



## 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 97 ATEX 2192**

(4) Equipment: Limit monitoring indicator SINEAX C 402 type 402-1... and  
Limit monitoring indicator SINEAX C 402 type 402-4... resp.  
Limit monitoring indicator SIRAX C 402 type 402-6...

(5) Manufacturer: Camille Bauer AG

(6) Address: Aargauerstr. 7, CH-5610 Wohlen

(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 97-27278.

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

**DIN EN 50014:1994-03**

**DIN EN 50020:1996-04**

**DIN EN 50014/prA1:1996**

(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.

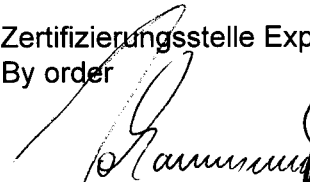
(12) The marking of the equipment shall include the following:

 II (1) G [EEEx ia] IIC

Zertifizierungsstelle Explosionsschutz

Braunschweig, 26.09.1997

By order

  
Dr.-Ing. U. Johannsmeyer  
Oberregierungsrat



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## Schedule

(13)

(14)

### EC-type-examination Certificate No. PTB 97 ATEX 2192

(15) Description of equipment

The limit monitoring indicator is used for the electrical isolation and evaluation of the intrinsically safe input signal. Direct current and direct voltage signals are detected as input quantities.

The limit monitoring indicator shall be installed outside the explosion hazardous area only.

The limit monitoring indicator SIRAX C 402 of type 402-6... is only used to be plugged on the associated apparatus rack or on the apparatus rack SIRAX BP 902 of type 902-2... with EC-type-examination certificate PTB 97 ATEX 2113, manufactured by Camille Bauer AG.

The maximum permissible ambient temperature of the limit monitoring indicator SINEAX C 402 of type 402-1... and of type 402-4... is 55 °C.

The maximum permissible ambient temperature of the limit monitoring indicator SIRAX C 402 of type 402-6... is 40 °C.

#### Electrical data

The indicated terminal clamps refer to the designs SINEAX C 402 of type 402-1... and SINEAX C 402 of type 402-4...

The indicated connections refer to the design SIRAX C 402 of type 402-6...

|   |   |
|---|---|
| Auxiliary power<br>(terminal clamps 10 and 5 resp. 14 and 20)         | <b>type 402-13... resp. type 402-43... resp. type 402-63...</b><br>direct voltage      24 - 60 V -15% / +33%      ( $U_m = 125$ V)<br>or<br>alternating voltage      24 - 60 V $\pm$ 15%      ( $U_m = 253$ V)<br>resp.<br><b>type 402-14... resp. type 402-44... resp. type 402-64...</b><br>direct voltage      85 - 110 V -15% / +10%      ( $U_m = 125$ V)<br>or<br>alternating voltage      85 - 230 V $\pm$ 10%      ( $U_m = 253$ V) |
| Input circuit<br>(terminal clamps 1, 6, 11 resp. connections 1, 3, 5) | type of protection Intrinsic Safety      EEx ia IIC/IIB<br>resp.      EEx ib IIC/IIB<br>(linear output characteristic)<br><br>maximum values: $U_o = 6$ V<br>$I_o = 63$ $\mu$ A   |

**IIC resp. IIB**

max. permissible external inductance 1 H 1 H  
 max. permissible external capacitance 40  $\mu$ F 1000  $\mu$ F

resp.

only for connection to certified intrinsically safe circuits with the following maximum value:

$$U = 30 \text{ V}$$

effective internal inductance:  $L_i = 20 \text{ } \mu\text{H}$

effective internal capacitance:  $C_i = 20 \text{ nF}$

The following table shows the assignment of the maximum permissible external inductance ( $L_o$ ) and capacitance ( $C_o$ ) to the maximum voltage ( $U_i$ ) and maximum current ( $I_i$ ) for the connection to a certified intrinsically safe active circuit with linear (resistive) current limiting:

