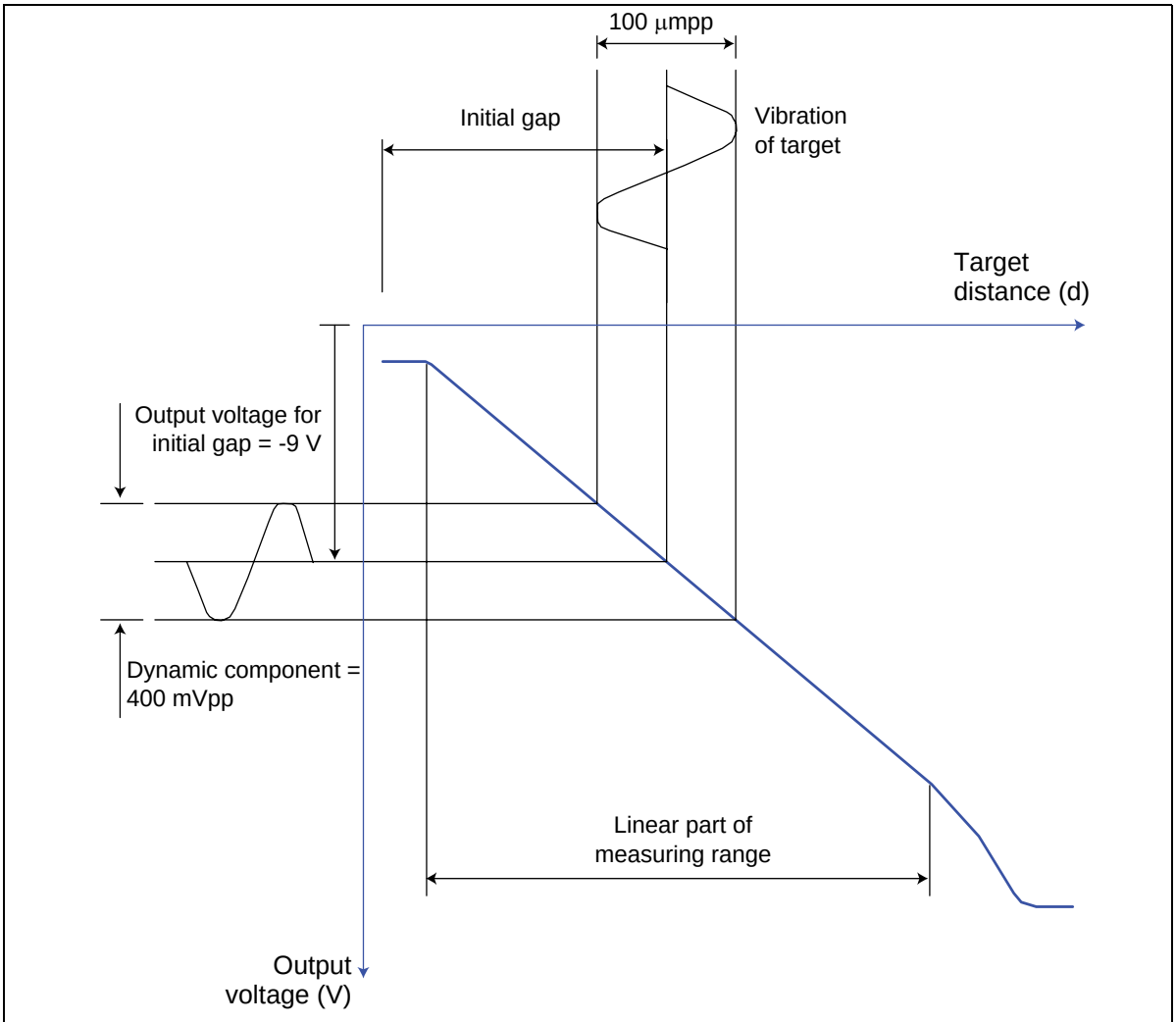

Figure 4-4: Example showing voltage output by the proximity measuring system as a function of target distance (d).

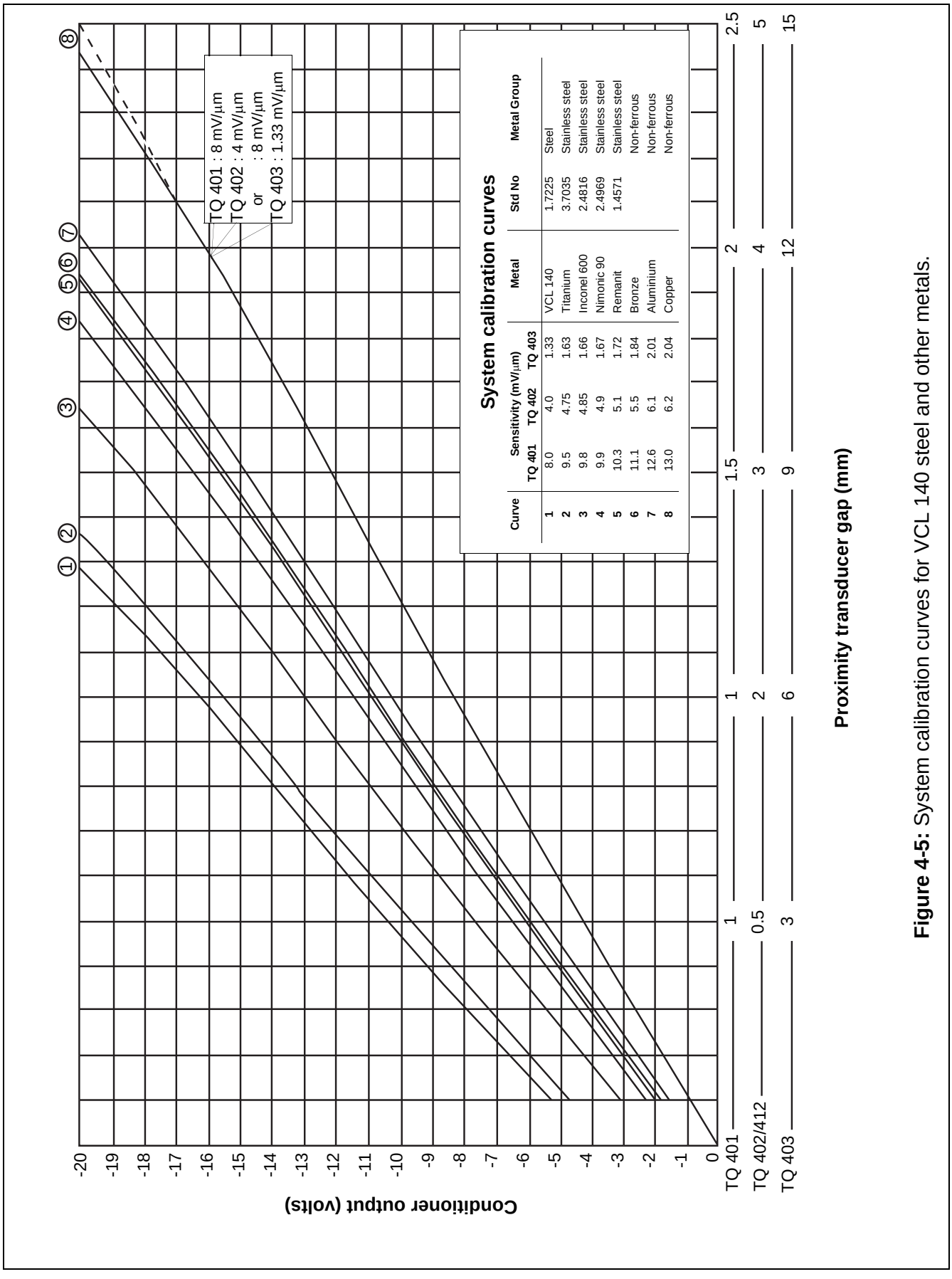

Figure 4-5: System calibration curves for VCL 140 steel and other metals.

4.4.1 Adjustment using the 2-wire transmission technique

Figure 4-6 shows how to adjust the initial gap electrically using the 2-wire technique using the following procedure:

1) Connect a -24 V_{DC} power supply between the "-24 V_{DC}" and "COM" terminals of the IQS 45x signal conditioner.
2) Connect an ammeter in series with the power supply.
3) Check the data sheet for the specific type of proximity transducer used and note the theoretical limits of the (linear) measuring range.
4) Set the transducer-target distance to the theoretical minimum and maximum values using a feeler gauge, and to several values in between. Measure the current at each setting and construct a table showing the current-distance characteristics.

NOTE: If using electrically conducting feeler gauges, remember to remove them from the gap between the proximity transducer and the target before reading the current, otherwise the measurement will be false.

5) In the proximity measuring system the current is subsequently converted into a voltage by the GSI 124 galvanic separation unit. VCL 140 has the following transfer function:

- At minimum GAP Current = 15.5 mA Voltage = -1.6 V
- At maximum GAP Current = 20.5 mA Voltage = -17.6 V

This transfer function can also be expressed as follows:

- Voltage (V) = -3.2 (V/mA) x Current (value in mA) + 48 (V)

Convert the measured current values determined in (4) into voltage values using the formula above, then plot the distance-voltage characteristics. The linear part of the measuring range and the system sensitivity (mV/μm) can now be determined using the graph that you have plotted.

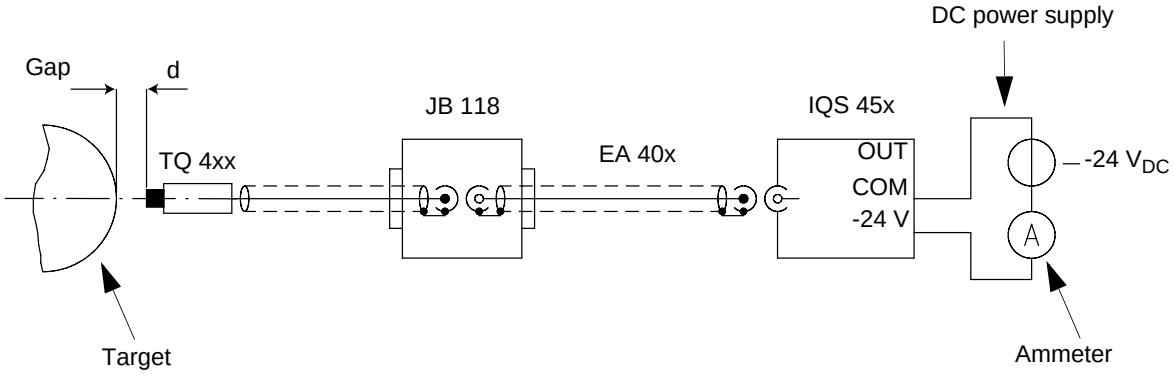

Figure 4-6: Characterization using a 2-wire transmission technique.

4.4.2 Adjustment using the 3-wire transmission technique

Figure 4-7 shows how to adjust the initial gap electrically using the 3-wire technique using the following procedure:

1) Connect a -24 V_{DC} power supply between the "-24 V_{DC}" and "COM" terminals of the IQS 45x signal conditioner.
2) Connect a voltmeter between the COM and OUTPUT terminals.
3) Check the data sheet for the specific type of proximity transducer used and note the theoretical limits of the (linear) measuring range.
4) Set the transducer-target distance to the theoretical minimum and maximum values using feeler gauges, and to several values in between. Measure the voltage at each setting, then plot the distance-voltage characteristics.

NOTE: If using electrically conducting feeler gauges, remember to remove them from the gap between the proximity transducer and the target before reading the current, otherwise the measurement will be false.

The linear part of the measuring range and the system sensitivity (mV/μm) can now be determined using the graph plotted.

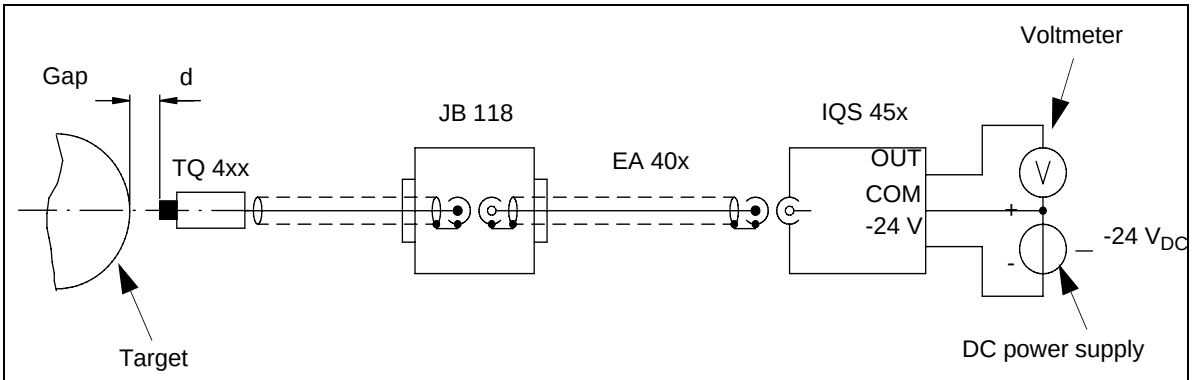

Figure 4-7: Characterization using a 3-wire transmission technique.

5 INSTALLING A GSV 14X OR GSI 124

This chapter provides general guidelines on installing a GSV 14x power supply and safety barrier unit or a GSI 124 galvanic separation unit in a proximity measuring system.

NOTE: Further specific information on a GSV 14x power supply and safety barrier unit or a GSI 124 galvanic separation unit can be found in the corresponding data sheet.

5.1 General precautions

5.1.1 GSV 14x and GSI 124 in potentially explosive atmospheres

STOP

A VIBRO-METER GSV 14X POWER SUPPLY AND SAFETY BARRIER UNIT OR GSI 124 GALVANIC SEPARATION UNIT MUST BE INSTALLED IN THE PROXIMITY MEASURING SYSTEM WHEN USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES.

5.1.2 Operating temperature range

The temperature where the GSV 14x power supply and safety barrier unit or the GSI 124 galvanic separation unit is installed must not exceed the unit's operating temperature range.

NOTE: Refer to the GSV 14x power supply and safety barrier unit or GSI 124 galvanic separation unit data sheets for further information on the operating temperature range.

5.2 Installing a GSV 14x power supply and safety barrier unit

STOP

REFER TO SECTION 5.1 - GENERAL PRECAUTIONS AND CONSIDERATIONS ON PAGE 5-1 BEFORE CONTINUING WITH THE INSTALLATION.

5.2.1 Mounting a GSV 14x power supply and safety barrier unit

A GSV 14x power and safety barrier unit is mounted using a single M4 screw. These units can be mounted using a mounting kit (DIN rail, nut assembly and bracket).

NOTE: Further information on mounting accessories for a GSV 14x power supply and safety barrier unit refer to the GSI/GSV accessories data sheet.

5.2.2 Connecting cables to a GSV 14x power supply and safety barrier unit

Figure 5-1 shows the cable connections between the GSV 14x and:

1- An IQS 45x signal conditioner using a transmission cable

2- An electronic monitoring system using a connecting cable

There are three screw terminals for the transmission cable (labelled "OUTPUT", "COM 0V" and "PA"), two for the connecting cable (labelled "SIGNAL" and "COM"), one power supply output for the IQS 45x (labelled "- 24 V") and two power supply inputs for the GSV 14x

(labelled “1” and “2”). The two power supply inputs connect to the separate power supply (e.g. an APF 195 or APF 196 power module).

NOTE: The shielding of the transmission cable MUST BE CONNECTED to the power supply and safety barrier unit.

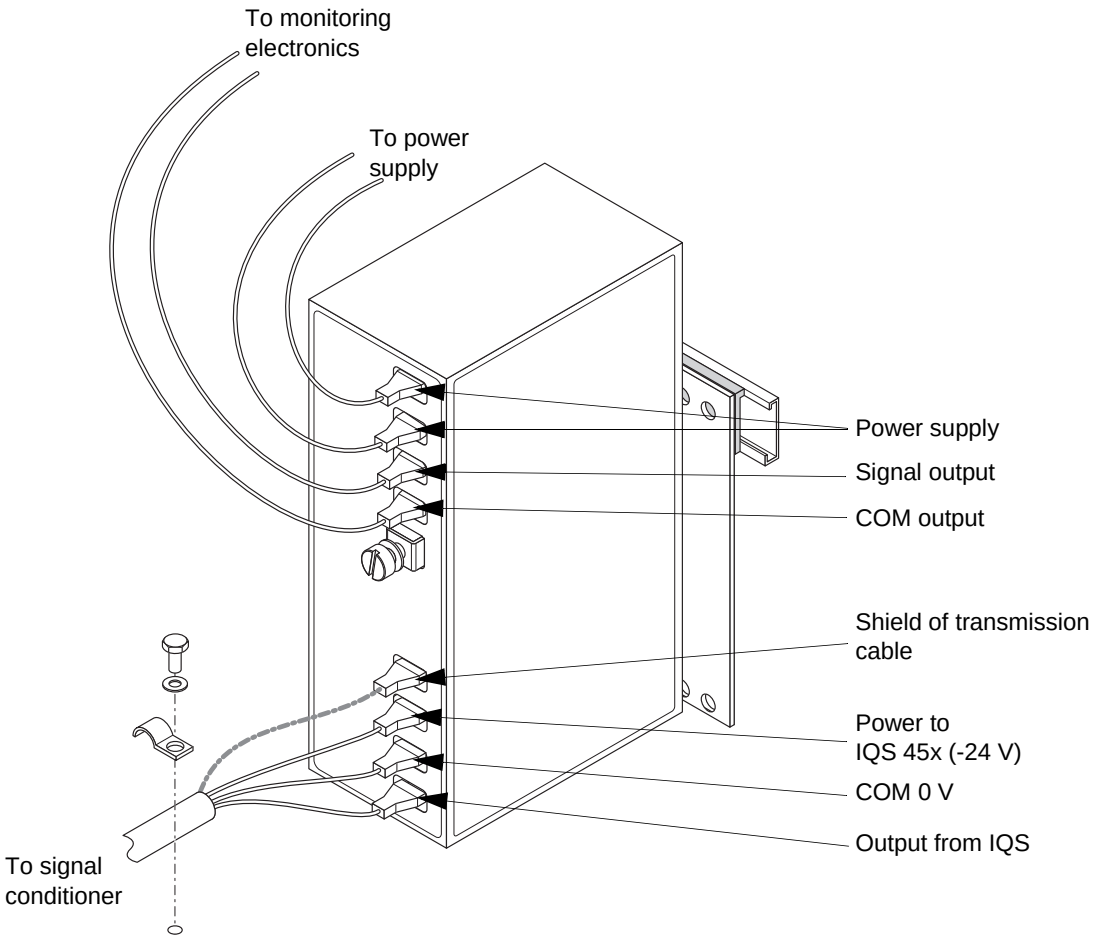

Figure 5-1: Connecting cables to a GSV 14x power supply and safety barrier unit.

5.3 Installing a GSI 124 galvanic separation unit

REFER TO SECTION 5.1 - GENERAL PRECAUTIONS AND CONSIDERATIONS ON PAGE 5-1 BEFORE INSTALLING A GSI 124 GALVANIC SEPARATION UNIT.

5.3.1 Mounting a GSI 124 galvanic separation unit

A GSI 124 galvanic separation unit is generally mounted in an industrial housing, a rack or a cabinet. A GSI 124 can be clipped simply to a DIN rail, as shown in Figure 5-2.

NOTE: A GSI 124 galvanic separation unit can be fixed to either a symmetrical DIN Rail (Din-35S1 or Din-35HS1) or an asymmetrical DIN rail.

