

User Guide

PRESSURE TRANSMITTER SX SERIES



II 1GD Ex ia IIC T6 Ex ia III C T85°C

II 1/2GD Ex ia IIC T6 Ex ia III C T85°C

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8.1.1 Important information

Read this instruction manual carefully before installing and commissioning the unit. Keep it in a safe place, where it is accessible to users at any time.

The safety of any instrument results from the careful selection of the model and installation in the system, as well as from compliance with the maintenance procedures drawn up by the manufacturer. The persons tasked with the selection, installation and maintenance must be able to recognise the conditions that have a negative impact on the instrument's ability to perform its function and which may lead to premature breakage or failure. Therefore, qualified, trained technicians are to be employed for carrying out the procedures laid down in the plant regulations.

Incorrect use may result in damage to the instrument, and possibly cause breakage or damage to personnel or the plant.

In order to correctly select the functional and constructive characteristics of the instruments, we recommend consulting the most up-to-date version of the catalogue data sheets, available on-line at the website www.nuovafima.com

The user is entirely responsible for ensuring correct installation and maintenance.

Directive requirements	Reference to Standards	
ATEX 2014/34/EU	CEI EN 60079-0	CEI EN 60079-11
	CEI EN 60079-26	UNI EN 1127-1

8.1.2 Function

The pressure transmitter is used to transform an input pressure into an electrical 4 - 20 mA output signal. The electrical signal changes in proportion to the input pressure applied.

8.1.3 Application

The SX series of pressure transmitters are used for measuring the pressure of liquid and gas fluids, and are suitable for use in places in which there is a risk of explosion. Ambient and process temperatures must be within the limits stated on the tag.

8.1.4 Classification

II 1GD Ex ia IIC T6 Ex ia III C T85°C	T6 (T85°C) @ Ta≤60°C T5 (T100°C) @ Ta≤80°C T4 (T135°C) @ Ta≤100°C
II 1/2GD Ex ia IIC T6 Ex ia III C T85°C	T6 (T85°C) @ Ta≤60°C T5 (T100°C) @ Ta≤80°C T4 (T135°C) @ Ta≤100°C

8.1.5 Electrical characteristic

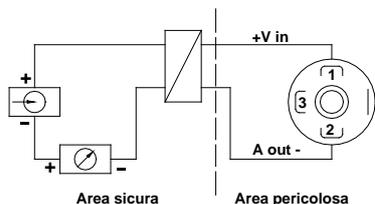
Power supply voltage: (8)10 ... 30 V
Output: 4 ... 20 mA
Ui (maximum voltage): 30 Vdc
Ii (corrente massima): 100 mA
Pi (maximum current): 1 W
Ci (equivalent internal capacity): 19 nF
Ci (equivalent internal capacity + permanent cable): 19 nF + 0,2 nF/m
Li (equivalent internal inductance): ~ 0
Li (equivalent internal inductance + permanent cable): ~ 0 + 2 μH/m

() For some configurations the minimum power supply voltage is 8 V.

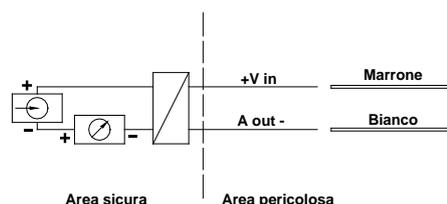
8.1.6 Electrical connection

Wiring diagrams

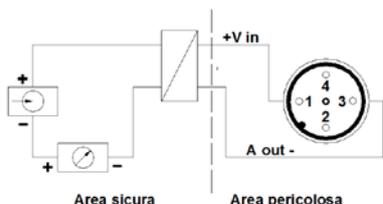
EN175301-803 connectors



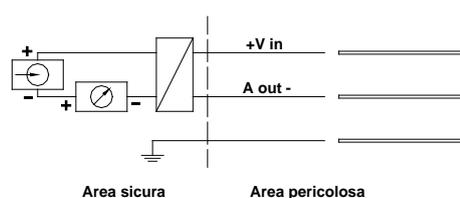
Cable outlet



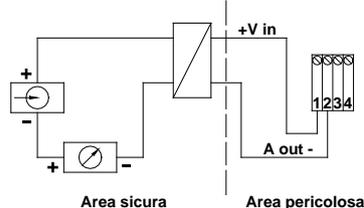
M12x1 connectors



Permanent cable - immersion



Field case



The transmitter's metal case must always be connected to the earth using the threaded connector for the process, in order to protect it against fluctuations due to electromagnetic fields and electrostatic charges. If this cannot be done, connect the transmitter to earth using the connector and the shield on the cable.

8.1.7 Safety instructions

The transmitter must be connected to an Associated piece of Equipment (Diode safety barrier or Galvanic insulator) with an [Ex ia] or [Ex ib] execution, complying with the maximum voltage (U_i), current (I_i), and power (P_i), and taking into consideration the internal capacity (C_i) and inductance (L_i) values, indicated in the "Nominal Characteristics". If the barrier has an "ib" protection level, the entire system should be at an "ib" level suitable only for not inflammable fluids.

The transmitters must be installed in compliance with the European Standard CEI EN 60079-14 (current edition) and maintenance operations must be carried out according to the requirements of the European Standard CEI EN 60079-17 (current edition); Every Intrinsic Safety transmitter must be included in the *Document Describing the System* (CEI EN 60079-14 and CEI EN 60079-25).

