

Safety Instructions

FieldPort SWA50

4-20 mA HART

Control Drawing

IS / Class II, III, Div. 1 / Class I, II, III, Div. 2

AEx/Ex ia IIC Ga



FieldPort SWA50

4-20 mA HART

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About this document

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

Associated documentation

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

Bluetooth
BA01987S/04

WirelessHART
BA02046S/04

Manufacturer's certificates**DEKRA C/US certificate**

Certificate number:
DEKRA 21CAUS71-120888

Manufacturer address

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany
Address of the manufacturing plant: See nameplate.

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

SWA50	–	*****	+	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: FieldPort

-  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

SWA50

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
SWA50	CD	C/US IS Cl. I, II, III, Div. 1, Gr. A-G, AEx/Ex ia IIC T4 Ga, Cl. I, Div. 2, Gr. A-D, Cl. II, III, Div. 2, Gr. F, G
	CE	C/US Cl. II, III, Div. 1, Gr. E-G, Cl. I, Div. 2, Gr. A-D, Cl. II, III, Div. 2, Gr. F, G

Position 3 (Output)		
Selected option		Description
SWA50	A	Bluetooth
	B	WirelessHART

Position 4 (Housing)		
Selected option		Description
SWA50	1	316L

Position 5 (Version)		
Selected option		Description
SWA50	A	Remote mounting
	B	Direct mounting on field device with connection Adapter M20
	C	Direct mounting on field device with connection Adapter NPT1/2

Position 6 (Cable Gland)		
Selected option		Description
SWA50	B ¹⁾	Brass M20 for unshielded cable
	C ¹⁾	Brass M20 for shielded cable
	D	Blind plug

1) Only in connection with Position 1, 2 = CD

Optional specifications

No options specific to hazardous locations are available.

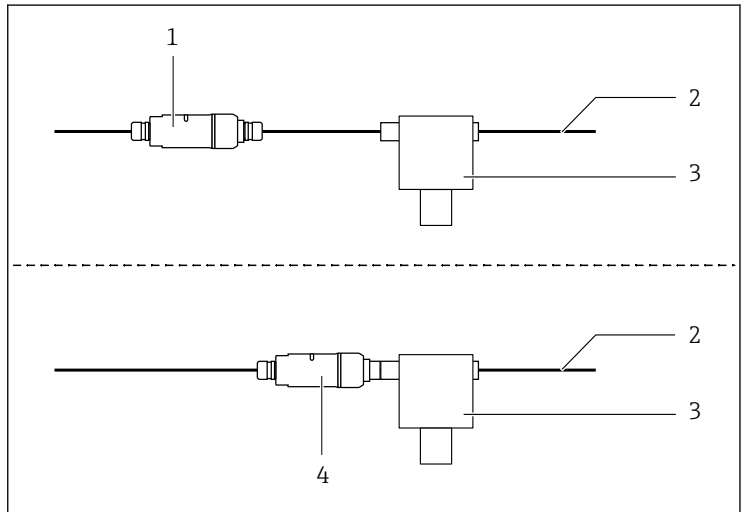
Safety instructions: General

- 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.
- Avoid electrostatic charging:
 - Of plastic surfaces (e.g. enclosure, sensor element, special varnishing, attached additional plates, ..)
 - Of isolated capacities (e.g. isolated metallic plates)
- 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

- To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
- In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.

Safety instructions:
Installation



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- 1 Remote mounting
- 2 Cable
- 3 HART field device
- 4 Direct mounting

- Avoid electrostatic charging (e.g. do not rub dry):
 - Of enclosure
 - Of the connecting cable
- Observe the pertinent guidelines when interconnecting intrinsically safe circuits.
- Observe the maximum process conditions according to the manufacturer's Operating Instructions.
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- To maintain the ingress protection of the enclosure:
 - Screw the cover tight.
 - Mount the cable entry correctly.

- Continuous service temperature of the connecting cable: $\geq T_a + 20 \text{ K}$.
- Protect the connecting cable between the FieldPort and the field device from tension and friction (e.g. due to electrostatic charge from medium flow).
- Torque must be observed:
 - Top enclosure section (remote): $5.0 \text{ Nm} \pm 0,05 \%$
 - Top enclosure section (direct): $5.0 \text{ Nm} \pm 0,05 \%$
 - Cable glands: $3.25 \text{ Nm} \pm 10 \%$
 - Sealing plug: $3.25 \text{ Nm} \pm 10 \%$

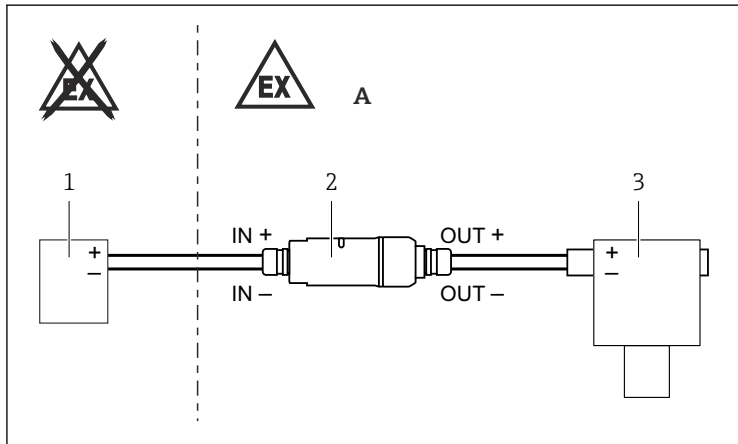
Potential equalization

Integrate the device into the local potential equalization.