| $U_i$ | $I_i$  | explosion group |        |        |         |
|-------|--------|-----------------|--------|--------|---------|
|       |        | IIC             |        | IIB    |         |
|       |        | $L_o$           | $C_o$  | $L_o$  | $C_o$   |
| 13 V  | 29 mA  | 40 mH           | 258 nF | 150 mH | 1580 nF |
| 19 V  | 29 mA  | 40 mH           | 110 nF | 150 mH | 840 nF  |
| 24 V  | 29 mA  | 40 mH           | 66 nF  | 150 mH | 560 nF  |
| 30 V  | 29 mA  | 40 mH           | 42 nF  | 150 mH | 370 nF  |
| 13 V  | 59 mA  | 10 mH           | 258 nF | 40 mH  | 1580 nF |
| 19 V  | 59 mA  | 10 mH           | 110 nF | 40 mH  | 840 nF  |
| 24 V  | 59 mA  | 10 mH           | 66 nF  | 40 mH  | 560 nF  |
| 30 V  | 59 mA  | 10 mH           | 42 nF  | 40 mH  | 370 nF  |
| 13 V  | 79 mA  | 6 mH            | 258 nF | 22 mH  | 1580 nF |
| 19 V  | 79 mA  | 6 mH            | 110 nF | 22 mH  | 840 nF  |
| 24 V  | 79 mA  | 6 mH            | 66 nF  | 22 mH  | 560 nF  |
| 30 V  | 79 mA  | 6 mH            | 42 nF  | 22 mH  | 370 nF  |
| 13 V  | 100 mA | 3 mH            | 258 nF | 12 mH  | 1580 nF |
| 19 V  | 100 mA | 3 mH            | 110 nF | 12 mH  | 840 nF  |
| 24 V  | 100 mA | 3 mH            | 66 nF  | 12 mH  | 560 nF  |
| 30 V  | 100 mA | 3 mH            | 42 nF  | 12 mH  | 370 nF  |

## Schedule to EC-type-examination Certificate No. PTB 97 ATEX 2192

The following table shows the assignment of the maximum permissible external inductance ( $L_o$ ) and capacitance ( $C_o$ ) to the maximum voltage ( $U_i$ ) and maximum current ( $I_i$ ) for the connection to a certified intrinsically safe active circuit with electronic current limiting:

| $U_i$ | $I_i$  | type of protection |               |            |        |
|-------|--------|--------------------|---------------|------------|--------|
|       |        | EEx ib IIC         |               | EEx ib IIB |        |
|       |        | $L_o$              | $C_o$         | $L_o$      | $C_o$  |
| 13 V  | 29 mA  | 5 mH               | 147 nF        | 10 mH      | 635 nF |
| 19 V  | 29 mA  | 9 mH               | 68 nF         | 25 mH      | 367 nF |
| 24 V  | 29 mA  | 1,8 mH             | 31 nF         | 25 mH      | 221 nF |
| 30 V  | 29 mA  | not permitted      | not permitted | 10 mH      | 137 nF |
| 13 V  | 59 mA  | 3 mH               | 148 nF        | 10 mH      | 635 nF |
| 19 V  | 59 mA  | 0,33 mH            | 35 nF         | 15 mH      | 225 nF |
| 24 V  | 59 mA  | not permitted      | not permitted | 5 mH       | 179 nF |
| 13 V  | 79 mA  | 1,5 mH             | 146 nF        | 10 mH      | 459 nF |
| 19 V  | 79 mA  | not permitted      | not permitted | 6 mH       | 240 nF |
| 24 V  | 79 mA  | not permitted      | not permitted | 0,49 mH    | 59 nF  |
| 13 V  | 100 mA | 0,7 mH             | 143 nF        | 6 mH       | 442 nF |
| 19 V  | 100 mA | not permitted      | not permitted | 1,8 mH     | 312 nF |

Contact circuits  
(terminal clamps 4, 9, 14  
resp. 3, 8, 13 resp.  
connections 26, 28, 30  
resp. 27, 29, 31)

switching contacts  
alternating voltage up to 250 V, up to 5 A  
direct voltage up to 125 V, up to 0,24 A  
or up to 30 V, up to 1 A

### additional limit-value contacts for design SINEAX C402-4... only

Contact circuits  
(terminal clamps 19, 24,  
29 resp. 18, 23, 28)

switching contacts  
alternating voltage up to 250 V, up to 5 A  
direct voltage up to 125 V, up to 0,24 A  
or up to 30 V, up to 1 A

The input circuit is safely electrically isolated from all further circuits up to a peak value of the nominal voltage of 375 V.

# Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin



Schedule to EC-type-examination Certificate No. PTB 97 ATEX 2192

(16) Report PTB Ex 97-27278

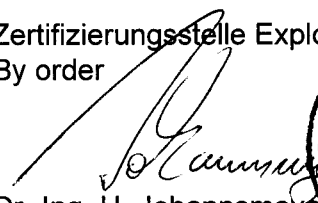
(17) Special conditions for safe use

not applicable

(18) Essential Health and Safety Requirements

met by standards

Zertifizierungsstelle Explosionsschutz  
By order

  
Dr.-Ing. U. Johannsmeyer  
Oberregierungsrat



Braunschweig, 26.09.1997

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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.