Certificate of Compliance

Certificate: 2616459 **Master Contract:** 157759 (082245_0_000)

Project: 70085296 **Date Issued:** 2016-07-22

Issued to: **Turck Inc.**
3000 Campus Dr
Plymouth, Minnesota 55441-2656
USA

Attention: Brad Larson

The products listed below are eligible to bear the CSA Mark shown

Issued by: *Semyon Baum*
Semyon Baum

PRODUCTS
CLASS - C225804 - PROCESS CONTROL EQUIPMENT-Intrinsically Safe, Entity - For Hazardous Locations-

Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III T4…T6

Ex ia IIC T4...T6

- Namur two-wire proximity sensors. Models **aab-cddde-fggh-jjkmn/pppp.** Ambient temperature rated -25 to +70ºC (with exceptions noted in Table 3 below). Rated 20 Vdc, 60 mA max. Intrinsically safe when installed per drawing IS-1.203. Entity parameters as specified below in Table 1 and Table 2.

Where:

aa = sensor technology
BC = capacitive
Bi = inductive, embeddable
BIM = inductive, magnet operated
Ni = inductive, non-embeddable
Si = inductive, slot sensor

b = nominal sensing distance in millimeters

(range: the smallest sensing distance is 0.8 mm; the largest is 60 mm)

c = housing material (metal cylindrical sensors only)
blank = nickel plated brass
E = stainless steel

ddd = mechanical construction model codes (with associated entity parameters) – see Table 1 and Table 2
(codes with TC, SK, or SR appended are mechanical variants that do not affect certification)

Table 1

Mechanical Construction Model Code	Entity Parameters (Namur Sensor Output Code = Y1 or Y0)
AKT, DS20, DSU26, DSU35, DSU35TC, G05, G12, G12SK, G14, G18, G18SK, G180, G181, G182, G19, G28, G30, G30SK, H04, H6.5, HS540, IKE, IKT, INT, ISM, K11, K20, K30, M12, M18, M30, P12, P12SK, P18, P18SK, P30, P30SK, PT30, Q5.5, Q6.5, Q10, Q10S, Q11S, Q12, Q14, Q20, QF5.5, S12, S18, S30, UNT	Ci = 150nF Li = 150uH Ui = 20V Ii = 60mA Pi = 200mW
G12_X, G12SK_X, G14_X, G18_X, G18SK_X, G19_X, G30_X, G30SK_X, K11_X, K20_X, M12_X, M18_X, M30_X, P12_X, P12SK_X, P30_X, P30SK_X, S12_X, S18_X, S30_X	Ci = 150nF Li = 150uH Ui = 20V Ii = 40mA (T5), Ii = 50mA (T4) Pi = 200mW
CA25, CA40, CK40, CP40, CP80, G47, G47SR, K33, K34, K34SR, K40, K40SR, K90, K90SR, Q25, Q30, Q80	Ci = 250nF Li = 350uH Ui = 20V Ii = 60mA Pi = 200mW
K90_X	Ci = 250nF Li = 350uH Ui = 20V Ii = 40mA Pi = 200mW
DSC26, FST, G08, GS880, H08, HS865, NST, PSM, PST, Q06, Q08, Q11, QST	Ci = 150nF Li = 150uH Ui = 20V Ii = 60mA Pi = 130mW
K08, K09, K10	Ci = 250nF Li = 350uH Ui = 20V Ii = 60mA Pi = 130mW

Table 2

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Mechanical Construction Model Code	Entity Parameters (Namur Sensor Output Code = AY1 or AY0)
AKT, CA25, CA40, CK40, CP40, CP80, DS20, DSU26, DSU35, DSU35TC, G05, G12, G12SK, G14, G18, G18SK, G180, G181, G182, G19, G28, G30, G30SK, G47, G47SR, H04, H6.5, HS540, IKE, IKT, INT, ISM, K11, K20, K30, K33, K34, K34SR, K40, K40SR, M12, M18, M30, P12, P12SK, P18, P18SK, P30, P30SK, PT30, Q5.5, Q6.5, Q10, Q10S, Q11S, Q12, Q14, Q20, Q25, Q30, Q80, QF5.5, S12, S18, S30, UNT	Ci = 180nF Li = 350uH Ui = 20V Ii = 60mA Pi = 200mW
G12_X, G12SK_X, G14_X, G18_X, G18SK_X, G19_X, G30_X, G30SK_X, K11_X, K20_X, K90_X, M12_X, M18_X, M30_X, P12_X, P12SK_X, P18_X, P18SK_X, P30_X, P30SK_X, S12_X, S18_X, S30_X	Ci = 180nF Li = 350uH Ui = 20V Ii = 40mA (T5), Ii = 50mA (T4) Pi = 200mW
DSC26, FST, G08, GS880, H08, HS865, K08, K09, K10, NST, PSM, PST, Q06, Q08, Q11, QST	Ci = 180nF Li = 350uH Ui = 20V Ii = 60mA Pi = 130mW
H6.5 with 2AY outputs per channel	Ci = 180nF Li = 350uH Ui = 20V Ii = 60mA Pi = 80mW

