

# Safety Instructions

## Prosonic S FDU93, FDU95

II 1/2 D Ex ta/tb IIIC Txx°C Da/Db

II 2 D Ex tb IIIC Txx°C Db





# Prosonic S FDU93, FDU95

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## About this document



This document has been translated into several languages. Legally determined is solely the English source text.

The document translated into EU languages is available:

- In the download area of the Endress+Hauser website:  
[www.endress.com](http://www.endress.com) -> Downloads -> Manuals and Datasheets ->  
 Type: Ex Safety Instruction (XA) -> Text Search: ...
- In the Device Viewer: [www.endress.com](http://www.endress.com) -> Product tools ->  
 Access device specific information -> Check device features



If not yet available, the document can be ordered.

## Associated documentation

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

TI00396F/00

## Supplementary documentation

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available:

- In the download area of the Endress+Hauser website:  
[www.endress.com](http://www.endress.com) -> Downloads -> Brochures and Catalogs ->  
 Text Search: CP00021Z
- On the CD for devices with CD-based documentation

## Manufacturer's certificates

### EU Declaration of Conformity

Declaration Number:  
EG05012

The EU Declaration of Conformity is available:

In the download area of the Endress+Hauser website:  
[www.endress.com](http://www.endress.com) -> Downloads -> Declaration ->  
 Type: EU Declaration -> Product Code: ...

### EU type-examination certificate

Certificate number:  
BVS 05 ATEX E 009

List of applied standards: See EU Declaration of Conformity.

<b>Manufacturer address</b>	Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany Address of the manufacturing plant: See nameplate.
<b>Other standards</b>	Among other things, the following standards shall be observed in their current version for proper installation: <ul style="list-style-type: none"> <li>■ IEC/EN 60079-14: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"</li> <li>■ EN 1127-1: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"</li> </ul>
<b>Extended order code</b>	The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.

#### Structure of the extended order code

FDU9x	-	*****	+	A*B*C*D*E*F*G*..
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

\* = Placeholder

At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

#### *Basic specifications*

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available.

The selected option of a feature can consist of several positions.

#### *Optional specifications*

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

### Extended order code: Prosonic S



The following specifications reproduce an extract from the product structure and are used to assign:

- This documentation to the device (using the extended order code on the nameplate).
- The device options cited in the document.

#### *Device type*

FDU93, FDU95

#### *Basic specifications*

Position 1 (Approval)		
Selected option		Description
FDU93	E	ATEX II 1/2 D Ex ta/tb IIIC Txx°C Da/Db
FDU95		ATEX II 2 D Ex tb IIIC Txx°C Db

Position 2 (Temperature, Blocking Distance, Material)		
Selected option		Description
FDU95	1	-40...+80°C/176°F; 70cm/2.3ft; membrane 316L, PE coated
	2	-40...+150°C/302°F; 90cm/2.9ft; membrane 316L

#### *Optional specifications*

No options specific to hazardous locations are available.

### Safety instructions: General

- Comply with the installation and safety instructions in the Operating Instructions.
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- Install the device according to the manufacturer's instructions and national regulations.

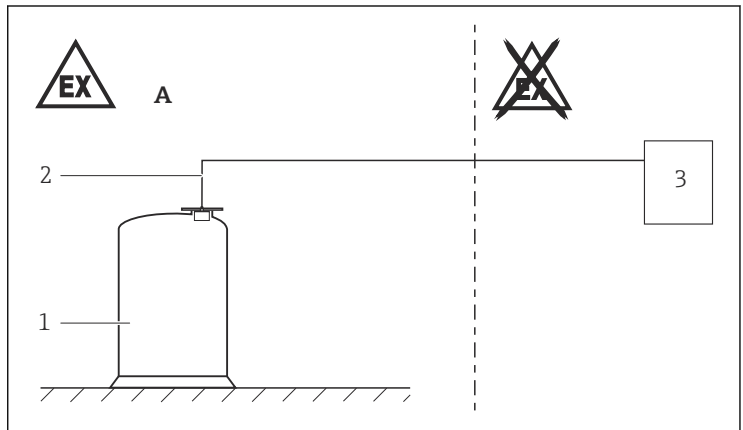
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. enclosure, sensor element, special varnishing, attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)

**Safety instructions:**  
**Special conditions**

In the event of additional or alternative special varnishing on the enclosure or other metal parts:

- Observe the danger of electrostatic charging and discharge.
- Do not rub surfaces with a dry cloth.

