

# Instruction Manual

## 1. Marking

Universal Input/Output FB7304B3, FB7304E3
ATEX certificate: FIDI 21 ATEX 0013 U
ATEX marking: Ⓜ II 2G Ex db eb q IIC Gb
IECEX certificate: IECEX FIDI 21.0003U
IECEX marking: Ex db eb q IIC Gb
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Internet: www.pepperl-fuchs.com

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

## 3. Reference to Further Documentation

Observe directives, standards, and national laws applicable to the intended use and the operating location. Observe Directive 1999/92/EC in relation to hazardous areas. Observe directives, standards, and national laws applicable to the intended use and the operating location. 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](http://www.pepperl-fuchs.com). For specific device information such as the year of construction, scan the QR code on the device. As an alternative, enter the serial number in the serial number search at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com). 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](http://www.pepperl-fuchs.com).

## 4. Intended Use

The device is only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability. Only use the device in the industrial location. Use the device only within the specified ambient temperature range. Use the device only within the specified ambient and operating conditions. Only use the device stationary. The I/O modules, com units, power supplies, and bus termination modules of the remote I/O system must only be used together with the associated backplanes. The backplane connections are non-intrinsically safe. The I/O modules of the remote I/O system act as an interface between signals from the hazardous area and the non-hazardous area.

## 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 for isolating signals in power installations unless this is noted separately in the corresponding datasheet.

## 6. Mounting and Installation

Do not mount a damaged or polluted device. Observe the instruction manuals for the associated backplanes. The device must only be operated in the specified ambient temperature range and at the specified relative humidity without condensation. Do not mount the device at locations where an aggressive atmosphere may be present. The device is designed for use in pollution degree 2 and overvoltage category II according to IEC/EN 60664-1. The device must be installed and operated only in an environment of overvoltage category II (or better) according to IEC/EN 60664-1. Supply the device with a power supply that meets the requirements for safety extra-low voltage (SELV) or protective extra-low voltage (PELV). The permitted supply short-circuit current for the components is 50 A. Only use accessories specified by the manufacturer. Push the module into the slot until all rear catches have audibly engaged in position. The module must engage twice.

Do not push the modules into the slots with too much force. The rear connections of the devices may be damaged if using excessive force. In this case the explosion protection can no longer be ensured.

Observe the installation instructions according to IEC/EN 60079-14.

Connection or disconnection of energized non-intrinsically safe circuits is only permitted in the absence of a potentially explosive atmosphere. Before connecting or disconnecting circuits in the presence of a potentially explosive atmosphere, ensure that all non-intrinsically safe circuits are voltage-free and currentless.

The housing is factory-sealed. Do not open the housing.

If intrinsically safe and non-intrinsically safe circuits are being operated together, the connections of the non-intrinsically safe circuits must be covered. The cover must comply with degree of protection IP30 according to IEC/EN 60529.

If intrinsically safe and non-intrinsically safe circuits are present, the cover with a degree of protection IP30 may only be removed if the non-intrinsically safe circuits are de-energized (volt-free and currentless) or the absence of a potentially explosive atmosphere.

### Requirements for Cables and Connection Lines

Observe the permissible core cross section of the conductor.

Observe the insulation stripping length.

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

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

Connectors for non-intrinsically safe circuits must be mechanically secured.

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.

Unused cables and connection lines must be either connected to terminals or securely tied down and isolated.

### Requirements for Surrounding Enclosures

The device may only be installed and operated in Zone 1 if mounted in a surrounding enclosure, which corresponds to equipment protection level Gb.

The device must be installed and operated only in surrounding enclosures that

- comply with the requirements for surrounding enclosures according to IEC/EN 60079-0,
- are rated with the degree of protection IP54 according to IEC/EN 60529.

Place warning marking "Warning – Refer to instruction manuals!" visibly on the surrounding enclosure.

Place warning marking "Warning – Non-intrinsically safe circuits protected by internal cover with a degree of protection IP30!" visibly on the surrounding enclosure.

Avoid electrostatic charges which could result in electrostatic discharges while installing, operating, or maintaining the device.

Place warning marking "Warning – Avoid electrostatic charge!" visibly on the surrounding enclosure.

## 7. Operation, Maintenance, Repair

Do not use a damaged or polluted device.

The housing is factory-sealed. Do not open the housing.

Do not repair, modify, or manipulate the device.

If there is a defect, always replace the device with an original device.

Only use accessories specified by the manufacturer.

Before connecting or disconnecting circuits in the presence of a potentially explosive atmosphere, ensure that all non-intrinsically safe circuits are voltage-free and currentless.

Only remove the device with the integrated removal system. The integrated removal system requires a two-step removal process.

1. Unlock and wait (refer to table for wait time)
2. Remove

Wait time	Device
6 s	I/O modules FB7304B3, FB7304E3

Push the module into the slot until all rear catches have audibly engaged in position. The module must engage twice.

Do not push the modules into the slots with too much force. The rear connections of the devices may be damaged if using excessive force. In this case the explosion protection can no longer be ensured.

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

If intrinsically safe and non-intrinsically safe circuits are being operated together, the connections of the non-intrinsically safe circuits must be covered. The cover must comply with degree of protection IP30 according to IEC/EN 60529.

If intrinsically safe and non-intrinsically safe circuits are present, the cover with a degree of protection IP30 may only be removed if the non-intrinsically safe circuits are de-energized (volt-free and currentless).

Connection or disconnection of energized non-intrinsically safe circuits is only permitted in the absence of a potentially explosive atmosphere. Before connecting or disconnecting circuits in the presence of a potentially explosive atmosphere, ensure that all non-intrinsically safe circuits are voltage-free and currentless.

Except for FB modules with front side Ex e connections, all FB I/O modules, FB power supplies, FB bus termination modules, and FB com units may be swapped in Zone 1 while energized (hot swap).

#### **Requirements for Surrounding Enclosures**

The device may only be installed and operated in Zone 1 if mounted in a surrounding enclosure, which corresponds to equipment protection level Gb.

The device must be installed and operated only in surrounding enclosures that

- comply with the requirements for surrounding enclosures according to IEC/EN 60079-0,
- are rated with the degree of protection IP54 according to IEC/EN 60529.

The surrounding enclosure may be opened for maintenance while energized in Zone 1 provided that the following conditions are met:

- The connections of the non-intrinsically safe circuits must be protected by a cover with a degree of protection IP30.
- All other devices in the surrounding enclosure must permit the opening of the surrounding enclosure while energized in Zone 1.
- An appropriate marking is placed on the surrounding enclosure.

Do not remove the warning markings.

#### **Requirements for Cables and Connection Lines**

Observe the permissible core cross section of the conductor.

Observe the insulation stripping length.

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

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

Connectors for non-intrinsically safe circuits must be mechanically secured.

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.

Unused cables and connection lines must be either connected to terminals or securely tied down and isolated.

## **8. 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.

Keep the original packaging. 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.