IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.:	**IECEx BVS 08.0057X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 5	Issue 4 (2019-02-14) Issue 3 (2012-06-21) Issue 2 (2011-03-18) Issue 1 (2010-03-22) Issue 0 (2009-01-08)
Date of Issue:	2022-07-21		
Applicant:	**R. STAHL Schaltgeräte GmbH** Am Bahnhof 30 74638 Waldenburg **Germany**		
Equipment:	**Field Device Coupler Type 9411/21-2*0-*1 and 9411/24-3*0-*1**		
Optional accessory:			
Type of Protection:	**Intrinsic safety 'i'; Encapsulation 'm'; Increased safety 'e'**		
Marking:	For type 9411/21-2*0-*1 : Ex mb eb ib [ia Ga] IIC T4 Gb [Ex ia Da] IIIC For type 9411/24-3*0-*1: Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC		

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

Position: **Lead Auditor and officially recognised expert**

Signature:
(for printed version)

Date:
(for printed version)

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 www.iecex.com or use of this QR Code.

Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.

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Certificate No.: **IECEx BVS 08.0057X**

Date of issue: 2022-07-21 Issue No: 5

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

Manufacturing locations: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg
Germany

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with 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/ExTR09.0003/05

Quality Assessment Report:

DE/BVS/QAR10.0002/17

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

Description

The Field Device Coupler serves for coupling between a field bus trunk line (TRUNK) and 4 or 8 spur lines (SPUR).

The coupler's intrinsically safe output circuits perform type of protection Ex ia and thus can extend into areas requiring EPL Ga or Da devices. These output circuits constitute a FISCO Power Supply for connection to field bus systems as per IEC 60079-11. The external cables used for this application have to be in accordance with the specification of IEC 60079-11 in respect to its design (cable parameter).

The intrinsically safe output circuits are as well suitable for connection to field bus system as per the Foundation Fieldbus ENTITY model.

Subject and type

See Annex

Parameters

See Annex

Listing of all components used referring to older standards

None

SPECIFIC CONDITIONS OF USE: YES as shown below:

- For installation in areas, where EPL Gb equipment is required, the field device coupler (FDC) type 9411/21-2*0-*1 shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with IEC 60079-0.
- For installation in areas, where EPL Gc equipment is required, the field device coupler (FDC) type 9411/24-3*0-*1 shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with IEC 60079-0.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Assessment of Field Device Coupler in accordance with the current standard versions
- Modification of the marking
- Update of the documentation

Annex:

BVS_08_0057X_Stahl_Annex_issue5_1.pdf

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Certificate No.: **IECEx BVS 08.0057X issue No: 5**
Annex

General product information:

Subject and Type
Field Device Coupler Type 9411/21-2*0-*1 and 9411/24-3*0-*1
Instead of the *** in the complete denomination numerals will be inserted which characterize the following modifications:

Field device coupler type 9411/ 2 * - * * 0 - * 1

Type of protection, output circuits (SPUR):
2 Ex ia

Type of protection, input circuits (TRUNK):
1 Ex eb
4 Ex ec

Equipment protection level (EPL)
2 EPL Gb
3 EPL Gc

Design of terminals:
1 Screw
2 Cage clamp
3 Ex i screw terminals detachable
4 Ex i spring cage terminals detachable

Protection enclosure
0 without protection enclosure

Number of channels (SPURs):
3 4 channels
4 8 channels

Electrical isolation (input-output):
1 U_m = 253 V

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Annex

General product information:

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Protection enclosure
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Number of channels (SPURs):
3 4 channels
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1 U_m = 253 V

Description

The Field Device Coupler serves for coupling between a field bus trunk line (TRUNK) and 4 or 8 spur lines (SPUR).

The coupler's intrinsically safe output circuits perform type of protection Ex ia and thus can extend into areas requiring EPL Ga or Da devices. These output circuits constitute a FISCO Power Supply for connection to field bus systems as per IEC 60079-11. The external cables used for this application have to be in accordance with the specification of IEC 60079-11 in respect to its design (cable parameter).

The intrinsically safe output circuits are as well suitable for connection to field bus system as per the Foundation Fieldbus ENTITY model.

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Listing of all components used referring to older standards
None

Listing of all components used

Subject and type	Certificate	Standards
Screw terminal for types 9411/21-210-*1 and 9411/21-230-*1		
Phoenix Contact type MK3DSH3/…-5,08 Ex	IECEx KEM 07.0019 U	IEC 60079-0:2017 IEC 60079-7:2017
Phoenix Contact type MSTBW + MSTBP	No Certificate for Ex eb necessary, because only for the intrinsically safe connection facility	
Spring Type terminal for types 9411/21-220-*1 and 9411/21-240-*1		
WAGO Contact SA type 236, 5/5,08	IECEx PTB 06.0042 U	IEC 60079-0:2017 IEC 60079-7:2017
Phoenix Contact type FKCVR, 5/5,08	No Certificate for Ex eb necessary, because only for the intrinsically safe connection facility	

Parameters

1 Input circuit “Ex e”
(Terminals TRUNK IN and TRUNK OUT, +, -, S)

Nominal voltage		DC	24	V
Range of nominal voltage		DC	16-32	V
Rated nominal current			2	A
Maximum voltage	U_m	AC	253	V

Shield connector: For connection of the cable shield (terminals: S) the shield connector is connected to the device earth connector via a ≤ 2.6 nF capacitor.

Earth connector: For connection of the equipotential (terminals at the busbar) bonding conductor and for direct shield connection of the cable shields to earth (PA).

Shorting jumper: The internal terminating resistor is (terminals TERM 1, 2) activated if the shorting if there is no jumper is fitted. The bus is not terminated jumper fitted.

2 Intrinsically safe output circuits with type of protection Ex ia
(Terminals: SPUR 1 ... 4 or 1 ... 8; in each case: +, -)

Maximum output voltage	U_o	DC	15.7	V
Maximum output current	I_o		245	mA
Maximum output power	P_o		960	mW
Linear output characteristic				
Maximum internal capacitance	C_i		1.1	nF
Maximum internal inductance	L_i		negligible	

For maximum values of external inductance and capacitance see the following table:

	IIB	IIC
L_o [mH]	2.9	0.58

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C_o [nF]	2878	476
L_o/R_o [µH/Ω]	148	37

If inductances and capacitances are concentrated, the following values apply:

	IIB				IIC
L_o [mH]	0.5	1.0	2.0	2.9	0.5
C_o [nF]	2698	2198	1598	1198	368

Shield connector: For connection of the cable shield (terminals: S) the shield connector is connected to the device earth connector via a ≤ 5.2 nF capacitor.

Earth connector: For direct connection of the cable (terminals at the busbar) shields to earth (PA).

3 Ambient temperature range T_a -40 °C up to +75 °C