

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM21US0021X
3. **Equipment:** Temperature Probe Type SXX
(Type Reference and Name) Temperature Probe

4. **Name of Listing Company:** Rueger SA.

5. **Address of Listing Company:** Chemin de Mongevon 9
Crissier 1023
Switzerland
244779-1

6. The examination and test results are recorded in confidential report number:

PR456119 dated 15th March 2022

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3610:2021, FM Class 3611:2021, FM Class 3615:2018,
FM Class 3810:2021, ANSI/UL 60079-0:2019, ANSI/UL 60079-11:2014, ANSI/UL 61010:2012

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Intrinsically safe for Class I, Division 1, Groups A, B, C, and D; hazardous (classified) locations, with entity parameters in accordance with installation drawing S00 00-090; T-Class = T6* Ta = -55°C to +40°C*;
*T4 for -55°C ≤ Ta ≤ +80°C
*T5 for -55°C ≤ Ta ≤ +55°C

Certificate issued by:



J.E. Marquedant
VP, Manager, Electrical Systems

15 March 2022

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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*T6 for $-55^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Nonincendive Electrical Apparatus with nonincendive field wiring suitable for use in Class I, Division 2 Groups A, B, C, and D hazardous (classified) locations in accordance with installation drawing 825A030. T-Class = T6* $T_a = -55^{\circ}\text{C}$ to $+40^{\circ}\text{C}$;

*T4 for $-55^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$

*T5 for $-55^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$

*T6 for $-55^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$;

Explosionproof for Class I, Division 1, Groups B, C and D T6/T4 with an ambient temperature range from -40°C to $+60^{\circ}\text{C}$ (for T6) or $+80^{\circ}\text{C}$ (for T4) and Dust-ignitionproof for use in Class II and III, Division 1, Groups E, F and G T6/T4, with an ambient temperature range from -40°C to $+60^{\circ}\text{C}$ (for T6) or $+80^{\circ}\text{C}$ (for T4).

11. The marking of the equipment shall include:

Class I Division 1, Groups A, B, C, D; T4* $T_a = -55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$ *; Entity

Class I Division 2, Groups A, B, C, D; T4* $T_a = -55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$ *; NIFW

*See installation drawing S00 00-090 for other T-class / T_a range and Specific Conditions of Use

S50 & S70

Class I, Division 1, Groups B, C, D; T6...T4 $T_a = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ (for T6) or $+80^{\circ}\text{C}$ (for T4)

Class II/III, Division 1, Groups E, F, G, T6...T4 $T_a = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ (for T6) or $+80^{\circ}\text{C}$ (for T4)

S96

Class I, Division 1, Groups B, C, D; T6...T4 $T_a = -20^{\circ}\text{C}$ to $+40^{\circ}\text{C}$ (for T6) or $+60^{\circ}\text{C}$ (for T4)

Class II/III, Division 1, Groups E, F, G, T6...T4 $T_a = -20^{\circ}\text{C}$ to $+40^{\circ}\text{C}$ (for T6) or $+60^{\circ}\text{C}$ (for T4)

12. **Description of Equipment:**

General - I.S and Division 2 nonincendive versions:

The Temperature Probe Type SXX consists of a sensor cable jacketed, with or without a connection head enclosure with terminals (minimum degree of protection IP20), integrated inside the connection head, an extension cable with terminal block or connector shell. The insert can be mounted in a thermowell that will be fixed to the head of connector. The sensing elements consist of either thermocouples or RTDs. The sensing elements are made intrinsically safe by using intrinsic safety barriers with the listed entity parameters, or Non-incendive using associated nonincendive field wiring apparatus with the NIFW parameters as listed.

Construction - The Temperature Probe Type SXX connection head enclosures are made of aluminium alloy or stainless steel and have an integrated Platinum temperature sensor with a four-wire output for processing with an external temperature transducer.

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Ratings –

Operation Temperature Ranges:

The ambient operating temperature range of the Temperature Probe Type SXX is -55°C to 80°C with a T-class of T4. Process temperature range may exceed this. To avoid the effects of process temperature and other thermal effects, care shall be taken to ensure that the temperature of the probes does not exceed an ambient temperature of 80°C. Alternative temperature ranges are -55°C to 55°C with a T-class of T5, and -55°C to 40°C with a T-class of T6. For Explosionproof, the temperature ranges are -55°C to +55°C for T6 and -55°C to +80°C for T4.

Electrical Data:

The Temperature Probe Type SXX has the following electrical ratings;

Intrinsically Safe "ia", and Nonincendive:

Entity parameters and Nonincendive Field Wiring Parameters:

Ui : 30 V; li : 100 mA; Pi : 0.75W; Ci : 280pF/m; Li : 15µH/m

General - Explosion proof and Dust-ignitionproof versions:

The equipment is available with a variety of Explosionproof/Dust-ignitionproof Connection Heads containing a sensor assembly insert. All threaded connections must be 5 turns engaged on the Connection Head. The electrical ratings are 30V and 0.75W.