e = housing modifier (cylindrical sensors only)
- blank = standard barrel length, no barb
- E = extended barrel length
- K = short barrel length
- M = medium barrel length
- T = barb fitting at cable entry

f = number of NAMUR circuits
- blank = 1 circuit
- 2 = 2 circuits

gg = NAMUR sensor output code
- Y1 = discrete NAMUR output
- Y0 = discrete NAMUR output*
- AY1 = integrated circuit NAMUR output^
- AY0 = integrated circuit NAMUR output*^

*(‘0’ indicates a non-ATEX approved version, however, these models are electrically identical to the ‘1’ versions, with only mechanical differences that do not affect this certification.)

^('AY' integrated circuit NAMUR output is approved under KEMA ATEX certification report KEMA 04ATEX1152X dated 31.05.2012.)

h = LED
blank = no LED
X = 1 LED
X2 = 2 LEDs

For sensors with integral connectors:

jj = connector family
B1 = minifast, metal
B2 = minifast, plastic
H1 = eurofast
V1 = picofast

k = connector / sensor transition
1 = straight
3 = straight with adaptor
4 = right angle with adaptor

m = number of pins
(range: either 2, 3, or 4; dual sensors use all 4, otherwise only 2 conductors are used)

n = wiring
0 = non-standard (other than 1+/2-)
1 = standard

For sensors with integral cable:

jjkmn = cable length*
blank = 2 meter cable
xM = x meter cable
(range: 100mm to 100m)

Note: *sensors with integral cable may include a molded connector indicated by the following additional codes:

PSG(V) 3 or PSG(V) 3.21 = picofast connector
RS(V) 4.21T or WS(V) 4.21T = eurofast connector
RSM 20 or RSV 20, WSM 20 or WSV 20 = minifast connector

pppp = Optional special option codes – see Table 3 – where relevant for the type of protection

Table 3
Additional Special Option Codes

Special Option	Description	Special Option	Description
F1	Alternate oscillator frequency	S346	Special calibration
F2	Alternate oscillator frequency	S557	Potted terminal chamber
F3	Alternate oscillator frequency	S561	Special pin-out
F4	Alternate oscillator frequency	S580	Special pin-out
F5	Alternate oscillator frequency	S595	Bulk packaging
S15	Special switch point calibration	S665	Special pin-out
S56	Special housing length	S918	Special calibration
S74	Ambient temperature rated -25°C ≤ Ta ≤ +100°C max Magnetic field resistant	S947	Special barrel length
S80	Ambient temperature rated -25°C ≤ Ta ≤ +80°C max	S1019	Special mounting bracket
S85	Ambient temperature rated -25°C ≤ Ta ≤ +85°C max	S1128	3-pin connector molded on integral cable
S90	PUR cable	S1139	Wider sensing range, BIM sensor
S97	Ambient temperature rated -40°C ≤ Ta ≤ +70°C max	S1236	H6.5 hsg w/2 sensing faces, special endcaps
S101	Hi-flex cable	S1589	Weld-Guard coating
S105	Shielded cable	S1631	Red LED
S139	Submersible (polyoxymethylane housing)	S1674	Special strip length
S213	Special calibration	S1687	Special pin-out
S235	Special calibration	S1764	Weld-Guard coating, Viton sleeve over cable
S250	Fixed calibration capacitive sensor	S1765	Weld-Guard coating, Silicone sleeve over cable
S326	Special calibration	S1775	"Wet-suit" (sensor potted in plastic enclosure)

Notes:

1. If part of the enclosure is made of plastic and the projected surface area is greater than 20 cm^2, the sensor is accompanied with a warning to avoid static charging. This warning applies only when the sensor is used as apparatus group IIC equipment. In this case precautions have to be taken that the risk of electrostatic charging of the enclosure is excluded.

