General Specifications

Model SC42

2/4-electrode design for Contacting Conductivity

GS 12D07J01-01EN-P

■ Overview

The SC42 sensor is designed to suit a wide range of process conditions and is available in various materials, including Epoxy, Stainless Steel, PTFE, and PVDF.

The sensor can be provided with either a plug socket connector, compatible with the Yokogawa WU40 cable, or a Variopin connector for use with the Yokogawa WU10 and WE10 cables. A wide range of flow and immersion fittings enables installation in both permanent and semi-permanent locations. Stainless steel fittings may also be used in sanitary applications.

All sensors are supplied with a pre-calibrated cell constant and incorporate a built-in temperature element to allow for automatic temperature compensation.

Sensors equipped with a Variopin connector include an integrated ID-chip that stores calibration data, enabling and easy, plug & play setup when connected to the SENCOM Smart Adapter SA11-C1.

For metal sensors, a 3.1 material certificate is included. The sensors are certified for hazardous area use when connected to a certified intrinsically safe Yokogawa analyzer (SC202S or FLXA series) or to a certified intrinsically safe circuit with defined output parameters.

■ Features

- Built-in temperature resistor: Pt1000
- Fast temperature response
- Plug-and-cable watertight connection (IP67)
- Selection of cell constants from 0.01 cm^{-1} to 10 cm^{-1}
- 8-pin Variopin connector with ID chip for use with SENCOM SA11-C1
- Certified for hazardous areas applications
- Wide range of sensors to suit most process conditions including ultra-pure water applications
- Yokogawa's quality certificate supplied with each sensor

■ 1. General Specification

1 1 Object of measurement

Conductivity measurements are used for a variety of applications (e.g. for the determination of impurities in water or the concentration measurement of chemicals).

1.2 Principle of measurement

Conductivity is the measure of a solution's ability to pass or carry an electric current. It is is defined as the reciprocal of a solution's resistance between two electrodes.

1.3 Measuring method

SC42 is available in two different measurement methods depending on the selected model:

- 2-electrode method for SC42- E[]04, -E[]14,E[]15, -E[]16, -S[]24 and -S[]34
- 4-electrode method for -E[]08, -E[]18, -F[]08 and T[]08

1.4 Measuring element

Temperature : P1000

1.5 Wetted parts

Wetted parts sensor:

Body	SC42-S	: Stainless Steel AISI 316L
	SC42-E	: Epoxy resin
	SC42-F	: PVDF, Glass
	SC42-T	: Glass filled PTFE, Glass
Electrodes		
	SC42-S	: Stainless Steel AISI 316L
	SC42-E	: Graphite
	SC42-F	: Platinum
	SC42-T	: Platinum
O-ring		
	SC42-S	: FKM
	SC42-F	: FKM
	SC42-T	: FFKM & FKM

Note: For the -F and -T the supplied O-ring for sealing in the fitting is FKM.

Insulation -S :PEEK 450G, FDA migration tested

Connector:

Plug socket:

Contacts : Gold plated

Plug : Polyamide

Variopin:

Contacts : Gold plated

Material : PEEK/PPS

1.6 Functional specifications (at 25°C)

Temperature element SC42: Pt1000 to IEC 751

Nominal Cell Constant

- SC42-S[]24 : 0.1 cm^{-1}
- SC42-S[]34 : 0.01 cm^{-1}
- SC42-E[] 08 : 10 cm^{-1}
- SC42-E[] 14 - E[]18 : 1 cm^{-1}
- SC42-E[]15 - E[]16 : 1 cm^{-1}
- SC42-F[]08 : 10 cm^{-1}
- SC42-T[]08 : 10 cm^{-1}

Note: The SC42 temperature sensor is designed for measurement compensation and for indication. It is NOT designed for process temperature control.

1.7 Dynamic Specifications

Response time temperature t90

- SC42-S[]24 : < 3 min.
- SC42-S[]34 : < 1 min.
- SC42-E[]04 - E[]08 : < 3 min.
- SC42-E[]14 - E[]18 : < 3 min.
- SC42-E[]15 - E[]16 : < 3 min.
- SC42-F[]08 : < 1 min.
- SC42-T[]08 : < 1 min.

Temperature

- SC42-SP/SK : 0°C to 150°C (32°F to 302°F)
- SC42-SV/SG : 0°C to 125°C (32°F to 257°F)
- SC42-E: 0°C to 110°C (32°F to 230°F)
- SC42-F: 0°C to 110°C (32°F to 230°F)
- SC42-T: 0°C to 110°C (32°F to 230°F)

Pressure

- SC42-S: 0 to 10 barg (0 to 142 PSIG)
- SC42-E: 0 to 10 barg (0 to 142 PSIG)
- SC42-F* : 0 to 10 barg (0 to 142 PSIG)[1]
- SC42-T: 0 to 2 barg (0 to 28 PSIG)

All sensors : 0 to 0.5 barng[2] (0 to 7 PSIG)

See Figure 1

Note 1 : 0 to 3 barg (0 to 14 PSIG) @ Tmax.

Note 2 : Unit definition:

barg = bar gauge, over pressure against atmosphere.

barng = under pressure against atmosphere

1.8 Operating range

Conductivity range[3] at actual process temperature : 1 µS x C.C. – 200 mS x C.C.
See Figure 2

Note 3: Measurement range dependent on input range analyzer.

