Translation

(1) # EC-TYPE EXAMINATION CERTIFICATE

(2) Equipment or Protective System intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 99 ATEX 1404 X

(4)	Equipment or Protective System:	current-/voltagelimiter-modul 17-1923-1111/....
(5)	Manufacturer:	Bartec Componenten und Systeme GmbH
(6)	Address:	Max-Eyth-Straße 16 D-97980 Bad Mergentheim

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

(8) The TÜV Hannover/Sachsen-Anhalt e.V., TÜV Certification Body N° 0032 in accordance with Article 9 of the Council Directive 94/9/EC of March 23, 1994, certifies that this equipment or protective system 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 confidential report N°99/PX0570.

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

EN 50 014:1997 **EN 50 020:1994**

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

(11) This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

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

II (2) G [EEx Ib] IIC

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover

Hannover, 1999-05-12

Head of the Certification Body

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(13) **SCHEDULE**

(14) EC-TYPE EXAMINATION CERTIFICATE N° TÜV 99 ATEX 1404 X

(15) Description of equipment or protective system

The current-/voltagelimiter-modul 17-1923-1111/.... is used for the erection of intrinsically safe circuits which physical quantities are the carrier of the information signals e.g. opto couplers. It is exclusively intended to depict electrical signals of non-intrinsically safe circuits in intrinsically safe circuits and reversed.

The permissible ambient temperature range is: -25°C to 80°C.

Electrical data

Input circuits ..... Rated voltage: U_{rated} = 5 V
(connections X1, X2, X3 and X4) U_m = 253 V AC

Output circuits

Channel 1 ..... in type of protection "Intrinsic Safety" EEx ib IIC resp. IIB
(connections X11 and X14)

Maximum values:
U_o = 6,2 V
I_o = 246 mA
P_o = 381 mW
Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

EEx ib	IIC	IIB
max. permissible external inductance	0,5 mH	2,6 mH
max. permissible external capacitance	34 µF	790 µF

BA 02 11.98 1.000.000

Channel 2..... in type of protection "Intrinsic Safety" EEx ib IIC resp. IIB
(connections X12 and X14)

Maximum values:
U_O = 6,2 V
I_O = 31,3 mA
P_O = 48,5 mW
Characteristic line: linear

effective internal capacitance: C_i = 120 nF
The effective internal inductance is negligibly small.

EEx ib	IIC	IIB
max. permissible external inductance	23 mH	140 mH
max. permissible external capacitance	33,9 µF	790 µF

Channel 3..... in type of protection "Intrinsic Safety" EEx ib IIC resp. IIB
(connections X13 and X14)

Maximum values:
U_o = 6,2 V
I_o = 30,0 mA
P_o = 46,5 mW
Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

EEx ib	IIC	IIB
max. permissible external inductance	25 mH	150 mH
max. permissible external capacitance	34 µF	790 µF

The output circuits are not galvanically separated.

(16) Test documents consisting of 18 sheets inclusive 5 drawings are listed in the test report.

BA 02 11 98 1.000.000

(17) Special condition for safe use

1. The current-/voltagelimiter-modul has to be operated in a casing of a type of protection of at least IP 20 according to IEC 60529.

2. The connections X4 and X14 have to be connected to the equipotential bonding system of the explosion hazardous area.

(18) Essential Health and Safety Requirements

no additional ones

BA 02 11.98 1 000.000

Translation

1. SUPPLEMENT to

EC-TYPE EXAMINATION CERTIFICATE No. TÜV 99 ATEX 1404 X

of the company: BARTEC GmbH formerly: Bartec Componenten und Systeme GmbH
Max-Eyth-Straße 16
D-97980 Bad Mergentheim

In the future the current-/voltage-limiter module type 17-1923-1111/.... will be extended by the type 17-1923-1122/.... and may also be manufactured according to the test documents listed in the test report.

The amendments concern the internal design, the electrical data, the special conditions for safe use, the type designation and the marking.

The marking will be read as follows: **II (2) G D [EEx ib] IIC**

Electrical data for type 17-1923-1122/....

Input circuits ..... rated voltage: U_{rated} = 5 V
(connections X1, X2, U_m = 253 V AC
X3 and X4)

Output circuits

Channel 1 ..... in type of protection Intrinsic Safety EEx ib IIC resp. IIB
(connections X11 and X14)

Maximum values:
U_o = 6,2 V
I_o = 246 mA
P_o = 381 mW
characteristic line: linear

The effective internal inductance and capacitance are negligibly small.

EEx ib	IIC	IIB
max. permissible outer inductance L_o	0,5 mH	2,6 mH
max. permissible outer capacitance C_o	34 µF	790 µF

BA 02.11.03

Channel 2..... in type of protection Intrinsic Safety EEx ib IIC resp. IIB
(connections X12 and X14)

Maximum values:
U_o = 6,2 V
I_o = 285 mA
P_o = 441 mW
Characteristic line: linear

effective internal capacitance: C_i = 120 nF
The effective internal inductance is negligibly small.

EEx ib	IIC	IIB
max. permissible outer inductance L_o	0,4 mH	2,0 mH
max. permissible outer capacitance C_o	33,9 µF	789,9 µF

Channel 3..... in type of protection Intrinsic Safety EEx ib IIC resp. IIB
(connections X13 and X14)

Maximum values:
U_o = 6,2 V
I_o = 19 mA
P_o = 29 mW
characteristic line: linear

The effective internal inductance and capacitance are negligibly small.

