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 IBE 14.0010X

Issue No: 0

Certificate history:
Issue No. 0 (2014-09-23)

Status: **Current**

Date of Issue: **2014-09-23**

Applicant: **Paul Rüster & Co. GmbH**
Dorfplatz 11, 14532 Stahnsdorf
Germany

Equipment: **Resistance thermometer and thermocouples System Rüster BR, System Rüster BI, System Rüster KF, System Rüster WI**

Optional accessory:

Type of Protection: **Intrinsic safety 'i'**

Marking:

Ex ia IIC T6 - T2 or Ex ib IIC T6 - T2

Approved for issue on behalf of the IECEx Certification Body: Prof. Dr. Tammo Redeker

Position: 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:

IBExU Institut für Sicherheitstechnik GmbH
Certification Body
Fuchsmühlenweg 7
09599 Freiberg
Germany

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Manufacturer:	**Paul Rüster & Co. GmbH** Dorfplatz 11, 14532 Stahnsdorf **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 : 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"

*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/IBE/ExTR14.0010/00

Quality Assessment Report:

DE/IBE/QAR14.0003/00

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The resistance thermometers and the thermocouples are used for the temperature measurement in the mechanical engineering and plant construction. They consist of a protective tube with integrated temperature sensors and a head form with connector socket or permanently connected compensating cable.

Types:

System Rüster BR, System Rüster BI, System Rüster KF, System Rüster WI

Measuring temperature range: -20 °C to max. +250 °C
Ambient tempe rature range depenes of cable type.

SPECIFIC CONDITIONS OF USE: YES as shown below:

The specifications of the operating instructions have to be taken into account for the installation and operation.
The maximum permissible media temperatures depend on the error power of the electric supply.
The maximum permissible ambient temperatures must be ensured by measuring during the Installation.
The electrical connection must be carried out according to EN 60079-11, chapter 6.2.

Additional Information:

For thermal and electrical specifications for safe use, reference is made to the Annex.

Annex:

Annex2IBE14.0010X00.pdf

Description of device

The resistance thermometer and thermocouples are used for the temperature measurement in the mechanical engineering and plant construction. They consist of a protective tube with integrated temperature sensors and a head form with connector socket or permanently connected compensating cable.

Technical data

Environment data		
Application temperature range	T_M	-20°C … +70/80/150/180/250°C
Electrical data		
Maximum input voltage	U_i	30 V
Maximum input power	P_i	1000 mW (> 6 mm Ø) 550 mW (4-6 mm Ø)
Maximum internal capacitance	C_i	180 pF/m
Maximum internal inductance	L_i	1 µH/m
Types of resistance thermometer		Pt100, Pt1000, PTC, NTC, Ni 100, Ni 1000, Ni1000 TK5000
Type of thermocouples		K, L, J, N S, R, B, T
Electrical strength		500 V AC, 1 min

Maximum permissible temperatures:
For assembly and company of the thermometer the definitions of the max. allowed media temperature are to be guaranteed as a function of the achievement of the care in the mistake case.
The following tables shows the max. allowed media temperature of the measuring-active part:

minimum sensor diameter of 6 mm

	Pi [W]	T6	T5	T4	T3	T2	
$T_{zul.Medium}$	0,05	77,9	92,9	127,9	192,9	250	°C
$T_{zul.Medium}$	0,10	75,7	90,7	125,7	190,7	250	°C
$T_{zul.Medium}$	0,15	73,6	88,6	123,6	188,6	250	°C
$T_{zul.Medium}$	0,20	71,5	86,5	121,5	186,5	250	°C
$T_{zul.Medium}$	0,25	69,3	84,3	119,3	184,3	250	°C
$T_{zul.Medium}$	0,30	67,2	82,2	117,2	182,2	250	°C
$T_{zul.Medium}$	0,35	65,1	80,1	115,1	180,1	250	°C
$T_{zul.Medium}$	0,40	62,9	77,9	112,9	177,9	250	°C
$T_{zul.Medium}$	0,45	60,8	75,8	110,8	175,8	250	°C
$T_{zul.Medium}$	0,50	58,6	73,6	108,6	173,6	250	°C
$T_{zul.Medium}$	0,55	56,5	71,5	106,5	171,5	250	°C
$T_{zul.Medium}$	0,60	54,4	69,4	104,4	169,4	250	°C
$T_{zul.Medium}$	0,65	52,2	67,2	102,2	167,2	250	°C
$T_{zul.Medium}$	0,70	50,1	65,1	100,1	165,1	250	°C
$T_{zul.Medium}$	0,75	48,0	63,0	98,0	163,0	250	°C
$T_{zul.Medium}$	0,80	45,8	60,8	95,8	160,8	250	°C
$T_{zul.Medium}$	0,85	43,7	58,7	93,7	158,7	250	°C
$T_{zul.Medium}$	0,90	41,6	56,6	91,6	156,6	250	°C
$T_{zul.Medium}$	0,95	39,4	54,4	89,4	154,4	250	°C
$T_{zul.Medium}$	1,00	37,3	52,3	87,3	152,3	250	°C

minimum sensor diameter of 4 mm

	Pi [W]	T6	T5	T4	T3	T2	
$T_{zul.Medium}$	0,05	71,4	86,4	121,4	186,4	250	°C
$T_{zul.Medium}$	0,10	63,2	78,2	113,2	178,2	250	°C
$T_{zul.Medium}$	0,15	56,9	74,6	106,9	171,9	250	°C
$T_{zul.Medium}$	0,20	49,3	64,3	99,3	164,3	250	°C
$T_{zul.Medium}$	0,25	42,8	57,8	92,8	157,8	250	°C
$T_{zul.Medium}$	0,30	36,2	51,2	86,2	151,2	250	°C
$T_{zul.Medium}$	0,35	30,4	45,4	80,4	145,4	245,4	°C
$T_{zul.Medium}$	0,40	23,8	38,8	73,8	138,8	238,8	°C
$T_{zul.Medium}$	0,45	18,0	33,0	68,0	133,0	233,0	°C
$T_{zul.Medium}$	0,50	11,7	26,7	61,7	126,7	226,7	°C
$T_{zul.Medium}$	0,55	5,8	20,8	55,8	120,8	220,8	°C