



## (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 98 ATEX 1087 U**

(4) Component: Protection module type GHG61. .1.. R....

(5) Manufacturer: CEAG Sicherheitstechnik GmbH

(6) Address: D-69412 Eberbach

(7) This component 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 component 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 98-18156.

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

**EN 50014:1997**

**EN 50018:1994**

**EN 50019:1994**

(10) The sign "U" placed behind the certificate number indicates that this certificate should not be confounded with certificates issued for equipment or protective systems. This Component Certificate only serves as a basis for the issuing of certificates for equipment or protective systems.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified component in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this component.

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

**II 2 G EEx de IIC I M 2 EEx de I**

Zertifizierungsstelle Explosionsschutz

Braunschweig, October 27, 1998

By order:

Dr.-Ing. H. Wehinger  
Direktor und Professor



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EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

## SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE No. PTB 98 ATEX 1087 U**

(15) Description of component

The type GHG 61..1..R protection module is composed of a flameproof enclosure with different protective components as internal fittings; it is available in four sizes.  
Connection is at the integrated terminals.

### Electrical data

#### **Main terminals**

|  |       |                                  |
|--|-------|----------------------------------|
| Rated voltage $U_e$ .....                          | up to | 500 V                            |
| Rated current $I_e$ for temperature class T6 ..... | max.  | 40 A                             |
| Rated current $I_e$ for temperature class T4 ..... | max.  | 63 A                             |
| Rated cross section .....                          | max.  | 10 mm <sup>2</sup> flexible lead |

#### **Auxiliary terminals**

|   |       |                                   |
|---|-------|-----------------------------------|
| Rated voltage $U_e$ .....                     | up to | 400 V                             |
| Rated voltage $U_e$ for auxiliary switch..... | up to | 250 V                             |
| Rated current $I_e$ .....                     | max.  | 16 A                              |
| Rated cross section .....                     | max.  | 2,5 mm <sup>2</sup> flexible lead |

#### Contacts provided

|                                |                  |                       |
|--------------------------------|------------------|-----------------------|
| Enclosure size 1 (single-pole) | 2 main terminals | 3 auxiliary terminals |
| Enclosure size 2 (two-pole)    | 4 main terminals | 4 auxiliary terminals |
| Enclosure size 3 (three-pole)  | 6 main terminals | 6 auxiliary terminals |
| Enclosure size 4 (four-pole)   | 8 main terminals | 4 auxiliary terminals |

#### Ambient temperature

|  |                 |
|--|-----------------|
| enclosure sizes 1 and 2 (single-pole and two-pole).....  | -55 °C to 40 °C |
| enclosure sizes 3 and 4 (three-pole and four-pole) ..... | -20 °C to 40 °C |

The protection module is designed for a temperature stability of 110 °C and can be used in temperature classes T6 and T4.

(16) Report PTB Ex 98-18156, description (5 sheets) drawing (4 sheets)

(17) Special conditions for safe use

## SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 98 ATEX 1087 U

The protection module is to be installed in an enclosure which meets the requirements of a recognized type of protection according to EN 50 014, section 1.2.

When the protection module is installed in an enclosure of the type of protection increased safety "e" according to EN 50 019, the creepage distances and clearances according to section 4.3, section 4.4 and Table 1 must be complied with.

The component can be used in both group I and II, as in this case the requirements of the standards are identical.

### Routine test

For the routine test according to EN 50 018, section 16.1.3, a relative static pressure of  
10 bar is to be applied.

### (18) Essential health and safety requirements

The tests carried out and their positive results show that the empty enclosure meets the requirements of Directive 94/9/EC and of the standards stated on the cover sheet.

Zertifizierungsstelle Explosionsschutz

Braunschweig, October 27, 1998

By order:



Dr.-Ing. H. Wehinger  
Direktor und Professor



## 1. SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 98 ATEX 1087 U

(Translation)

Equipment: Protection module type GHG61..1.. R....