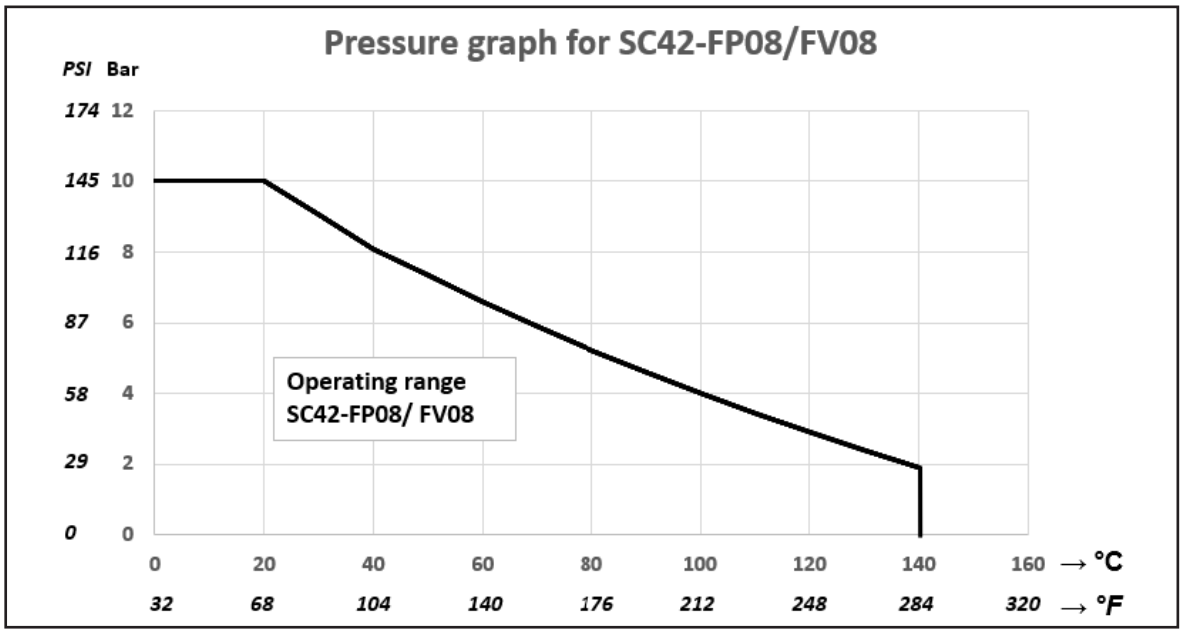


Figure 1: Pressure versus temperature for SC42-F.08

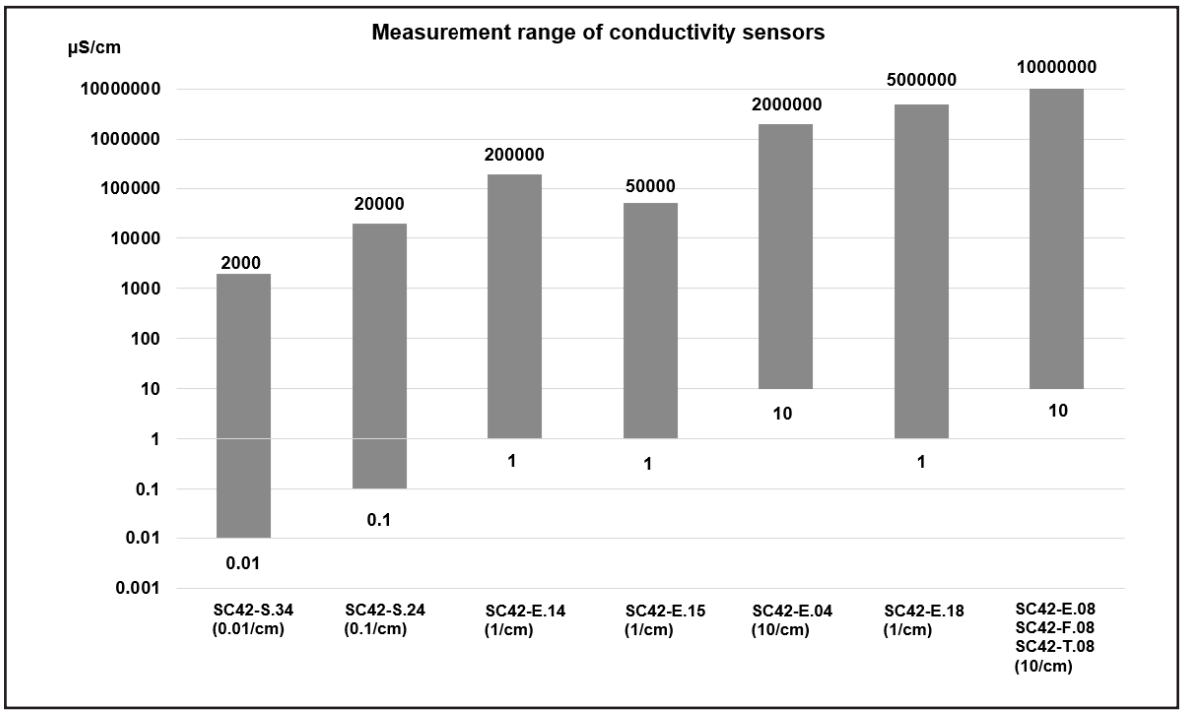


Figure 2: Measuring range of conductivity sensors

1.9 Cable length

The maximum cable length for sensors with plug socket connector or Variopin connector when directly connected to a FLXA analyzer is 60 meters with WU40 or WU10 in combination with WE10/WF10 cable and BA10 junction box.

For sensors with suffix - V or - combined with SA11-C1 there is an optional 3-meter WE10 cable combined with SA11 Smart Adapter.

SA11-C1 Smart Adapter: Directly connected to the analyzer using a WU11 cable up to 100 Meters or connected to a BA11 connection box using WU11 cable up to 100 m. The BA11 connection box is connected to the analyzer using a WU11 cable up to 100m.

1.10 Shipping details

Package size (LxWxH)

- 300 x 95 x 73 mm (11.8 x 3.7 x 2.9 inch)

Package weight (max.)

-E[]04	-E[]15	-F[]08	-S[]24	-S[]34
-E[]08	-E[]16	-T[]08		
0.50 kg	0.30 kg	0.45 kg	0.80 kg	0.65 kg
1.1 lbs	0.66 lbs	1.0 lbs	1.8 lbs	1.43 lbs

1.11 Environmental conditions

Storage temperature

- -30°C to 50°C (-22°F to 122°F)
- Ingress Protection Type Amphenol connector IP65 (conform IEC 60529)
- Ingress Protection Type VarioPin IP67(conform IEC 60529)

1.12 Regulatory compliance

Table 1: Equipment rating

Item	Description	Values
Electrical parameters	Max. input voltage	Ui = 14.4 VDC
	Max. input current	Ii = 116.5 mA
	Max. input power	Pi = 342.4 mW
	Max. internal capacitance	Ci = 0.0 nF for connector types without ID-chip = 0.4 nF for connector types with ID-chip
	Max.internal inductance	Li = 0.0 mH for connector types Li = 0.1 mH for permanent cable types
Temperature class	T6	-30°C ≤ Ta ≤ +40°C
	T5	-30°C ≤ Ta ≤ +95°C
	T4	-30°C ≤ Ta ≤ +130°C [4)]
	T3	-30°C ≤ Ta ≤ +165°C [4)]
		Note 4 : Connector types with ID-chip are limited to +125°C
Specific conditions of use	Potentional electrostatic charging hazard: Contact Conductivity sensors containing accessible plastic parts and/or external conductive parts must be installed and used in such a way, that dangers of ignition due to hazardous electrostatic charges cannot occur, especially in the case that the process medium is non-conductive. Use a damp cloth for cleaning the equipment. Potentional ignition hazard: Contact Conductivity sensors containing light metals, must be installed and used in such a way that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.	
WARNING	Electrostatic charges of the sensor enclosure parts and label shall be avoided, especially in the case that the process medium is non-conductive. Use a damp cloth for cleaning the equipment. From the safety point of view the circuits shall be assumed to be connected to earth.	
WARNING	From the safety point of view the circuits shall be assumed to be connected to earth. When the sensor has been connected to non-intrinsically safe equipment which exceeds the restrictions regarding the sensor input circuits, the sensor is not suitable anymore for intrinsically safe use	

Note: Models without ID-chip (-*P** type or -*K**):
I/O signals are from/to an associated intrinsically safe certified SC transmitter (e.g. Yokogawa transmitter Model FLX21/FLX202 series or Yokogawa transmitter Model SC202S series).

Note: Models with ID-chip (-*V** or -*G** type):
I/O signals are from/to an associated intrinsically safe certified SC transmitter, Yokogawa Smart Adapter Model SA11-C1.

Table 2: Regulatory compliance

Item	Description, Approval, Certification
ATEX (EU, UK)	ATEX approval: DEKRA 14ATEX0074 X* CE0344 Ex II 1 G Ex ia IIC T3...T6 Ga Applied standards: • EN IEC 60079-0 • EN 60079-11
IECEx	IECEx approval: IECEx DEK 14.0032X Ex ia IIC T3...T6 Ga Applied standards: • IEC 60079-0 • IEC 60079-11
FM (Canada)	FM approval Canada: FM20CA0062X IS SI CL I, DIV 1, GP ABCD, T3...T6 CL I, ZN 0, Ex ia IIC, T3...T6 Ga Control Drawing: D&E 2020-024-A51 Applied standards: • CAN/CSA-C22.2 No. 60079-0 • CAN/CSA-C22.2 No. 60079-11 • CAN/CSA-C22.2 No. 61010-1
FM (United States)	FM approval United States: FM20US0123X IS CL I, DIV 1, GP ABCD, T3...T6 CL I, ZN 0, AEx ia IIC, T3...T6 Ga Control Drawing: D&E 2020-024-A50 Applied standards: • FM Class 3600 • FM Class 3610 • FM Class 3810 • ANSI/ISA 60079-0 • ANSI/ISA 60079-11 • ANSI/ISA 61010-1
NEPSI (China)	NEPSI approval: GYJ21.2892X Ex ia IIC T3...T6 Ga Applied standards: • GB 3836.1 • GB 3836.4 • GB 3836.20
PESO (India)	PESO approval: PESO approval is based on ATEX approval DEKRA 14ATEX0074 X, issue 2 – 29.11.2019 Equipment reference numbers: P512759/1 Applied standards: • EN IEC 60079-0 • EN 60079-11
TS (Taiwan)	TS approval: TS Safety Label is based on IECEx approval IECEx DEK 14.0032X Identification Number: TD04000C Applied standards: • IEC 60079-0 • IEC 60079-11

Item	Description, Approval, Certification
KCs (Korea)	Korea Ex certificates: Korea Ex certificate is based on IECEx approval IECEx DEK 14.0032X, issue 1 and applicable for the following models: SC42-*G**: 21-KA4BO-0419X SC42-*K**: 21-KA4BO-0420X Applied standards: • IEC 60079-0 • IEC 60079-11 • KS C IEC 60079-14
EACEx (Russia)	EAC Ex certificate: EAЭC RU C-NL.AA87.B.01380 0Ex ia IIC T6...T3 Ga X Applied standards: • GOST 31610.0 (IEC 60079-0) • GOST 31610.11 (IEC 60079-11) • GOST IEC 60079-14

Note 5 : Damaging the screw thread or process connection (e.g. flange) of the sensor might influence the maximum process pressure.

Note 6 : Sensor SC42-F*** and SC42-T*** contains glass parts which if broken can cause cutting injuries.

■ 2. Dimensions

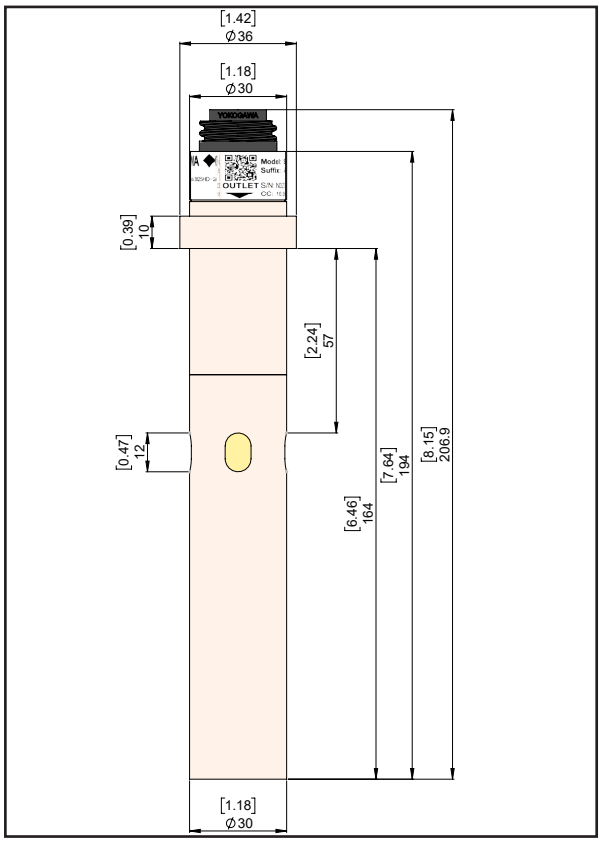


Figure 3: Dimensions of SC42 SP34 / SK34 (in mm [inches])

