

General Specifications

Model ISC40G (S) Inductive Conductivity sensor and fittings

The model ISC40 sensors are designed for use with our 2-wire analyzers and 4-wire analyzers. This combination exceeds all expectations for conductivity measurement in terms of: reliability, accuracy, rangeability and price performance.

The accuracy is 0.5% of reading plus 0.5 uS/cm for any conductivity value: whether measured in rinse water or in concentrated acids. The materials of construction guarantee a long life under harsh industrial conditions:

- The erosion/abrasion resistant PEEK (Poly Ether Ether Ketone), which also features excellent chemical resistance in all solutions except fluoric acid or oxidizing concentrated acids.
- The ultimate material in terms of chemical resistance: PFA for applications in hydrofluoric acid and oxidizing concentrated acids (nitric, sulfuric, oleum).

The sensor is provided with a rugged Stainless Steel mounting thread, nut and gasket combination for ultimate flexibility in installation using bulk head installation technique. There is also a wide range of holders and options available for reliable in-line or off-line installation with double O-ring seals for long service life of the sensor. Additional models are available for use in Ball-Valve Insertion applications and in Sanitary Flange installations.

The ISC40G and ISC40S are available in PEEK (sensor type GG) for general use. In applications where sample is aggressive to Peek we offer the sensor in PFA (sensor type TG).

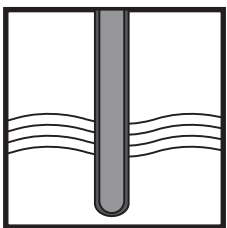
Both sensors have a large bore for optimal resistance to fouling processes and when properly installed, the flow will keep the sensor clean preventing measuring errors.



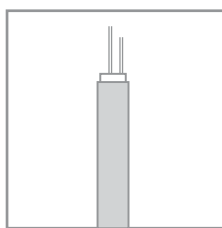
Features and Applications

- Inductive Conductivity technique for elimination of fouling and polarization errors.
- Wide bore sensors for long term stability.
- Installation flexibility by wide range of holders and by the use of universal bulkhead construction.
- Wide rangeability in terms of conductivity (1 μ S/cm to 2 S/cm) and temperature (-20 to 130°C).
- All ranges except the (ultra) pure water applications.
- All slurry applications where conventional systems suffer from plugging or erosion.
- Standard quality inspection certificate with delivery of sensor.

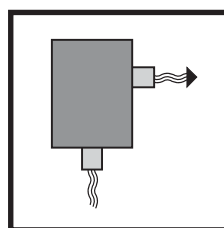
System Configuration



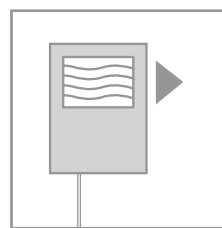
Sensors



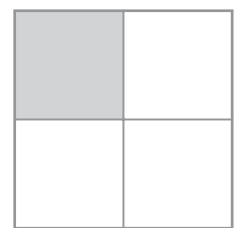
Cables



Fittings



Transmitters



Accessories

GENERAL SPECIFICATIONS

The ISC40 inductive conductivity sensor is suitable for use with the Yokogawa inductive conductivity analyzers.

Measuring elements

: Toroids with high permeability magnetic material
Pt1000 or 30k temperature element

Materials

Wetted parts sensor

Body ISC40*-G* : 30% glass filled PEEK, FDA approved
Body ISC40*-T* : PFA, FDA appr

Non-wetted parts sensor

Sealing gasket : Viton
Thread part : AISI 316 SS

Options for sensor

All options except /TFD: AISI 316 SS and O-ring material as wetted part
/TFD : AISI 316 SS as non-wetted part
TFM and Kalrez as wetted part

Functional specifications (at 25°C)

Temperature element : Pt1000 to IEC 751
30k NTC
Installation factor : 1.88 cm-1 nominal for PEEK sensor
3.00 cm-1 nominal for PFA sensor
Actual installation can change this factor.
If there is less than 25mm spacing between sensor and holder, in-situ calibration is necessary to meet the specified accuracies (see fig. 1)

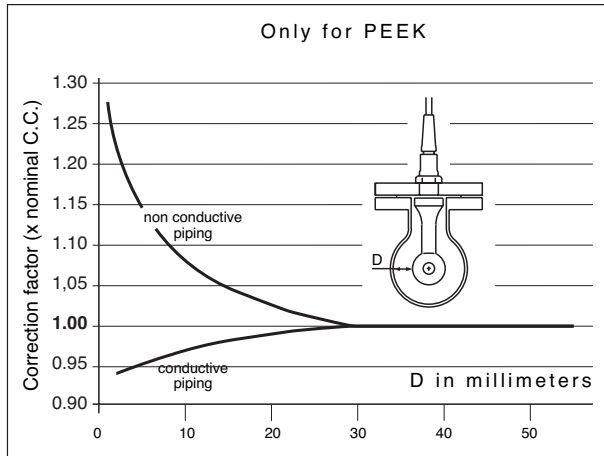


Fig 1: Actual installation factor as function of spacing around the sensor

Note: The ISC40 temperature sensor is designed for cell compensation and for indication.
It is **NOT** designed for process temperature control.

Dynamic specifications

Response time : $t_{90} < 5$ min. for PEEK sensor
conductivity : $t_{90} < 10$ min. for PFA sensor

Operating range

Conductivity : 0 – 2000 mS/cm at actual process temperature.

Note: The sensor has an error (0.5 μ S/cm for PEEK model, 1.0 μ S/cm for PFA model) that must be considered when application is chosen.

Temperature : -20°C to 130°C (-4°F to 266°F) for PEEK sensor
-20°C to 130°C (-4°F to 266°F) for PFA sensor

Pressure : 0 to 20 bar (0 to 290 PSIG) for PEEK sensor
0 to 15 bar (0 to 217 PSIG) for PFA sensor.

Note: At maximum process temperature the maximum pressure for the PFA sensor is 5 bar (72 PSIG).

Cable length : max 50 meter, in combination with WF10 extension cable and BA10 junction box

Regulatory standards

CE : Decision 768/2008/EC
- ATEX : Directive 94/9/EC, as amended by Regulation (EC) no. 1882/2003
Certificate no. : DEKRA 11ATEX0063 X
II 1 G Ex ia IIC T4...T6 Ga
Electrical data : Sensor output circuits (permanently connected cable) connected to a certified intrinsically safe circuit with the following maximum values: $U_i = 19.1$ V; $I_i = 170$ mA; $P_i = 0.8$ W; $C_i = 0$ nF; $L_i = 0$ mH
or certified intrinsically safe Yokogawa Inductive Conductivity transmitter model FLXA21 series, model ISC202S series or model IC200S series

Note: The effective internal capacitance C_i and the effective internal inductance L_i of the sensor are depending only upon the properties and the length of the connected cable.

