Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 99 ATEX 1057

(4) Equipment: Control unit type GHG 6.. ....R....

(5) Manufacturer: CEAG Sicherheitstechnik GmbH

(6) Address: D-69412 Eberbach

(7) This equipment and any acceptable variation thereto are 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 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 the confidential report PTB Ex 99-19121.

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

EN 50014:1997 **EN 50018:1994** **EN 50019:1994**
EN 50020:1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment 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 in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

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

II G 2 EEx deia/ib[ia/ib] IIC T6 resp. T5

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, September 01, 1999

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 34

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1057

(15) Description of equipment

The type GHG 6.. ...R... control unit is composed of enclosures of the type of protection flameproof enclosure "d", optionally with operation rods and/or inspection windows into which the electrical equipment is incorporated.

Direct cable entries, conduit entries (conduit system) or terminal boxes of the type of protection increased safety "e", for which a separate test certificate has been issued, are used for connection.

Electrical data

Rated insulation voltage	up to	275 V	750 V	10 kV
Rated current	max.		630 A	
Rated cross-section	max.		330 mm^2	

If and when required, equipment of the type of protection intrinsic safety "i" is incorporated, for which a separate test certificate has been issued.

The rated values are maximum values, the actual electrical values depend on the electrical equipment incorporated. Within the scope of these maximum permissible values and with due regard to the standards applicable, the manufacturer specifies the final rated values dependent on the system conditions, mode of operation, utilization category, etc. The characteristic values of the intrinsically safe circuits are to be given by the manufacturer on his own responsibility. Further technical details have been specified in the test documents.

The composition of the symbol specifying the type of protection depends on the types of protection of the components used.

(16) Report PTB Ex 99-19121, description (6 sheets), 6 drawings

(17) Special conditions for safe use

The control unit may also be connected via suitable cable entries or conduit entries which meet the requirements of EN 50 018, sections 13.1 and 13.2 and for which a separate certificate has been issued.

Openings which are not used are to be sealed in accordance with EN 50 018, section 11.

Equipment of the type of protection intrinsic safety "i" is to be installed in such a way that the distances, creepage distances and clearances between intrinsically safe circuits and non-intrinsically safe circuits required according to EN 50 020 are complied with.

If the distances required according to EN 50 020 for connection facilities are not ensured by the installation, cables of increased safety "e" quality or fail-safe cables are to be used.

When more than one intrinsically safe circuit is used, the rules for interconnection are to be observed.

(18) Essential health and safety requirements

The tests carried out and their positive results show that the control unit complies with the requirements of Directive 94/9/EC and of the standards stated on the cover sheat.

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, September 01, 1999

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1st SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1057

(Translation)

Equipment: Control unit, type GHG 6.. ....R....

Marking: ⟨Ex⟩ **II 2 G EEx deia/ib[ia/ib] IIC T6 or T5**

Manufacturer: Copper Crouse-Hinds GmbH

Address: Neuer Weg Nord 49
69412 Eberbach, Germany

Description of supplements and modifications

The control unit, type GHG 6.. ....R.... , may be provided with a protective box heating device to prevent the formation of condensate or when used at temperatures of less than –20 °C.

Ambient temperatures of less than -20 °C to -55 °C are acceptable only in connection with the protective box heater.

When using the control unit in explosive dust atmospheres, the corresponding symbol for the type of protection shall be used.

The type-of-protection symbol is extended to read:

⟨Ex⟩ **II 2 G EEx deia/ib[ia/ib] IIC T6, T5 or T4**
⟨Ex⟩ **II 2 D IP 66 T80°C, T95 °C or T130 °C**

Applied standards

EN 50014: 1997 + A1 + A2
EN 50020: 2002
EN 50018: 2000 + A1
EN 50281-1-1:1998
EN 50019: 2000

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1st SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1057

Explanation of test specifics

If a heater is required, this heater shall be designed such that temperatures will positively not be lower than –20 °C. The safety temperature limiters shall in that case be set and integrated in the control circuit in such a way that the control unit cannot be put into operation at temperatures of less than -20 °C, and that also the overall temperature will remain within the limits permitted for the temperature class, and that the temperatures for the components will not be exceeded.

All Ex-related components of the control unit shall be suited for the complete temperature range – lowest ambient temperature to maximum operating temperature.

Test report: PTB Ex 05-14205

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, May 19, 2005

Dr. M. Thedens

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

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

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1057

(Translation)

Equipment: Control unit, type GHG 6.. .... R...

Marking: ⟨Ex⟩ **I 2 G EEx de ia/ib [ia/ib] IIC T6, T5 and T4**
II 2 D IP 66 T80°C, T95°C

Manufacturer: Cooper Crouse-Hinds GmbH

Address: Neuer Weg Nord 49, 69412 Eberbach, Germany

Description of supplements and modifications

The control unit, type GHG 6.. ....R.... , is modified with the following additions:

1) The control unit has been re-examined on the basis of standards EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-11, EN 61241-0 and EN 61241-1.
Gas group IIB is added.
The marking therefore changes to:

⟨Ex⟩ **II 2 G Ex de ia/ib [ia/ib] IIC, IIB T6, T5 and T4**

⟨Ex⟩ **II 2 D Ex tD A21 IP 66 T 80 °C, T 95 °C**

2) The minimum ambient temperature is reduced to -55 °C. At temperatures between -20 °C and -55 °C, the control unit can only be used in gas group IIB.

3) With a reduced power loss, the control unit can be used up to an ambient temperature of +55 °C (see table below)

4) The control unit can optionally be installed in a fan.

Technical data

Rated voltage	up to	10 kV (Ex-e)*
Rated current	max.	630 A
Conductor size	max.	300 mm²

* The rated voltages for Ex-d enclosures are determined by the installed components and the minimum clearances and creepage distances specified in the relevant standards (e.g. EN 60 664-1) for the specific voltages.

ZSEx10101e.dot

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 1057

Rated values are maximum values, the actual electrical values are determined by mounted electrical apparatus. Within these limiting values complying with the appropriate standards the manufacturer specifies the final limiting values dependent on power supply specifications, operating mode, utilisation category, etc. It will be the manufacturer's responsibility to specify the characteristic values of the intrinsically safe circuits.

If required, equipment designed to Intrinsic Safety "i" type of protection with a separate examination certificate will be installed.

The composition of the protection symbol depends on the types of protection of the components actually used.

Enclosure type	Power loss		
	T_{amp} to 40 °C		T_{amp} to 55 °C
	T5	T6	T5
GHG 6.1 ....R....	120 W	80 W	80 W
GHG 6.2 ....R....	210 W	150 W	150 W
GHG 6.4 ....R....	280 W	210 W	210 W
GHG 6.5 ....R....	420 W	300 W	300 W
GHG 6.7 ....R....	575 W	400 W	400 W
GHG 676....R....	975 W	700 W	700 W
GHG 678....R....	1350 W	975 W	975 W

Ambient temperatures:..... -20 °C to +55 °C, gas group IIC
..... -55 °C to +55 °C, gas group IIB
Ambient temperature <-20 °C: ..... only with protection box heater in gas group IIC
Ambient temperature +55 °C: ..... only with reduced power loss

Protection according to EN 60529 ..... IP66

Applied standards

EN 60079-0:2006, EN 60079-1:2007, EN 60079-7:2007, EN 60079-11:2007,
EN 61241-0:2006, EN 61241-1:2004

Assessment and test report: PTB Ex 09-18064

Zertifizierungssektor Explosionsschutz
By order:

Braunschweig, January 8, 2010

Dr.-Ing. M. Thedens
Oberregierungsrat