



防爆合格证

证号: GYJ17.1293

由 恩德斯+豪斯公司

制造的产品:

(地址: Hauptstrasse 1, D-79689 Maulburg, Germany)

名称 电容式限位开关

型号规格 Solicap M FTI55/56系列

防爆标志 Ex iaD 20 T80 T₅₀₀130、Ex iaD 20 tD A21 IP65 T90℃

产品标准 /

图样编号 960008130、960008134

经图样及技术文件的审查和样品检验,确认上述产品符合 GB 12476.1-2013、GB 12476.4-2010、GB 12476.5-2013 标准,特颁发此证。

本证书有效期: 2017年8月2日至2022年8月1日

备注 1. 安全使用注意事项见本证书附件。

2. 型号规格说明见本证书附件。

3. 安全电气参数见本证书附件。

4. 本证书同时适用于恩德斯豪斯(苏州)自动化仪表有限公司(地址:苏州工业园区苏虹中路491号)生产的同型号产品。

站长

国家级仪器仪表防爆安全监督检验站

颁发日期二〇一七年八月二日

本证书仅对与认可文件和样品一致的产品有效。

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EXPLOSION PROTECTION CERTIFICATE OF CONFORMITY

Cert NO.GYJ17.1293

This is to certify that the product

Capacitive level limit switch

manufactured by Endress + Hauser GmbH + Co. KG

(Address:Hauptstrasse 1, D-79689 Maulburg, Germany)

which model is Solicap M FTI55/56 Series

Ex marking Ex iaD 20 T80 T₅₀₀130、 Ex iaD 20 tD A21 IP65 T90°C

product standard /

drawing number 960008130、 960008134

has been inspected and certified by NEPSI, and that it conforms
to GB 12476.1-2013,GB 12476.4-2010,GB 12476.5-2013

This Approval shall remain in force until 2022.08.01

Remarks

- 1.Conditions for safe use are specified in the attachment(s) to this certificate.
- 2.Model designation is specified in the attachment(s) to this certificate.
- 3.Safe parameters specified in the attachment(s) to this certificate.
- 4.This certificate is also applicable for the product with the same type manufactured by Endress+Hauser (Suzhou) Automation Instrumentation Co., Ltd. (address: Su Hong Zhong Lu No.491, Suzhou-SIP, China)

Director



National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

Issued Date 2017.08.02

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.

国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ17.1293)

(Attachment I)

GYJ17.1293防爆合格证附件 I

由恩德斯+豪斯公司生产的Solicap M FTI55/56系列电容式限位开关，经国家级仪器仪表防爆安全监督检验站(NEPSI)检验，符合下列标准：

GB12476.1-2013 可燃性粉尘环境用电气设备 第1部分：通用要求

GB12476.4-2010 可燃性粉尘环境用电气设备 第4部分：本质安全型“iD”

GB12476.5-2013 可燃性粉尘环境用电气设备 第5部分：外壳保护型“iD”

产品防爆标志为Ex iaD 20 T80 T₅₀₀130、Ex iaD 20 tD A21 IP65 T90℃，防爆合格证号为GYJ17.1293。

本次认可的产品具体型号规格如下：

FTI55-1**abccdefghi**

其中，**a**表示探头无效长度，可为A、B、1或5；

b表示探头有效长度，可为A、B、C、D、E、H、K、M、N或P；

c表示绝缘，可为2或3；

d表示过程连接；

e表示电子插件，可为H、5、7或8；

f表示外壳，可为1、3、4、5或6；

g表示电缆口规格，可为A、B、C、D或G；

h表示探头型式，可为1、2、3、4或5；

i表示附加信息，与防爆性能无关。

FTI55-3**abccdefghi**

其中，**a**表示探头无效长度，可为A、B、1或5；

b表示探头有效长度，可为A、B、C、D、E、H、K、M、N或P；

c表示绝缘，可为2或3；

d表示过程连接；

e表示电子插件，可为H、1、2、4或5；

f表示外壳，可为1、3、4、5或6；

g表示电缆口规格，可为A、B、C、D或G；

h表示探头型式，可为1、2、3、4或5；

i表示附加信息，与防爆性能无关。

FTI56-1**a b c d e f g h i**

- 其中, **a**表示探头无效长度, 可为A、1或5;
b表示探头有效长度, 可为A、B、H、K、C、D、M或N;
c表示绝缘, 可为2;
d表示过程连接;
e表示电子插件, 可为H、5、7或8;
f表示外壳, 可为1、3、4、5或6;
g表示电缆口规格, 可为A、B、C、D或G;
h表示探头型式, 可为1、2、3、4或5;
i表示附加信息, 与防爆性能无关。