Special conditions (X) : T6 for Tamb. -30°C to 40°C
T5 for Tamb. -30°C to 95°C
T4 for Tamb. -30°C to 130°C,
depending on sensor body material
: The sensor must be installed and used so, that dangers of ignition due to hazardous electrostatic charges cannot occur, especially in the case that the process medium is non-conductive.

- Pressure : Directive 97/23/EC, as amended by Regulation (EC) no. 1882/2003
Applying article : 3.3 (Sound Engineering Practice)

IECEX

Applying standards : IEC 60079-0 : 2007
IEC 60079-11 : 2006
IEC 60079-26: 2006
Certificate no. : IECEx DEK 11.0028X
Ex ia IIC T4...T6 Ga

CSA

Certificate no. : 2447837 IS, Class I Div. 1, GP A, B, C, D T4...T6
 Master Contract no 182892

Electrical data : Sensor output circuits (permanently connected cable) connected to a certified intrinsically safe circuit with the following maximum values: $U_o = 19.1\text{ V}$; $I_o = 170\text{ mA}$; $P_o = 0.8\text{ W}$; $C_o \geq C_i + C_{\text{cable}}$; $L_o \geq L_i + L_{\text{cable}}$
 or
 certified intrinsically safe Yokogawa Inductive Conductivity transmitter model FLXA21 series, model ISC202S series or model IC200S series

Ambient temperature range : T6 for Tamb. -30°C to 40°C
 T5 for Tamb. -30°C to 95°C
 T4 for Tamb. -30°C to 130°C , depending on sensor body material

Note: Intrinsically safe when connected as per Control Drawing FF1-K1244QY (see fig. 2)

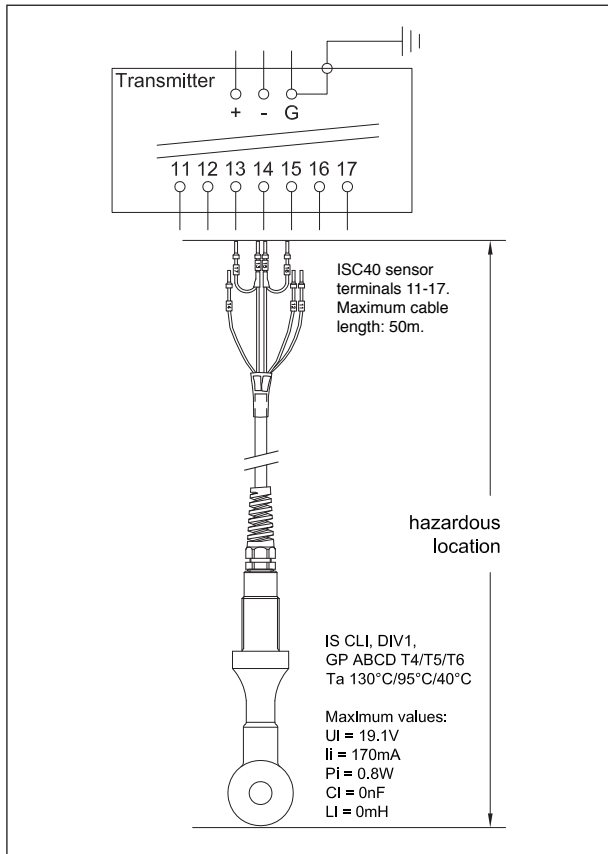


Fig 2: FF1-K1244QY Control Drawing CSA

FM

Certificate no. : 3046320 IS, Class I, Div. 1, Groups A, B, C, D T4...T6

Electrical data : Sensor output circuits (permanently connected cable) connected to a FM approved intrinsically safe apparatus meeting the entity parameters of the ISC40S: $U_o \leq 19.1\text{ V}$; $I_o \leq 170\text{ mA}$; $P_o \leq 0.8\text{ W}$; $C_o \geq C_i + C_{\text{cable}}$; $L_o \geq L_i + L_{\text{cable}}$
 or
 certified intrinsically safe Yokogawa Inductive Conductivity transmitter model FLXA21 series, model ISC202S series or model IC200S series

Ambient temperature range : T6 for Tamb. -30°C to 40°C
 T5 for Tamb. -30°C to 85°C
 T4 for Tamb. -30°C to 85°C , depending on sensor body material

Note: Intrinsically safe when connected as per Control Drawing FF1-K1244QX (see fig. 3)

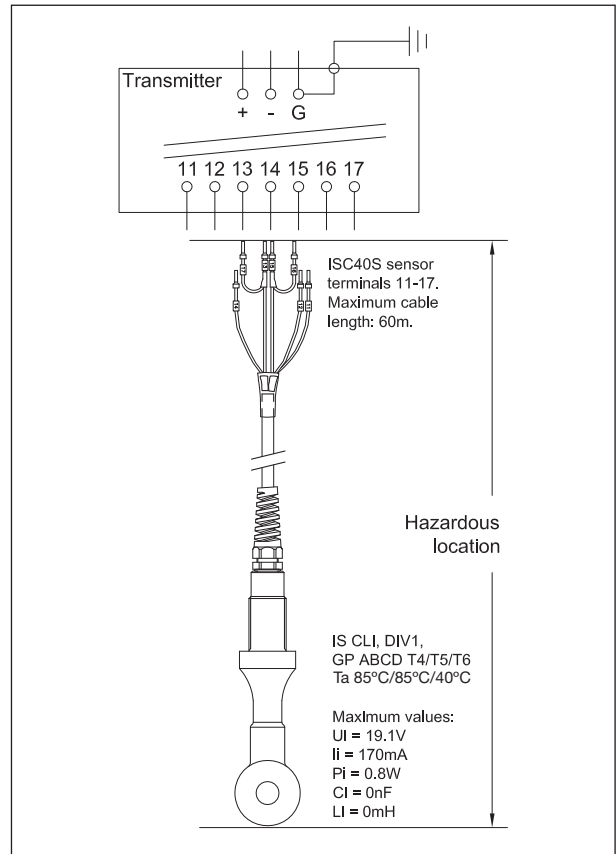


Fig 3: FF1-K1244QX Control Drawing FM

ISC40- [] - [] - []
 [] Cable length in meters any number between 1 and 50 meters
 [] Temperature Element
 T1 PT1000
 T3 30k thermistor
 [] Plastic and adaption code
 GG Glass filled PEEK, general model
 GR Glass filled PEEK, retractable model
 GS Glass filled PEEK, shaft model
 TG PFA, general model

ISC40- [] - [] - []
 [] Cable length in meters any number between 1 and 50 meters
 [] Temperature Element
 T1 PT1000
 T3 30k thermistor
 [] Plastic and adaption code
 GG Glass filled PEEK, general model
 GR Glass filled PEEK, retractable model
 GS Glass filled PEEK, shaft model
 TG PFA, general model

GS 12D08J02-E-E

Control Drawing CSA

The ISC40S sensor shall be installed with one of the Yokogawa transmitters model:

- ISC202S
- IC200S
- FLXA21

with following parameters:

	ISC202S	IC200S	FLXA21
U _o	14.4 V	19.1 V	11.76 V
I _o	88 mA	162 mA	60.6 mA
P _o	317 mW		178 mW
L _o	4.5 mH	800µH	8 mH
C _o	600 nF	254nF	100 nF

or

To a CSA approved intrinsically safe apparatus meeting the entity parameters of the ISC40S: $U_o \leq 19.1V$

$$I_o \leq 170mA$$

$$P_o \leq 0.8W$$

$$C_o \geq C_i + C(\text{cable})$$

$$L_o \geq L_i + L(\text{cable})$$

The effective inductive capacitance C_i and the effective induced inductance L_i of the sensor depends only upon the properties and the length of the connected cable (max 50m).

