

GS 12D08G02-E

■ GENERAL

YOKOGAWA has been supplying superior on-line analyzers for monitoring or controlling the conductivity of liquid or solutions.

Now, YOKOGAWA provides the four-wire conductivity converter, (SC402G), the two-wire conductivity transmitter (SC202SJ, SC202G), and the panel mount conductivity converter (SC100).

YOKOGAWA also provides many kinds of detectors/sensors for accurately measuring liquid conductivity when using converters/transmitters.

The combination of YOKOGAWA's converters/transmitter and detectors/sensors meets the demanding ultrapurewater requirements of the growing semiconductor and pharmaceutical markets in addition to traditional water quality measurements for standard power plant and chemical applications.



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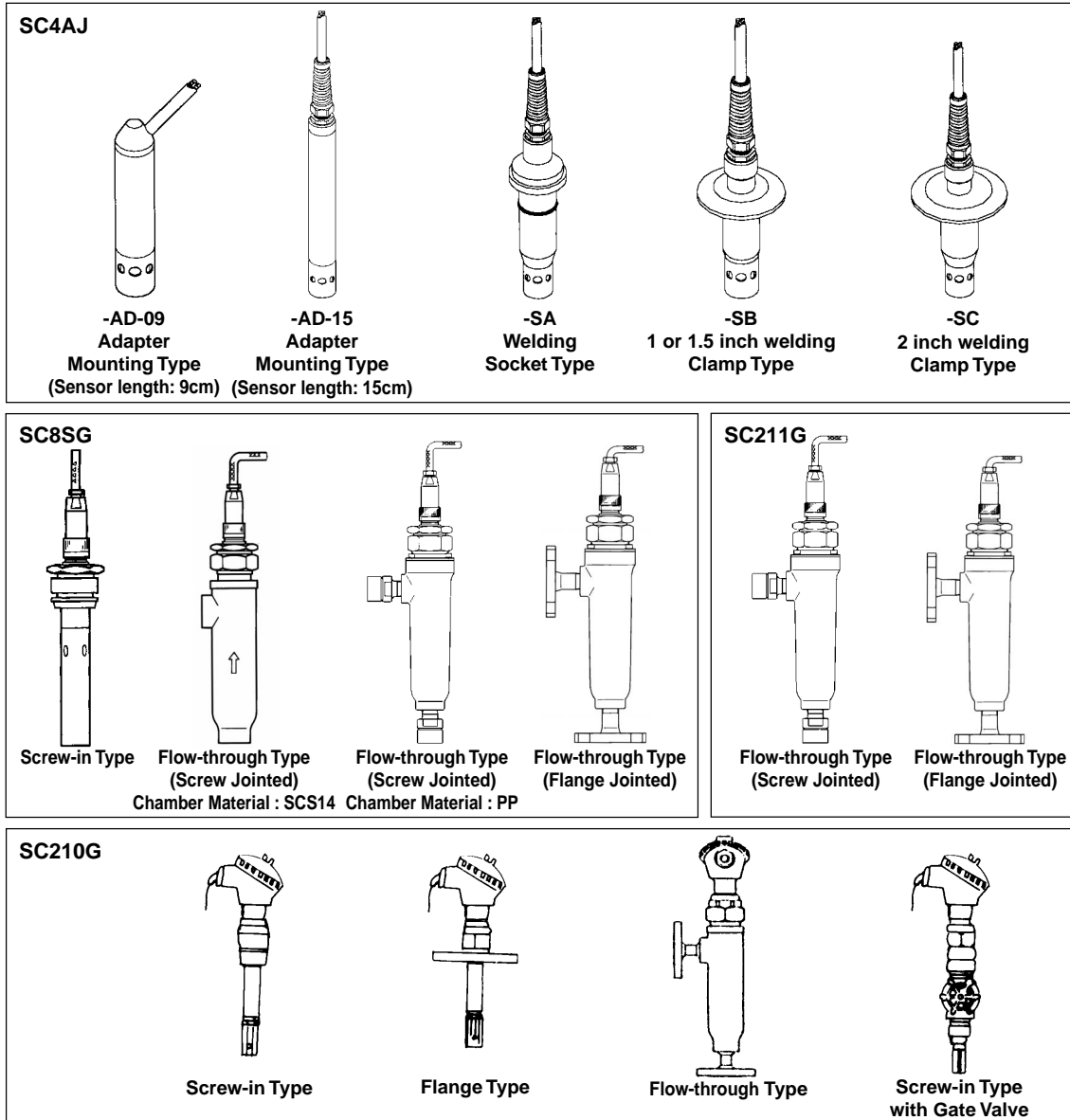
Refer to GS 12D08N04-E



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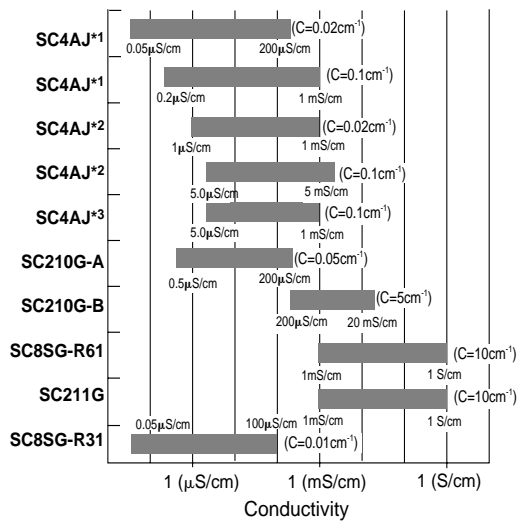
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Models of Conductivity Detectors/Sensors



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MEASURING RANGE OF DETECTORS/SENSORS



Note:

In the case of applications using high conductivity fluids or polluted fluids, the detector/sensor has a risk of polarization. The polarization may decrease the measured conductivity value.

*1 : In case of the combination with the SC402G SC202G, or SC202SJ

*2 : In case of the combination with the SC100 (Titanium)

*3 : In case of the combination with the SC100 (SUS)

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■ GENERAL SPECIFICATIONS

1. SC4AJ:

Cable with pin terminals (applicable to SC100, SC402G, SC202G and SC202SJ)

Object of measurement:

Conductivity of solutions

Measuring principle: Two-electrode system

Cell constant : 0.02cm⁻¹, 0.1cm⁻¹

Measuring range :

For a cell constant: 0.02cm⁻¹

In case of the combination with the SC402G, SC202G or SC202SJ: 0.05 to 200 μS/cm

In case of the combination with the SC100: 1 μS/cm to 1 mS/cm (Material: Titanium only, SC100 can not use with SC4AJ sensor made of SUS which cell constant is 0.02 cm⁻¹.)

