

## Translation

2021

# EU-Type Examination Certificate Supplement 1

2 Equipment intended for use in potentially explosive atmospheres  
Directive 2014/34/EU

3 EU-Type Examination Certificate Number: **BVS 18 ATEX E 067 X**

4 Product: **Microwave barrier type Nivotester FTR525-BA and type Soliwave FQR57-\*\*\* / Soliwave FDR57-\*\*\***

5 Manufacturer: **Endress+Hauser SE+Co. KG**

6 Address: **Hauptstr. 1, 79689 Maulburg, Germany**

7 This supplementary certificate extends EU-Type Examination Certificate No. BVS 18 ATEX E 067 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 18.2119 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

**EN IEC 60079-0:2018**

**EN 60079-11:2012**

**EN 60079-26:2015**

**General requirements**

**Intrinsic Safety "i"**

**Equipment with equipment protection level (EPL) Ga**

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:



**II (1)G [Ex ia Ga] IIC**

**II (1)D [Ex ia Da] IIIC**

**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-BA)

(Nivotester FTR525-BA)

(Soliwave F\*R57-BABA/D)

(Soliwave F\*R57-BABA/D)

(Soliwave F\*R57-BB\*\*)

(Soliwave F\*R57-BB\*\*)

DEKRA Testing and Certification GmbH  
Bochum, 2021-02-03

Signed: Jörg-Timm Kilisch

Managing Director



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This certificate may only be reproduced in its entirety and without any change.

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## 13 Appendix

## 14 EU-Type Examination Certificate

### BVS 18 ATEX E 067 X Supplement 1

## 15 Product description

### 15.1 Subject and type

Microwave barrier type Nivotester FTR525-BA and type Soliwave FQR57-\*\*\* / Soliwave FDR57-\*\*\*

Process transmitter Nivotester type FTR525-BA

"BA" = associated apparatus, carrying ATEX Ex-marking "(1)G [Ex ia Ga] IIC" and  
"(1)D [Ex ia Da] IIIC"

Microwave transmitter type Soliwave FQR57-\*\*\*

Microwave transceiver type Soliwave FDR57-\*\*\*

1<sup>st</sup> asterisk indicates ATEX Ex-marking as follows:

"BA" = "1G Ex ia IIC T4 Ga" and "1D Ex ia IIIC T135°C Da"

"BB" = "1/2G Ex ia IIC T4 Ga/Gb" and "1/2D Ex ia IIIC T135°C Da/Db"

2<sup>nd</sup> asterisk specifies housing material of the electronic enclosure as follows:

"B" = Stainless steel

"D" = Aluminium

3<sup>th</sup> asterisk specifies electrical connection as follows:

"A" = Terminal with cable gland M20

"D" = Terminal with adapter ½ NPT

"E" = Terminal with Binder M12 connector series 713/763

"F" = Terminal with Binder M12 connector series 713/763 + corresponding mating connector

"H" = Terminal with Harting connector type Han 8 D

"J" = Terminal with Harting connector type Han 8 D + corresponding mating connector.

available models and allocation			
device	designation Soliwave *	installation in area requiring EPL Ga, EPL Da equipment	installation in the boundary wall between EPL Ga, EPL Da area and less hazardous areas
Microwave transmitter	FQR57-BABA	x	
Microwave transceiver	FDR57-BABA	x	
Microwave transmitter	FQR57-BABD	x	
Microwave transceiver	FDR57-BABD	x	
Microwave transmitter	FQR57-BB**		x
Microwave transceiver	FDR57-BB**		x

Note regarding the type code:

The ½ NPT adapter (Soliwave FQR57-BABD / Soliwave FDR57-BABD) has to be equipped by the customer with a certified cable gland.

### 15.2 Description

#### General

The microwave barrier type, used as level limit switch for all kind of bulk solids and liquids, as counter for piece goods and as bulk flow detector, comes with one associated apparatus (process transmitter type Nivotester FTR525-BA) and two intrinsically safe apparatus (microwave transmitter type Soliwave FQR57-\*\*\* and microwave transceiver type Soliwave FDR57-\*\*\*, each interconnected by means of a 3-wire supply- and data-signal circuit.

The process transmitter type Nivotester FTR525-BA is designed for installation in the save area.



With reference to individual design, microwave transmitter type Soliwave FQR57-\*\*\* and microwave transceiver type Soliwave FDR57-\*\*\* are designated for installation either in areas requiring EPL Ga or EPL Da equipment, or in the boundary wall between areas requiring EPL Ga or EPL Da equipment and less hazardous areas.

### Description of apparatus

Process transmitter type Nivotester FTR525-BA:

Printed circuit boards of the process transmitter are packaged in a plastics enclosure mountable on DIN Rails. The enclosure is fitted with Terminals for the non-IS and IS circuits on opposite sides of the device.

Microwave transmitter / -transceiver type Soliwave FQR57-\*\*\* / type Soliwave FDR57-\*\*\*:

The enclosure of the microwave transmitter / transceiver contains printed circuit boards fitted with electronic components and consist of a top compartment (electronic enclosure) made of light alloy or stainless steel and a bottom compartment made of stainless steel, providing integrated process connection.

The microwave antenna is closed by means of a PTFE cover disk.

A cable gland, adapter or connector respectively for the IS supply- and data-signal circuit are mounted in the side wall of the electronic enclosure.

Listing of all components used referring to older standards: not applicable.

### Reason for the supplement

The equipment have been assessed in accordance with current standard versions.

