

CERTIFICATE OF CONFORMITY

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

2. **Certificate No:** FM21US0021X
3. **Equipment:** Type SXX Temperature Probe
(Type Reference and Name)
4. **Name of Listing Company:** Ashcroft Inc
5. **Address of Listing Company:** 250 E Main St, Stratford, Connecticut 06614, United States of America
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 3600:2022, FM 3610:2021, FM 3611:2021, FM 3615:2022, FM 3810:2021, ANSI/UL 60079-0:2020, ANSI/UL 60079-11:2014, ANSI/UL 61010-1:2019

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:**

See Annex

11. **The marking of the equipment shall include:**

See Annex

Certificate issued by:

J.E. Marquedant

J.E. Marquedant
VP, Manager - Electrical Systems

23 January 2025

Date

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

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA
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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.

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; Ii : 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.

See Annex for additional details.

13. Specific Conditions of Use:

See Annex

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.

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16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
15 March 2022	Original Issue.
17 May 2023	<u>Supplement 1:</u> Report Reference: RR236906 dated 17 May 2023. Description of the Change(s): Model Code Option revisions to model codes S50-D and S50-2.
22 January 2024	<u>Supplement 2:</u> Report Reference: PR467484 dated 22 January 2024. Description of the Change(s): The flamepath length changed from min 26mm to min 12.5mm after conducting the flame propagation tests.
28 May 2024	<u>Supplement 3:</u> Report Reference: RR240242 dated 28 May 2024. Description of the Change(s): Company Transfer from Rueger SA to Ashcroft Inc.
23 January 2025	<u>Supplement 4:</u> Report Reference: RR243928 dated 23 January 2025. Description of the Change(s): <ol style="list-style-type: none">1. Update to the model configurations for S50, S50-D, S70-D.2. Update to the model configurations for S80 & S81 models with the addition of the remote mount Exd head suitable for Class I, Division 2, Groups A, B, C & D.3. Update the ratings for the S50-2, S50-D, S70-D, S96-2 & S-96-D models by removing the Class II / III, Division 1 ratings.4. Updates to some project documentation including the label drawings for Mexican & German manufacturing locations.

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ANNEX

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

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6/T4 with an ambient temperature range from -40°C to +60°C (for T6) or +80°C (for T4).

Markings:

Class I, Division 1, Groups B, C, D, T6 Ta = -40°C to +60°C/ T4 Ta = -40°C to +80°C

Description of Equipment:

Model Code Options:

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

b = RTD Type: 1, 2, or 3

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

d = Sensing Element: A, B, or D

e = Electrical Circuit: A, B, C, E, or F

f = Head Type: F, S, 2, 3, R, K, V, W, M, P or H

g = Head Mounting: M, A, P, 2, N, 3, 4, or 5

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

i = Extension Length: N, O, B, M, U or R

jj = Lag Extension: --, 4-, H6, H7, H9, J7, J9, LH, K8, K9, W1, W9, S1, S2, S3, S4, S6, S9, O1, O4, O6 or O9

kk = Process Connection: R3, R4, C3, or -

l = Mounting: -, 1, 3, B, T, or F

mm = Calibration Report: --, 3P, 5P, 3D, 5D or XC

n = - or T

Specific Conditions of Use:

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 $+20^{\circ}\text{C}$ (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.

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

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6/T4 with an ambient temperature range from -40°C to +60°C (for T6) or +80°C (for T4).

Markings:

Class I, Division 1, Groups B, C, D, T6 Ta = -40°C to +60°C/ T4 Ta = -40°C to +80°C

Description of Equipment:

Model Code Options:

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

b = Type: E, J, K, N, or T

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, S, 2, 3, R, K, V, W, M, P or H

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

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

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

kk = Lag Extension: --, 4-, H6, H7, H9, J7, J9, LH, K8, K9, W1, W9, S1, S2, S3, S4, S6, S9, O1, O4, O6 or O9

ll = Process Connection: R3, R4, C3, or -

m = Mounting: -, 1, 2, 3, B, T, or F

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

o = - or T

Specific Conditions of Use:

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.

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

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6/T4 with an ambient temperature range from -40°C to +60°C (for T6) or +80°C (for T4).

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Markings:

Class I, Division 1, Groups B, C, D, T6 Ta = -40°C to +60°C/ T4 Ta = -40°C to +80°C

Description of Equipment:

Model Code Options:

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

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, S, 2, 3, R, K, V, W, M, P or H

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, 5D or XC

p = - or T

Specific Conditions of Use:

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 $+20^{\circ}\text{C}$ (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.

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

Equipment Ratings:

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).

Markings:

Class I, Division 1, Groups B, C, D, T6 Ta = -40°C to +60°C/ T4 Ta = -40°C to +80°C

Description of Equipment:

Model Code Options:

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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
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

Specific Conditions of Use:

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 $+20^{\circ}\text{C}$ (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.

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

Equipment Ratings:

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).