For a cell constant: 0.1cm⁻¹

In case of the combination with the SC402G, SC202G or SC202SJ: 0.2 μS/cm to 1 mS/cm

In case of the combination with the SC100: 5 μS/cm to 5 mS/cm (Material: Titanium)

In case of the combination with the SC100: 5 μS/cm to 1 mS/cm (Material: SUS)

Temperature Range: For electrode, 0 to 110°C
For holder, see Figure 1

Sterilization for electrode:

135°C (275°F), within 30 minutes in Steam Sterilization

Pressure range : For electrode, 0 to 1 MPa
For holder, see Figure 1

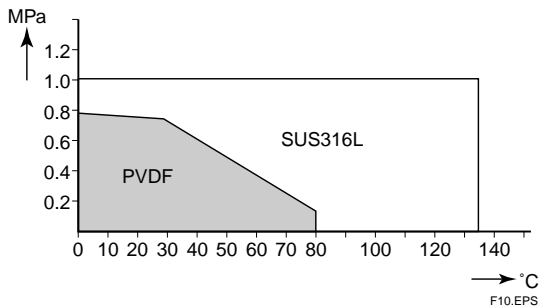


Figure 1 The range of tolerance of holders (option: /PS, /PF, /RS, /RF, /SA1, /SA2, /SB1, /SB2, /SC1) for temperature and pressure

Sample solution condition:

Although flow rate is not limited in measurement, air bubbles should not be mixed in the sample solutions to obtain correct measured values.

Temperature sensor: Pt1000

Materials

Body & Electrode : SUS316L (for all Fitting-type) or Titanium (only for adapter mounting type-AD), Viton O-ring

Isolator : PEEK

Mounting adapter: Polyvinylidene difluoride (for /PF and /RF) or SUS316L (for the others)

Weight:

Sensors:

Adapter mounting type (SC4AJ-S-AD-09-002-05): approx.450g

Adapter mounting type (SC4AJ-S-AD-15-002-05): approx.520g

Welding socket type (SC4AJ-S-SA-NN-002-05): approx.670g

1 or 1.5 inch welding clamp type (SC4AJ-S-SB-NN-002-05): approx.550g

2 inch welding clamp type (SC4AJ-S-SC-NN-002-05): approx.670g

(Note) There are weight differences among SC4AJ sensors. In order to know the more accurate weight of each type of sensors, please calculate it from following information. The cable weighs 75 g/m. The SC4AJ with 0.02cm⁻¹ cell constant is 15 gram heavier than the SC4AJ with 0.1cm⁻¹ cell constant. SUS314L electrode is 40g heavier than Titanium electrode.

Adapters:

3/4NTP stainless steel adapter (/PS) :approx. 110g

R3/4 stainless steel adapter (/RS):approx. 110g

3/4NTP PVDF adapter (/PF) : approx. 35g

R3/4 PVDF adapter (/RF) : approx. 35g

Straight welding socket (/SA1) : approx. 300g

Angle welding socket 15 (/SA2) : approx. 320g

Welding clamp 1 inch (/SB1) : approx. 330g

Welding clamp 1.5 inch (/SB2) : approx. 305g

Welding clamp 2 inch (/SC1) : approx 350g

(note) Do not submerge the sensor itself in process water, as the seams between the mold and the metal of the sensor are not waterproof.

2. SC8SG:

Cable with Pin terminals (applicable to SC402G, SC202G and SC202SJ)

Cable with Fork terminals (applicable to SC202G and SC202SJ)

Object of measurement:

Conductivity of liquids

Measuring Principle: Electrode method

Cell Constants : 0.01 cm⁻¹ or 10 cm⁻¹
(for two-electrode system)
10 cm⁻¹ (for four-electrode system)

Measuring Ranges : 0.05 to 100 μS/cm for a cell constant of 0.01 cm⁻¹
0.1 to 1000 mS/cm for a cell constant of 10 cm⁻¹

Temperature Range: 0° to 100°C (130°C maximum only for 0.01 cm⁻¹ cell constant detectors, excluding those with polypropylene chambers)

Pressure : 1000 kPa max. (500 kPa maximum for detectors with polypropylene chambers)

Flow rate of Sample Solution:

No particular limitation applies, although a value of less than 20 l/min. is recommended for flow-through detectors.

(Note) No limitation applies to flow rate (flow velocity) as far as measurement is concerned. Take care, however, when using flow-through detectors. Electrodes or the inner walls of a liquid chamber may wear put drastically at higher flow speeds if a measured solution contains slurry. Air bubbles should not be mixed in the sample solutions to obtain correct measured values.

RTD for Temperature Compensation:

Pt1000 (built into the sensor)

Construction : Rainproof encapsulation (compatible with the JIS C0920 Japanese Industrial Standard)

Weight :

- Screw-in type
 - approximately 1.3 kg (excluding the cable)
- Flow-through type (SCS14 chamber)
 - approximately 3.1 kg (excluding the cable)
- Flow-through type (SCS14 chamber, flanged)
 - approximately 4.5 kg (excluding the cable)
- Flow-through type (polypropylene chamber)
 - approximately 2.7 kg (excluding the cable)
- Flow-through type (polypropylene chamber, flanged)
 - approximately 3.2 kg (excluding the cable)
- Cable
 - 0.3 kg for 5.5-m length; 0.5 kg for 10-m length; 0.9 kg for 20-m length.

Process Connection: Screw-in or flow-through

Construction of Wetted Part:

- Sensor-holding base:
 - SUS316 and fluoro-rubber
- 0.01 cm⁻¹ cell constant, two-electrode sensor:
 - SUS316 and ethylene chloride trifluoride
- 10 cm⁻¹ cell constant, two-electrode sensor:
 - reinforced epoxy resin and graphite
- 10 cm⁻¹ cell constant, four-electrode sensor:
 - polyvinylidene difluoride, glass and platinum
- Stem (flow-through type):
 - SCS14 or polypropylene resin

Installation :

- Screw-in type—held by the process piping
- Flow-through type (polypropylene chamber)
 - mounted on a pipe (nominal diameter of 50 mm ±2 in.)
- Flow-through type (SCS14 chamber)
 - held by the process piping

3. WU41: Dedicated cable for the SC8SG

Cable : Six multicore wire
 Diameter: 9.2mm
 Material : Thermoplastic PVC

4. SC210G:

Cable with ring terminals (applicable to SC202G and SC202SJ)

Cable with pin-shaped terminals (applicable to SC402G, SC202G and SC202SJ)

Object of measurement:

Conductivity of solutions

Measuring principle : Two-electrode system

Cell constant : 0.05cm⁻¹, 5cm⁻¹

Measuring range : 0.5 μS/cm to 200μS/cm
 (Cell constant: 0.05cm⁻¹)
 200μS/cm to 20mS/cm
 (Cell constant: 5cm⁻¹)

Temperature Range: 0 to 105°C
 (chamber material: SCS14)
 0 to 100°C
 (chamber material: Polypropylene)

Pressure range : 0 to 1 MPa
 (chamber material: SCS14)

0 to 500 kPa
 (chamber material: Polypropylene)

Measuring solution condition:

Although flow rate is not limited in measurement, less than 20 l/min is recommended for flow-through type. If slurry is included in sample solutions in flow-through type detectors, the electrode part and the inside of solution chamber may be worn significantly. Air bubbles should not be mixed in the sample solutions to obtain correct measured values.

