IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BVS 09.0007X issue No.:1	Certificate history: Issue No. 1 (2016-8-1) Issue No. 0 (2009-2-2)
Status:	**Current**	
Date of Issue:	**2016-08-01** Page 1 of 4	

Applicant: **Endress+Hauser GmbH + Co. KG**
Hauptstraße 1
79689 Maulburg
Germany

Equipment: **Microwave barrier Soliwave M type FQR50-D* / FDR50-D* and Nivotester FTR325-D*****
Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i", Equipment with Equipment Protection Level (EPL) Ga**

Marking:

[Ex ia Ga] IIC [Ex ia Da] IIIC	for FTR325-D***
Ex ia IIC T4 Ga/Gb Ex ia IIIC T98°C Da/Db	for FQR50-D* / FDR50-D*

Approved for issue on behalf of the IECEx Certification Body: Dr. F. Eickhoff

Position: Deputy Head of Certification Body

Signature:
(for printed version)

Date: 2016-08-01

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.

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Manufacturer: **Endress+Hauser GmbH + Co. KG**
Hauptstraße 1
79689 Maulburg
Germany

Additional Manufacturing location (s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2014-10 Edition: 3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR09.0007/01

Quality Assessment Report:

DE/TUN/QAR06.0003/05

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

Subject and Type

See Annex

Parameters

See Annex

Description

Switching Amplifier Nivotester type FTR325-D***:
Printed circuit boards of the switching amplifier are packaged in a plastics enclosure mountable on DIN Rails. The enclosure is fitted with terminals for the non-IS and IS circuits of the device.
Microwave Emitter Soliwave M type FQR50-D* and Microwave Receiver Soliwave M type FDR50-D*:
The enclosure of the microwave Emitter / receiver Soliwave M contains printed circuit boards fitted with electronic components and consist of a top compartment (electronic enclosure) made of light alloy, steel or stainless steel and a bottom compartment made of stainless steel, providing integrated process connection.
The microwave-input /-output of the antenna is closed by means of a PTFE cover disk.
Cable entries for the IS supply- and data-signal circuit are mounted in the side wall of the electronic enclosure.

CONDITIONS OF CERTIFICATION: YES as shown below:

The installation of the Microwave Emitter type FQR50-D* / Microwave Transceiver type FDR50-D* in the wall to areas requiring Zone 0 equipment shall provide a degree of protection IP67 according to IEC 60529.

The installation of the Microwave Emitter type FQR50-D* / Microwave Transceiver type FDR50-D* in the wall to areas requiring Zone 20 equipment shall provide a degree of protection IP67 according to IEC 60529.

The installation in the boundary wall between Zone 0 / Zone 1, Zone 20 / Zone 21 areas 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 Emitter type FQR50-D* / Microwave Transceiver type FDR50-D* in contact with aggressive / corrosive media shall be observed.

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 09.0007X

Date of Issue: **2016-08-01** Issue No.: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Reason for the supplement is the assessment of the Microwave Barrier in accordance with the current standard versions. This leads to a modified marking.

Annex: BVS_09_0007X_Endress+Hauser_Annex_issue1.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 09.0007X issue No.: 1**
Annex

Subject and Type

Microwave Barrier Soliwave M type FQR50-D* / FDR50-D* and Nivotester type FTR325-D***

With a Microwave Emitter Soliwave M type FQR50-D*[1], Microwave Transceiver Soliwave M type FDR50-D*[1] and Switching Amplifier Nivotester type FTR325-D*** specified in detail by the order code, which is marked on each apparatus.

Instead of the * in the complete denomination three letters or numerals will be inserted which characterize the different modifications.

Switching Amplifier type Nivotester FTR325-D | * | * | *

Variation code (not Ex-relevant)

Supply voltage

A AC 85 V ≤ U ≤ 253 V / 50 Hz / 60 Hz
E AC 20 V ≤ U ≤ 30 V / 50 Hz / 60 Hz
DC 20 V ≤ U ≤ 60 V

Variation code (not Ex-relevant)

[1] Not specified * have no influence on explosion protection.

Parameters

1 Non-intrinsically safe circuits

1.1 Power supply

Amplifier Type	Voltage U_n	Voltage U_m
FTR325-D*A*	AC 85 V ≤ U ≤ 253 V	AC 253 V
FTR325-D*E*	AC 20 V ≤ U ≤ 30 V	AC 253 V
	DC 20 V ≤ U ≤ 60 V	AC 253 V

1.2 Relays contact-circuits

Voltage U_m AC 253 V

2 Intrinsically safe supply and signal circuit

Parameter	FTR325-D***	FQR50-D* FDR50-D*	Value
Voltage	U_o	U_i	DC 15.5 V
Current	I_o	I_i	206 mA
Power	P_o	P_i	1571 mW
Current limiting resistor	R_i	-	148 Ω

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Maximum cable length
For interconnection-cable between switching amplifier type FTR325-D*** and Microwave Emitter type FQR50-D* / Microwave Transceiver type FDR50-D* the following parameters apply:

- Resistance 15 Ω/km ≤ R' ≤ 150 Ω/km
- Inductance 0.4 mH/km < L' < 1 mH/km
- Capacitance per unit length (including screen) 45 nF/km < C' < 200 nF/km
- C' = C' wire/wire + 0.5 x C' wire/screen supply- and signal circuit insulated
- C' = C' wire/wire + C' wire/screen screen connected to the output of the amplifier
- maximum length of spurs (each) 60 m (Group IIC / IIIC = IIB)
- When meeting the parameter mentioned above, maximum permissible cable length for Group IIC is 1000 m or for Group IIIC = IIB is 5000 m.

3 Microwave-radiation

Power density	≤	8	mW / cm^2
Radiated power	≤	400	mW
Frequency		24.125	GHz

4 Ambient temperature range: -20 °C ≤ T_a ≤ +60 °C for FTR325-D***
-20 °C ≤ T_a ≤ +70 °C for FQR50-D* and FDR50-D*