FTI56-3**a b c d e f g h i**

- 其中, **a**表示探头无效长度, 可为A、1或5;
b表示探头有效长度, 可为A、B、H、K、C、D、M或N;
c表示绝缘, 可为2;
d表示过程连接;
e表示电子插件, 可为H、1、2、4或5;
f表示外壳, 可为1、3、4、5或6;
g表示电缆口规格, 可为A、B、C、D或G;
h表示探头型式, 可为1、2、3、4或5;
i表示附加信息, 与防爆性能无关。

一、产品使用注意事项

- 1、产品外壳设有接地端子, 用户在使用时应可靠接地。
- 2、产品使用环境温度: $-50^{\circ}\text{C}\sim+70^{\circ}\text{C}$; 介质温度范围: $-50^{\circ}\text{C}\sim+150^{\circ}\text{C}$ 。(详见E+H安全指南文件XA00389F-D)
- 3、产品电气参数如下:

插件代码	插件型号	电气参数
e = H	FEI50H	电源/信号电路(端子1-2): $U_i = 30\text{VDC}$ $I_i = 120\text{mA}$ $P_i = 1\text{W}$ $C_i = 2.4\text{nF}$ $L_i \approx 0$
e = 7	FEI57S	电源/信号电路(端子1-2): $U_i = 16.1\text{VDC}$ $I_i = 100\text{mA}$ $P_i = 1\text{W}$ $C_i = 2.4\text{nF}$ $L_i \approx 0$
e = 5	FEI55	电源/信号电路(端子1-2): $U_i = 36\text{VDC}$ $I_i = 100\text{mA}$ $P_i = 1\text{W}$ $C_i = 2.4\text{nF}$ $L_i \approx 0$

续上表:

$\text{E} = 4$	FEI54	电源电路 (端子1 (L+) - 2(L-)) : 19~55VDC、19~253VAC $U_m = 253\text{VAC}$ 继电器电路 (端子3 - 5和6 - 8) : 253VAC、6A、750VA ($\cos\phi \geq 0.7$) 或 30VDC、6A或 125VDC、0.2A
$\text{E} = 2$	FEI52	电源电路 (端子1 (L+) - 2(L-)) 信号电路 (端子3 - 2) : 10~55VDC $U_m = 253\text{VAC}$
$\text{E} = 1$	FEI51	电源电路 (端子1 (L+) - 2(L-)) : 19~253VAC $U_m = 253\text{VAC}$
$\text{E} = 8$	FEI58	电源电路 (端子1 (L+) - 2(L-)) : $U_i = 18\text{VDC}$ $I_i = 52\text{mA}$ $P_i = 170\text{mW}$ $C_i \approx 0$ $L_i \approx 0$

注: FEI50H、FEI55用于Zone 20/21或Zone 20/22时, 电气参数为 $U \leq 36\text{VDC}$ 。

4、电子插件代码 E 为H、5、7、8时, 产品必须与已通过防爆认证的关联设备配套共同组成本安防爆系统方可使用于可燃性粉尘环境。其系统接线必须同时遵守本产品 and 所配关联设备的使用说明书要求, 接线端子不得接错。产品与关联设备的连接电缆应为带绝缘护套的屏蔽电缆, 其屏蔽层应接地。

5、产品的电缆引入口须选用合适的电缆引入装置, 冗余口须用封堵件进行封堵; 安装后, 产品外壳防护等级不得低于GB4208-2008规定的IP65。选用的连接电缆、电缆引入装置或封堵件应与产品工作条件相适应。