Temperature sensor: Thermistor (PB36NTC)

Wet part Materials

- SC210G-A : For sensor, SUS 316 stainless steel, Viton (O-ring) and Polytrifluorochloroethylene
 For body, SUS316 stainless steel, polypropylene and Viton (O-ring)
- SC210G-B : For sensor, Platinum, glass and Viton (O-ring)
 For body, SUS316 stainless steel, polypropylene and Viton (O-ring)

Construction : JIS C0920 watertight (equal to NEMA 4)

5. SC211G:

Cable with fork-shaped terminals (applicable to SC202G and SC202SJ)

Object of measurement:

Conductivity of solutions

Measuring principle : Four-electrode system

Cell constant : 10cm⁻¹

Measuring range : 1 mS/cm to 1 S/cm

Temperature Range: 0 to 100°C

Pressure range : 0 to 200 kPa

Measuring solution condition:

Although flow rate is not limited in measurement, less than 20l/min is recommended for flow-through type. If slurry is included in sample solution in flow-through type detectors, the electrode part and the inside of solution chamber may be worn significantly. Air bubbles should not be mixed in the sample solutions to obtain correct measured values.

Temperature sensor: Pt1000

Wet part Materials

- Sensor : Platinum, glass, Silicon (O-ring) and Polytrifluorochloroethylene
- Body : polypropylene and Viton (O-ring)

Construction : JIS C0920 rain proof

MODEL AND SUFFIX CODES

1. SC4AJ

Model	Suffix Code	Option Code	Description
SC4AJ	.....	.....	Conductivity sensor
Material	- T - S	.....	Titanium (Only for - AD) SUS316L
Fitting type	- AD - SA - SB - SC	.....	Adapter mounting type Welding socket type *1 1 or 1.5 inch welding clamp type *2 2 inch welding clamp type *2
Sensor length	- 09 - 15 - NN	.....	9 cm (Code for -AD) 15 cm (Code for -AD) fixed length (Code for -SA, -SB, -SC)
Cell constant	- 002 - 010	.....	0.02 cm ⁻¹ 0.1 cm ⁻¹
Cable length	- 03 - 05 - 10 - 15 - 20	.....	3 m 5 m 10 m 15 m *3 20 m *3
Temperature sensor	- T1	.....	Pt1000
Option	For AD only For SA only For SB only For SC only Oil prohibit	/PS /PF /RS /RF /SA1 /SA2 /SB1 /SB2 /SC1 /DG1	3/4NPT adapter SUS316L 3/4NPT adapter PVDF R3/4 adapter SUS316L R3/4 adapter PVDF Straight welding socket SUS316L Angled welding socket 15° SUS316L Welding clamp 1 inch SUS316L Welding clamp 1.5 inch SUS316L Welding clamp 2 inch SUS316L Oil-prohibited use *4

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- *1: When you select fitting type -SA, place an order on the SC4AJ with option code /SA1 or /SA2.
- *2: When you select fitting type -SB, place an order on the SC4AJ with option code /SB1 or /SB2 (including seal ring),
When you select fitting type -SC, place an order on the SC4AJ with option code /SC1 (including seal ring).
- *3: Impossible use for the SC400G
- *4: Washing treatment of wet part with alcohol.

Spare parts for SC4AJ

Parts No.	Description
K9670MA	O-ring set for -SA
K9670MK	Seal rings for /SB1 or /SB2
K9670MP	Seal rings for /SC1
K9670MT	3/4 NPT Stainless steel adapter for -AD
K9670MU	3/4 NPT PVDF Adapter for -AD
K9670MV	R3/4 Stainless steel adapter for -AD
K9670MW	R3/4 PVDF Adapter for -AD
K9670MD	Angled welding socket and mounting nut for -SA
K9670ME	Straight welding socket for -SA
K9670MB	Angled welding socket for -SA
K9670MC	Straight welding socket for -SA
K9670ML	Welding clamp 1 or 1.5 inch for -SB
K9670MQ	Welding clamp 2 inch for -SC

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2. SC8SG

Model	Suffix Code	Option Code	Description	
SC8SG	Conductivity detector	
Measuring range	-R31 -R61	..... .....	Cell constant: 0.01cm ⁻¹ Cell constant: 10cm ⁻¹
Electrode configuration	-T -F	..... .....	2-electrode system (for both 0.01cm ⁻¹ and 10cm ⁻¹ cell constants) - for general measurements *1 4-electrode system (for 10cm ⁻¹ cell constant only) - for countermeasures against polarization due to contamination *2
Construction	Screw-in model	- 100	with welding socket *3
		- 101	without welding socket (a welding socket [K9208BK] should be ordered separately)
	Flow-through model *5	- 302	Rc1/2 female threaded; chamber material: SCS14
		- 312	Rc1/2 female threaded; chamber material: PP
		- 303	1/2NPT female threaded; chamber material: SCS14
		- 313	1/2NPT female threaded; chamber material: PP
		- 304	JIS 10K-15-RF flange; chamber material: SCS14
		- 314	JIS 10K-15-FF flange; chamber material: PP
- 305	.....	ANSI CLASS150-1/2-RF flange with serration; chamber material: SCS14	
- 315	.....	ANSI CLASS150-1/2-FF flange; chamber material: PP	
Cable length	- P1 - P2 - P3 - F1 - F2 - F3	.....	5.5m (special cable supplied with detector)(Pin-shaped terminal)
		.....	10m (special cable supplied with detector)(Pin-shaped terminal)
		.....	20m (special cable supplied with detector)*4(Pin-shaped terminal)
		.....	5.5m (special cable supplied with detector)(Fork-shaped terminal)
		.....	10m (special cable supplied with detector)(Fork-shaped terminal)
		.....	20m (special cable supplied with detector)*4(Fork-shaped terminal)
Style code	*A	.....	Style A
Option		/PS /SS	SUS Mounting hardware (for PP chamber) SUS Mounting hardware (for SCS14 chamber)	

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- *1 : The cell constant is 0.01cm⁻¹ when the combination of measuring range R31 and Electrode configuration - T is chosen.
The cell constant is 10cm⁻¹ when the combination of measuring range R61 and Electrode configuration - T is chosen.
- *2 : Electrode configuration - F cannot be chosen when R31 is chosen. For process where can give contamination to a detector, a four-electrode detector, the combination of R61 and - F, should be used.
- *3 : If a welding socket (K9208BK) needs to be ordered beforehand, either place a separate order or prepare one by referring to the external view later in this brochure.
- *4 : Impossible use for the SC400G.
- *5 : The model is not equipped with a mounting hardware, please place an order on the SC8SG with option code /PS or /SS when you select flow-through model.
The PP chamber can have cracks or splits unless it is not supported by a mounting hardware.