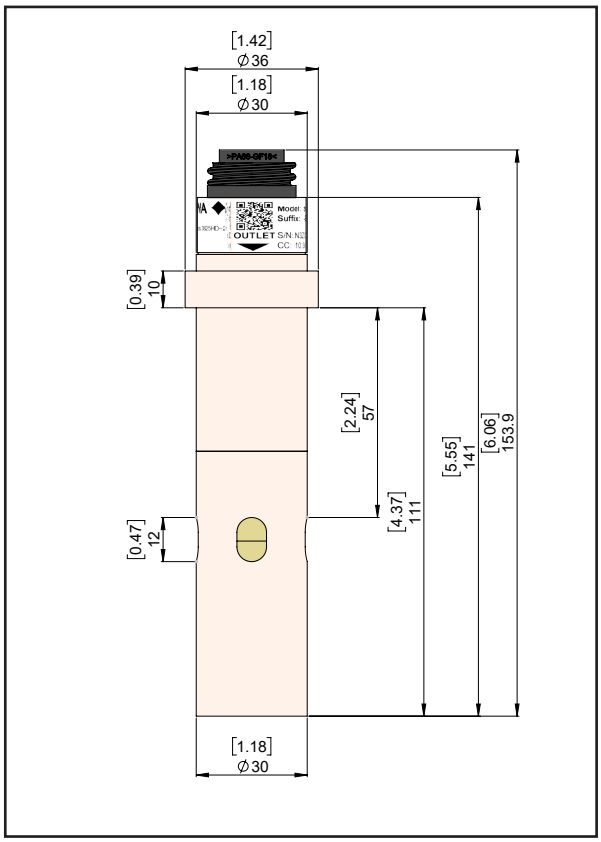


Figure 4: Dimensions of SC42 SP24 / SK24 (in mm [inches])

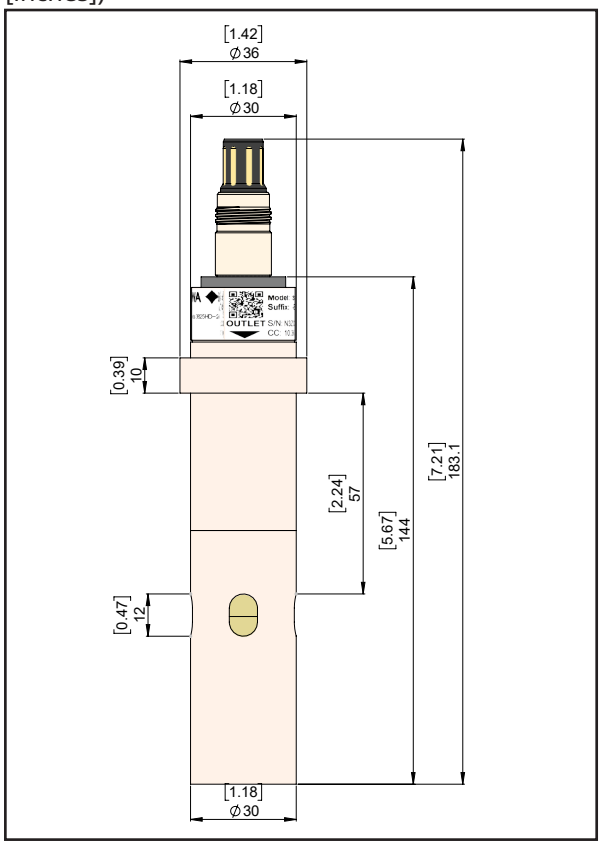


Figure 5: Dimensions of SC42 SV24 / SG24 (in mm [inches])

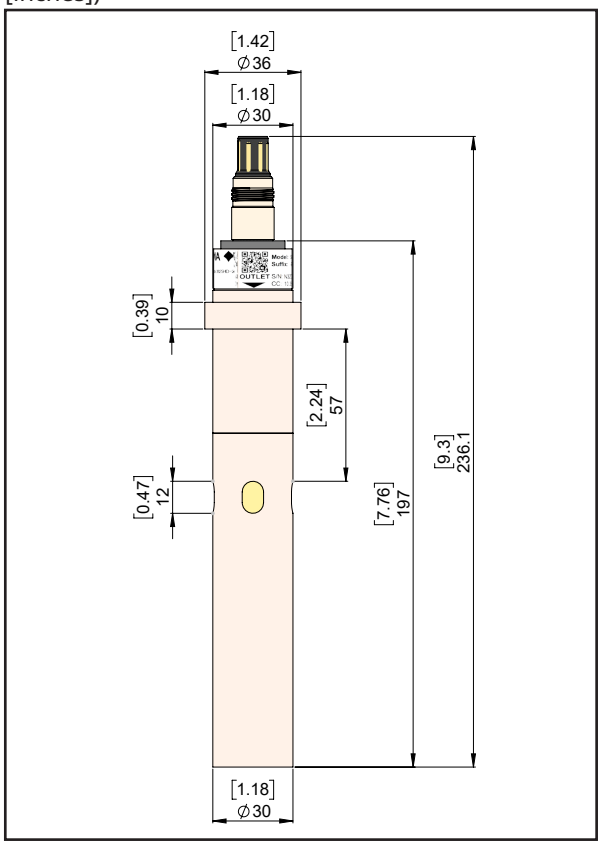


Figure 6: Dimensions of SC42 SV34 / SG34 (in mm [inches])

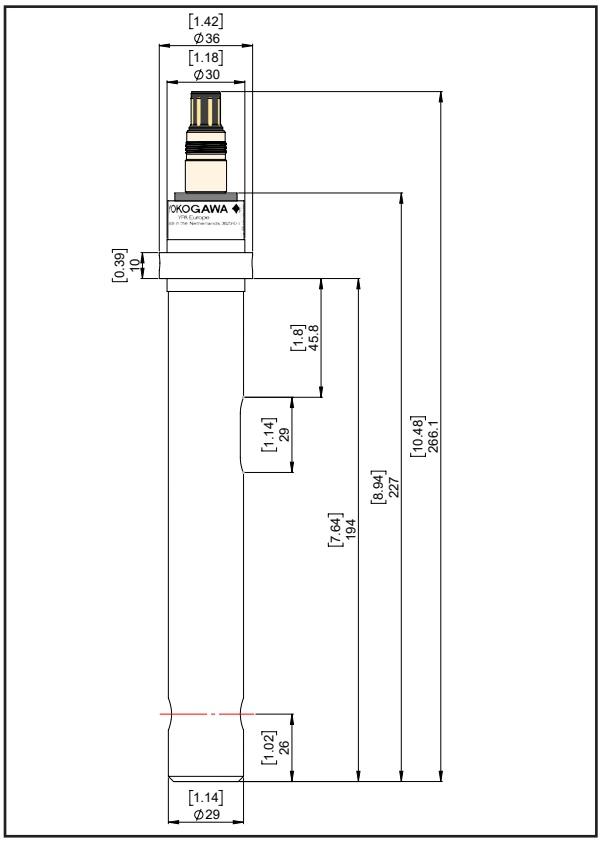


Figure 7: Dimensions of SC42 FV08/FG08 and TV08/TG08 (in mm [inches])

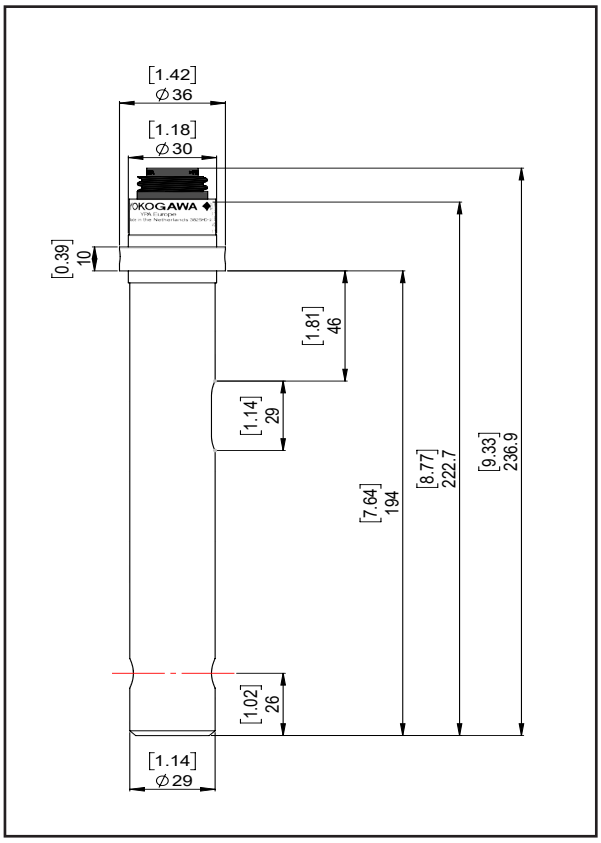


Figure 8: Dimensions of SC42 FP08/FK08 and TP08/TK08 (in mm [inches])