## 15.3 Parameters

### 15.3.1 Non-intrinsically safe circuits

#### 15.3.1.1 Power supply

Parameter	Process transmitter type Nivotester FTR525-BA
Voltage $U_n$	AC/DC: $U \leq 253 \text{ V}$
$U_m$	AC/DC 253 V
Terminal block L+/N-	Terminals L+ (L or +), N- (N or -)

#### 15.3.1.2 Relays output

Parameter	Electromechanical relay contact circuits	Solid-state relay (SSR) contact circuits
Voltage $U_n$	AC $U \leq 253 \text{ V}$	AC $U \leq 30 \text{ V}$
	DC $U \leq 40 \text{ V}$	DC $U \leq 40 \text{ V}$
$U_m$	AC 253 V	AC 253 V
Current $I_n$	2 A	0.4 A
Terminal block nc/3/4/5 or nc/15/16/17	Terminals 3, 4, 5 (relay 1) or 15, 16, 17 (relay 2)	Terminals 3, 4 (relay 1) or 15, 16 (relay 2)

#### 15.3.1.3 Current output

Parameter	Current output
Voltage $U_n$	DC $U \leq 28 \text{ V}$
$U_m$	DC 28 V
Terminals I+/I-/C+/C-	Terminals I+ / I-



#### 15.3.1.4 Open collector output

Parameter	Open collector output
Voltage $U_n$	DC $U \leq 28$ V
$U_m$	DC 28 V
Current $I_n$	0.2 A
Terminals $I+ / I- / C+ / C-$	Terminals C+ / C-

#### 15.3.2 Intrinsically safe supply and signal 3-wire circuit

Parameter	Nivotester FTR525-BA	Soliwave FQR57-*** FDR57-***	Value
Voltage	$U_o$	$U_i$	DC 13 V
Current	$I_o$	$I_i$	337 mA
Power	$P_o$	$P_i$	1096 mW
Current limiting resistor	$R_i$		$\geq 38.61 \Omega$
Maximum cable length between Nivotester FTR525-BA and Soliwave FQR57-***: 500 m and between Nivotester FTR525-BA and Soliwave FDR57-***: 500 m; applies to interconnection cable providing $C' \leq 200$ pF/m, $L' \leq 1$ $\mu$ H/m or inductance- / resistance ratio: $L/R \leq 30$ $\mu$ H/ $\Omega$			

#### 15.3.3 Microwave-radiation

Threshold power	$\leq 2$ W
Radiated power	$\leq 100$ mW e.i.r.p.
Frequency	$24.05 \text{ GHz} \leq f \leq 24.25 \text{ GHz}$

#### 15.3.4 Ambient temperature range:

$-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$  (FTR525-BA)  
 $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$  (FQR57-\*\*\* / FDR57-\*\*\*)

### 16 Report Number

BVS PP 18.2119 EU, as of 2021-02-03

### 17 Special Conditions for Use

#### 17.1 Microwave transmitter / -transceiver type Soliwave FQR57-BAB\* / type Soliwave FDR57-BAB\* (\*: A or D only)

- The installation of the microwave transmitter type Soliwave FQR57-BAB\* / microwave transceiver type Soliwave FDR57-BAB\* 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 EPL Ga / EPL Da area and less hazardous area, or, in case of a boundary wall made of plastics material, all isolated metallic parts are integrated in the local equipotential bonding.
- The cable gland, adapter or the connector for the interconnection cable located in the boundary wall between EPL Ga / less hazardous area / EPL Da / less hazardous area introducing the interconnection cable into EPL Ga (EPL Da) area shall provide a degree of protection IP67 (IP6X) according to EN 60529.
- The part of the interconnection cable located in EPL Ga / EPL Da area shall be protected in a suitable way against electrostatic charge / discharge effects according to installation rules.
- Manufacturer's technical information related to use of the microwave transmitter / transceiver in contact with aggressive / corrosive media shall be observed.



17.2 Microwave transmitter/ -transceiver / type Soliwave FQR57-BB\*\* / type Soliwave FDR57-BB\*\*  
(\*\*: according to type code)

- The installation of the microwave transmitter type Soliwave FQR57-BB\*\* / microwave transceiver type Soliwave FDR57-BB\*\* in the boundary wall to areas requiring EPL Ga equipment shall provide a degree of protection IP67 according to EN 60529.
- The installation of the microwave transmitter type Soliwave FQR57-BB\*\* / microwave transceiver type Soliwave FDR57-BB\*\* in the boundary wall to areas requiring EPL Da equipment shall provide a degree of protection IP6X according to EN 60529.
- The installation in the boundary wall between EPL Ga or EPL Da area and less hazardous area shall be carried out in such a way, that all metallic parts are in conductive contact with the boundary wall, or, in case of a wall made of plastics material, all isolated metallic parts are integrated in the local equipotential bonding.
- Manufacturer's technical information related to use of the microwave transmitter / transceiver in contact with aggressive / corrosive media shall be observed.

17.3 Process transmitter type Nivotester FTR525-BA

- The process transmitter type Nivotester FTR525-BA shall be installed outside hazardous area and mounted in an enclosure providing a minimum degree of IP-protection, IP20, according to EN 60529 (including connection facilities).
- The installation of the process transmitter shall be carried out in such a way that the clearances of un-insulated conductors of intrinsically safe circuits to grounded metal parts of the enclosure are at least 3 mm. Uninsulated conductors of non-intrinsically safe circuits of other apparatus are positioned at least 50 mm from terminals for external intrinsically safe circuits, or are separated from them by an insulating barrier or earthed metallic barrier according to EN 60079-11:2012 clause 6.2.1.

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH  
Bochum, 2021-02-03  
BVS-Ben/MGR A20201153

  
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Managing Director