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 KIWA 19.0010X

Issue No: 0

Certificate history:
Issue No. 0 (2019-06-24)

Status: **Current**

Date of Issue: **2019-06-24**

Applicant: **Endress+Hauser SE+Co. KG**
Hauptstrasse 1
79689 Maulburg
Germany

Equipment: **Liquid Level Switches Liquiphant, types FTL41 and FTL51B**

Optional accessory:

Type of Protection: **Ex d,e,i,t,n**

Marking:

Ex db IIC T6...T1 Ga/Gb or Gb
Ex db eb IIC T6...T1 Ga/Gb or Gb
Ex ta/tb IIIC Tx °C Da/Db
Ex tb IIIC Tx °C Db
Ex tc IIIC Tx °C Dc
Ex ia IIC T6...T1 Ga, Ga/Gb or Gb
Ex ia IIIC Tx °C Da/Db or Db
Ex ec IIC T6...T1 Gc
Ex ec nC IIC T6...T1 Gc

Approved for issue on behalf of the IECEx Certification Body: Harry de Wild

Position: Certification Officer

Signature:
(for printed version)

Date:

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:

Kiwa Nederland B.V. (Unit Kiwa ExVision)
Wilmersdorf 50
7327 AC Apeldoorn
P.O. Box 137
The Netherlands

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Manufacturer: **Endress+Hauser SE+Co. KG**
Hauptstrasse 1
79689 Maulburg
Germany

Additional Manufacturing location(s):

refer to Annex 4 for additional manufacturing locations

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 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 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2017 Edition:5.0	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-26 : 2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*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:

NL/KIWA/ExTR19.0011/00

Quality Assessment Report:

DE/TUN/QAR06.0003/07

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Liquid Level Switches Liquiphant, types FTL41 and FTL51B (and OEM versions OFTL41 and OFTL51B) for use in explosive atmospheres caused by the presence of combustible gases, fluids, vapours or dusts, directly detect a liquid level by means of a symmetrical vibrating fork. The different electronic inserts in the transmitter enclosure, convert the fork frequency into an electrical signal.

The Liquid Level Switches Liquiphant are used for the measurement of the density or concentration of a process fluid, if provided with the electronics insert type FEL60D and connected to the Endress+Hauser Interface type FML621.

The enclosure is either a single electronics compartment version made of plastic, aluminium or stainless steel or a dual compartment version made of aluminium providing a separate electronics and a terminal compartment. The stainless steel sensor is directly fitted to the enclosure. Optionally the electronics compartment can be equipped with either a Bluetooth or an LED module in combination with a windowed cover.

For the type designation code, electrical or thermal data refer to Annex 1 to 3.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The flameproof joints are not intended to be repaired.
- The Liquid Level Switches Liquiphant shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.
- For Liquid Level Switches Liquiphant with an aluminium enclosure, when used as EPL Ga equipment, shall be installed in such a way that, even in the event of rare incidents, ignition sources due to impact and friction between the enclosure and iron or steel are excluded.
- For Liquid Level Switches Liquiphant, when used as EPL Gc equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.

Annex:

Annex 1 to IECEx KIWA 19.0010X Issue 0.pdf

Annex 2 to IECEx KIWA 19.0010X Issue 0.pdf

Annex 3 to IECEx KIWA 19.0010X Issue 0.pdf

Annex 4 to IECEx KIWA 19.0010X Issue 0.pdf

Annex 2 to
Certificate of Conformity IECEx KIWA 19.0010X, issue 0
EU – Type Examination Certificate KIWA 19ATEX0017 X Iss. 1
and Test Report NL/KIWA/ExTR19.0011/00

Electrical data

FEL42/62/62LT DC-PNP Electronic Insert

Pos.	Designation	Input	Load current
1.	Ex e[5)]	U = 9.6…55V DC [1)2)] Pmax ≤ 0.5 W Imax= 10 mA	ILmax = ISCmax = 350 mA (incl. overload protection)
2.	Ex t[5)]	U = 9.6…55V DC [1)2)] U = 9.6…35V DC [1)3)] Pmax ≤ 0.5 W Imax= 10 mA	
3.	Ex d		

FEL44/64/64E/64LT Electronic Insert

Pos.	Designation	Input	Output
1.	Ex e[1)5)]	U = 19…253V AC[2)3)] / 50…60Hz Pmax 25 VA or U = 19…55V DC[2)3)] U = 19…35V DC[2)4)] Pmax = 1.3 W	2 potential free change over contacts (DPDT) Umax=253 V AC[2);3)] Imax=6 A Pmax=1500 VA; cosφ=1 Pmax= 750 VA; cosφ=0.7 or Umax=30 V DC Imax=6 A Umax=125 V DC[2)3)] Umax=35 V DC[2)4)] Imax=0.2 A
2.	Ex t	Refer to pos. 1.	
3.	Ex d	Refer to pos. 1.	