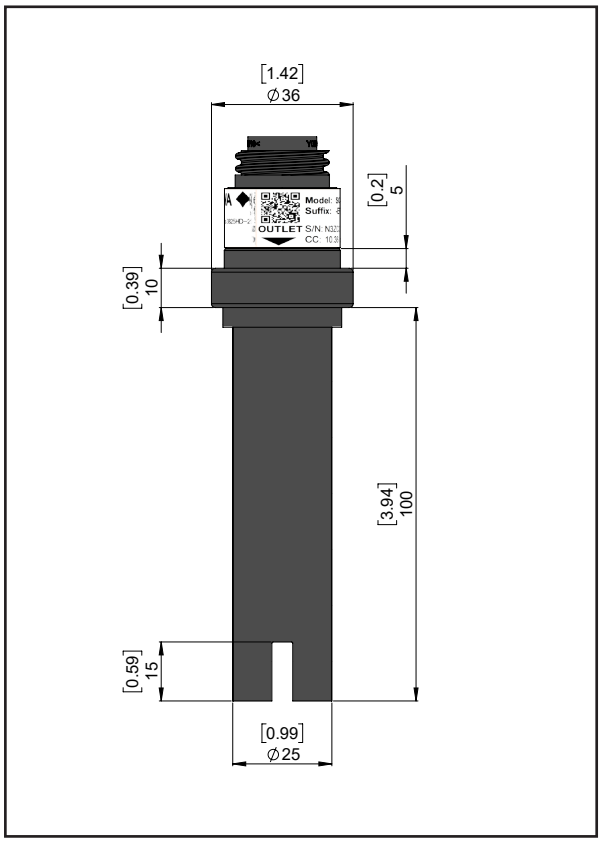


Figure 9: Dimensions of SC42 EP15/EK15 (in mm [inches])

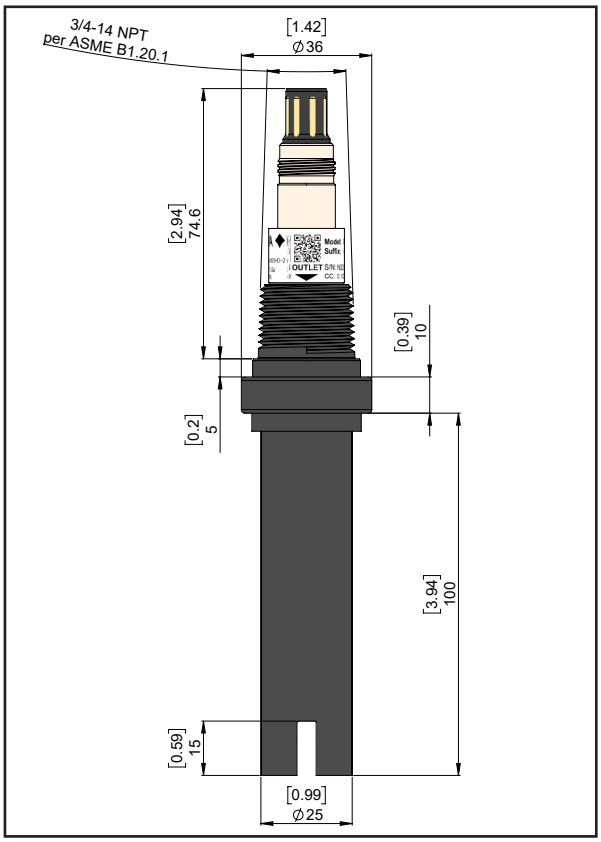


Figure 10: Dimensions of SC42 EV15/EG15 (in mm [inches])

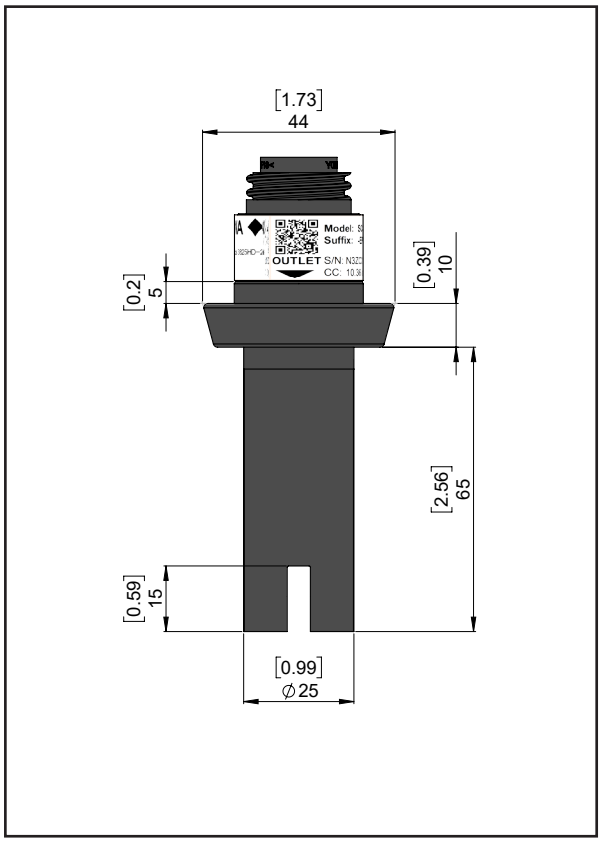


Figure 11: Dimensions of SC42 EP16/EK16 (in mm [inches])

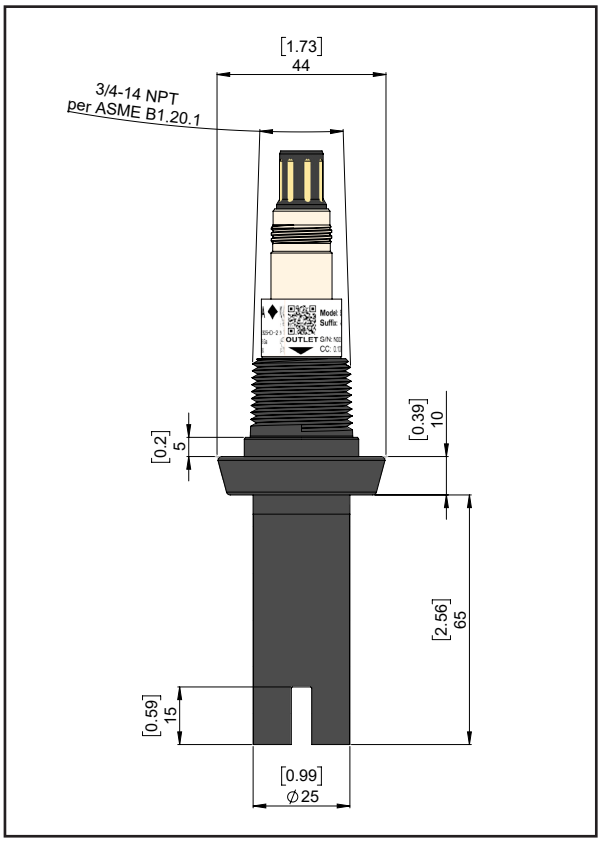


Figure 12: Dimensions of SC42 EV16/EG16 (in mm [inches])

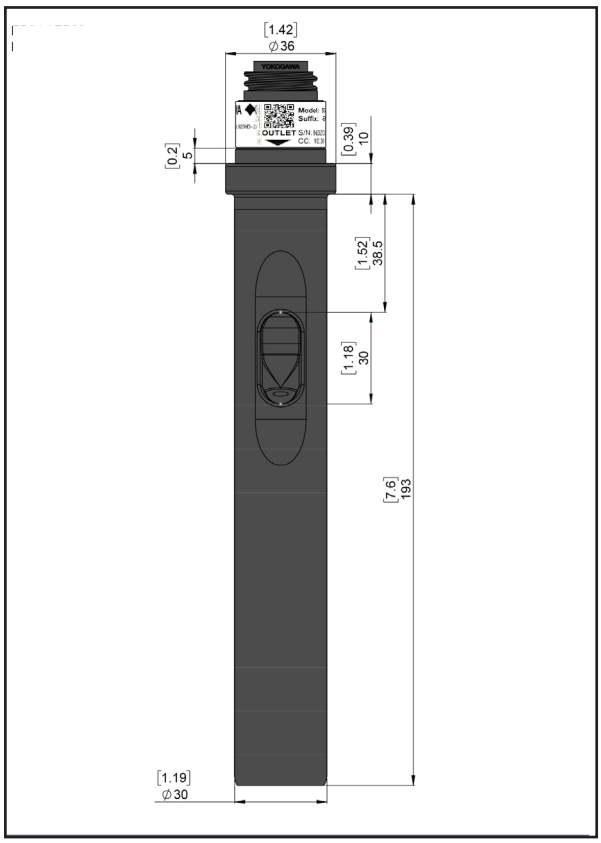


Figure 13: Dimensions of SC42 EP04/EP08 and EK04/EK08 (in mm [inches])

