

CSA Certified NAMUR Proximity Sensors

NONHAZARDOUS LOCATION

HAZARDOUS (CLASSIFIED) LOCATION

Class I, Division 1, Group A, B, C or D T4...T5

Class II, Division 1, Group E, F or G

Class III, Division 1

Class I, Zone 0, Group IIC, IIB or IIA

Associated apparatus with linear circuit Entity Parameters $\triangle$ compatible with the sensor Entity Parameters listed in Tables 1 and 2.

Turck NAMUR sensor, model numbers listed below, with Entity Parameters $\triangle$ as listed in Tables 1 and Table 2.

Approved Sensor Model Numbers

Bi 1.5-E G08 K - . Y1 X - H1141/S101

Sensor technology

BC = Capacitive
Bi = Inductive, Embeddable
BIM = Inductive, magnet operated
Ni = Inductive, Nonembeddable
Si = Inductive, slot sensor

Nominal Sensing distance, mm

Housing material (metal cylindrical sensors only)

blank = nickel plated brass
E = Stainless Steel

Mechanical Construction Model Code (Table 1)
(Paired with LED Code)

blank = No LED
X = 1 LED
X2 = 2 LEDs

Housing modifier (cylindrical sensors only, excluding 'SK' and 'SR' types - e.g. 'G18SK')

blank = Std. barrel length, no barb
E = Extended barrel length
K = Short barrel length
M = Medium barrel length
T = Barb fitting at cable entry

Number of NAMUR circuits

blank = 1 circuit
2 = 2 circuits

NAMUR sensor output code Y1, Y0, AY1 or AY0

Special Option Codes

See Table 2 for approved codes

Sensors with integral cable

or

Sensors with integral connectors

Cable length*

blank = 2 meter cable
xM = x meter cable

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

picofast connector: PSG(V) 3 or
PSG(V) 3.21

eurofast connector: RS(V) 4.21T
WS(V) 4.21T

minifast connector: RSM 20
RSV 20
WSM 20
WSV 20

Wiring: 0 = non-standard (other than 1+/2-)
1 = standard

Number of pins

Connector/sensor transition

1 = Straight
3 = Straight with adaptor
4 = Right angle with adaptor

Connector family

B1 = minifast, metal
B2 = minifast, plastic
H1 = eurofast
V1 = picofast

Drawing No.:

IS-1.203

TURCK

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Plymouth, MN 55441
Phone: (763) 553-7300

Title:

Control Drawing for CSA Certified
NAMUR Proximity Sensors

Scale: None

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D	Add Special Conditions of Use, update Table 3	BVL	6/28/18
C	Add S1236, add 2AY parameters	BVL	7/21/16
B	Restructure entity parameters	BVL	12/12/13
A	Release	BVL	2/26/13
Rev	Description	Drft	Date

Table 1: Entity Parameters by Mechanical Construction Model Code – NAMUR Sensor Output Code = Y1 or Y0

Mechanical Construction Model Code	Class I, II, III, Div 1, Grp A, B, C, D, E, F, G T5 Class I, Zone 0, AEx ia IIC T5 $T_a = 70^{\circ}\text{C}$				
	Class I, Div 1, Grp A, B, C, D T4 Class I, Zone 0, AEx ia IIC T4 $T_a = 85^{\circ}\text{C}$ 				
	C_i (nF)	L_i (uH)	$U_i / V_{\max}$ (V)	$I_i / I_{\max}$ (mA)	P (mW)
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	150		20	60	200
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	150	150	20	40 (T5) 50 (T4)	200
CA25, CA40, CK40, CP40, CP80, G47, G47SR, K33, K34, K34SR, K40, K40SR, K90, K90SR, Q25, Q30, Q80	250	350	20	60	200
K90_X	250	350	20	40	200
G08, GS880, H08, HS865, NST, PSM, PST, Q06, Q08, Q11, QST, DSC26, FST	150	150	20	60	130
K08, K09, K10	250	350	20	60	130

Table 2: Entity Parameters by Mechanical Construction Model Code – NAMUR Sensor Output Code = AY1 or AY0

Mechanical Construction Model Code	Class I, II, III, Div 1, Grp A, B, C, D, E, F, G T5 Class I, Zone 0, AEx ia IIC T5 $T_a = 70^{\circ}\text{C}$				
	Class I, Div 1, Grp A, B, C, D T4 Class I, Zone 0, AEx ia IIC T4 $T_a = 85^{\circ}\text{C}$ 				
	C_i (nF)	L_i (uH)	$U_i / V_{\max}$ (V)	$I_i / I_{\max}$ (mA)	P (mW)
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	180		20	60	200
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	180	350	20	40 (T5) 50 (T4)	200
DSC26, FST, G08, GS880, H08, HS865, K08, K09, K10, NST, PSM, PST, Q06, Q08, Q11, QST	180	350	20	60	130
H6.5 with 2AY outputs, per channel	180	350	20	60	80

Notes:

-  1. The Entity concept allows interconnection of intrinsically safe apparatus and associated apparatus not specifically examined in such combination as a system when the conditions below are met:

$$\begin{aligned}
 V_{\max} &\geq V_{oc} & I_{\max} &\geq I_{sc} \\
 C_i + C_{cable} &\leq C_a & L_i + L_{cable} &\leq L_a \\
 U_i &\geq U_o & I_i &\geq I_o \\
 C_i + C_{cable} &\leq C_o & L_i + L_{cable} &\leq L_o \\
 P_i &\geq P_o
 \end{aligned}$$

-  2. L_i for capacitive sensors (BC.. ...-Y..) is negligibly small.