When installing this equipment, follow the manufacturer's control drawing. Installing should be in accordance with Canadian Electrical Code Part 1 or CEC Part1.

Warning: To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing or read, understand and adhere to the manufacturer's live maintenance procedures.

Shipping details

Package size (LxWxH)

ISC40*-**-03 (05)	: 350 x 270 x 50 mm (13.8 x 10.6 x 2.0 inch)
ISC40*-**-10 (15, 20)	: 320 x 240 x 110 mm (12.6 x 9.5 x 4.3 inch)

Package weight (app.)

ISC40*-**-03	: 1.0 kg (2.2 lbs)
ISC40*-**-05	: 1.3 kg (2.9 lbs)
ISC40*-**-10	: 1.6 kg (3.5 lbs)
ISC40*-**-15	: 2.1 kg (4.6 lbs)
ISC40*-**-20	: 2.5 kg (5.5 lbs)

Environmental conditions

Storage temperature	: -30°C to 50°C (-22°F to 122°F)
Water proof	: IP67 (conform IEC 60529), also in combination with the preferred Yokogawa process connections

Process connections

Process connections are made in combination with a variety of adapters and fittings, which are available in AISI 316 SS, PVC or PVDF (see relevant sections in this manual).

Control Drawing FM

The ISC40S sensor shall be installed with one of the Yokogawa transmitters model:

- ISC202S
- IC200S
- FLXA21

with following parameters:

	ISC202S	IC200S	FLXA21
U _o	14.4 V	19.1 V	11.76 V
I _o	88 mA	162 mA	60.6 mA
P _o	317 mW		178 mW
L _o	4.5 mH	800µH	8 mH
C _o	600 nF	254nF	100 nF

or

To a FM approved intrinsically safe apparatus meeting the entity parameters of the ISC40S: $U_o \leq 19.1V$

$$I_o \leq 170mA$$

$$P_o \leq 0.8W$$

$$C_o \geq C_i + C(\text{cable})$$

$$L_o \geq L_i + L(\text{cable})$$

The effective inductive capacitance C_i and the effective induced inductance L_i of the sensor depends only upon the properties and the length of the connected cable (max 50m).

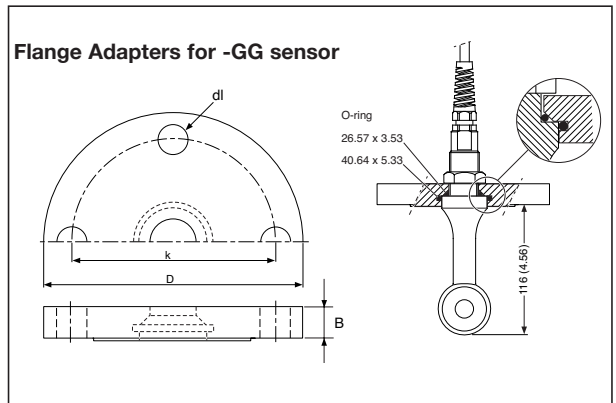
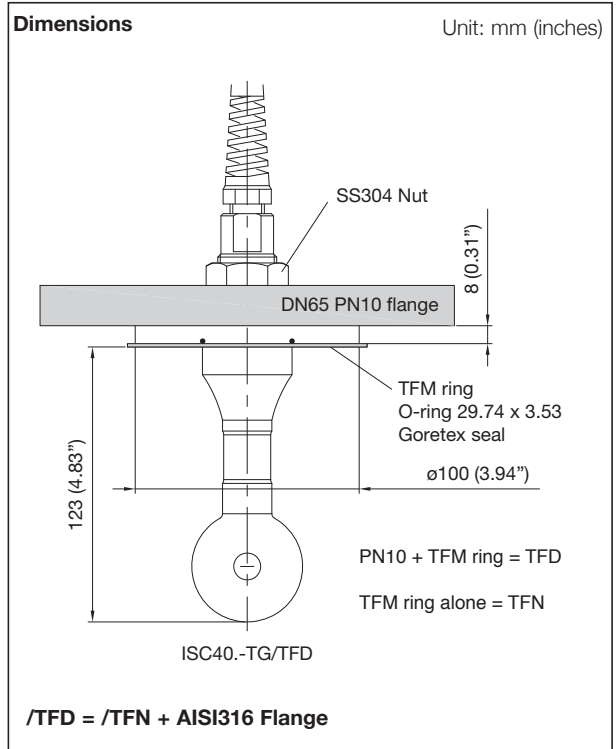
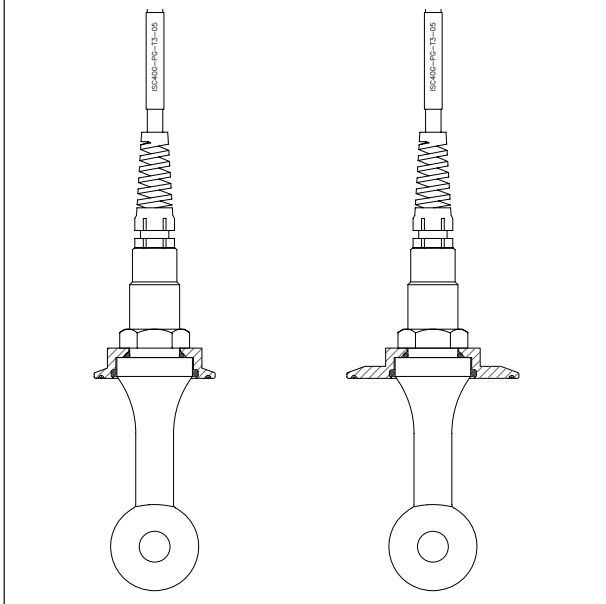
When installing this equipment, follow the manufacturer's control drawing. Installing should be in accordance with ANSI/ISA RP 12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).

Warning: To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing or read, understand and adhere to the manufacturer's live maintenance procedures.

