

# (1) EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) No. of EC-Type Examination Certificate: **BVS 11 ATEX E 093 X**

(4) Equipment: **FB Remote I/O Module Typ FB x3xx \*\*\***

(5) Manufacturer: **Pepperl + Fuchs GmbH**

(6) Address: **77815 Bühl / Baden**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 11.2157 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

**EN 60079-0:2009 General requirements**  
**EN 60079-1:2007 Flameproof enclosure „d“**  
**EN 60079-7:2007 Increased safety „e“**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

 **II 2G Ex db eb IIC T4**

DEKRA EXAM GmbH  
Bochum, dated 15.07.2011



Certification body



Special services unit

- (13) Appendix to
- (14) **EC-Type Examination Certificate**  
**BVS 11 ATEX E 093 X**
- (15) 15.1 Subject and Type

FB Remote I/O Module Type FB x3xx \*\*\*

### 15.2 Description

Digital Input types FB 130\* provide single, dual or multi channel power supply for switch / opto-isolator / proximity switch circuits / Namur initiators and transfer the digital information via the bus.

Features:

- type FB 1301: dual channel isolated
- type FB 1302: triple channel, common ground
- type FB 1303: channel 1: frequency signal; channel 2 revolution direction detector
- type FB 1304: channel 1: counter signal; channel 2 up/down direction detector
- type FB 1308: 8 channels; common ground
- type FB 1315: 15 channels; input circuits 60 V DC, common ground

Digital outputs type FB 23\*\* drive solenoid valves or LEDs or acoustic alarms or sounders or signal lamps and take in digital inputs from valve position feedback, switches, opto-isolators, proximity switches etc. and transfer the digital information via the bus.

Features:

- type FB 2301:  $V_{out} = 22 \text{ V}$ ,  $R = 315 \Omega$
- type FB 2302:  $V_{out} = 24 \text{ V}$ ,  $R = 210 \Omega$
- type FB 2303:  $V_{out} = 24 \text{ V}$ ,  $R = 360 \Omega$
- type FB 2304:  $V_{out} = 22 \text{ V}$ ,  $R = 220 \Omega$
- type FB 2305:  $V_{out} = 22.8 \text{ V}$ ,  $R = 290 \Omega$
- type FB 2312:  $V_{out} = 25.3 \text{ V}$ ,  $R = 329 \Omega$
- type FB 2313:  $V_{out} = 26.7 \text{ V}$ ,  $R = 509 \Omega$

Transmitter supply unit type FB 330\* provide single or quad channel power supply for measuring transmitters and transfer the digital information via bus.

They also accept active inputs from 4-wire transmitters.

Features:

- type FB 3301: single channel, two wire or four wire configuration
- type FB 3302: single channel, two wire or four wire configuration, HART
- type FB 3303: single channel, two wire or four wire configuration, HART
- type FB 3304: quad channel, two wire or four wire configuration, common ground
- type FB 3305: quad channel, two wire or four wire configuration, HART, common ground

Output isolators type FB 430\* provide single or quad channel outputs for positioners, proportional valves, I/P converters, or indicators and receive the digital information via the bus.

Features:

- type FB 4301: single channel
- type FB 4302: single channel, HART
- type FB 4304: quad channel, common ground
- type FB 4305: quad channel, HART, common ground

Measuring transmitters type FB 530\* provide single, or quad channel conversion of analogue "mA" - or "mV"-signals or from Pt100 thermometers / thermocouples and transfer the digital information via the bus.

Features:

- type FB 5301: single channel, RTD measuring circuit
- type FB 5302: single channel, thermocouple measuring circuit
- type FB 5304: quad channel, RTD measuring circuit, common ground
- type FB 5305: quad channel, thermocouple measuring circuit, channel isolated
- type FB 5306: single channel, voltage input

Digital outputs type FB 6308 drive solenoid valves or LEDs or acoustic alarms or sounders or signal lamps and receive the digital information via the bus.

Features:

type FB 6308: 8 channels, common ground

Digital outputs type FB 631\* drive solenoid valves or LEDs or acoustic alarms or sounders or signal lamps and receive the digital information via the safe bus.

