IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BVS 05.0006** Issue No.: **0**

Status: **Current**

Date of Issue: **2005-05-13** Page **1** of **4**

Applicant: **GeCma Components GmbH**
Heisenbergstr. 26 - 40
50169 Kerpen
Germany

Electrical Apparatus: **Display type Challenger 15i-FMO, Challenger 15i-2-FMO, Challenger 18i-FMO**
Optional accessory:

Type of Protection: **Intrinsic safety**

Marking: **Ex ib IIC T4**

Approved for issue on behalf of the IECEx Certification Body: Dr. R. Jockers

Position: Head of Certification Body

Signature:
(for printed version)

Date: 13.5.2005

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

EXAM BBG Prüf- und Zertifizier GmbH
Fachstelle für Sicherheit elektrischer Betriebsmittel – BVS
Dinnendahlstrasse 9
44809 Bochum
Germany

EXAM
BBG Prüf- und Zertifizier GmbH

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Manufacturer: **GeCma Components GmbH**
Heisenbergstr. 26 - 40
50169 Kerpen
Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacture'rs quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEx ATR: **DE/BVS/05/2052**

File Reference: **A 20040299**

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

Description
The display type Challenger 1*i-FMO is used in conjunction with a transmitting module for the visualisation of data and processes and for data entry via a keyboard or mouse.
The unit is designed for use in hazardous areas.
The electrical parts are integrated into metal enclosure with a glass plane at the front side. The intrinsically safe circuits are connected using terminals located behind a cover at the rear side of the enclosure.

Marking
The name and address of the manufacturer
Type Challenger 18i-FMO or 15i-FMO or 15i-2-FMO
Ex ib IIC T4
Serial number
Certificate number
Tamb -10 °C up to +60 °C

CONDITIONS OF CERTIFICATION: NO

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Additional information:

Electrical parameters see Annex

Annexe: Annex.pdf

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Annex

Parameters

1 Type Challenger 18i-FMO and type Challenger 15i-2-FMO

1.1 Terminal strips K1: power supply circuits
Terminals 3 - 4, 5 - 6, 7 - 8, 11 - 12, 13 - 14 and 15 - 16
Values per circuit

Voltage	Ui	DC	12,5	V
Current	Ii		543	mA
Power	Pi		6,8	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

1.2 Terminal strips K2 and K3: power supply circuits
Value each Terminal 1 - 2

Voltage	Ui	DC	12,5	V
Current	Ii		543	mA
Power	Pi		6,8	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

1.3 Terminal strips K4 to connect an ASD (application supporting device) for data input/output e.g. to connect a keyboard.

Voltage	Uo	DC	5,5	V
Current	Io		71	mA
max. external capacitance	Co		40	µF
max. external inductance	Lo		1	mH

1.5 Terminal strips K5: to connect a data cable to a transmission unit e.g. Challenger TCV 2i
Values each cable pair

Voltage	Ui		5,5	V
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

1.6 Video-Input (Terminal X2)

Voltage	Uo		2,5	V
Current	Io		88	mA
Power	Po		176	mW
max. external inductance	Lo		4	mH
max. external capacitance	Co		100	µF

for the connection of an intrinsically safe video circuit with following max values:

Voltage	Ui		6	V
Current	Ii		188	mA
Power	Pi		194	mW
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

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1.7 Terminal strips K9
Terminal 1 and 2: power supply output, identical with circuit at terminal K3

Voltage	Uo	DC	12,5	V
Current	Io		543	mA
Power	Po		6,8	W

Max. external capacitance and inductance depend on used power supply at terminal K3

1.8 Terminal 3 to 7: to connect an ASD (application supporting device) for data input/output e.g. to connect a keyboard

Voltage	Uo	DC	5,5	V
Current	Io		71	mA
max. external capacitance	Co		40	µF
max. external inductance	Lo		1	mH

1.9 Ambient temperature range Ta -10 °C up to +60 °C

2 Type Challenger 15i-FMO

2.1 Terminal strips K1: power supply circuits
Terminals 3 - 4, 5 - 6, 7 - 8, 11 - 12, 13 - 14 and 15 - 16
Values each circuit

Voltage	Ui	DC	13	V
Current	Ii		468	mA
Power	Pi		5,85	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

2.2 Terminal strips K2 and K3: power supply circuits
Values each Terminal 1 - 2

Voltage	Ui	DC	13	V
Current	Ii		468	mA
Power	Pi		6,8	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

2.3 Terminal strips K4 to connect an ASD (application supporting device) for data input/output e.g. to connect a keyboard.

Voltage	Uo	DC	5,5	V
Current	Io		71	mA
max. external capacitance	Co		40	µF
max. external inductance	Lo		1	mH

2.4 Terminal strips K5: to connect a data cable to a transmission unit e.g. Challenger TCV 2i
Values each cable pair

Voltage	Ui		5,5	V
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

2.5 Ambient temperature range Ta -10 °C up to +60 °C