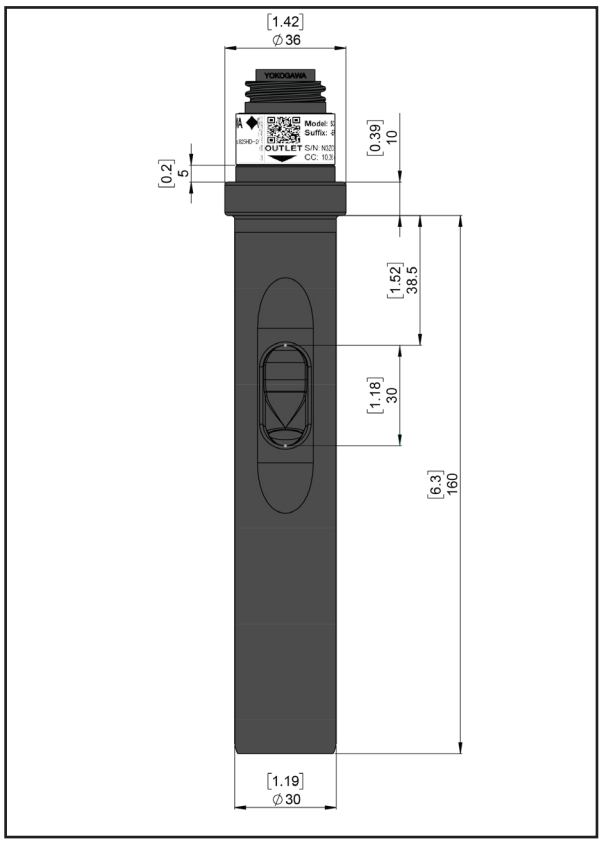


Figure 14: Dimensions of SC42 EP14/EP18 and EK14/EK18 (in mm [inches])

■ 3. Model Codes and Spare Parts

Table 3: Model & Suffix code for SC42

Model	Suffix Code	Option Code	Description
SC42[7]			Conductivity Sensor 2- or 4- electrodes + Pt1000
Materials	-E		Epoxy / graphite.
	-S		Stainless steel AISI 316L / PEEK.
	-F		PVDF / Glass / Platinum.
	-T		PTFE / Glass / Platinum.
Mounting	G[8]		Plug-in type, VarioPin connector with SENCOM ID-chip; IS for KCs
	K		Plug-in type, plug-socket connector; IS for KCs
	P		Plug-in type, plug-socket connector; IS for ATEX/IECEx/FM-US/FM-CAN /NEPSI /PESO /TS /EACEx
	V[8]		Plug-in type, VarioPin connector with SENCOM ID-chip IS for ATEX/IECEx/FM-US/FM-CAN /NEPSI /PESO/TS/EACEx
Cell constant	0		C = 10 cm^{-1}
	1		C = 1 cm^{-1}
	2		C = 0,1 cm^{-1}
	3		C = 0,01 cm^{-1}
Type	4		2-electrode, flow cell.
	5		2-electrode, insertion cell.
	6		2-electrode, insertion cell with DN25 collar.
	8		4-electrode, flow cell.
Options			N/A

Note 7: 3.1 Material certificate according to EN 10024 is standard delivered with the stainless-steel version sensor.

Note 8: Suffix G and V not in combination with suffix -E (Epoxy), except -EG15 and EV15
Not all combinations are possible, please check addendum 2 for all available models

Table 4: Spare part list

Spare part		Description
K1500AG	O-rings	O-rings viton 29.74x3.53 (5)
K1500AH		O-ring FFKM 29.74x3.53
K1500AK		O-rings EPDM 29.74x3.53 (5)
K1500FX		O-rings Sil 70 sh 29.74x3.53 (5)
K1500HE		O-ring set silicon, FS40-S23
K1522PS	Part K1522PS - Protection sleeve	Protection sleeve for 3/4” NPT sensor

■ Addendum 1: Typical Installations

To install the SC42 conductivity sensors in a permanent or semipermanent location, Yokogawa can supply a range of flow and immersion fittings. These fittings and sub-assemblies are available in different materials to give the best solution for any process considering chemical resistance, pressure and temperature specifications. Flow fittings are available with optional flange adapters. When installing the SC42 sensor in a fitting, an O-ring is necessary. This O-ring is available in different materials to improve chemical resistance. If the SC42 sensor is supplied with an O-ring, the O-ring in the fitting must be removed.

Typical installation of SC42 sensor in FF40 Flow fittings/ FS40 Flow fitting assemblies from a practical point of view, the best mounting place for a conductivity sensor is in a by-pass with a sample valve. For these applications the following Flow fittings/Flow fitting subassemblies are ideal:
Model FF40: Flow fitting,
Model FS40: Flow fitting subassembly

When using the sensor in combination with a Flow fitting or Flow fitting subassembly, the process flow has to be taken into account when mounting the sensor. For an example see Figure 15.

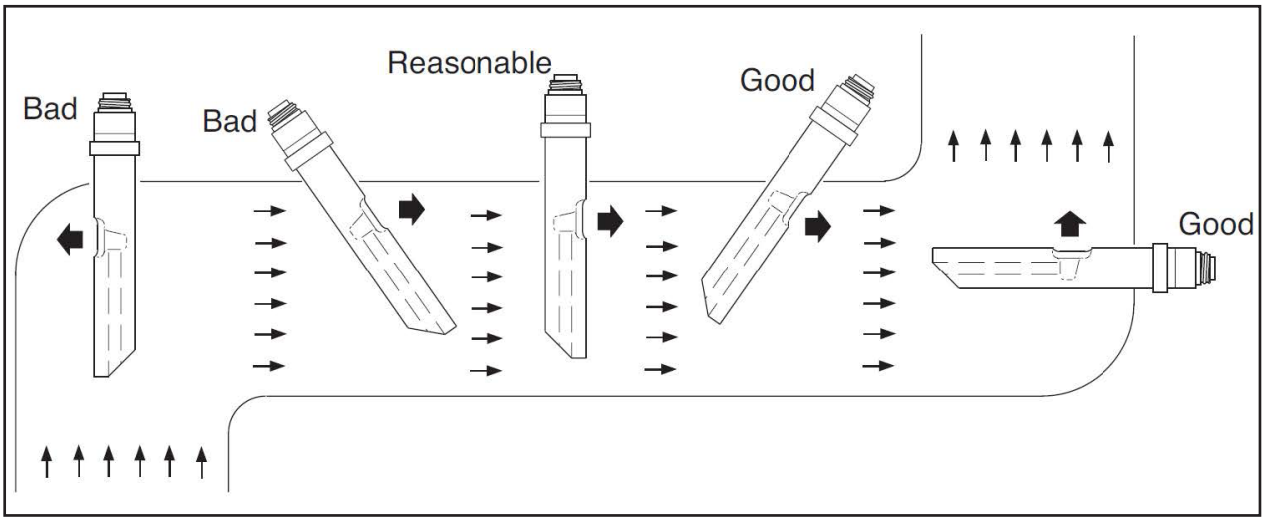


Figure 15: Mounting position SC42 sensor

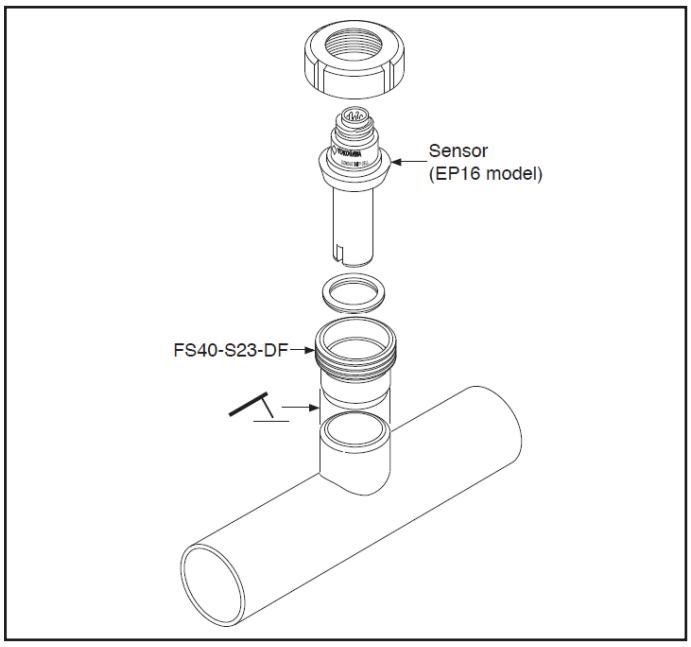


Figure 16: Installation example of the SC42-EP16 sensor with FS40-S23-DF subassembly

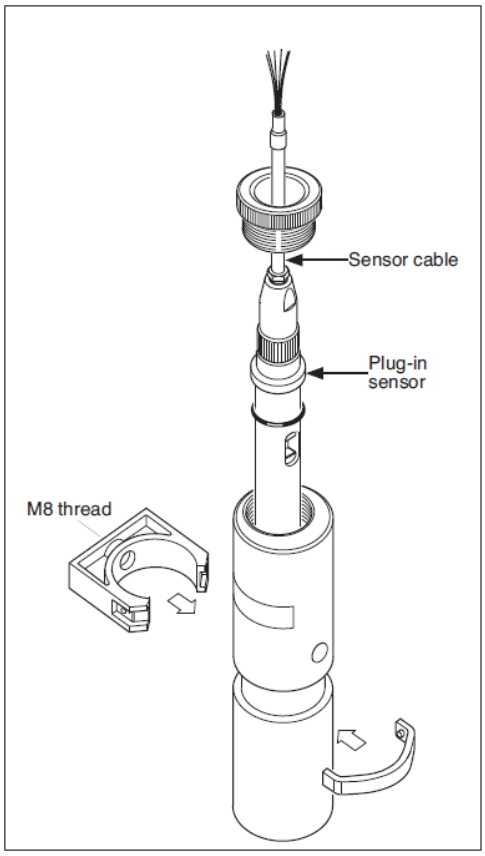


Figure 17: Installation SC42 in FF40-P22/ FF40-V22[9]