Features:

type FB 6310:  $V_{out} = 24.5 \text{ V}$ ,  $R = 370 \Omega$ , 4 channels, common ground

type FB 6311:  $V_{out} = 24.5 \text{ V}$ ,  $R = 320 \Omega$ , 4 channels, common ground

type FB 6312:  $V_{out} = 17 \text{ V}$ ,  $R = 185 \Omega$ , 4 channels, common ground

type FB 6313:  $V_{out} = 23 \text{ V}$ ,  $R = 290 \Omega$ , 4 channels, common ground

type FB 6314:  $V_{out} = 23 \text{ V}$ ,  $R = 355 \Omega$ , 4 channels, common ground

type FB 6315:  $V_{out} = 16.2 \text{ V}$ ,  $R = 78 \Omega$ , 4 channels, common ground

Relay outputs type 630\* \* switch valves, trip points, indicators, LEDs or annunciators via relay contacts.

Features:

Type FB 6301 B: 2 channels, 24 V AC/DC, 1A (resistive load)

Type FB 6306: 8 channels, 24 V AC/DC, 1A (resistive load)

The electronic devices are mounted inside FB-module enclosures, which are designed in type of protection Flameproof enclosure "d". These enclosures are separately tested (see test report BVS PP 10.2189 EG).

For the FB Remote I/O Modules the enclosures type 1, 2, 9 and 11 with front side connectors are used.

The FB Remote I/O Modules are intended to be used in connection with a special FB Remote I/O Backplanes. These backplanes are intended to be mounted inside an enclosure in type of protection Increased safety "e".

When the FB Remote I/O Modules are clicked to the substation each rear-side connector pin of the module enclosure together with one plug contact of the substation forms a chamber in type of protection Flameproof enclosure "d".

For disconnecting the FB Remote I/O Modules from the substation a special tool is needed.

The substation and the mounting of the FB-modules inside the substation is not a subject of this test report. It is separately tested and certified.

### 15.3 Parameters

#### 15.3.1 Front connectors

voltage	$\leq$	63	V
current	$\leq$	1	A

#### 15.3.2 Rear-side connector

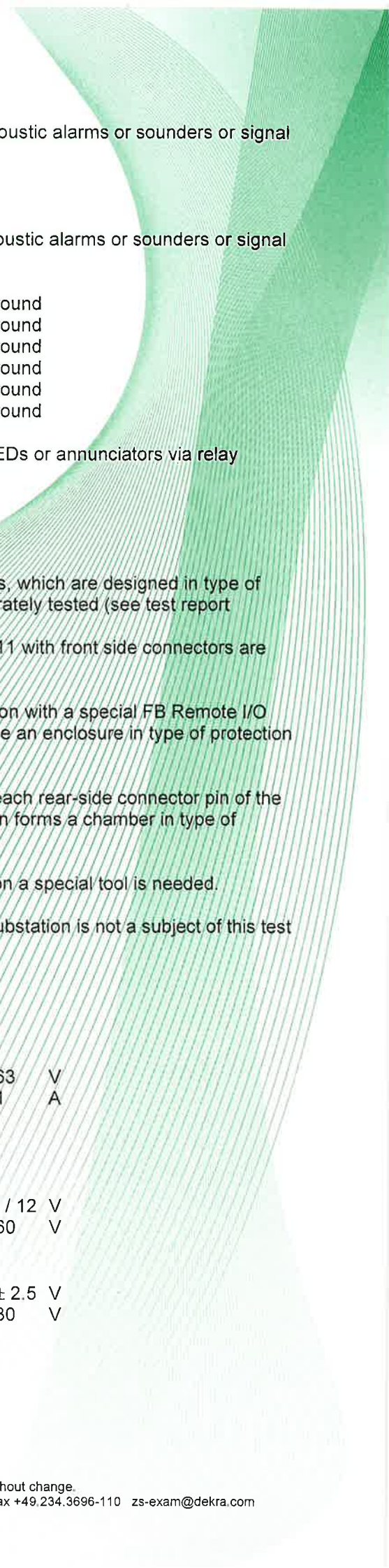
power supply			
$U_{in}$		DC 5.4 / 12	V
$U_m$	$\leq$	60	V

Bus com bus interface			
$U_{in}$		DC $\pm 2.5$	V
$U_m$	$\leq$	30	V

#### 15.3.3 ambient temperature range\*

$-20 \text{ }^\circ\text{C} \leq T_a \leq 65 \text{ }^\circ\text{C}$

\* see IEC 60079-0, clause 5.1.1



(16) Test and Assessment Report

BVS PP 11.2157 EG, dated 15.07.2011

(17) Special conditions for safe use

The FB Remote I/O Modules shall only be used in connection with special FB Remote I/O backplanes, which are separately tested and certified.

A warning label must be placed close to the FB modules with the following text: "Warning! Avoid electrostatic charge".

Do not place any FB 631x module next to a power supply.