Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 09 ATEX 2046 **Issue: 1**

(4) Product: Relay Barriers, types EB3N, EB3C-N, EB3L-N and EB3S-N

(5) Manufacturer: IDEC Corporation

(6) Address: 2-6-64 Nishimiyahara, Yodogawa-ku, Osaka 532-0004, Japan

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 20-29082.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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

II (1) G [Ex ia Ga] IIC

II (1) D [Ex ia Da] IIIC

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, March 25, 2020
On behalf of PTB:

Dr.-Ing. F. Lienesch
Direktor und Professor

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 09 ATEX 2046, Issue:1**

(15) Description of Product

The Relay Barriers of types EB3N, EB3C-N, EB3L-N and EB3S-N are associated apparatus intended for connection to passive intrinsically safe circuits. They are provided with intrinsically safe I/O-circuits which can differ in the number of channels from 1 channel up to a maximum of 16 channels. The signals of the intrinsically safe circuits are electrically isolated from the non-intrinsically safe circuits by optocouplers and they are available via relay contacts or transistor switches. The Relay Barrier, type EB3N, is provided with 2 intrinsically safe I/O-safety circuits or additionally with 5 intrinsically safe I/O-auxiliary circuits.

The maximum permissible ambient temperature is +60°C.

Electrical Data

Barrier, type EB3N

Power input (Terminals + , -)	24V (DC) U_m = 250V
Power input for safety relay (Terminals Y1, Y2)	24V (DC) U_m = 250V
Floating contacts for safety relays (Terminals 13-14, 23-24)	30V (DC), 1A U_m = 250V
Floating contacts for auxiliary relays (Terminals A1-A5, C1)	24V (DC), 3A U_m = 250V
or	
Open-collector circuits (Terminals A1-A5, C1)	30V (DC), 100mA U_m = 250V
Signal output auxiliary circuits (Terminals P1-P5, N)	type of protection Intrinsic Safety Ex ia IIC maximum values for each circuit: U_o = 13.2 V I_o = 14.2 mA P_o = 46.9 mW linear characteristic C_i negligibly low L_i negligibly low

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Signal and complementary signal output and input safety circuits (Terminals 11, 12, 21, 22, N)	type of protection Intrinsic Safety Ex ia IIC maximum values: U_o = 13.2 V ΣI_o = 28.4 mA ΣP_o = 93.8 mW linear characteristic C_i negligibly low L_i negligibly low
Common ground (Terminals N1, N2, N3)	type of protection Instrinsic Safety Ex ia IIC Ground

Barriers, types EB3C-N, EB3L-N and EB3S-N

Power input (Terminal + , -)	24 V (DC) nominal voltage U_m = 250 V
Power input (Terminal N , L)	100 up to 240 V (AC) nominal voltage U_m = 250 V

Barrier, type EB3C-N

Signal output, floating contacts (Terminals An, Cn)	250 V (AC/DC), 3 A U_m = 250 V
Signal output, open-collector (Terminals An, Cn)	24 V (DC), 0.1 A U_m = 250 V
Signal output, open-collector (Terminals An, Cn)	220 V (AC/DC), 80 mA U_m = 250 V
Signal output, connector (Connectors An, Cn)	30 V (DC), 1 A U_m = 250 V

Barrier, type EB3L-N

Signal input (Terminals Sn, Cn)	24 V (DC), 10 mA U_m = 250 V
Signal input, connector (Connectors Sn, Cn)	24V (DC), 10 mA U_m = 250 V

Barrier, type EB3S-N

Signal output, floating contacts (Terminals An, Cn)	250 V (AC/DC), 3 A U_m = 250 V
Signal output, open-collector (Terminals An, Cn)	24 V (DC), 0.1 A U_m = 250 V
Signal output, open-collector (Connectors An, Cn)	220 V (AC/DC), 80 mA U_m = 250 V

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Barriers, types EB3C-N, EB3L-N

Signal outputs (Terminals Pn, Nn)	type of protection Intrinsic Safety Ex ia IIC; maximum values for each output: U_o = 13.2 V I_o = 14.2 mA P_o = 46.9 mW linear characteristic C_i negligibly low L_i negligibly low
Common ground (Terminal Nn)	type of protection Intrinsic Safety Ex ia IIC; Ground

The intrinsically safe circuits of one or several Relay Barriers of types EB3N, EB3C-N and EB3L-N may also be interconnected and fed back using a common conductor or the respective individual conductors. When several Relay Barriers are interconnected the intrinsically safe ground terminals (N) shall be interconnected as well. In each case the rules for the interconnection of intrinsically safe circuits shall be complied with. For respective maximum external capacitances Co and inductances Lo reference is made to the operating instructions manual.

Barrier, type EB3S-N

Signal outputs, type A (Terminals Pn, Sn, Nn)	type of protection Intrinsic Safety Ex ia IIC; maximum values for each output: U_o = 8.7 V I_o = 123 mA P_o = 406 mW trapezoidal characteristic C_i negligibly low L_i negligibly low
Signal outputs, type B (Terminals Pn, Sn, Nn)	type of protection Intrinsic Safety Ex ia IIC; maximum values for each output: U_o = 13,2 V I_o = 56 mA P_o = 185 mW linear characteristic C_i negligibly low L_i negligibly low

The signal outputs of the barrier type EB3S-N shall be connected individually and shall not be interconnected. For respective maximum external capacitances Co and inductances Lo reference is made to the operating instructions manual.

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Changes with respect to previous editions

- Adaption of the test specification to the current state of standards
- Update of the list of currently valid technical documents
- Update of the operating instructions manual, the marking and the type label respecting the modifications performed
- Corrections in the safety-related description
- Change of manufacturer address
- Summarization of the specifications from the initial certificate and the 1st supplement with those resulting from the changes listed above to represent the current state of production.

(16) Test Report PTB Ex 20-29082

(17) Specific conditions of use

none

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, March 25, 2020
On behalf of PTB:

Dr.-Ing. F. Lienesch
Direktor und Professor