ISC40G(S)-GG Model

Model	Suffix	Option	Description
ISC40G			General purpose inductive conductivity sensor
Sensor type	-GG -GR -GS -TG		Glass filled PEEK, general model Glass filled PEEK, retractable model Glass filled PEEK, shaft model PFA, general model
Temperature sensor	-T1 -T3		Pt1000 30k thermistor, for IC200 select only T3
Cable length	-03 -05 -10 -15 -20		03 meter 05 meter 10 meter 15 meter 20 meter
Options for Sensor			Material Proc.Connection
Flange adapters -GG, -TG		/SFA	AISI 316 SS 2" ANSI 150 lbs
		/SFD	AISI 316 SS DN50-PN16
		/TFD	TFM, AISI 316 SS DN65-PN10
		/TFN	TFM For DN65-PN10
Flange adapters for -GS		/SFT	AISI 316 SS Sanitary Tuchenhagen
		/STC1	AISI 316 SS Sanitary 2" tri clamp
		/STC2	AISI 316 SS Tri-clamp complete
Protection Hose for -TF	/PH□		03m /05m /10m /15m /20m Same length as the cable
Certificates	/M		Material certificate Not for -GR

Adapters for ISC40G(S)-GG



Flange adapter for -GG sensor

DIMENSIONS mm (inches)

	d	D1	D2	Material
/SFA	Ø 19 (0.75)	121 (4.75)	152 (6.0)	SS
/SFD	Ø 18 (0.71)	125 (5.00)	165 (6.5)	SS

Fittings for ISC40G(S)-GG Inductive Conductivity Sensors

For liquid analysis, the sensors are frequently mounted in either a flow or an immersion fitting. Yokogawa supplies for the model ISC40 inductive conductivity sensors a full range of fittings with particular emphasis on designs that reduce installation and maintenance time and consequently save operation costs.

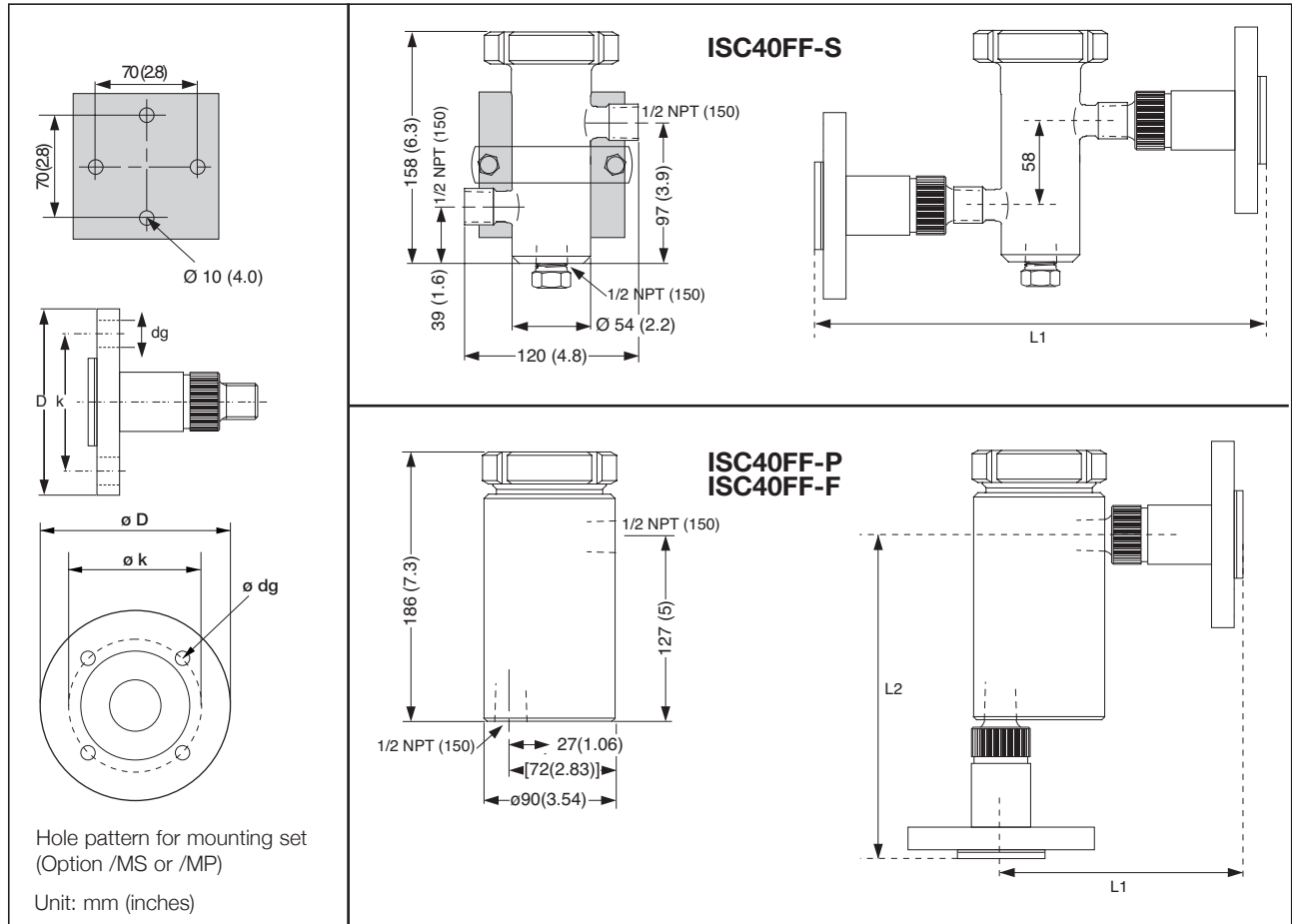
A wide choice of construction materials gives the user the optimal solution for any process considering chemical resistance, pressure and temperature specifications.

The flow fittings are used for installation of the sensors in sample by-pass lines. This makes maintenance easy without having to interrupt the main process stream. The subassemblies simplifies mounting of the sensors direct into process lines or vessels. This is particularly important where sample lines give problems, for instance with settling slurries.

Features

- Wide choice of construction materials.
- Built in drain on stainless steel flow fitting.
- Quick disconnect direct insertion sub assemblies.
- High temperature PVC immersion fitting with optional flanged process connection for adjustable insertion depth.
- High pressure and temperature specifications.
- Electrolytically polished stainless steel fittings for optimal corrosion resistance.

Dimensions in mm (inches)



Model ISC40FF Flow fitting

A. Process temperature

- Model ISC40FF-S : Maximum 150°C (300°F)
- Model ISC40FF-P : Maximum 100°C (210°F)
- Model ISC40FF-F : Maximum 130°C (270°F)

B. Process pressure

- Model ISC40FF-S : Max. 1.0 MPa (150 psi) at 150°C (300 °F)
- Model ISC40FF-P : Max. 0.6 MPa (90 psi) at 20°C (70°F)
Max. 0.1 MPa (15 psi) at 100°C (210°F)
- Model ISC40 FF-F : Max. 1.0 MPa (150 psi) at 20°C (70°F)
Max. 0.1 MPa (15 psi) at 120°C (250°F)

C. Wetted materials

- Model ISC40FF-S : AISI 316 Stainless Steel
- Model ISC40FF-P : Polypropylene
- Model ISC40FF-F : PVDF (KYNAR®)

Non-wetted materials

- Nut : AISI 304 stainless steel.
- Mounting set : AISI 304 Stainless Steel (optional)
- Flange adapters : AISI 304 Stainless Steel (optional)

