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 05ATEX1019 X** Issue Number: **4**

(4) Product: **Level Limit Switch Soliphant M Type FTM 50-....., Type FTM 51-..... and Type FTM 52-.....**

(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/ExTR15.0053/01.

(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 60079-26 : 2015**

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 marking

Date of certification: 12 May 2021

DEKRA Certification B.V.

R. Schuller
Certification Manager

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(13) # SCHEDULE

(14) **to EU-Type Examination Certificate KEMA 05ATEX1019 X** Issue No. **4**

(15) **Description**

Level Limit Switches Soliphant M Type FTM 50-....., Type FTM 51-..... and Type FTM 52-..... are used to detect the level limit of powdered or fine grain solids, using a vibrating fork sensor.
Level Limit Switch Soliphant M Type FTM 50-..... is a compact version, Type FTM 51-..... is a version with an extended sensor (tube extension) and Type FTM 52-..... is a version with a sensor with rope extension.
All models can be executed as a remote version with the 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 electronics insert, the output signal is a current signal (FEM 55, 2-wire 8/16 mA current), a pulse signal (FEM 57, 2-wire PFM) or a current signal (FEM 58, 2-wire NAMUR in accordance with EN 60947-5-6).
The electronics enclosure is made of aluminium or stainless steel.

For model code break down, electrical data and thermal data, refer to attached Annex 1 to Report No. NL/DEK/ExTR15.0053/01.

Installation instructions

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

(16) **Report Number**

No. NL/DEK/ExTR15.0053/01.

(17) **Specific conditions of use**

For Level Limit Switches when used as EPL Ga equipment, with an aluminium enclosure 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.

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

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR15.0053/01.

(13) # SCHEDULE

(14) **to EU-Type Examination Certificate KEMA 05ATEX1019 X** Issue No. **4**

(20) **Certificate history**

Issue 1	203803300	initial certificate
Issue 1	209080400/	Addition of remote enclosures and electronic insert FEM55
Amendment1	210149200	Addition of high temperature and coating version
Issue 2	211739600	Updates of electronic inserts
Issue 3	218318300	Assessment according to latest editions of the standards
Issue 4	225509100	Name change of the manufacturer, assessed per EN IEC 60079-0 Ed. 7 and minor constructional changes

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

Marking on compact device: f=A					
	Product Order Code				
	a=		**j=**		
	IECEx	**ATEX**		**ATEX**	**ATEX/IECEx**
FTM50-a FTM51-a	E-	1	A, C	II 1 D II 1 D II 1/2 D II 1 G *1 II 1/2 G	Ex ia IIIC T***4 ℃ Da Ex ia IIIC T_{200}=T***4 ℃ Da Ex ia IIIC T***4 ℃ Da/Db Ex ia IIC T6...T3 Ga Ex ia IIC T6...T3 Ga/Gb
			D,E, F, H, J, K, Y	II 1 D II 1 D II 1/2 D II 1 G *1 II 1/2 G	Ex ia IIIC T***4 ℃ Da Ex ia IIIC T_{200}=T***4 ℃ Da Ex ia IIIC T***4 ℃ Da/Db Ex ia IIC T6...T2 Ga Ex ia IIC T6...T2 Ga/Gb
	-	7	A, C	II 1 D II 1 D II 1 G *3	Ex ia IIIC T***4 ℃ Da Ex ia IIIC T_{200}=T***4 Da Ex ia IIC T6...T3 Ga
			D,E, F, H, J, K, Y	II 1 D II 1 D II 1 G *3	Ex ia IIIC T***4 ℃ Da Ex ia IIIC T_{200}=T***4 Da Ex ia IIC T6...T2 Ga *1
FTM52-a	E	1	A	II 1 D II 1 D II 1/2 D II 1 G *1 II 1/2 G	Ex ia IIIC T***4 ℃ Da Ex ia IIIC T_{200}=T***4 Da Ex ia IIIC T***4 ℃ Da/Db Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb
	-	7	A	II 1 D II 1 D II 1 G *3	Ex ia IIIC T***4 ℃ Da Ex ia IIIC T_{200}=T***4 Da Ex ia IIC T6 Ga
*1 Only in combination with Stainless Steel enclosures F15 and F27 *3 X marking Alu enclosures F13, F17, T13 impact and friction sparks must be excluded *4 ** refer to derating table in the safety advice (instructions)					

Separate marking on remote enclosure [*5]
f=D,E (Remote enclosure standard connecting cable)