6、产品在现场维护使用时应遵循“断电源后开盖”的原则。

7、产品在粉尘环境使用维护时, 应定期采取清洁措施, 以防止表面积聚粉尘。

8、用户不得自行随意更换该产品的电气零部件, 应会同产品制造商共同解决运行中出现的故障, 以免影响防爆性能和损坏现象的发生。

9、产品的安装、使用和维护应同时遵守产品使用说明书、GB12476.2-2010“可燃性粉尘环境用电气设备 第2部分: 选型和安装”、GB50257-1996“电气设备安装工程爆炸和火灾危险环境电气装置施工及验收规范”及GB15577-2014“粉尘防爆安全规程”的有关规定。

二、制造厂责任

1、产品制造厂必须将上述使用注意事项纳入产品使用说明书;

- 2、制造厂必须严格按照NEPSI认可的文件资料生产；
- 3、产品铭牌中应至少包括下列内容：
 - a) NEPSI认可标志（见防爆合格证书）
 - b) 产品防爆标志
 - c) 防爆合格证号
 - d) 使用环境温度
 - e) 安全电气参数

国家级仪器仪表防爆安全监督检验站
二〇一七年八月二日



国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ17.1293)

(Attachment I)

Attachment I to GYJ17.1293

(translation)

1. Description

Solicap M FTI55/56 Series capacitive level limit switch, manufactured by Endress+Hauser GmbH+Co. KG, has been certified by National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI). This product accords with following standards:

GB12476.1-2013 Electrical apparatus for use in the presence of combustible dust- Part 1: General requirements

GB12476.4-2010 Electrical apparatus for use in the presence of combustible dust- Part 4: Protection by intrinsic safety "iD"

GB12476.5-2013 Electrical apparatus for use in the presence of combustible dust- Part 5: Protection by enclosures "tD"

The Ex marking is Ex iaD 20 T80 T₅₀₀ T130, Ex iaD 20 ID A21 IP65 T90°C, its certificate number is GYJ17.1293.

Type approved is as following:

FTI55-1 **a b c d e f g h i**

a indicates inactive length, including A, B, 1 or 5;

b indicates active probe length, including A, B, C, D, E, H, K, M, N or P;

c indicates insulation, including 2 or 3;

d indicates process connection;

e indicates electronics, including H, 5, 7 or 8;

f indicates enclosure, including 1, 3, 4, 5 or 6;

g indicates cable entry, including A, B, C, D or G;

h indicates type of probe, including 1, 2, 3, 4 or 5;

i indicates additional option, without relevance for explosion protection.

FTI55-3 **a b c d e f g h i**

a indicates inactive length, including A, B, 1 or 5;

b indicates active probe length, including A, B, C, D, E, H, K, M, N or P;

c indicates insulation, including 2 or 3;

d indicates process connection;

e indicates electronics, including H, 1, 2, 4 or 5;

f indicates enclosure, including 1, 3, 4, 5 or 6;

g indicates cable entry, including A, B, C, D or G;

h indicates type of probe, including 1, 2, 3, 4 or 5;

i indicates additional option, without relevance for explosion protection.

FTI56-1 **a b c d e f g h i**

- a** indicates inactive length, including A, 1 or 5;
- b** indicates active probe length, including A, B, H, K, C, D, M or N;
- c** indicates insulation, including 2;
- d** indicates process connection;
- e** indicates electronics, including H, 5, 7 or 8;
- f** indicates enclosure, including 1, 3, 4, 5 or 6;
- g** indicates cable entry, including A, B, C, D or G;
- h** indicates type of probe, including 1, 2, 3, 4 or 5;
- i** indicates additional option, without relevance for explosion protection.

FTI56-3 **a b c d e f g h i**

- a** indicates inactive length, including A, 1 or 5;
- b** indicates active probe length, including A, B, H, K, C, D, M or N;
- c** indicates insulation, including 2;
- d** indicates process connection;
- e** indicates electronics, including H, 1, 2, 4 or 5;
- f** indicates enclosure, including 1, 3, 4, 5 or 6;
- g** indicates cable entry, including A, B, C, D or G;
- h** indicates type of probe, including 1, 2, 3, 4 or 5;
- i** indicates additional option, without relevance for explosion protection.

