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 10.0011X issue No.:2

Status: **Current**

Date of Issue: **2012-03-14** Page 1 of 4

Certificate history:
Issue No. 2 (2012-3-14)
Issue No. 1 (2011-2-17)
Issue No. 0 (2010-2-9)

Applicant:
R.STAHL Schaltgeräte GmbH
Am Bahnhof 30
74638 Waldenburg
Germany

Electrical Apparatus: **Isolating repeater type 9165/**-11-****
Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i", Group II Zone 0 Apparatus, Type of Protection "n"**

Marking:

For types 9165/**-11-1*:
Ex nA nC [ia Ga] IIC T4 Gc and [Ex ia Da] IIIC resp.
Ex nAc nCc [ia] IIC T4 and [Ex ia] IIIC
For types 9165/**-11-6*: Ex nA nC IIC T4 Gc resp.
Ex nAc nCc IIC T4

Approved for issue on behalf of the IECEx Certification Body: Peter Migenda

Position: Deputy Head of Certification Body

Signature:
(for printed version)

Date:

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 EXAM GmbH

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Manufacturer: **R.STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg
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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*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/ExTR10.0011/01

Quality Assessment Report:

DE/BVS/QAR10.0002/02

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Schedule

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

Description:

The isolating repeater type 9165 is an associated apparatus per IEC 60079-11 as well as a nonincendive apparatus per IEC 60079-15. The intrinsically safe circuits are galvanically separated from each other, as from the non I.S. signal circuits and from the auxiliary power supply circuit.

The isolating repeater is used for the transmission of a 0/4…20mA current signal for e.g. the intrinsically safe operation of valves.

Depending on the variant there is the option of bi-directionally transmission of a HART communication signal, where a digital signal is modulated to the current signal, by means of frequency shift keying.

Type Designation:

See Annex

Electrical Data:

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

For use in Zone 2 the Isolating repeater has to be mounted inside an enclosure which is in accordance with IEC 60079-15.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The isolating repeater has been modified (modified transformer) and assessed in acc. with IEC 60079-0 :2011, IEC 60079-11 :2011 and IEC 60079-15 :2010.

Annexe: BVS_10_0011X_Issue1_R_Stahl_Annex.pdf

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Certificate No.: **IECEx BVS 10.0011 X, Issue 1**
Annex

Type Designation

Isolating Repeater Type 9165 / * * - 1 1 - * *
a b c d e f

Number of Channels:		
1	1	a
2	2	a
Signal:		b
0/4 … 20 mA	1	b
0/4 … 20 mA with HART	6	b
Design:		e
24 V, associated, nonincendive apparatus	1	e
24 V, nonincendive apparatus	6	e
Line fault detection:		f
open and short circuit detection	1	f
without	0	f

Electrical Data

Maximum safety voltage for types 9165/**-11-1*: $U_m \leq 253$ V AC

Auxiliary Power Supply

Models type 9165/1*-11-**
(Terminal: No. 7 (L+), No. 9 (L-) and pac-bus connector V007/ 1 (+), 2 (-))
Nominal Voltage: U_n = 24 V DC (18 ... 31.2 V DC)
Nominal Current: I_n = 55 mA

Models type 9165/2*-11-**
(Terminal: No. 7 (L+), No. 9 (L-) and pac-bus connector V007/ 1 (+), 2 (-))
Nominal Voltage: U_n = 24 V DC (18 ... 31.2 V DC)
Nominal Current: I_n = 90 mA

Input circuits
(Input 1: Terminal: No. 1 (+), No. 2 (-); Input 2: Terminal: No. 5 (+), No. 6 (-))
On 2-channel versions the output circuits are galvanically separated from each other.
Nominal Current: I_n = 0 … 20 mA
Input impedance: R_i = 210 Ω or 430 Ω

Line fault detection circuits
(Loop 1;Terminal : No. 8, 9 (-); Loop 2; pac-bus connector V007/ 3, 4)
Loop 1 references to the return of the auxiliary power supply.
Loop 2 is galvanically separated from Loop 1 (potentially free contact)
Nominal Voltage: U_n = 30 V AC/DC
Nominal Current: I_n = 100 mA

Output circuits
Output 1 : Terminal: No. 10 (+), 11 (-)
Output 2 : Terminal: No. 14 (+), 15 (-); (only for models type 9165/2*-11-**)
On 2-channel versions the output circuits are galvanically separated from each other.

Type 9165/-11-1* (intrinsically safe circuits, level of protection "ia")**
The intrinsically safe circuits may also be used in areas endangered by explosive dust atmospheres and be connected to apparatus certified accordingly.
For explosive dust atmospheres the maximum allowed values for inductance and capacitance as for gas group IIB apply.

U_o = 25.6 V
I_o = 96 mA
P_o = 605 mW (Linear characteristic)
C_o = 0 nF
L_o ≅ 0 mH

The maximum values for inductance or capacitance are shown in the table below.

	IIB	IIC
L_o	11 mH	1,9 mH
C_o	800 nF	103 nF

Type 9165/-11-6* (non-intrinsically safe circuits)**
Nominal values:
I_N = 0/4 mA … 20 mA with HART
I_{In} ≤ 30 mA
R_N = 0 Ω … 800 Ω
U_{LI} ≤ 25.6 V