

Segment Protector

R2-SP-IC*

Pepperl+Fuchs GmbH
Lilienthalstrasse 200
68307 Mannheim, Germany
Tel.: +49 621 776-0
Fax.: +49 621 776-1000

Document No.: 116-0406

Edition: 09/2017

UL File Number: E106378

(previously UL File Number E326119)

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Fieldbus Trunk wiring

Model Name	V_{max}/V_{in}	U_m	I_{max}
R2-SP-IC*	24 V or 32 V see Fieldbus Spur wiring table	35 V	$\leq 8 A$

⑨

Next Segment Protector
or Terminator

Fieldbus Spur wiring

Model Name	V_{oc}/U_0	I_{sc}/I_0 [mA]	C_a/C_0 [nF]	L_a/L_0 [mH]	Switch 1 position	Gas/Dust groups
R2-SP-IC*	$V_{in}^* \leq 32 V$	65	60	0.25	Position 2	IIB/IIA / IIIC/IIIB/IIIA C, D, F, G
	$V_{in}^* \leq 32 V$	46	60	0.125	Position 1	IIC/IIIB/IIA / IIIC/IIIB/IIIA A, B, C, D, F, G
	$V_{in}^* \leq 24 V$	65	60	0.25	Position 2	IIC/IIIB/IIA / IIIC/IIIB/IIIA A, B, C, D, F, G

* V_{in} = output voltage of the Fieldbus Power Supply

WARNING: Ignition hazard - Switch Position must be set correctly for the intended gas group as specified in the Fieldbus Spur Wiring Table.

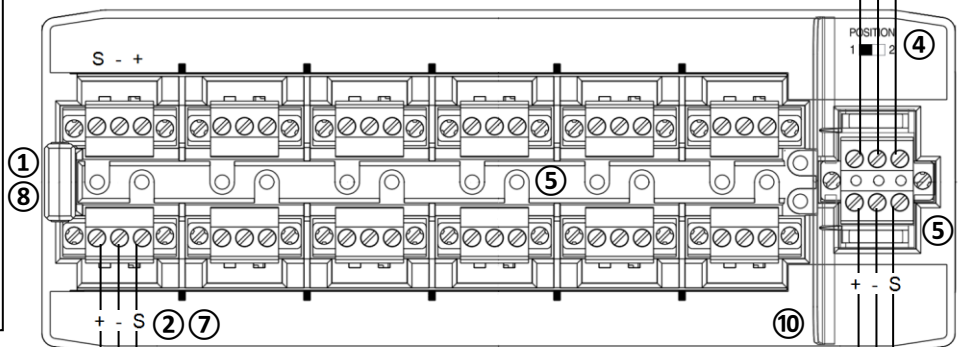
AVERTISSEMENT : Risque d'inflammation – la position du commutateur doit être correctement réglée pour le groupe de gaz concerné, comme indiqué dans le tableau de câblage des sorties du bus de terrain.

HAZARDOUS (CLASSIFIED) LOCATION

Class I, Zone 2, Groups IIB, IIA
Class I, Division 2, Groups C, D
($V_{in} = 9-35 V$ with Switch in position 2)

Class I, Zone 2, Groups IIC, IIB, IIA
Class I, Division 2, Groups A, B, C, D
($V_{in} = 9-35 V$ with Switch in position 1)

Class I, Zone 2, Groups IIC, IIB, IIA
Class I, Division 2, Groups A, B, C, D
($V_{in} = 9-24 V$ with Switch in position 2)



Nonincendive
field wiring
apparatus or
intrinsically safe
apparatus

HAZARDOUS (CLASSIFIED) LOCATION

Class I, Zone 2, Gps. IIB, IIA; Class II, Zone 22, Gps. IIIC, IIIB, IIIA
Class I, Division 2, Gps. C, D; Class II, Division 2, Gps. F, G
($V_{in} = 9-35 V$ with Switch in position 2)

Class I, Zone 2, Gps. IIC, IIB, IIA; Class II, Zone 22, Gps. IIIC, IIIB, IIIA
Class I, Division 2, Gps. A, B, C, D; Class II, Division 2, Gps. F, G
($V_{in} = 9-35 V$ with Switch in position 1)

Class I, Zone 2, Gps. IIC, IIB, IIA; Class II, Zone 22, Gps. IIIC, IIIB, IIIA
Class I, Division 2, Gps. A, B, C, D; Class II, Division 2, Gps. F, G
($V_{in} = 9-24 V$ with Switch in position 2)

