

# Safety Instructions

## Prosonic S

### FDU90, FDU91, FDU91F, FDU92

Ex ma IIC T5 Gb (FDU90)

Ex ma IIC T6 Gb (FDU91, FDU91F, FDU92)

TÜV 13.0893 X



Document: XA01342F-A

Safety instructions for electrical apparatus for explosion-hazardous areas



# Prosonic S

## FDU90, FDU91, FDU91F, FDU92

### Associated Documentation

This document is an integral part of the following Operating Instructions:  
TI00396F/00

The Operating Instructions which are supplied and correspond to the device type apply.

### Supplementary Documentation

Explosion-protection brochure:  
CP00021Z/11

### Designation

Explanation of the labelling and type of protection can be found in the explosion protection brochure.

#### Designation of type of protection

<b>Ex</b>	<b>ma</b>	<b>IIC</b>	<b>T5</b>	<b>Gb</b>	(only FDU90)
<b>Ex</b>	<b>ma</b>	<b>IIC</b>	<b>T6</b>	<b>Gb</b>	(except FDU90)

### Applied standards

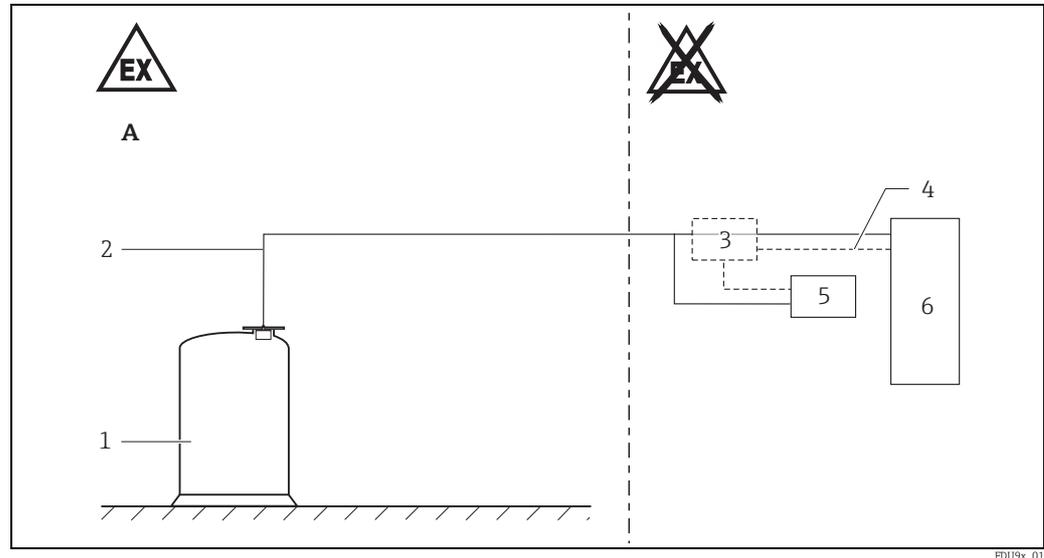
ABNT NBR IEC 60079-0 :2008  
ABNT NBR IEC 60079-18:2007

**Safety instructions:**  
**General**

Housing protection: IP65

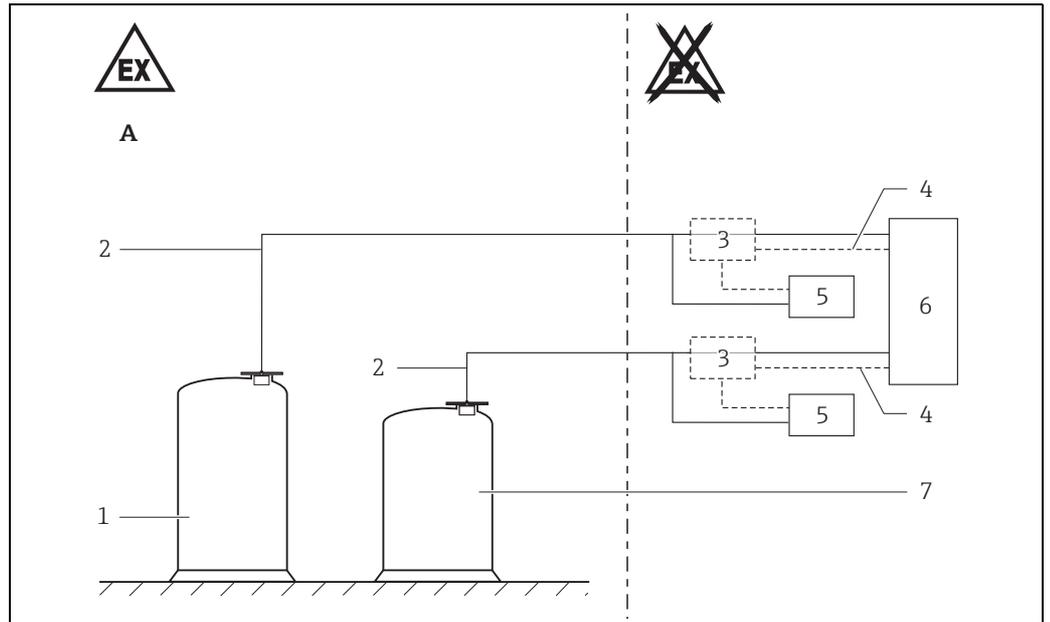
- Install the device according to the manufacturer's instructions and any other valid standards and regulations.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. housing, sensor element, special varnishing, attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)

