



# 防爆合格证

证号: GYJ19.1406

由 ifm electronic gmbh  
(地址: Friedrichstr. 1, Essen, Germany)

制造的产品:

名称 电容式接近传感器

型号规格 I7a2b-c/d/1G

防爆标志 Ex ia II C T4~T6 Ga

产品标准 /

图样编号 10058186, 10073487, 10073518, 10055528, 10050682

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 3836.1-2010、GB 3836.4-2010、GB 3836.20-2010 标准, 特颁发此证。

本证书有效期: 2019 年 11 月 30 日至 2024 年 11 月 29 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. 本安电气参数见本证书附件。

站长

国家级仪器仪表防爆安全监督检验站

颁发日期二〇一九年十一月三十日

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.GYJ19.1406

This is to certify that the product

Inductive proximity sensors

manufactured by ifm electronic gmbh

(Address:Friedrichstr. 1, Essen, Germany)

which model is I7a2b-c/d/1G

Ex marking Ex ia IIC T4~T6 Ga

product standard /

drawing number 10058186, 10073487, 10073518, 10055528, 10050682

has been inspected and certified by NEPSI, and that it conforms  
to GB 3836.1-2010,GB 3836.4-2010,GB 3836.20-2010

This Approval shall remain in force until 2024.11.29

**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.Intrinsic safety parameters specified in the attachment(s) to this certificate.

Director

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

Issued Date 2019.11.30

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

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# 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

(GYJ19.1406)

(Attachment I)

## GYJ19.1406防爆合格证附件 I

由ifm electronic gmbh生产的I7a2b-c/d/1G型电容式接近传感器，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：

GB 3836.1-2010 爆炸性环境 第1部分：设备 通用要求

GB 3836.4-2010 爆炸性环境 第4部分：由本质安全型“i”保护的的设备

GB 3836.20-2010 爆炸性环境 第20部分 设备保护级别（EPL）为Ga级的设备

产品防爆标志为Ex ia II CT4~T6 Ga，防爆合格证号为GYJ19.1406。

本证书认可的产品具体型号为：I7a2b-c/d/1G

a：可为R、S

b：可为002、3.5、010、015

c：可为N、NL

d：可为空白、2M

### 一、产品使用注意事项

1. 产品的使用环境温度范围、温度组别及本安参数如表1和表2所示。

表1

| 本安参数           | U <sub>i</sub> (V)  | 15          |              | 16          |             |              |
|----------------|---------------------|-------------|--------------|-------------|-------------|--------------|
|                | I <sub>i</sub> (mA) | 50          |              | 25          |             |              |
|                | P <sub>i</sub> (mW) | 120         |              | 34          |             |              |
| 温度组别           |                     | T6          | T4           | T6          | T5          | T4           |
| I7S2b- N/d/1G  |                     | (-40~+60)°C | (-40~+100)°C | (-40~+72)°C | (-40~+87)°C | (-40~+100)°C |
| I7R2b- N/d/1G  |                     | (-40~+60)°C | (-40~+100)°C | (-40~+75)°C | (-40~+90)°C | (-40~+100)°C |
| I7R2b- NL/d/1G |                     | (-40~+70)°C | (-40~+100)°C | (-40~+75)°C | (-40~+90)°C | (-40~+100)°C |

表2

|               |           |             |             |              |             |             |              |
|---------------|-----------|-------------|-------------|--------------|-------------|-------------|--------------|
| 本安参数          | $U_i(V)$  | 16          |             |              | 16          |             |              |
|               | $I_i(mA)$ | 25          |             |              | 52          |             |              |
|               | $P_i(mW)$ | 64          |             |              | 169         |             |              |
| 温度组别          |           | T6          | T5          | T4           | T6          | T5          | T4           |
| I7S2b-N/d/1G  |           | (-40~+70)°C | (-40~+85)°C | (-40~+100)°C | (-40~+55)°C | (-40~+70)°C | (-40~+100)°C |
| I7R2b-N/d/1G  |           | (-40~+70)°C | (-40~+85)°C | (-40~+100)°C | (-40~+55)°C | (-40~+70)°C | (-40~+100)°C |
| I7R2b-NL/d/1G |           | (-40~+75)°C | (-40~+90)°C | (-40~+100)°C | (-40~+70)°C | (-40~+85)°C | (-40~+100)°C |

2. 产品的内部最大等效参数如表3所示。

| 型号              | Li( $\mu H$ ) | Ci(nF) |
|-----------------|---------------|--------|
| I7S2002-N/d/1G  | 120           | 150    |
| I7S23.5-N/d/1G  | 150           | 150    |
| I7R2010-N/d/1G  | 100           | 150    |
| I7R2015-N/d/1G  |               |        |
| I7S2010-NL/d/1G | 90            | 90     |
| I7S2015-NL/1G   | 65            | 90     |

3. 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爆炸性气体环境。其系统接线必须同时遵守电容式接近传感器和所配关联设备的使用说明书要求，接线端子不得接错。

