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 PTB 13.0038 issue No.:0	Certificate history:
Status:	**Current**	
Date of Issue:	**2013-10-28**	Page 1 of 3
Applicant:	**R. STAHL Schaltgeräte GmbH** Am Bahnhof 30, 74638 Waldenburg **Germany**	
Electrical Apparatus: *Optional accessory:*	**Digital I/O Coupler Type 9413/2*-21*-84-FF**	
Type of Protection:	**Increased safety "e", Intrinsic safety "i", Encapsulation "m", Potection by enclosures "tD"**	
Marking:	Ex e mb [ia IIC Ga] IIC T4 Gb resp. Ex tb [ia IIIC Da] IIIC T 65 °C Db IP65	
Approved for issue on behalf of the IECEx Certification Body:	Dr.-Ing. Ulrich Johannsmeyer	
Position:	Department Head "Explosion Protection in Sensor technology and Instrumentation"	
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:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany

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Manufacturer: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30, 74638 Waldenburg
Germany

Additional 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 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-18 : 2009 Edition: 3	Explosive atmospheres Part 18: Equipment protection by encapsulation "m"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*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/PTB/ExTR13.0054/00

Quality Assessment Report:

DE/BVS/QAR10.0002/04

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Schedule

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

The Digital I/O Coupler Type 9413/2*-21*-84-FF is used for the control of eight intrinsically safe NAMUR digital inputs for contacts and proximity initiators and for the control of four intrinsically safe digital outputs for solenoid valves, pilot lights, etc.. The control information for the digital inputs and outputs is transferred through a fieldbus which is designed for the types of protection Increased Safety “e“ or Intrinsic Safety “i “.

The equipment is operated inside the hazardous area.

For further information see annexe.

CONDITIONS OF CERTIFICATION: NO

Annex: C130038_attach_01.pdf

General description

The Digital I/O Coupler Type 9413/2*-21*-84-FF is used for the control of eight intrinsically safe NAMUR digital inputs for contacts and proximity initiators and for the control of four intrinsically safe digital outputs for solenoid valves, pilot lights, etc.. The control information for the digital inputs and outputs is transferred through a fieldbus which is designed for the types of protection Increased Safety “e“ or Intrinsic Safety “i “.

The variant, type 9413/28-21*-84-FF (two-wire connection) is also supplied from the fieldbus circuit. The power supply for the variant, type 9413/21-21*-84-FF (4-wire connection) is provided by a separate supply circuit.

Depending on the variant an appropriate (additional) enclosure is required for application inside of hazardous areas.

For relationship between the variant and the permissible range of the ambient temperature, reference is made to the following table:

Variant	permissible range of the ambient temperature	Enclosure
9413/21-210-84-FF	-20 °C … 65 °C	without enclosure
9413/21-211-84-FF	-20 °C … 60 °C	polyester
9413/21-212-84-FF	-20 °C … 60 °C	stainless steel
9413/21-213-84-FF	-20 °C … 60 °C	aluminium
9413/28-210-84-FF	-20 °C … 60 °C	without enclosure
9413/28-211-84-FF	-20 °C … 55 °C	polyester
9413/28-212-84-FF	-20 °C … 54 °C	stainless steel
9413/28-213-84-FF	-20 °C … 57 °C	aluminium

Electrical data

Type 9413/28-21*-84-FF (two-wire connection)

terminals "24 V DC" ..... not connected

terminals "BUS" ..... type of protection Increased Safety Ex e

U_n = 24 V DC (17…32V DC)
P_n = approx. 5.5 W
U_m = 253 V AC

Type 9413/21-21*-84-FF (4-wire connection)

terminals "24 V DC" ..... type of protection Increased Safety Ex e

U_n = 24 V DC (17…32V DC)
P_n = approx. 3.5 W
U_m = 253 V AC

terminals "BUS" ..... type of protection Increased Safety Ex e

U_n = 24 V DC (17…32V DC)
U_m = 253 V AC

OR

terminals "BUS" ..... type of protection Intrinsic Safety Ex ia
..... IIC/IIB only for connection to a certified
..... intrinsically safe FISCO fieldbus accor-
..... ding to IEC 60079-27 or to an intrinsi-
..... cally safe fieldbus according to the EN-
..... TITY-concept, e.g. Profibus PA or Field-
..... bus Foundation

For relationship between type of protection and electrical data, reference is made to the following table:

Maximum values depending on the mode of operation:

FISCO	**ENTITY**	
Ex ia IIC / IIB	Ex ia IIC	Ex ia IIB
according to IEC 60079-27		
U_i = 17.5 V DC	U_i = 24 V DC	
I_i = 380 mA	I_i = 360 mA	I_i = 380 mA
P_i = 5.32 W	P_i = 1.04 W	P_i = 2.58 W

C_i = 5 nF
L_i = 10 µH

It is not permitted to change the mode of operation of the terminals "BUS" from Increased Safety 'e' to Intrinsic Safety 'i'.

All variants

Digital outputs ..... type of protection Intrinsic Safety Ex ia IIC/IIB only for connection to passive intrinsically safe circuits

Maximum values per channel:

U_o = 27.4 V
I_o = 100 mA
P_o = 680 mW

linear characteristic

Maximum permissible external capacitances and inductances:

IIC		IIB	
C_o = 50 nF	L_o = 0.8 mH	C_o = 255 nF	L_o = 12 mH
C_o = 65 nF	L_o = 0.5 mH	C_o = 355 nF	L_o = 1 mH
C_o = 82 nF	L_o = 0.2 mH	C_o = 672 nF	L_o = 0.1 mH

The intrinsically safe digital outputs are connected to a common reference conductor.

Digital inputs..... type of protection Intrinsic Safety Ex ia IIC/IIB only for connection to passive intrinsically safe circuits

Maximum values per channel:

U_o = 9.56 V
I_o = 10.9 mA
P_o = 25.9 mW
linear characteristic

Maximum permissible external capacitances and inductances:

IIC		IIB	
C_o = 0.5 µF	L_o = 100 mH	C_o = 2.7 µF	L_o = 100 mH
C_o = 0.75 µF	L_o = 10 mH	C_o = 3.9 µF	L_o = 10 mH
C_o = 1.2 µF	L_o = 1 mH	C_o = 6.3 µF	L_o = 1 mH
C_o = 2.1 µF	L_o = 0.1 mH	C_o = 12 µF	L_o = 0.1 mH

The intrinsically safe digital inputs are connected to a common reference conductor.

All circuits are safely electrically isolated from earth.

The sub-networks "Bus", "24 V DC" are safely electrically isolated from each other and from the intrinsically safe digital outputs and digital inputs up to a peak value of the nominal voltage of 375 V.

The intrinsically safe sub-networks digital outputs and digital inputs are safely electrically isolated from each other.

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100, 38116 Braunschweig, Germany
Postfach 33 45, 38023 Braunschweig, Germany
Telephone +49 531 592-0, Telefax +49 531 592-3605