Intrinsic safety

Basic specification, Position 1, 2 = CD

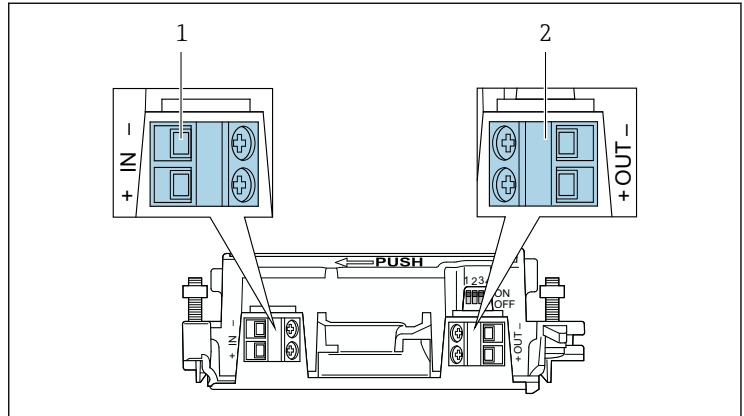
Class I, Div. 1, Groups A, B, C, D; Class II, III, Div. 1, Groups E, F, G;
Class I, Zone 0, Group IIC



A Class I, Div. 1, Groups A, B, C, D; Class II, III, Div. 1, Groups E, F, G;
Class I, Zone 0, Group IIC

- 1 Intrinsic safety barrier/associated equipment
- 2 SWA50
- 3 HART field device

Terminal assignment



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- 1 Input terminal (IN)
- 2 Output terminal (OUT)

Entity installation

- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use an intrinsic safety barrier or other associated equipment that is approved for the country in use and satisfies the following conditions:
 $U_o (V_{oc}) \leq U_i (V_{max}), I_o (I_{sc}) \leq I_i (I_{max}), C_o (C_a) \geq C_i + C_{cable},$
 $L_o (L_a) \geq L_i + L_{cable}$ and $P_o \leq P_i$.
- For intrinsic safety parameters: See "Connection data" section.
- Associated devices with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.
- Control room equipment may not use or generate over 250 V_{rms}.
- Always follow the installation instructions provided by the intrinsic safety barrier manufacturer when installing this equipment.
- WARNINGS: Substitution of components may impair intrinsic safety.
- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V_{rms}.
- If the FieldPort is direct mounted to the field device, the interior of the field device shall be pollution degree 2 or better.
- For details regarding internal wire connections and routing: Refer to the Operating Instructions.

**Class II, III, Div. 1,
Groups E, F, G***Basic specification, Position 1, 2 = CE*

- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use threaded rigid metal conduit or hazardous location cables appropriate for the location.
- Input wiring entry is an M20x1.5 thread; for NPT, an adapter suitable for the location must be used.
- Adapters/cable glands must be suitable for the location and form a dust-tight seal.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection.
- If the FieldPort is direct mounted to the field device, the field device must be appropriately rated for the location.
- WARNINGS: Keep covers tight when explosive dust atmosphere is present.

**Class I, II, III,
Div. 2,
Groups A-D, F, G***Basic specification, Position 1, 2 = CD, CE*

- The device is a nonincendive (NI) electrical equipment per UL121201 and CSA C22.2 No. 213.
- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use only wiring and sealing methods specified for the location by the applicable code.
- Intrinsic safety barrier/associated equipment not required.
- WARNINGS: Substitution of components may impair suitability for hazardous locations. Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- WARNINGS: Keep covers tight when explosive dust atmosphere is present.

**Temperature
tables**

Type of protection	Ambient temperature T_a (ambient)	Temperature class
Cl. I, II, III; IS / Ex ia	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$	T4
Cl. II, III, Div. 1; non IS	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$	T5
Cl. I, II, III, Div. 2	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$	T5

Connection data

Power supply circuit		
Intrinsic safety Entity parameters		Cl. II, III, Div. 1; Cl. I, II, III, Div. 2; (non Intrinsic safety)
Input (passive)	Output (active) ^{1) 2)}	
U_i (or V_{max}) = 30 V _{DC} I_i (or I_{max}) = 115 mA P_i = 750 mW (for Class I) or 650 mW (for Class II and III) L_i = 0 C_i = 0	U_o (or V_{oc}) of barrier I_o (or I_{sc}) of barrier P_o of barrier L_o = 0 C_o = 0	$U \leq 30$ V _{DC} $I = 4$ to 20 mA $P \leq 1$ W

- 1) The output values do not exceed the input values.
- 2) The FieldPort can be integrated in an existing intrinsically safe installation without adversely affecting the intrinsic safety.



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