



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 11.0035

issue No.:1

Certificate history:

Issue No. 1 (2016-6-21)

Issue No. 0 (2011-5-2)

Status:

Current

Date of Issue:

2016-06-21

Page 1 of 4

Applicant:

Endress + Hauser GmbH + Co KG
Hauptstr. 1
79689 Maulburg
Germany

Equipment:

Microwave barrier and microwave flow monitor types FDR56-****/FQR56-***/FTR20-****

Optional accessory:

Type of Protection:

Equipment dust ignition protection by enclosure "t"

Marking:

Ex ta/tb IIIC T102°C Da/Db
Ex tb IIIC T102°C Db

Approved for issue on behalf of the IECEx
Certification Body:

G. Schumann

Position:

Deputy Head of Certification Body

Signature:
(for printed version)

Date:


2016-06-21

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](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
DEKRA EXAM GmbH



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 11.0035

Date of Issue: 2016-06-21

Issue No.: 1

Page 2 of 4

Manufacturer: **Endress + Hauser GmbH + Co KG**
Hauptstr. 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 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-31 : 2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition: 2

*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/ExTR11.0053/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0003/05](#)



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 11.0035

Date of Issue: 2016-06-21

Issue No.: 1

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description:

The microwave barrier consists of the type FDR56-**** and the type FQR56-***. The microwave barrier can be used for a contact free limit detection, for controlling and counting as well as for continuously contamination detection. The microwave flow monitor FTR20-**** can be used for a contact free motion detection. The microwave barrier type FDR56-**** and type FQR56-*** and the microwave flow monitor type FTR20-**** is used for dust explosion protection in Zone 20 and 21.

Subject and type

See Annex

Parameters

Power supply	85 ... 253 VAC, 50 / 60 Hz 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz
Signal outputs	
Relay (terminals 3-5)	AC 250 V / 4 A or DC 125 V / 0.4 A or DC 30 V / 4 A
Current (terminals 3-4)	4 ... 20 mA
Photo relay (terminals 3-4)	AC/DC 60 V / 0.5 A
IP-degree of protection	IP66
Ambient temperature range	-40 °C ... +70 °C

CONDITIONS OF CERTIFICATION: NO



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 11.0035

Date of Issue: 2016-06-21

Issue No.: 1

Page 4 of 4

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

The addition of an aluminium enclosure and the updating to the current standards.



IECEx Certificate of Conformity



Certificate No.:

IECEx BVS 11.0035 issue No.: 1

Annex

Page 1 of 1

Subject and type

Microwave barrier type FQR56-^{*1)*2)*3)}

- | | | |
|------------------|------|--|
| 1) Approval: | IA – | IECEx Ex ta/tb IIIC T102°C Da/Db IP66
IECEx Ex tb IIIC T102°C Db IP66 |
| 2) Power supply: | A – | 85 ... 253 VAC, 50 / 60 Hz |
| | B – | 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz |
| 3) Enclosure: | B – | stainless steel |
| | D – | aluminium |

Microwave barrier type FDR56-^{*1)*2)*3)*4)}

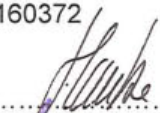
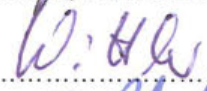
- | | | |
|------------------|------|--|
| 1) Approval: | IA – | IECEx Ex ta/tb IIIC T102°C Da/Db IP66
IECEx Ex tb IIIC T102°C Db IP66 |
| 2) Output: | 1 – | Relay |
| | 2 – | 4 ... 20 mA |
| | 3 – | Photo relay |
| 3) Power supply: | A – | 85 ... 253 VAC, 50 / 60 Hz |
| | B – | 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz |
| 4) Enclosure: | B – | stainless steel |
| | C – | stainless steel with window |
| | D – | aluminium |
| | E – | aluminium with window |

