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 TUR 24.0034X**

Certificate history:

Status: **Current**

Issue No: 0

Date of Issue: 2025-07-09

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

Equipment: **Ethernet-APL Field Switch, 9740/1*-16-****

Optional accessory:

Type of Protection: **increased safety, intrinsic safety, powder filling**

Marking:

9740/12-16-*0	Ex eb ib q [ia Ga] IIC T4 Gb [Ex ia Da] IIIC
9740/13-16-**	Ex ec ic [ia Ga] IIC T4 Gc [Ex ia Da] IIIC

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

Position: **Assigned certifier**

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:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

IECEx Certificate of Conformity

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 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11:2023 Edition:7.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-5:2015 Edition:4.0	Explosive atmospheres –Part 5: Equipment protection by powder filling “q”
IEC 60079-7:2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
IEC TS 60079-47:2021 Edition:1.0	Explosive atmospheres – Part 47: Equipment protection by 2-wire intrinsically safe Ethernet concept (2-WISE)

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/TUR/ExTR24.0034/00

Quality Assessment Report:

DE/BVS/QAR10.0002/20

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

General product information:

The Ethernet-APL Field Switch is designed for integration in powered Ethernet-APL spur-topologies. In this case the uplink functionality of the trunk is realized by copper based standard Ethernet interfaces (10/100Base-TX, 1000Base-TX) or alternatively by fiber based standard Ethernet interfaces (10/100Base-FX, 1000Base-FX).

The powered spurs communicate via Ethernet-APL and match either power class A or B according to the Ethernet-APL port profile. As additional feature power class A spurs can be configured to communication via Profibus PA. The APL Field Switch is intended to be supplied by an auxiliary power source.

Type 9740/12-16-** (Zone 1 Type) is designed for use in Zone 1, Zone 2 or outside the hazardous area. Type 9740/13-16-** (Zone 2 Type) is intended for use in Zone 2 or outside the hazardous area.

Both types are equipped with intrinsically safe spur ports designed for zone 0.

More information see annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The device shall be installed in an environment with a pollution degree of 1 or 2. When installed in hazardous areas, an enclosure, which has a minimum rating of IP54 and is in accordance with IEC 60079-0, shall be used.
2. The device shall be installed in an environment with an overvoltage category of I or II.
3. The Ethernet infaces for data transfer of the Ethernet-APL Field Switch must be connected to Ethernet communication partners, which are in accordance with the technical data's. Since these are data interfaces and the voltage complies with the criteria for safety extra low voltages, no transient overvoltage's are expected.
4. By using a SFP module (option is only available for type 9740/13-16-*1) the maximum ambient temperature for the device is limited to +65 °C. By using B-Ports (option is only available for type 9740/1*-16-0*) the maximum ambient temperature for the device is limited to +60 °C.

Annex:

IECEx TUR 24.0034X _Attachment rev 00.pdf

Device: Ethernet-APL Field Switch
Type: 9740/1*-16-**

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30, 74638 Waldenburg, Germany

Type designation:

Ethernet-APL Field Switch	**9 7 40 /**	**1** a	***** b	**-**	**1** c	**6** d	**-**	***** e	***** f

Version:

1	1

Hazardous area:

Zone 1 / category 2	2
Zone 2 / category 3	3

Number of APL-Spurs:

16 Spurs	16

Spur profile:

Power Class A + B, Ex i	0
Power Class A, APL + PA, Ex i	4

Special features:

No special features	0
Optical fibre interface	1

Electrical data:

Power Supply (PWR1, PWR2)
For 9740/13-16-** in type of protection Ex ec.
For 9740/12-16-*0 in type of protection Ex eb.

Max. safety voltage:	U_m = 60 V
Nominal voltage:	U_N = 24 / 48 V DC
Voltage Range:	19,2 ... 57,6 V DC
Input current:	I_N ≤ 1,4 A (at 24 V DC) I_N ≤ 0,65 A (at 48 V DC)
Max. power consumption:	≤ 31,2 W
Max. power dissipation:	≤ 19 W

Data Interfaces 9740/13-16-(XT1, XT2)**
RJ45 Plug connector (Ex ec)

Max. safety voltage:	U_m = 60 V
Standard:	100BASE-TX
Transfer Rate:	10/100 Mbit/s

Data Interfaces 9740/13-16-*1(XT3, XT4)
SFP-Module for fibre optics
Laser Class 1 approved according to IEC 60825-1.
The optical cables may lead either into or through areas requiring equipment of EPL Gb, Gc, Db or Dc.