**Safety instructions:**  
**Installation**



**A** Zone 1

- 1 Tank; Zone 1
- 2 Electric connection of the sensor FDU9x to the analysing and controlling unit FMU90, FMU95
- 3 Optional: Terminal box (applied by user)
- 4 Connection of the sensor: directly or via terminal box
- 5 External power supply for sensors with heating
- 6 Analysing and controlling unit FMU90, FMU95



**A** Zone 1

- 1 Tank; Zone 1  
 2 Electric connection of two sensors FDU9x to the analysing and controlling unit FMU90, FMU95  
 3 Optional: Terminal box (applied by user)  
 4 Connection of the sensor: directly or via terminal box  
 5 External power supply for sensors with heating  
 6 Analysing and controlling unit FMU90, FMU95  
 7 Tank; Zone 1

- Comply with the installation and safety instructions in the Operating Instructions.
- Do not operate the device outside the specified electrical and thermal parameters.
- Only install the devices in media for which the wetted materials have sufficient durability.
- The sensor can be mounted using the alignment device FAU40.
- When using plastic accessories check the suitability for explosion hazardous areas. Observe the instructions concerning electrostatic charging.
- Versions with NPT adapter are intended for connection to a conduit which is suited for the type of protection. The adapter has to be connected to the local grounding system either directly via the metallic conduit or by other measures.

**FDU90**

- For usage of the sensor in explosion hazardous areas due to combustible gases, mists or vapours of the category IIC and IIB: Avoid electrostatic charging of the sensor.

**FDU91**

- The sensor must be mounted in a protected position, if mechanical stress is to be expected.

**FDU91F**

- Sensor housing consists of conductive material and is connected as well as the membrane and the mounting connection to the earth lead of the sensor cable, which must be connected to the local grounding system of the plant.

**FDU92**

- For usage of the sensor in explosion hazardous areas due to combustible gases, mists or vapours of the category IIC: Avoid electrostatic charging of the sensor.
- The sensor must be mounted in a protected position, if mechanical stress is to be expected.

## Temperature tables

	FDU90	FDU91	FDU91F	FDU92
Max. process temperature	+60 °C	+80 °C	+80 °C	+80 °C

## Zone 1 - Application

	FDU90-J..A. (without heating) FDU90-J..B. (with heating)	FDU91-J..A. (without heating)	FDU91-J..B. (with heating)	FDU91F-J..., FDU92-J...
Temperature class:	Permissible range of ambient temperature			
T6	--	-40 °C to +60 °C	-40 °C to +40 °C	-40 °C to +60 °C
T5	-40 °C to +60 °C	-40 °C to +80 °C	-40 °C to +60 °C	-40 °C to +80 °C
T4	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C
T3	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C

## Connection data

	FDU90	FDU91	FDU91F	FDU92
Max. working pressure*	0.4 MPa	0.4 MPa	0.4 MPa	0.4 MPa

\* outside explosion hazard atmospheres at 20 °C

## Electrical performance limits

	FDU90	FDU91	FDU91F	FDU92
Emmission/signal circuit:	FMU90, FMU95 to FDU9x			
Transmission voltage	≤ 55 V <sub>eff</sub>			
Sending frequency (20 °C)	90.0 kHz	43.0 kHz	42.0 kHz	30.5 kHz
Power consumption (eff. long-term power)	0.9 W	0.4 W	0.9 W	0.9 W
NTC power supply:	FMU90, FMU95 to FDU9x			
Power supply	≤ 12 V	≤ 12 V	≤ 12 V	≤ 12 V
Power consumption (eff. long-term power)	≤ 0.4 mW	≤ 0.4 mW	≤ 0.4 mW	≤ 0.4 mW
External power supply for heating circuit	≤ 26.4 V AC or DC	≤ 26.4 V AC or DC	--	--





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