CSA INTERNATIONAL

Certificate of Compliance

Certificate: 2161697 **Master Contract:** 215069

Project: 2161697 **Date Issued:** 2009/06/12

Issued to: **SICK Engineering GmbH**

Bergener Ring 27
Ottendorf-Okrilla, 01458
Germany
Attention: Michael Kochan

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

C US

Issued by: Andrew Sargent

Authorized by: Patricia Pasemko, Operations Manager

PRODUCTS

CLASS 2258 02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

CLASS 2258 82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - - For Hazardous Locations - Certified to US Standards

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations

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CLASS 2258.02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

CLASS 2258.82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

Class I, Division 1, Groups B, C and D, T4; Ex/AEx d IIB + H2, T4;

Class I, Division 2, Groups A, B, C and D, T4; Ex/AEx nA IIC, T4;

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EX Series (fixed probe) and FLSE100-EXRE Series (retractable probe). Models FLSE100-EX aaabccdefg hi jklmn* and Models FLSE100-EXRE aaabccdefg hi jklmn*. Input rated: 15-28 V dc, 500 mA max. Ambient temperature: -50C to 70C. Enclosure Type 6, IP 65/67. SINGLE SEAL, MWP 1600 kPa (16 bar), process temperature -70C to 280C.

Where:

aaa = Nominal length of probe transducer (3 numeric digits between 150 and 550) mm, or NNN for no probe.

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2" CL150)

D5 (DN50 PN16)

A3 (ANSI 3" CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

4 (42 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM - BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

4 (1 channel F42)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

C (IIC T4)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

Notes:

1) The suitability of the process seal material for the specific process fluid is the responsibility of the manufacturer.

Class I, Division 1, Groups B, C and D, T6; Ex/AEx d IIB + H2, T6;

Class I, Division 2, Groups A, B, C and D, T6; Ex/AEx nA IIC, T6;

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EX-6 Series (fixed probe) and FLSE100-EXRE-6 Series (retractable probe). Models FLSE100-EX aaabccdefg hi jklmn* and FLSE100-EXRE aaabccdefg hi jklmn*. Input rated: 15-28 V dc, 500 mA max. Ambient temperature: -50C to 55C. Enclosure Type 6, IP 65/67. SINGLE SEAL, MWP 1600 kPa (16 bar), process temperature -70C to 280C.

Where:

aaa = Nominal length of probe transducer (3 numeric digits between 150 and 550) mm, or NNN for no probe.

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection

N (no probe / transducer)

A2 (ANSI 2" CL150)

D5 (DN50 PN16)

A3 (ANSI 3" CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

4 (42 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM - BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

4 (1 channel F42)

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k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

6 (IIC T6)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

Notes:

1) The suitability of the process seal material for the specific process fluid is the responsibility of the manufacturer.

CLASS 2258.02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

CLASS 2258.82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations

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CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations - Certified to US Standards

Class I, Division 1, Groups B, C and D, T4; Ex/AEx d[ia] IIB + H2, T4;

Class I, Division 2, Groups A, B, C and D, T4; Ex/AEx nA[ia] IIC, T4;

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXS Series (with 2 loose ultrasonic transducers). Models FLSE100-EXS bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 70C. Enclosure Type 4, IP 65. Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 38.9V, Isc = 59mA, Ca < 3.4nF, La < 0.03 mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection

N (no probe / transducer)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

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e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

E (EPDM - BUNA AP)

K (FKKM - Kalrez)

M (Metal)

V (FKM - Viton)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

C (IIC T4)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

2)
Conductors emerging from the explosionproof feed-through shall not be subjected to a pull force of more then 7 lbf (31 N).

3) Arrangement of the installation must insure that process temperature does not cause the operating temperature of the feed-through to exceed 110C.

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXPR Series (with two ultrasonic transducers in a twin probe). Models FLSE100-EXPR bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 70C. Enclosure Type 4, IP 65. MWP 1600 kPa (16 bar). Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 38.9V, Isc = 59mA, Ca < 3.4nF, La < 0.03 mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2" CL150)

D5 (DN50 PN16)

A3 (ANSI 3" CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM - BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

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k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

C (IIC T4)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

Class I, Division 1, Groups C and D, T4; Ex/AEx d[ia] IIB, T4;

Class I, Division 2, Groups C and D, T4; Ex/AEx nA[ia] IIB, T4;

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• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXS-C Series (with 2 loose ultrasonic transducers). Models FLSE100-EXS-C bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 70C. Enclosure Type 4, IP 65. Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 51.2V, Isc = 77mA, Ca < 18nF, La < 0.03mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2” CL150)

D5 (DN50 PN16)

A3 (ANSI 3” CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM – BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

B (IIB T4) Gas groups C and D

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

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* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

2)
Conductors emerging from the explosionproof feed-through shall not be subjected to a pull force of more then 7 lbf (31 N).