Microwave flow monitor type FTR20-^{*1)*2)*3)*4)}

- | | | |
|------------------|------|--|
| 1) Approval: | IA – | IECEx Ex ta/tb IIIC T102°C Da/Db IP66
IECEx Ex tb IIIC T102°C Db IP66 |
| 2) Output: | 1 – | Relay |
| | 2 – | 4 ... 20 mA |
| | 3 – | Photo relay |
| 3) Power supply: | A – | 85 ... 253 VAC, 50 / 60 Hz |
| | B – | 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz |
| 4) Enclosure: | B – | stainless steel |
| | C – | stainless steel with window |
| | D – | aluminium |
| | E – | aluminium with window |



IECEx TEST REPORT COVER

ExTR Reference Number	DE/BVS/ExTR11.0053/01	
ExTR Free Reference Number	DE/BVS/11/2106/N1	A 20160372
Compiled by + signature (ExTL)	Dipl.-Ing. Ute Hauke	
Reviewed by + signature (ExTL) ...	Dr.-Ing. Michael Wittler	
Approved by + signature (ExCB) ...	Dr.-Ing. Franz Eickhoff	
Date of issue	2016-06-13	
Ex Testing Laboratory (ExTL)	DEKRA EXAM GmbH	
Address	Dinnendahlstr. 9 44809 Bochum, Germany	
Ex Certification Body (ExCB)	DEKRA EXAM GmbH	
Address	Dinnendahlstr. 9 44809 Bochum, Germany	
Applicant's name	Endress+Hauser GmbH + Co. KG	
Address	Hauptstr. 1, 79689 Maulburg	
Standards associated with this ExTR package	IEC 60079-0:2011, Ed. 6 IEC 60079-31:2013, Ed. 2	
Clauses considered	All clauses applicable considered	
Test procedure	IECEx System	
Test Report Form Number	ExTR Cover_6_BVS (released 2015-08)	
Test item description	Microwave barrier and microwave flow monitor	
Model/type reference	FDR56-****/FQR56-***/FTR20-****	
Code (e.g. Ex __ II__ T__)	Ex ta/tb IIIC T102°C Da/Db Ex tb IIIC T102°C Db	
Rating	see "General product information"	
All testing fully performed by ExTL staff at ExTL address above:	(Yes/ No, See below for additional details.)	
<p>Instructions for Intended Use of ExTR Cover: An ExTR Cover is the sole top-level document to associate together all other parts of an IECEx Test Report (ExTR) package. An ExTR package is comprised of an ExTR Cover and one or more associated ExTR documents (which may include Ex Test Reports, ExTR Addendums and ExTR of National Differences). All ExTR package documents are compiled and reviewed by the ExTL. The Issuing ExCB indicates final approval of the overall ExTR package on this ExTR Cover.</p>		

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Manufacturer's name : Endress+Hauser GmbH + Co. KG

Address : Hauptstr. 1, 79689 Maulburg

Trademark :

Particulars: Test item vs. Test requirements

Classification of installation and use : (portable / stationary / hand-held)

Ingress protection : IP66

Rated ambient temperature range (°C) : see "General product information"

Rated service temperature range (°C) for Ex Components..... :

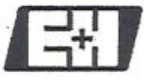
General remarks:

The test results presented in this ExTR package relate only to the item or product tested.

- "(see Attachment #)" refers to additional information appended to the ExTR package.
- "(see appended table)" refers to a table appended to the ExTR package.
- Throughout this ExTR package, a point is used as the decimal separator.
- Where the term "N/A" appears in any part of an ExTR package, it indicates that the associated issue was considered "Not applicable" to the involved evaluation.
- In accordance with IECEx 02, a Receiving ExCB may request a sample of the Ex equipment and copies of the documentation referred to in an ExTR Cover.

The technical content of this ExTR package shall not be reproduced except in full without the written approval of the Issuing ExCB and ExTL.

Copy of Marking Plate (Example):

Endress+Hauser 	
Type: FDR56-IA***	No.: 1234
-20°C ≤ Ta ≤ +70°C	Year: 2010
IECEx Ex ta/tb IIIC T102°C Da/Db IP66 IECEx Ex tb IIIC T102°C Db IP66 [Certificate no.]	

General product information:

Description

The microwave barrier consists of the type FDR56-**** and the type FQR56-***. The microwave barrier can be used for a contact free limit detection, for controlling and counting as well as for continuously contamination detection.

The microwave flow monitor FTR20-**** can be used for a contact free motion detection.

