



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.:	IECEX DEK 11.0084X	Issue No: 2	<u>Certificate history:</u> Issue No. 2 (2016-12-22) Issue No. 1 (2013-10-14) Issue No. 0 (2011-12-06)
Status:	Current	Page 1 of 4	
Date of Issue:	2016-12-22		
Applicant:	PR electronics A/S Lerbakken 10 8410 Rønne Denmark		
Equipment:	HART-Transparent Repeater, Type 9106B1A, Type 9106B1B, Type 9106B2A, Type 9106B2B		
Optional accessory:	<i>Display, type 4501</i>		
Type of Protection:	Ex ia; nA		
Marking:	[Ex ia Ga] IIC/IIB/IIA [Ex ia Da] IIIC [Ex ia Ma] I Ex nA nC IIC T4 Gc		

*Approved for issue on behalf of the IECEx
Certification Body:*

R. Schuller

Position:

Certification Manager

*Signature:
(for printed version)*

Date:

2016-12-22

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

DEKRA Certification B.V.
Meander 1051,
6825 MJ Arnhem
The Netherlands





IECEX Certificate of Conformity

Certificate No: IECEx DEK 11.0084X

Issue No: 2

Date of Issue: **2016-12-22**

Page 2 of 4

Manufacturer: **PR electronics A/S**
Lerbakken 10
8410 Rønne
Denmark

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

*This Certificate **does not** indicate compliance with electrical 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:

[NL/DEK/ExTR11.0097/00](#)

[NL/DEK/ExTR11.0097/01](#)

[NL/DEK/ExTR11.0097/03](#)

Quality Assessment Report:

[NL/DEK/QAR13.0017/02](#)



IECEx Certificate of Conformity

Certificate No: IECEx DEK 11.0084X

Issue No: 2

Date of Issue: **2016-12-22**

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

HART-Transparent Repeater, Type 9106B1A, Type 9106B1B, Type 9106B2A and Type 9106B2B, for rail mounting, are 24 V powered isolating barriers that serve as a repeater.

The repeater transfers the intrinsically safe 4 - 20 mA current signal (with HART communication) of either a loop powered transmitter or an active current source to a non-intrinsically safe 4 - 20 mA output signal (with HART communication).

The Repeater is supplied via terminals at the front of the module, or via Power Rail Type 9400.

Removable display module 4501 can be used for programming of the Repeater.

The HART-Transparent Repeater, Type 9106B*A is a one channel version and Type 9106B*B is a two channel version.

Ambient temperature range -20 °C to +60 °C.

For electrical data, refer to Annex 1.

CONDITIONS OF CERTIFICATION: YES as shown below:

The HART-Transparent Repeater shall be installed in a controlled environment with suitably reduced pollution, limited to pollution degree 2 or better.

The non intrinsically safe circuits shall be limited to overvoltage category **III** as defined in IEC 60664-1.

If the HART-Transparent Repeater is installed in an explosive atmosphere where equipment protection level Gc is required, the following specific conditions of use apply:

The HART-Transparent Repeater shall be installed in an enclosure in type of protection Ex n or Ex e, providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfil the same requirements.

Removable Display Module 4501, when connected to the Repeater, may not be damaged and shall be free of dust and moisture.



IECEX Certificate of Conformity

Certificate No: IECEx DEK 11.0084X

Issue No: 2

Date of Issue: **2016-12-22**

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The maximum values for the intrinsically safe circuits were changed.

Annex:

[219950900.Annex to CoC IECEx DEK 11.0084X, issue 2.pdf](#)

Annex 1 to Certificate of Conformity IECEx DEK 11.0084X, issue 2

Electrical data

Supply (terminals 31, 32 and rear contacts): $U = 19.2 \dots 31.2$ Vdc.

Status-Relay output (terminals 33, 34):

$U \leq 32$ Vac or 32 Vdc, $I \leq 0.5$ Aac or $I \leq 1$ Adc respectively.

If the Repeater is installed outside the hazardous area, the following data for the relay contacts apply: $U \leq 110$ Vdc or 125 Vac, $I \leq 0.3$ Adc or $I \leq 0.5$ Aac respectively.

Outputs (terminals 11, 12 resp. 13, 14): $I = 4 \dots 20$ mA.

