CERTIFICATE

(1) EU-Type Examination

(2) **Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **KEMA 05ATEX2066 X** Issue Number: **4**

(4) Product: **Level Limit Switch Soliphant M, Type FTM50, FTM51 and FTM52**

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

(6) Address: **Hauptstraße 1, 79689 Maulburg, Germany**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., Notified Body number 0344 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 confidential test report number NL/DEK/ExTR15.0047/01.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0 : 2018 **EN 60079-11 : 2012** **EN 60079-31 : 2014**

except in respect of those requirements listed at item 18 of the Schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule 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:

Refer to Annex 1 for detailed information

Date of certification: 6 September 2021

DEKRA Certification B.V.

R. Schuller
Certification Manager

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(13) # SCHEDULE

(14) **to EU-Type Examination Certificate KEMA 05ATEX2066 X** Issue No. **4**

(15) **Description**

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 Report No. NL/DEK/ExTR15.0047/01.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. NL/DEK/ExTR15.0047/01.

(17) **Specific conditions of use**

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

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR15.0047/01.

(20) **Certificate history**

Issue 1 -	203803300	initial certificate
Issue 2 -	210149200	evaluation to EN 61241-0 : 2006; EN 61241-1 : 2004 and EN 61241-11 : 2006, constructional changes
Issue 3 -	218324900	evaluation to EN 60079-0 : 2012 + A11, EN 60079-11 : 2012, EN 60079-31 : 2014, constructional changes
Issue 4 -	225525900	change of manufacturers name, evaluation to EN IEC 60079-0 : 2018, the Da/Dc and Dc versions are deleted; change of ambient and process temperature, minor constructional changes

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
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

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

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 ¾
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,

		F, H: Process temperature ≤ 280 ˚C, Y: Process temperature ≤ 300 ˚C FTM52: A: No additional options. (Process temperature ≤ 80 ˚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 Vac

Electronics insert FEM52 (transistor switch)
Supply: 10 …55 Vdc, max 0.86 W
Output: Max. 350 mA
U_m = 253 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 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 Vac

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.