Marking:  II 2 G EEx de IIC IM 2 EEx de I

Manufacturer: Cooper Crouse-Hinds GmbH

Address: Neuer Weg Nord 49, 69412 Eberbach, Germany

### Description of supplements and modifications

1. In the future the type designation will be GHG 61.. The nomenclature can be found in the documentation in the test report.
2. Conversion to the current generation of standards (see below). The additional tests, necessary acc. to the new generation of standards, were carried out. The respective test protocols are contained in the documentation of the test report, stated below.
3. The enclosure size 0 is added (see clause 1 of the nomenclature). Unlike the size 1 (two main terminals), the size 0 is equipped with four main terminals, but otherwise it matches the size 1.
4. The enclosure material is changed according to the following table:

| Type    | Enclosure size | Designation        | Material                              | Remark  |
|---------|----------------|--------------------|---------------------------------------|---|
| GHG 61. | 0, 1, 2, 3, 4  | Enclosure material | Neonit SK L8F,<br>Fa. Neopreg AG (CH) | PTB-letter dated<br>29.02.2000<br>CEAG-test protocol<br>MI_0076 dated<br>31.01.2000 |
|         | 0              | Base plate         | Metal plate (sheet<br>steel)          |   |
|         | 1              | Base plate         | Ultramid A3XZG5,<br>BASF AG           | UL-listed under file<br>No. E41871  |
|         | 2, 3, 4        | Base plate         | Ultramid A3X2G10,<br>BASF AG          | UL-listed under file<br>No. E41871  |

## 1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 98 ATEX 1087 U

5. Conversion of the hitherto existing power circuit breakers and automatic circuit breakers of the company ABB to a new type series. This is about a mechanical change, not affecting the electrical-thermal properties of the explosion protection.
6. Maximum ambient temperature in the future +60 °C at an unchanged temperature resistance of 110 °C. With an appropriate temperature test acc. to EN 60079-0, section 26.5.1, the dependence on the working temperature from the ambient temperature and the heating, caused by the operation, are to be established for each design version. The thereby determined maximum rated currents are to be enclosed to each apparatus in an appropriate manner.
7. In the future fabrication both as equipment, solely containing circuits in the type of protection „Intrinsic safety“ acc. to EN 60079-11 and as equipment with intrinsic as well as non-intrinsic circuits. When intrinsic and non-intrinsic circuits are installed together, the regulations in the EN 60079-11 about the spatial separation of each other are to be maintained.
8. The rated voltage of the main terminals is increased in the future to 690 V.

### Technical data

#### Main terminals

|   |                         |
|---|-------------------------|
| Rated voltages:                         | 690 V                   |
| Rated current for temperature class T6: | max. 16 A               |
| Rated current for temperature class T4: | > 16 A – 63 A           |
| Rated cross section:                    | max. 10 mm <sup>2</sup> |

#### Auxiliary terminals

|                                      |                          |
|--------------------------------------|--------------------------|
| Rated voltages:                      | 400 V                    |
| Rated voltages for auxiliary switch: | 250 V                    |
| Rated current:                       | max. 16 A                |
| Rated cross section:                 | max. 2,5 mm <sup>2</sup> |

#### Temperature range

| Type GHG 61.        | Ambient temperature | Working temperature |
|---------------------|---------------------|---------------------|
| Enclosure size 0    | -55 °C up to +40 °C | up to +110 °C       |
| Enclosure size 1, 2 |                     |                     |
| Enclosure size 3, 4 | -20 °C up to +40 °C |                     |

# Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

## 1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 98 ATEX 1087 U

### Applied standards

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

Due to the use of the above mentioned standards, the marking changes into:

- ⊕ II 2 G Ex de IIC resp. Ex I M 2 Ex de I
- ⊕ II 2 G Ex de ia IIC resp. Ex I M 2 Ex de ia I
- ⊕ II 2 G Ex de [ia/ib] IIC resp. Ex I M 2 Ex de [ia/ib] I

Assessment and test report: PTB Ex 08-18185

Zertifizierungssektor Explosionsschutz

Braunschweig, July 3, 2009

By order:



Dr.-Ing. M. Thedens  
Oberregierungsrat

## 2nd SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 98 ATEX 1087 U

(Translation)

Equipment: Protection element, type GHG61. .... ..

