

## Safety Instructions

# Prosonic S FDU93, FDU95, FDU96

Ex ta/tb IIIC Txx°C Da/Db IP68

Ex tb IIIC Txx°C Db IP68

IECEX BVS 08.0012



### **XA00483F-B**

Safety instructions for electrical apparatus for explosion-hazardous areas according to IEC standards



# Prosonic S

## FDU93, FDU95, FDU96

english

### Associated Documentation

This document is an integral part of the following Operating Instructions:  
TI396/00

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

### Supplementary Documentation

Explosion-protection brochure:  
CP021Z/00

### Designation

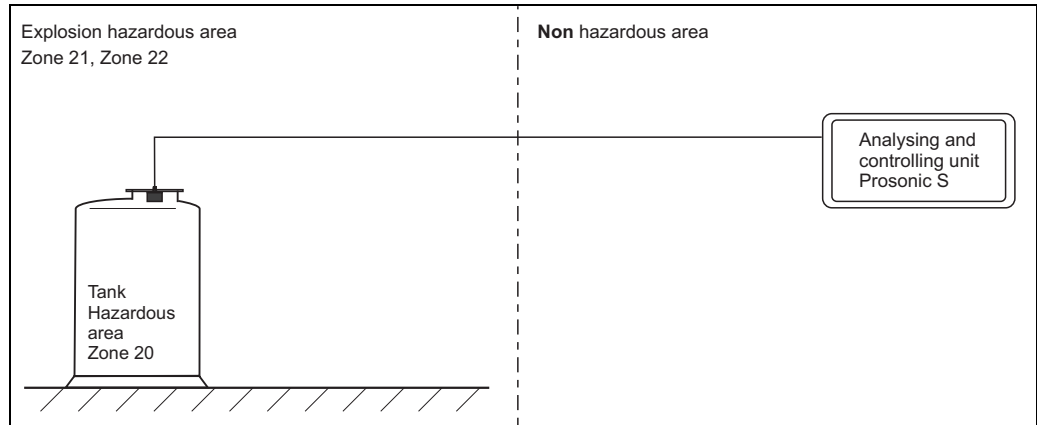
Explanation of the labelling and type of protection can be found in the explosion protection brochure.

#### Designation according to IECEX Equipment protection level (EPL)

Da/Db  
Db

#### Designation of explosion protection

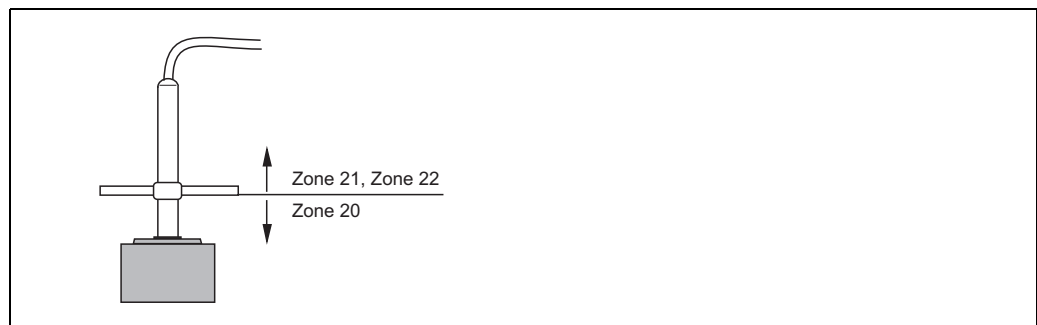
Ex	ta/tb	IIIC	Txx°C	Da/Db	IP68
Ex	tb	IIIC	Txx°C	Db	IP68



XA483en01

Fig. 1

Installation with alignment unit



XA483en02

Fig. 2

<b>Power supply</b>	For connecting to the analysing and controlling unit Prosonic S FMU90, FMU95
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<b>Equipment protection level (EPL)</b>	Da/Db	Sensor in Zone 20 and cable in Zone 21
	Db	Sensor and cable in Zone 21
<b>Type of protection</b>	Ex ta/tb IIIC Txx°C Da/Db Ex tb IIIC Txx°C Db	

<b>Housing protection</b>	IP68
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<b>Sensor</b>	FDU93	FDU95-C1	FDU95-C2	FDU96-C
<b>Max. working pressure<sup>*1</sup></b>	0.3 MPa	0.15 MPa	0.15 MPa	0.3 MPa
<b>Max. process temperature</b>	+80 °C	+80 °C	+130 °C	+140 °C

<sup>\*1</sup> outside explosion hazard atmospheres at 20 °C

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

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations.
- 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.
- 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.
- The ultrasonic sensor can be screwed into a durable plastic flange with conductive cladding, a durable unclad plastic flange with a surface resistance  $\leq 10^9 \Omega$  or a metal flange. When using a clad plastic flange, the free plastic surface may not be within the filling curtain. The cladding must be connected to the plant local grounding system. Conducting or metal flanges are preferred.
- 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.

Tab. 1  
**Zone 20/21 - Application**

	Sensor in Zone 20		Sensor in Zone 21		Permissible range of ambient temperature
	Max. surface temperature at ambient temperature				
	Ta = 40 °C	Ta = T <sub>max</sub>	Ta = 40 °C	Ta = T <sub>max</sub>	
FDU93-C...	100 °C	100 °C	80 °C	100 °C	-40...+ 80 °C
FDU95-C1...	100 °C	100 °C	80 °C	100 °C	-40...+ 80 °C
FDU95-C2...	165 °C	165 °C	120 °C	165 °C	-40...+130 °C
FDU96-C...	65 °C	168 °C	65 °C	168 °C	-40...+140 °C

Tab. 2  
**Electrical performance limits**

	FDU93	FDU95-C1	FDU95-C2	FDU96
Emmission/signal circuit:	(FMU90, FMU95 to FDU9x)			
Transmission voltage	$\leq 55 \text{ V}_{\text{eff}}$	$\leq 55 \text{ V}_{\text{eff}}$	$\leq 55 \text{ V}_{\text{eff}}$	$\leq 55 \text{ V}_{\text{eff}}$
Sending frequency (20 °C)	27.3 kHz	17.1 kHz	18.1 kHz	10.9 kHz
Power consumption (eff. long-term power)	0.7 W	0.7 W	0.7 W	0.7 W
NTC power supply:	(FMU90, FMU95 to FDU9x)			
Power supply	$\leq 12 \text{ V}$	$\leq 12 \text{ V}$	$\leq 12 \text{ V}$	$\leq 12 \text{ V}$
Power consumption (eff. long-term power)	$\leq 0.4 \text{ mW}$	$\leq 0.4 \text{ mW}$	$\leq 0.4 \text{ mW}$	$\leq 0.4 \text{ mW}$





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