XA01603F-B/00/EN/
03.21
71518415

Safety Instructions
Soliwave FDR57, FQR57

II 1G Ex ia IIC T4 Ga
II 1D Ex ia IIIC T135 °C Da
II 1/2G Ex ia IIC T4 Ga/Gb
II 1/2D Ex ia IIIC T135 °C Da/Db

Nivotester FTR525

II (1)G [Ex ia Ga] IIC
II (1)D [Ex ia Da] IIIC

Endress+Hauser
People for Process Automation

Soliwave FDR57, FQR57
Nivotester FTR525

Table of contents

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 -> Downloads -> Manuals and Datasheets -> Type: Ex Safety Instruction (XA) -> Text Search: ...
- In the Device Viewer: www.endress.com -> Product tools -> Access device specific information -> Check device features

Associated documentation

This document is an integral part of the following Operating Instructions:
BA01683F/97, BA01804F/97

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 -> 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:
EC00690, EC00692

The EU Declaration of Conformity is available:
In the download area of the Endress+Hauser website:
www.endress.com -> Downloads -> Declaration -> Type: EU Declaration -> Product Code: ...

EU type-examination certificate

Certification number:
BVS 18 ATEX E 067 X

List of applied standards: See EU Declaration of Conformity.

Affixing the certificate number certifies conformity with the following standards (depending on the device version):
- EN IEC 60079-0 : 2018
- EN 60079-11 : 2012
- EN 60079-26 : 2015

Manufacturer address

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany

Address of the manufacturing plant: See nameplate.

Other standards

Among other things, the following standards shall be observed in their current version for proper installation:
- IEC/EN 60079-14: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"
- EN 1127-1: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"

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

FDR57, FQR57, FTR525	-	**********	+	A*B*C*D*E*F*..
(Device type)		*(Basic specification)*		*(Optional specifications)*

* = Placeholder
An option (number or letter) selected from the specification is displayed in these positions.

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 option selected for a feature may consist of several positions.

Optional specifications

Additional features for the device (optional features) are specified in the optional specifications. The number of positions depends on the number of features available. The features are denoted by two characters to aid identification (e.g. JA). The first position (ID) stands for the feature group and consists of a number or a letter (e.g. J = test, certificate).The second position indicates the value that stands for the feature within the group (e.g. A = 3.1 material (wetted), inspection certificate).

More detailed information on the device can be found in the following tables. These tables describe the individual positions and IDs specific to hazardous locations within the extended order code.

Extended order code: Soliwave

The following information is an excerpt from the product structure and is used to:
- Assign this documentation to the device (based on the extended order code on the nameplate).
- Assign the device options specified in the document.

Device type

FDR57, FQR57

Basic specifications

Position 1 (approval)		
Option selected		**Description**
FDR57, FQR57	BA	ATEX II 1G Ex ia IIC T4 Ga ATEX II 1D Ex ia IIIC T135°C Da
	BB	ATEX II 1/2G Ex ia IIC T4 Ga/Gb ATEX II 1/2D Ex ia IIIC T135°C Da/Db

Position 2 (housing)		
Option selected		**Description**
FDR57, FQR57	B	F15 Stainless steel, IP66
	D [1)]	F34 Aluminium, IP66

1) Only in connection with position 1 = BB

Position 3 (electrical connection)		
Option selected		**Description**
FDR57, FQR57	A	M20 coupling
	D	Thread 1/2 NPT
	E [1)]	Binder M12 connector, series 713/763
	F [1)]	Binder M12 connector, series 713/763 + suitable mating connector
	H [1)]	Harting connector type HAN8D
	J [1)]	Harting connector type HAN8D + suitable mating connector

1) Only in connection with position 1 = BB

Position 4 (process connection)		
Option selected		**Description**
FDR57, FQR57	GG2	Thread ISO 228 G 1-1/2, 316Ti
	VE2	Thread ANSI 1-1/2 NPT, 316Ti
	XF2	Thread EN 10226 R 1-1/2, 316Ti

Position 5 (window transmission)		
Option selected		**Description**
FDR57, FQR57	1	PTFE

Optional specifications

No options specific to hazardous locations are available.