Adapter dimensions

	L1	L2
FP1 - FF1	161	216
FP2 - FF2	151	206
FP3 - FF3	163	218
FP4 - FF4	149	204
FS1	278	112
FS2	298	122
FS3	274	110
FS4	298	122

Flange dimensions

	D	k	dg
DN25	ø115	ø85	ø13.5
1 Inch	ø108	ø79.2	ø15.7
1/2 Inch	ø88.7	ø66.6	ø15.7
DN15	ø95	ø65	ø13.5

Panel dimensions

100x100, holes 70x70 ø10mm

Model and Suffix Codes

Model	Suffix	Option	Description
ISC40FF			flow fitting
Material	-S -P -F		AISI 316 stainless steel Polypropylene (PP) PVDF (KYNAR®)
Process connection	-A		NPT
1/2"NPT Flange adapters	/FF1 /FF2 /FF3 /FF4 /FP1 /FP2 /FP3 /FP4 /FS1 /FS2 /FS3 /FS4		PVDF, DN15 PN10 PVDF, DN25 PN10 PVDF, ANSI 1/2"-150lbs PVDF, ANSI 1"-150lbs PP, DN15 PN10 PP, DN25 PN10 PP, ANSI 1/2"-150lbs PP, ANSI 1"-150lbs AISI 316 SS, DN15 PN10 AISI 316 SS, DN25 PN10 AISI 316 SS, ANSI 1/2"- 150lbs AISI 316 SS, ANSI 1"- 150lbs
Mounting set	/MS /MP		Wall/pipe for SS flow fitting Wall/pipe for PP or PVDF flow fitting
Material certificate	/M		3.1. according EN 10024 for wetted metal parts only

Model ISC40FS Direct insertion subassemblies

A. Process temperature

- Model ISC40FS/SCS : Maximum 150°C (300 °F)
- Model ISC40FS-PCS : Maximum 100°C (210 °F)
- Model ISC40FS-FCS : Maximum 130°C (270 °F)

B. Process pressure

- Model ISC40FS/SCS : Max. 1.0 MPa (150 psi) at 150°C (300°F)
- Model ISC40FS-PCS : Max. 0.6 MPa (90 psi) at 20°C (70°F)
Max. 0.1 MPa (15 psi) at 100°C (210°F)
- Model ISC40FS-FCS : Max. 1.0 MPa (150 psi) at 20°C (70°F)
Max. 0.1 MPa (15 psi) at 120°C (250°F)

C. Wetted materials

- Model ISC40FS/SCS: AISI 316 Stainless steel
- Model ISC40FS-PCS: Polypropylene
- Model ISC40FS-FCS : PVDF (KYNAR®)

Non wetted materials

- Nut : AISI 304 Stainless steel

D. Process connection

- Model ISC40FS-SCS/PCS/FCS : 2" screw-in coupling

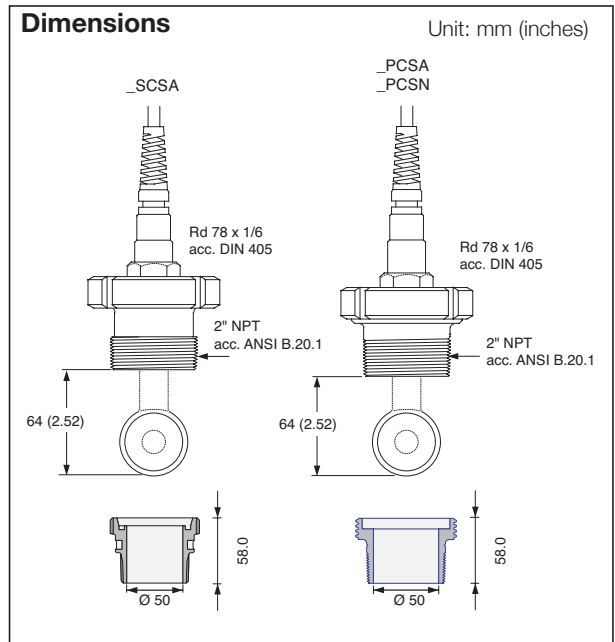
E. Shipping details

- Dimensions : Refer to section Dimensions
- Package : Normally packed with sensor
- Weight : 500 g. (1 lbs)

Model and Suffix Codes

Model	Suffix	Option	Description
ISC40FS			Flow fitting subassembly
Material	-F -P -S		PVDF Polypropylene Stainless Steel
Process connection	-CS -CW		Dairy Coupling screw-in* Dairy Coupling welded*
Thread type NPT or R	-A -N		NPT No thread (for weld-in couplings)
Options	/M		Material certificate 3.1. EN 10024 (for wetted metal parts only)