2. Conditions for Safe Use

2.1 The external earth connection facility shall be connected reliably.

2.2 Ambient temperature range: $-50^{\circ}\text{C} \sim +70^{\circ}\text{C}$; Medium temperature range: $-50^{\circ}\text{C} \sim +150^{\circ}\text{C}$. (refer to E+H's XA file no. XA00389F-D for the detail)

2.3 Electrical data:

Electronics code	Electronics type	parameters
a = H	FEI50H	Input/signal circuit (terminals 1 - 2): $U_i = 30\text{VDC}$ $I_i = 120\text{mA}$ $P_i = 1\text{W}$ $C_i = 2.4\text{nF}$ $L_i \approx 0$
a = 7	FEI57S	Input/signal circuit (terminals 1 - 2): $U_i = 16.1\text{VDC}$ $I_i = 100\text{mA}$ $P_i = 1\text{W}$ $C_i = 2.4\text{nF}$ $L_i \approx 0$
a = 5	FEI55	Input/signal circuit (terminals 1 - 2): $U_i = 36\text{VDC}$ $I_i = 100\text{mA}$ $P_i = 1\text{W}$ $C_i = 2.4\text{nF}$ $L_i \approx 0$
a = 4	FEI54	Input circuit (terminals 1(L+) - 2(L-)): $19\sim 55\text{VDC}$, $19\sim 253\text{VAC}$ $U_m = 253\text{VAC}$

		Relay contact circuits (terminal 3 - 5 and 6 - 8): 253VAC, 6A, 750VA ($\cos\phi \geq 0.7$) or 30VDC, 6A or 125VDC, 0.2A
$\text{II} = 2$	FEI52	Input circuit (terminals 1(L+) - 2(L-)) and signal circuit (terminals 3 - 2): 10~55VDC $U_m = 253\text{VAC}$
$\text{II} = 1$	FEI51	Input circuit (terminals 1(L+) - 2(L-)): 19~253VAC $U_m = 253\text{VAC}$
$\text{II} = 8$	FEI58	Input circuit (terminals 1(L+) - 2(L-)): $U_i = 18\text{VDC}$ $I_i = 52\text{mA}$ $P_i = 170\text{mW}$ $C_i \approx 0$ $L_i \approx 0$

Note: when the product with electronics FEI50H, FEI55 to be used in Zone 20/21 or Zone 20/22, $U \leq 36\text{VDC}$.

2.4 The product with electronics code $\text{II} = \text{H}, 5, 7$ or 8 should be used in combustible dust atmospheres together with approved associated apparatus, follow the instruction manual of this product and associated apparatus when connecting the wiring. Connect the wiring terminals correctly. Connecting cable between this product and associated apparatus should be insulated screen cable; connect the cable screen functionally to earth ground.

2.5 The device shall provide a degree of ingress protection of at least IP65 according to GB4208-2008 after suitable cable gland and blind plug are correctly installed. The connection cable, cable glands and blanking plugs to be used shall suitable for the product working conditions.

2.6 Obey the warning "Keep tight when the circuit is alive".

2.7 Clean the surface of this product termly when using in combustible dust atmosphere.

2.8 The user shall not change the configuration in order to maintain/ensure the explosion protection performance of the equipment. Any change may impair safety.

2.9 For installation, use and maintenance of the capacitive level limit switch, the end user shall observe the instruction manual and the following standards:

GB50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

GB15577-2007 "Safety regulations for dust explosion prevention and protection". (Only if installed in dust hazardous areas)


GB12476.2-2010 "Electrical apparatus for use in the presence of combustible dust- Part 2: Selection and installation". (Only if installed in dust hazardous areas)

3. Manufacturer's Responsibility

3.1 Conditions for safe use, as specified above, should be included in the documentation the user is provided with.

3.2 Manufacturing should be done according to the documentation approved by NEPSI.

3.3 Marking should show the following

3.3.1 NEPSI logo 

3.3.2 Type of explosion protection

3.3.3 Certificate number

3.3.4 Ambient temperature range

3.3.5 Electric data

National Supervision and Inspection Center
for Explosion Protection and Safety of Instrumentation

2017.08.02