Extended order code: Nivotester

The following information is an excerpt from the product structure and is used to:

- Assign this documentation to the device (based on the extended order code on the nameplate).
- Assign the device options specified in the document.

Device type

FTR525

Basic specifications

Position 1 (approval)		
Option selected		**Description**
FTR525	BA	ATEX II (1)G [Ex ia Ga] IIC ATEX II (1)D [Ex ia Da] IIIC

Position 2 (output)		
Option selected		**Description**
FTR525	1	1x Relay SPDT, 4-20mA
	2	2x Relay SPDT, 4-20mA
	3	1x Solid-state relay, 4-20mA
	4	2x Solid-state relay, 4-20mA

Position 3 (application)		
Option selected		**Description**
FTR525	1	Point level detection
	2	Point level and bulk flow detection

Optional specifications

No options specific to hazardous locations are available.

Safety instructions: General

- Staff must satisfy 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.
- Use the device only in media to which the process-wetted materials are adequately resistant.
- Avoid electrostatic charge:
  - from plastic surfaces (e.g. housing, special paint, additional labels attached, ..)
  - from insulated capacitors (e.g. insulated metallic labels)
- Modifications to the device may compromise explosion protection and must be carried out by staff authorized by Endress+Hauser.

Device type FQR57, FDR57

- After installation and connection: Housing must have a protection rating of at least IP66.
- To achieve this degree of protection:
  - Close the cover tightly.
  - Install the cable entry or plug-in connector correctly.

Safety instructions: Specific conditions of use

Permitted ambient temperature range at electronics housing:

- *Device type FDR57, FQR57*: –40 … +70 °C
- *Device type FTR525*: –20 … +60 °C

Device type FDR57, FQR57 and basic specification, position 1 = BA, position 2 = B, position 3 = A or D

- The installation of the devices in areas requiring EPL Ga or EPL Da equipment shall be carried out in such a way that all metallic parts are in conductive contact with the boundary wall between the EPL Ga / EPL Da area and a less hazardous area. Alternatively, if the boundary wall is made of plastic, all insulated metallic parts shall be integrated into the local potential equalization system.
- The cable gland / adapter or plug-in connector located in the boundary wall between the EPL Ga / EPL Da area and a less hazardous area, which routes the connecting cable into the area requiring EPL Ga / EPL Da equipment, must have a protection rating of IP67 (IP6X) in accordance with EN 60529.
- The part of the connecting cable located in the areas requiring EPL Ga / EPL Da equipment must be appropriately protected against electrostatic charge / discharge effects in accordance with the installation guidelines.
- The manufacturer's technical information in relation to the use of the devices in contact with aggressive / corrosive media shall be observed.

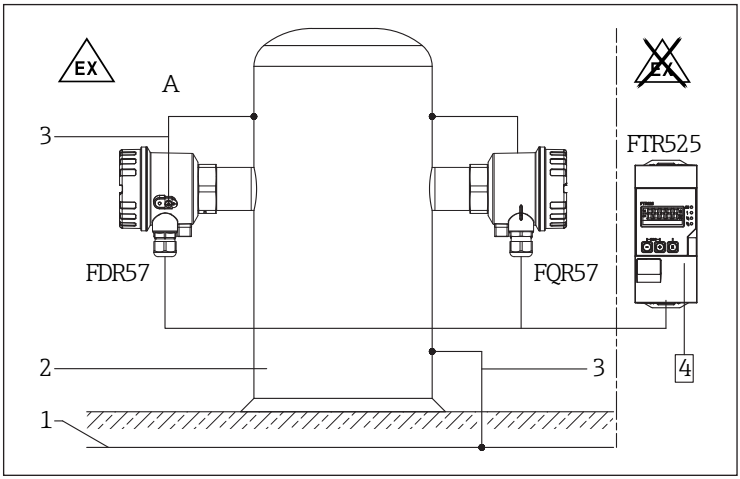
Device type FDR57, FQR57 and basic specification, item 1 = BB

- The installation of the devices in the boundary wall between an EPL Ga area and a less hazardous area must have a protection rating of IP67 in accordance with EN 60529.
- The installation of the devices in the boundary wall between an EPL Da area and a less hazardous area must have a protection rating of IP6X in accordance with EN 60529.
- Installation in the boundary wall between areas requiring EPL Ga or EPL Da equipment and a less hazardous area shall be carried out in such a way that all metallic parts are in conductive contact with the boundary wall. Alternatively, if the boundary wall is made of plastic, all insulated metallic parts shall be integrated into the local potential equalization system.
- The manufacturer's technical information in relation to the use of the devices in contact with aggressive / corrosive media shall be observed.