For all circuits above: $U_m = 253$ Vac (max. frequency 400 Hz).

Loop current input (terminals 43, 44 resp. terminals 53, 54):

in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, with following maximum values:

for Type 9106B1A and Type 9106B1B:

$U_o = 27.5$ V; $I_o = 92.6$ mA; $P_o = 0.64$ W;

$C_o = 0.084$ μ F (IIC) or 0.67 μ F (IIB) or 2.23 μ F (IIA) or 3.94 μ F (I) ;

$L_o = 4.15$ mH (IIC) or 16.59 mH (IIB) or 33.17 mH (IIA) or 54.42 mH (I);

$L_o/R_o = 223$ μ H/ Ω (IIB) or 447 μ H/ Ω (IIA) or 733 μ H/ Ω (I)

for Type 9106B2A and Type 9106B2B:

$U_o = 25.3$ V; $I_o = 96$ mA; $P_o = 0.61$ W;

$C_o = 0.104$ μ F (IIC) or 0.818 μ F (IIB) or 2.85 μ F (IIA) or 4.74 μ F (I);

$L_o = 3.86$ mH (IIC) or 15.43 mH (IIB) or 30.86 mH (IIA) or 50.64 mH (I).

$L_o/R_o = 234$ μ H/ Ω (IIB) or 468 μ H/ Ω (IIA) or 769 μ H/ Ω (I)

For group IIIC, the parameters of group IIB apply.

Current input (terminals 41, 42 resp. terminals 51, 52):

in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, for connection to a certified intrinsically safe circuit, with following maximum values:

$U_i = 30$ V; $I_i = 120$ mA; $P_i = 0.85$ W; $C_i = 2$ nF; $L_i = 0$ μ H; $U_o = 0$ V; $I_o = 0$ mA; $P_o = 0$ mW.

Current input and Loop current input of one channel are not applied simultaneously.

Both channels (terminals 41...44 and terminals 51...54) are infallibly galvanically isolated from each other and from the non-intrinsically safe supply and output circuits.

Combination of Loop current input of channel 1 (terminals 43, 44) and Current input of channel 2 (terminals 51, 52) in series, where terminal 43 is connected to terminal 51:

Loop current circuit (terminals 44 and 52) is in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, with following maximum values:

for Type 9106B1A and Type 9106B1B:

$U_o = 27.5$ V; $I_o = 92.6$ mA; $P_o = 0.64$ W;

$C_o = 0.084$ μ F (IIC) or 0.67 μ F (IIB) or 2.23 μ F (IIA) or 3.94 μ F (I) ;

$L_o = 4.15$ mH (IIC) or 16.59 mH (IIB) or 33.17 mH (IIA) or 54.42 mH (I);

$L_o/R_o = 223$ μ H/ Ω (IIB) or 447 μ H/ Ω (IIA) or 733 μ H/ Ω (I)

for Type 9106B2A and Type 9106B2B:

$U_o = 25.3$ V; $I_o = 96$ mA; $P_o = 0.61$ W;

$C_o = 0.104$ μ F (IIC) or 0.818 μ F (IIB) or 2.85 μ F (IIA) or 4.74 μ F (I);

$L_o = 3.86$ mH (IIC) or 15.43 mH (IIB) or 30.86 mH (IIA) or 50.64 mH (I).

$L_o/R_o = 234$ μ H/ Ω (IIB) or 468 μ H/ Ω (IIA) or 769 μ H/ Ω (I)

Annex 1 to Certificate of Conformity IECEx DEK 11.0084X, issue 2

For group IIIC, the parameters of group IIB apply.

Combination of both Current inputs (terminals 41, 42 resp. 51, 52) in series, where terminal 41 is connected to terminal 52:

Current input (terminals 42 and 51) is in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, for connection to a certified intrinsically safe circuit, with following maximum values:

$U_i = 30 \text{ V}$; $I_i = 120 \text{ mA}$; $P_i = 0.85 \text{ W}$; $C_i = 4 \text{ nF}$; $L_i = 0 \text{ }\mu\text{H}$; $U_o = 0 \text{ V}$; $I_o = 0 \text{ mA}$; $P_o = 0 \text{ mW}$.