



防爆合格证

证号: GYJ16.1473X

由 德国PEPPERL+FUCHS有限公司

制造的产品:

(地址: Lilienthalstrasse 200, 68307 Mannheim, Germany)

名称 总线安全栅

型号规格 R4D0-FB-IA8、R4D0-FB-IA10、R4D0-FB-IA12

防爆标志 Ex e ib mb [ia Ga] II C T4 Gb
Ex e ib mb [iaD] II C T4 Gb

产品标准 /

图样编号 /

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 3836.3-2010、GB 3836.4-2010、GB 3836.20-2010、GB 3836.9-2014、GB 12476.1-2013、标准, GB 12476.4-2010 特颁发此证。

本证书有效期: 2016年10月25日至2021年10月24日

备注 1. 安全使用注意事项见本证书附件。
2. 证书编号后缀“X”表明产品具有安全使用特殊条件, 内容见本证书附件。
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

颁发日期二〇一六年十月二十五日

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.GYJ16.1473X

This is to certify that the product

Fieldbus Barrier

manufactured by **PEPPERL+FUCHS GmbH**

(Address:Lilienthalstrasse 200, 68307 Mannheim, Germany)

which model is **R4D0-FB-IA8, R4D0-FB-IA10, R4D0-FB-IA12**

Ex marking **Ex e ib mb [ia Ga] IIC T4 Gb**
Ex e ib mb [iaD] IIC T4 Gb

product standard /

drawing number /

has been inspected and certified by NEPSI, and that it conforms
to **GB 3836.1-2010,GB 3836.3-2010,GB 3836.4-2010,GB 3836.20-2010,**
GB 3836.9-2014,GB 12476.1-2013,GB 12476.4-2010

This Approval shall remain in force until **2021.10.24**

Remarks 1.Conditions for safe use are specified in the attachment to this certificate.
2.Symbol "X" placed after the certification number denotes specific conditions of use,
which are specified in the attachment to this certificate.
3.Intrinsic safety parameters specified in the attachment to this certificate.

Director



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

Issued Date **2016.10.25**

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

(GYJ16.1473X)

(Attachment I)

GYJ16.1473X防爆合格证附件 I

由德国PEPPERL+FUCHS有限公司生产的R4D0 - FB - IA8、R4D0 - FB - IA10和R4D0 - FB - IA12型总线安全栅，经国家级仪器仪表防爆安全监督检验站(NEPSI)检验，符合下列防爆标准规定的要求：

- GB3836.1 - 2010 爆炸性环境 第1部分：设备 通用要求
- GB3836.3 - 2010 爆炸性环境 第3部分：由增安型“e”保护的的设备
- GB3836.4 - 2010 爆炸性环境 第4部分：由本质安全型“i”保护的的设备
- GB3836.9 - 2014 爆炸性环境 第9部分：由浇封型“m”保护的的设备
- GB3836.20 - 2010 爆炸性环境 第20部分：设备保护级别（EPL）为Ga级的设备
- 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”

产品防爆标志：Ex e ib mb [ia Ga] II C T4 Gb

Ex e ib mb [iaD] II C T4 Gb

防爆合格证号为GYJ16.1473X。

产品使用环境温度范围：-40℃~+70℃。

一、产品安全使用特殊要求

1. 必须将该产品安装在依据GB3836.1 - 2010和GB3836.3 - 2010防爆标准认可、并具有防爆合格证书的“Ex e”增安型外壳之内，同时，箱体温度不得超出产品的使用环境温度范围。

2. 产品在爆炸性环境仅能短时间打开，同时端子盖必须闭合以保证非本安端子的外壳防护等级达到IP30。

二、产品使用注意事项

1. 电气参数:

非本安端电气参数:

端子		电气参数/功能
电源	+, -	电源额定值 U_n : 16~32 (V d.c.) 最高电压 U_m : 250V a.c.
端子桥	1T, 2T	内部主干线短接
	1B, 2B	PA端与S端短接
PA	PA	连接地电位平衡。当1B, 2B不带端子桥时, 端子PA与S在电路内部通过一个不大于5.7nF的电容连接。

本安端(端子: 1+, 1-, 2+, 2-, ……12+, 12-)电气参数(线性特性):

