

# Safety Instructions

## Display

## FHX50

Control Drawing IS



Document: XA01096F-B

Safety instructions for electrical apparatus for explosion-hazardous areas



# Display FHX50

## Table of Contents

Associated documentation .....	4
Extended order code .....	4
Safety instructions: General .....	5
Safety instructions: Special conditions .....	5
Safety instructions: Installation .....	5
Temperature tables .....	6
Connection data .....	6

**Associated documentation** This document is an integral part of the following Operating Instructions:  
SD01007F/00

The Operating Instructions pertaining to the device apply.

**Extended order code** 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**

FHX50 - \*\*\*\*\* + A\*B\*C\*D\*E\*F\*G\*..  
-----  
Device type      Basic specifications      Optional specifications

\* = 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.

**Device type: FHX50**

Basic specifications

Position	Selected option	Description
1, 2 Approval	FB	FM IS Class I, Division 1, Group A, B, C, D
3 Display; Operation	A C E	None, use existing device display SD02 4-line, push buttons + data backup function SD03 4-line, illum., touch control + data backup function
4 Housing	B D	Single compartment, 316L Single compartment, plastics PBT
6 Option Measurement Device	A	Prepared for remote display FHX50

**Safety instructions:**  
General

- 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.
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.

**Safety instructions:**  
Special conditions

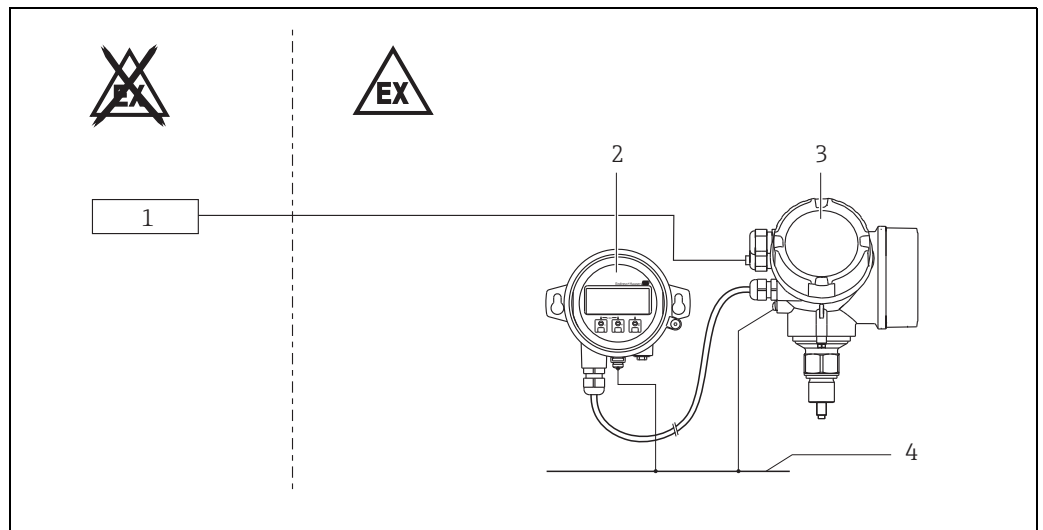
Permitted ambient temperature range at the electronics housing:  $-40\text{ °C} \leq T_a \leq +80\text{ °C}$ .  
Observe the information in the temperature tables.

- In the event of additional or alternative special varnishing on the housing or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.

Basic specification, Position 4 (Housing) = D

- Avoid electrostatic charging of the housing (e.g. friction, cleaning, maintenance, strong medium flow).

**Safety instructions:**  
Installation



 1

- 1 Power supply or certified associated apparatus (dependent on Endress+Hauser measuring device)
- 2 Display FHX50 in Zone 0/1, Cl. I, Div. 1, Group A, B, C, D or Cl. I, Div. 2, Group A, B, C, D
- 3 Endress+Hauser measuring device
- 4 Local potential equalization

- Continuous service temperature of the connecting cable:  $-40$  to  $\geq +85\text{ °C}$ ; in accordance with the range of service temperature taking into account additional influences of the process conditions ( $T_{a,\min}$ ), ( $T_{a,\max} + 20\text{ K}$ ).

**Intrinsic safety**

- FHX50 Display is intrinsically safe for Class I, Div. 1, Group A, B, C, D when connected to approved<sup>1)</sup> Endress+Hauser measuring devices with intrinsically safe FHX50 remote display option. Refer to installation instructions of measuring device for additional conditions of use.

1) Approved, as defined in the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code, Part I, for the country in use.

**Division 2**

- FHX50 Display is suitable for installation in Class I, Div. 2, Group A, B, C, D when connected to approved<sup>2)</sup> Endress+Hauser measuring devices with FHX50 remote display option. Measuring device provides a non-incendive field wiring circuit to the FHX50 Display.  
Refer to installation instructions of measuring device for additional conditions of use.

**Potential equalization**

- Integrate the device into the local potential equalization.

**Temperature tables**

Basic specification, Position 4 (Housing) = B

Zone 0, Zone 1, Class I, Div. 1 or Class I, Div. 2	
Temperature class T6	$T_a \leq +60\text{ °C}$

Basic specification, Position 4 (Housing) = D

Zone 0, Zone 1, Class I, Div. 1 or Class I, Div. 2	
Temperature class T6	$T_a \leq +55\text{ °C}$

**Connection data****FHX50**

Power supply and signal circuit
$U_i = 7.3\text{ V}$ $I_i = 157\text{ mA}$ $P_i = 362\text{ mW}$ effective inner inductance $L_i = 0\text{ }\mu\text{H}$ effective inner capacitance $C_i = 263\text{ nF}$

- The device can be connected to an approved<sup>2)</sup> measuring device which has an intrinsically safe display circuit. For more information see "Connectable transmitters" section.

**Connectable transmitters**

- To connect the device to an approved<sup>2)</sup> measuring device, such as a measuring device from Endress+Hauser, it must meet the following conditions:
  - The device has an intrinsically safe display circuit with specified entity parameters:
    - $U_o \leq U_i$
    - $I_o \leq I_i$
    - $P_o \leq P_i$
    - $C_o \geq C_i + C_{\text{cable}}$
    - $L_o \geq L_i + L_{\text{cable}}$
  - The device specifically bears the information "Prepared for display FHX50"

2) Approved, as defined in the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code, Part I, for the country in use.

The measuring device which has already been prepared for the FHX50 has an intrinsically safe display circuit with the following characteristic values:

Power supply and signal circuit
$U_o = 7.3 \text{ V}$ $I_o = 157 \text{ mA}$ $P_o = 362 \text{ mW}$  effective outer inductance $L_o = 149 \text{ }\mu\text{H}$ effective outer capacitance $C_o = 388 \text{ nF}$

### Connectable cables

- Cables which are optionally available from Endress+Hauser: can be ordered up to a total length of 30 m.
- Maximum cable length: 60 m.
- Cables which are optionally available from Endress+Hauser can be used up to a total length of 60 m.
- The customer's own cable can be used if the total effective inductance and capacitance of the cable do not exceed the following values respectively:
  - Total inductance of cable  $L_c = 149 \text{ }\mu\text{H}$
  - Total capacitance of cable  $C_c = 125 \text{ nF}$



71265764

[www.addresses.endress.com](http://www.addresses.endress.com)

---