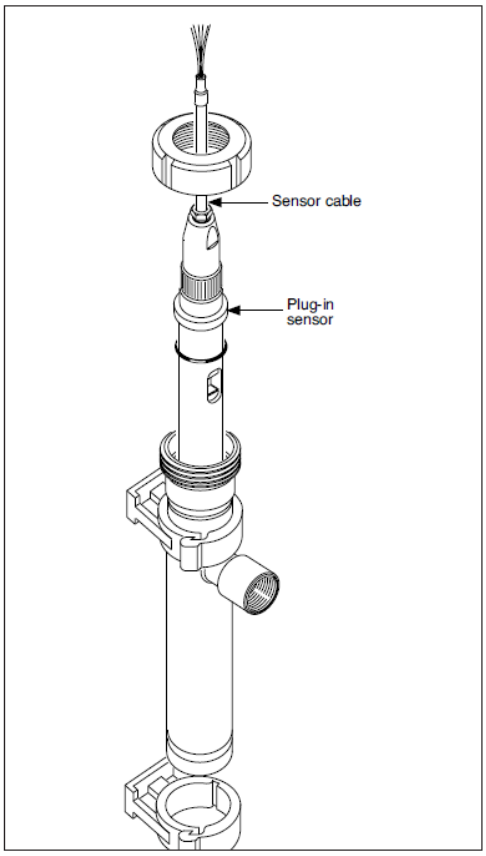


Figure 18: Installation SC42 in FF40[9]

Note 9: Not possible for sensors with suffix code -EP16 – EK16

Installation examples using the K1522PS protection sleeve

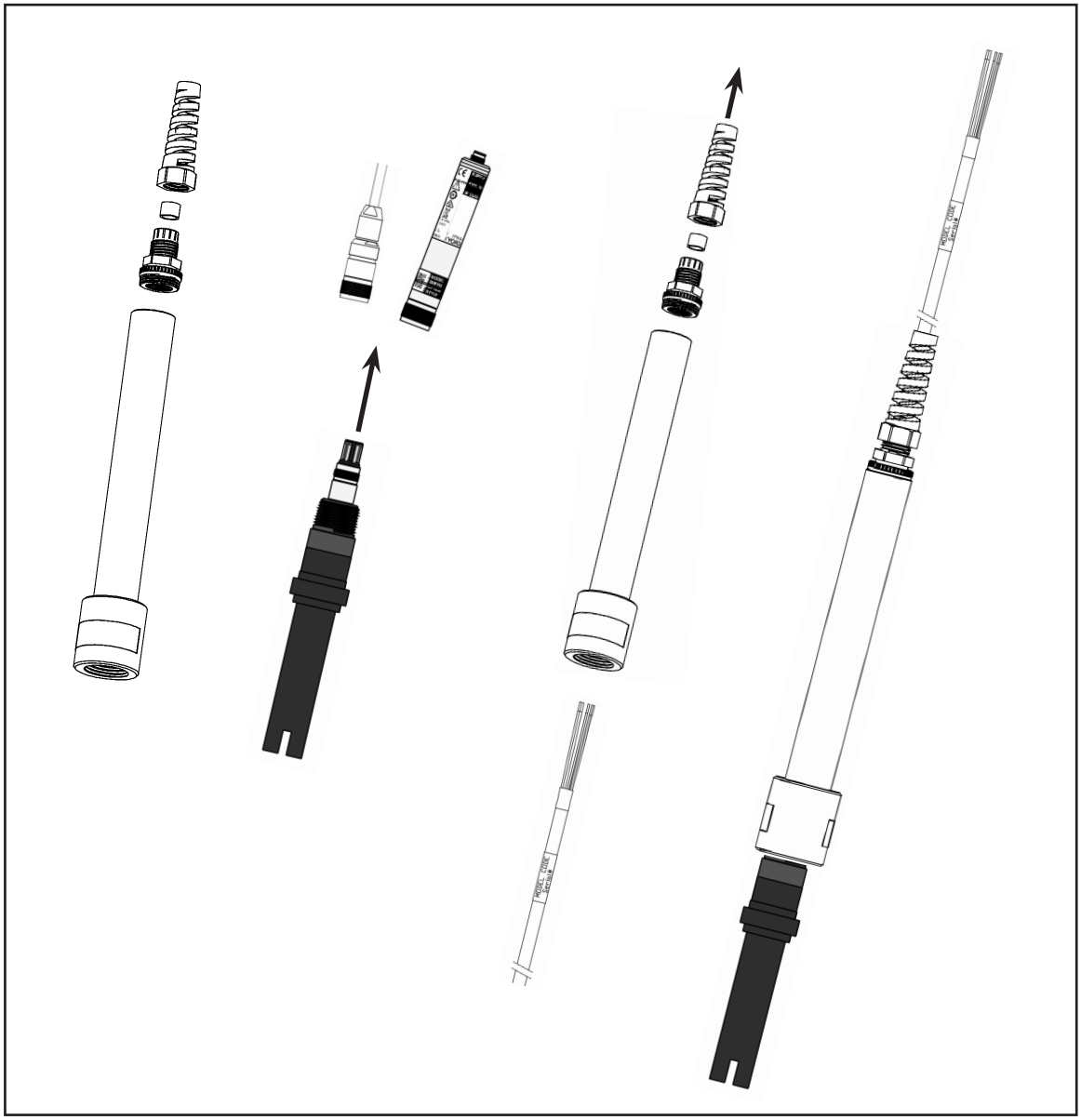


Figure 19: Installation using the protection sleeve K1522PS

Note: For details on installation SC42 sensor using protection sleeve please use instruction from SD 12A06K01-00EN-P

■ Addendum 2: Available models

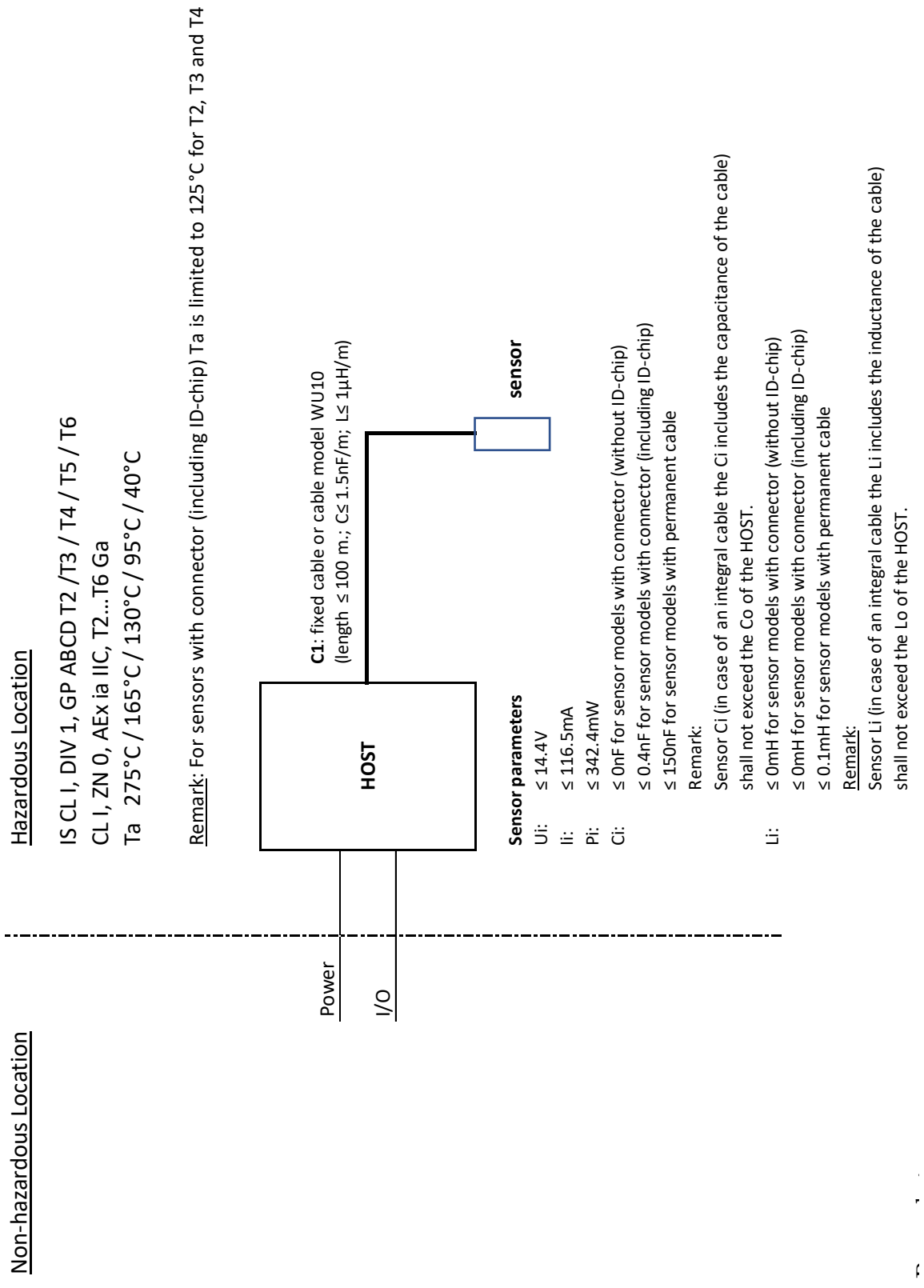
Table 5: SC42 available models

SC42-EK04
SC42-EK08
SC42-EK14
SC42-EK15
SC42-EK16
SC42-EK18
SC42-EG15
SC42-EP04
SC42-EP08
SC42-EP14
SC42-EP15
SC42-EP16
SC42-EP18
SC42-EV15
SC42-FK08
SC42-FG08
SC42-FP08
SC42-FV08
SC42-SK24
SC42-SK34
SC42-SG24
SC42-SG34
SC42-SP24
SC42-SP34
SC42-SV24
SC42-SV34