2. For applications in explosive atmospheres, where zone 0 apparatus is required: If part of the enclosure is made of plastic and the projected surface area is greater than 4 cm^2 for apparatus of group IIC, 25 cm^2 for apparatus of group IIB or 50 cm^2 for apparatus of group IIA, the sensor is accompanied with a warning to avoid static charging. In this case precautions have to be taken that the risk of electrostatic charging of the enclosure is excluded.

3. The Two Wire Proximity Sensors used in a potentially explosive atmospheres caused by the presence of combustible dust must be mounted in such a way that they are protected against impact.

APPLICABLE REQUIREMENTS

CSA C22.2 No. 0-10	General requirements – Canadian Electrical Code, Part II
CSA C22.2 No. 142-M1987	Process Control Equipment
CSA C22.2 No. 157-92	Intrinsically Safe and Non-Incendive Equipment (reaffirmed 1997)
CSA-C22.2 No. 60079-0:11	Explosive atmospheres – Part 0: Equipment – General requirements
CSA-C22.2 No. 60079-11:11	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The following markings are permanently printed or laser etched directly onto the product housing, or provided on a CSA Accepted (Class 7921-08), UL Certified (File PGDQ2.MH15511) adhesive label, which shall be printed with one of the approved printer and ink combinations as specified in the manufacturer's listing, and placed on the integral cable of the sensor. The labels are manufactured by Woelco Woelfle + Co. GmbH (LR 59424) as follows:

Pressure-sensitive "UC-matic SCWb", White PVC, 3 mil to 7 mil with letterpress printing and computer imprintable polyester lamination overall.

For smaller sensors (mechanical construction model codes G08, H08, M12, G12, S12, Q08, DSC26, FST, NST, and QST) with an H1 or V1 connector, the housing has the following minimum marking: Turck logo, model number, lot / date code, CSA mark, Report code, and control drawing number. The label with other markings is included with the sensor in its packaging. This label shall be wrapped around the cord ultimately used to connect to the sensor, or shall be affixed to an approved adjacent surface such that it is visible after installation.

- Listee name: "Turck", or CSA Master Contract Number "157759", adjacent to the CSA Mark in lieu of manufacturer's 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.
- The CSA Mark, as shown on the Certificate of Conformity.
- Hazardous Location designation, as specified in the PRODUCTS section, above.
- Temperature code: As specified in the PRODUCTS section, above.
- Report code: Two-digit year of report, report number, and "X" in the format 13.2616459X

- The following words:
    - "Exia".
    - "Intrinsically Safe"

- "WARNING: Substitution of components may impair intrinsic safety." (Optional on product if included in control drawing.)
- "Install per drawing IS-1.203."

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

- Manufacturer's name and address.
- Electrical ratings: "20 VDC, 60 mA max."
- Specification for ambient temperature rating: "-25°C ≤ Ta ≤ 70°C", or "-25°C to 70°C". Extended Ta is valid for models with special option codes as specified in the PRODUCTS section, above.
- Specification for the mating connector/cable, by Turck part number, or manufacturer's name and part number.
- Specification for appropriate wiring to the connector, including definition of pin functions, and specification for wire gauge.
- Mounting and installation instructions, including dimensions.

Supplement to Certificate of Compliance

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The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
70085296	2016-07-22	Evaluation to update Report 2616459 to add an additional mechanical style, indicated by model code /S1236, Addition of dual sensor p arameters with reduced Pmax (80mW/channel) suitable for small dual sensor in S1236 package and add markings for dual sensor. Correct typographical errors.
70043562	2015-09-14	Update of CSA Certification Report 157749- 2616459 to remove all drawings except for IS-1.203 I.S. Control Drawing and IS-2.537 NAMUR Sensor Design Control Drawing. Quote assumes only removing the drawings and does not require a change to the Certification Records.
2677956	2013-12-20	Update to report 2616459 to add sensor options, restructure entity parameters, and include revised descriptive documents.
2616459	2013-08-23	CSAc Certification of NAMUR Inductive and Capacitive Proximity Sensors as I.S. for CL I,II,III, Div 1, Grps ABCDEFG & Ex ia IIC. Based on IECExTR.