Markings:

Class I, Division 1, Groups B, C, D, T6 Ta = -40°C to $+60^{\circ}\text{C}$ / T4 Ta = -40°C to $+80^{\circ}\text{C}$

Description of Equipment:

Model Code Option:

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

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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

Specific Conditions of Use:

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 $+20^{\circ}\text{C}$ (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.

SXX - S01, S10, S20, S21, S30, S40, S41, S50, S60, S61, S62, S70, S80, S81, S82, S83, S96 Temperature Probe

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 $+40^{\circ}\text{C}$ *;

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

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

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

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* Ta = -55°C to $+40^{\circ}\text{C}$ *;

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

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

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

Markings:

Intrinsically Safe Class I, Division 1, Groups A, B, C, D, /T4* Ta = -55°C to $+80^{\circ}\text{C}$ * – S00 00-090; Entity;
Nonincendive Class I, Division 2, Groups A, B, C, D, /T4* Ta = -55°C to $+80^{\circ}\text{C}$ *; S00 00-090; NIFW

Description of Equipment:

Entity and Nonincendive Field Wiring Parameters:

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

Temperature Codes:

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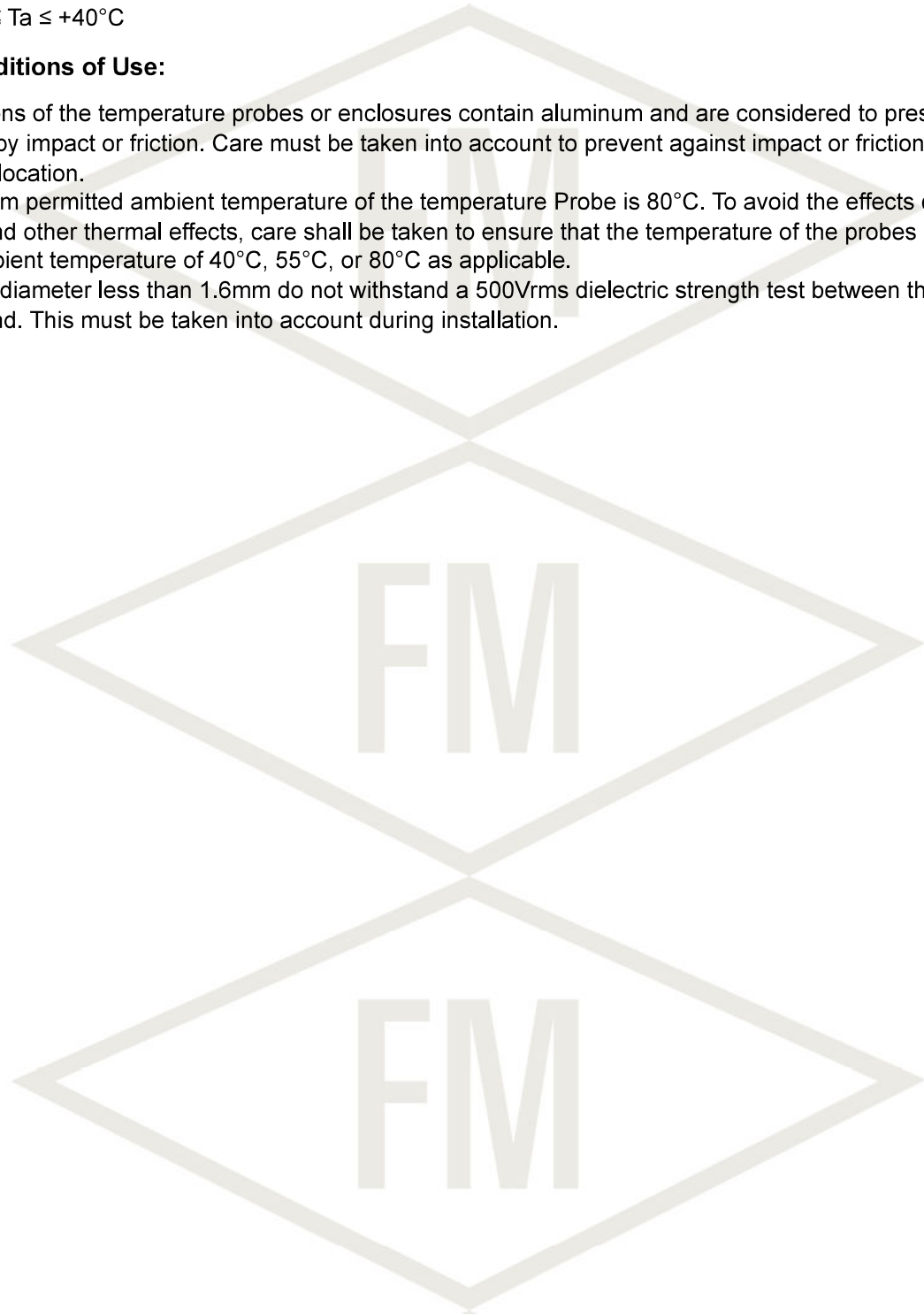
*T4 for $-55^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$

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

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

Specific Conditions of Use:

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 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.



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