



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 TUN 12.0024X** issue No.: **0** Certificate history:

Status: **Current**

Date of Issue: **2012-11-09** Page 1 of 3

Applicant: **Bartec GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany**

Electrical Apparatus: **Limitier17-1923-1111/****, Limitier17-1923-1122/****, Limitier17-1923-1133/****, Optical Transmitter 17-2114-0002/****, Optical Receiver Typ 17-2114-0003/******
Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i", Protection of equipment and transmission systems using optical radiation "op is"**

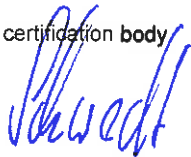
Marking: **Limitier: [Ex ib Gb] IIC/IIB and [Ex ib Db] IIIC/IIIB
Optical Transmitter: Ex ib op is IIC/IIB T4 Gb and Ex ib IIIC TX°C Db
Optical Receiver: Ex ib IIC/IIB T4 Gb and Ex ib IIIC TX°C Db
For TX°C see the Conditions of Certification.**

Approved for issue on behalf of the IECEx Certification Body: **Karl-Heinz Schwedt**

Position: **Head of certification body**

Signature:
(for printed version)

Date:


2012-11-09

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:

**TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1
30519 Hannover
Germany**





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Manufacturer: **Bartec GmbH**
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

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 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
IEC 60079-28 : 2006-08 Edition: 1	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation

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:

DE/TUN/ExTR12.0027/00

Quality Assessment Report:

DE/TUN/QAR06.0017/04



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The current-/voltage limiter module type 17-1923-1111/.... and type 17-1923-1122/.... and type 17-1923-1133/.... are associated apparatuses used for the erection in non hazardous areas. The non-intrinsically safe input circuits are only defined by U_{rated} and U_m . The output circuits are intrinsically safe. The level of protection is ib. Every module consists three channels. Those are use for signal transmission e.g. via opto couplers. The optical transceiver type 17-2114-0002/**** and type 17-2114-0003/**** may be erected in areas which requires EPL Gb or Db apparatuses (for Db only within an enclosures that ensures IP6X, for further information see the Conditions of Certification). The optical transceiver modules shall only be operated with the type 17-1923-1133/... module or in accordance with the specified electrical parameters. The optical transceiver modules are used for data transmission via fiber optics. The modules come without enclosure. For further information see the "Conditions of Certification".

CONDITIONS OF CERTIFICATION: YES as shown below:

See attachment.

General overview

The current-/voltage limiter module type 17-1923-1111/.... and type 17-1923-1122/.... and type 17-1923-1133/.... are associated apparatuses used for the erection in non hazardous areas. The non-intrinsically safe input circuits are only defined by U_{rated} and U_m . The output circuits are intrinsically safe. The level of protection is ib . Every module consists three channels. Those are used for signal transmission e.g. via opto couplers.

The optical transceiver type 17-2114-0002/**** and type 17-2114-0003/**** may be erected in areas which requires EPL Gb or Db apparatuses. The optical transceiver modules shall only be operated with the type 17-1923-1133/... module or in accordance with the specified electrical parameters. The optical transceiver modules are used for data transmission via fiber optics.

The modules do not have an enclosure. For further information see the "Conditions of Certification".

Electrical data

Electrical data for current-/voltage limiter module type 17-1923-1111/.... and type 17-1923-1122/.... and type 17-1923-1133/....:

input circuits
 (connections X1, X2, X3 and X4)

rated voltage: $U_{rated} = 5\text{ V}$
 .. $U_m = 30\text{ V}$

output circuits
channel 1
 (connections X11 and X14)

in type of protection „Intrinsic Safety“ [Ex ib] IIC resp. IIB/IIC maximum values:

		17-1923-1133/....	17-1923-1133/....	17-1923-1133/....			
U_o	=	6.2	V	6.2	V	6.2	V
I_o	=	246	mA	246	mA	246	mA
P_o	=	381	mW	381	mW	381	mW

Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

	Ex ib	IIC	IIB
max. permissible external inductance L_o		0.5 mH	2.6 mH
max. permissible external capacitance C_o		34 μ F	790 μ F

The above defined ratings in the table are max. values of the external reactance are only valid for the non-coincidental occurrence of those.

channel 2
 (connections X12 and X14)

in type of protection „Intrinsic Safety“ [Ex ib] IIC resp. IIB/IIIC
 maximum values:

		17-1923-1111/....		17-1923-1122/....		17-1923-1133/....	
U_o	=	6.2	V	6.2	V	6.2	V
I_o	=	31.3	mA	285	mA	285	mA
P_o	=	48.5	mW	442	mW	442	mW

Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

17-1923-1111/....	IIC	IIB
max. permissible external inductance L_o	23 mH	140 mH
max. permissible external capacitance C_o	33.9 μ F	789.9 μ F

17-1923-1122/.... and 17-1923-1133/....	IIC	IIB
max. permissible external inductance L_o	0.4 mH	2 mH
max. permissible external capacitance C_o	33.9 μ F	789.9 μ F

The above defined ratings in the table are max. values of the external reactance are only valid for the non-coincidental occurrence of those.

channel 3
 (connections X13 and X14)

in type of protection „Intrinsic Safety“ [Ex ib] IIC resp. IIB/IIIC
 maximum values:

		17-1923-1111/....		17-1923-1122/....		17-1923-1133/....	
U_o	=	6.2	V	6.2	V	6.2	V
I_o	=	30	mA	19	mA	30	mA
P_o	=	46.5	mW	29	mW	46.5	mW

Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

17-1923-1111/.... and 17-1923-1133/....	IIC	IIB
max. permissible external inductance L_o	25 mH	150 mH
max. permissible external capacitance C_o	33.9 μ F	789.9 μ F

17-1923-1122/....	IIC	IIB
max. permissible external inductance L_o	85 mH	340 mH
max. permissible external capacitance C_o	33.9 μ F	789.9 μ F

The above defined ratings in the table are max. values of the external reactance are only valid for the non-coincidental occurrence of those.

Electrical data for optical transceiver type 17-2114-0002/** and type 17-2114-0003/******

Optical transmitter
 (connections white and blue wire)

in type of protection „Intrinsic Safety“ Ex ib IIC resp. IIB/IIIC
 maximum values:

17-2114-0002/....			
U_i	=	6.2	V
I_i	=	246	mA
P_i	=	381	mW

Optical receiver supply
 (connections red and blue wire)

in type of protection „Intrinsic Safety“ Ex ib IIC resp. IIB/IIIC
 maximum values:

17-2114-0003/....			
U_i	=	6.2	V
I_i	=	285	mA
P_i	=	442	mW

Optical receiver signal
 (connections white and blue wire)

in type of protection „Intrinsic Safety“ Ex ib IIC resp. IIB/IIIC
 maximum values:

17-2114-0003/....			
U_i	=	6.2	V
I_i	=	30	mA
P_i	=	46.5	mW

Conditions of Certification

1. The current-/voltage limiter-module type 17-1923-1111/****, type 17-1923-1122/**** and type 17-1923-1133/**** shall be operated in an enclosure with the degree of protection of at least IP20 (for clean, dry and supervised rooms).
2. The optical transmitter unit type 17-2114-0002/**** and the optical receiver unit type 17-2114-0003/**** shall be operated in an enclosure with the degree of protection of at least IP20 for EPL Gb apparatuses (for clean, dry and supervised rooms) and IP6X for EPL Db apparatuses.
3. The connections X4 and X14 have to be connected to the equipotential bonding system of the explosion hazardous area. For the whole zone of erection potential equalisation shall be ensured. The connections shall be done in an infallible manner.

Type key

Type key Limitter 17-1923-11**/**** :

17 - 1923 - 11** / ****	
17	Kennziffer für Produktbereich 17 Elektronisches Gerät
1	Kennziffer für Produktgruppe 1 Strom-/Spannungsbegrenzer
9	Kennziffer für Einsatzort 9 Ex i
2	Kennziffer für Geräteart 2 Modul unvergossen
3	Kennziffer für Ausführung 3 I/U-Begrenzer Modul für LWL-Koppler
1	Kennziffer für Eingang 1 U_r (5 V)
1	Kennziffer für Kanal 1 1 U_o (6,2 V), I_o (246 mA)
1	Kennziffer für Kanal 2 1 U_o (6,2 V), I_o (31,3 mA)
2	2 U_o (6,2 V), I_o (285 mA)
3	3 U_o (6,2 V), I_o (285 mA)
1	Kennziffer für Kanal 3 1 U_o (6,2 V), I_o (30 mA)
2	2 U_o (6,2 V), I_o (19 mA)
3	3 U_o (6,2 V), I_o (30 mA)
	Kennziffern und -buchstaben für Merkmale ohne Einfluss auf den Explosionsschutz