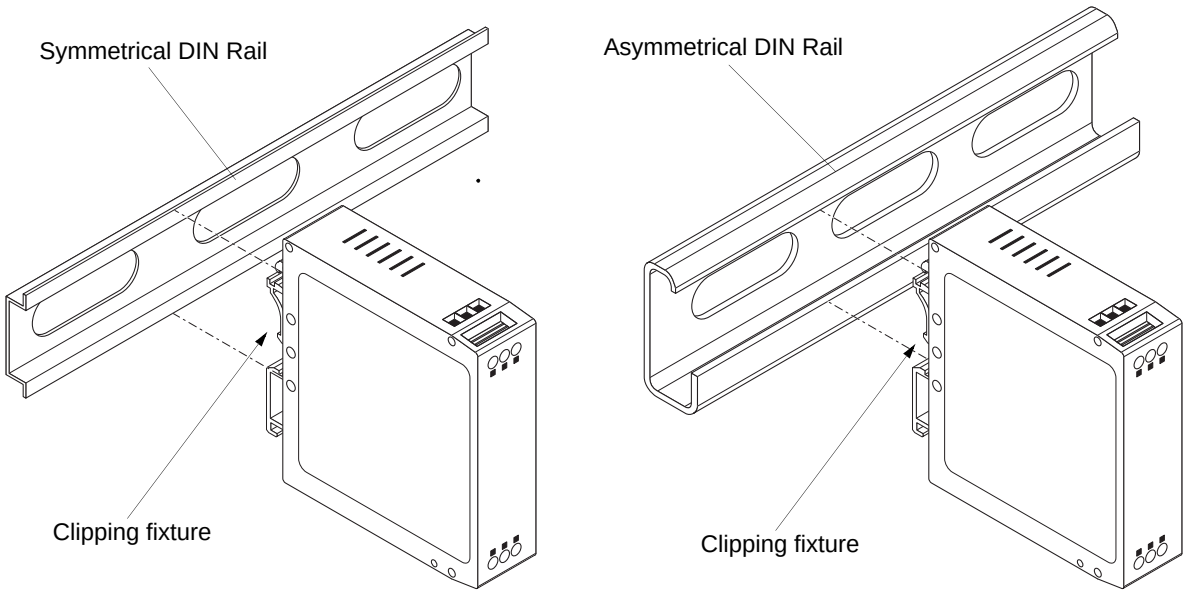

Figure 5-2: Installing a GSI 124 galvanic separation unit on a DIN rail.

5.3.2 Connecting cables to a GSI 124 galvanic separation unit

The transmission cable (from the signal conditioner) and the connecting cable (to the electronic monitoring system) are connected to the GSI 124 galvanic separation unit using screw terminals (see Figure 5-3). There are 3 screw terminals for the transmission cable (labelled “SHIELD”, “-” and “+”) and 3 for the connecting cable (labelled “+24V”, “0V” and “OUT”).

NOTE: The shielding of the transmission cable must be connected to the GSI 124 galvanic separation unit.

NOTE: The GSI 124 galvanic separation unit must be grounded to its rail (see Figure 5-3).

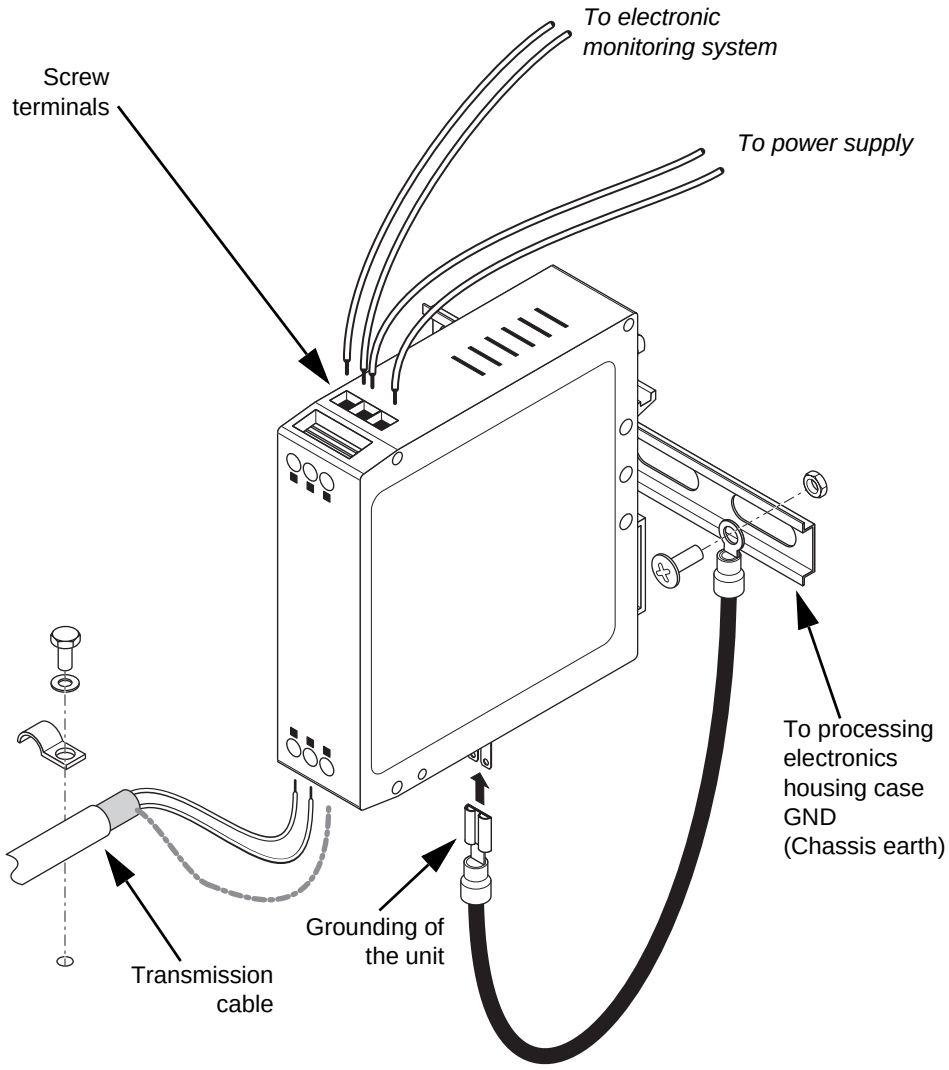

Figure 5-3: Connecting cables to a GSI 124 galvanic separation unit.

5.4 Replacing a GSV 14x or a GSI 123 with a GSI 124

It is not always possible to replace a GSI 123 galvanic separation unit with a GSI 124 galvanic separation unit. Please contact Vibro-Meter for further information.

Replacement of a GSV 14x power and safety barrier unit with a GSI 124 galvanic separation unit requires replacement of the old IQS 45x with one that operates in current mode.

6 ELECTRICAL CONNECTIONS

6.1 General precautions

THE LENGTHS OF THE CABLES (INTEGRAL CABLES AND CABLE ASSEMBLIES) INSTALLED IN POTENTIALLY EXPLOSIVE ATMOSPHERES MUST BE DETERMINED AS PER THE CRITERIA OUTLINED IN THE EC TYPE EXAMINATION CERTIFICATE FOR THE PRODUCT.

6.2 General wiring diagrams

NOTE: Information on connecting the equipment to the electronic monitoring system can be found on the project-specific wiring diagram delivered with the system.

Additional information is given in the general wiring diagrams listed in Table 6-1.

Table 6-1: Index of general wiring diagrams.

Proximity measuring system details and transmission type	Wiring diagram	Figure
TQ 4xx proximity measuring chain for use in non-explosive atmospheres **THIS MEASUREMENT SYSTEM TYPE IS NOT SUITABLE AND MUST NOT BE INSTALLED IN POTENTIALLY EXPLOSIVE ATMOSPHERES.**	011-401-000E 011_A1	Figure 6-1
TQ 4xx proximity measuring chain for use in potentially explosive atmospheres (zones 1 & 2)	011-401-000E 011_A2	Figure 6-2
TQ 4xx proximity measuring chain for use in potentially explosive atmospheres (zone 2)	011-401-000E 011_A3	Figure 6-3

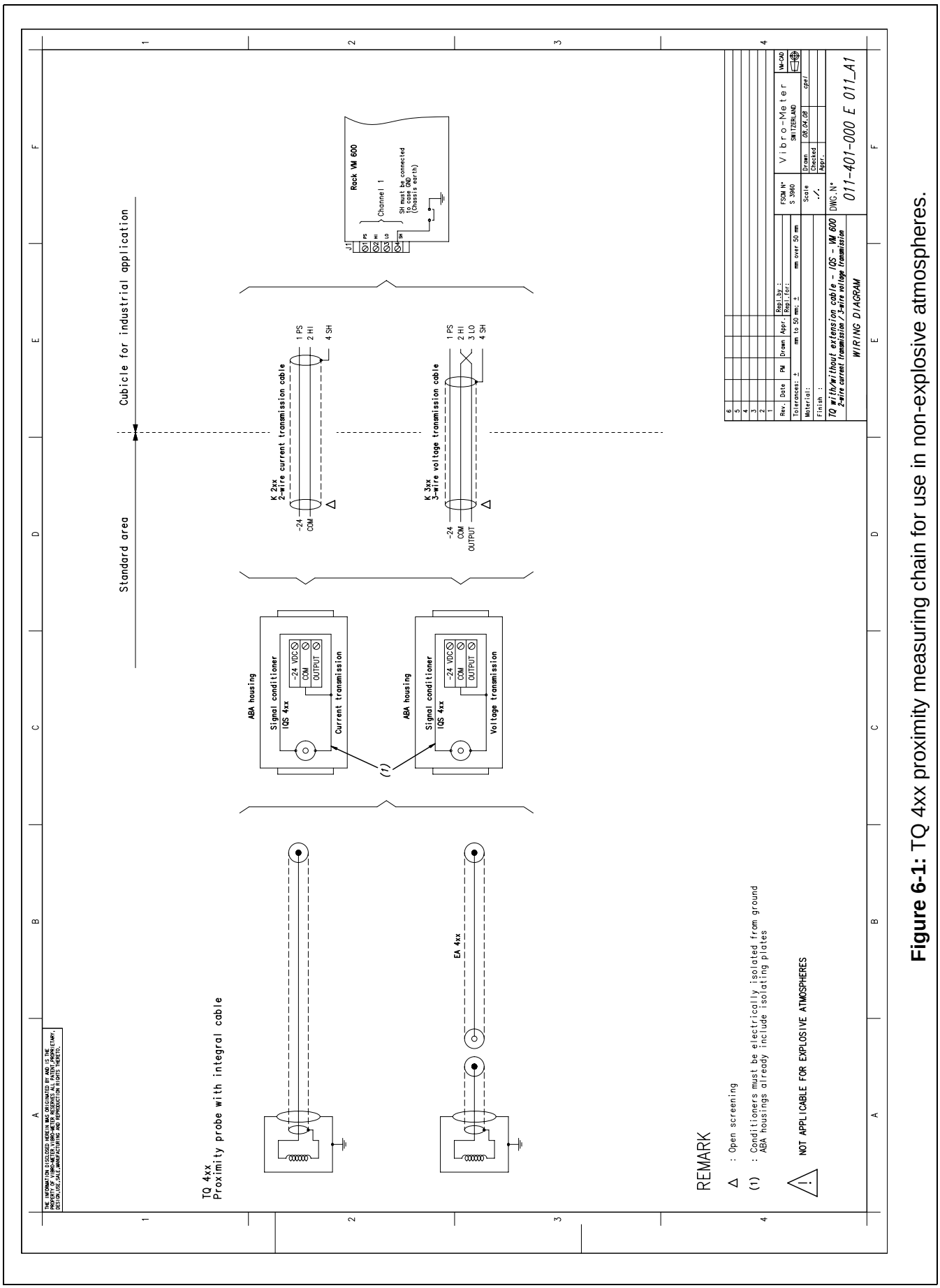

Figure 6-1: TQ 4xx proximity measuring chain for use in non-explosive atmospheres.

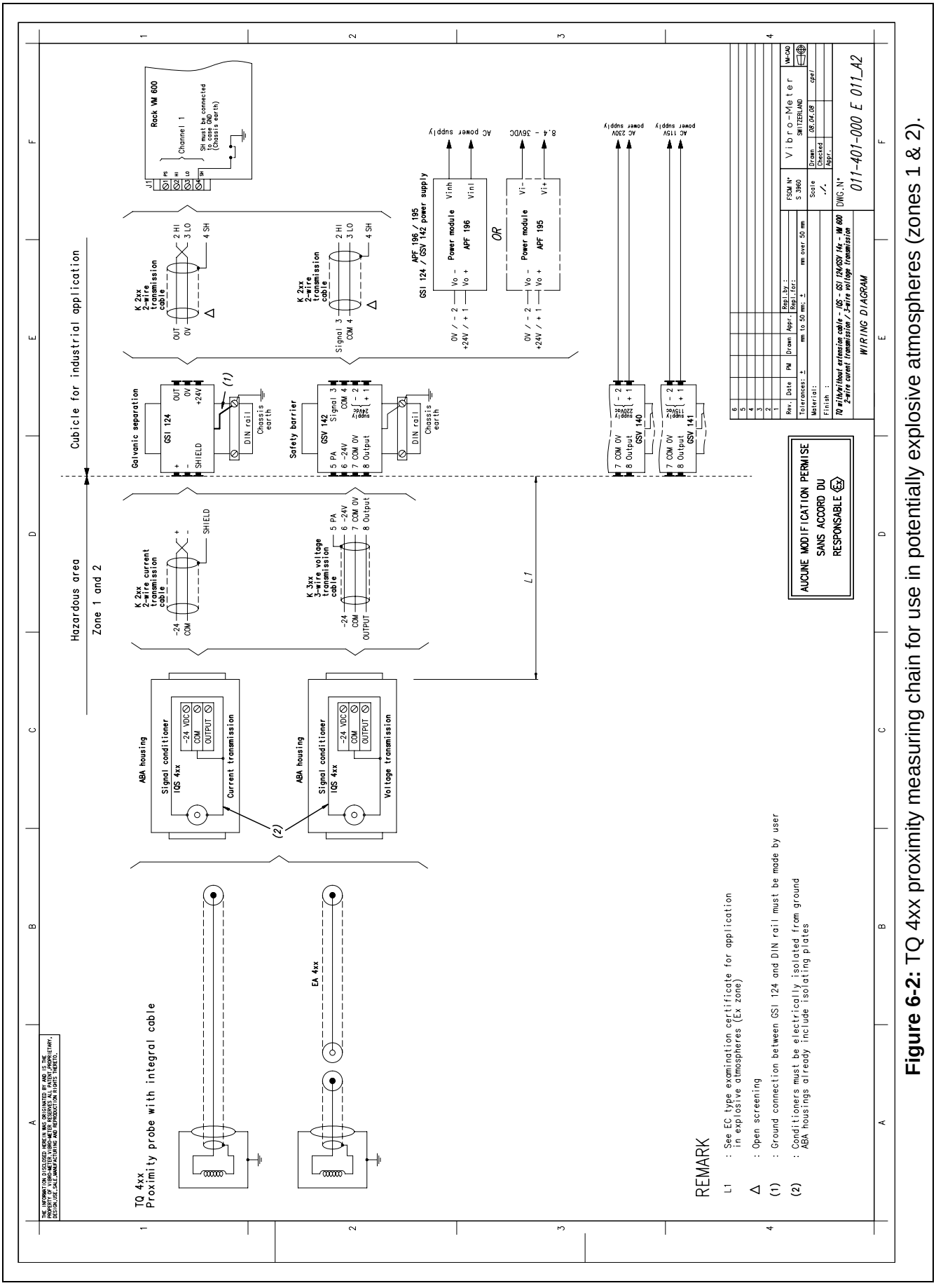

Figure 6-2: TQ 4xx proximity measuring chain for use in potentially explosive atmospheres (zones 1 & 2).

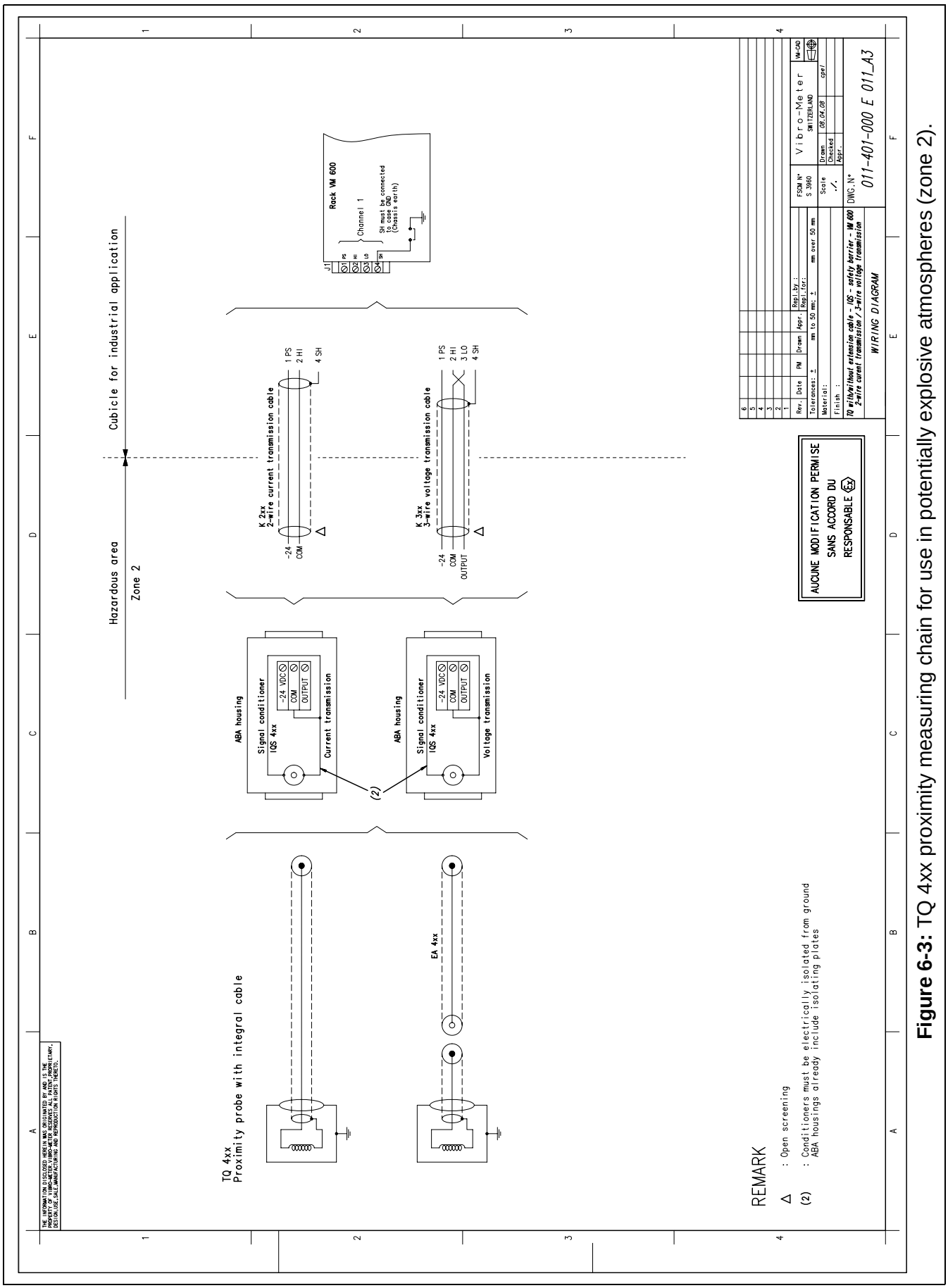

Figure 6-3: TQ 4xx proximity measuring chain for use in potentially explosive atmospheres (zone 2).