Spare Parts for SC8SG

Parts No.	Description
K 9 2 0 8 B A	0.01cm ⁻¹ cell constant, two-electrode sensor
K 9 2 0 8 B C	10cm ⁻¹ cell constant, two-electrode sensor
K 9 2 0 8 B D	10cm ⁻¹ cell constant, four-electrode sensor
K 9 2 0 8 B K	Welding socket for screw-in model
G 9 3 0 3 E B	O-ring

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3. WU41

Model	Suffix code	Option code	Description
WU41	Dedicated Cable for SC8SG
Cable end	-F	Fork-shaped terminal
	-P	Pin-shaped terminal
Cable length	-05	5.5m
	-10	10m
	-20	20m

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4. SC210G

Model	Suffix Code	Option Code	Description
SC210G	Conductivity detector
Measuring range	- A	Low range; cell constant: 0.05cm ⁻¹
	- B	Medium range; cell constant: 5cm ⁻¹
Construction	Screw-in type	- 100
		- 103
	Flange type	- 206
		- 207
		- 208
	Flow-through type*1	- 302
		- 312
		- 303
		- 313
		- 304
		- 314
		- 305
		- 315
	With gate valve	- 402
- 403		.....
Sensor length	- L015	.....
	- L030	.....
	- L050	.....
	- L100	.....
	- L150	.....
	- L200	.....
Cable length	- 03	.....
	- 05	.....
	- 10	.....
	- 15	.....
	- 20	.....
	- AA	.....
	- BB	.....
	- CC	.....
	- DD	.....
	- EE	.....
	Style code	*A
Option	/SCT	.....
	/ANSI	.....
	/PF	.....
	/PS	.....
	/SS	.....
	/X1	.....
	/DG1	.....
	/MCT	.....

*1: The model is not equipped with a mounting brackets, place an order on the SC210G with option code /PS or /SS when you select flow-through model. The PP chamber material can have cracks or splits unless it is not supported by a mounting hardware.

*2: Only for Screw-in type and Flange type

*3: Impossible use for the SC400G

*4: Materials fo O-ring of electrode assembly and chamber seal become perfluoro-elastomer.
But, in construction -402 and -403, the sealing part of gate valve doesn t become the elastomer.

*5: Additional lead time is required.

Spare Parts for SC210G

Parts No.	Description
K9208EA	150mm electrode Assembly (C=0.05cm ⁻¹) for SC210G-A
K9208EB	500mm electrode Assembly (C=0.05cm ⁻¹) for SC210G-A
K9208EC	1000mm electrode Assembly (C=0.05cm ⁻¹) for SC210G-A
K9208ED	1500mm electrode Assembly (C=0.05cm ⁻¹) for SC210G-A
K9208EE	2000mm electrode Assembly (C=0.05cm ⁻¹) for SC210G-A
K9208EF	300mm electrode Assembly (C=0.05cm ⁻¹) for SC210G-A
K9315NA	150mm electrode Assembly (C=0.05cm ⁻¹) with perfluoro-elastomer, for SC210G-A
K9315NB	500mm electrode Assembly (C=0.05cm ⁻¹) with perfluoro-elastomer, for SC210G-A
K9315NC	1000mm electrode Assembly (C=0.05cm ⁻¹) with perfluoro-elastomer, for SC210G-A
K9315ND	1500mm electrode Assembly (C=0.05cm ⁻¹) with perfluoro-elastomer, for SC210G-A
K9315NE	2000mm electrode Assembly (C=0.05cm ⁻¹) with perfluoro-elastomer, for SC210G-A
K9315NF	300mm electrode Assembly (C=0.05cm ⁻¹) with perfluoro-elastomer, for SC210G-A
K9208KA	Electrode Assembly (C=0.05cm ⁻¹) of gate valve type for SC210G-A
K9315NN	Electrode Assembly (C=0.05cm ⁻¹) of gate valve type with perfluoro-elastomer for SC210G-A
K9208JA	150mm electrode Assembly (C=5cm ⁻¹) for SC210G-B
K9208JB	500mm electrode Assembly (C=5cm ⁻¹) for SC210G-B
K9208JC	1000mm electrode Assembly (C=5cm ⁻¹) for SC210G-B
K9208JD	1500mm electrode Assembly (C=5cm ⁻¹) for SC210G-B
K9208JE	2000mm electrode Assembly (C=5cm ⁻¹) for SC210G-B
K9208JF	300mm electrode Assembly (C=5cm ⁻¹) for SC210G-B
K9315NG	150mm electrode Assembly (C=5cm ⁻¹) with perfluoro-elastomer, for SC210G-B
K9315NH	500mm electrode Assembly (C=5cm ⁻¹) with perfluoro-elastomer, for SC210G-B
K9315NJ	1000mm electrode Assembly (C=5cm ⁻¹) with perfluoro-elastomer, for SC210G-B
K9315NK	1500mm electrode Assembly (C=5cm ⁻¹) with perfluoro-elastomer, for SC210G-B
K9315NL	2000mm electrode Assembly (C=5cm ⁻¹) with perfluoro-elastomer, for SC210G-B
K9315NM	300mm electrode Assembly (C=5cm ⁻¹) with perfluoro-elastomer, for SC210G-B
K9208MA	Electrode Assembly (C=5cm ⁻¹) of gate valve type for SC210G-B
K9315NP	Electrode Assembly (C=5cm ⁻¹) of gate valve type with perfluoro-elastomer for SC210G-B
K9315QA	3m cable for SC210G (ring-shaped terminal)
K9315QB	5m cable for SC210G (ring-shaped terminal)
K9315QC	10m cable for SC210G (ring-shaped terminal)
K9315QF	15m cable for SC210G (ring-shaped terminal)
K9315QG	20m cable for SC210G (ring-shaped terminal)
K9315QR	3m cable for SC210G (pin terminal)
K9315QS	5m cable for SC210G (pin terminal)
K9315QT	10m cable for SC210G (pin terminal)
K9315QU	15m cable for SC210G (pin terminal)
K9315QV	20m cable for SC210G (pin terminal)
K9050AT	Viton O-ring (for screw-in type, flange type and flow-through type)
K9050MR	Viton O-ring (for gate valve type)
K9319RN	Perfluoro-elastomer O-ring (for all types)

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5. SC211G

Model	Suffix Code	Option Code	Description
SC211G	Conductivity detector
Measuring range	- C	.....	High range; cell constant: 10cm ⁻¹
Electrode type	- F	.....	4-electrode type
Construction *1 (Flow-through type)	- 312	.....	Rc1/2 , chamber material: PP
	- 313	.....	1/2NPT female, chamber material: PP
	- 314	.....	JIS 10K-15-FF flange, chamber material: PP
	- 315	.....	ANSI Class150-1/2-FF flange, chamber material: PP
Cable length	- 05	.....	5.5m (special cable attached to detector, Fork-shaped terminals)
	- 10	.....	10m (special cable attached to detector, Fork-shaped terminals)
	- 20	.....	20m (special cable attached to detector, Fork-shaped terminals)
Style code	*B	.....	Style B
Option		/PF /PS	Daielperfrow (perfluoro-elastomer) O-ring for Sensor holder SUS mounting hardware

*1: The model is not equipped with a mounting bracket, please place an order on the SC211G with the option code /PS .
The PP chamber can have cracks or splits unless it is not supported by a mounting hardware.

