

[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: DEMKO 99 ATEX 126013**

[4] **Equipment or Protective System: Ex-Repeater/Power Supply 5104B.**

[5] **Manufacturer: PR electronics A/S**

[6] **Address: Lerbakken 10, DK-8410 Rønde, Denmark.**

[7] **This equipment or protective system and any acceptable variation there to is specified in the schedule to this certificate and the documents therein referred to.**

[8] **UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to 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 no. 126013**

[9] **Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
EN 50014: 1997 E incl. A1+A2, EN 50020: 2002 E, EN 50281-1-1:1998 incl. A1**

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

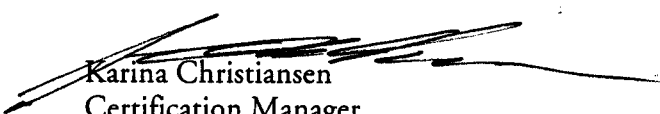
[11] **This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by the certificate.**

[12] **The marking of the equipment or protective system shall include the following:**

**Ex II (1)GD [EEEx ia] IIC**

On behalf of UL International Demko A/S

Herlev, 1999-09-03  
Revised 2003-12-04

  
Karina Christiansen  
Certification Manager

**UL International Demko A/S**

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Certificate: 99 ATEX 126013

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[13]

# Schedule

[14]

## EC-TYPE EXAMINATION CERTIFICATE No. DEMKO 99 ATEX 126013

[15]

### Description of Equipment or protective system:

The Repeater/Power Supply Type 5104B is designed for mounting on a DIN rail in safe area. The product can be delivered in 1 and 2 channel versions. Input, output and power supply are galvanic separated from each other by means of opto-couplers and a transformer.

Type variants comprised by the certificate:

### 5104B

| Input        | Output       | Channels  |
|--------------|--------------|-----------|
| A: 0...20 mA | 0: Special   | A: Single |
| B: 4...20 mA | 1: 0...20 mA | B: Double |
| E: 0...10 V  | 2: 4...20 mA |           |
| F: 2...10 V  | 4: 0...1 V   |           |
| X: Special   | 5: 0,2..1 V  |           |
|              | 6: 0...10 V  |           |
|              | 7: 2...10 V  |           |

The "B" indicates that the unit is a version to be used in association with potentially explosive atmospheres. An "A" will indicate a version only for use in connection with non-hazardous areas.

Do note, that for the versions with an X for input and/or a 0 for output, the intrinsically safe specifications (paragraph [17]) also apply.

- The Repeater/Power Supply Type 5104B has been evaluated according to EN 50281-1-1: 1998 in order to include D (dust) in this certificate. Therefore the marking plate include the following:

**Ex II (1) GD**

- Project is updated to EN 50014:1997 E incl. A1+A2 and EN 50020: 2002 E.

[16] Report No.:

126013-Report - 99-01585, 126013-Report - 99-03983  
126013-03 Report, 126013-04 Report, 126013-05 Report

### Drawings:

| Number      | Date       | Description                   |
|-------------|------------|-------------------------------|
| 5104 - 9105 | 2002-03-01 | PCB layout (track 1)          |
| 5104 - 9005 | 2002-03-01 | PCB layout (track 2)          |
| 5104 - 3105 | 2002-03-06 | PCB layout (comp. location 1) |
| 5104 - 3005 | 2002-03-06 | PCB layout (comp. location 2) |

### UL International Demko A/S

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Certificate: 99 ATEX 126013  
Report: 126013-05

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| Number                 | Date       | Description                            |
|------------------------|------------|--|
| 5104 - 3105D           | 2002-02-25 | PCB layout (segregation 1)             |
| 5104 - 3005D           | 2002-02-25 | PCB layout (segregation 2)             |
| 5104 - 9005 (3 pages)  | 2002-03-01 | PCB layout (production)                |
| 5104 - S203            | 2003-09-26 | Label. Marking of 5104B                |
| 5104 - 1005 (p.1 of 6) | 2002-03-06 | Diagram. 5104 Block                    |
| 5104 - 1005 (p.2 of 6) | 2002-03-06 | Diagram. 5104. Power                   |
| 5104 - 1005 (p.3 of 6) | 2002-03-06 | Diagram. 5104 Input Channel 1          |
| 5104 - 1005 (p.4 of 6) | 2002-03-06 | Diagram. 5104 Output Channel 1         |
| 5104 - 1005 (p.5 of 6) | 2002-03-06 | Diagram. 5104 Input Channel 2          |
| 5104 - 1005 (p.6 of 6) | 2002-03-06 | Diagram. 5104 Output Channel 2         |
| 5104BA                 | 2002-05-16 | Part-list. Rep/PS. 1 Ch. ATEX II (1) G |
| 5104--A (page 1-2)     | 2002-03-08 | Part-list. Leaded. 1 Ch.               |
| 5104SMDA (page 1-6)    | 2002-03-08 | Part-list. SMD. 1 Ch.                  |
| 5104BB                 | 2002-05-16 | Part-list. Rep/PS. 2 Ch. ATEX II (1) G |
| 5104--B (page 1-2)     | 2002-03-08 | Part-list. Leaded. 2 Ch.               |
| 5104SMDB (page 1-7)    | 2002-03-08 | Part-list. SMD. 2 Ch.                  |
| 5104 - Q105            | 2001-01-11 | EEx Technical description              |
| 5104 - 5C04            | 2001-01-11 | EEx Routine Test specification         |

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.

[17] Special conditions for safe use:

For correct use and installation the manufacturers manual shall be followed.


- Temperature range:  $-20^{\circ}\text{C} < T_a < +60^{\circ}\text{C}$
  - Intrinsically safe specifications
- Terminals 31-33, 11-14 and 21-24:  
 $U_m: 250\text{ V}$
- Terminal 44 with respect to 41, 42, 43 and  
Terminal 54 with respect to 51, 52, 53:  
 $U_o: 28\text{ VDC}$   
 $I_o: 93.0\text{ mA DC}$   
 $P_o: 0.65\text{ W}$   
 $L_o: 3\text{ mH}$   
 $C_o: 0.08\text{ }\mu\text{F}$

[18] Essential Health and Safety Requirements

Concerning ESR this Schedule verifies compliance with the Ex standards only. The manufacturer's Declaration of Conformity declares compliance with other relevant Directives.

On behalf of UL International Demko A/S

Herlev, 2003-11-25

  
Karina Christiansen  
Certification Manager

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