最高输出电压 U_o (V)	最大输出电流 I_o (mA)	最大输出功率 P_o (mW)	最大内部等效参数	
			C_i (μ F)	L_i (mH)
17.10	248.55	1063	≈ 0	≈ 0

气体组别	最大外部参数	
	C_o (μ F)	L_o (mH)
II C	0.367	0.47
II B	2.15	2.0
II A	8.8	4.0

注: 上述电容和电感数值使用时应注意下列要求:

- (1) 符合下列任何一项条件时, 外部最大电容(C_o)和外部最大电感(L_o)应为数据表内的数值:
 - 外部电路(不包括电缆)的最大内部电容(C_i)小于1%电容(数据表内电容), 或
 - 外部电路(不包括电缆)的最大内部电感(L_i)小于1%电感(数据表内电感)
- (2) 同时符合下列两项条件时, 外部最大电容(C_o)和外部最大电感(L_o)应为数据表内数值的50%:
 - 外部电路(不包括电缆)的最大内部电容(C_i)大于1%电容(数据表内电容), 和
 - 外部电路(不包括电缆)的最大内部电感(L_i)大于1%电感(数据表内电感)
 其中, 外部最大电容 C_o (包括电缆)不得大于1 μ F (II B)和600nF (II C)。

2. 当产品用于符合Gb3836.19 - 2010所规定的FISCO总线系统时, 现场设备和总线电缆参数必须符合GB3836.19 - 2010的相关要求。

3. 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。

4. 产品的安装、使用和维护应同时遵守产品说明书、GB3836.13 - 2013 “爆炸性环境第13部分：设备的修理、检修、修复和改造”、GB3836.15 - 2000 “爆炸性气体环境用电气设备 第15部分：危险场所电气安装（煤矿除外）”、GB3836.16 - 2006 “爆炸性气体环境用电气设备 第16部分：电气装置的检查和维修（煤矿除外）”和GB50257 - 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”的有关规定。

三、制造厂责任

1. 产品制造厂必须将上述特殊要求和使用注意事项纳入该产品使用说明书；
2. 制造厂必须严格按照NEPSI认可的文件资料生产：

图纸代号	版本号/签署日期	备注
16 - 0973BV - 00	2013 - 04 - 30	-
16 - 0973BV - 01A	2014 - 06 - 23	-
16 - 0973BV - 02	2013 - 04 - 30	-
16 - 0973BV - 03A	2014 - 06 - 23	-
16 - 0973BV - 04	2013 - 04 - 30	-
16 - 0973BV - 05A	2014 - 06 - 23	-
16 - 0973BV - 06	2013 - 04 - 30	-
16 - 0973BV - 07	2013 - 04 - 30	-
16 - 0973BV - 09	2013 - 04 - 30	-
16 - 0973BV - 10	2013 - 04 - 30	-
16 - 0973PF - 14F	2014 - 05 - 27	-

3. 产品铭牌中必须具有下列内容：
 - (1) NEPSI认可标志(见防爆合格证书)
 - (2) 产品防爆标志
 - (3) 防爆合格证号
 - (4) 使用环境温度或说明

国家级仪器仪表防爆安全监督检验站

二〇一六年十月二十五日

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

(GYJ16.1473X)

(Attachment I)

Attachment I (Translation)

Fieldbus barrier type R4D0-FB-IA8, R4D0-FB-IA10, R4D0-FB-IA12, manufactured by PEPPERL+FUCHS GmbH, has been approved by National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI) in accordance with the following standards:

- GB3836.1-2010 Explosive atmospheres – Part 1: Equipment – General requirements
- GB3836.3-2010 Explosive atmospheres – Part 3: Equipment protection by increased safety “e”
- GB3836.4-2010 Explosive atmospheres – Part 4: Equipment protection by intrinsic safety “i”
- GB3836.9-2014 Explosive atmospheres – Part 9: Equipment protection by type of protection “m”
- GB3836.20-2010 Explosive atmospheres
 - Part 20: Equipment with equipment protection level (EPL) Ga
- GB12476.1-2013 Electrical apparatus for use in the presence of combustible dust
 - Part 1: Equipment – General requirements
- GB12476.4-2010 Electrical apparatus for use in the presence of combustible dust
 - Part 4: Protection by intrinsic safety “iD”

The Fieldbus barrier is approved with explosion the following marking:

Ex e ib mb [ia Ga] IIC T4 Gb

Ex e ib mb [iaD] IIC T4 Gb

The certificate number is GYJ16.1473X.