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Spare parts for SC211G

Parts No.	Description
K 9 2 0 8 B D	Four-electrode Sensor (C=10/cm)
K 9 3 1 5 Q D	5.5m Cable with fork terminals for SC211G
K 9 3 1 5 Q E	10m Cable with fork terminals for SC211G
K 9 3 1 5 Q H	20m Cable with fork terminals for SC211G
G 9 3 0 3 E B	O-ring

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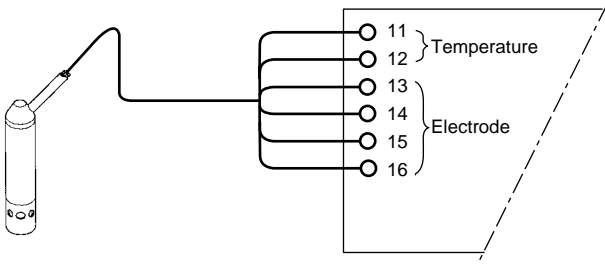
Applicable transmitter/converter with various detectors

Detector	SC4AJ	SC8SG		SC210G		SC211G
	Pin	Pin	Fork	Pin	Ring	Fork
Converter: SC100	Yes	N.A.		N.A.		N.A.
Transmitter: SC202G, SC202SJ	Yes	Yes	Yes (Note 1)	Yes	Yes (Note 1)	Yes (Note 1)
Converter: SC402G	Yes	Yes	N.A.	Yes	N.A.	N.A.

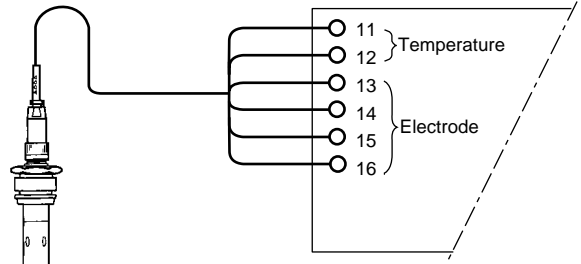
Note1: Applicable when option code /TB (screw terminal) specified for SC202G/SC202SJ.

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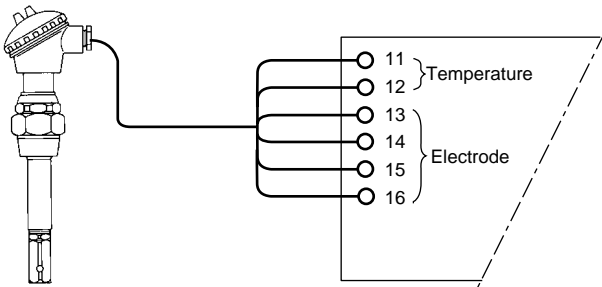
■ WIRING DIAGRAM



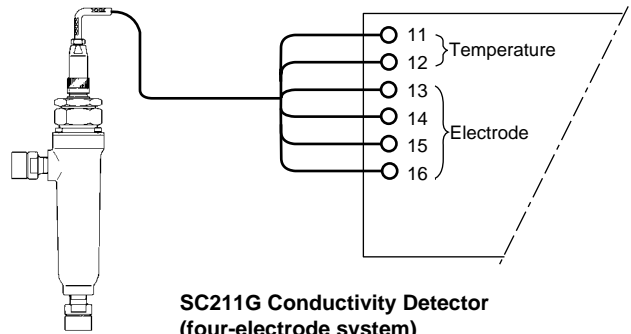
SC4AJ Conductivity Sensor
(two-electrode system)
Applicable Converter / Transmitter:
SC402G, SC202G, SC202SJ
For SC100, see GS12D11A01-01E.



SC8SG Conductivity Detector
(two-electrode system, four-electrode system)
Applicable Converter / Transmitter:
SC402G, SC202G, SC202SJ



SC210G Conductivity Detector
(two-electrode system)
Applicable Converter / Transmitter:
SC402G, SC202G, SC202SJ



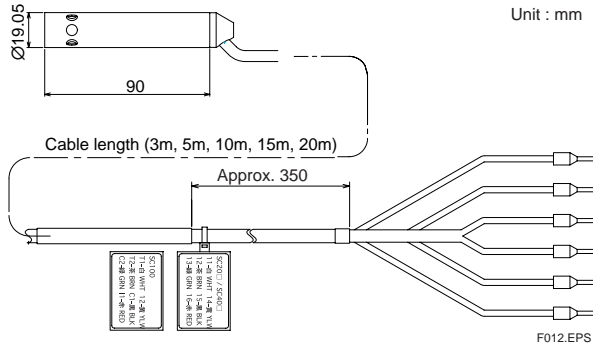
SC211G Conductivity Detector
(four-electrode system)
Applicable Transmitter:
SC202G, SC202SJ

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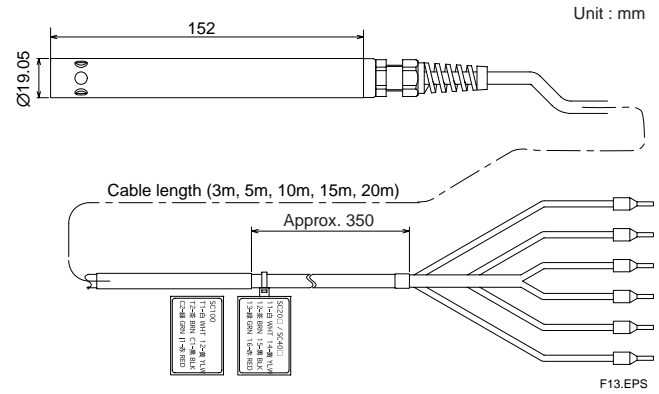
DIMENSIONS

1. SC4AJ

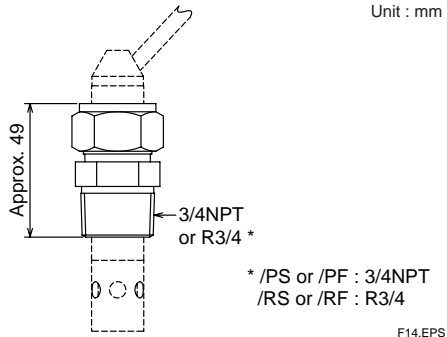
Sensor SC4AJ-□-AD-09



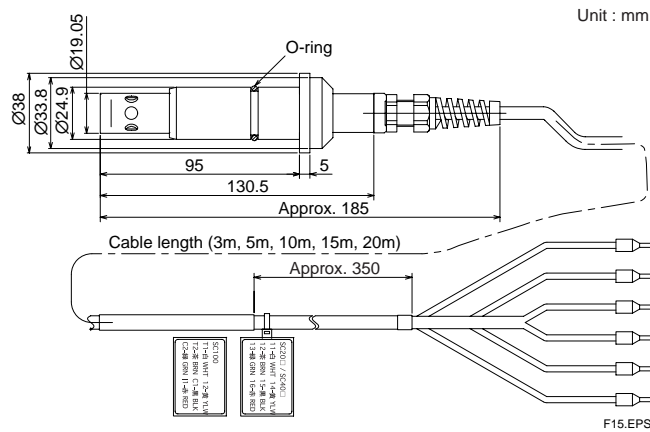
Sensor SC4AJ-□-AD-15



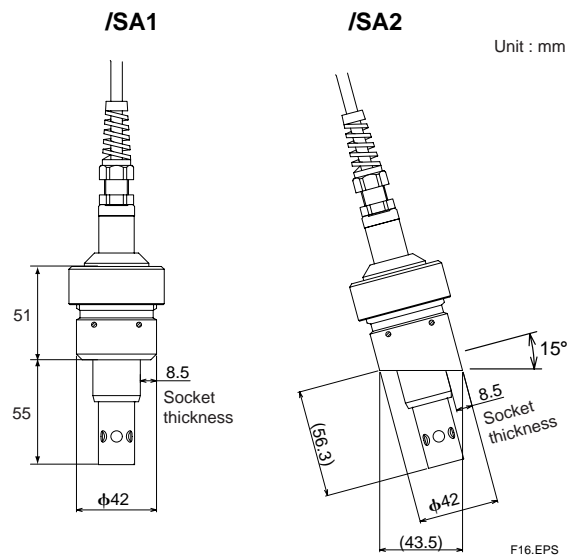
Option for adapter mounting type (-AD)