FEL64DC/64DC_E/64DC_LT Electronic Insert

Pos.	Designation	Input	Output
1.	Ex e[1)5)]	U = 9…20V DC[2)3)4)] Pmax = 1.0 W	2 potential free change over contacts (DPDT) Umax=253 V AC[2);3)] Imax=6 A Pmax=1500 VA; cosφ=1 Pmax= 750 VA; cosφ=0.7 or Umax=30 V DC Imax=6 A Umax=125 V DC[2)3)] Umax=35 V DC[2)4)] Imax=0.2 A
2.	Ex t	Refer to pos. 1.	
3.	Ex d	Refer to pos. 1.	

FEL61/61LT Electronic Insert

Pos.	Designation	Input	Load current
1.	Ex e[5)]	U = 19...253 V AC [1)] Pmax < 2 VA at ILmax Imax= 10 mA	ILmax = ISCmax = 350 mA
2.	Ex t[5)]		
3.	Ex d		

1) This rating is fully compatible with Ex nA acc. to EN/IEC 60079-15.
2) The range specified are maximum values which include 10% safety margin for typical power line variations.
3) Ambient temperature -50 °C… +70 °C
4) Ambient temperature -60 °C… +70 °C
5) Not applicable for ATEX Category 3 EU -Type Examination Certificate

FEL67 PFM Electronic Insert

Pos.	Designation	Input
1.	Ex i	Ui =14,6V Ii =100mA Pi =633mW Ci =3nF Li =0µH
2.	Ex e[1)5)]	Unom=12,5V DC[2)] Um =250V Pmax =100mW
3.	Ex t[5)]	Refer to pos. 3.
4.	Ex d	Refer to pos. 3.

FEL48/68 NAMUR Electronic Insert

Pos.	Designation	Input
1.	Ex i	Ui = 16 V Ii = 52 mA Pi = 170 mW Ci = 30 nF Li = N/A µH
2.	Ex e[5)]	Unom = 9.0 V DC[1)] Um = 250 V[2)]
3.	Ex t[5)]	Refer to pos. 3.
4.	Ex d	Refer to pos. 3.

FEL60D Density Electronic Insert

Pos.	Designation	Input
1.	Ex i	Ui = 27,6V Ii = 93mA Pi = 640mW Ci = 3nF Li = 3µH
2.	Ex e[1)5)]	Unom = 26V DC[2)] Um = 250V Pmax = 150mW
3.	Ex t[5)]	Refer to pos. 3.
4.	Ex d	Refer to pos. 3.

1) This rating is fully compatible with Ex nA acc. to EN/IEC 60079-15.
2) The range specified are maximum values which include 10% safety margin for typical power line variations.
5) Not applicable for ATEX Category 3 EU -Type Examination Certificate

LED Module

Pos.	Designation	Input
1.	Ex e[5)]	Unom = 19..253 V AC[2)]; 12..55 V DC[2)] P_{max} = < 6 VA; <0.7 W Um = 250 V
2.	Ex t[5)]	Refer to pos. 1.
3.	Ex d	Refer to pos. 1.

BT Module

Pos.	Designation	Input
1.	Ex i	Ui = 10.0 V Ii = 16.0 mA[1)] Pi = 40.0 mW Ci = N/A µF Li = N/A µH
2.	Ex e[5)]	Unom = 3.3 V DC[2)] Um = 250 V
3.	Ex t[5)]	Refer to pos. 3.
4.	Ex d	Refer to pos. 3.

1) This rating is fully compatible with Ex nA acc. to EN/IEC 60079-15.
2) The range specified are maximum values which include 10% safety margin for typical power line variations.
5) Not applicable for ATEX Category 3 EU -Type Examination Certificate