The microwave barrier type FDR56-**** and type FQR56-*** and the microwave flow monitor type FTR20-**** is used for dust explosion protection in Zone 20 and 21.

Subject and type

Microwave barrier type FQR56-^{*1)*2)*3)}

- | | | |
|-----------------------------|------|--|
| ¹⁾ Approval: | IA – | IECEX Ex ta/tb IIIC T102°C Da/Db IP66
IECEX Ex tb IIIC T102°C Db IP66 |
| ²⁾ Power supply: | A – | 85 ... 253 VAC, 50 / 60 Hz |
| | B – | 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz |
| ³⁾ Enclosure: | B – | stainless steel |
| | D – | aluminium |

Microwave barrier type FDR56-^{*1)*2)*3)*4)}

- | | | |
|-----------------------------|------|--|
| ¹⁾ Approval: | IA – | IECEX Ex ta/tb IIIC T102°C Da/Db IP66
IECEX Ex tb IIIC T102°C Db IP66 |
| ²⁾ Output: | 1 – | Relay |
| | 2 – | 4 ... 20 mA |
| | 3 – | Photo relay |
| ³⁾ Power supply: | A – | 85 ... 253 VAC, 50 / 60 Hz |
| | B – | 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz |
| ⁴⁾ Enclosure: | B – | stainless steel |
| | C – | stainless steel with window |
| | D – | aluminium |
| | E – | aluminium with window |

Microwave flow monitor type FTR20-^{*1)*2)*3)*4)}

- | | | |
|-----------------------------|------|--|
| ¹⁾ Approval: | IA – | IECEX Ex ta/tb IIIC T102°C Da/Db IP66
IECEX Ex tb IIIC T102°C Db IP66 |
| ²⁾ Output: | 1 – | Relay |
| | 2 – | 4 ... 20 mA |
| | 3 – | Photo relay |
| ³⁾ Power supply: | A – | 85 ... 253 VAC, 50 / 60 Hz |
| | B – | 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz |
| ⁴⁾ Enclosure: | B – | stainless steel |
| | C – | stainless steel with window |
| | D – | aluminium |
| | E – | aluminium with window |

Parameters

Power supply	85 ... 253 VAC, 50 / 60 Hz 20 ... 60 VDC / 20 ... 30 VAC, 50 / 60 Hz
Signal outputs	
Relay (terminals 3-5)	AC 250 V / 4 A or DC 125 V / 0.4 A or DC 30 V / 4 A
Current (terminals 3-4)	4 ... 20 mA
Photo relay (terminals 3-4)	AC/DC 60 V / 0.5 A
IP-degree of protection	IP66
Ambient temperature range	-40 °C ... +70 °C

Details of change (applicable only when revising an existing ExTR package):

The addition of an aluminium enclosure and the updating to the current standards.

In accordance with OD 024, testing not fully performed by ExTL staff at the above ExTL address:

The following tests were performed in the manufacturer's laboratory and were witnessed by Dr. Eickhoff from BVS:

1. Insulation test according to IEC 60079-7 with 1500 V r.m.s.
2. Impact test with 2 J
3. Water immersion test (IPX7)
4. A second insulation test.

(see as well clause 6.1.1.4 of IEC 60079-31) the tests of enclosure F34 were performed by company Endress + Hauser at its laboratory and were witnessed by Mr. Rouwenhorst from DEKRA certification B.V.

National differences considered as part of this evaluation, if any:

N / A

"Conditions of Use" for Ex Equipment :

None

Routine tests, if any:

The manufacturer shall carry out the routine verifications and tests by IEC 60079-0:2011 necessary to ensure that the subject produced complies with the specification submitted to the testing station together with the prototype or sample. He shall also make any routine verifications and tests required by the respective IEC Standards.

Manufacturer's Documents

Title:	Drawing No.:	Rev. Level:	Date: (yyyy.mm.dd)
Safety Instruction Soliwave FQR56, FDR56	XA00543F-97	---	2016.06.03
Safety Instruction Solimotion FTR20	XA00575F-97	---	2016.06.03

The rest of the documentation is fixed in the Test Report BVS PP 11.2103 EG.