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

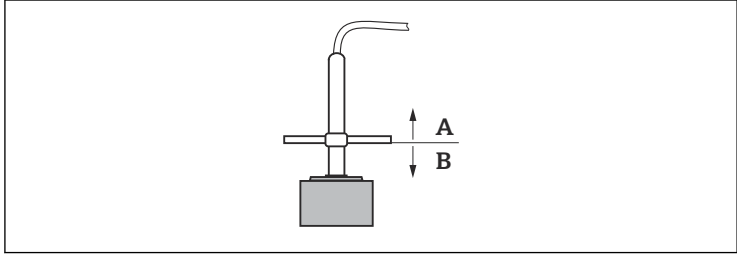


A0036071

1

- A Zone 21  
1 Tank, hazardous area Zone 20  
2 Electric connection  
3 Analysing and controlling unit

## Installation with alignment unit



A0036072

 2

A Zone 21

B Zone 20

- Sensor enclosure 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 sensor can be screwed into a durable plastic flange with conductive cladding, a durable unclad plastic flange with a surface resistance =  $10^9 \Omega$  or a metal flange.
- When using a clad plastic flange: Install the plastic surface outside the medium flow.
- The cladding must be included in the potential equalization. Preferably use conductive or metallic flanges.
- 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.

## Temperature tables

	Device type		
	FDU93	FDU95 <i>with Basic specification, Position 2 =</i>	
		1	2
Process temperature $T_p$ (process)	max. +80 °C	max. +80 °C	max. +130 °C



Device type	Sensor in Zone 20		Sensor in Zone 21		Permitted ambient temperature range
	Max. surface temperature at max. ambient temperature				
	$T_a = 40\text{ °C}$	$T_a = T_{\max}$	$T_a = 40\text{ °C}$	$T_a = T_{\max}$	
<b>FDU93</b>	100 °C	100 °C	80 °C	100 °C	-40 to +80 °C
<b>FDU95 with Basic specification, Position 2 = 1</b>	100 °C	100 °C	80 °C	100 °C	-40 to +80 °C
<b>FDU95 with Basic specification, Position 2 = 2</b>	165 °C	165 °C	120 °C	165 °C	-40 to +130 °C

## Connection data

## Performance limits

	Device type		
	FDU93	FDU95 with Basic specification, Position 2 =	
		1	2
Max. working pressure <sup>1)</sup>	0.3 MPa	0.15 MPa	0.15 MPa

1) outside explosion hazard atmospheres at 20 °C

## Emission/signal circuit (FMU90, FMU95 to FDU9x)

	Device type		
	FDU93	FDU95 with Basic specification, Position 2 =	
		1	2
Transmission voltage	$\leq 55 V_{\text{eff}}$	$\leq 55 V_{\text{eff}}$	$\leq 55 V_{\text{eff}}$
Sending frequency (20 °C)	27.3 kHz	17.1 kHz	18.1 kHz
Max. power consumption (eff. long-term power)	0.7 W	0.7 W	0.7 W

NTC power supply (FMU90, FMU95 to FDU9x)

	Device type		
	FDU93	FDU95 <i>with Basic specification, Position 2 =</i>	
		1	2
Power supply	≤ 12 V	≤ 12 V	≤ 12 V
Max. power consumption (eff. long-term power)	≤ 0.4 mW	≤ 0.4 mW	≤ 0.4 mW





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