3) Arrangement of the installation must insure that process temperature does not cause the operating temperature of the feed-through to exceed 110C.

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXPR-C Series (with two ultrasonic transducers in a twin probe). Models FLSE100-EXPR-C bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 70C. Enclosure Type 4, IP 65. MWP 1600 kPa (16 bar). Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 51.2V, Isc = 77mA, Ca < 18nF, La < 0.03mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2” CL150)

D5 (DN50 PN16)

A3 (ANSI 3” CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM – BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

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l = Gas group

B (IIB T4) Gas groups C and D

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

Class I, Division 1, Group D, T4; Class I, Zone 1: Ex/AEx d[ia] IIA, T4;

Class I, Division 2, Group D, T4; Class I, Zone 2: Ex/AEx nA[ia] IIA, T4;

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXS-D Series (with 2 loose ultrasonic transducers). Models FLSE100-EXS-D bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 70C. Enclosure Type 4, IP 65. Associated intrinsically safe circuits when installed per manufacturers drawing

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E_41943. Entities: Ultrasonic Transducer circuits Voc = 60.8V, Isc = 92mA, Ca < 30nF, La < 0.03mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2” CL150)

D5 (DN50 PN16)

A3 (ANSI 3” CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM – BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

A (IIA T4)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

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* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

2)
Conductors emerging from the explosionproof feed-through shall not be subjected to a pull force of more then 7 lbf (31 N).

3) Arrangement of the installation must insure that process temperature does not cause the operating temperature of the feed-through to exceed 110C.

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXPR-D Series (with two ultrasonic transducers in a twin probe). Models FLSE100-EXPR-D bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 70C. Enclosure Type 4, IP 65. MWP 1600 kPa (16 bar). Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 60.8V, Isc = 92mA, Ca < 30nF, La < 0.03mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2” CL150)

D5 (DN50 PN16)

A3 (ANSI 3” CL150)

D8 (DN80 PN16)

May be any 2 digit alphanumeric combination (process connection is not relevant to certification)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM – BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

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l = Gas group

A (IIA T4)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

Class I, Division 1, Groups B, C and D, T6; Ex/AEx d[ia] IIB + H2 T6;

Class I, Division 2, Groups A, B, C and D, T6; Ex/AEx nA[ia] IIC, T6;

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXS-6 Series (with 2 loose ultrasonic transducers). Models FLSE100-EXS-6 bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 55C. Enclosure Type 4, IP 65. Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 38.9V, Isc = 59mA, Ca < 3.4nF, La < 0.03mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2” CL150)

D5 (DN50 PN16)

A3 (ANSI 3” CL150)

D8 (DN80 PN16)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

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f = Sealing material:

V (FKM - Viton)

E (EPDM – BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

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j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

6 (IIC T6)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

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1) Maximum safe area voltage (Um) not to exceed 125V.

2)
Conductors emerging from the explosionproof feed-through shall not be subjected to a pull force of more then 7 lbf (31 N).

3) Arrangement of the installation must insure that process temperature does not cause the operating temperature of the feed-through to exceed 110C.

• Gas Velocity And Volume Flow Measuring Device, FLSE100-EXPR-6 Series (with two ultrasonic transducers in a twin probe). Models FLSE100-EXPR-6 bccdefg hi jklmn*. Input rated: 15-28 V dc, 500mA max. Ambient temperature: -50C to 55C. Enclosure Type 4, IP 65. MWP 1600 kPa (16 bar). Associated intrinsically safe circuits when installed per manufacturers drawing E_41943. Entities: Ultrasonic Transducer circuits Voc = 38.9V, Isc = 59mA, Ca < 3.4nF, La < 0.03mH. Temperature sensor circuit Voc = 8.6V, Isc = 5mA, Ca < 5µF, La < 1mH.

Where:

b = Probe material:

N (no probe / transducer)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

H (stainless steel, high grade 1.4539, A240 904L, B677)

D (duplex)

T (titanium)

A (Hastelloy)

cc = Process connection:

N (no probe / transducer)

A2 (ANSI 2” CL150)

D5 (DN50 PN16)

A3 (ANSI 3” CL150)

D8 (DN80 PN16)

d = Transducer probe design:

May be any alphanumeric digit (Describes cover over probe end – Not relevant to certification)

e = Transducer design:

N (no probe / transducer)

1 (135 kHz)

2 (200 kHz)

8 (80 kHz)

f = Sealing material:

V (FKM - Viton)

E (EPDM – BUNA AP)

K (FKKM - Kalrez)

M (Metal)

g = Gas temperature:

N (no specification)

S (standard -70C to 180C)

H (high temp, -70C to 280C)