7 CUSTOMER SUPPORT

7.1 Contacting us

Vibro-Meter's worldwide customer support network offers a range of support including 7.2 - Technical support and 7.3 - Sales and repairs support. For customer support, please contact your local Vibro-Meter representative. Alternatively, contact our main office:

Customer support
Vibro-Meter SA
Route de Moncor 4
PO Box 1616
CH-1701 Fribourg
Switzerland

Tel.: +41 (0)26 407 11 11
e-mail: i&msupport@ch.meggitt.com
web: www.vibro-meter.com

7.2 Technical support

Vibro-meter's technical support team provide both pre-sales and post-sales technical support, including:

1- General advice

2- Technical advice

3- Troubleshooting

4- Site visits

NOTE: For further information, please contact Vibro-Meter (see 7.1 - Contacting us).

7.3 Sales and repairs support

Vibro-Meter's sales team provide both pre-sales and post-sales support, including advice on:

1- New products

2- Spare parts

3- Repairs

NOTE: If a product has to be returned to Vibro-Meter for repairs, then it should be accompanied by a completed Failure report form on page 7-3.

7.4 Customer feedback

As part of our continuing commitment to improving customer service, we warmly welcome your opinions. To provide feedback, please complete the Customer feedback form on page 7-5 and return it Vibro-Meter's main office (see 7.1 - Contacting us).

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FAILURE REPORT FORM

If the product has to be returned to Vibro-Meter for repairs, then:

1- Complete this failure report form

2- Attach a photocopy of this report to the faulty unit and retain the original copy for your records

3- Send the product together with the attached failure report form to Vibro-Meter by registered post

NOTE: Please provide as much information as possible in order to assist fault diagnosis.

NOTE: A failure report MUST be sent with each faulty product.

Contact details:

Name _____ Job title _____

Company _____ Email _____

Address _____

Country _____ Post code _____

Telephone _____ Fax _____

Signature _____ Date _____

Product details:

Product type: _____

Serial number (S/N): _____ Part number (P/N): _____

Vibro-Meter order number: _____

Date of purchase: _____ Site where installed: _____

Is the failure (put an ☒ where appropriate):

☐ Continuous ? ☐ Intermittent ? ☐ Temperature dependent?

Description of failure:

_____

_____

_____

_____

_____

(Please continue overleaf)

(Continued)

(Please continue on a separate sheet if necessary)

CUSTOMER FEEDBACK FORM

Title of manual:

Proximity Measuring Systems using TQ 4xx Proximity Transducers with IQS 45x Signal Conditioners

Reference: MAPROX400/E **Version:** Edition 8 **Date of issue:** 16 April 2008

Customer contact details:

Name _____ Job Title _____

Company _____ *Email* _____

Address _____

Signature _____ *Date* _____

General feedback:

Please answer the following questions:

• Is the document well organized?	**Yes**	**No**
• Is the information technically accurate?	**Yes**	**No**
• Is more technical detail required?	**Yes**	**No**
• Are the instructions clear and complete?	**Yes**	**No**
• Are the descriptions easy to understand?	**Yes**	**No**
• Are the examples and diagrams/photos helpful?	**Yes**	**No**
• Are there enough examples and diagrams/photos?	**Yes**	**No**
• Is the style/wording easy to read?	**Yes**	**No**
• Is any information not included? (please list in “comments” below)	**Yes**	**No**

Additional feedback:

(Please continue overleaf)

(Continued)

(Please continue on a separate sheet if necessary)

APPENDIX A : ATEX CERTIFICATES

Table A-1 : Relevant EC type examination certificates.

Product(s) covered	Certificate
IQS 4xx / TQ 4xx	*LCIE_02_ATEX_6086_x*
	LCIE_07_ATEX_6079_x
GSV 14x	*TUV-A_03_ATEX_0018_x*
GSI 123	*LCIE_02_ATEX_6087_x*
GSI 124	*LCIE_05_ATEX_6033_x*

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Vibro-Meter

Installation Manual

LCIE_02_ATEX_6086_x

for EA 4xx, IQS 4xx, TQ 4xx

Although the certificate is available in the 3 languages (English, French and German), the liability of the notified body applies only on the text of the original copy of the certificate that it published.

EN

Bien que le certificat soit traduit dans les 3 langues (Anglais, Français et Allemand), seul le texte de la copie originale du certificat peut engager la responsabilité de l'organisme notifié qui l'a publié.

FR

Obwohl das Zertifikat in drei Sprachen (Englisch, Französisch und Deutsch) übersetzt ist, können nur die bescheinigten Behörden, die den Text auf der Originalausgabe des Zertifikates herausgegeben haben, zur

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

MEGGiTT

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ATTESTATION D'EXAMEN CE DE TYPE

Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles
Directive 94/9/CE

Numéro de l'attestation CE de type
LCIE 02 ATEX 6086 X

Appareil ou système de protection :
Système proximètre
Type : IQS4XX / TQ4XX

Demandeur : VIBRO-METER S.A.

Adresse : BP 1071
1701 FRIBOURG SUISSE

Cet appareil ou système de protection et ses variantes éventuelles acceptées est décrit dans l'annexe de la présente attestation et dans les documents descriptifs cités en annexe.

Le LCIE, organisme notifié sous la référence 0081 conformément a l'article 9 de la directive 94/9/CE du Parlement européen et du Conseil du 23 mars 1994, certifie que cet appareil ou système de protection est conforme aux exigences essentielles en ce qui concerne la sécurité et la santé pour la conception et la construction d'appareils et de systèmes de protection destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive. Les vérifications et épreuves figurent dans notre rapport confidentiel N° 41 031 010 V.

Le respect des exigences essentielles en ce qui concerne la sécurité et la santé est assuré par la conformité aux documents suivants :
-EN 50014 (1997) + amendements 1 et 2
-EN 50020 (1994)

) Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que ce matériel ou système de protection est soumis aux conditions spéciales pour une utilisation sûre, mentionnées dans l'annexe de la présente attestation.

1 Cette attestation d'examen CE de type concerne uniquement la conception et le construction de l'appareil ou du système de protection spécifié, conformément à la directive 94/9/CE.
Des exigences supplémentaires de cette directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection.

2 Le marquage de l'appareil ou du système de protection devra comporter, entre autres indications utiles, les mentions suivantes :
Ex II 2 G
EEx ib IIC T6 à T3

ontenay-aux-Roses, le 10 septembre 2002

1 EC TYPE EXAMINATION CERTIFICATE

2 Equipment or protective system intended for use in potentially explosive atmospheres
Directive 94/9/CE

3 EC type Examination Certificate number
LCIE 02 ATEX 6086 X

4 Equipment or protective system :
Proximeter system
Type : IQS4XX / TQ4XX

5 Applicant : VIBRO-METER S.A.

6 Address : : BP 1071
1701 FRIBOURG SUISSE

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 LCIE, notified body number 0081 in accordance with article 9 of the Directive 94/9/CE of the European Parliament and Council of 23 March 1994. certifies that this equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres, given in Annex II to of the Directive.
The examination and test results are recorded in confidential report No 41 031 010 V.

9 Compliance with the Essential Health and Safety Requirements been assured by compliance with :

-EN 50014 (1997) + amendments 1 and 2
-EN 50020 (1994)

10 If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC Type examination certificate relates only to the design and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC.
Further requirements of the Directive applies to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following :

Ex II 2 G
EEx ib IIC T6 to T3

Le Directeur de l'organisme certificateur
Manager of the certification body

Par délégation
Michel BRÉNON
Directeur adjoint
à la Certification

Timbre sec / Dry seal

Page 1/3

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
Société anonyme à Directoire et Conseil de surveillance au capital de 15 745 984 euros - RCS Nanterre B 408 363 174
33, avenue du Général Leclerc - BP n° 8 - F 92266 FONTENAY-AUX-ROSES CEDEX - Tél. : +33 1 40 95 60 60

(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 02 ATEX 6086 X

(A3) Description de l'équipement ou du système de protection :

Système proximètre
Type : IQS4XX / TQ4XX

La fonction de cet appareil de mesure de proximité est de contrôler le mouvement et la position d'un axe en rotation.

Le marquage est le suivant :

VIBRO-METER
Adresse
Type : IQS4XX / TQ4XX
N° de fabrication
Année de construction
Ex II 2 G
EEx ib IIC T6 à T3 (*)
LCIE 02 ATEX 6086 X

Le marquage CE est accompagné du numéro d'identification de l'organisme notifié responsable de la surveillance du système approuvé de qualité (0081 pour le LCIE).

Le matériel devra également comporter le marquage normalement prévu par les normes de construction du matériel électrique concerné

(*) Le classement en température des différents sous-ensembles de l'appareil dépend de la température maximale d'utilisation, comme indiquée en (A5).

(A4) Documents descriptifs :

Dossier technique N° DT1012 Rév 1 en date du 15 mars 2002.
Ce document comprend 11 rubriques (22 pages).

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 02 ATEX 6086 X

(A3) Description of Equipment or Protective System:

Proximeter system
Type : IQS4XX / TQ4XX

Function of this inductive apparatus for proximity measurement is to control movement and position of rotating axis.

The marking is the following :

VIBRO-METER
Address
Type : IQS4XX / TQ4XX
Serial number
Year of construction
Ex II 2 G
EEx ib IIC T6 à T3 (*)
LCIE 02 ATEX 6086 X

The CE marking shall be accompanied by the identification number of the notified body responsible for surveillance of the approved quality system (0081 for LCIE).

The equipment must also carry the usual marking required by the manufacturing standards applying to such equipments.

(*) Temperature classification of each element of the apparatus, is function of temperature of maximal use, as described on (A5).

(A4) Descriptive documents :

Technical file N° DT1012 Rev 1 dated March 15th, 2002.
This file includes 11 items (22 pages).

Page 2/3

(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 02 ATEX 6086 X (suite)

(A5) Conditions spéciales pour une utilisation sûre :

Le matériel défini ci-dessus est un matériel de sécurité intrinsèque : il peut être placé en atmosphères explosibles.

Le système ne doit être raccordé qu'à un matériel associé de sécurité intrinsèque [ia] ou [ib] d'un type certifié dont les paramètres électriques n'excèdent aucune des valeurs suivantes : $U_o \leq 28$ V, $I_o \leq 100$ mA.

Les paramètres L et C du câble de liaison entre le conditionneur IQS4xx et le capteur de proximité TQ4xx ne doivent pas excéder aucune des valeurs suivantes : L ≤ 5 mH, C ≤ 0,1 µF.

Classement en température :

- Conditionneur IQS4xx : T6 à Ta=+70°C

- Connecteur TQ4xx et câble rallonge :
  T6 à Ta=+70°C
  T5 à Ta=+95°C
  T4 à Ta=+130°C

- Capteur TQ4xx et câble :
  T6 à Ta=+80°C
  T5 à Ta=+95°C
  T4 à Ta=+130°C
  T3 à Ta=+195°C

(A6) Exigences essentielles en ce qui concerne la sécurité et la santé :

Conformité aux normes européennes EN 50014 (1997 + amendements 1 et 2) et EN 50020 (1994).

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 02 ATEX 6086 X (continued)

(A5) Special conditions for safe use:

This equipment is intrinsically safe and can be used in potentially explosive atmospheres.

The system shall be connected only to an intrinsically safe associated apparatus certified [ia] or [ib] whose electrical parameters do not exceed one of these following values : $U_o \leq 28$ V, $I_o \leq 100$ mA.

The L and C connection cable parameters between the conditioner IQS4xx and the proximeter sensor TQ4xx do not exceed one of these following values : L ≤ 5 mH, C ≤ 0,1 µF.

Temperature classification :

- Conditioner system IQS4xx : T6 at Ta=+70°C

- Connection box TQ4xx and extension cable :
  T6 at Ta=+70°C
  T5 at Ta=+95°C
  T4 at Ta=+130°C

- Sensor TQ4xx and cable :
  T6 at Ta=+80°C
  T5 at Ta=+95°C
  T4 at Ta=+130°C
  T3 at Ta=+195°C

(A6) Essential Health and Safety Requirements:

Conformity to the European standards EN 50014 (1997 + amendments 1 and 2) and EN 50020 (1994).

(A1) **ATTESTATION D'EXAMEN CE DE TYPE**
LCIE 02 ATEX 6086X du 10 septembre 2002

AVENANT 02 ATEX 6086X/01

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE PROTECTION :

Système proximètre
Type : IQS4XX/TQ4XX

Construit par :
VIBRO-METER S.A.
BP 1071
1701 FRIBOURG SUISSE

(A3) OBJET DE L'AVENANT, DESCRIPTION DE L'APPAREIL OU DU SYTEME DE PROTECTION :

- IQS4XX : Remplacement de composants,
-TQ4XX : Ajout d'un condensateur céramique NPO d'ajustage et modifications mineures au niveau mécanique.

Le marquage reste inchangé.

(A4) DOCUMENTS DESCRIPTIFS :

Dossier technique n° DT1012/01 rév.2 du 17 janvier 2003.
Ce dossier comprend 6 rubriques (15 pages).

(A5) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :

Inchangées.

(A6) EXIGENCES ESSENTIELLES EN CE QUI CONCERNE LA SECURITE ET LA SANTE :

Inchangées.

Fontenay-aux-Roses, le 3 avril 2003

(A1) **EC TYPE EXAMINATION CERTIFICATE**
LCIE 02 ATEX 6086X dated September 10, 2002

VARIATION 02 ATEX 6086X/01

(A2) NAME OF EQUIPMENT OR PROTECTIVE SYSTEM :

Proximeter system
Type : IQS4XX/TQ4XX

Manufactured by :
VIBRO-METER S.A.
BP 1071
1701 FRIBOURG SUISSE

(A3) SUBJECT OF THE VARIATION, DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM :

- IQS4XX : Components replacement,
- TQ4XX : Addition of a NPO ceramic calibration capacity and minor modifications at mechanical level.

The marking is unchanged.

(A4) DESCRIPTIVE DOCUMENTS :

Certification file No DT1012/01 rev.2 dated January 17th, 2003.
This file includes 6 items (15 pages).

(A5) SPECIAL CONDITIONS FOR SAFE USE :

Unchanged

(A6) ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :

Unchanged.

Le Directeur de l'organisme certificateur
Manager of the certification body

Isabelle HELLER
Timbre sec/Dry seal

EN

LCIE
Laboratoire Central
des Industries Electriques
Une société de Bureau Veritas

33, av du Général Leclerc
BP 8
92260 Fontenay-aux-Roses cedex
France

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Fax : +33 1 40 95 86 56
contact@lcie.fr
www.lcie.fr

Société anonyme à directoire
et conseil de surveillance
au capital de 15 745 984 €
RCS Nanterre B 408 363 174

L C I E

(A1) **ATTESTATION D'EXAMEN CE DE TYPE**
02 ATEX 6086 X
du 10 septembre 2002

AVENANT 02 ATEX 6086 X / 02

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE PROTECTION :

Système proximètre
Type : IQS4XX
Construit par : VIBRO METER

(A3) OBJET DE L'AVENANT, DESCRIPTION DE L'APPAREIL OU DU SYTEME DE PROTECTION :

Remplacement du compound RTV-428 par Q-SIL 550

Marquage :

Inchangé

(A4) DOCUMENTS DESCRIPTIFS :

Lettre du constructeur du 16/02/2005 comportant 4 pages.

(A5) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :

Inchangées.

(A6) VERIFICATIONS ET EPREUVES INDIVIDUELLES :

Inchangées.

(A7) EXIGENCES ESSENTIELLES EN CE QUI CONCERNE LA SECURITE ET LA SANTE :

Inchangées.

(A1) **EC TYPE EXAMINATION CERTIFICATE**
02 ATEX 6086 X
dated September 10, 2002

VARIATION 02 ATEX 6086 X / 02

(A2) NAME OF EQUIPMENT OR PROTECTIVE SYSTEM :

Proximeter system
Type : IQS4XX
Manufactured by : VIBRO METER

(A3) SUBJECT OF THE VARIATION, DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM :

Replacement of compound RTV-428 by Q-SIL 550

Marking :

Unchanged

(A4) DESCRIPTIVE DOCUMENTS :

Letter of the manufacturer dated 16/02/2005 containing 4 pages.

(A5) SPECIAL CONDITIONS FOR SAFE USE :

Unchanged.

(A6) INDIVIDUAL EXAMINATIONS AND TESTS :

Unchanged.

(A7) ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :

Unchanged.

Fontenay-aux-Roses, le 10 mars 2005

Le Directeur de l'organisme certificateur
Manager of the certification body

Timbre sec/Dry seal

LCIE 33, av du Général Leclerc Tél : +33 1 40 95 60 60 Société anonyme à directoire
Laboratoire Central BP 8 Fax : +33 1 40 95 86 56 et conseil de surveillance
des Industries Electriques 92260 Fontenay-aux-Roses cedex contact@lcie.fr au capital de 15 745 984 €
Une société de Bureau Veritas France www.lcie.fr RCS Nanterre B 408 365 174

L C I E

Team ATEX

1 **AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE**

2 **Appareil ou système de protection** destiné à être utilisé en atmosphères explosibles **(Directive 94/9/CE)**

3 Numéro de l'avenant :
LCIE 02 ATEX 6086 X / 03

4 Appareil ou système de protection :
Système proximètre
Type : IQS4XX / TQ4XX

5 Demandeur : VIBRO-METER S.A.

15 **DESCRIPTION DE L'AVENANT**

- Mise à jour normative selon les normes EN 60079-0 (2006) et EN 60079-11 (2007)
- Ajout de la distinction des températures d'utilisation entre l'électronique et du câblage vers le capteur

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60056381-557031 / 03

Paramètres spécifiques du ou des modes de protection concerné(s) :
Inchangés

Le marquage doit être :
Modifié comme suit:
EEx devient Ex
Ui : 28V Ii : 100mA
Pi : 0,7W

16 **DOCUMENTS DESCRIPTIFS**

Dossier de certification N° DT 1030 du 05/03/2007.
Ce dossier comprend 2 rubriques (7 pages).

17 **CONDITIONS SPECIALES POUR UNE UTILISATION SURE**
Ajout de :
Température ambiante de l'électronique : -30°C à +70°C
Température ambiante capteur/câble : -100°C à +195°C

18 **EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**
Couvertes par les normes :
EN 60079-0 (2006) et EN 60079-11 (2007)

19 **VERIFICATIONS ET ESSAIS INDIVIDUELS**
Inchangés

1 **SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE**

2 **Equipment or protective system** intended for use in potentially explosive atmospheres **(Directive 94/9/EC)**

3 Supplementary certificate number :
LCIE 02 ATEX 6086 X / 03

4 Equipment or protective system :
Proximeter system
Type : IQS4XX / TQ4XX

5 Applicant : VIBRO-METER S.A.

15 **DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE**
- Normative update according to standards' EN 60079-0 (2006) and EN 60079-11 (2007)
- Adding of distinction of operating temperature between electronic and wiring towards the sensor

The examination and test results are recorded in confidential report N° 60056381-557031 / 03

Specific parameters of the mode(s) of protection concerned:
Unchanged

The marking shall be :
Modified as follows :
EEx becomes Ex
Ui : 28V Ii : 100mA
Pi : 0,7W

16 **DESCRIPTIVE DOCUMENTS**

Certification file N° DT 1030 dated 2007/03/05
This file includes 2 items (7 pages).

17 **SPECIAL CONDITIONS FOR SAFE USE**

Adding :
Electronic operating temperature : -30°C to +70°C
Sensor/cable operating temperature : -100°C to +195°C

18 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

Covered by standards:
EN 60079-0 (2006) and EN 60079-11 (2007)

19 **ROUTINE VERIFICATIONS AND TESTS**
Unchanged

Fontenay-aux-Roses, le 22 octobre 2007

Le responsable de certification ATEX
ATEX certification manager

Henri CERVELLO

NOTIFIED BODY ORGANISME NOTIFIE 0081

LCIE 33, av du Général Leclerc Tél : +33 1 40 95 60 60 Société Anonyme
Laboratoire Central BP 8 Fax : +33 1 40 95 86 56 au capital de 15 745 984 €
des Industries Electriques 92260 Fontenay-aux-Roses cedex contact@lcie.fr RCS Nanterre B 408 365 174
Une société de Bureau Veritas France www.lcie.fr

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-5 -

1 **EG-PRÜFZERTIFIKAT**

2 Geräte und Schutzsysteme zur Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

3 EG-Zertifikatnummer
LCIE 02 ATEX 6086 x

4 Gerät oder Schutzsystem
Proximetersystem
Typ: IQS4xx / TQ4xx

5 Hersteller: VIBRO-METER SA

6 Anschrift: BP 1071, CH-1701 FRIBOURG, SCHWEIZ

7 Dieses Gerät oder Schutzsystem und die möglichen, zulässigen Varianten sind im Anhang dieses Zertifikats und den darin aufgeführten Unterlagen beschrieben.

