



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.: issue No.:

Status:

Date of Issue: 2010-11-24 Page 1 of 3

Applicant: **RECHNER Industrie-Elektronik GmbH**
Gaußstraße 8 – 10
68623 Lampertheim
Germany

Electrical Apparatus: **Isolating Switching Amplifier type N-132/*-*****
Optional accessory:

Type of Protection: Equipment protection by intrinsic safety "i", Construction, test and Marking of Type of Protection "n" electrical apparatus, Equipment with equipment protection level (EPL) Ga, Protection by intrinsic safety 'ID'

Marking: **[Ex ia] IIC**
[Ex ia] IIIC for N-132/1-01, N-132/2-01, N-132/1-10,
N-132/2-10, N-132/1(2)-01
or
Ex nAc nCc [ia] IIC T4
[Ex ia] IIIC for N-132/2-E-10, N-132/1-E-10

*Approved for issue on behalf of the IECEx
Certification Body:*

H.-Ch. Simanski

Position:

Head of Certification Body

*Signature:
(for printed version)*

Date:

24/11/2010

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:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
DEKRA EXAM GmbH



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Manufacturer: **RECHNER Industrie-Elektronik GmbH**
Gaußstraße 8 – 10,
68623 Lampertheim
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 manufacturer's 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 : 2007-10 Edition: 5	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
IEC 60079-15 : 2005-03 Edition: 3	Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 61241-11 : 2005 Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID'

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

Test Report:

DE/BVS/ExTR10.0117/00

Quality Assessment Report:

DE/BVS/QAR07.0008/03



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description

The Isolating Switching Amplifier type N-132/*-***, which will be installed outside the hazardous area or in an enclosure which is in accordance with IEC 60079-15 (types N-132/2-E-10 and N-132/1-E-10), is used for converting the intrinsically safe input signals into non-intrinsically safe output signals.

The intrinsically safe circuits are galvanically separated from each other, as from the non-intrinsically safe signal circuits and from the power supply circuit.

Type designation

See Annex

Parameters

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

For installation of the Isolating Switching Amplifier type N-132/2-E-10 and type N-132/1-E-10 in zone 2 areas, these modules have to be mounted inside an enclosure which is in accordance with IEC 60079-15.



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Type Designation

Isolating Switching Amplifier		Type N-132/	*	-	*	*	*
Channels	Channel 1	1					
	Channel 2	2					
Option	1 Power relay per Channel	<i>Left blank</i>					
	2 Power relay at one Channel	(2)					
	Electronic output	E-					
Power supply	24 V DC	10					
	120/230 V AC	01					

Parameters

Power supply circuit

1.1 Type N-132/1-10, type N-132/2-10, type N-132/1-E-10 and type N-132/2-E-10 (terminals 7 (L+) - 9 (L-) and pac-bus connector V007/1 - V007/2)

Nominal voltage		DC	24	V
Maximum voltage	Um	AC	253	V

1.2 Type N-132/1-01, type N-132/2-01 and type N132/1(2)-01 terminals 7 (L) - 9 (N)

Nominal voltage		AC	120/230	V
Maximum voltage	Um	AC	253	V

2 Non-intrinsically safe output signals

2.1 Type N-132/1-10 and type N-132/1-01 (output 1 terminals 1, 2 and 3), type N-132/2-10, N-132/2-01 and type N-132/1(2)-01 (output 1 terminals 1, 2 and 3, output 2 terminals 4, 5 and 6)

Nominal voltage		AC/DC	250	V
Maximum voltage	Um	AC	253	V
Nominal current		DC	2	A
		AC	4	A

2.2 Type N-132/1-E-10 (output 1 terminals 1 - 2), type N-132/2-E-10 (output 1 terminals 1 - 2, output 2 terminals 5 - 6)

Nominal voltage		DC	35	V
Maximum voltage	Um	AC	253	V
Nominal current			50	mA

3. Line fault monitoring circuits (type N-132/1-10, type N-132/2-10, type N-132/1-E-10 and type N-132/2-E-10)

Loop 1 terminals 8 - 9, loop 2 pac-bus connector V007/3 - V007/4, potentially free contact

Nominal voltage		DC	24	V
Maximum voltage	Um	AC	253	V
Nominal current			100	mA



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4. Intrinsically safe input circuits

Input 1: terminals 10 – 11, input 2: terminals 14 – 15 (only for type N-132/2-10, N-132/2-01 and N-132/2-E-10)

Maximum output voltage	U _o	DC	9.6 V
Maximum output current	I _o		10 mA
Maximum output power	P _o		24 mW
Linear output characteristic			
Maximum internal capacitance	C _i		2.42 nF
Maximum internal inductance	L _i		negligible

The values for the external capacitances Co and external inductances Lo are shown in the following table:

	IIB	IIC
Lo	1000 mH	350 mH
Co	26 µF	3.6 µF

If both input circuits are connected in parallel (terminals 10 – 14 and 11 – 15) the following values apply for the resulting circuit:

Maximum output voltage	U _o	DC	9.6 V
Maximum output current	I _o		20 mA
Maximum output power	P _o		48 mW
Linear output characteristic			
Maximum internal capacitance	C _i		4.84 nF
Maximum internal inductance	L _i		negligible

The values for the external capacitances Co and external inductances Lo are shown in the following table:

	IIB	IIC
Lo	340mH	90 mH
Co	26 µF	3.6 µF

5. Ambient temperature range T_a -20 °C up to +70 °C