EEx ib	IIC	IIB
max. permissible outer inductance L_o	85 mH	340 mH
max. permissible outer capacitance C_o	34 µF	790 µF

The output circuits are galvanically connected with each other.

In case of the parallel connection of channel 2 and 3 the following maximum values apply:

U_o = 6,2 V
I_o = 304 mA
P_o = 470 mW
characteristic line: linear

effective internal capacitance: C_i = 120 nF
The effective internal inductance is negligibly small.

EEx ib	IIC	IIB
max. permissible outer inductance L_o	0,31 mH	1,5 mH
max. permissible outer capacitance C_o	33,9 µF	789,9 µF

All further data apply unchanged for this supplement.

The electrical data for the type 17-1923-1111/.... have to be taken from the EC-Type Examination certificate.

The current-/voltage-limiter module type 17-1923-11../.... according to EC-Type Examination Certificate TÜV 99 ATEX 1404 X incl. of this 1st supplement also meets the requirements of

EN 50 014:1997+A1+A2 and
EN 50 020:2002.

(16) Test documents are listed in the Test Report N° 04 YEX 551254.

(17) Special conditions for safe use

1. The current-/voltage-limiter module has to be installed in such a way that for the intended operation site a suitable degree of protection according to EN 60529 is achieved. In case of installation in dry, clean and well controlled environments IP 20 is sufficient.

2. The connections X4 and X14 have to be connected to the equipotential bonding system of the explosion hazardous area.

(18) Essential Health and Safety Requirements

no additional ones

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Hanover, 2004-07-27

Head of the
Certification Body

Translation

2. S U P P L E M E N T

to Certificate No.	**TÜV 99 ATEX 1404 X**
Equipment:	current-/voltagelimiter-modul 17-1923-1111/....
Manufacturer:	**BARTEC GmbH**
Address:	Max-Eyth-Straße 16 97980 Bad Mergentheim Germany
Order number:	8000554980
Date of issue:	2009-02-06

Amendments:

The current-/voltagelimiter-modul 17-1923-1111/.... is extended by the type 17-1923-1133/.... and the optical transceiver type 17-2114-0002/**** and type 17-2114-0003/****.

Additionally the type 17-1923-1111/.... and type 17-1923-1122/.... are assessed in accordance to the actual state of the standards.

Technical data:
electrical data for type 17-1923-1133/....

input circuits..... rated voltage: U_{rated} = 5 V
(connections X1, X2, X3 and X4) U_m = 253 V AC

output circuits
channel 1 ..... in type of protection „Intrinsic Safety" Ex ib IIC resp. IIB
(connections X11 and X14) maximum values:
U_O = 6.2 V
I_O = 246 mA
P_O = 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 µF	790 µF

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 ..... in type of protection „Intrinsic Safety" Ex ib IIC resp. IIB
(connections X12 and X14)

maximum values:
U_O = 6.2 V
I_O = 285 mA
P_O = 442 mW
Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

Ex ib	IIC	IIB
max. permissible external inductance L_o	0.4 mH	2.0 mH
max. permissible external capacitance C_o	34 µF	790 µF

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 ..... in type of protection „Intrinsic Safety" Ex ib IIC resp. IIB
(connections X13 and X14)

maximum values:
U_O = 6.2 V
I_O = 30 mA
P_O = 46.5 mW
Characteristic line: linear

The effective internal capacitance and inductance are negligibly small.

Ex ib	IIC	IIB
max. permissible external inductance L_o	54 mH	100 mH
max. permissible external capacitance C_o	34 µF	790 µF

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

Marking:

current-/voltagelimiter-modul
type 17-1923-1111/****, type 17-1923-1122/**** and type 17-1923-1133/****

Ex II (2) G [Ex ib] IIC/IIB and
Ex II (2) D [Ex ibD]

optical transmitter unit
type 17-2114-0002/****

Ex II 2 G Ex ib op is IIC/IIB T4 and
Ex II 2 D Ex ibD op is 21 T120

optical receiver unit
type 17-2114-0003/****

Ex II 2 G Ex ib IIC/IIB T4 and
Ex II 2 D Ex ibD 21 T120

The permissible ambient temperature range	- 25 °C to + 80 °C

The electrical data and all other data apply unchanged for this supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2006	**EN 60079-11:2007**	**EN 60079-28:2007**
EN 61241-0:2006	**EN 61241-11:2006**	

(16) The test documents are listed in the test report No. 09 203 554980.

(17) Special conditions for safe use

1. The current-/voltagelimiter-modul 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 clean, dry and supervised rooms) resp. in the wall of the enclosure that fulfils the requirements of the directive 94/9/EC and the applicable standards EN 60079-0 and EN 61241-0. That means for non-metallic enclosures the avoidance of electrostatic charging by appliance of either clause 7.3 of the EN 60079-0:2006 (for category II 2 G) or clause 6.1.5 of the EN 61241-0:2006 (for category II 2 D) and for enclosures containing light metal the material composition shall comply with either clause 8.1.2 of the EN 60079-0:2006 (for category II 2 G) or EN 61241-0:2006 (for category II 2 D).
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.

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Schwedt

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