8 LCIE, eingetragen unter der Nummer 0081 gemäß Artikel 9 der Richtlinie 94/9/EG des Europaparlamentes und des Rates vom 23. März 1994, bestätigt, dass dieses Gerät oder Schutzsystem die wesentlichen Gesundheits- und Sicherheitsanforderungen in Bezug auf die Auslegung und die Bauart von Geräten und Schutzsystemen zur Verwendung in explosionsgefährdeten Bereichen nach Anhang II der Richtlinie erfüllt.
Die Prüf- und Testergebnisse sind im vertraulichen Bericht Nr. 41 031 010 V aufgezeichnet

9 Die Einhaltung der wesentlichen Gesundheits- und Sicherheitsanforderungen wird durch die Übereinstimmung mit den den folgenden Dokumenten sichergestellt:
- EN 50014 (1997) + Änderungen 1 und 2
- EN 50020 (1994)

10 Ein "x" nach der Zertifikatnummer gibt an, dass für die sichere Verwendung des Gerätes oder Schutzsystemes besondere Bedingungen gemäß dem Anhang dieses Zertifikates gelten.

11 Dieses EG-Prüfzertifikat betrifft nur die Bauart und die Prüfungen und Tests des betreffenden Gerätes oder Schutzsystemes nach der Richtlinie 94/9/EG.
Zusätzliche Anforderungen dieser Richtlinie gelten für die Fertigung und Lieferung des Gerätes oder Schutzsystemes.

12 Die Kennzeichnung des Gerätes oder Schutzsystems muss unter anderem die folgenden Angaben enthalten:
Ex II 2 G
EEx ib IIC T6 bis T3

Fontenay-aux-Roses, 10. September 2002

Leiter Zertifizierung
Trockenstempel

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-5 -

(A1) **ANHANG**

(A2) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6086 x

(A3) Beschreibung des Gerätes oder Schutzsystems:
Proximetersystem Typ: IQS4xx / TQ4xx
Dieses Näherungsmessgerät hat die Aufgabe, die Bewegung und Stellung einer drehenden Achse zu kontrollieren.
Kennzeichnung:
VIBRO-METER
Adresse
Typ: IQS4xx / TQ4xx
Herstellungsnummer
Herstellungsjahr
Ex II 2 G
EEx ib IIC T6 bis T3 (*)
LCIE 02 ATEX 6086 x
Die EG-Kennzeichung wird von der Kennnummer der Stelle begleitet, die für die Überwachung des genehmigten Qualitätssystems verantwortlich ist (0081 für LCIE).
Die Geräte müssen ebenfalls mit der Kennzeichnung versehen sein, die in den Herstellungsnormen der betreffenden elektrischen Geräte normalerweise vorgesehen sind.
(*) Die Temperatureinteilung der einzelnen Baugruppen des Gerätes hängt von der maximalen Verwendungstemperatur ab, wie in (A5) angegeben.

(A4) Beschreibende Unterlagen:
Technische Unterlagen Nr. DT1012 Änd. 1 vom 15. März 2002. Dieses Dokument umfasst 11 Teile (22 Seiten).

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-6 -

(A1) **ANHANG**

(A2) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6086 x (Fortsetzung)

(A5) Spezielle Bedingungen für eine sichere Verwendung:
Das oben genannte Gerät ist ein eigensicheres Gerät: es kann in explosionsgefährdeten Bereichen verwendet werden.
Das System darf nur an ein dazugehöriges eigensicheres Gerät [ia] oder [ib] eines zertifizierten Typs angeschlossen werden, dessen elektrische Parameter keinen der folgenden Werte überschreiten.

$U_i \leq 28$ V, $I_i \leq 100$ mA,

Die Parameter L und C des Verbindungskabels zwischen dem Wandler IQS4xx und dem Näherungsgeber TQ4xx dürfen keinen der folgenden Werte überschreiten:

$L \leq 5$ mH, $C \leq 0.1$ nF

Temperatureinteilung:

- Wandler IQS4xx:
  T6 bis Ta= +70°C
- Stecker TQ4xx und Verlängerungskabel:
  T6 bis Ta= +70°C
  T5 bis Ta= +95°C
  T4 bis Ta= +130°C
- Geber TQ4xx und Kabel:
  T6 bis Ta= +80°C
  T5 bis Ta= +95°C
  T4 bis Ta= +130°C
  T3 bis Ta= +195°C

(A6) Wesentliche Anforderungen in Bezug auf Sicherheit und Gesundheit:
Übereinstimmung mit den europäischen Normen EN 50014 (1997 + Änderungen 1 und 2) und EN 50020 (1994).

Seite 3/3

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-6 -

(A1) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6086 x vom 10. September 2002
NACHTRAG 02 ATEX 6086x/01

(A2) BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
Proximetersystem
Typ: IQS4xx/TQ4xx
Hergestellt von:
VIBRO-METER S.A.
BP 1071
1701 FRIBOURG SCHWEIZ

(A3) ZIEL DES NACHTRAGS, BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
- IQS4xx: Austausch der Teile,
- TQ4xx: Montage eines Keramik-Stellkondensators NPO und kleinere mechanische Änderungen.
Die Kennzeichnung bleibt unverändert

(A4) BESCHREIBENDE UNTERLAGEN:
Technische Unterlagen Nr. DT1012/01 Änd.2 vom 17. Januar 2003. Diese Unterlage umfasst 6 Teile (15 Seiten).

(A5) SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG:
Unverändert

(A6) WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT:
unverändert

Fontenay-aux-Roses, 3. April 2003

Leiter Zertifizierung
Trockenstempel

Seite 1/1

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-7 -

(A1) **EG-PRÜFZERTIFIKAT**
02 ATEX 6086 x
vom 10. September 2002
NACHTRAG 02 ATEX 6086x/02

(A2) BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
Proximeter System
Typ: IQS4xx
Hergestellt von:
VIBRO-METER S.A.
BP 1071
1701 FRIBOURG SCHWEIZ

(A3) ZIEL DES NACHTRAGS, BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
Ersetzen der RTV-428 Vergussmasse durch Q-SIL 550
Kennzeichnung:
unverändert

(A4) BESCHREIBENDE UNTERLAGEN:
Vierseitiges Schreiben vom Hersteller vom 16.02.2005.

(A5) SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG:
Unverändert

(A6) EINZELKONTROLLEN UND –PRÜFUNGEN:
Unverändert

(A7) WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT:
unverändert

Fontenay-aux-Roses, 10 März 2005 Leiter Zertifizierung
Trockenstempel Seite 1/1

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-7 -

(A1) **EG-ZUSATZ-TYPENPRÜFZERTIFIKAT**

(A2) **Gerät oder Schutzsystem** zur Verwendung in explosionsgefährdeten Bereichen (**Richtlinie 94/9/EG**)

(A3) Zusatzzertifikat-Nr.
LCIE 02 ATEX 6086 X /03

(A4) Gerät oder Schutzsystem
Proximeter-System
Typ: IQS4XX / TQ4XX

(A5) Hersteller: VIBRO-METER S.A.

(A15) **BESCHREIBUNG DES ZUSATZZERTIFIKATS**

- Normative Aktualisierung gemäß der Normen EN 60079-0 (2006) und EN 60079-11 (2007)
- Hinzufügung einer Betriebstemperatur-Unterscheidung zwischen Elektronik und Verkabelung zum Sensor

Prüfung und Testergebnisse sind im vertraulichen Bericht Nr. 60056381-557031 /03 aufgezeichnet.

Spezifische Parameter der betroffenen Schutzarten:
Unverändert

Die Kennzeichnung ist wie folgt:
Modifiziert wie folgt:
EEx wird zu EX
UI:28 V LI100 MA
PI: 0,7 W

(A16) **BESCHREIBENDE UNTERLAGEN**
Zertifizierungs-Datei Nr. DT 1030 vom 05.03.05
Diese Datei beinhaltet 2 Punkte (7 Seiten)

(A17) **SPEZIELLE BEDINGUNGEN FÜR DEN SICHERERN GEBRAUCH**
Hinzufügung:
Betriebstemperatur der Elektronik: -30 °C bis +70 °C
Betriebstemperatur des Sensors/Kabels: -100 °C bis + 195 °C

(A18) **GRUNDLEGENDE BEDINGUNGEN FÜR GESUNDHEIT UND SICHERHEIT**
Geregelt durch die Normen:
EN 60079-0 (2006) und EN 60079-11 (2007)

(A19) **ROUTINEPRÜFUNGEN UND -TESTS**
Unverändert

Fontenay-aux-Roses, 22 Oktober 2007

Leiter ATEX-Zertifizierung
Trockenstempel

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

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Vibro-Meter

Installation Manual

LCIE_07_ATEX_6079_x

for EA 4xx, IQS 4xx, TQ 4xx

Although the certificate is available in the 3 languages (English, French and German), the liability of the notified body applies only on the text of the original copy of the certificate that it published.

EN

Bien que le certificat soit traduit dans les 3 langues (Anglais, Français et Allemand), seul le texte de la copie originale du certificat peut engager la responsabilité de l'organisme notifié qui l'a publié.

FR

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

MEGGiTT

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1 **ATTESTATION D'EXAMEN DE TYPE VOLONTAIRE**

2 **Appareil** destiné à être utilisé en atmosphères explosibles **(Directive 94/9/CE)**

3 Numéro de l'attestation d'examen de type
LCIE 07 ATEX 6079 X

4 Appareil
Système proximètre
Type : IQS4XX/TQ4XX: 111-4XX-000-YYY
204-4XX-000-YYY

5 Demandeur : VIBRO METER
Adresse : BP 1071
1701 FRIBOURG
SUISSE

7 Cet appareil ou système de protection et ses variantes éventuelles acceptées sont décrits dans l'annexe de la présente attestation et dans les documents descriptifs cités en référence.

8 Le LCIE certifie que cet appareil ou système de protection est conforme aux exigences essentielles de sécurité et de santé pour la conception d'appareils de catégorie 3 ou système de protection destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive 94/9/CE du Parlement européen et du Conseil du 23 mars 1994.

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60053360-554504.

9 Le respect des exigences essentielles de sécurité et de santé est assuré par la conformité à :
- EN 60079-0 (2004)
- EN 60079-15 (2005)

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que cet appareil ou système de protection est soumis aux conditions spéciales pour une utilisation sûre, mentionnées dans l'annexe de la présente attestation.

11 Cette attestation d'examen de type concerne uniquement la conception, les vérifications et essais de l'appareil ou du système de protection spécifié, conformément à la directive 94/9/CE.
Des exigences supplémentaires de la directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection. Ces dernières ne sont pas couvertes par la présente attestation.

12 Le marquage de l'appareil ou du système de protection doit comporter les informations détaillées au point 15.

Fontenay-aux-Roses, le 3 octobre 2007

Le responsable de certification ATEX
ATEX certification manager
Marc GILLAUX

1 **VOLUNTARY TYPE EXAMINATION CERTIFICATE**

2 **Equipment** intended for use in potentially explosive atmospheres **(Directive 94/9/EC)**

3 Type Examination Certificate number
LCIE 07 ATEX 6079 X

4 Equipment
Proximeter system
Type : IQS4XX/TQ4XX: 111-4XX-000-YYY
204-4XX-000-YYY

5 Applicant : VIBRO METER
Address : BP 1071
1701 FRIBOURG
SWITZERLAND

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 LCIE certifies that this equipment or protective system has been found to comply with the essential Health and Safety Requirements that relate to the design of category 3 equipment or protective system which is intended for use in potentially explosive atmospheres, given in Annex II of the Directive 94/9/EC of the European Parliament and Council of 23 March 1994.

The examination and test results are recorded in confidential report N° 60053360-554504.

9 Compliance with the Essential Health and Safety Requirements has been assured by reference to :
- EN 60079-0 (2004)
- EN 60079-15 (2005)

10 If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This type examination certificate relates only to the design, examination and tests of this specified equipment or protective system in accordance III to the directive 94/9/EC.

Further requirements of the Directive may apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include informations as detailed at 15.

LCIE
Laboratoire Central des Industries Electriques
Une société de Bureau Veritas
33, av du Général Leclerc
BP 8
92256 Fontenay-aux-Roses cedex
France
Tél : +33 1 40 95 60 60
Fax : +33 1 40 95 86 56
contact@lcie.fr
www.lcie.fr
Société Anonyme
au capital de 15 715 984 €
RCS Nanterre B 408 363 171

13 **ANNEXE**

14 **ATTESTATION D'EXAMEN DE TYPE VOLONTAIRE**

LCIE 07 ATEX 6079 X

15 **DESCRIPTION DE L'APPAREIL OU DU SYSTEME DE PROTECTION**

Système proximètre
Type : IQS4XX/TQ4XX:
111-4XX-000-YYY
204-4XX-000-YYY

La fonction de cet appareil de mesure inductif de proximité est de contrôler le mouvement et la position d'un axe en rotation

Paramètres spécifiques du ou des modes de protection concernés :
Ui ≤ 28 V
Ii ≤ 100 mA

Le marquage doit être :
VIBRO METER
Adresse :
Type :
N° de fabrication :
Année de fabrication :
II 3 G
Ex nA IIC T... (voir tableau de températures)
LCIE 07 ATEX 6079 X

Tableau de températures

Matériel / *Apparatus*	Température ambiante maximale / *Maximum ambient temperature*	Classe de température / *Temperature class*
Conditionneur IQS4XX / *Conditioner IQS4XX*	70°C	T6
Connecteur + câble / *Connection box + cable*	70°C	T6
	95°C	T5
	130°C	T4
Capteur + câble/ *Sensor + cable*	80°C	T6
	95°C	T5
	130°C	T4
	195°C	T3

L'appareil doit également comporter le marquage normalement prévu par les normes de construction qui le concerne.

16 **DOCUMENTS DESCRIPTIFS**
Dossier de certification N° DT 1029 du 05/09/2007.
Ce document comprend 11 rubriques (22 pages).

13 **SCHEDULE**

14 **VOLUNTARY TYPE EXAMINATION CERTIFICATE**

LCIE 07 ATEX 6079 X

15 **DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM**

Proximeter system
Type : IQS4XX/TQ4XX:
111-4XX-000-YYY
204-4XX-000-YYY

The function of this inductive measuring apparatus of proximity is to control the movement and the position of an axis of rotation

Specific parameters of the mode(s) of protection concerned :

Ui ≤ 28 V
Ii ≤ 100 mA

The marking shall be :
VIBRO METER
Address :
Type :
Serial number :
Year of construction :
II 3 G
Ex nA IIC T... (see temperature tables)
LCIE 07 ATEX 6079 X

Temperature table

Matériel / *Apparatus*	Température ambiante maximale / *Maximum ambient temperature*	Classe de température / *Temperature class*
Conditionneur IQS4XX / *Conditioner IQS4XX*	70°C	T6
Connecteur + câble / *Connection box + cable*	70°C	T6
	95°C	T5
	130°C	T4
Capteur + câble/ *Sensor + cable*	80°C	T6
	95°C	T5
	130°C	T4
	195°C	T3

The equipment shall also bear the usual marking required by the manufacturing standards applying to such equipment.

16 **DESCRIPTIVE DOCUMENTS**
Certification file N° DT 1029 dated 2007/09/05.
This file includes 11 items (22 pages).

13 **ANNEXE**

14 **ATTESTATION D'EXAMEN DE TYPE VOLONTAIRE**

LCIE 07 ATEX 6079 X

17 **CONDITIONS SPECIALES POUR UNE UTILISATION SÛRE**

L'utilisateur doit s'assurer que l'emplacement du conditionneur assure un IP 54 ou un niveau équivalent.

L'utilisateur doit s'assurer qu'un dispositif de protection contre les surtensions transitoires soit installé et réglé à un niveau n'excédant pas 40% de la tension assignée aux bornes de l'alimentation.

L'alimentation du système doit respecter les paramètres électriques suivants : Ui ≤ 28 V et Ii ≤ 100 mA

18 **EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**

Couvertes par les normes listées au point 9.

19 **VERIFICATIONS ET ESSAIS INDIVIDUELS**

Néant

13 **SCHEDULE**

14 **VOLUNTARY TYPE EXAMINATION CERTIFICATE**

LCIE 07 ATEX 6079 X

17 **SPECIAL CONDITIONS FOR SAFE USE**

The user shall make sure that the place of conditioner ensures an IP 54 or an equivalent degree.

The user shall make sure that a protection device against transcient voltage is installed and regulated on a level not exceeding 40% of the power supply voltage.

Power supply system shall respect following electrical parameters: Ui ≤ 28 V and Ii ≤ 100 mA

18 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

Covered by standards listed at 9.

19 **ROUTINE VERIFICATIONS AND TESTS**

None

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-15 -

(A1) **FREIWILLIGES TYPENPRÜFZERTIFIKAT**

(A2) **Gerät** für die Verwendung in explosionsgefährdeten Bereichen (**Richtlinie 94/9/EG**)

(A3) Typenprüfzertifikat-Nr.
LCIE 07 ATEX 6079 X

(A4) Gerät

	Proximeter-System
Typ: IQS4XX/TQ4XX:	111-4XX-000-YYY
	204-4XX-000-YYY

(A5) Hersteller: VIBRO METER
Adresse: BP 1071
1701 FRIBOURG
SCHWEIZ

(A7) Dieses Gerät oder Schutzsystem und die möglichen, zulässigen Varianten sind im Anhang dieses Zertifikats und den darin aufgeführten Unterlagen beschrieben.

(A8) LCIE bestätigt, dass dieses Gerät oder Schutzsystem die wesentlichen Gesundheits- und Sicherheitsanforderungen in Bezug auf die Auslegung und die Bauart von Geräten und Schutzsystemen der Kategorie 3 zur Verwendung in explosionsgefährdeten Bereichen nach Anhang II der Richtlinie 94/9EG des Europaparlaments und des Rats vom 23. März 1994 erfüllt.

Die Prüf- und Testergebnisse sind im vertraulichen Bericht Nr. 60053360-554504 aufgezeichnet.

(A9) Die Einhaltung der wesentlichen Gesundheits- und Sicherheitsanforderungen wird durch die Übereinstimmung mit den folgenden Dokumenten sichergestellt:
- EN 60079-0 (2004)
- EN 60079-15 (2005)

(A10) Ein "X" nach der Zertifikatnummer gibt an, dass für die sichere Verwendung des Geräts oder Schutzsystems besondere Bedingungen gemäß dem Anhang dieses Zertifikates gelten.

(A11) Dieses Typenprüfzertifikat betrifft nur die Bauart und die Prüfungen und Tests des betreffenden Geräts oder Schutzsystems gemäß Richtlinie 94/9/EG.
Zusätzliche Anforderungen dieser Richtlinie gelten für die Fertigung und Lieferung des Geräts oder Schutzsystems. Diese werden durch dieses Zertifikat nicht abgedeckt.