	Product Order Code				
	a=		j=		
	IECEx	ATEX		ATEX	ATEX/IECEx
FTM5x-a ## # # # f (Enclosure including electronic insert)	E	1	A,C, D,E, F,H J,K,Y	II 1 D (1) D	Ex ia [ia Da] IIIC T**[*4] ℃ Da
				II 1 D (1) D	Ex ia [ia Da] IIIC T_{200}=T**[*4] Da [*2]
				II 2 D (1) D	Ex ia [ia Da] IIIC T**[*4] ℃ Db [*2]
				II 2 D (2) D	Ex ia [ia Db] IIIC T**[*4] ℃ Db [*2]
				II 2 D (2) G	Ex ia [ia Gb] IIC T6 Gb [*2]
				II 2 G (1) D	Ex ia [ia Da] IIC T6 Gb [*2]
				II 2 G (2) D	Ex ia [ia Db] IIC T6 Gb [*2]
				II 2 G (2) G	Ex ia [ia Gb] IIC T6 Gb [*2]

*2 Caused on space problems marking not given on the nameplate, marking only given in the relevant XA
*4 ** refer to derating table in the safety advice (instructions)
*5 only for a=1 or E

Separate marking on remote enclosure [*5]
f= G,H (Remote enclosure armoured connecting cable)

FTM5x-a ## # # # f (Enclosure including electronic insert)	E	1	A,C, D,E, F,H J,K,Y	II 1 D (1) D	Ex ia [ia Da] IIIC T**[*4] ℃ Da
				II 1 D (1) D	Ex ia [ia Da] IIIC T_{200}=T**[*4] Da [*2]
				II 1 D (1) G	Ex ia [ia Ga] IIIC T**[*4] ℃ Da [*2]
				II 2 D (1) D	Ex ia [ia Da] IIIC T**[*4] ℃ Db
				II 2 D (1) G	Ex ia [ia Ga] IIIC T**[*4] ℃ Db [*2]
				II 2 D (2) D	Ex ia [ia Db] IIIC T**[*4] ℃ Db [*2]
				II 2 D (2) G	Ex ia [ia Gb] IIC T6 Gb [*2]
				II 1 G [*1] (1) D	Ex ia [ia Da] IIC T6 Ga [*2]
				II 1 G [*1] (1) G	Ex ia [ia Ga] IIC T6 Ga
				II 2 G (1) D	Ex ia [ia Da] IIC T6 Gb [*2]
				II 2 G (1) G	Ex ia [ia Ga] IIC T6 Gb
				II 2 G (2) D	Ex ia [ia Db] IIC T6 Gb [*2]
				II 2 G (2) G	Ex ia [ia Gb] IIC T6 Gb [*2]

*1 Only in combination with Stainless Steel enclosures F15 and F27
*2 Caused on space problems marking not given on the nameplate, marking only given in the relevant XA
*4 ** refer to derating table in the safety advice (instructions)
*5 only for a=1 or E

Separate marking on probe of remote enclosure *5 f=D,E					
FTM50-a ## # # # f FTM51-a ## # # # f (Sensor without electronic insert)	E	1	A, C	II 1 D II 1 D II 1/2 D II 1/2 G	Ex ia IIIC T**[*4] ℃ Da Ex ia IIIC T_{200}=T**[*4] Da [*2] Ex ia IIIC T**[*4] ℃ Da/Db [*2] Ex ia IIC T6...T3 Ga/Gb
			D,E, F, H, J, K, Y	II 1 D II 1 D II 1/2 D II 1/2 G	Ex ia IIIC T**[*4] ℃ Da Ex ia IIIC T_{200}=T**[*4] Da [*2] Ex ia IIIC T65 ℃ Da/Db [*2] Ex ia IIC T6...T2 Ga/Gb
FTM52 a ## # # # f (Sensor without electronic insert)	E	1	A	II 1 D II 1 D II 1/2 D II 1/2 G	Ex ia IIIC T**[*4] ℃ Da Ex ia IIIC T_{200}=T**[*4] Da [*2] Ex ia IIIC T**[*4] ℃ Da/Db [*2] Ex ia IIC T6 Ga/Gb
*2 Caused on space problems marking not given on the nameplate, marking only given in the relevant XA *4 ** refer to derating table in the safety advice (instructions) *5 only for a=1 or E					

Separate marking on probe of remote enclosure *5 f=G,H					
FTM50-a ## # # # f FTM51-a ## # # # f (Sensor without electronic insert)	E	1	A, C	II 1 D II 1 D II 1/2 D II 1 G II 1/2 G	Ex ia IIIC T**[*4] ℃ Da Ex ia IIIC T_{200}=T**[*4] Da [*2] Ex ia IIIC T**[*4] ℃ Da/Db [*2] Ex ia IIC T6...T3 Ga Ex ia IIC T6...T3 Ga/Gb [*2]
			D,E, F, H, J, K, Y	II 1 D II 1 D II 1/2 D II 1 G II 1/2 G	Ex ia IIIC T**[*4] ℃ Da Ex ia IIIC T_{200}=T**[*4] Da [*2] Ex ia IIIC T**[*4] ℃ Da/Db [*2] Ex ia IIC T6...T2 Ga Ex ia IIC T6...T2 Ga/Gb [*2]
FTM52 a ## # # # f (Sensor without electronic insert)	E	1	A	II 1 D II 1 D II 1/2 D II 1 G II 1/2 G	Ex ia IIIC T**[*4] ℃ Da Ex ia IIIC T_{200}=T**[*4] Da [*2] Ex ia IIIC T**[*4] ℃ Da/Db [*2] Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb [*2]
*2 Caused on space problems marking not given on the nameplate, marking only given in the relevant XA *4 ** refer to derating table in the safety advice (instructions) *5 only for a=1 or E					