The permissible range of ambient temperature is -40°C to +70°C.

1. SPECIAL CONDITIONS FOR SAFE USE

1. Fieldbus barrier must be mounted in an approved enclosure that type of protection Increased Safety “Ex e” accordance with GB3836.1-2010 and GB3836.3-2010, the temperature inside the enclosure shall not exceed the permissible ambient temperature of the Fieldbus barrier.
2. Only allow to open the fieldbus barrier in a short time in explosive atmospheres, and non-intrinsically safe circuits terminals must be protected by internal IP30 cover

2. SPECIAL REQUIREMENTS

2.1 Electrical parameters:

Electrical parameters at the terminals for the non-intrinsically safe circuits:

Terminal		Parameters / function
Supply	+, -	Nominal voltage U_n : 16~32 (V d.c.) Maximum voltage U_m : 250V a.c.
Terminal bridge	1T, 2T	An internal trunk terminator is switched on
	1B, 2B	PA terminal connected to shield connector (S)
PA	PA	For the connection to the equalization bonding conductor, without the terminal bridge 1B-2B, PA terminal connected to shield connector (S) via a capacitance of $\leq 5.7\text{nF}$.

Electrical parameters at the terminals (Terminals: 1+, 1-; 2+, 2-; ; 12+, 12-) for per intrinsically safe circuits (Liner output characteristics)

Max.output voltage U_o (V)	Max.output current I_o (mA)	Max.output power P_o (mW)	Max. effective internal parameters	
			C_i (nF)	L_i (mH)
17.10	248.55	1063	≈ 0	≈ 0

Gas group	Max. external parameters	
	C_o (μF)	L_o (mH)
IIC	0.367	0.47
IIB	2.15	2.0
IIA	8.8	4.0

Note: The above parameters apply where:

The maximum values of the external capacitance and the external inductance are listed in the table above if one of the following conditions is met:

- The total C_i of the external circuit (excluding the cable) is $< 1\%$ of the capacitance value or
- The total L_i of the external circuit (excluding the cable) is $< 1\%$ of the inductance value.

The maximum values of the external capacitance and the external inductance shall be reduced to 50% the values listed in the table above when both of the following conditions are met:

- The total C_i of the external circuit (excluding the cable) is $> 1\%$ of the capacitance value and
- The total L_i of the external circuit (excluding the cable) is $> 1\%$ of the inductance value.

Note: the reduced capacitance of the external circuit (including the cable) shall not be greater than $1\mu\text{F}$ for IIB and 600nF for IIC.

2.2 The cable parameters and field device shall be comply with GB3836.19-2010 when the Fieldbus barrier applied into FISCO system.

2.3 Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.

2.4 During installation, operation and maintenance, users shall comply with the relevant requirements of the product instruction manual, GB3836.13-2013 "Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation", GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous areas (other than mines)", GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)" and GB50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

3. MANUFACTURER'S RESPONSIBILITY

3.1 The instruction manual shall include all the clauses mentioned above.

3.2 The manufacturer shall exactly conform to the documents approved by NEPSI as following.

Drawing No.	Rev./Dated	Remark
16-0973BV -00	2013-04-30	-
16-0973BV -01A	2014-06-23	-
16-0973BV -02	2013-04-30	-
16-0973BV -03A	2014-06-23	-
16-0973BV -04	2013-04-30	-
16-0973BV -05A	2014-06-23	-
16-0973BV -06	2013-04-30	-
16-0973BV -07	2013-04-30	-
16-0973BV -09	2013-04-30	-
16-0973BV -10	2013-04-30	-
16-0973PF -14F	2014-05-27	-

3.3 The nameplate shall include the following:

3.3.1 Identification of NEPSI.

3.3.2 Marking and Certificate No.

3.3.3 Certificate No.

3.3.4 The permissible ambient temperature or specification

**National Supervision and Inspection Centre
For Explosion Protection and Safety of Instrumentation**

Oct.25, 2016