(A12) Die Kennzeichnung des Gerätes oder Schutzsystems muss die unter Punkt 15 erläuterten Angaben enthalten:

Fontenay-aux-Roses, 03. Oktober 2007

Leiter Zertifizierung
Trockenstempel

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-15 -

(A13) **ANHANG**

(A14) **FREIWILLIGES TYPENPRÜFZERTIFIKAT**

LCIE 07 ATEX 6079 X

(A15) **BESCHREIBUNG DES GERÄTS ODER SCHUTZSYSTEMS**

Proximeter-System
Typ: IQS4XX/TQ4XX:
111-4XX-000-YYY
204-4XX-000-YYY

Die Funktion dieses induktiven Messgeräts ist die Kontrolle der Bewegung und Position einer Drehachse:

Spezifische Parameter des betreffenden Schutzmodus (der Schutzmodi):
Ui ≤ 28 V
Ii ≤ 100 mA

Die Kennzeichnung lautet wie folgt:
VIBRO-METER
Adresse:
Typ:
Seriennummer:
Baujahr:
Ex II 3 G
Ex nA IIC T..(siehe Temperaturtabellen)
LCIE 07 ATEX 6079 X

Temperaturtabelle

Gerät	Maximale Umgebungstemperatur	Temperaturklasse
Conditioner IQS4XX	70 °C	T6
Anschlusskasten und Kabel	70 °C	T6
	95 °C	T5
	130 °C	T4
Sensor + Kabel	80 °C	T6
	95 °C	T5
	130 °C	T4
	195 °C	T3

Das Gerät muss außerdem die übliche, von den Herstellernormen für derartige Geräte vorgeschriebene Kennzeichnung tragen.

(A16) **BESCHREIBENDE UNTERLAGEN**
Zertifizierungs-Datei-Nr. DT 1029 vom 05.09.2005
Diese Datei enthält 11 Punkte (22 Seiten)

LCIE haftet nur für den französischen Text. Seite 2/3
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-16 -

(A13) **ANHANG**

(A14) **FREIWILLIGES TYPENPRÜFZERTIFIKAT**

LCIE 07 ATEX 6079 X

(A17) **SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG:**
Der Benutzer muss sicherstellen, dass der Standort des Conditioners der Schutzklasse IP54 oder einer gleichwertigen Richtlinie entspricht.

Der Benutzer muss sicherstellen, dass ein Überspannungsschutz installiert und auf einem Niveau eingerichtet wird, dass nicht höher als 40% über der Versorgungsspannung liegt.

Das Stromversorgungssystem muss folgende elektrische Parameter aufweisen: Ui ≤ 28 V und Ii ≤ 100 mA

(A18) **WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT**

Werden von den Richtlinien unter Punkt 9 abgedeckt.

(A19) **ROUTINEPRÜFUNGEN UND -TESTS**
Keine

LCIE haftet nur für den französischen Text. Seite 3/3
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

Vibro-Meter

Installation Manual

TUV-A_03_ATEX_0018_x

for GSV 14X

Although the certificate is available in the 3 languages (English, French and German), the liability of the notified body applies only on the text of the original copy of the certificate that it published.

EN

Bien que le certificat soit traduit dans les 3 langues (Anglais, Français et Allemand), seul le texte de la copie originale du certificat peut engager la responsabilité de l'organisme notifié qui l'a publié.

FR

Obwohl das Zertifikat in drei Sprachen (Englisch, Französisch und Deutsch) übersetzt ist, können nur die bescheinigten Behörden, die den Text auf der Originalausgabe des Zertifikates herausgegeben haben, zur

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

MEGGiTT

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TÜV Österreich, vom österreichischen Bundesministerium für wirtschaftliche Angelegenheiten akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
TÜV Austria testing, inspection and certification body accredited by the Austrian Ministry for Economic Affairs

TÜV ÖSTERREICH

Zertifikat - Certificate

(1) **EG-Baumusterprüfbescheinigung**

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) Nr.: TÜV-A 03ATEX0018 X

(4) Gerät: Messumformerspeisegerät Typ GSV 14x

(5) Hersteller: Vibro-meter SA

(6) Anschrift: CH-1701 Fribourg, Rte de Moncor 4, P.O.Box 1071

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Der TÜV Österreich bescheinigt als benannte Stelle Nr. 0408 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23.März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.
Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht 2003-ET/PZW-EX-542 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

EN50014:1997+A1/1999+A2/1999 EN50020:2002

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konstruktion, Überprüfung und Tests des spezifizierten Gerätes oder Schutzsystems in Übereinstimmung mit Richtlinie 94/9/EG. Weitere Anforderungen der Richtlinie können für das Herstellungsverfahren und die Lieferung dieses Gerätes oder Schutzsystems gelten. Diese sind von vorliegender Bescheinigung nicht abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

Ex **II (2) G [EEx ib] IIC**

24.11.2003	Dipl.-Ing. F. Bittermann	- - -
Datum der Ausstellung	Zertifizierungsbeauftragter	Ende der Gültigkeit
Date of issue	*Certification representative*	*End of validity*

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TÜV Austria Services GmbH vom österreichischen Bundesministerium für Wirtschaft und Arbeit akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
TÜV Austria Services GmbH testing, inspection and certification body accredited by the Austrian Ministry for Economics and Labour

TÜV AUSTRIA

1. Ergänzung zu EG-Baumusterprüfbescheinigung

(1) gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) TÜV-A 03ATEX0018X

(4) Gerät: Messumformerspeisegerät Typ GSV 140..142

(5) Hersteller: Vibro-meter SA

(6) Anschrift: CH-1701 Fribourg, Rte de Moncor 4, P.O.Box 1071

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser 1. Ergänzung zu der Baumusterprüfbescheinigung festgelegt.

Folgende Änderungen wurden vorgenommen:

- Austausch der internen Thermosicherung von 98°C auf 104°C
- Änderung des Wandlermoduls
- Änderung der Sicherung im Ausgangskreis von 32mA auf 40mA
- Anwendung der neuen Normen EN60079-0 und EN60079-11.

(8) Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht Nr. 2007-ET/PZW-EX-0-000767 festgelegt.

(12) Die Kennzeichnung des Gerätes lautet weiterhin:

Ex II (2) G [Ex ib] IIC

05.10.2007	Dipl.-Ing. K. Mayerhofer	- -
Datum der Ausstellung	Zertifizierungsbeauftragter	Ende der Gültigkeit
Date of issue	*Certification representative*	*End of validity*

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für Wirtschaft und Arbeit akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
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Anlage

(13)

(14) 1. Ergänzung zu EG-Baumusterprüfbescheinigung TÜV-A 03ATEX0018X

(15) Beschreibung:

Die Anforderungen der neuen Normen EN 60079-0 und EN 60079-11 wurden mit den bereits bestehenden Anforderungen der vorherigen Normen EN 50014 und EN 50020 verglichen. Die Ausführung des Gerätes entspricht den Anforderungen der neuen Normen, daher waren keine weiteren experimentellen Prüfungen erforderlich.

Folgende Änderungen wurden vorgenommen:

- Die Thermosicherung Si1 im Netztransformator mit Ausschalttemperatur 98°C wird durch eine Sicherung mit Ausschalttemperatur 104°C ersetzt.
- Das Modul DC/AC - Wandler ist von Typ 17-4911 und entspricht der Ausführung gem. EG-Baumusterprüfbescheinigung TÜV-A 05ATEX0005X.
- Die Sicherung im Ausgangsstromkreis der Messsignal - Zenerbarriere wurde von 32 mA auf 40 mA vergrößert.

Durch die vorgenommenen und hier beschriebenen Änderungen im Geräteaufbau werden die zulässigen Kenndaten der verwendeten Materialien nicht überschritten.

Die tatsächliche Belastung der für den Schutz der eigensicheren Kreise verwendeten Bauteile liegt weiterhin innerhalb der zulässigen Belastungsgrenzen.

An den Materialien wurden keine Änderungen vorgenommen, das Gerät bleibt auch im äußeren Aufbau unverändert.

Die elektrischen Daten bleiben gegenüber der ursprünglichen Ausführung unverändert.

Durch die beschriebenen Änderungen wird der Explosionsschutz nicht verändert.

(16) Prüfbericht

TÜV Austria: 2007-ET/PZW-EX-0-000767 vom 4.10.2007

TÜV Austria Services GmbH vom österreichischen Bundesministerium
für Wirtschaft und Arbeit akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
TÜV Austria Services GmbH testing, inspection and certification body accredited by the Austrian Ministry for Economics and Labour

(17) Besondere Bedingungen

Es gelten die „Besonderen Bedingungen" der ursprünglichen Bescheinigung weiterhin:

(17.1) Das Messumformerspeisegerät muss außerhalb explosionsgefährdeter Bereiche installiert werden.

(17.2) Bei der Installation ist mindestens die Schutzart IP20 gem. EN60529 sicher zu stellen.

(17.3) An den Ausgangsstromkreis des Messumformerspeisegerätes dürfen nur Betriebsmittel angeschlossen werden, in denen betriebsmäßig keine höheren Spannungen als 250V auftreten.

(17.4) Der Geräteanschluss muss mittels AMP - Steckern 6,3x0,8mm mit Isolierkappen ausgeführt werden.

(17.5) Das Messumformerspeisegerät ist über die PA-Anschlussklemme in den Potenzialausgleich innerhalb der explosionsgefährdeten Bereiche ein zu binden.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Durch die Anwendung der o. a. Normen abgedeckt. Keine weiteren Anforderungen

TÜV Österreich, vom österreichischen Bundesministerium für wirtschaftliche Angelegenheiten akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
TÜV Austria testing, inspection and certification body accredited by the Austrian Ministry for Economic Affairs

TÜV ÖSTERREICH

Anlage

(13)

(14) EG-Baumusterprüfbescheinigung TÜV-A 03ATEX0018 X

(15) Beschreibung des Gerätes

Das Messumformerspeisegerät GSV 14x dient zum Versorgen von eigensicheren Messumformern sowie zur Signalübertragung und besteht aus folgenden Funktionseinheiten:

- Netzteil
- Eigensicherer Speiseteil
- Eigensicherer Messstromkreis (mittels Z-Barrieren getrennt)

Elektrische Daten:

Netzanschluss (Klemmen 1, 2):
Type GSV 140: 230V AC
GSV 141: 110V AC
GSV 142: 24V DC

Eigensichere Stromkreise [EEx ib] IIC:

Speisekreis: (Klemmen 6, 7)
U_0 = 27,5V
I_0 = 75mA
P_0 = 620mW
L_0 = 1mH
C_0 = 86nF

Messstromkreis: (Klemmen 5, 8)
U_0 = 21V
I_0 = 50mA
P_0 = 270mW
L_0 = 1mH
C_0 = 188nF

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Die eigensicheren Kreise sind sicherheitstechnisch voneinander getrennt, über den Potenzialausgleichs-Anschluss jedoch verbunden.

Der Speisekreis ist vom Netzanschluss galvanisch getrennt.

Ausgangsstromkreis (nicht eigensicher):
(Klemmen 3, 4) bis 18V, bis 10mA
nur zum Anschluss an Geräte mit Betriebsspannungen unter 250V

Der Messstromkreis und der Ausgangsstromkreis sind galvanisch miteinander verbunden (Sicherheitsbarriere ohne galvanische Trennung, U_M = 250V)

(16) Prüfbericht

TÜV-A 2003-ET/PZW-EX-542 vom 21.11.2003

(17) Besondere Bedingungen

1. Das Messumformerspeisegerät muss außerhalb explosionsgefährdeter Bereiche installiert werden.
2. Bei der Installation ist mindestens die Schutzart IP20 gem. EN60529 sicher zu stellen.
3. An den Ausgangsstromkreis des Messumformerspeisegerätes dürfen nur Betriebsmittel angeschlossen werden, in denen betriebsmäßig keine höheren Spannungen als 250V auftreten.
4. Das Messumformerspeisegerät ist über die PA-Anschlussklemme in den Potenzialausgleich innerhalb der explosionsgefährdeten Bereiche ein zu binden.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Durch die Anwendung der o. a. Normen abgedeckt

TÜV Österreich, vom österreichischen Bundesministerium für wirtschaftliche Angelegenheiten akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
TÜV Austria testing, inspection and certification body accredited by the Austrian Ministry for Economic Affairs

TÜV ÖSTERREICH

Zertifikat - Certificate

EC Type Examination Certificate

(1)

(2) Equipment or protective system intended for use in potentially explosive atmospheres – Directive 94/9/CE

(3) Nr.: TÜV-A 03ATEX0018 X

(4) Equipment: Power supply and safety barrier type GSV 14x

(5) Applicant: Vibro-Meter SA

(6) Address: CH-1701 Fribourg, Rte de Moncor 4, P.O.Box 1071

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) TÜV Austria, notified body number 0408 in accordance with article 9 of Directive 94/9/CE of the European Parliament and Council of 23 march 1994, certifies that this equipment or protective system has been found to comply with the design and construction of equipment and protective system intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in confidential report 2003-ET/PZW-EX-542.

(9) Compliance with the Essential Health and Safety Requirements been assured by compliance with:

EN50014: 1997+A1/1999+A2/1999 EN50020: 2002

(10) If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC Type examination certificate relates only to the design and construction of this specified equipment or protective system in accordance with the Directive 94/9/EG. Further requirements of the Directive applies to the manufacture and supply of this equipment or protective system.

(12) The marking of the equipment or protective system shall include the following:

Ex II (2) G [EEx ib] IIC

24.11.2003	Dipl.-Ing. D. Engel	---
Datum der Ausstellung	Zertifizierungsbeauftragter	Ende der Gültigkeit
Date of issue	*Certification representative*	*End of validity*

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TÜV Austria Services GmbH testing, inspection and certification body accredited by the Austrian Ministry for Economics and Labour

TÜV AUSTRIA

1st Supplement to EC Type Examination Certificate

(1) acc. Directive 94/9/EC, annex III fig. 6

(2) Equipment or protective system intended for use in potentially explosive atmospheres – **Directive 94/9/CE**

(3) TÜV-A 03ATEX0018X

(4) Equipment: Transducer Power pack Type GSV 140..142

(5) Applicant: Vibro-meter SA

(6) Address: CH-1701 Fribourg, Rte de Moncor 4, P. O. Box 1071

(7) This equipment and any acceptable variation thereto are specified in the schedule to this 1st Supplement to EC Type Examination Certificate and the documents therein referred to.

The following modifications were made:

- Replacement of the internal thermal protection from 98°C to 104°C
- Change of converter module
- Change of the fuse in the output circuit from value 32 mA to 40 mA.
- Application of the new Standards EN60079-0 und EN60079-11.

(8) The results of the examination are determined in the confidential test report No. 2007-ET/PZW-EX-0-000767

(12) The marking of the equipment shall furthermore include the following:

Ex II (2) G [Ex ib] IIC

05.10.2007	Dipl.-Ing. R. Mayerhofer	--
Date of issue	*Certification representative*	*End of validity*

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TÜV AUSTRIA

(13) **SCHEDULE**

(14) 1st Supplement to EC Type Examination Certificate TÜV-A 03ATEX0018X

(15) Description:

The requirements of the new standards EN 60079-0 und EN 60079-11 were analysed by comparison with the old standards EN 50014 and EN 50020. The device corresponds to the requirements of the new Standards. No further experimental tests are necessary.

The following modifications were made:

- The internal thermal protection Si1 with cut off temperature of 98°C is replaced by a thermal protection with cut off temperature of 104°C.
- The DC/AC - converter module type 17-4911 complies with EC type examination certificate TÜV-A 05ATEX0005X.
- The fuse in the output circuit of the measuring signal Z- barrier is increased from value 32 mA to 40 mA.

Due to the realised and described changes of construction, there is no exceedance of the permitted characteristics of the materials used.

The utilization of the components for protecting the intrinsic circuits is furthermore within the permitted utilization limits.

There are no changes to the materials, also the outer design of the equipment remains unchanged.

There is no change to the electrical data compared with the original construction.

Due to these described modifications the explosion protection remains identical.

(16) Test Report

TÜV Austria: 2007-ET/PZW-EX-0-000767

TÜV Austria Services GmbH testing, inspection and certification body accredited by the Austrian Ministry for Economics and Labour

TÜV AUSTRIA

(17) Special Conditions

The "Special Conditions" of the original type examination certificate are still valid:

(17.1) The power supply and safety barrier has to be installed outside potentially explosive areas.

(17.2) As a minimum, the protection class IP20 according to EN60529 must be ensured at installation.

(17.3) The measuring circuit of the power supply and safety barrier must only be connected to apparatus with an operating voltage lower than 250V.

(17.4) Connection of the instrument must be made using AMP connectors 6,3x0,8 mm with isolation cap.

(17.5) The grounding terminal of the power supply and safety barrier must be connected with to the grounding bus within the potentially explosive area.

(18) Basic safety and health requirements

Covered by application of the above mentioned standards. No further requirements are necessary.

(13) **SCHEDULE**

(14) EC Type Examination Certificate TÜV-A 03ATEX0018 X

(15) Description of Equipment:

The power supply and safety barrier GSV 14x is used to supply intrinsically safe conditioner and to treat signal transmission and consists of the following function units:

- Main supply
- Intrinsically safe power supply
- Intrinsically safe circuit of treatment (separated by Z-barriers)

Electric Data:

Main supply (terminals 1, 2):
Type GSV 140: 230V AC
GSV 141: 110V AC
GSV 142: 24V DC

Intrinsically safe circuit [EEx ib] IIC:

Power supply: U_0 = 27,5V
(terminals 6, 7) I_0 = 75mA
P_0 = 620mW
L_0 = 1mH
C_0 = 86nF

Circuit of treatment: U_0 = 21V
(terminals 5, 8) I_0 = 50mA
P_0 = 270mW
L_0 = 1mH
C_0 = 188nF

TÜV Österreich, vom österreichischen Bundesministerium für wirtschaftliche Angelegenheiten akkreditierte Prüf-, Überwachungs- und Zertifizierungsstelle
TÜV Austria testing, inspection and certification body accredited by the Austrian Ministry for Economic Affairs
TÜV ÖSTERREICH

The intrinsically safe circuits are for safety reasons separated, but connected together by the grounding terminal.

The power supply is galvanic separated from the main supply.

Circuit of measure (not intrinsically safe):
(terminals 3, 4) max 18V, max 10mA
only for connection with equipment with voltage lower than 250V

The treatment and measuring circuits are galvanically connected (Safety barrier without galvanic separation, U_M = 250V)

(16) Test report

TÜV-A 2003-ET/PZW-EX-542 of November 21st, 2003

(17) Special conditions

1. The power supply and safety barrier has to be installed outside potentially explosive areas.
2. At the installation has at least to be ensured the protection class IP20 following EN60529.
3. The measuring circuit of the power supply and safety barrier must be connected only to apparatus with operating voltage lower than 250V.
4. The power supply and safety barrier has to be connected with the grounding terminal to the grounding bus within the potentially explosive atmospheres.

(18) Basic safety and health requirement

Covered by application of above mentioned standards

- Traduction française de la copie originale allemande publiée à la page A-21 -

(1) **Attestation d'examen CE**

(2) Appareils et systèmes de protection garantissant une utilisation conforme dans des atmosphères potentiellement explosibles - **Directive 94/9/EG**

(3) N°: **TÜV-A 03 ATEX 0018 X**

(4) Appareil: Unité d'alimentation du transducteur de type GSV 14x

(5) Fabricant: Vibro-Meter SA

(6) Adresse: 1701 Fribourg (Suisse)

(7) La conception de cet appareil, ainsi que ses différentes applications autorisées, sont définies dans l'annexe de cette attestation d'examen.

(8) En tant qu'organisme notifié (immatriculation 0408) en vertu de l'article 9 de la directive du Conseil des Communautés Européennes du 23 mars 1994 (94/9/EG), TÜV Österreich atteste avoir respecté les exigences fondamentales en matière de sécurité et de santé lors de la conception et de la mise au point des appareils et systèmes de protection garantissant une utilisation conforme dans des atmosphères potentiellement explosibles en vertu de l'annexe II de la directive. Les résultats du contrôle sont consignés dans le rapport d'essai confidentiel 2003-ET/PZW-EX-542.