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 -40 ℃ to +70 ℃ *6: 5 = FEM55, 7 = FEM57, 8 = FEM58
f	=	**Type of probe** A = No remote housing, D,E,G,H = remote housing with 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,R = Glass window cover or any single number or letter R,S = SIL conformity
j	=	**Additional options 2 – Process temperature related** FTM50 or FTM 51: A = option not selected D,E = Process temperature ≤ 150 ˚C, F,H,J,K,Y = Process temperature > 150 ˚C Tp ≤ 300 ˚C FTM52: A: No additional options. (Process temperature ≤ 80 ˚C)
**+#	=	Options + additional options, not relevant for safety any combination of numbers and letters

*6 enclosure F13, F27, T13: the minimum temperature is -50 ℃

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

For group II:

Type	Temperature class	Medium temperature (sensor)	Ambient Temperature (electronic)	Version
FTM50, FTM51	T6	-40℃ to +80 ℃ *6	See derating *4 *6	150 ˚C and 300 ˚C
FTM52		-40℃ to +80 ℃		80 ˚C
FTM50, FTM51	T5	-40℃ to +95 ℃ *6	See derating *4 *6	150 ˚C and 300 ˚C
FTM50, FTM51	T4	-40℃ to +130 ℃ *6	See derating *4 *6	150 ˚C and 300 ˚C
FTM50, FTM51	T3	-40℃ to +150 ℃ *6	See derating *4 *6	150 ˚C
FTM50, FTM51	T3	-40℃ to +195 ℃ *6	See derating *4 *6	300 ˚C
FTM50, FTM51	T2	-40℃ to +290 ℃ *6	See derating *4 *6	300 ˚C

For group III:

For Dust without remote enclosure:

Type	media temperature Tp (sensor)	Max surface Temp. (sensor)	Ambient temperature Ta (electronic)	Max surface temperature T electronic enclosure
Without a dust layer				
FTM50, FTM51	-40℃ to +150℃ *6 -40℃ to +300℃ *6	T_{p_max} +5K	See derating *4 *6	T_{a_max} +5K
FTM52	-40℃ to +80℃			
With a dust layer of 200mm				
FTM50, FTM51	See derating *4 *6	T_{200} = ***4 ℃	See derating *4 *6	T_{200} = ***4 ℃
FTM52	See derating *4			

For Dust with remote enclosure:

Type	Medium temperature Tp (sensor)	Max ambient temperature probe enclosure	Max surface temperature (sensor)	Ambient Temperature Ta (electronic)	Max surface temperature T electronic enclosure
Without a dust layer					
FTM50, FTM51	-40℃ to +150 ℃ *6 -40℃ to +300 ℃ *6	120 ℃	T = T_{p_max} +5K	See derating *4 *6	T = T_{a_max} +5K
FTM52	-40℃ to +80 ℃	80 ℃			
With a dust layer of 200 mm					
FTM50, FTM51	See derating *4 *6	See derating *4 *6	T_{200} = ***4 ℃	See derating *4 *6	T_{200} = ***4 ℃
FTM52	See derating *4	See derating *4			

*4 refer to derating table in the safety advice (instructions).
*6 enclosure F13, F27, T13: the minimum temperature is -50 ℃

Electrical data

Electronics insert FEM 55 (2-wire 8/16 mA)

Supply and output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 35 V, I_i = 100 mA, P_i = 1 W, C_i = 0 nF, L_i = 0 mH

Electronics insert FEM 57 (2-wire PFM)

Supply and output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 16.7 V, I_i = 150 mA, P_i = 1 W, C_i = 0 nF, L_i = 0 mH

Electronics insert FEM 58 (2-wire NAMUR)

Supply and output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 18 V, I_i = 52 mA, P_i = 170 mW, C_i = 30 nF, L_i = 0 mH

The supply and output circuit of the electronics inserts FEM 55 and FEM57 is infallibly isolated from the sensor circuit and from the frame of the apparatus up to a maximum voltage of 60 V.

Sensor circuit, all electronics inserts

Internal circuit in type of protection intrinsic safety Ex ia IIC, respectively Ex ia IIIC.
The sensor circuit is connected to earth.