



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx PTB 10.0015	Page 1 of 6	<u>Certificate history:</u>
Status:	Current	Issue No: 4	Issue 3 (2014-06-10)
Date of Issue:	2020-03-25		Issue 2 (2014-04-15)
Applicant:	IDEC CORPORATION 2-6-64 Nishimiyahara, Yodogawa-ku, Osaka 532-0004 Japan		Issue 1 (2012-06-21)
Equipment:	Relay Barrier type EB3N, EB3C-N, EB3L-N and EB3S-N		Issue 0 (2010-04-13)
Optional accessory:			
Type of Protection:	Intrinsic Safety		
Marking:	[Ex ia Ga] IIC [Ex ia Da] IIIC		

Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. Frank Lienesch

Position:

**Head of department 3.6 "Explosion Protection in Sensor
Technology and Instrumentation"**

Signature:
(for printed version)

Date:
(for printed version)

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Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany





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Manufacturer: **IDEC CORPORATION**
2-6-64 Nishimiyahara, Yodogawa-ku, Osaka 532-0004
Japan

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/PTB/ExTR09.0074/03](#)

Quality Assessment Report:

[NO/NEM/QAR10.0001/13](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

For details reference is made to the annex

SPECIFIC CONDITIONS OF USE: NO



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Equipment (continued):

Relay Barriers, types EB3N, EB3C-N, EB3L-N and EB3S-N



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- 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 issues 1 to 3 with those resulting from the changes listed above to represent the current state of production.



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Additional information:

For electrical specifications and further details reference is made to the annex

Annex:

[Annex to IECEx PTB 10.0015_issue-4.pdf](#)



Applicant: IDEC Corporation
Electrical apparatus: Relay Barriers, types EB3N, EB3C-N, EB3L-N and EB3S-N

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



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:
 $U_o = 13.2 \text{ V}$
 $\Sigma I_o = 28.4 \text{ mA}$
 $\Sigma P_o = 93.8 \text{ mW}$
linear characteristic
 C_i negligibly low
 L_i negligibly low

Common ground
(Terminals N1, N2, N3)

type of protection Intrinsic Safety Ex ia IIC
Ground

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

Power input
(Terminals +, -)

24 V (DC) nominal voltage
 $U_m = 250 \text{ V}$

Power input
(Terminals N, L)

100 up to 240 V (AC) nominal voltage
 $U_m = 250 \text{ V}$

Barrier, type EB3C-N

Signal output, floating contacts
(Terminals An, Cn)

250 V (AC/DC), 3 A
 $U_m = 250 \text{ V}$

Signal output, open-collector
(Terminals An, Cn)

24 V (DC), 0.1 A
 $U_m = 250 \text{ V}$

Signal output, open-collector
(Terminals An, Cn)

220 V (AC/DC), 80 mA
 $U_m = 250 \text{ V}$

Signal output, connector
(Connectors An, Cn)

30 V (DC), 1 A
 $U_m = 250 \text{ V}$

Barrier, type EB3L-N

Signal input
(Terminals Sn, Cn)

24 V (DC), 10 mA
 $U_m = 250 \text{ V}$

Signal input, connector
(Connectors Sn, Cn)

24V (DC), 10 mA
 $U_m = 250 \text{ V}$

Barrier, type EB3S-N

Signal output, floating contacts
(Terminals An, Cn)

250 V (AC/DC), 3 A
 $U_m = 250 \text{ V}$

Signal output, open-collector
(Terminals An, Cn)

24 V (DC), 0.1 A
 $U_m = 250 \text{ V}$

Signal output, open-collector
(Connectors An, Cn)

220 V (AC/DC), 80 mA
 $U_m = 250 \text{ V}$



Barriers, types EB3C-N, EB3L-N

Signal outputs
maximum values for each output:

type of protection Intrinsic Safety Ex ia IIC;

$U_o = 13.2 \text{ V}$
 $I_o = 14.2 \text{ mA}$
 $P_o = 46.9 \text{ mW}$
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 C_o and inductances L_o reference is made to the operating instructions manual.

Barrier, type EB3S-N

Signal outputs, type A
maximum values for each output:

type of protection Intrinsic Safety Ex ia IIC;

$U_o = 8.7 \text{ V}$
 $I_o = 123 \text{ mA}$
 $P_o = 406 \text{ mW}$
trapezoidal characteristic
 C_i negligibly low
 L_i negligibly low

Signal outputs, type B
maximum values for each output:

type of protection Intrinsic Safety Ex ia IIC;

$U_o = 13.2 \text{ V}$
 $I_o = 56 \text{ mA}$
 $P_o = 185 \text{ mW}$
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 C_o and inductances L_o reference is made to the operating instructions manual.

Marking: **[Ex ia Ga] IIC or [Ex ia Da] IIIC**