(9) Les exigences fondamentales en matière de sécurité et de santé sont respectées. L'appareil a en effet été reconnu conforme aux normes suivantes:
EN 50014: 1997 + A1 / 1999 + A2 / 1999 EN 50020: 2002

(10) Si le numéro d'attestation est suivi du caractère « X », l'annexe de cette attestation indique les conditions particulières qui garantissent l'utilisation en toute sécurité de l'appareil.

(11) Cette attestation d'examen CE concerne uniquement la construction, le contrôle et le test de l'appareil ou du système de protection indiqué conformément à la directive 94/9/EG. D'autres exigences de la directive peuvent s'appliquer au processus de fabrication et à la livraison de cet appareil ou de ce système de protection. Ces points ne sont pas couverts par la présente attestation.

(12) Le marquage de l'appareil doit comporter les mentions suivantes:
II (2) G [EEx ib] IIC

24.11.2003	Dr. Ing. D. Engel	---
Date d'émission	Chargé de la certification	Fin de validité

- Traduction française de la copie originale allemande publiée à la page A-21 -

(13) **Annexe**

(14) **Attestation d'examen CE TÜV-A 03ATEX0018 X**

(15) Description de l'appareil

L'unité d'alimentation du transducteur GSV 14x permet d'alimenter des transducteurs à sécurité intrinsèque. Elle transmet également des signaux et se compose des modules fonctionnels suivants:

> Bloc d'alimentation
> Composant d'alimentation à sécurité intrinsèque
> Circuit de courant de mesure à sécurité intrinsèque (isolé par des barrières de sécurité Z)

Caractéristiques électriques:

Branchement sur le secteur (bornes 1, 2):
Type GSV 140: 230 V CA
GSV 141: 110 V CA
GSV 142:24 V CC

Circuit d'alimentation à sécurité intrinsèque [EEx ib] IIC:
Circuit d'alimentation: U_0 = 27,5 V
(Bornes 6, 7) I_0 = 75 mA
P_0 = 620 mW
L_0 = 1 mH
C_0 = 86 nF
Circuit de courant de mesure: U_0 = 21 V
(Bornes 5, 8) I_0 = 50 mA
P_0 = 270 mW
L_0 = 1 mH
C_0 = 188 nF

- Traduction française de la copie originale allemande publiée à la page A-22 -

Les circuits à sécurité intrinsèque sont séparés par une isolation de sécurité et cependant raccordés par le biais d'une connexion de stabilisateur de tension.
Le circuit d'alimentation est séparé du branchement sur le secteur par une isolation galvanique.
Circuit de courant de sortie (sans sécurité intrinsèque):
(Bornes 3, 4) jusqu'à 18 V, jusqu'à 10 mA
uniquement pour la connexion à des appareils présentant une tension de service inférieure à 250 V
Les circuits de courant de mesure et de courant de sortie sont raccordés par un couplage galvanique (barrières de sécurité sans isolation galvanique, UM = 250 V)

(16) Rapport d'essai
TÜV-A 2003-ET/PZW-EX-542 du 21 novembre 2003

(17) Conditions particulières
1 L'unité d'alimentation du transducteur ne doit pas être installée au sein d'atmosphères potentiellement explosibles.
2 Lors de l'installation, il est impératif d'instaurer un mode de protection IP20 conformément à la norme EN60529.
3 En ce qui concerne le circuit de courant de sortie de l'unité d'alimentation du transducteur, vous ne devez installer que des matériels ne connaissant aucune tension supérieure à 250 V dans des conditions d'utilisation normales.
4 Dans des environnements potentiellement explosibles, l'unité d'alimentation du transducteur doit être raccordée au stabilisateur de tension par le biais d'une borne de connexion PA.

(18) Exigences essentielles en ce qui concerne la sécurité et la santé
Couvertes par l'application des normes mentionnées précédemment

- Traduction française de la copie originale allemande publiée à la page A-22 -

TÜV Austria Services GmbH vom österreichischen Bundesministerium
für Wirtschaft und Arbeit akkreditierte Prüf-, Überwachungs- und
Zertifizierungstelle
TÜV Austria Services GmbH, organisme de test, d'inspection et de certification
accrédité par le Ministère Autrichien du travail et de l'économie

(1) 1er supplément à l'attestation d'examen CE
conformément à la directive 94/9/CE Annexe III fig. 6

(2) Appareil et systèmes de protection garantissant une utilisation conforme dans des atmosphères potentiellement explosibles **- Directive 94/9/CE**

(3) TÜV-A 03ATEX0018X

(4) Appareil : Unité d'alimentation du transducteur de type GSV 140..142

(5) Fabricant : Vibro-Meter SA

(6) Adresse : 1701 Fribourg, Rte de Moncor 4, BP 1071 (Suisse)

(7) La conception de cet appareil, ainsi que ses différentes applications autorisées, sont définies dans l'annexe de ce 1er supplément à l'attestation d'examen.

Les modifications suivantes ont été apportées :

- Remplacement de la protection thermique interne de 98 °C à 104 °C
- Modification du module du convertisseur
- Modification du fusible dans le circuit de sortie de 32 mA à 40 mA
- Application des nouvelles normes EN60079-0 et EN60079-11

(8) Les résultats du contrôle sont consignés dans le rapport d'essai confidentiel n° 2007-ET/PZW-EX-0-000767.

(12) Le marquage de l'appareil doit comporter les mentions suivantes :
Ex II (2) G [Ex ib] IIC

05/10/2007	Dr. Ing. K. Mayerhofer	---
Date d'émission	Chargé de la certification	Fin de validité

TÜV Austria Services GmbH
Elekrotechnik
A-1230 Wien, Deutschstraße 10

Tél. : + 43 1 610 91 64 01
Fax : + 43 1 610 91 64 05
e-mail : et@tuv.at
http://www.tuv.at

- Traduction française de la copie originale allemande publiée à la page A-23 -

(13) **Annexe**

(14) 1er supplément à l'attestation d'examen TÜV-A 03ATEX0018X

(15) Description :

Les exigences des nouvelles normes EN 60079-0 et EN 60079-11 ont été comparées aux exigences des normes précédentes EN 50014 et EN 50020. La version de l'appareil satisfait aux exigences des nouvelles normes, c'est pourquoi aucun contrôle expérimental supplémentaire n'a été nécessaire.

Les modifications suivantes ont été apportées :

- La protection thermique Si1 dans le transformateur réseau avec une température de coupure de 98 °C a été remplacée par une protection thermique avec une température de coupure de 104 °C.
- Le module de convertisseur CA/CC est de type 17-4911 et correspond à la version conformément à l'attestation d'examen TÜV-A 05ATEX0005 X.
- Le fusible de 32 mA dans le circuit de sortie de la barrière Zener du signal de mesure a été remplacé par un fusible de 40 mA.

Les modifications de l'appareil effectuées et décrites ici n'entraînent pas le dépassement des caractéristiques autorisées des matériaux utilisés.

La charge réelle des composants utilisés pour la protection des circuits à sécurité intrinsèque est comprise dans les tolérances.

Les matériaux de l'appareil n'ont pas été modifiés, la conception extérieure de l'appareil n'est pas modifiée.

Les données électriques ne sont pas modifiées par rapport à la version d'origine.

La protection contre les explosions n'est pas modifiée.

(16) Rapport d'essai

TÜV Austria : 2007-ET/PZW-EX-0-000767 du 4/10/2007

- Traduction française de la copie originale allemande publiée à la page A-23 -

(17) Conditions particulières

Les « Conditions particulières » de l'attestation d'origine restent valables :

(17.1) Le transducteur ne doit pas être installé au sein d'atmosphères potentiellement explosibles.

(17.2) Lors de l'installation, il est impératif d'instaurer un mode de protection IP20 conformément à la norme EN60529.

(17.3) En ce qui concerne le circuit de courant de sortie de l'unité d'alimentation du transducteur, vous ne devez installer que des matériels ne connaissant aucune tension supérieure à 250 V dans des conditions d'utilisation normales.

(17.4) L'appareil doit être raccordé avec des connecteurs AMP 6,3 x 0,8 mm avec des bouchons isolants.

(17.5) Dans des environnements potentiellement explosibles, l'unité d'alimentation du transducteur doit être raccordée au stabilisateur de tension par le biais d'une borne de connexion PA.

(18) Exigences essentielles en ce qui concerne la sécurité et la santé

Couvertes par l'application des normes mentionnées précédemment.

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Vibro-Meter

Installation Manual

LCIE_02_ATEX_6087_x

for GSI 123

Although the certificate is available in the 3 languages (English, French and German), the liability of the notified body applies only on the text of the original copy of the certificate that it published. EN

Bien que le certificat soit traduit dans les 3 langues (Anglais, Français et Allemand), seul le texte de la copie originale du certificat peut engager la responsabilité de l'organisme notifié qui l'a publié. FR

Obwohl das Zertifikat in drei Sprachen (Englisch, Französisch und Deutsch) übersetzt ist, können nur die bescheinigten Behörden, die den Text auf der Originalausgabe des Zertifikates herausgegeben haben, zur DE

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

MEGGiTT

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1 **ATTESTATION D'EXAMEN CE DE TYPE**

2 Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles
Directive 94/9/CE

3 Numéro de l'attestation CE de type
LCIE 02 ATEX 6087 X

4 Appareil ou système de protection :
Module de séparation galvanique
Type : GSI 123

5 Demandeur : VIBRO-METER S.A.

6 Adresse : BP 1071
1701 FRIBOURG SUISSE

7 Cet appareil ou système de protection et ses variantes éventuelles acceptées est décrit dans l'annexe de la présente attestation et dans les documents descriptifs cités en annexe.

8 Le LCIE, organisme notifié sous la référence 0081 conformément a l'article 9 de la directive 94/9/CE du Parlement européen et du Conseil du 23 mars 1994, certifie que cet appareil ou système de protection est conforme aux exigences essentielles en ce qui concerne la sécurité et la santé pour la conception et la construction d'appareils et de systèmes de protection destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive. Les vérifications et épreuves figurent dans notre rapport confidentiel N° 41 310 10 T.

9 Le respect des exigences essentielles en ce qui concerne la sécurité et la santé est assuré par la conformité aux documents suivants :
-EN 50014 (1997) + amendements 1 et 2, EN 50020 (1994).

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que ce matériel ou système de protection est soumis aux conditions spéciales pour une utilisation sûre, mentionnées dans l'annexe de la présente attestation.

11 Cette attestation d'examen CE de type concerne uniquement la conception et le construction de l'appareil ou du système de protection spécifié, conformément à la directive 94/9/CE.
Des exigences supplémentaires de cette directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection.

12 Le marquage de l'appareil ou du système de protection devra comporter, entre autres indications utiles, les mentions suivantes :
Ⓔx II (2) G
[EEx ib] IIC

Fontenay-aux-Roses, le 09 août 2002

1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or protective system intended for use in potentially explosive atmospheres
Directive 94/9/CE

3 EC type Examination Certificate number
LCIE 02 ATEX 6087 X

4 Equipment or protective system :
Galvanic separation module
Type : GSI 123

5 Applicant : VIBRO-METER S.A.

6 Address : BP 1071
1701 FRIBOURG SUISSE

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 LCIE, notified body number 0081 in accordance with article 9 of the Directive 94/9/CE of the European Parliament and Council of 23 March 1994. certifies that this equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres, given in Annex II to of the Directive.
The examination and test results are recorded in confidential report No 41 310 10 T.

9 Compliance with the Essential Health and Safety Requirements been assured by compliance with :

-EN 50014 (1997) + amendments 1 and 2, EN 50020 (1994).

10 If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC Type examination certificate relates only to the design and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC.
Further requirements of the Directive applies to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following :

Ⓔx II (2) G
[EEx ib] IIC
Le Directeur de l'organisme certificateur
Manager of the certification body

PO Michel EQUI
Timbre sec / Dry seal

Rev A

LCIE Laboratoire Central des Industries Electriques
Une société de Bureau Veritas
33, av du Général Leclerc
BP 8
92260 Fontenay-aux-Roses cedex
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Tél : +33 1 40 95 60 60
Fax : +33 1 40 95 86 56
contact@lcie.fr
www.lcie.fr
Société Anonyme
au capital de 15 745 984 €
RCS Nanterre B 408 363 174

(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 02 ATEX 6087 X

(A3) Description de l'équipement ou du système de protection :

Module de séparation galvanique
Type : GSI 123

Ce module est destiné à alimenter et à lire les informations transmises par un capteur ou un conditionneur opérant en technique 2 fils.

Le marquage est le suivant :

VIBRO-METER
Adresse
Type : GSI123
N° de fabrication
Année de construction
Ⓔx II (2) G
[EEx ib] IIC
LCIE 02 ATEX 6087 X

Le marquage CE est accompagné du numéro d'identification de l'organisme notifié responsable de la surveillance du système approuvé de qualité (0081 pour le LCIE).

Le matériel devra également comporter le marquage normalement prévu par les normes de construction du matériel électrique concerné

Paramètres spécifiques du ou des modes de protection concerné(s) :

- Circuit d'alimentation (Bornes 1-2 ou 2-3) :
U = 24 V (21 à 28 V), $I_{max} \leq 100$ mA.
(pour connexion à des appareils dont la tension de service est inférieure à 250 V).

- Circuit de traitement : $U_{max} \leq 20$ V ; $I_{max} \leq 10$ mA.
(pour connexion à des appareils dont la tension de service est inférieure à 250 V).

- Circuit de mesure (Bornes 4-5) :
$U_0 = 26$V, $I_0 = 68$mA, $C_0 = 30$nF pour $L_0 = 1$ mH
$C_0 = 99$nF pour $L_0 = 0$.

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 02 ATEX 6087 X

(A3) Description of Equipment or Protective System:

Galvanic separation module
Type : GSI 123

This system is used to supply and to treat data transmitted by a sensor or a 2-wires conditioner.

The marking is the following :

VIBRO-METER
Address
Type : GSI123
Serial number
Year of construction
Ⓔx II (2) G
[EEx ib] IIC
LCIE 02 ATEX 6087 X

The CE marking shall be accompanied by the identification number of the notified body responsible for surveillance of the approved quality system (0081 for LCIE).

The equipment must also carry the usual marking required by the manufacturing standards applying to such equipments.

Specific parameters of the mode of protection concerned :

- Power circuit (Terminals 1-2 or 2-3) :
U = 24 V (from 21 to 28 V), $I_{max} \leq 100$ mA.
(for connection to apparatus with operating voltage of the circuit is inferior to 250 V).

- Circuit of treatment : $U_{max} \leq 20$ V ; $I_{max} \leq 10$ mA.
(for connection to apparatus with operating voltage of the circuit is inferior to 250 V).

- Circuit of measure (Terminals 4-5) :
$U_0 = 26$V, $I_0 = 68$mA, $C_0 = 30$nF for $L_0 = 1$ mH
$C_0 = 99$nF for $L_0 = 0$.

Rev A

(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 02 ATEX 6087 X (suite)

(A4) Documents descriptifs :

Dossier technique N°DT1010 Rév 1 en date du 18 mars 2002.
Ce document comprend 9 rubriques (24 pages).

Plans référencés :
N° PZ6405 Ind. 01 daté du 23 juillet 2004 (1 page),
N° PZ6406 Ind.01 daté du 23 juillet 2004 (3 pages).

(A5) Conditions spéciales pour une utilisation sûre :

Ce type d'appareil est un matériel associé de sécurité intrinsèque. Il ne peut être placé en atmosphères explosibles.

Les bornes de sortie ne doivent être raccordées qu'à des matériels certifiés de sécurité intrinsèque, et ces associations doivent être compatibles vis-à-vis de la sécurité intrinsèque.

Lors de l'installation du matériel GSI123 et du matériel auquel il sera relié, on devra tenir compte de la possibilité d'un défaut au sens de la norme EN50020, en mettant les points V_H (borne 4) et 0V (borne 2) en court-circuit.

(A6) Exigences essentielles en ce qui concerne la sécurité et la santé :

Conformité aux normes européennes EN 50014 (1997 + amendements 1 et 2) et EN 50020 (1994).

Vérifications et épreuves individuelles :
Les transformateurs T1 et T2 doivent être soumis à une épreuve diélectrique individuelle entre enroulements primaires et secondaires sous une tension alternative de valeur efficace de 1500V.
Il ne doit se produire aucune rupture d'isolation.

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 02 ATEX 6087 X (continued)

(A4) Descriptive documents :

Technical file N° DT1010 Rev 1 dated March 18th, 2002.
This file includes 9 items (24 pages).

Referenced drawings :
N° PZ6405 Ind. 01 dated July 23rd, July 2004 (1 page),
N° PZ6406 Ind.01 dated July 23rd, July 2004 (3 pages).

(A5) Special conditions for safe use:

This equipment is intrinsically safe associated electrical apparatus, and must not be installed in potentially explosive atmospheres.

The output terminals must only be associated to certified IS apparatus. These combinations must be compatible as regards intrinsic safety.

During the set-up of this equipment GSI123 and the main equipment which it will be linked, the user must take care about the possibility of defect, as regards EN50020, which short-circuit between terminal V_H (terminal 4) et 0V (terminal 2)

(A6) Essential Health and Safety Requirements:

Conformity to the European standards EN 50014 (1997 + amendments 1 and 2) and EN 50020 (1994).

Individual examinations and tests :
T1 and T2 transformers must be submitted to an individual dielectric strength test on primary and secondary windings at 1500V AC.

No lack of isolation must happen.

(A1) **ATTESTATION D'EXAMEN CE DE TYPE**
LCIE 02 ATEX 6087X du 10 septembre 2002

AVENANT 02 ATEX 6087X/01

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE PROTECTION :

Module de séparation galvanique
Type : GSI 123

Construit par :
VIBRO-METER S.A.

(A3) OBJET DE L'AVENANT, DESCRIPTION DE L'APPAREIL OU DU SYTEME DE PROTECTION :

- Modifications mineures du circuit électronique.

Le marquage reste inchangé.

(A4) DOCUMENTS DESCRIPTIFS :

Dossier technique n° PZ6407 rév.3 du 02 avril 2004.
Ce dossier comprend 2 rubriques (5 pages).

(A5) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :

Inchangées.

(A6) EXIGENCES ESSENTIELLES EN CE QUI CONCERNE LA SECURITE ET LA SANTE :

Inchangées.

(A1) **EC TYPE EXAMINATION CERTIFICATE**
LCIE 02 ATEX 6087X dated September 10th,2002

VARIATION 02 ATEX 6087X/01

(A2) NAME OF EQUIPMENT OR PROTECTIVE SYSTEM :

Galvanic separation module
Type : GSI 123

Manufactured by :
VIBRO-METER S.A.

(A3) SUBJECT OF THE VARIATION, DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM :

- Minor modifications on the circuitry.

The marking is unchanged.

(A4) DESCRIPTIVE DOCUMENTS :

Certification file No PZ6407 rev.3 dated April 02nd, 204.
This file includes 2 items (5 pages).

(A5) SPECIAL CONDITIONS FOR SAFE USE :

Unchanged

(A6) ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :

Unchanged.

Fontenay-aux-Roses, le 10 mai 2004

Le Directeur de l'organisme certificateur
Manager of the certification body

Marc GILLAUX
Timbre sec/Dry seal

LCIE
Laboratoire Central
des Industries Electriques
Une société de Bureau Veritas

33, av du Général Leclerc
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Société anonyme à directoire
et conseil de surveillance
au capital de 15 745 984 €
RCS Nanterre B 408 363 174

L C I E

(A1) **ATTESTATION D'EXAMEN CE DE TYPE**
02 ATEX 6087 X
du 10 septembre 2002

AVENANT 02 ATEX 6087 X / 02

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE PROTECTION :

Module de séparation galvanique
Type : GSI 123
Construit par : VIBRO METER

(A3) OBJET DE L'AVENANT, DESCRIPTION DE L'APPAREIL OU DU SYTEME DE PROTECTION :

Remplacement du compound RTV-428 par Q-SIL 550

Marquage :

Inchangé

(A4) DOCUMENTS DESCRIPTIFS :

Lettre du constructeur du 16/02/2005 comportant 4 pages.