* **Note:** according to Din 11851



Note: Only applicable for PEEK-sensors not suitable for PFA-sensors

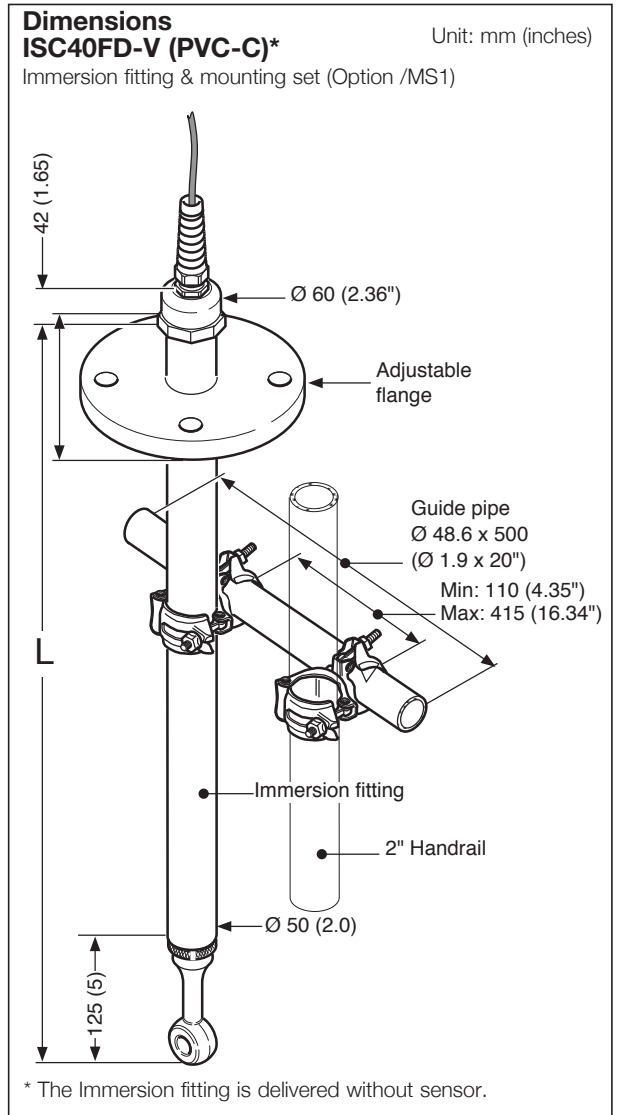
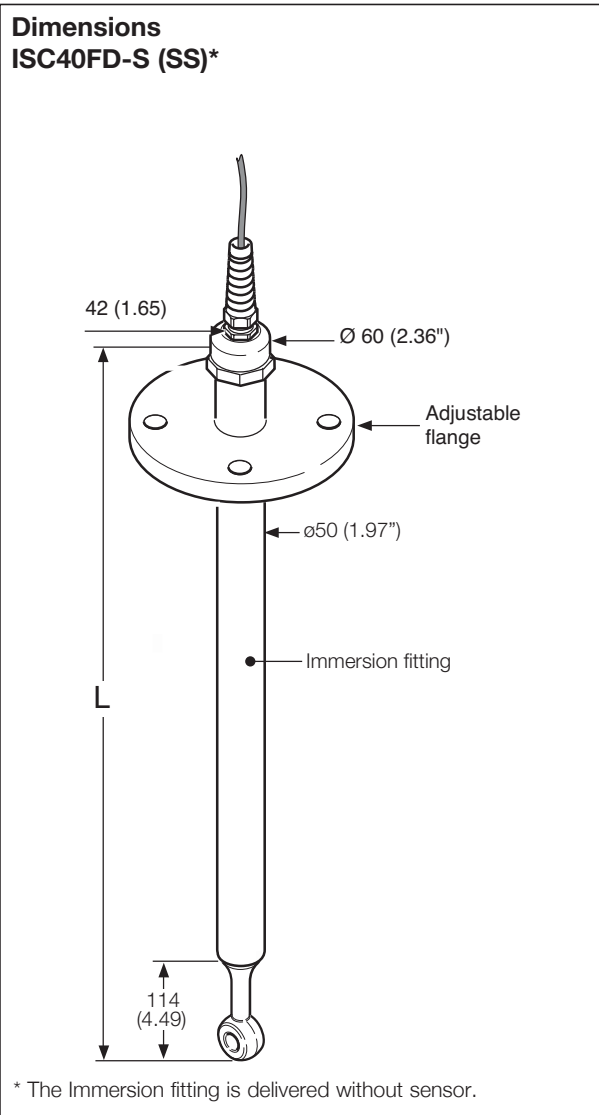
Model ISC40FD Immersion fitting

- A. Process temperature** : Max. 80°C (180 °F) PVC
 : Max. 150°C (300 °F)
 : AISI 316 Stainless steel
- B. Process pressure**
 - PVC : Max. 0.2 MPa (30 PSI) at 20°C (70°F)
 Max. 0.1 MPa (15 PSI) at 80°C (180°F)
 - AISI316 Stainless steel : 10 bar
- C. Wetted materials**
 - Probe tube : C-PVC
 - Process sealing O-ring : Viton
 - Flange : PVC (Optional)
- Non wetted materials**
 - Cable insulation : Thermoplastic rubber
- D. Process connection** :
 - Adjustable flange : Hole pattern according to DIN DN50-PN10 and ANSI 2" 150 lbs. Only for the PVC (Optional).
 - Mounting set : Galvanized steel (Optional).

Note: Adjustable flange (/FA) is only for the PVC fitting

Model and Suffix Codes

Model code	Suffix code	Option code	Description
ISC40FD			Immersion fitting
Material	-S -V		AISI 316 Stainless steel PVC-C
Pipe length	- □ □		Between 05 to 20 meter Example: 05 = 0.5 m
Flange	-NFL -SFA -SFD		No flange AISI316 SS 2" AISI316 SS DN50
Options	/MS1 /FA /PH5 /PH10		Pipe mounting set (Carbon steel) Adjustable flange with DIN DN50-PN10 and ANSI 2" 150 lbs hole pattern (only for PVC) Protection hose for 5 m cable Protection hose for 10 m cable
Material certificate	/M		3.1. according EN 10204 (for wetted metal parts only)

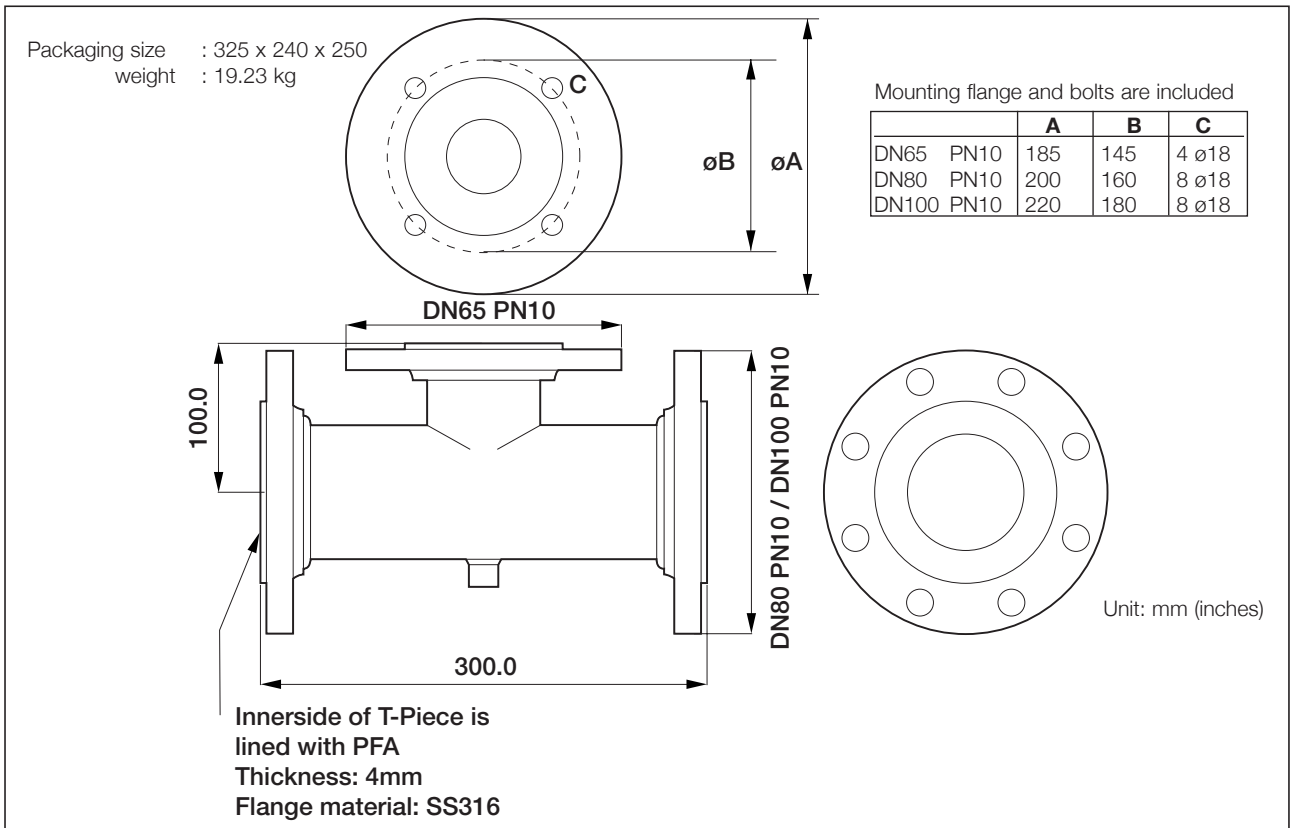


ISC40G(S)-TG Model

Part no.	Option	Description
K1500CJ	/PH05	05 meter protection hose
K1500CK	/PH10	10 meter protection hose
K1500EM	/PH25	25 meter protection hose