-  3. Standard T_a is $-25^{\circ}\text{C} - +70^{\circ}\text{C}$. Extended T_a is valid for models with special option codes as follows:

$$\begin{aligned}
 S80 &= T_a - 25^{\circ}\text{C} - +80^{\circ}\text{C} \\
 S85 &= T_a - 25^{\circ}\text{C} - +85^{\circ}\text{C} \\
 S97 &= T_a - 40^{\circ}\text{C} - +70^{\circ}\text{C}
 \end{aligned}$$

4. For dual sensors (Mechanical Construction Model Codes DS20, DSC26, DSU26, DSU35, DSU35TC) the Entity Parameters apply per sensor circuit.

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Notes (continued):

5. Wiring methods must be in accordance with the Canadian Electrical Code, CSA 22.1.
6. Associated apparatus must not be connected to any device that uses or generates in excess of 250Vrms.
7. If the electrical parameters of the cable are unknown, the following default values may be used:
 Capacitance – 60pF/foot,
 Inductance – 0.2μH/foot
8. SPECIAL CONDITIONS OF SAFE USE:
 - The metal parts of the Proximity Sensors shall be included in the required earthing by the installation of the equipment.
 Les parties métalliques des capteurs de proximité doivent être inclus dans mise à la terre obligé par l'installation de l'équipement.
 - The Proximity Sensors used in a potentially explosive atmosphere caused by the presence of combustible dust must be mounted in such a way that they are protected against impact.
 Les capteurs de proximité utilisés dans une atmosphère potentiellement explosive causée par la présence de poussières combustibles doivent être montés de manière d'être protégés contre les impacts.
9. WARNING: Part of the enclosure is constructed of plastic. To prevent the risk of electrostatic sparking, the plastic surface should only be cleaned with a damp cloth.
 AVERTISSEMENT: Une partie de l'enceinte est construite en plastique. Pour éviter les risques d'étincelles électrostatiques, la surface en plastique, doit être nettoyée avec un chiffon humide seulement.
10. WARNING: Substitution of components may impair intrinsic safety.
 AVERTISSEMENT: La substitution de composants peut compromettre la sécurité intrinsèque.

Table 3: Special Option Codes

Special Option Code	Description	Special Option Code	Description
F1	Alternate oscillator frequency	S580	Special pin-out
F2	Alternate oscillator frequency	S595	Bulk packaging
F3	Alternate oscillator frequency	S665	Special pin-out
F4	Alternate oscillator frequency	S903	Hysteresis <0.1mm
F5	Alternate oscillator frequency	S904	Stainless Steel H1141 adapter
S10	Housing w/1/2–14 NPT thread	S918	Special calibration
S15	Special switch point calibration	S930	All plastic parts in black color
S53	Special calibration	S947	Special barrel length
S56	Special housing length	S953	Ship without screws
S58	Thread length 50mm	S979	Ship without screws
S74	Ambient temperature rated $-25^{\circ}\text{C} \leq T_a \leq +100^{\circ}\text{C}$ max. Magnetic field resistant	S1019	Special mounting bracket
		S1128	3-pin connector molded on integral cable
S80	Ambient temperature rated $-25^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$ max.	S1129	Sensor length 31mm, 12mm frontcap as endcap, central hole for cable, w/o BS11
S85	Ambient temperature rated $-25^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ max.		
S90	PUR cable	S1139	Wider sensing range, BIM sensors
S97	Ambient temperature rated $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ max.	S1164	Customer specific housing – Swagelock
S100	Ambient temperature rated $-25^{\circ}\text{C} \leq T_a \leq +100^{\circ}\text{C}$ max.	S1176	Blue colored threads
S101	Hi-flex cable	S1190	Customer specific wiring
S105	Shielded cable	S1215	Flame retardant cable
S139	Submersible (polyoxymethylene Housing)	S1236	H6.5 hsg w/2 sensing faces, special endcaps
S140	Silicone cable	S1249	Double nut
S213	Special calibration	S1261	ÖLFLX cable
S235	Special calibration	S1276	Special hysteresis
S250	Fixed calibration capacitive sensor	S1280	Ambient temperature rated $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ max.
S292	Thread length 40mm, cable length 0.7m	S1589	Weld-Guard coating
S320	Special connector	S1631	Red LED
S326	Special calibration	S1674	Special strip length
S346	Special calibration	S1687	Special pin-out
S369-T	ÖLFLEX cable	S1764	Weld-Guard coating, Viton cable sleeve
S369-F	ÖLFLEX cable	S1765	Weld-Guard coating, silicone cable sleeve
S557	Potted terminal chamber	S1775	"Wet=suit" (sensor potted in plastic encl.)
S561	Special pin-out		

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