(A5) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :

Inchangées.

(A6) VERIFICATIONS ET EPREUVES INDIVIDUELLES :

Inchangées.

(A7) EXIGENCES ESSENTIELLES EN CE QUI CONCERNE LA SECURITE ET LA SANTE :

Inchangées.

Fontenay-aux-Roses, le 10 mars 2005

Le Directeur de l'organisme certificateur
Manager of the certification body

Timbre sec/Dry seal

Page 1/1

LCIE — 33, av du Général Leclerc — Tél : +33 1 40 95 60 60 — Société anonyme à directoire
Laboratoire Central — BP 8 — Fax : +33 1 40 95 86 56 — et conseil de surveillance
des Industries Electriques — 92266 Fontenay-aux-Roses cedex — contact@lcie.fr — au capital de 15 745 984 €
Une société de Bureau Veritas — France — www.lcie.fr — RCS Nanterre B 408 363 174

L C I E

Team ATEX

1 **AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE**

2 **Appareil ou système de protection** destiné à être utilisé en atmosphères explosibles **(Directive 94/9/CE)**

3 Numéro de l'avenant :
LCIE 02 ATEX 6087 X / 03

4 Appareil ou système de protection :
Module de séparation galvanique
Type : GSI 123

5 Demandeur : VIBRO-METER S.A.

15 **DESCRIPTION DE L'AVENANT**

Mise à jour normative selon les normes :
EN 60079-0 (2006) et EN 60079-11 (2007)

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60056381-557031 / 04

Paramètres spécifiques du ou des modes de protection concerné(s) :
Inchangés

Le marquage doit être :
Modifié comme suit:
EEx devient Ex
Um : 28V — Io : 68mA
Uo : 26V — Po : 0,5W
Co : 30nF pour Lo = 1 mH
Co : 99nF pour Lo = 0

16 **DOCUMENTS DESCRIPTIFS**

Dossier de certification N° DT 1030 du 05/03/2007.
Ce dossier comprend 2 rubriques (7 pages).

17 **CONDITIONS SPECIALES POUR UNE UTILISATION SURE**
Inchangées

18 **EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**
Couvertes par les normes :
EN 60079-0 (2006) et EN 60079-11 (2007)

19 **VERIFICATIONS ET ESSAIS INDIVIDUELS**
Inchangés

1 **SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE**

2 **Equipment or protective system** intended for use in potentially explosive atmospheres **(Directive 94/9/EC)**

3 Supplementary certificate number :
LCIE 02 ATEX 6087 X / 03

4 Equipment or protective system :
Galvanic separation module
Type : GSI 123

5 Applicant : VIBRO-METER S.A.

15 **DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE**

Normative update according to standards' :
EN 60079-0 (2006) and EN 60079-11 (2007)

The examination and test results are recorded in confidential report N° 60056381-557031 / 04

Specific parameters of the mode(s) of protection concerned:

Unchanged

The marking shall be :
Modified as follows :
EEx becomes Ex
Um : 28V — Io : 68mA
Uo : 26V — Po : 0,5W
Co : 30nF for Lo = 1 mH
Co : 99nF for Lo = 0

16 **DESCRIPTIVE DOCUMENTS**

Certification file N° DT 1030 dated 2007/03/05
This file includes 2 items (7 pages).

17 **SPECIAL CONDITIONS FOR SAFE USE**

Unchanged

18 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

Covered by standards:
EN 60079-0 (2006) and EN 60079-11 (2007)

19 **ROUTINE VERIFICATIONS AND TESTS**
Unchanged

Fontenay-aux-Roses, le 22 octobre 2007

Le responsable de certification ATEX
ATEX certification manager

Henri CERVELLO

NOTIFIED BODY — ORGANISME NOTIFIE — 0081

LCIE — 33, av du Général Leclerc — Tél : +33 1 40 95 60 60 — Société par Actions Simplifiée
Laboratoire Central — BP 8 — Fax : +33 1 40 95 86 56 — au capital de 15 745 984 €
des Industries Electriques — 92266 Fontenay-aux-Roses cedex — contact@lcie.fr — RCS Nanterre B 408 363 174
Une société de Bureau Veritas — France — www.lcie.fr

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-33 -

1 **EG-PRÜFZERTIFIKAT**

2 Geräte und Schutzsysteme zur Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

3 EG-Zertifikatnummer:
LCIE 02 ATEX 6087 X

4 Gerät oder Schutzsystem
Galvanisches Trennmodul
Typ: GSI 123

5 Hersteller: VIBRO-METER SA

6 Anschrift: BP 1071, CH-1701 FRIBOURG, SCHWEIZ

7 Dieses Gerät oder Schutzsystem und die möglichen, zulässigen Varianten sind im Anhang dieses Zertifikats und den darin aufgeführten Unterlagen beschrieben.

8 LCIE, eingetragen unter der Nummer 0081 gemäß Artikel 9 der Richtlinie 94/9/EG des Europaparlamentes und des Rates vom 23. März 1994, bestätigt, dass dieses Gerät oder Schutzsystem die wesentlichen Gesundheits- und Sicherheitsanforderungen in Bezug auf die Auslegung und die Bauart von Geräten und Schutzsystemen zur Verwendung in explosionsgefährdeten Bereichen nach Anhang II der Richtlinie erfüllt.
Die Prüf- und Testergebnisse sind im vertraulichen Bericht Nr. 41 310 10 T aufgezeichnet.

9 Die Einhaltung der wesentlichen Gesundheits- und Sicherheitsanforderungen wird durch die Übereinstimmung mit den den folgenden Dokumenten sichergestellt:
- EN 50014 (1997) + Änderungen 1 und 2
- EN 50020 (1994)

10 Ein "X" nach der Zertifikatnummer gibt an, dass für die sichere Verwendung des Gerätes oder Schutzsystemes besondere Bedingungen gemäß dem Anhang dieses Zertifikates gelten.

11 Dieses EG-Prüfzertifikat betrifft nur die Bauart und die Prüfungen und Tests des betreffenden Gerätes oder Schutzsystemes nach der Richtlinie 94/9/EG.
Zusätzliche Anforderungen dieser Richtlinie gelten für die Fertigung und Lieferung des Gerätes oder Schutzsystemes.

12 Die Kennzeichnung des Gerätes oder Schutzsystems muss unter anderem die folgenden Angaben enthalten:
Ex II (2) G
[EEx ib] IIC

Fontenay-aux-Roses, 09. August 2002

Leiter Zertifizierung
Trockenstempel

Seite 1/3

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

Änd A

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-33 -

(A1) **ANHANG**

(A2) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6087 X

(A3) Beschreibung des Gerätes oder Schutzsystems:
Galvanisches Trennmodul
Typ: GSI 123
Dieses Modul hat die Aufgabe, die Informationen zu liefern und zu lesen, die von einem Geber oder einem Wandler in 2-Drahttechnik übertragen werden.
Die Kennzeichnung ist wie folgt:
VIBRO-METER
Adresse
Typ: GSI 123
Herstellungsnummer
Herstellungsjahr
II (2) G
[EEx ib] IIC
LCIE 02 ATEX 6087 X
Die EG-Kennzeichung wird von der Kennnummer der Stelle begleitet, die für die Überwachung des genehmigten Qualitätssystems verantwortlich ist (0081 für LCIE).
Die Geräte müssen ebenfalls mit der Kennzeichnung versehen sein, die in den Herstellungsnormen der betreffenden elektrischen Geräte normalerweise vorgesehen ist.
Spezielle Parameter der betreffenden Schutzart(en):
- Versorgungskreis (Klemmen 1-2 oder 2-3):
  U = 24 V (21 bis 28 V), $I_{max} \leq 100$ mA.
  (für den Anschluss an Geräte, deren Betriebsspannung kleiner als 250 V) ist.
- Verarbeitungskreis: $U_{max} \leq 20$ V ; $I_{max} \leq 10$ mA.
  (für den Anschluss an Geräte, deren Betriebsspannung kleiner als 250 V) ist.
- Messkreis (Klemmen 4-5):
  $U_0 = 26$ V, $I_0 = 68$ mA, $C_0 = 30$ nF für $L_0 = 1$ mH
  $C_0 = 99$ nF für $L_0 = 0$.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-34 -

(A1) **ANHANG**

(A2) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6087 X (Fortsetzung)

(A4) Beschreibende Unterlagen:
Technische Unterlagen Nr. °DT1010 Änd 1 vom 18. März 2002. Dieses Dokument umfasst 9 Teile (24 Seiten).
Bezugspläne
Nr. PZ6405 Ind. 01 vom 23. Juli 2004 (1 Seite),
Nr. PZ6406 Ind.01 vom 23. Juli 2004 (3 Seiten).

(A5) Spezielle Bedingungen für eine sichere Verwendung:
Dieser Gerätetyp ist ein dazugehöriges, eigensicheres Gerät. Es kann nicht in explosionsgefährdeten Bereichen verwendet werden.
Die Ausgangsklemmen dürfen nur an zertifizierte, eigensichere Geräte angeschlossen werden und diese Verbindungen müssen in Bezug auf die Eigensicherheit kompatibel sein.
Beim Einbau des Gerätes GSI123 und des Gerätes, mit dem es verbunden wird, ist die Möglichkeit eines Fehlers im Sinne der Norm EN50020 in Betracht zu ziehen, indem man die Punkte VH (Klemme 4) und 0V (Klemme 2) kruzschließt.

(A6) Wesentliche Anforderungen in Bezug auf Sicherheit und Gesundheit:
Übereinstimmung mit den europäischen Normen EN 50014 (1997 + Änderungen 1 und 2) und EN 50020 (1994).
Einzeltests und -prüfungen:
Die Transformatoren T1 und T2 müssen einer dielektrischen Einzelprüfung zwischen den primären und sekundären Wicklungen unter Wechselspannung mit einem Effektivwert 1500V unterzogen werden. Es darf kein Bruch der Isolierung auftreten.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-34 -

(A1) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6087 X vom 10. September 2002
NACHTRAG 02 ATEX 6087X/01

(A2) BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
Galvanisches Trennmodul
Typ: GSI 123
Hergestellt von:
VIBRO-METER S.A.

(A3) ZIEL DES NACHTRAGS, BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
- Kleinere Änderungen des Elektronikkreises.
Die Kennzeichnung bleibt unverändert

(A4) BESCHREIBENDE UNTERLAGEN:
Technische Unterlagen Nr. PZ6407 Änd.3 vom 02. April 2004. Diese Unterlagen umfassen 2 Teile (5 Seiten)

(A5) SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG:
Unverändert

(A6) WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT:
unverändert

Fontenay-aux-Roses, 10. Mai 2004 — Leiter Zertifizierung

Trockenstempel — Seite 1/1

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-35 -

(A1) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6087 X vom 10. September 2002
NACHTRAG 02 ATEX 6087X/02

(A2) BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
Galvanisches Trennmodul
Typ: GSI 123
Hergestellt von: VIBRO-METER S.A.

(A3) ZIEL DES NACHTRAGS, BESCHREIBUNG DES GERÄTES ODER SCHUTZSYSTEMS:
Ersetzen der RTV-428 Vergussmasse durch Q-SIL 550
Kennzeichnung:
unverändert

(A4) BESCHREIBENDE UNTERLAGEN:
Vierseitiges Schreiben vom Hersteller vom 16.02.2005.

(A5) SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG:
Unverändert

(A6) EINZELKONTROLLEN UND –PRÜFUNGEN:
Unverändert

(A7) WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT:
unverändert

Fontenay-aux-Roses, 10 März 2005 — Leiter Zertifizierung

Trockenstempel — Seite 1/1

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-35 -

(A1) **EG-ERGÄNZUNGS-TYPENPRÜFZERTIFIKAT**

(A2) **Geräte oder Schutzsysteme** zur Verwendung in explosionsgefährdeten Bereichen (**Richtlinie 94/9/EG**)

(A3) Ergänzungszertifikat-Nr.
LCIE 02 ATEX 6087 X / 03

(A4) Gerät oder Schutzsystem:
Galvanisches Trennmodul
Typ: GSI 123

(A5) Hersteller: VIBRO-METER S.A.

(A15) **BESCHREIBUNG DES ERGÄNZUNGSZERTIFIKATS**

Standardaktualisierungen gemäß folgender Richtlinien:
EN 60079-0 (2006) und EN 60079-11 (2007)

Die Prüf- und Testergebnisse sind im vertraulichen Bericht Nr. 60056381-557031 / 04 aufgezeichnet.

Spezifische Parameter des betreffenden Schutzmodus (der Schutzmodi):
Unverändert

Die Kennzeichnung lautet wie folgt:
Wie folgt modifiziert:
EEX wird zu Ex

Um: 28 V	Io: 68 mA
Uo: 26 V	Po: 0,5 W

Co: 30 nF bei Lo = 1 mH
Co: 99 nF bei Lo = 0

(A16) **BESCHREIBENDE UNTERLAGEN**

Zertifizierungsdatei-Nr. DT 1030 vom 05.03.2007
Diese Datei enthält 2 Punkte (7 Seiten)

(A17) **SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG**
Unverändert

(A18) **WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT**
Werden von folgenden Richtlinien abgedeckt:
EN 60079-0 (2006) und EN 60079-11 (2007)

(A19) **ROUTINEPRÜFUNGEN UND –TESTS**
Unverändert

Fontenay-aux-Roses, 22 Oktober 2007

Leiter ATEX-Zertifizierung
Trockenstempel

Seite 1/1

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

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Vibro-Meter

Installation Manual

LCIE_05_ATEX_6033_x

for GSI 124

Although the certificate is available in the 3 languages (English, French and German), the liability of the notified body applies only on the text of the original copy of the certificate that it published. EN

Bien que le certificat soit traduit dans les 3 langues (Anglais, Français et Allemand), seul le texte de la copie originale du certificat peut engager la responsabilité de l'organisme notifié qui l'a publié. FR

Obwohl das Zertifikat in drei Sprachen (Englisch, Französisch und Deutsch) übersetzt ist, können nur die bescheinigten Behörden, die den Text auf der Originalausgabe des Zertifikates herausgegeben haben, zur DE

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

MEGGiTT

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(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 05 ATEX 6033 X

(A3) Description de l'équipement ou du système de protection :

Module de séparation galvanique
Type : 244-124-000-XXX

Ce module est destiné à alimenter et à lire les informations transmises par un capteur ou un conditionneur opérant en technique 2 fils.

Le marquage est le suivant :

VIBRO-METER
Adresse
Type : 244-124-000-XXX
N° de fabrication : …
Année de fabrication : …
Ex II (2) G
[EEx ib] IIC
LCIE 05 ATEX 6033 X

Le marquage CE est accompagné du numéro d'identification de l'organisme notifié responsable de la surveillance du système approuvé de qualité (0081 pour le LCIE).

Le matériel devra également comporter le marquage normalement prévu par les normes de construction du matériel électrique concerné.

Paramètres spécifiques du ou des modes de protection concerné(s) :

Circuit d'alimentation (entre les bornes 3 et 2) :

$U_{max} \leq 30$ V, $I_{max} \leq 100$ mA.

Circuit de traitement (entre les bornes 1 et 2) :

$U_{max} \leq 20$ V, $I_{max} \leq 10$ mA.

Circuit de mesure (entre les bornes 4 et 5) :

$U_0 \leq 26$ V, $I_0 \leq 30$ mA, $P_0 \leq 0,5$ W,
$C_0 = 99$ nF, $L_0 = 25$ mH.

(A4) Documents descriptifs :

Dossier technique N°DT 1028 daté du 15 décembre 2004.
Ce document comprend 9 rubriques (25 pages).

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 05 ATEX 6033 X

(A3) Description of Equipment or Protective System :

Galvanic separation module
Type : 244-124-000-XXX

This module is used to supply and treat data transmitted by sensor or a 2-wires conditioner.

Marking is as following :

VIBRO-METER
Address
Type : 244-124-000-XXX
Serial number : …
Year of manufacturing : …
Ex II (2) G
[EEx ib] IIC
LCIE 05 ATEX 6033 X

The CE marking shall be accompanied by the identification number of the notified body responsible for surveillance of the approved quality system (0081 for LCIE).

The equipment must also carry the usual marking required by the manufacturing standards applying to such equipments.

Specific parameters of the concerned protective mode(s) :

Power circuit (between the terminals 3 and 2) :

$U_{max} \leq 30$ V, $I_{max} \leq 100$ mA.

Treatment circuit (between the terminals 1 and 2) :

$U_{max} \leq 20$ V, $I_{max} \leq 10$ mA.

Circuit of measure (between the terminals 4 and 5) :

$U_0 \leq 26$ V, $I_0 \leq 30$ mA, $P_0 \leq 0,5$ W,
$C_0 = 99$ nF, $L_0 = 25$ mH.

(A4) Descriptive documents :

Technical file No. DT 1028 dated December 15th 2004.
This file includes 9 items (25 pages).

1 **ATTESTATION D'EXAMEN CE DE TYPE**

2 Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles
Directive 94/9/CE

3 Numéro de l'attestation d'examen CE de type
LCIE 05 ATEX 6033 X

4 Appareil ou système de protection :
Module de séparation galvanique
Type : 244-124-000-XXX

5 Demandeur : VIBRO-METER SA

6 Adresse : Route de Moncor 4
P.O. Box
1701 FRIBOURG SUISSE

7 Cet appareil ou système de protection et ses variantes éventuelles acceptées est décrit dans l'annexe de la présente attestation et dans les documents descriptifs cités en annexe.

8 Le LCIE, organisme notifié sous la référence 0081 conformément à l'article 9 de la directive 94/9/CE du Parlement européen et du Conseil du 23 mars 1994, certifie que cet appareil ou système de protection est conforme aux exigences essentielles en ce qui concerne la sécurité et la santé pour la conception et la construction d'appareils et de systèmes de protection destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive. Les vérifications et épreuves figurent dans notre rapport confidentiel N°60030232 – 527779.

9 Le respect des exigences essentielles en ce qui concerne la sécurité et la santé est assuré par la conformité aux documents suivants :
-EN 50014 (1997) + amendements 1 à 2,
-EN 50020 (2002).

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que ce matériel ou système de protection est soumis aux conditions spéciales pour une utilisation sûre, mentionnées dans l'annexe de la présente attestation.

11 Cette attestation d'examen CE de type concerne uniquement la conception et la construction de l'appareil ou du système de protection spécifié, conformément à la directive 94/9/CE.
Des exigences supplémentaires de cette directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection.

12 Le marquage de l'appareil ou du système de protection devra comporter, entre autres indications utiles, les mentions suivantes :
Ex II (2) G
[EEx ib] IIC

Fontenay-aux-Roses, le 5 avril 2005

1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or protective system intended for use in potentially explosive atmospheres
Directive 94/9/EC

3 EC type Examination Certificate number
LCIE 05 ATEX 6033 X

4 Equipment or protective system :
Galvanic separation module
Type : 244-124-000-XXX

5 Applicant : VIBRO-METER SA

6 Address : Route de Moncor 4
P.O. Box
1701 FRIBOURG SUISSE

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 LCIE, notified body number 0081 in accordance with article 9 of the Directive 94/9/EC of the European Parliament and Council of 23 March 1994. certifies that this equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres, given in Annex II of the Directive.
The examination and test results are recorded in confidential report N° 60030232 – 527779.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with :

-EN 50014 (1997) + amendments 1 to 2,
-EN 50020 (2002).

10 If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC Type examination certificate relates only to the design and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC.
Further requirements of the Directive applies to the manufacture and supply of this equipment or protective system.