Marking:  II 2 G Ex de IIC or Ex I M2 Ex de I

 II 2 G Ex de ia IIC or Ex I M2 Ex de ia I

 II 2 G Ex de [ia/ib] IIC or Ex I M2 Ex de [ia/ib] I

Manufacturer: Cooper Crouse-Hinds GmbH

Address: Neuer Weg Nord 49, 69412 Eberbach, Germany

### Description of supplements and modifications

1. Conversion to the current generation of standards (see below). The additional tests required in the new generation of standards have been performed. The test records for these tests have been included in the documentation for the Test Report mentioned below.
2. The operating temperatures are defined on the basis of the following table:

| Type GHG 61          | Ambient temperature | Operating temp. | Category    |
|----------------------|---------------------|-----------------|-------------|
| Enclosure size 0     | -55 °C to +60 °C    | up to 110 °C    | IIC and IIB |
| Enclosure sizes 1, 2 | -55 °C to +60 °C    | up to 110 °C    | IIC and IIB |
| Enclosure size 3     | -20 °C to +60 °C    | up to 110 °C    | IIC         |
| Enclosure size 3     | -55 °C to +60 °C    | up to 110 °C    | IIB         |
| Enclosure sizes 3, 4 | -20 °C to +60 °C    | up to 110 °C    | IIC and IIB |

3. The used materials are listed in the table below:

| Enclosure size | Designation        | Material                                    | Notes / data sheet  |
|----------------|--------------------|---|---|
| 0, 1, 2, 3, 4  | Enclosure material | Neonit SK L8F,<br>Supplier: Neopreg AG (CH) | GHG 902 4002 F 0041<br>PTB letter dd. 29/02/2000<br>CCH test record MI_0076<br>dd. 31/01/2000<br>CCH test record MI_0681a2/a3 |
| 0              | Bottom plate       | Metal plate (sheet steel)                   |   |
| 1              | Bottom plate       | Ultramid A3XZG5,<br>BASF AG                 | GHG 902 4002 F 0007<br>UL listed with file No. E41871   |
| 2, 3, 4        | Bottom plate       | Ultramid A3X2G10,<br>BASF AG                | GHG 902 4002 F 0047<br>UL listed with file No. E41871   |
| 0, 1, 2, 3, 4  | Sealing compound   | PU 403 and hardener 300<br>WEVO Chemie AG   | GHG 906 5002 P 0001   |

4. Manufactured both as equipment that only contains circuits of "Intrinsic Safety" type of protection in accordance with EN 60079-11, and as equipment with both intrinsically safe and non-intrinsically safe circuits. In enclosure sizes 0 and 1, Ex "e" – and Ex "i" – circuits cannot be installed at the same time.

## Technical data

### Main terminals

|  |                         |
|--|-------------------------|
| Rated voltage:                                   | 690 V                   |
| Rated current when used in temperature class T6: | max. 16 A               |
| Rated current when used in temperature class T4: | > 16 A – 63 A           |
| Conductor size:                                  | max. 16 mm <sup>2</sup> |
| Conductor size, with terminal pin:               | max. 25 mm <sup>2</sup> |

### Auxiliary terminals

|                                     |                          |
|-------------------------------------|--------------------------|
| Rated voltage:                      | 275 V                    |
| Rated voltage for auxiliary switch: | 250 V                    |
| Rated current:                      | max. 16 A                |
| Conductor size                      | max. 2.5 mm <sup>2</sup> |



Applied standards

EN 60079-0:2009    EN 60079-1:2007    EN 60079-7:2007    EN 60079-11:2007

With the application of the above standards, the marking changes to:

|   |   |
|---|---|
|  II 2 G Ex d e IIC/IIB Gb                | Ex I M2 Ex d e I Mb                     |
|  II 2 G Ex d e ia IIC/IIB Gb             | Ex I M2 Ex d e ia I Mb (*)              |
|  II 2 (1) G Ex d e [ia Ga/ib] IIC/IIB Gb | Ex I M2 (M1) Ex d e [ia Ma/ib] I Mb (*) |

(\*) does not apply to enclosure sizes 0 and 1

Assessment and test report:                      PTB Ex 11-10326

Zertifizierungssektor Explosionsschutz  
On behalf of PTB:

Braunschweig, February 1, 2011

  
Dr.-Ing. M. Thedens  
Oberregierungsrat