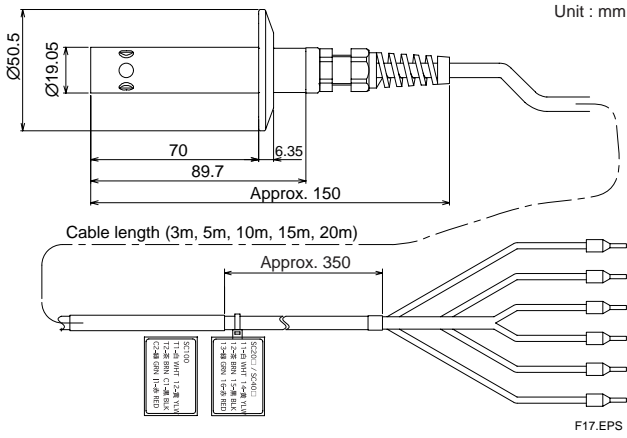
Sensor SC4AJ-S-SA-NN



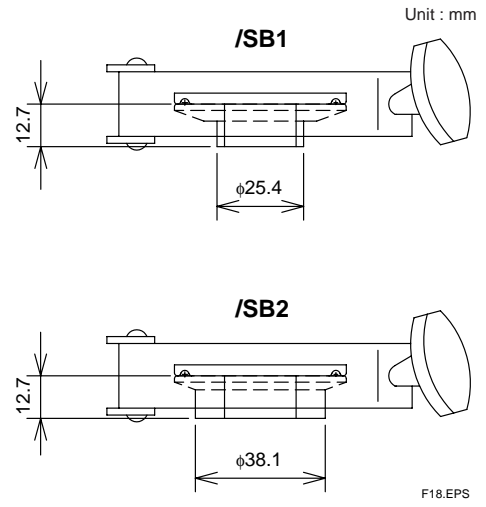
Option for welding socket type (-SA)



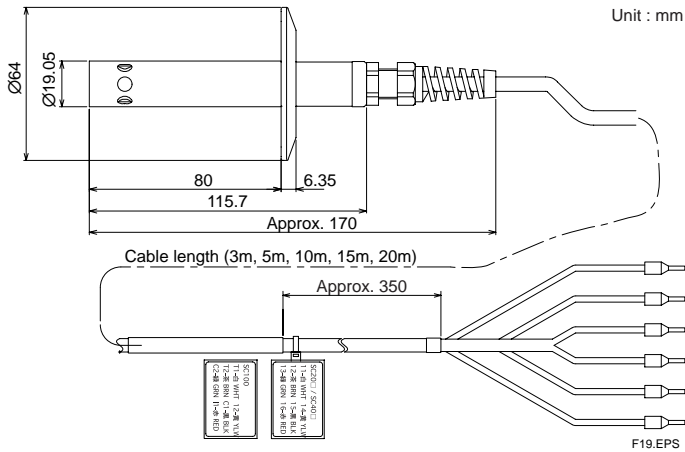
Sensor SC4AJ-S-SB-NN



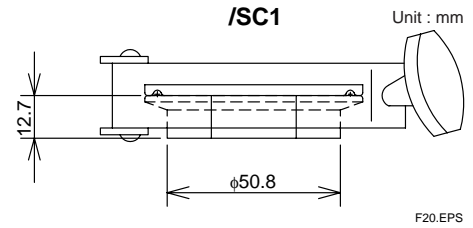
Option for 1 or 1.5 inch welding clamp type (-SB)



Sensor SC4AJ-S-SC-NN

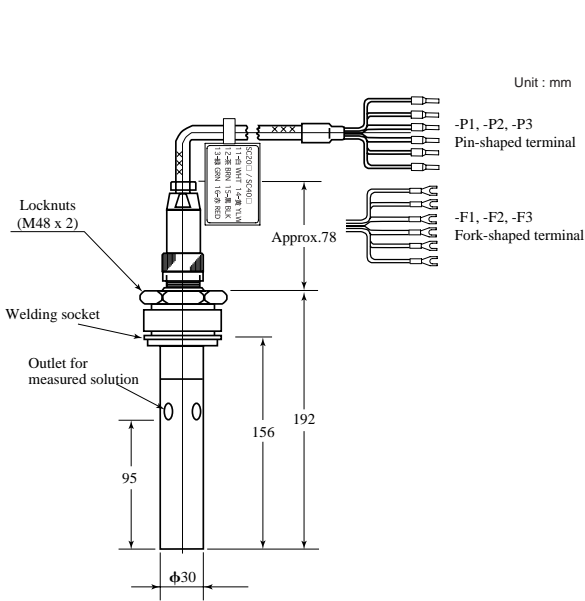


Option for welding clamp type (-SC)

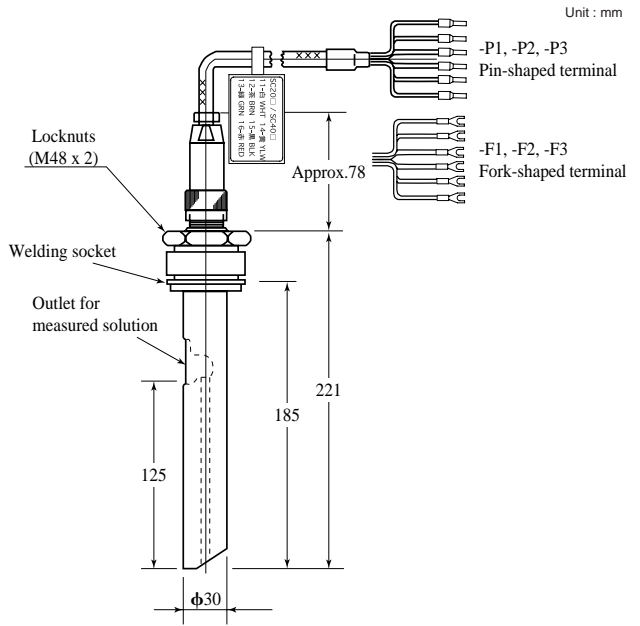


2. SC8SG

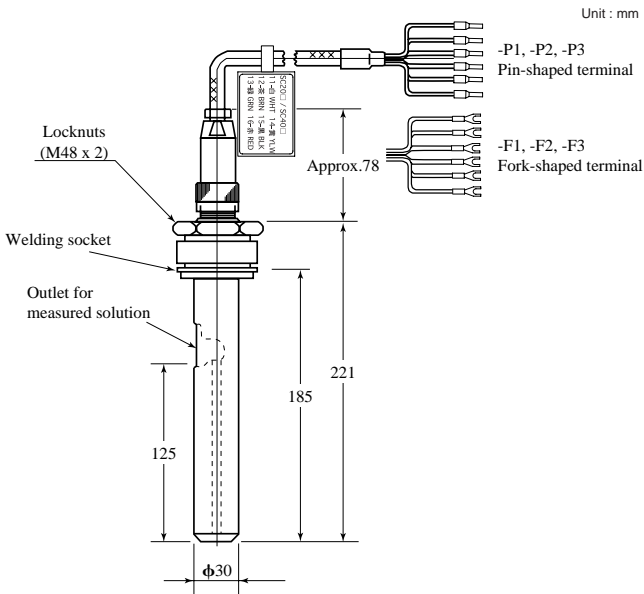
Screw-in Model (with welding socket)