8.1.8 Commissioning

Before an electrical safety structure is commissioned within a plant or a system, the user must check that it complies with the design data and is installed correctly. Check that the Associated Equipment called for in the relevant *Document Describing the System* is connected to each transmitter.

Tighten the threaded portion of the transmitter, applying a torque (max 50 Nm) using a suitable spanner on the hexagonal part of the process connector, without applying force to the casing with your hands or pipe wrench. Remove the connector as shown in figure 1 and connect the cable as shown in figure 2. Refit the connector, complete with all its gaskets, to guarantee the declared IP protection level, and fix it to the transmitter.

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The IP grade according to standard CEI EN 60529 is guaranteed only if the female connector equipped with a connection cable is mounted on the instrument and all the other components are assembled correctly.



Figure 1 - Exploded view of the connector

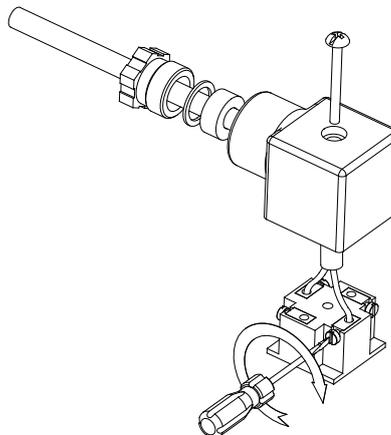


Figure 2 - Connecting the wires

8.1.9 Resetting and maintenance

For the versions available, the zero and the scale span can be adjusted as follows:

- Removing the connector (see figure 1)
- Setting the zero (Z)
- Setting the span (S)

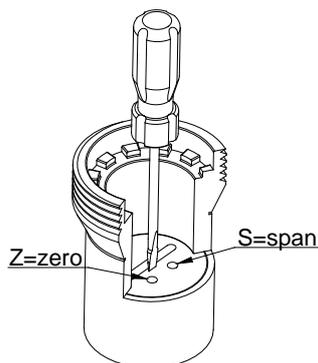


Figura 3 - Setting

Maintenance operations are to be entrusted to duly qualified personnel that are trained on the specific characteristics of the equipment and the Intrinsic safety technique, and they are to comply fully with the provisions of the CEI EN 60079-17 European standard (current edition).

The SX series of transmitters is “*maintenance free*”. The resetting cycle depends on the application they are used for.

Suggested setting frequency: 1 year. If a fault occurs, contact NUOVA FIMA S.r.l.

Using transmitters that have been subjected to work not explicitly authorised by NUOVA FIMA S.r.l. relieves the Company of any and all responsibility and causes the contractual guarantee to become null and void.

DICHIARAZIONE UE DI CONFORMITÀ EU DECLARATION OF CONFORMITY

NUOVA FIMA s.r.l. dichiara sotto la propria responsabilità che i seguenti strumenti
NUOVA FIMA s.r.l. declares on its sole responsibility that the following instruments

Trasmettitori di Pressione serie SX Pressure Transmitters SX series

Sono conformi ai requisiti delle Direttive e sono marcati **CE** - Fulfill the requirements of
the Directives and they are **CE** marked.

- 2014/68/UE (PED)⁽¹⁾
- 2014/34/UE (ATEX)⁽²⁾
- 2014/30/UE (EMC)⁽³⁾
- 2011/65/CE (RoHS)

- (1) Gli strumenti con sovrappressione applicabile ≤ 200 bar (massima pressione ammissibile - PS) sono progettati e fabbricati secondo criteri di buona prassi costruttiva, in accordo con l'articolo 4, par. 3 della direttiva. Gli strumenti con sovrappressione applicabile > 200 bar (massima pressione ammissibile - PS) in aggiunta, sono classificati in CATEGORIA I e sottoposti a valutazione della conformità secondo il Modulo A - Controllo di fabbricazione interno.

Instruments with allowable overpressure value ≤ 200 bar (maximum allowable pressure - PS) are designed and manufactured in accordance with sound engineering practice, according to article 4, par. 3 of the directive.

Instruments with allowable overpressure value > 200 bar (maximum allowable pressure - PS) are additionally classified with CATEGORY I and subjected to the conformity assessment procedure according to Module A - Internal production control.

- (2) Gli strumenti sono marcati - Instruments are marked



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e sono conformi alle norme - and they comply with the standards

- EN 60079-0:2012/A11:2013
- EN 60079-11:2012
- EN 60079-26:2015

Hanno la certificazione di tipo 0425 ATEX 2635 relativa al Fascicolo Tecnico TF 4 rev.2, e la sorveglianza sulla produzione ha la certificazione N° 1591 rilasciate dall'Organismo Notificato ICIM S.p.A. N° 0425.

They have a type certification 0425 ATEX 2635 referred to the Technical File TF 4 rev.2, and the surveillance for production has the certification N° 1591 issued from the Notified Body ICIM S.p.A. N° 0425.

- (3) Gli strumenti sono conformi alla norma - Instruments comply with the standard

- EN 61326-1:2013

Il controllo della fabbricazione interna degli strumenti è assicurato dal Sistema Qualità secondo ISO 9001 operante in azienda e certificato da ICIM SpA.

The control of internal manufacturing of the instruments is assured by the Quality System according to ISO 9001 of the factory, certified by ICIM SpA.

Invorio, 18.05.2018

NUOVA FIMA

Responsabile ATEX-ATEX Responsible

F. Zaveri