



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx DEK 15.0036X** Page 1 of 4 [Certificate history:](#)
Status: **Current** Issue No: 1 [Issue 0 \(2015-08-06\)](#)
Date of Issue: 2021-09-06
Applicant: **Endress+Hauser SE+Co. KG**
Hauptstraße 1
79689 Maulburg
Germany
Equipment: **Level Switches Soliphant M, Type FTM50, FTM51 and FTM52**
Optional accessory:
Type of Protection: **Ex t and Ex i**
Marking: Ex ta/tb IIIC T** °C Da/Db
Ex ta/tb [ia Da] IIIC T83 °C Da/Db
Ex tb [ia Da] IIIC T83 °C Db
Ex ia IIIC T** °C Da/Db
Ex ia IIIC T₂₀₀** °C Da
Ex ia IIIC T90 °C Da/Db
Ex ia IIIC T₂₀₀90 °C Da
refer to Annex 1 to NL/DEK/ExTR15.0047/01 for detailed information

Approved for issue on behalf of the IECEx
Certification Body:

R. Schuller

Position:

Certification Manager

Signature:
(for printed version)

Date:

2021-09-06

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Certificate issued by:

DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
Netherlands





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

Additional manufacturing locations: Refer to Annex 2 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 equipment 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 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
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 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/DEK/ExTR15.0047/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0003/08](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Level Switches Soliphant M Type FTM50 -....., Type FTM51 -..... and Type FTM52-.... for use in explosive atmospheres caused by the presence of combustible gases, fluids or vapours, directly detect a grained solids level by means of a symmetrical vibrating fork and convert it into an electrical signal.

Electrical data

For detailed Type designation, Electrical data and Thermal data, refer to Annex 1 to NL/DEK/ExTR15.0047/01.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Electrostatic charging of the adhesive nameplates and on sensors provided with a non-conductive coating shall be avoided, see manufacturer instructions.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Change of manufacturers name
- Evaluation to IEC 60079-0, Ed. 7
- The Da/Dc and Dc versions are deleted
- Change of ambient and process temperature
- Minor constructional change

Annexes:

[225525900-ExTR15.004701-Annex1.pdf](#)

[225525900-IECEx DEK 15.0036X-Annex1.pdf](#)

Annex 1 to Report No. NL/DEK/ExTR15.0047/01

Description

Level Switches Soliphant M Type FTM50 -...., Type FTM51 -.... and Type FTM52-.... for use in explosive atmospheres caused by the presence of combustible dust or vapours, directly detect a grained solids level by means of a symmetrical vibrating fork and convert it into an electrical signal.

The level limit switch consists of an electronics enclosure, made of aluminium (enclosures T13, F13, F17), or stainless steel (enclosure F15, F27), and a stainless steel sensor. The enclosure is in type of protection by enclosure "t". The enclosures F13, F15, F17, and T13 can also be assembled instead of a closed cover, with a cover with window.

The sensor is a Piezo driven vibrating fork, directly mounted to the electronics enclosure (type FTM50-...) or connected via an extension tube (type FTM51-...) or a cable (type FTM52-...), in of type of protection Ex ia IIIC. All models can be executed as a remote version with the intrinsically safe sensor separately mounted from the electronics enclosure. The maximum length of the connection cable between the electronics enclosure and the sensor is 17 m.

The versions of the level limit switch for high process temperatures are provided with a temperature spacer. Optionally, the process connected parts can completely or partially be provided with a coating or a protective layer.

Depending on the assembled electronics insert, the output is a switched load in the supply line (FEM 51), a transistor switch (FEM 52), a potential free relay contact (FEM 54) or a current signal (FEM 55, 2-wire 8/16 mA current).

For Ambient temperature and process temperature, see "Type designation".

Type designation

Level Switch Soliphant M, Type FTM50, FTM51 and FTM52,

Product Order code: FTM5x-a bb c d e f g h i j

ATEX marking added with "ATEX" according to ATEX directive.

Marking on compact device:

f=A

	Product Order Code				
	a=		j=		
	IECEX	ATEX		ATEX	ATEX/IECEX

FTM50-a ## # # # f	G	2	A,C,D,E	II 1/2 D	Ex ta/tb IIIC T160 °C Da/Db
			F,H	II 1/2 D	Ex ta/tb IIIC T290 °C Da/Db
			J,K	II 1/2 D	Ex ta/tb IIIC T240 °C Da/Db
			Y	II 1/2 D	Ex ta/tb IIIC T310 °C Da/Db

FTM51-a ## # # # f	G	2	A,C,D,E	II 1/2 D	Ex ta/tb IIIC T160 °C Da/Db
			F,H	II 1/2 D	Ex ta/tb IIIC T290 °C Da/Db
			J,K	II 1/2 D	Ex ta/tb IIIC T240 °C Da/Db
			Y	II 1/2 D	Ex ta/tb IIIC T310 °C Da/Db

FTM52-a ## # # # f	G	2	A	II 1/2 D	Ex ta/tb [ia Da] IIIC T83 °C Da/Db
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Separate marking on remote enclosure

f=D,E,G,H (Remote enclosure)