12 Marking of the equipment or protective system shall include the following :

Ex II (2) G
[EEx ib] IIC

Le Directeur de l'organisme certificateur
Manager of the certification body

Timbre sec / Dry seal

LCIE
Laboratoire Central
des Industries Electriques
33, av. du Général Leclerc
BP 8
92260 Fontenay-aux-Roses cedex
Tel : +33 1 40 95 60 60
Fax : +33 1 40 95 86 56
contact@lcie.fr
Société Anonyme
au capital de 15 745 984 €
RCS Nanterre B 408 363 174

(FR)

(EN)

Vibro-Meter

(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 05 ATEX 6033 X (suite)

(A5) Conditions spéciales pour une utilisation sûre :

Ce type d'appareil est un matériel associé de sécurité intrinsèque. Il ne peut pas être placé en atmosphères explosibles.

Les bornes de sorties (bornes + et -) ne doivent être raccordées qu'à des matériels certifiés de sécurité intrinsèque, et ces associations doivent être compatibles vis-à-vis de la sécurité intrinsèque (voir paragraphe (A3)).

Température ambiante d'utilisation : 0°C à +70°C.

(A6) Exigences essentielles en ce qui concerne la sécurité et la santé :

Conformité aux normes européennes EN 50014 (1997 + amendements 1 et 2), EN 50020 (2002).

Vérifications et épreuves individuelles

Le transformateur T1 doit être soumis à une épreuve diélectrique individuelle entre enroulements primaires et secondaire sous une tension alternative de valeur efficace de 1500 V pendant 1 min.

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 05 ATEX 6033 X (continued)

(A5) Special conditions for safe use :

This equipment is intrinsically safe associated electrica apparatus, and must not be installed in potentially explosive atmospheres.

The output terminals (terminals + and -) must only be associatec to certified IS apparatus. These combinations must be compatible as regards intrinsic safety (see paragraph (A3)).

Ambient operating temperature : 0°C to +70°C.

(A6) Essential Health and Safety Requirements:

Conformity to the European standards EN 50014 (1997 + amendments 1 and 2), EN 50020 (2002).

Individual examinations and tests

The transformer T1 must be submitted to an individual dielectric strength test on primaries and secondary windings at 1500 V AC during 1 min.

L C I E

1 **AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE**

2 **Appareil ou système de protection** destiné à être utilisé en atmosphères explosibles **(Directive 94/9/CE)**

3 Numéro de l'avenant :
LCIE 05 ATEX 6033 X / 01

4 Appareil ou système de protection :
Module de separation galvanique
Type : 244-124-000-XXX

5 Demandeur : VIBRO-METER S.A.

15 **DESCRIPTION DE L'AVENANT**

Mise à jour normative selon les normes :
EN 60079-0 (2006) et EN 60079-11 (2007)

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60056381-557031 / 01

Paramètres spécifiques du ou des modes de protection concerné(s) :
Inchangés

Le marquage doit être :
Modifié comme suit:
EEx devient Ex

Um : 30V	Io : 30mA
Uo : 26V	Po : 0,5W
Co : 99nF	Lo : 25mH

16 **DOCUMENTS DESCRIPTIFS**

Dossier de certification N° DT 1030 du 05/03/2007.
Ce dossier comprend 2 rubriques (7 pages).

17 **CONDITIONS SPECIALES POUR UNE UTILISATION SURE**
Inchangées

18 **EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**
Couvertes par les normes :
EN 60079-0 (2006) et EN 60079-11 (2007)

19 **VERIFICATIONS ET ESSAIS INDIVIDUELS**
Inchangés

1 **SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE**

2 **Equipment or protective system** intended for use in potentially explosive atmospheres **(Directive 94/9/EC)**

3 Supplementary certificate number :
LCIE 05 ATEX 6033 X / 01

4 Equipment or protective system :
Galvanic separation module
Type : 244-124-000-XXX

5 Applicant : VIBRO-METER S.A.

15 **DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE**
Normative update according to standards' :
EN 60079-0 (2006) and EN 60079-11 (2007)

The examination and test results are recorded in confidential report N° 60056381-557031 / 01

Specific parameters of the mode(s) of protection concerned:

Unchanged

The marking shall be :
Modified as follows :
EEx becomes Ex

Um : 30V	Io : 30mA
Uo : 26V	Po : 0,5W
Co : 99nF	Lo : 25mH

16 **DESCRIPTIVE DOCUMENTS**

Certification file N° DT 1030 dated 2007/03/05
This file includes 2 items (7 pages).

17 **SPECIAL CONDITIONS FOR SAFE USE**

Unchanged

18 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

Covered by standards:
EN 60079-0 (2006) and EN 60079-11 (2007)

19 **ROUTINE VERIFICATIONS AND TESTS**
Unchanged

Fontenay-aux-Roses, le 15 octobre 2007

Le responsable de certification ATEX
ATEX certification manager
Henri CERVELLO

NOTIFIED BODY ORGANISME NOTIFIE 0081

LCIE
Laboratoire Central
des Industries Electriques
Une société de Bureau Veritas

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-43 -

1 **EG-PRÜFZERTIFIKAT**

2 Geräte und Schutzsysteme zur Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

3 EG-Zertifikatnummer:
LCIE 02 ATEX 6033 X

4 Schutzgerät oder -system:
Galvanisches Trennmodul
Typ: 244-124-000-XXX

5 Hersteller: VIBRO-METER SA

6 Adresse: P.O Box, 1701 FRIBOURG, SCHWEIZ

7 Dieses Gerät oder Schutzsystem und die möglichen, zulässigen Varianten sind im Anhang dieses Zertifikats und den darin aufgeführten Unterlagen beschrieben.

8 LCIE, eingetragen unter der Nummer 0081 gemäß Artikel 9 der Richtlinie 94/9/EG des Europaparlamentes und des Rates vom 23. März 1994, bestätigt, dass dieses Gerät oder Schutzsystem die wesentlichen Gesundheits- und Sicherheitsanforderungen in Bezug auf die Auslegung und die Bauart von Geräten und Schutzsystemen zur Verwendung in explosionsgefährdeten Bereichen nach Anhang II der Richtlinie erfüllt.
Die Prüf- und Testergebnisse sind im vertraulichen Bericht Nr. 60030232 – 527779 aufgezeichnet.

9 Die Einhaltung der wesentlichen Gesundheits- und Sicherheitsanforderungen wird durch die Übereinstimmung mit den den folgenden Dokumenten sichergestellt:
- EN 50014 (1997) + Änderungen 1 und 2
- EN 50020 (2002)

10 Ein "X" nach der Zertifikatnummer gibt an, dass für die sichere Verwendung des Gerätes oder Schutzsystemes besondere Bedingungen gemäß dem Anhang dieses Zertifikates gelten.

11 Dieses EG-Prüfzertifikat betrifft nur die Bauart und die Prüfungen und Tests des betreffenden Gerätes oder Schutzsystemes nach der Richtlinie 94/9/e.g.
Zusätzliche Anforderungen dieser Richtlinie gelten für die Fertigung und Lieferung des Gerätes oder Schutzsystemes.

12 Die Kennzeichnung des Gerätes oder Schutzsystems muss unter anderem die folgenden Angaben enthalten:
Ex II (2) G
[EEx ib] IIC

Fontenay-aux-Roses, 05. April 2005

Leiter Zertifizierung
Trockenstempel

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-43 -

(A1) **ANHANG**

(A2) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6033 X

(A3) Beschreibung des Gerätes oder Schutzsystems:
Galvanisches Trennmodul
Typ: 244-124-000-XXX
Dieses Modul hat die Aufgabe, die Informationen zu liefern und zu lesen, die von einem Geber oder einem Wandler in 2-Drahttechnik übertragen werden.
Die Kennzeichnung ist wie folgt:
VIBRO-METER S.A.
Adresse
Typ: 244-124-000-XXX
Herstellungsnummer
Herstellungsjahr
Ex II (2) G
[EEx ib] IIC
LCIE 05 ATEX 6033 X
Die EG-Kennzeichnung wird von der Kennnummer der Stelle, die für die Überwachung des genehmigten Qualitätssystems zuständig ist (0081 für LCIE) begleitet.
Die Geräte müssen ebenfalls mit der Kennzeichnung versehen sein, die in den Herstellungsnormen der betreffenden elektrischen Geräte normalerweise vorgesehen sind.

Spezielle Parameter für die betreffende(n) Schutzart(en):
Versorgungskreis (zwischen den Klemmen 3 und 2).
$U_{max} \leq 30$ V, $I_{max} \leq 100$ mA.
Verarbeitungskreis (zwischen den Klemmen 1 und 2).
$U_{max} \leq 20$ V, $I_{max} \leq 10$ mA.
Messkreis (zwischen den Klemmen 4 und 5).
$U_0 \leq 26$ V ; $I_0 \leq 30$ mA ; $P_0 \leq 0{,}5$ W.
$C_0 = 99$ nF, $L_0 = 25$ mH

(A4) Beschreibende Unterlagen:
Technische Unterlagen Nr. DT1028 vom 15. Dezember 2004. Dieses Dokument umfasst 9 Teile (25 Seiten).

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-44 -

(A1) **ANHANG**

(A2) **EG-PRÜFZERTIFIKAT**
LCIE 02 ATEX 6236 X (Fortsetzung)

(A5) Spezielle Bedingungen für eine sichere Verwendung:
Dieses Gerät ist ein dazugehöriges, eigensicheres Gerät. Es kann nicht in explosionsgefährdeten Bereichen verwendet werden.
Die Ausgangsklemmen (Klemmen + und -) dürfen nur an zertifizierte,eigensichere Geräte angeschlossen werden und die Verbindungen müssen in Bezug auf die Eigensicherheit kompatibel sein (siehe Absatz (A3)).
Umgebungstemperatur für die Verwendung: 0°C bis + 70°C.

(A6) Wesentliche Anforderungen in Bezug auf Sicherheit und Gesundheit:
Übereinstimmung mit den europäischen Normen EN 50014 (1997 + Änderungen 1 und 2) und EN 50020 (2002).
Einzelkontrollen und -prüfungen
Der Transformator T1 muss 1 Minute lang einer dielektrischen Einzelprüfung unter Wechselspannung mit einem Effektivwert von 1500 V zwischen den primären und sekundären Wicklungen unterzogen werden.

- Deutsche Übersetzung der originalen französischen Kopie der Seite A-44 -

(A1) **EG-ERGÄNZUNGS-TYPENPRÜFZERTIFIKAT**

(A2) **Geräte oder Schutzsysteme** zur Verwendung in explosionsgefährdeten Bereichen (**Richtlinie 94/9/EG**)

(A3) Ergänzungszertifikat-Nr.
LCIE 05 ATEX 6033 X / 01

(A4) Gerät oder Schutzsystem:
Galvanisches Trennmodul
Typ: 244-124-000-XXX

(A5) Hersteller: VIBRO-METER S.A.

(A15) **BESCHREIBUNG DES ERGÄNZUNGSZERTIFIKATS**

Standardaktualisierungen gemäß folgender Richtlinien:
EN 60079-0 (2006) und EN 60079-11 (2007)

Die Prüf- und Testergebnisse sind im vertraulichen Bericht Nr. 60056381-5570231 / 01 aufgezeichnet.

Spezifische Parameter des betreffenden Schutzmodus (der Schutzmodi):
Unverändert

Die Kennzeichnung lautet wie folgt:
Wie folgt modifiziert:
EEX wird zu Ex

Um: 30 V	Io: 30 mA
Uo: 26 V	Po: 0,5 W
Co: 99 nF	Lo: 25 mH

(A16) **BESCHREIBENDE UNTERLAGEN**

Zertifizierungsdatei-Nr. DT 1030 vom 05.03.2007
Diese Datei enthält 2 Punkte (7 Seiten)

(A17) **SPEZIELLE BEDINGUNGEN FÜR EINE SICHERE VERWENDUNG**
Unverändert

(A18) **WESENTLICHE ANFORDERUNGEN IN BEZUG AUF SICHERHEIT UND GESUNDHEIT**
Werden von folgenden Richtlinien abgedeckt:
EN 60079-0 (2006) und EN 60079-11 (2007)

(A19) **ROUTINEPRÜFUNGEN UND -TESTS**
Unverändert

Fontenay-aux-Roses, 15. Oktober 2007

Leiter ATEX-Zertifizierung
Trockenstempel

LCIE haftet nur für den französischen Text.
Dieses Zertifikat darf nur vollständig und ohne Änderungen vervielfältigt werden.

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APPENDIX B : CSA CERTIFICATES

Table B-1 : Relevant CSA certificates.

Products covered	**Certificate**
IQS 4xx / TQ 4xx	*1514309 (LR 62075-5)*
GSI 124	*1699234*

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Vibro-Meter

EN

Installation Manual

1514309 (LR 62075-5)

for EA 4xx, IQS 45x, TQ 4xx

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

Installation Manual MAPROX400/E
Edition 8 - 16 April 2008

MEGGiTT

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CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1514309 **Master Contract:** 175074

Project: 1998676 **Date Issued:** September 28, 2007

Issued to: **VIBRO METER**
Route de Moncor 4
1701 FRIBOURG
SWITZERLAND

The products listed below are eligible to bear the CSA Mark shown

Issued by: Eric Giusti

Authorized by: M.H.J Hoendervangers

PRODUCTS

CLASS 2258 03 – PROCESS CONTROL EQUIPMENT Intrinsically Safe and Non Incendive Systems - For Hazardous Locations
Part A
Class I, Divisions 1 and 2, Groups A, B, C and D -Magnetic speed sensing probe Model SP11 L- Rated 28 V peak to peak and 22 mA peak to peak -Intrinsically safe when connected per dwg PZ6438 or PZ6439 -Temperature Code T6 to T3 maximum ambient temperature 180°C.

Part B
Class I, Divisions 1 and 2, Groups A, B, C and D .Proximity sensor Model IQS4XX/TQ4YY - Rated 28 Vdc, 100 mA -Intrinsically safe when connected to associated apparatus delivering less than 28 V and 100 mA. Temperature Code T6 to T3. "X" and "Y" in model number indicate range and length of cable. Maximum ambient temperature: for IQS4XX = 70°C, for TQ4 YY = 195°C.

Part C
CLASS 2258 04 – PROCESS CONTROL EQUIPMENT Intrinsically Safe, Entity - For Hazardous Locations

Galvanic Separating Unit -Model GSI Rated 24 V dc 100 mA -Provides intrinsically safe power supply and transfer of signal for 2-wires transducer. Entity parameters: Voc = 26 V. Isc = 68 mA. Ca = 30 nF. La = 1 mH.

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.

Note: This device must be installed in a suitable enclosure in a non-hazardous location. It provides intrinsically safe circuits for switches, thermocouples, non inductive resistive devices or CSA certified entity equipment when installed per the manufacturer's control drawing.

CLASS 2258-02 PROCESS CONTROL EQUIPMENT - For Hazardous Locations

Class I, Division 2, Groups A, B, C, D, T6, T5 and T4

Class I, Division 2, Groups A, B, C and D .Proximity sensor Model IQS4XX/TQ4YY - Rated 28 Vdc, 100 mA. Temperature Code T6 to T3. "X" and "Y" in model number indicate range and length of cable. Maximum ambient temperature: for IQS4XX = 70°C, for TQ4 YY = 195°C.

APPLICABLE REQUIREMENTS

C22.2 No 0-M91	General Requirements
C22.2 No 142.M1987	Process Control Equipment i
C222 No 157.92	Intrinsically Safe and Non Incendive Equipment for Use in Hazardous Locations

MARKINGS

Markings shall be as follows:

Part A:
VIBRO-METER
CSA monogram
Type SP 111
Serial No
Ex ia
Ref to Dwg PZ6438 or PZ6439

Part B:
VIBRO-METER
CSA Monogram
Model IQS *4XX/TQ4* YY
Serial number
28 Vdc - 100 mA
* For encapsulated board:
Class I, Division 1 and 2 groups A, B, C and D
Intrinsically safe / Sécurité intrinsèque
Ex ia
* For non uncapsulated boards:
Class I, Division 2, Groups A, B, C and D

Part C:
VIBRO-METER
CSA Monogram
Type GSI 123
Serial number
24 V- 100 mA

CSA INTERNATIONAL

Supplement to Certificate of Compliance

Certificate: 1514309 **Master Contract:** 175074

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
1998676	September 28, 2007	Update to report 1648967 to include new version of IQS4 for Class I, Division 2 (without compound).
1648967	April 12, 2005	Update to report 1514309 to add a new compound reference to IQS4XX.
1514309	Jan. 12, 2004	Update to report LR 62075-5 to modify documentation and entity parameters of models IQS4XX/TQ4YY
LR62075-5	June 4, 1997	Original CSA certification for models SP111, GSI123 and IQS4XX/TQS4YY

Certificate: 1514309 **Master Contract:** 175074

Project: 1998676 **Date Issued:** September 28, 2007

Associated equipment [Ex ia]
WARNING: substitution of components may impair intrinsic safety
AVERTISSEMENT : la substitution de composants peut compromettre la. sécunté intrinsèque
Voc = 26 V Isc = 68 mA Ca = 30 nF La = l mH

Vibro-Meter

Installation Manual

EN

1699234

for GSI 124

EX

Vibro-Meter S.A.
Route de Moncor 4
CH - 1701 Fribourg
Switzerland

www.vibro-meter.com

Installation Manual MAPROX400/E
Edition 8 - 16 April 2008

MEGGiTT

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CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1699234 **Master Contract:** 175074

Project: 1699234 **Date Issued:** July 20, 2005

Issued to: **Vibro-Meter**
Route de Moncor 4
1701 Fribourg
SWITZERLAND

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'

Issued by: E. Giusti

Authorized by: M.H.J. Hoendervangers

C US

PRODUCTS

CLASS 2258 03 -- PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations.
CLASS 2258 83 -- PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations, Certified to US standards.

Class I, Groups A, B, C and D.

Monitoring system consisting of galvanic separation unit Model 244-124-000-XXX (GSI 124), input rated 24Vdc, and 100mA max supply current, providing I.S. outputs when connected per Installation Drawing PZ 6754.
Voc=26Vdc, Isc=30mA, Ca=0,5µF, La=40mH.
Ambient temperature: 0°C…70°C.

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards169923July 20, 2001750716992340

DQD 507 Rev. 2004-06-30

CSA INTERNATIONAL

Certificate: 1699234 **Master Contract:** 175074
Project: 1699234 **Date:** July 20, 2005

APPLICABLE REQUIREMENTS

CSA Std C22.2 No. 0.4 - M1982	Bonding and Grounding of Electrical Equipment (Protective Grounding)
CSA Std C22.2 No. 157 - M1979	Intrinsically Safe and Non-Incendive Equipment for use in Hazardous Locations.
CAN/CSA Std C22.2 No. 1010-1 and Amendment 2: 1997	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements
UL Std No. 61010C-1	Process Control Equipment
UL Std No. 913	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous Location

MARKINGS

CSA Monogram with C/US indicator
Submittor's identification and/or CSA master contract number "175074" adjacent to the CSA Monogram
Model designation
Serial number
A code traceable to the month and year of manufacture
Electrical rating
DC symbol
WARNING symbol
Hazardous Location designation i.e. Class I, Groups A, B, C and D
The words "ASSOCIATED EQUIPMENT/APPAREILLAGE CONNEXE"
The symbol [Ex ia]
Reference to installation drawing

SPECIAL CONDITIONS FOR SAFE USE:

Equipment shall be installed as indicated in the Control Drawing PZ6754.

DQD 507 Rev. 2004-06-30

CSA INTERNATIONAL

Supplement to Certificate of Compliance

Certificate: 1699234 **Master Contract:** 175074

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
1699234	July 20, 2005	Original cCSAus Certification for associated equipment model GSI 124.

IQD 507 Rev. 2004-06-30