Device type FTR525

- The device shall be installed outside the hazardous area and mounted in a housing that provides an IP protection rating ≥ IP20 as per EN 60529 (including terminals).
- The device shall be installed in such a way that there is a distance of at least 3 mm between non-insulated conductors of the intrinsically safe circuits and grounded metallic components of the housing. Non-insulated conductors of non-intrinsically safe circuits of other equipment must be positioned at least 50 mm from terminals of intrinsically safe circuits or separated from them by an insulating barrier or grounded metallic barrier.

Safety instructions: Installation



1

A Zone 0, Zone 1 or Zone 20, Zone 21
1 Potential equalization
2 Vessel; Zone 0, Zone 1 or Zone 20, Zone 21
3 Potential matching line
4 Power and signal circuits (not intrinsically safe)

- Pay attention to the installation and safety instructions in the Operating Instructions.
- Following a housing alignment (turning), re-tighten the locking screw (see Operating Instructions).
- Before operation:
  - Screw on cover until the stop.
  - Tighten securing clamp on cover.
- Observe maximum process conditions in accordance with associated Operating Instructions of the manufacturer.
- To maintain IP66 housing protection, install the housing cover, cable entries and plug-in connectors correctly.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection. The plastic transport sealing plug does not meet this requirement and must therefore be replaced during installation.
- Only permanently routed cables and lines may be introduced or connected. The operator must provide suitable strain relief.
- Observe the maximum thermal load of the cables and lines introduced.

Safety instructions: Zone 0

- In the event of potentially explosive vapor/air mixtures, operate the device only under atmospheric conditions.
  - Temperature:
    - *Device type FDR57, FQR57*: −40 to +70 °C
    - *Device type FTR525*: −20 to +60 °C
  - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
  - Air with usual oxygen content, typically 21 % (V/V)

  If no potentially explosive mixtures are present, or if additional protective measures have been taken, the device may also be operated under other atmospheric conditions in accordance with the manufacturer's specifications.
- If there is a risk of hazardous potential differences within Zone 0 (e.g. due to the occurrence of atmospheric electricity), take appropriate measures for intrinsically safe circuits in Zone 0.

Connection data

Device type FTR525

Terminal	Connection data
L+, N- (supply voltage)	Un ≤ 253 V AC/DC Um = 253 V AC/DC
6, 7, 8, nc (FQR57), **6, 7, 8, nc (FDR57)**	Uo = 13 V DC Io = 337 mA Po = 1096 mW Ri ≥ 38.61 Ω
nc, 3, 4, 5 (relay 1), **nc, 15, 16, 17 (relay 2, optional)**	Un ≤ 253 V AC / 40 V DC Um = 253 V AC/DC In = 2 A
nc, 3, 4, nc (SSR 1), **nc, 15, 16, nc (SSR 2, optional)**	Un ≤ 30 V AC / 40 V DC Um = 253 V AC/DC In = 0.4 A
I+, I- (current 4-20 mA)	Un ≤ 28 V DC Um = 28 V DC
C+, C- (open collector)	Un ≤ 28 V DC Um = 28 V DC In = 0.2 A

Device type FDR57, FQR57

Terminal/pin	Connection data
1, 2, 3 (FTR525)	Ui = 13 V DC Ii = 337 mA Pi = 1096 mW Ri ≥ 38.61 Ω

Connection cable

- Maximum 500 m per connection
- Ci ≤ 200 pF/m
- Li ≤ 1 µH/m (or 30 µH/Ω)

www.addresses.endress.com

Endress+Hauser

People for Process Automation