FTM5x-a ## # # # f	G	2	-	II 2(1) D	Ex tb [ia Da] IIIC T83 °C Db
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Separate marking on probe of remote enclosure

f=D,E,G,H

FTM50-a ### ## f FTM51-a ### ## f (Sensor without electronic insert)	G	2	A,C,D,E	II 1/2 D	Ex ia IIIC T160 °C Da/Db
			F,H		Ex ia IIIC T290 °C Da/Db
			J,K		Ex ia IIIC T240 °C Da/Db
			Y		Ex ia IIIC T310 °C Da/Db
			A,C,D,E	II 1 D	Ex ia IIIC T ₂₀₀ 160 °C Da
			F,H		Ex ia IIIC T ₂₀₀ 290 °C Da
			J,K		Ex ia IIIC T ₂₀₀ 240 °C Da
			Y		Ex ia IIIC T ₂₀₀ 310 °C Da

Separate marking on probe of remote enclosure

f=D,E,G,H

FTM52 a ### ## f (Sensor without electronic insert)	G	2	A	II 1/2 D II 1 D	Ex ia IIIC T90 °C Da/Db Ex ia IIIC T ₂₀₀ 90 °C Da
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a	=	Approval Type
bb	=	Process connection any double number or letter; Represents different type of standardized process Connections, like threads or flanges; Refer to instruction Manual for details.
c	=	Material / Process connected surface any single number or letter
d	=	Overall length any single number or letter
e	=	Electronic insert Ambient temperature range of -50 °C to +60 °C (-40 °C for enclosures F15 and F17): 1 = FEM51, 2 = FEM52, 4 = FEM54, 5 = FEM55;
f	=	Type of probe different remote cable length (max. 17 m) any single number or letter
g	=	Enclosure 3 = F17(Aluminium), 5 = F13 (Aluminium), 6 = F27 (SS), 7 = F15 (SS), H = T13 (Aluminium).
h	=	Cable entry 2 = M20, 3 = NPT 1/2, 4 = G1/2, 7 = NPT 3/4
i	=	Additional options 1 A = option not selected, G = Glass window cover or any single number or letter
j	=	Additional options 2 – Process temperature related FTM50 or FTM 51: A, C, D, E: Process temperature ≤ 150 °C, J, K: Process temperature ≤ 230 °C,

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		F, H: Process temperature $\leq 280\text{ }^{\circ}\text{C}$, Y: Process temperature $\leq 300\text{ }^{\circ}\text{C}$ FTM52: A: No additional options. (Process temperature $\leq 80\text{ }^{\circ}\text{C}$)
**+#	=	Options + additional options, not relevant for safety any combination of numbers and letters

Thermal data

The max. surface temperatures under fault conditions depends on the version, maximum ambient temperature and the process temperature, as listed in the following table:

Type	medium temperature (sensor)	Max. surface temperature Zone 20 (sensor)	Max. surface temperature Zone 21 (housing)
FTM50, FTM51	-50°C...+150 °C	-50 °C...+160 °C	-50 °C...+83°C 1)2)
	-50°C...+230 °C	-50 °C...+240 °C	
	-50°C...+280 °C	-50 °C...+290 °C	
	-50°C...+300 °C	-50 °C...+310 °C	
FTM52	-40°C... +80 °C	-40 °C...+90 °C	-40 °C...+83 °C 1)2)

Note 1): The maximum ambient temperature of the sensor enclosure of the remote versions is 80 °C.

Note 2): The maximum ambient temperature is +60 °C if the Level Limit Switch is provided with a temperature separator between enclosure and process connection.

Refer to the instruction manual for detailed derating data.

Electrical data

Electronics insert FEM51 (2-wire, switched load)

Supply: 19 ...253 Vac. 50/60Hz, max. 1 W

Output: Max. 350 mA

$U_m = 253\text{ Vac}$

Electronics insert FEM52 (transistor switch)

Supply: 10 ...55 Vdc, max 0.86 W

Output: Max. 350 mA

$U_m = 253\text{ Vac}$

Electronics insert FEM54 (relay contacts)

Supply: 19 ... 55 Vdc, max. 1.5 W, or

19 ... 253 Vac, 50/60 Hz, max. 1.5 W

Output: 2 potential free change-over contacts, max. 6 A

$U_m = 253\text{ Vac}$

Electronics insert FEM55 (2-wire, 8/16 mA)

Supply/output: 11 ... 35 Vdc, 8 or 16 mA, max. 0.6 W

$U_m = 253\text{ Vac}$

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Sensor circuits, all electronics inserts

Internal circuit, or for connection to the separate sensor, in type of protection intrinsic safety Ex ia IIIC.
The sensor circuit is connected to earth.

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Manufacturing locations

1. Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg
Germany
2. Endress+Hauser Yamanashi Co., Ltd
862-1 Mitsukunugi Sakaigawa-cho
Fuefuki-shi Yamanashi Pref. 406-0846
Japan
3. Endress+Hauser (Suzhou)
Automation Instrumentation Co. Ltd.
China – Singapore
Industrial Park (SIP)
Su-Hong-Zhong-Lu, No. 491
Jiangsu Province, 215021 Suzhou
P.R. China
4. Endress+Hauser (India)
Automation Instrumentation Pvt. Ltd.
M-192, Waluj MIDC, Aurangabad – 431 136
Maharashtra State
India
5. Endress+Hauser (USA)
Automation Instrumentation Inc.
2340 Endress Place
Greenwood, Indiana 46143
USA
6. Endress+Hauser (Brasil)
Instrumentação e Automação Ltda.
Avenida Antonio Sesti, 600, Itatiba/SP
Brasil