

Instruction Manual

1. Marking

ATEX/IECEx Marking

USB Intrinsic Safety Barrier SK-PC-D2-UU1-10-HS Pepperl+Fuchs GmbH Lilienthalstraße 200, 68307 Mannheim, Germany
ATEX: Ⓢ II 3G Ex nA [ic] IIC T6 Gc Ⓢ II 3G Ex nA [ic IIIB] IIC T6 Gc
IECEx: Ex nA [ic] IIC T6 Gc Ex nA [ic IIIB] IIC T6 Gc
UL: Class I, Div. 2, A, B, C, D Class II, Div. 2, F, G Class III, Div. 2
USL: Class I, Zone 2, AEx na [ic] IIC T6 Gc AEx nA [ic IIIB] IIC T6 Gc
CNL: Class I, Zone 2, Ex nA [ic] IIC T6 Gc X AEx nA [ic IIIB] IIC T6 Gc X

2. Validity

The corresponding datasheets, manuals, declarations of conformity, EU-type examination certificates, certificates, and control drawings if applicable (see datasheet) are an integral part of this document. You can find this information under www.pepperl-fuchs.com.

Specific processes and instructions in this instruction manual require special provisions to guarantee the safety of the operating personnel.

Due to constant revisions, documentation is subject to permanent change. Please refer only to the most up-to-date version, which can be found under www.pepperl-fuchs.com.

Observe laws, standards, and directives applicable to the intended use and the operating location. Observe Directive 1999/92/EC in relation to hazardous areas.

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Refer to the relevant EU-type examination certificate to see the relationship between the connected circuit type, the maximum permitted ambient temperature, the surface temperature, and the effective inner reactances.

3. Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismantling lies with the plant operator.

The personnel must be appropriately trained and qualified in order to carry out mounting, installation, commissioning, operation, maintenance, and dismantling of the device. The trained and qualified personnel must have read and understood the instruction manual.

4. Intended Use

The SK-PC-D2-UU1-10-HS is an open-type USB barrier that provides two USB channel connections. The barrier is intended for installation into an ATEX/IECEx certified, tool-removable, IP54 minimum enclosure and is suitable for installation in Zone 2, Group IIC hazardous locations. The barrier provides "ic" energy-limited field wiring to Zone 2, Group IIC and Zone 22, Group IIIB hazardous locations.

For each of the two USB channels, the barrier provides four lines to the "ic" intrinsically safe apparatus: The power lines (V+, GND) and the data lines (TxD+, RxD-)

The SK-PC-D2-UU1-10-HS may be mounted in Class I, Div. 2, A, B, C, D and Zone 2, IIC locations. The barrier provides non-incendive outputs for Class I, Div 2., A, B, C, D; Class II, Div. 2, F and G; Class III, Div. 2; Zone 2, IIC; and Zone 22, IIIB areas based on the entity parameter concept.

Take the intended use of the connected devices from the corresponding documentation.

The device is an electrical apparatus for hazardous areas.

5. Improper Use

Protection of the personnel and the plant is not ensured if the device is not used according to its intended use.

The device is not suitable to separate intrinsically safe circuits from non-intrinsically safe circuits.

6. Mounting and Installation

Prior to using the product make yourself familiar with it. Read the instruction manual carefully.

Only use accessories specified by the manufacturer.

When mounting the surrounding enclosure in hazardous areas, the surrounding enclosure must meet the requirements of a type of protection listed in IEC/EN 60079-0.

Only connect a device that is in accordance with IEC/EN 60950-1 and is designed as safety extra-low protective voltage (SELV) system.

Equipotential bonding must be achieved along the intrinsically safe circuits.

Equipotential bonding must be achieved along the intrinsically safe circuits.

Connection or disconnection of energized circuits is only permitted in the absence of a potentially explosive atmosphere.

Adjust the sealing element of the cable gland to the diameter of the cables and connection lines used.

Ensure that all cable glands are in good condition and are securely tightened.

7. Requirements for Cables and Connection Lines

Only cables and connection lines that meet the requirements of the respective hazardous area certificate of the device may be connected to the intrinsically safe connection.

Only use cables and connection lines with a temperature range appropriate to the application.

Observe the permissible cable type and cable length given in the respective hazardous area certificate.

Regarding the verification of intrinsic safety, observe the maximum permissible external capacitance of this device and the other devices in the circuit.

Install the cables and connection lines in such a way that they are protected from ultraviolet radiation.

Install cables and cable glands in a way that they are not exposed to mechanical hazards.

Protect cables and cable glands from tensile load and torsional stress or use certified cable glands.

The dielectric strength of the insulation must be at least 500 V according to IEC/EN 60079-14.

Observe the permissible core cross section of the conductor.

When installing the conductors the insulation must reach up to the terminal.

When using stranded conductors, crimp wire end ferrules on the conductor ends.

Do not use aluminum wire for connection of the device.

Protect plastic cable glands against mechanical hazard.

Never pull the cable. A wire could become loose from the terminal and protection against electric shock can no longer be ensured. Always pull the terminal.

Observe the minimum bending radius of the conductors.

Unused cables and connection lines must be connected to earth or be adequately insulated by means of terminals suitable for the type of protection.

Observe the grounding requirements for type of protection Ex i according to IEC/EN 60079-14.

8. Operation, Maintenance, Repair

Prior to using the product make yourself familiar with it. Read the instruction manual carefully.

Observe the warning markings.

The device must not be repaired, changed, or manipulated. In case of failure, always replace the device with an original device.

Do not use a damaged or polluted device.

Do not connect or disconnect the electrical connection when energized.

If cleaning is necessary while the device is located in a hazardous area, in order to avoid electrostatic charging only use a clean damp cloth.

Observe IEC/EN 60079-17 for maintenance and inspection.

9. Delivery, Transport, Disposal

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

Always store and transport the device in the original packaging.

Store the device in a clean and dry environment. The permitted ambient conditions must be considered, see datasheet.

The device, built-in components, packaging, and any batteries contained within must be disposed in compliance with the applicable laws and guidelines of the respective country.