Electrode with 0.01cm⁻¹ Cell constant
(two-electrode system)

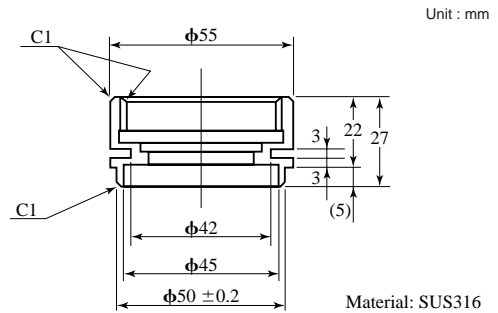


Electrode with 10 cm⁻¹ Cell constant
(two-electrode system)



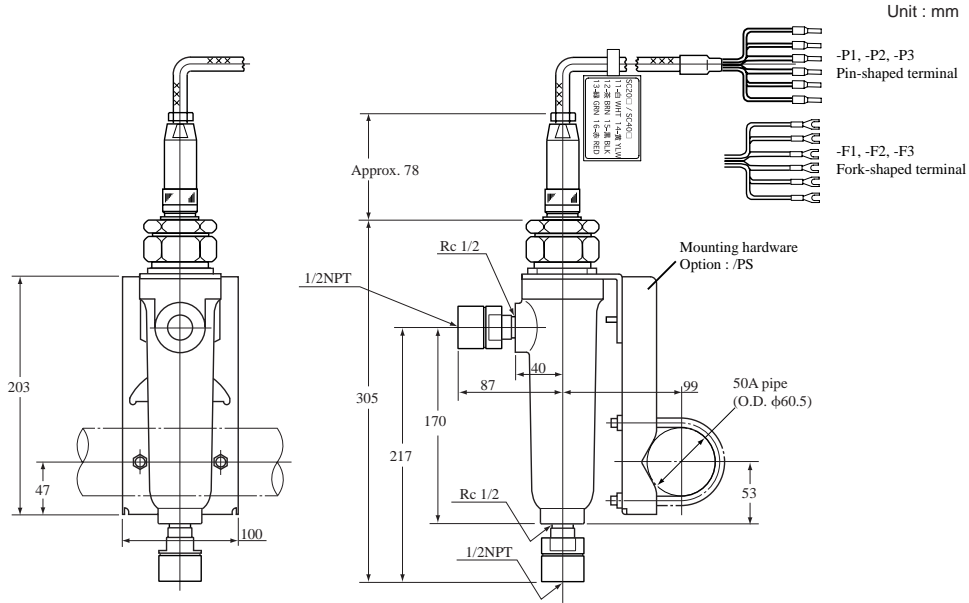
Electrode with 10 cm⁻¹ Cell constant
(Four-electrode system)

Welding socket for Screw-in type (K9208BK)

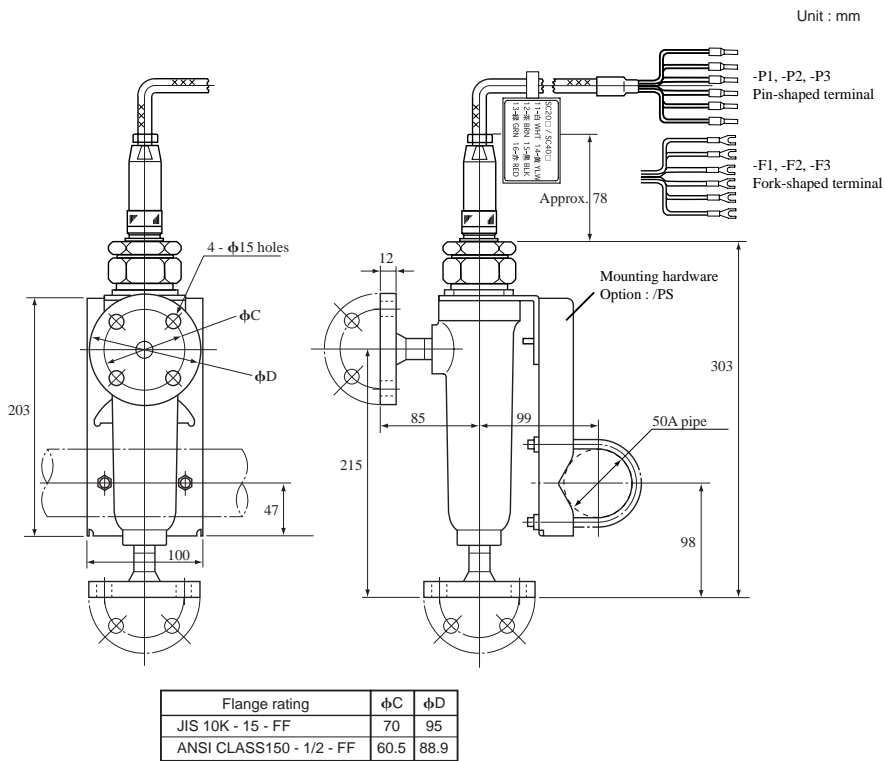


(Note) If you make the welding socket for screw-in type, refer to the above drawing.

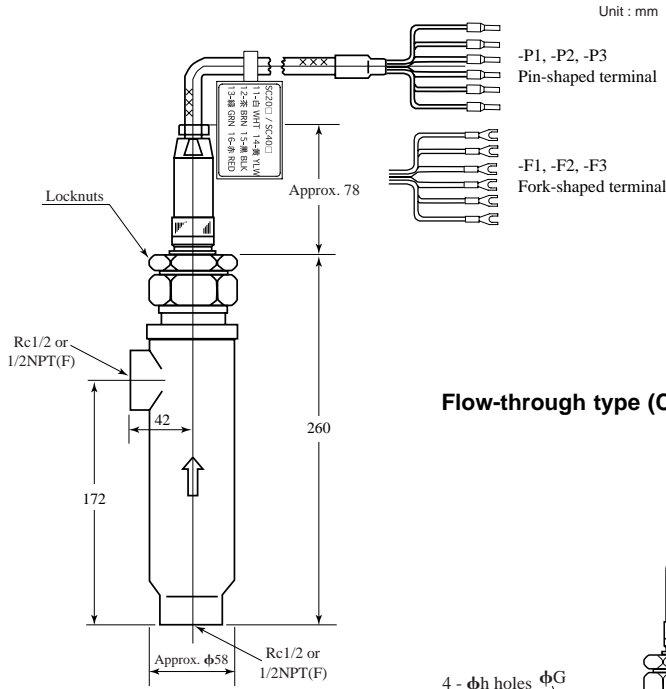
Flow-through type (Chamber Material: PP) + Mounting bracket (/PS) --Screw Jointed--



