

[1] **EC-TYPE EXAMINATION CERTIFICATE**  
according to Directive 94/9/EC, Annex III  
(Translation)



[2] Equipment and Protective Systems intended for use  
in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU06ATEX1043 X**

[4] Equipment: Keyboard CHALLENGER K\*\*i-PS2

[5] Manufacturer: Gecma Components GmbH

[6] Address: Heisenbergstr. 26 - 40  
50169 Kerpen  
Germany

[7] The equipment mentioned under [4] and any acceptable variation there to are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23<sup>rd</sup> March 1994, certifies that the under [4] mentioned equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of the equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in test report IB-06-3-012 of 13<sup>th</sup> March 2006.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with prEN 61241-0:2002 and EN 61241-1:2004.

[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 under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned under [4] shall include the following:

**II 2D Ex tD A21 IP 6X T 120° C**  
 $0^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$

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Authorised for certifications  
- Explosion protection -

By order

(Dr. Lösch)



- Seal-  
(ID no. 0637)

Freiberg, 15<sup>th</sup> March 2006

Certificates without signature and seal are not valid.  
Certificates may only be duplicated completely and unchanged.  
In case of dispute, the German text shall prevail.

**Schedule**

[13]

**Schedule**

[14]

**to EC-TYPE EXAMINATION CERTIFICATE IBExU06ATEX1043 X**

[15]

**Description of the equipment**

The Keyboard CHALLENGER K\*\*i-PS2 serves for the control of a PC in explosive areas. It consists of a built in housing with plastic-foil keyboard. The Keyboard and the optional integrated Mouse is intrinsically safe provided by associated apparatus.

Types:            KBi-PS2  
                     KMUi-PS2        with Mouse  
                     KBi-PS2-B        with Power limitation  
                     KMUi-PS2-B        with Mouse and limitation

Ambient temperature range:            0 °C to +70 °C  
Degree of protection of the enclosure:    IP 6X            front side  
   IP 20            rear side

**Electrical data**

**Intrinsically safe data- and supply circuits** in type of protection Ex ia IIC

Keyboard circuits KBi-PS2

(Terminal 45)

U <sub>i</sub>	5.5 V
I <sub>i</sub>	internal limited
P <sub>i</sub>	1 W
L <sub>i</sub>	negligible
C <sub>i</sub>	25 µF

U <sub>o</sub>	5.5 V
I <sub>o</sub>	182 mA
P <sub>o</sub>	≤ P <sub>i</sub>
L <sub>o</sub>	0.8 mH
C <sub>o</sub>	25 µF

Mouse circuits KMUi-PS2

(Terminal 46)

U <sub>i</sub>	5.5 V
I <sub>i</sub>	internal limited
P <sub>i</sub>	1 W
L <sub>i</sub>	negligible
C <sub>i</sub>	15 µF

U <sub>o</sub>	5.5 V
I <sub>o</sub>	182 mA
P <sub>o</sub>	≤ P <sub>i</sub>
L <sub>o</sub>	0.8 mH
C <sub>o</sub>	35 µF

Keyboard circuits KBi-PS2-B

(Terminal 45)

U <sub>i</sub>	5.5 V
I <sub>i</sub>	internal limited
P <sub>i</sub>	internal limited
L <sub>i</sub>	negligible
C <sub>i</sub>	25 µF

U <sub>o</sub>	5.5 V
I <sub>o</sub>	1.42 mA
P <sub>o</sub>	0.2 W
L <sub>o</sub>	1 mH
C <sub>o</sub>	25 µF

Mouse circuits KMUi-PS2-B

(Terminal 46)

U <sub>i</sub>	± 25 V
I <sub>i</sub>	internal limited
P <sub>i</sub>	internal limited
L <sub>i</sub>	negligible
C <sub>i</sub>	15 µF

U <sub>o</sub>	5.5 V
I <sub>o</sub>	152 mA
P <sub>o</sub>	0.2 W
L <sub>o</sub>	1 mH
C <sub>o</sub>	35 µF

[16] **Test Report**

The detailed verification of the explosion protection is recorded in the Test Report IB-06-3-012. The test documents are component of the Test Report.

Summary of test results:

The Keyboard CHALLENGER K\*\*i-PS2 fulfil the requirements of explosion protection for the Equipment Group II and Category 2D in type of protection "Protection by enclosures tD" for a maximum surface temperature of maximum 120 °C.

The device fulfil the impacttest respective EN 60079-0:2004 table 8 for group II with low risk of mechanic danger.

[17] **Special conditions**

- For use respective category 2D/3D must be ensured the Degree of protection by proper mounting in an IP-6X enclosures.
- The equipment may be exposed only impacts with low mechanical danger. At damages any manner, which be able to impair the Degree of protection of the enclosure, must be the equipment out of operation.
- For use respective category 2D/3D: High energy load mechanism on the surface of the keyboards (for example pneumatic particle transport) have to be excluded.

[18] **Essential health and safety requirements**

Confirmed by compliance of standards (see [9]).

By order



(Dr. Lösch)

Freiberg, 15<sup>th</sup> March 2006