4. 产品与关联设备的连接电缆应为带绝缘护套的屏蔽电缆，其屏蔽层应在安全场所接地。

5. 用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。

6. 产品的安装、使用和维护应须同时严格遵守产品使用说明书和下列标准：

GB 3836.13-2013 爆炸性环境 第13部分：设备的修理、检修、修复和改造

GB/T3836.15-2017 爆炸性环境 第15部分：电气装置的设计、选型和安装

GB/T3836.16-2017 爆炸性环境 第16部分：电气装置的检查与维护

GB/T3836.18-2017 爆炸性环境 第18部分：本质安全电气系统

GB 50257-2014 电气装置安装工程爆炸和火灾危险环境电气装置施工及验收规范

## 二、制造厂责任

1. 制造厂必须将上述使用注意事项纳入产品的使用说明书中。
2. 制造厂必须严格按照NEPSI认可的下列文件资料生产。
3. 涉及产品防爆性能和温度的更改和维修，需提交NEPSI重新检验认可。
4. 产品铭牌中应至少包括下列内容：

a) NEPSI认可标志



b) 产品防爆标志

c) 防爆合格证号

d) 使用环境温度范围

e) 本安参数

国家级仪器仪表防爆安全监督检验站

二〇一九年十一月三十日

# 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

(GYJ19.1406 )

(Attachment I )

### Attachment I to GYJ19.1406

Inductive proximity sensors type I7a2b-c/d/1G, manufactured by ifm electronic gmbh. has been certified by National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI), this product accords with following standards:

GB 3836.1-2010 Explosive atmospheres-Part 1: Equipment-General Requirements

GB 3836.4-2010 Explosive atmospheres-Part 4 Equipment protection by intrinsic safety "i"

GB 3836.20-2010 Explosive atmospheres-Part 20 Equipment with equipment protection level (EPL) Ga

The Ex marking is Ex ia II C T4~T6 Ga. The certificate number is GYJ19.1406.

Type approved in this certificate is: I7a2b-c/d/1G

**a:** including R、S

**b:** including 002、3.5、010、015

**c:** including N、NL

**d:** including blank、2M

#### 1. Condition for safe use

1.1 The relationship between ambient temperature、temperature class and intrinsically safe parameters are shown as following table 1 and table 2.

Table 1

| Intrinsically safe<br>parameters | U <sub>i</sub> (V)  | 15          |              | 16          |             |              |
|----------------------------------|---------------------|-------------|--------------|-------------|-------------|--------------|
|                                  | I <sub>i</sub> (mA) | 50          |              | 25          |             |              |
|                                  | P <sub>i</sub> (mW) | 120         |              | 34          |             |              |
| Temperature class                |                     | T6          | T4           | T6          | T5          | T4           |
| I7S2b- N/d/1G                    |                     | (-40~+60)°C | (-40~+100)°C | (-40~+72)°C | (-40~+87)°C | (-40~+100)°C |
| I7R2b- N/d/1G                    |                     | (-40~+60)°C | (-40~+100)°C | (-40~+75)°C | (-40~+90)°C | (-40~+100)°C |
| I7R2b- NL/d/1G                   |                     | (-40~+70)°C | (-40~+100)°C | (-40~+75)°C | (-40~+90)°C | (-40~+100)°C |

Table 2

| Intrinsically safe parameters | $U_i(V)$  | 16          |             |              | 16          |             |              |
|-------------------------------|-----------|-------------|-------------|--------------|-------------|-------------|--------------|
|                               | $I_i(mA)$ | 25          |             |              | 52          |             |              |
|                               | $P_i(mW)$ | 64          |             |              | 169         |             |              |
| Temperature class             |           | T6          | T5          | T4           | T6          | T5          | T4           |
| I7S2b- N/d/1G                 |           | (-40~+70)°C | (-40~+85)°C | (-40~+100)°C | (-40~+55)°C | (-40~+70)°C | (-40~+100)°C |
| I7R2b- N/d/1G                 |           | (-40~+70)°C | (-40~+85)°C | (-40~+100)°C | (-40~+55)°C | (-40~+70)°C | (-40~+100)°C |
| I7R2b- NL/d/1G                |           | (-40~+75)°C | (-40~+90)°C | (-40~+100)°C | (-40~+70)°C | (-40~+85)°C | (-40~+100)°C |

1.2 Maximum internal equivalent parameters of product are shown as following table 3.

Table 3

| Model           | $L_i(\mu H)$ | $C_i(nF)$ |
|-----------------|--------------|-----------|
| I7S2002-N/d/1G  | 120          | 150       |
| I7S23.5-N/d/1G  | 150          | 150       |
| I7R2010-N/d/1G  | 100          | 150       |
| I7R2015-N/d/1G  |              |           |
| I7S2010-NL/d/1G | 90           | 90        |
| I7S2015-NL/1G   | 65           | 90        |

1.3 This product should be used in explosive gas 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.

1.4 Connecting cable between this product and associated apparatus should be insulated screen cable; connect the cable screen functionally to earth ground.

1.5 In order to avoid damage to the product, the user shall not change any parts of the product and the manufacturer shall be consulted when there is any problem during the usage.

1.6 During the installation, using and maintenance, the user shall following the instruction and following standards:

GB3836.13-2013 Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation

GB/T3836.15-2017 Explosive atmospheres-Part 15: Electrical installations design, selection and erection

GB/T3836.16-2017 Explosive atmospheres-Part 16: Electrical installations inspection and maintenance

GB/T3836.18-2017 Explosive atmospheres-Part 18: Intrinsically safe electrical system

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

## 2. Manufacturer's Responsibility

2.1 Special condition for safe use specified above should be included in the instruction manual.

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

2.3 Any modification with influence on the type of protection should be submitted to NEPSI before application.

2.4 Following items should be added to the nameplate

a) NEPSI logo



b) Ex marking

c) Number of certificate

d) Ambient temperature range

e) intrinsically safe parameters

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

November 30<sup>th</sup>, 2019