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 17.0031X

Issue No: 1

Certificate history:
Issue No. 1 (2019-06-25)
Issue No. 0 (2017-08-04)

Status: **Current**

Date of Issue: **2019-06-25**

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

Equipment: **CPU module, type 9442/35-10-00**

Optional accessory:

Type of Protection: **Intrinsic Safety, Increased Safety, Non-Sparking Device**

Marking:

Ex ec ia [ia Ga] IIC T4 Gc or

Ex nA ia [ia Ga] IIC T4 Gc

Approved for issue on behalf of the IECEx Certification Body: Dr.-Ing. F. Lienesch

Position: Head of Department "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

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

IECEx Certificate of Conformity

Certificate No:	IECEx PTB 17.0031X	Issue No: 1
Date of Issue:	**2019-06-25**	Page 2 of 5
Manufacturer:	**R. STAHL Schaltgeräte GmbH** Am Bahnhof 30, 74638 Waldenburg, Germany **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 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 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 60079-7 : 2015 Edition:5.0	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/ExTR17.0032/01

Quality Assessment Report:

DE/BVS/QAR10.0002/14

IECEx Certificate of Conformity

Certificate No: IECEx PTB 17.0031X Issue No: 1

Date of Issue: **2019-06-25** Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Inside the hazardous area the CPU Module, type 9442/35-10-00 shall be installed into an enclosure that corresponds to an acknowledged type of protection according to EN 60079-0 and that provides a minimum degree of protection of IP 54 according to EN 60529.
2. Outside the hazardous area the CPU Module, type 9442/35-10-00 shall be installed into an enclosure that provides a minimum degree of protection of IP 54 according to EN 60529 or inside an area having a maximum pollution degree 2 / overvoltage category III.
3. The CPU Module, type 9442/35-10-00 and the non-intrinsically safe interface circuits shall be plugged or separated only in a de-energized state or if it is made sure that an explosive atmosphere does not exist (warning label).
4. The CPU Module, type 9442/35-10-00 shall only be operated with the Sockets of types 9496/3*-03-00 and 9496/3*-04-00. Two CPU-Modules are permitted as a maximum in one Remote I/O-system, type IS1 / IS1+.

IECEx Certificate of Conformity

Certificate No: IECEx PTB 17.0031X Issue No: 1

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

- Determination of the thermal conditions for mounting on the new socket, type 9496/3*-04-00.
- Determination of thermal conditions for the previous vertical and the optional new mounting orientation (horizontal upside-down installation) for mounting on both variants of the socket.
- Introduction of alternative heat-conducting foils
- Update of Special Condition No. 4 respecting mounting on new socket type
- Revision of drawing No. 9442 0 000 002 0
- Correction of typing errors
- Revision of the operating instructions manual

IECEx Certificate of Conformity

Certificate No:	IECEx PTB 17.0031X	Issue No: 1
Date of Issue:	**2019-06-25**	Page 5 of 5

Additional information:

For thermal and electrical specifications as well as special conditions for safe use, reference is made to the annex.

Annex:

Annex to IECEx PTB 17.0031X-issue-1.pdf

Applicant: R. STAHL Schaltgeräte GmbH

Electrical apparatus: CPU module, type 9442/35-10-00

Description of equipment

In addition to the Power Module, type 9445/35-12 and the Sockets of types 9496/3*-03-00 and 9496/3*-04-00 which are separately certified, the CPU Module, type 9442/35-10-00 is one of the basic modules of the Remote I/O-System, type IS1 / IS1+. The CPU Module is plugged into one of the 3 resp. 4 slots on the socket and bolted by a screw and it is hence electrically connected to the Power Module and other system modules which are connected to the sockets or to the BusRail, type 9494/**-** that is also separately certified. The CPU Module serves as a communication unit. It receives signals from the I/O-Modules (on the BusRail) and transmits them to the Process Logic Controller (PLC) or other communication partners using associated interfaces. The equipment is supplied from an intrinsically safe circuit provided by the Power Module. Two intrinsically safe circuits are used for communication with system-modules plugged onto the Socket or the BusRail. Signal transmission to the PLC or other communication partners is carried out via Ethernet, RS485 or USB interfaces which are designed to types of protection Increased Safety “Ex ec” or Non-Sparking Device “Ex nA”.

The electronic circuitry is arranged on two PCB´s which are mounted onto a metal carrier. This assembly is installed in a plastic enclosure.

The CPU Module, type 9442/35-10-00 is intended for the installation in areas requiring equipment of category 3 or in the safe area.

The permissible range of the ambient temperature depends on the installation as follows:

Ta = - 40 °C ... + 75 °C	when socket is mounted on a DIN-mounting rail (BusRail) and bolted onto a carrier plate
Ta = - 40 °C ... + 65 °C	when socket is mounted on a DIN-mounting rail (BusRail) without carrier plate

Electrical data

Intrinsically safe circuits:

The intrinsically safe circuits are considered system-internal circuits if the CPU-Module is plugged into the associated socket and bolted as intended.

Supply circuit Slot connector V100, pins A ... D	type of protection Intrinsic Safety Ex ia IIC Maximum values: U_i = 26.2 V I_i = 1.1 A

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Sense-line Slot connector V100, pins E, F	type of protection Intrinsic Safety Ex ia IIC Maximum values: $U_i = U_o = 26.2$ V
BusRail signal Slot connector V100, pins K, L	type of protection Intrinsic Safety Ex ia IIC Maximum values: $U_i = U_o = 6.6$ V $I_o = 98$ mA L_i negligibly low C_i negligibly low
Backplane signal Slot connector V100, pins S ... AJ	type of protection Intrinsic Safety Ex ia IIC Maximum values: $U_i = U_o = 5$ V $I_i = 2$ A $I_o = 81$ mA L_i negligibly low $C_i = 2.5$ µF

The intrinsically safe circuits are safely electrically isolated from each other and from the non-intrinsically safe circuits up to a peak value of the nominal voltage of 60 V. The intrinsically safe supply circuit and the intrinsically safe Sense-line are electrically interconnected.

Non-intrinsically safe circuits:

RS485-interface D-Sub 9-pin connector	type of protection Increased Safety Ex ec or Non-Sparking Device Ex nA $U_m = 30$ V DC
Ethernet-interfaces X002-P1 and X002-P2 RJ 45 connector	type of protection Increased Safety Ex ec or Non-Sparking Device Ex nA $U_m = 30$ V DC Standard: 100Base TX Transfer rate: 10/100 Mbit/s, auto negotiation
USB-interface USB Typ A connector	type of protection Increased Safety Ex ec or Non-Sparking Device Ex nA $U_m = 30$ V DC $U_N = 5$ V ± 0.25 V $I_{max} = 250$ mA

Specific conditions of use

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2. Outside the hazardous area the CPU Module, type 9442/35-10-00 shall be installed into an enclosure that provides a minimum degree of protection of IP 54 according to EN 60529 or inside an area having a maximum pollution degree 2 / overvoltage category III.
3. The CPU Module, type 9442/35-10-00 and the non-intrinsically safe interface circuits shall be plugged or separated only in a de-energized state or if it is made sure that an explosive atmosphere does not exist (warning label).
4. The CPU Module, type 9442/35-10-00 shall only be operated with the Sockets of types 9496/3*-03-00 and 9496/3*-04-00. Two CPU-Modules are permitted as a maximum in one Remote I/O-system, type IS1 / IS1+.

The marking reads:

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