③ ⑧ ⑨

Fieldbus Power Supply
with integrated or
external Terminator

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①	Nonincendive field wiring apparatus or intrinsically safe apparatus must be suitable for the ambient temperature and be wired and separated in accordance with the wiring methods of National Electrical Code ANSI/NFPA 70, Canadian Electrical Code C22.1 or in accordance with the authority having jurisdiction.
②	Spur connections allow the interconnection of nonincendive field wiring apparatus or intrinsically safe apparatus with an associated nonincendive field wiring apparatus (Segment Protector) not specifically examined in combination as a system when V_{max} or $U_i \geq V_{oc}$ or U_o ; C_a or $C_o \geq C_i + C_{cable}$; L_a or $L_o \geq L_i + L_{cable}$.
③	For nonincendive applications the output voltage of the fieldbus power supply has to be safely limited according to ANSI/ISA-12.12.01-2013.
④	I_{so}/I_o current can be switched between 46 mA and 65 mA (parameters see table "Fieldbus Spur wiring"). WARNING: Ignition hazard - Switch position must be set correctly for the intended gas group as specified in the Fieldbus Spur Wiring Table. AVERTISSEMENT : Risque d'inflammation – la position du commutateur doit être correctement réglée pour le groupe de gaz concerné, comme indiqué dans le tableau de câblage des sorties du bus de terrain.
⑤	Trunk and spur connectors are only allowed to be manipulated at ambient temperatures between -5 °C and $+70$ °C.
⑥	Trunk wiring between the source and the segment protector(s) shall be installed per the Class I, Division 2 wiring methods specified by the National Electrical Code ANSI/NFPA 70 or Canadian Electrical Code C22.1.
⑦	Special conditions for safe use: <ul style="list-style-type: none"> • The use of the Switch is only permitted in the absence of a hazardous atmosphere. • All cables have to be fixed. • The signal lines of any spur must not be connected to earth potential or to the cable shield.
⑧	Usage of the segment protector in FISCO systems: In combination with the use of a fieldbus power supply with a maximum output voltage of 17.5 V with a safe output voltage limiting acc. to at least Ex ic the segment protector outputs are rated acc. to the FISCO model. Regarding the cable parameters, the cable used for the fieldbus has to be within the following ranges: <ul style="list-style-type: none"> - $R' = 15...150$ Ohm/km (loop resistance) - $L' = 0.4...1$ mH/km - $C' = 45...200$ nF/km (incl. a possibly existing shield) - $C' = C'_{wire/wire} + 0.5 * C'_{wire/shield}$ (with floating field apparatus) - $C' = C'_{wire/wire} + C'_{wire/shield}$ (if the shield is connected to one pole of the fieldbus devices supply circuit) On each output circuit a maximum cable length of 1 km for group IIC and 5 km for groups IIA, IIB and IIIC may be connected. If more than one device is connected, the spur cable to each device must be shorter than 60 m. The maximum cable length must include all spur cables.
⑨	A field terminator shall be mounted at each end of the trunk.
⑩	Spur outputs of the R2-SP-IC* Segment Protector for use in a FISCO ic system require a separation wall to be mounted on top of the Segment Protector. The separation wall is a mandatory prerequisite to ensure the required clearance of 50 mm between the trunk terminals and the spur terminals for FISCO ic.

WARNING: Substitution of components may impair intrinsic safety and suitability for hazardous (classified) locations.

AVERTISSEMENT : le remplacement des composants peut altérer la sécurité intrinsèque et l'adéquation à une utilisation dans des zones dangereuses (classées).


WARNING: Explosion Hazard – Do not disconnect incendive circuits while they are live unless area is known to be non-hazardous.

AVERTISSEMENT: Risque d'explosion - Ne pas débrancher tant que le circuit incendiaire est sous tension, à moins qu'il ne s'agisse d'un emplacement non dangereux.

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General requirements:

1. The device must be supplied by a Class 2 or limited-energy source in accordance with UL 61010-1, Third Edition.
2. The device is an OPEN type equipment that must be used within a suitable end-use enclosure. The suitability of the enclosure is subject to investigation by the local authority having jurisdiction at the time of installation. The temperature inside the enclosure shall not exceed the permissible ambient temperature of the device.
3. The device is designed for use in altitudes up to 2000 m.
4. The device is designed for use in an ambient temperature range from -50 °C up to 70 °C.
5. The maximum specified relative humidity is 95 % not condensing.
6. Protection of the operating personnel and the overall system is not ensured if the product is not being used according to its intended purpose.

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