SC42-TK08
SC42-TG08
SC42-TP08
SC42-TV08

■ Addendum 3: Control Drawings

FM-US Control drawing: D&E 2020-024-A50 (part 1)



Remarks:

1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the National Electrical Code (ANSI/NFPA 70), ANSI/ISA-RP12.06.01, and relevant local codes.
3. The sensor shall be installed to a certified intrinsically safe HOST with the following maximum values: Uo= 14.4 V, Io = 116.5 mA, Po = 342.4 mW.
4. The sensor does not provide isolation from earth. Installers shall take necessary measures to prevent the possibility of sparking resulting from differing earth potentials between the sensors and interconnecting equipment. This can be realized for example by selecting interconnecting equipment which provides input-to-output and input-to-earth isolation up to 500 V rms.
5. Sensor Model code:

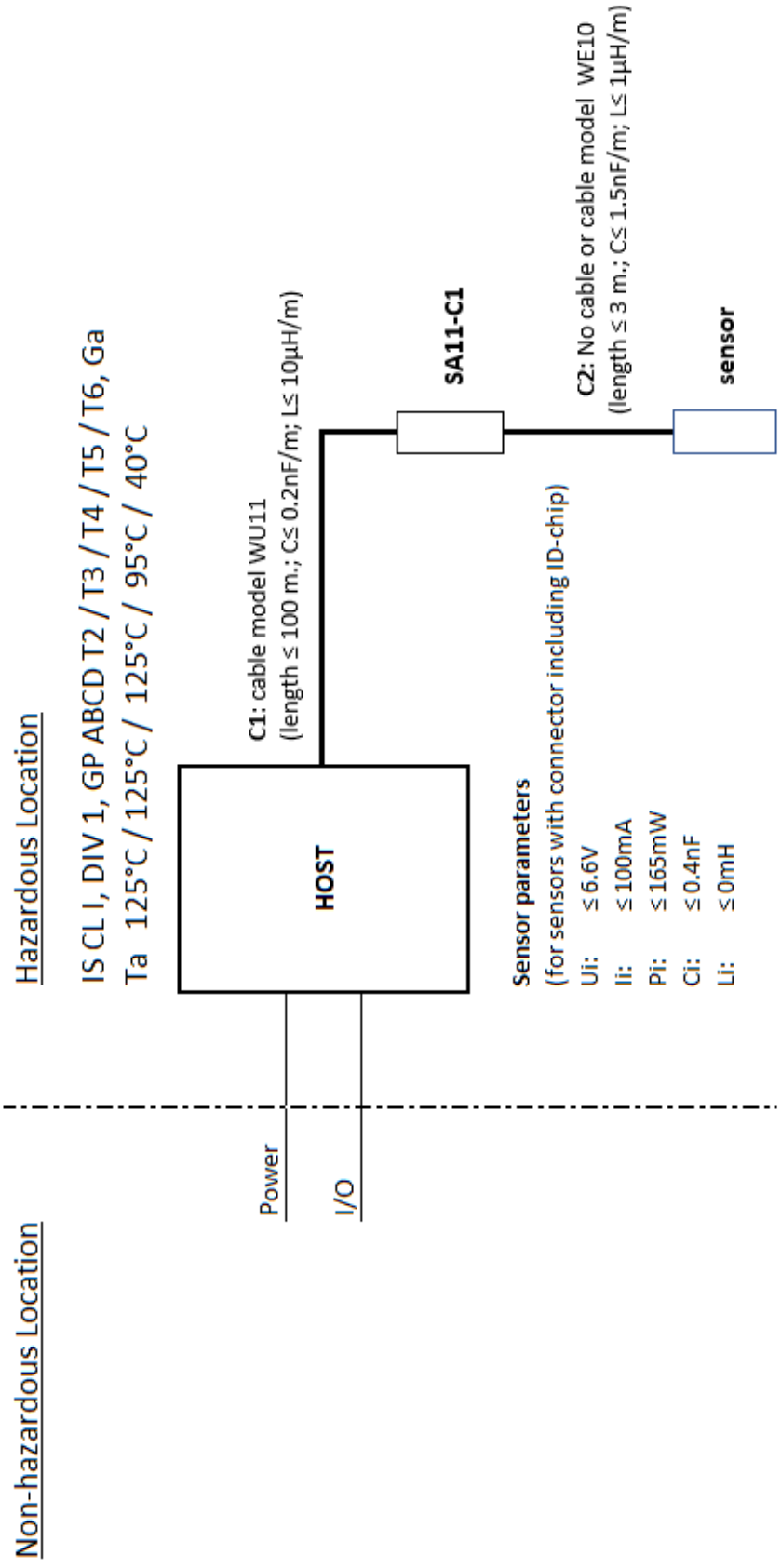
Table 3:

Model	Suffix Codes	Option Codes
SC42	-abcd	/e
a	Material:	E Epoxy S Stainless Steel F PVDF T PTFE
b	Connection type + Region:	P Connector without ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN V Connector with ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN
c	Cell Constant:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
d	Measuring type:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
e	Option code:	Up to ten alphanumeric characters (A to Z, 0 to 9 or hyphen)

6. WARNING - POTENTIONAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
pH sensors containing accessible plastic parts and/or external conductive parts, must be installed and used in such a way, that dangers of ignition due to hazardous electrostatic charges cannot occur, especially in the case that the process medium is non-conductive.

WARNING - POTENTIONAL IGNITION HAZARD – SEE INSTRUCTIONS
Contact Conductivity sensors containing light metals, must be installed and used in such a way that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

FM-US Control drawing: D&E 2020-024-A50 (part 2)



Remarks:

1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the National Electrical Code (ANSI/NFPA 70), ANSI/ISA-RP12.06.01, and relevant local codes.
3. The sensor shall be installed to a certified intrinsically safe Smart Adapter, model SA11-C1, with the following maximum values: Uo= 6.6 V, Io = 100 mA, Po = 165 mW.
4. The Installers shall take necessary measures to prevent the possibility of sparking resulting from differing earth potentials between the sensors and interconnecting equipment. The sensor itself does not provide 500 V rms isolation from earth, the interconnecting equipment Model SA11-C1 Smart Adapter however provides this required isolation.
5. Sensor Model code:

Table 4

Model	Suffix Codes	Option Codes
SC42	-abcd	/e
a	Material:	E Epoxy S Stainless Steel F PVDF T PTFE
b	Connection type + Region:	V Connector with ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN
c	Cell Constant:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
d	Measuring type:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
e	Option code:	Up to ten alphanumeric characters (A to Z, 0 to 9 or hyphen)

6. WARNING - POTENTIONAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
pH sensors containing accessible plastic parts and/or external conductive parts, must be installed and used in such a way, that dangers of ignition due to hazardous electrostatic charges cannot occur, especially in the case that the process medium is non-conductive.

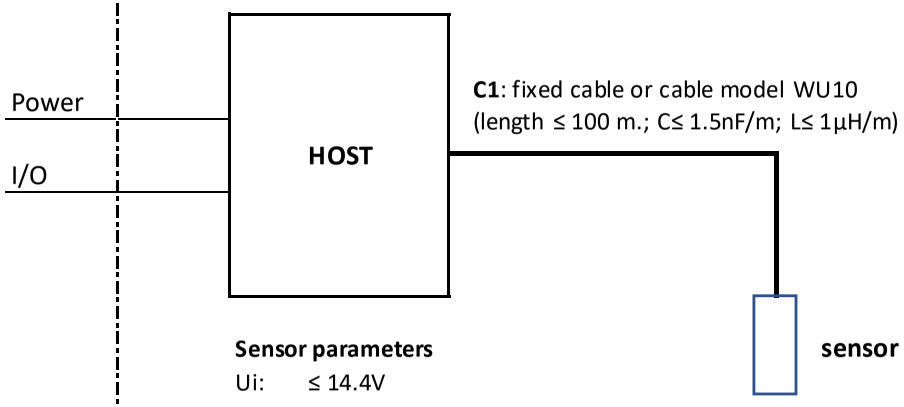
WARNING - POTENTIONAL IGNITION HAZARD – SEE INSTRUCTIONS
Contact Conductivity sensors containing light metals, must be installed and used in such a way that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

Non-hazardous Location

Hazardous Location

IS, SI, CL I, DIV 1, GP ABCD T2 /T3 / T4 / T5 / T6
CL I, ZN 0, Ex ia IIC, T2…T6 Ga
Ta 275°C / 165°C / 130°C / 95°C / 40°C

Remark: For sensors with connector (including ID-chip) Ta is limited to 125°C for T2, T3 and T4



Sensor parameters

Ui: ≤ 14.4V
Ii: ≤ 116.5mA
Pi: ≤ 342.4mW
Ci: ≤ 0nF for sensor models with connector (without ID-chip)
≤ 0.4nF for sensor models with connector (including ID-chip)
≤ 150nF for sensor models with permanent cable
Remark:
Sensor Ci (in case of an integral cable the Ci includes the capacitance of the cable) shall not exceed the Co of the HOST.
Li: ≤ 0mH for sensor models with connector (without ID-chip)
≤ 0mH for sensor models with connector (including ID-chip)
≤ 0.1mH for sensor models with permanent cable
Remark:
Sensor Li (in case of an integral cable the Li includes the inductance of the cable) shall not exceed the Lo of the HOST.