T-Piece ISC40-TG

Partno.	Flanges	Description
K1500HG	DN80 PN10	T-Piece, DN80 Flange
K1500HF	DN100 PN10	T-Piece, DN100 Flange
K1541GX	DN65	DN65, DN10 Flange for ISC40(G/S)-TG



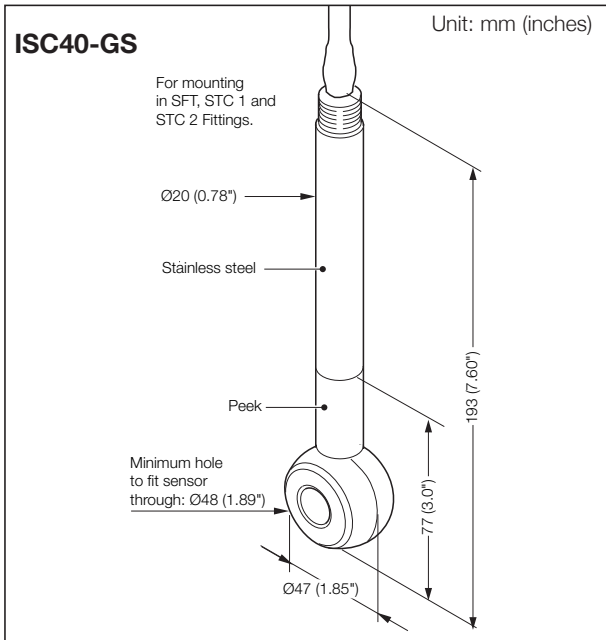
T-piece for ISC40-TF/TG inductive conductivity sensor

ISC40G(S)-GS Model

Model and Suffix Codes

Model	Suffix	Option	Description
ISC40G-GS			General purpose, glass filled PEEK, shaft model
ISC40S-GS			Intrinsically safe, glass filled PEEK, shaft model
Temp. sensor	-T1 -T3		Pt1000 30kNTC
Cable length	-03 -05 -10 -15 -20		03 mtr 05 mtr 10 mtr 15 mtr 20 mtr
Flange adapters for -GS sensor	/SFT1 /STC1 /STC2		AIS316 SS Sanitary Tuchenhagen AIS316 SS Sanitary 2" Tri-clamp* AIS316 SS Tri-clamp*
Certificates	/M		Material certificate (only applies to SS316 wetted part)

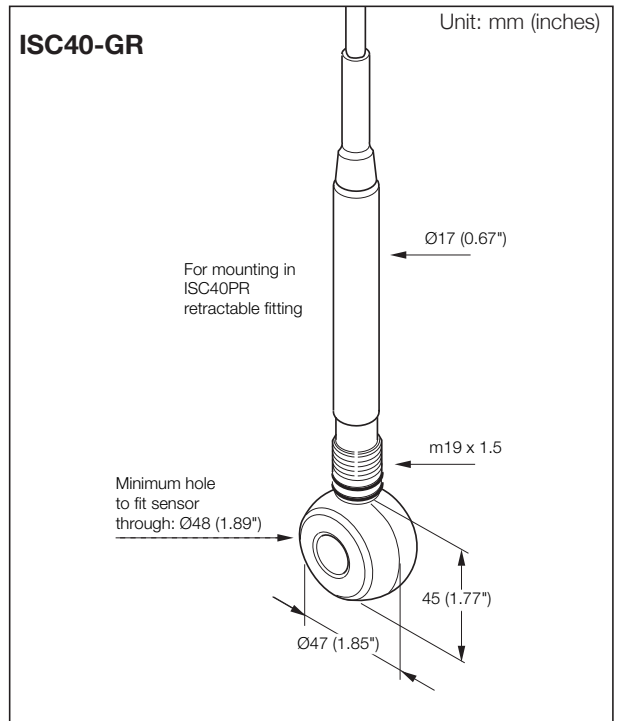
* according to ISO 2852



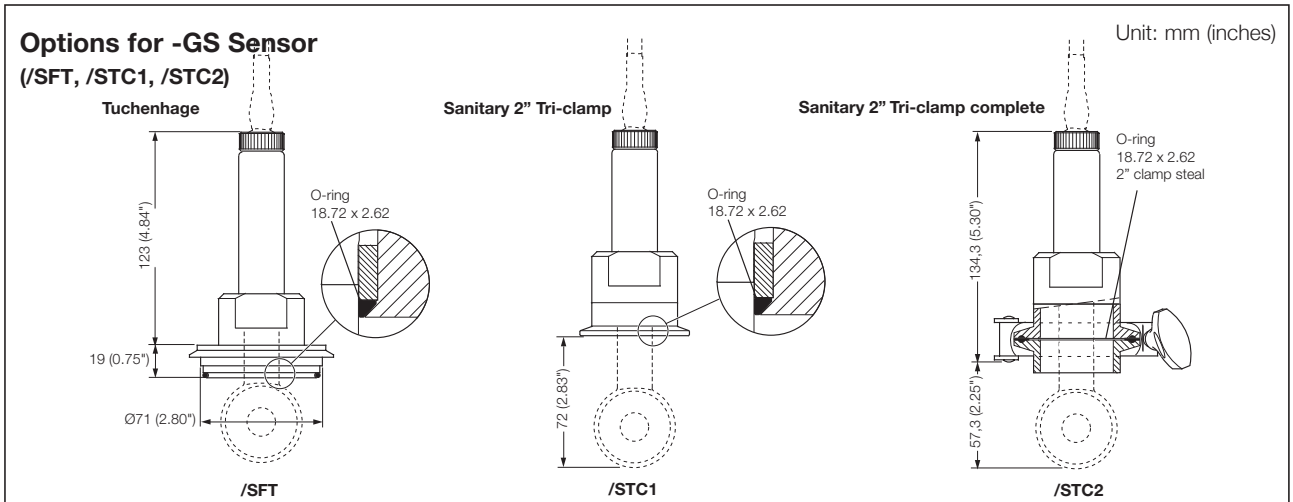
ISC40G(S)-GR Model

Model and Suffix Codes

Model	Suffix	Option	Description
ISC40G-GR			General purpose, glass filled PEEK, retractable model
ISC40S-GR			Intrinsically safe, glass filled PEEK, retractable model
Temp. sensor	-T1 -T3		Pt1000 30kNTC
Cable length	-03 -05 -10 -15 -20		03 mtr 05 mtr 10 mtr 15 mtr 20 mtr
Certificates	/M		Material certificate (only applies to SS316 wetted part)



