

CSA Certified NAMUR Proximity Sensors

NONHAZARDOUS LOCATION

HAZARDOUS (CLASSIFIED) LOCATION

Class I, Division 1, Group A, B, C or D

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
- minifast connector: RSM 20 or RSV 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

3000 Campus Drive
Plymouth, MN 55441
Phone: (763) 553-7300

Title:

Control Drawing for CSA Certified
NAMUR Proximity Sensors

B	Restructure entity parameters	BVL	12/12/13
---	-------------------------------	-----	----------

A	Release	BVL	2/26/13
---	---------	-----	---------

Rev	Description	Drft	Date
-----	-------------	------	------

Scale: None

Sheet 1 of 3

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 $T_a = 85^\circ\text{C}$ \triangle_3				
	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	\triangle_2 150	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 $T_a = 85^\circ\text{C}$ \triangle_3				
	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	\triangle_2 350	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

Notes:

\triangle_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:

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

\triangle_2 L_i for capacitive sensors (BC.. ...-Y..) is negligibly small.

\triangle_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:

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

B	Restructure entity parameters	BVL	12/12/13	Drawing No.:	IS-1.203
Rev	Description	Drft	Date	Scale: None	Sheet 2 of 3

Notes (continued):

4. For dual sensors (Mechanical Construction Model Codes DS20, DSC26, DSU26, DSU35, DSU35TC) the Entity Parameters apply per sensor circuit.
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. 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.
9. WARNING: Substitution of components may impair intrinsic safety. AVERTISSEMENT: La substitution de composants peut compromettre la securite intrinseque.

Table 3: Special Option Codes

Special Option Code	Description	Special Option Code	Description
F1	Alternate oscillator frequency	S328	Special calibration
F2	Alternate oscillator frequency	S346	Special calibration
F3	Alternate oscillator frequency	S557	Potted terminal chamber
F4	Alternate oscillator frequency	S561	Special pin-out
F5	Alternate oscillator frequency	S580	Special pin-out
S15	Special switch point calibration	S595	Bulk packaging
S56	Special housing length	S665	Special pin-out
S74	Magnetic field resistant/ T_a 100°C	S918	Special calibration
S80	T_a 80°C	S947	Special barrel length
S85	T_a 85°C	S1019	Special mounting bracket
S90	PUR cable	S1128	3-pin connector molded on integral cable
S97	T_a -40°C - +70°C	S1139	Wider sensing range, BIM sensors
S101	Hi-flex cable	S1589	Weld-Guard coating
S105	Shielded cable	S1631	Red LED
S139	Submersible (polyoxymethylene Housing)	S1674	Special strip length
S213	Special calibration	S1687	Special pin-out
S235	Special calibration	S1764	Weld-Guard coating, Viton cable sleeve
S250	Fixed calibration capacitive sensor	S1765	Weld-Guard coating, silicone cable sleeve
S326	Special calibration	S1775	"Wet=suit"(sensor potted in plastic encl.)