Remarks:

1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the National Electrical Code (ANSI/NFPA 70), ANSI/ISA-RP12.06.01, and relevant local codes.
3. The sensor shall be installed to a certified intrinsically safe HOST with the following maximum values: Uo= 14.4 V, Io = 116.5 mA, Po = 342.4 mW.
4. The sensor does not provide isolation from earth. Installers shall take necessary measures to prevent the possibility of sparking resulting from differing earth potentials between the sensors and interconnecting equipment. This can be realized for example by selecting interconnecting equipment which provides input-to-output and input-to-earth isolation up to 500 V rms.
5. Sensor Model code:

Table 5:

Model	Suffix Codes	Option Codes
SC42	-abcd	/e
a	Material:	E Epoxy S Stainless Steel F PVDF T PTFE
b	Connection type + Region:	P Connector without ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN V Connector with ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN
c	Cell Constant:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
d	Measuring type:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
e	Option code:	Up to ten alphanumeric characters (A to Z, 0 to 9 or hyphen)

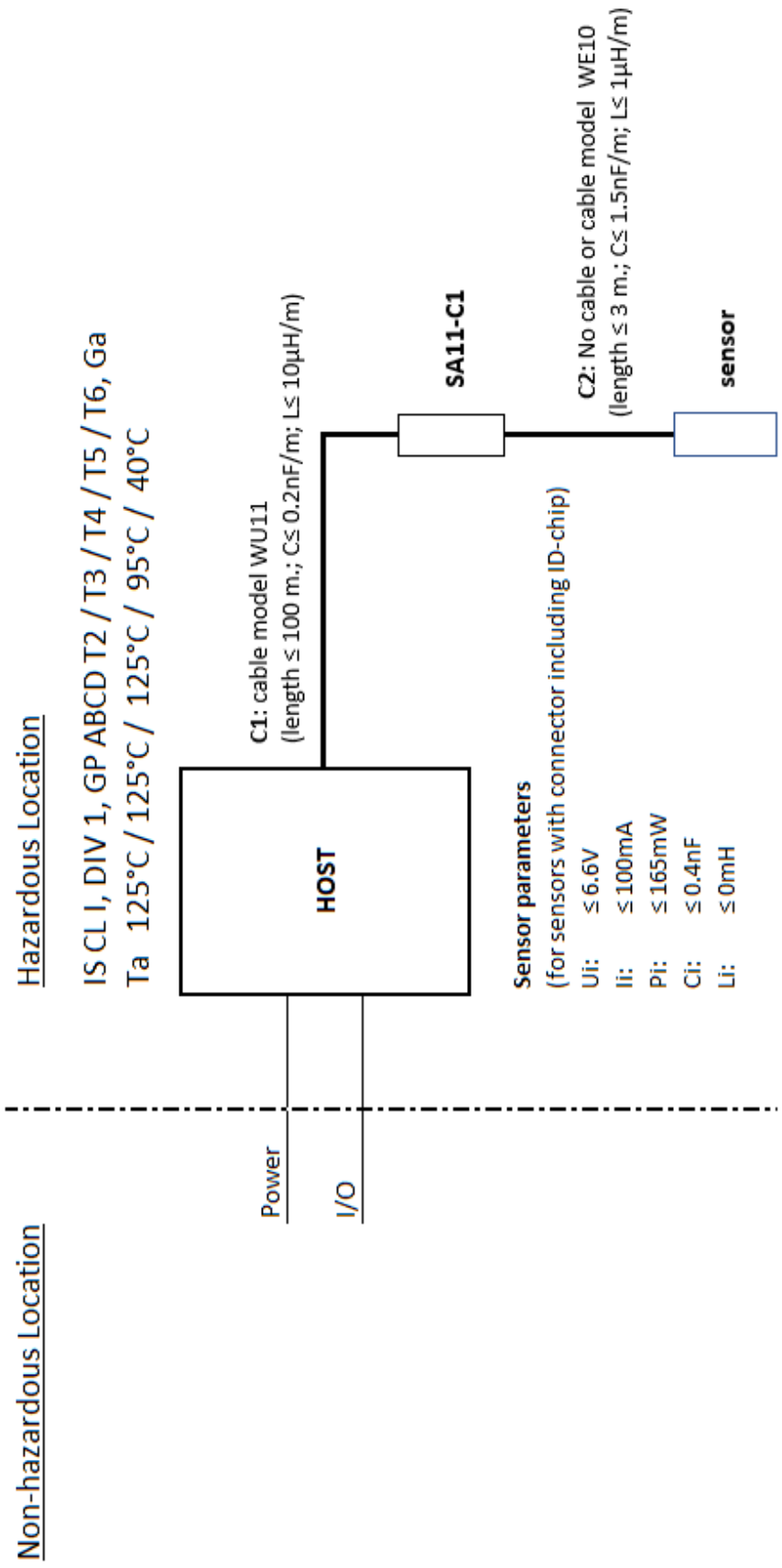
6. WARNING POTENTIONAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
pH sensors containing accessible plastic parts and/or external conductive parts, must be installed and used in such a way, that dangers of ignition due to hazardous electrostatic charges cannot occur, especially in the case that the process medium is non-conductive.

AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES – VOIR LES INSTRUCTIONS
Les sondes de conductivité de contact contenant des pièces en plastique accessibles et / ou des pièces conductrices externes doivent être installées et utilisées de manière à éviter tout risque d'inflammation dû à des charges électrostatiques dangereuses, en particulier dans le cas où le fluide de procédé n'est pas conducteur.

WARNING POTENTIONAL IGNITION HAZARD – SEE INSTRUCTIONS
Contact Conductivity sensors containing light metals, must be installed and used in such a way that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

AVERTISSEMENT – RISQUE POTENTIEL D'ALLUMAGE – VOIR LES INSTRUCTIONS
Les capteurs de conductivité de contact contenant des métaux légers doivent être installés et utilisés de telle sorte que, même en cas d'incidents rares, les sources d'allumage dues aux chocs et aux étincelles de friction soient exclues.

FM-CAN Control drawing: D&E 2020-024-A51 (part 2)



Remarks:

1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the National Electrical Code (CEC) CSA22.1 and relevant local codes.
3. The sensor shall be installed to a certified intrinsically safe Smart Adapter, model SA11-C1, with the following maximum values: Uo= 6.6 V, Io = 100 mA, Po = 165 mW.
4. The Installers shall take necessary measures to prevent the possibility of sparking resulting from differing earth potentials between the sensors and interconnecting equipment. The sensor itself does not provide 500 V rms isolation from earth, the interconnecting equipment Model SA11-C1 Smart Adapter however provides this required isolation.
5. Sensor Model code:

Table 6

Model	Suffix Codes	Option Codes
SC42	-abcd	/e
a	Material:	E Epoxy S Stainless Steel F PVDF T PTFE
b	Connection type + Region:	P Connector without ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN V Connector with ID-chip, IS for ATEX/IECEx, FM-US, FM-CAN
c	Cell Constant:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
d	Measuring type:	One alphanumeric characters (A to Z, 0 to 9 or a hyphen)
e	Option code:	Up to ten alphanumeric characters (A to Z, 0 to 9 or hyphen)

6. WARNING POTENTIONAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
pH sensors containing accessible plastic parts and/or external conductive parts, must be installed and used in such a way, that dangers of ignition due to hazardous electrostatic charges cannot occur, especially in the case that the process medium is non-conductive.

AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES – VOIR LES INSTRUCTIONS
Les sondes de conductivité de contact contenant des pièces en plastique accessibles et / ou des pièces conductrices externes doivent être installées et utilisées de manière à éviter tout risque d'inflammation dû à des charges électrostatiques dangereuses, en particulier dans le cas où le fluide de procédé n'est pas conducteur.

WARNING POTENTIONAL IGNITION HAZARD – SEE INSTRUCTIONS
Contact Conductivity sensors containing light metals, must be installed and used in such a way that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

AVERTISSEMENT – RISQUE POTENTIEL D'ALLUMAGE – VOIR LES INSTRUCTIONS
Les capteurs de conductivité de contact contenant des métaux légers doivent être installés et utilisés de telle sorte que, même en cas d'incidents rares, les sources d'allumage dues aux chocs et aux étincelles de friction soient exclues.

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