Note: for retractable fitting PR10 please check GS12D8J2-01E-E



SPAREPARTS ISC40 SENSOR

Parts ISC40 sensor				
Part no.	Description	Material	Quantity	
K1500AM	Gasket	Viton	5	
K1500AL	Mounting nut	AISI 316 SS	3	
Options ISC40 sensor, Flange adapters				
Part no.	Description	Process connection	Material	O-ring(s)
K1541ZR	/SFA	2" ANSI 150 lbs	AISI 316 SS	Viton
K1541ZQ	/SFD	DN50-PN16	AISI 316 SS	Viton
K1541KB	/STW	3" tri-clamp	AISI 316 SS	EPDM
K1541KC	/S2W	2" tri-clamp	AISI 316 SS	EPDM
K1541XF	/TFD	DN65 PN10	AISI 316 SS,TFM	Kalrez
K1541XG	/TFN	used with DN65 PN10	TFM	Kalrez
K1541ZP	/SFT	Sanitary Tuohenhagen	AISI 316 SS	EPDM
K1541ZG	/STC1	Sanitary 2" tri-clamp	AISI 316 SS	EPDM
K1541ZF	/STC2	Tri-clamp complete	AISI 316 SS	EPDM

Note: Other O-ring materials are available as sparepart

O-rings ISC40 sensor, Flange adapters				
Part no.	Description	Dimensions	Material	Quantity
O-rings /SFA, /SFD				
K1500CA	O-ring set	40.64 x 5.33; 26.57 x 3.53	EPDM	5 sets
K1500CB	O-ring set	40.64 x 5.33; 26.57 x 3.53	Viton	5 sets
K1500CC	O-ring set	40.64 x 5.33; 26.57 x 3.53	Silicon	5 sets
K1500CD	O-ring	40.64 x 5.33	Kalrez	1
K1500CH	O-ring	26.57 x 3.53	Kalrez	1
O-rings /STW				
K1541ZK	O-ring set	40.87 x 3.53; 26.65 x 2.62; 3" seal-clamp	EPDM	2 sets
O-rings /S2W				
K1541ZH	O-ring set	40.87 x 3.53; 26.65 x 2.62; 2" seal-clamp	EPDM	2 sets
K1500DJ	O-ring set	40.87 x 3.53; 26.65 x 2.62; 2" seal-clamp	Viton	2 sets
K1500DK	O-ring set	40.87 x 3.53; 26.65 x 2.62; 2" seal-clamp	Silicon	2 sets
O-rings /TFD, /TFN				
K1500AH	O-ring	29.74 x 3.53	Kalrez	1
O-rings /SFT				
K1500CM	O-ring set	18.72 x 2.62; 60 x 3	EPDM	5 sets
O-rings /STC1				
K1500CQ	O-ring	18.72 x 2.62	EPDM	5
K1500CP	O-ring	18.72 x 2.62	Viton	5
K1500CR	O-ring	18.72 x 2.62	Silicon	5
O-rings /STC2				
K1500CT	O-ring set	18.72 x 2.72; 2" seal-clamp	EPDM	5 sets
K1500CS	O-ring set	18.72 x 2.72; 2" seal-clamp	Viton	5 sets
K1500CU	O-ring set	18.72 x 2.72; 2" seal-clamp	Silicon	5 sets

Chemical Compatibility Chart

			Material						
			PVDF (Kynar)	S.S. 316	VITON	PEEK	PP	PVC	PFA
			Temp. °C		Temp. °C		Temp. °C		Temp. °C
		% Conc.	20 60 100	20 60 100	20 60 100	20 60 100	20 60	20 60 100	
		Inorganic acid	Sulfuric acid	10	000	XXX	000	000	00
50	000			XXX	000	00X	00	00	000
95	OX -			XXX	000	- - -	X -	XX	000
fuming	- - -			- - -	000	- - -	- -	- -	000
Hydrochloric acid	10		000	- - -	000	00X	00	OX	000
	sat.		000	- - -	- - -	00X	00	00	000
	25		00X	XXX	00X	000	00	OX	000
Nitric acid	50		00X	XXX	- - -	XXX	X -	OX	000
	95		OX -	000	- - -	- - -	- -	- -	000
	fuming		- - -	000	- - -	- - -	- -	- -	000
Phosphoric acid	25		000	- - -	000	000	00	OX	000
	50		000	XXX	000	000	00	00	000
	95	000	000	XX -	000	00	00	000	
Hydrofluoric acid	40	000	- - -	000	- - -	00	OX	000	
	75	000	- - -	000	- - -	00	XX	000	
Organic acid	Acetic acid	10	000	00X	- - -	000	00	OX	000
		glacial	OX -	00X	- - -	00X	OX	XX	000
	Formic acid	80	000	XXX	- - -	XXX	00	0-	00X
Citric acid	50	000	000	000	000	00	00	000	
Alkali	Calcium hydroxide	sat.	000	000	000	000	00	00	000
	Potassium hydroxide	50	00X	000	000	000	00	00	000
	Sodium hydroxide	40	00X	000	XXX	000	00	OX	000
	Ammonia in water	30	000	000	XXX	000	00	OX	000
Acid salt	Ammonium chloride	sat.	000	XXX	000	000	00	00	000
	Zinc chloride	50	000	XXX	000	000	00	00	000
	Iron (III) chloride	50	000	- - -	000	000	00	00	000
Basic salt	Sodium sulfite	sat.	000	000	- - -	000	00	00	000
	Sodium carbonate	sat.	000	000	000	000	00	00	000
Neutral salt	Potassium chloride	sat.	000	XXX	000	000	00	00	000
	Sodium sulfate	sat.	000	000	000	000	00	00	000
	Calcium chloride	sat.	000	XXX	000	000	00	00	000
	Sodium chloride	sat.	000	XXX	000	000	00	00	000
	Sodium nitrate	50	000	XXX	000	000	00	00	000
	Aluminium chloride	sat.	000	- - -	000	000	00	00	000
Oxidizing agent	Hydrogen peroxide	30	000	000	000	000	00	00	000
	Sodium hypochloride	50	000	XXX	00X	000	XX	XX	000
	Potassium dichromate	sat.	000	000	000	000	00	00	000
	Chlorinated lime		OX -	XXX		XXX	- -	00	000
Organic solvent	Ethanol	80	00X	000	X - -	000	00	OX	000
	Cyclohexane		00X	000	000	000	- -	00	000
	Toluene		000	000	- - -	000	X -	- -	000
	Trichloroethane		XXX	00X	XXX	000	- -	- -	000
	Water		000	000	000	000	00	00	000

O = can be used, X = shortens useful life, - = cannot be used

Note: Information in this list is based on our general experience and literature data and given in good faith.

However Yokogawa is unable to accept responsibility for claims related to this information.

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