L (low temp, -200C to 100C)

h = Probe retraction:

N (not retractable)

R (retractable)

i = Material probe retraction flange

N (no retraction flange)

S (stainless steel 1.4571, 1.4404, 316L, 316Ti)

L (low temperature carbon steel)

D (duplex)

T (titanium)

j = Electronics:

N (no electronics)

1 (1 channel F135)

2 (2 channel F200)

8 (2 channel F80)

k = Explosionproof protection

3 (Class I, Div1/Div 2)

l = Gas group

6 (IIC T6)

m = Electronics housing

N (no electronics)

D (Ex d housing)

n = Housing material

N (no electronics)

A (aluminum)

S (stainless steel)

* = May be followed by additional alphanumeric characters, indicating non-certification-related options.

NOTES:

1) Maximum safe area voltage (Um) not to exceed 125V.

APPLICABLE REQUIREMENTS

MARKINGS

The following markings are provided on a permanent adhesive label manufactured by TESA, designated PU-Acryatfolie Type 6930, which is suitable for indoor or outdoor use on polyester powder coated metal (Tiger Drylac series 59) surfaces, at a maximum service temperature of 125C or higher. Label is affixed to the side of the housing.

- Manufacturers name: "SICK", or CSA Master Contract Number “215069”, adjacent to the CSA Mark in lieu of manufacturers name.
- Model number: As specified in the PRODUCTS section, above.
- Electrical ratings: As specified in the PRODUCTS section, above.
- Ambient temperature rating: As specified in the PRODUCTS section, above.

- Manufacturing date in MMYY format, or serial number, traceable to month of manufacture.
- Enclosure ratings: As specified in the PRODUCTS section, above.
- The words “SINGLE SEAL” when specified in the PRODUCTS section, above.
- Rated maximum working pressure, as specified in the PRODUCTS section, above.
- Rated process temperature range, as specified in the PRODUCTS section, above (for models marked “SINGLE SEAL” only).
- The CSA Mark with “C” and “US” indicators, as shown on the Certificate of Conformity.
- Hazardous Location designation, as specified in the PRODUCTS section, above (may be abbreviated).
- Temperature code: As specified in the PRODUCTS section, above. (Note: T5 and T6 temp codes optional)
- The following words (on all models):
  - “SEAL REQUIRED WITHIN 18 INCHES”, or equivalent.
  - “WARNING – EXPLOSION HAZARD - Substitution of components may impair suitability for Class I, Division 2.”
- The following words (on models FLSE100-EXS, and FLSE100-EXPR):
  - “[Ex ia]” and “ASSOCIATED EQUIPMENT”.
  - “WARNING: Substitution of components may impair intrinsic safety.”
  - “Install per drawing E_41943.”
  - “Maximum non-hazardous voltage not to exceed 125 V.”

The following markings are provided on a separate adhesive label (same type as above) affixed to the cover of the housing, or cast into the cover with raised or depressed lettering:

- The words “OPEN CIRCUIT BEFORE REMOVING COVER” or "KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE”.

An installation manual, data sheet, or control drawing shall be supplied with each unit, containing the following minimum marking information:

- Manufacturers name and address.
- Specification for electrical ratings.

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- Specification for ambient temperature rating.
- Specification for appropriate wiring to the equipment terminals, including definition of pin functions, and specification for wire gauge.
- Mounting and installation instructions, including dimensions.
- Specification for all process wetted and process seal materials with sufficient detail to facilitate appropriate equipment selection based upon compatibility with process gas or fluids.
- Specification for maximum process pressure rating.
- Specification for rated process temperature range (for models marked “SINGLE SEAL” only).
- The following words, or suitable equivalent (all models) regarding Class I, Division 2/Zone 2 installations:
  - o This equipment is suitable for installation in Class I, Division 2, Group A, B, C, D hazardous locations or nonhazardous locations only.
  - o WARNING - Explosion Hazard. Do not connect or disconnect this equipment unless power has been removed or the area is known to be nonhazardous.
  - o WARNING - Explosion Hazard. Substitution of components may impair suitability for Class I, Division 2.
- The following words, or suitable equivalent (for models FLSE100-EXS, and FLSE100-EXPR):
  - o “[Ex ia]”.
  - o WARNING: Substitution of components may impair intrinsic safety.
  - o Maximum non-hazardous voltage not to exceed 125 V.

A copy of drawing E_41943 shall be provided with each model FLSE100-EXS, and model FLSE100-EXPR when shipped.

Note - Jurisdictions in Canada may require these markings to also be provided in French language. It is the responsibility of the manufacturer to provide bilingual marking, where applicable, in accordance with the requirements of the Provincial Regulatory Authorities. It is the responsibility of the manufacturer to determine this requirement and have bilingual wording added to the "Markings".