Max. safety voltage:	U_m = 60 V
Standard:	100BASE-FX
Transfer Rate:	10/100 Mbit/s

Data Interfaces 9740/12-16-*0 (XT1, XT2, XT3)
5-pole Plug-in connector (Ex eb)

Max. safety voltage:	U_m = 60 V
Standard:	100BASE-TX
Transfer Rate:	10/100 Mbit/s

PT100 terminal (SPT)
Nominal values

Output current (const.)	I_N = 1 mA

<u>According to type protection ic for 9740/13-16-**</u>

Maximum output voltage:	U_o = 4,94 V
Maximum output current:	I_o = 15,6 mA
Maximum output power:	P_o = 52 mW
Maximum internal capacitance:	C_i = 11 nF
Maximum internal inductance:	L_i = 0 µF

In the following tables the combination of Lo and Co are listed including the line reactances for the connection in the respective gas group. The internal capacitance of Ci = 11 nF is already considered. The maximum values for Lo and Co are highlighted in grey.

For IIC:

Lo [mH]	100	10	1	0,1	0,01	0,001
Co [µF]	1,69	3,59	6,49	11,9	32,9	999

For IIB/IIIC:

Lo [mH]	100	10	1	0,1	0,01	0,001
Co [µF]	13,9	21,9	36,9	78,9	209	999

<u>According to type protection ib for 9740/12-16-*0</u>

Maximum output voltage:	U_o = 4,94 V
Maximum output current:	I_o = 15,6 mA
Maximum output power:	P_o = 52 mW
Maximum internal capacitance:	C_i = 11 nF
Maximum internal inductance:	L_i = 0 µF

In the following tables the combination of Lo and Co are listed including the line reactances for the connection in the respective gas group. The internal capacitance of Ci = 11 nF is already considered. The maximum values for Lo and Co are highlighted in grey.

For IIC:

Lo [mH]	100	10	1	0,1	0,01	0,001
Co [µF]	0,64	2,09	3,69	6,79	16,9	99,9

For IIB/IIIC:

Lo [mH]	100	10	1	0,1	0,01	0,001
Co [µF]	7,09	12,9	20,9	42,9	179	999

Spur Power Source Ports (S01…S16)

FISCO only applies for types 9740/1*-16-4*.

The option for Power Class B is only available for type 9740/1*-16-0* and terminals S13…S16.

Electrical characteristics of Power Class A Ports

Nominal values

Voltage range: U_N = 9,6 … 13,8 V DC

Output current (max.): I_N = 56 mA, short circuit protected

According to 2-WISE and FISCO in intrinsic safety type protection ia

Max. output voltage: Uo = 14,9 V

Max. output current: Io = 379 mA

Max. output power: Po = 998 mW

Max. internal capacitance: Ci = 110 pF

Max. internal inductance: Li = 280 nH

The following tables show the Entity values including occurring line reactances for the connection in the respective gas group.
The maximum internal reactances Ci and Li do not exceed 1 % of the determined Co and Lo values and are negligible.

For IIC:	Lo [mH]	0,15
	Co [µF]	0,5

For IIB / IIIC:	Lo [mH]	0,15	0,5	1
	Co [µF]	2	2	1

Electrical characteristics of Power Class B Ports

Nominal values

Voltage range: U_N = 10,1 … 12,6 V DC

Output current (max.): I_N = 115 mA, short circuit protected

According to 2-WISE and FISCO in intrinsic safety type protection ia

Max. output voltage: Uo = 17,1 V

Max. output current: Io = 378 mA

Max. output power: Po = 1,66 W

Max. internal capacitance: Ci = 110 pF

Max. internal capacitance: Li = 280 nF

Ambient temperature range:

By using a SFP module (option is only available for type 9740/13-16-*1):	Ta = - 40°C ... + 65°C
By using a B-Port (option is only available for type 9740/1*-16-0*):	Ta = - 40°C ... + 60°C
All other types:	Ta = - 40°C ... + 70°C