S50-D-a-b-c-d-e-f-g-h-i-X-j-X-kk-ll-m-F-nn-o

a = Insert Diameter: 3, 4, 6, 8, R, S, or T

b = Type: E, J, K or N

c = Class: 1, 2, 3, N, or S

d = Sensing Element: 1, 2, 3, or 4

e = Electrical Circuit: 1 or 2

f = Sheath Material: 1 or 3

g = Head Type: F or S

h = Head Mounting: M, A, P, 2, or N

i = Cable Gland: -, P, L, M, N, S, T, or U

j = Extension Length: N, O, B, M, or U

kk = Lag Extension: --, 4-, H6, H7, H9, J7, J9, or LH

ll = Process Connection: R3, C3, or –

m = Mounting: -, 1, 2, or 3

nn = Calibration Report: --, 3P, 5P, 3D, or 5D

o = - or T

S50-2-a-1-b-c-d-A-e-f-g-X-h-X-ii-jj-k-F-ll-m

a = Insert Diameter: 3, 4, 6, 8, R, S, or T

b = Class: A, B, C, or D

c = Sensing Element: A, B, or D

d = Electrical Circuit: A, B, C, D, E, or F

e = Head Type: F or S

f = Head Mounting: M, A, P, 2, or N

g = Cable Gland: -, P, L, M, N, S, T, or U

h = Extension Length: N, O, B, M, or U

ii = Lag Extension: --, 4-, H6, H7, H9, J7, J9, or LH

jj = Process Connection: R3, C3, or –

k = Mounting: -, 1, or 3

ll = Calibration Report: --, 3P, 5P, 3D, or 5D

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m = - or T

S70-D-a-b-c-d-e-f-g-h-i-X-j-k-ll-mm-n-F-oo-p

a = Insert Diameter: 6, 8, T, U, or V

b = Type: J, K, or N

c = Class: 1, 2, 3, N, or S

d = Sensing Element: U, S, T, R, or Y

e = Electrical Circuit: 1, 2, 5, or 6

f = Sheath Material: 1, 3, or 4

g = Head Type: F or S

h = Head Mounting: 2, N, M, 3, 4, or 5

i = Cable Gland: -, P, L, M, N, S, T, or U

j = Distance B: B or -

k = Fixing Clamp: -, K, L, or M

ll = Extension: 4-, H6, H7, or J7

mm = Process Connection: R3, R4, VZ, H1, H2, H3, J1, J2, J3, L1, L3, L6, or -

n = Mounting: -, 1, 2, or 3

oo = Calibration Report: --, 3P, 5P, 3D, or 5D

p = - or T

S96-D-a-b-c-d-e-f-g-h-i-X-j-kk-ll-mm-n-F-oo-p

a = Insert Diameter: 0, 1, 2, 3, 4, 6, 7, 8, R, S, T, U or V

b = Type: E, J, K or N

c = Class: 1, 2, 3, N, or S

d = Sensing Element: 1, 2, 3, or 4

e = Electrical Circuit: 1, 2 or Z

f = Sheath Material: 1, 3 or N

g = Head Type: J

h = Cable Entry: M, A, 2, N, P, R, S, T

i = Cable Gland: -, P, L, M, N, S, T, or U

j = Extension Length: N

kk = Insert Quantity: xx

ll = Lag Extension: --, 4-, H9, J9, or NU

mm = Process Connection: R3, C3, or -

n = Mounting: -, 1, 2, or 3

oo = Calibration Report: --, 1P, 3P, 5P, 1D, 3D, or 5D

p = - or T

S96-2-a-1-b-c-d-e-f-g-X-h-i-jj-kk-ll-m-F-nn-o

a = Insert Diameter: 3, 4, 5, 6, 8, R, S, T, U or V

b = Class: A, B, C, or D

c = Sensing Element: A, B, or D

d = Electrical Circuit: A, B, C, D, E, or F

e = Sheath Material: A or N

f = Head Type: J

g = Cable Entry: M, A, 2, N, P, R, S, T

h = Cable Gland: -, P, L, M, N, S, T, or U

i = Extension Length: N

jj = Insert Quantity: xx

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kk = Lag Extension: --, 4-, H9, J9, or NU
ll = Process Connection: R3, C3, or –
m = Mounting: -, 1, 2, or 3
nn = Calibration Report: --, 1P, 3P, 5P, 1D, 3D, or 5D
o = - or T

13. Specific Conditions of Use:

I.S and Division 2 nonincendive versions:

1. *Some versions of the temperature probes or enclosures contain aluminum and are considered to present a potential risk of ignition by impact or friction. Care must be taken into account to prevent against impact or friction when installed in a Division 1 or Zone 0 location.*
2. *The maximum permitted ambient temperature of the temperature Probe is 80°C. To avoid the effects of process temperature and other thermal effects, care shall be taken to ensure that the temperature of the probes does not exceed an ambient temperature of 40°C, 55°C, or 80°C as applicable.*
3. *Probes with diameter less than 1.6mm do not withstand a 500Vrms dielectric strength test between the circuits and the earth ground. This must be taken into account during installation.*

Explosion proof /Dust-ignitionproof versions

1. *Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.*
2. *For ambient temperatures $\geq 60^{\circ}\text{C}$ (140 °F), use heat-resistant cables suitable for an ambient temperature at least 20°C (68°F) higher.*
3. *All models are to be mounted within thermowells suitably rated for the application they are used*
4. *Suitably rated thermowells are to have thread engagement of 5 full turns wrench tight.*

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
15 th March 2022	Original Issue.

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