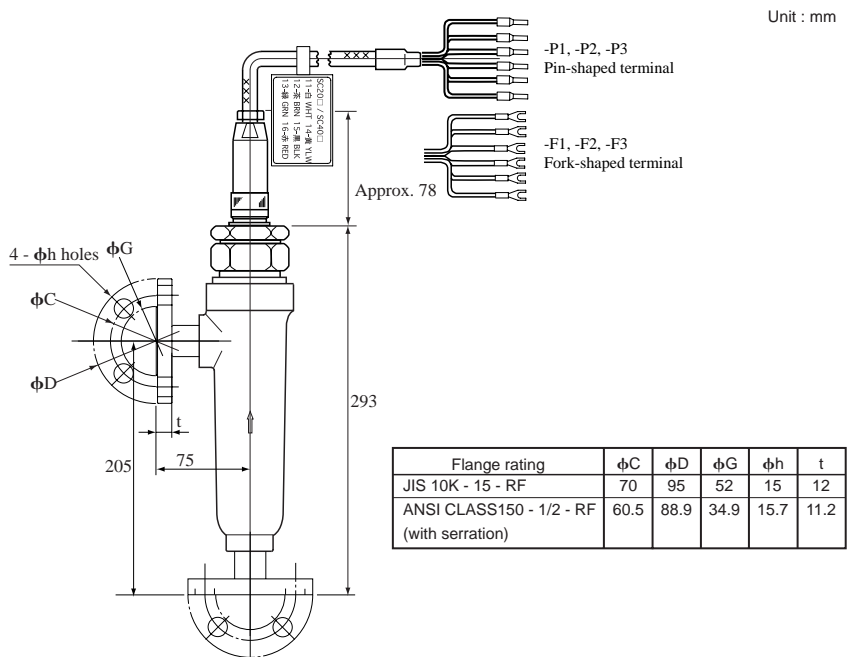
Flow-through type (Chamber Material: PP) + Mounting bracket (/PS) --Flange Jointed--



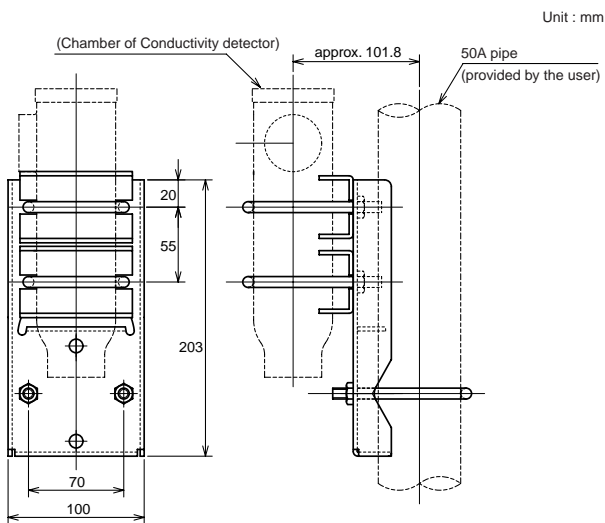
Flow-through type (Chamber Material: SCS14) --Screw Jointed--



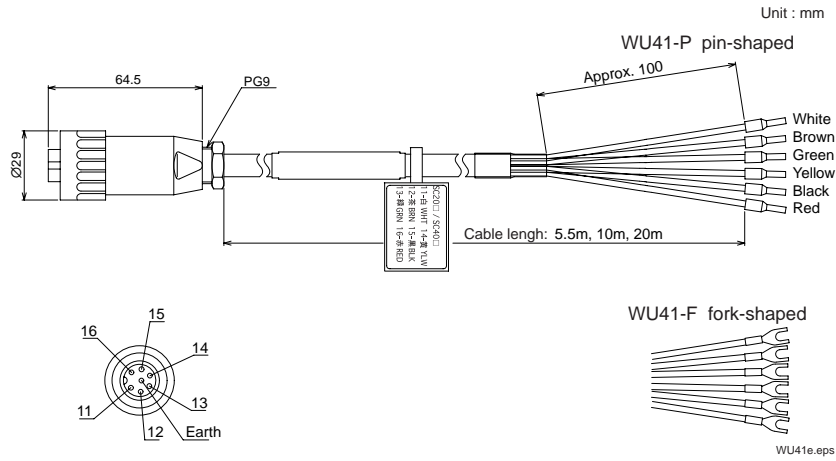
Flow-through type (Chamber Material: SCS14) --Flange Jointed--



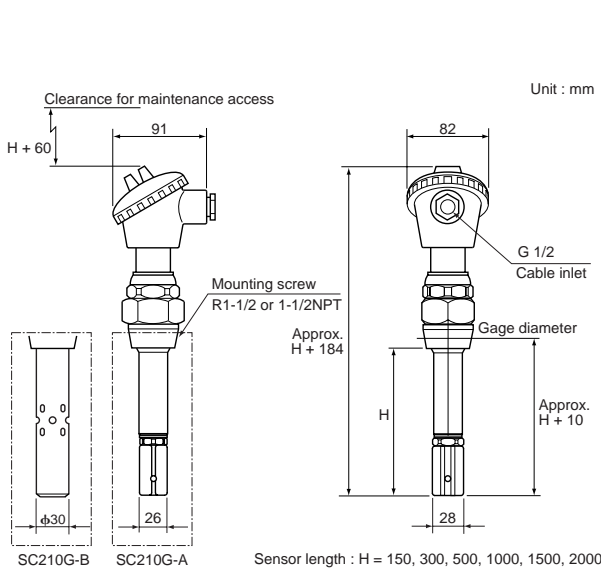
Mounting hardware for flow-through type SCS14 chamber (option: /SS)



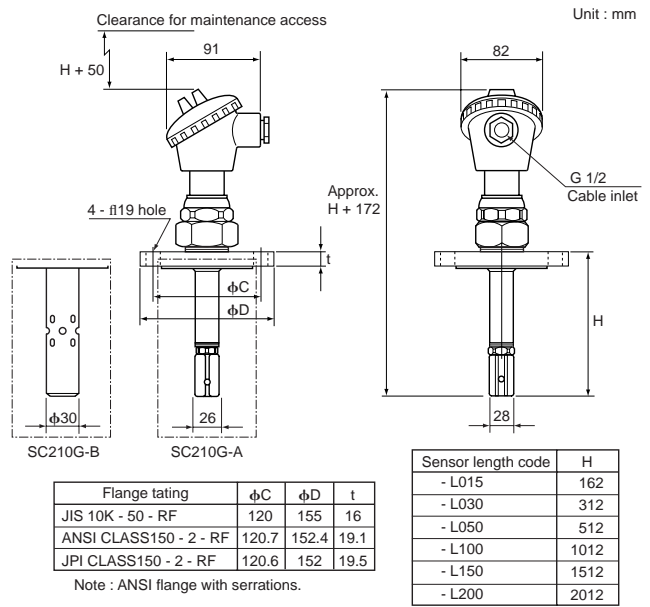
3. WU41 for SC8SG



4. SC210G
Screw-in Type

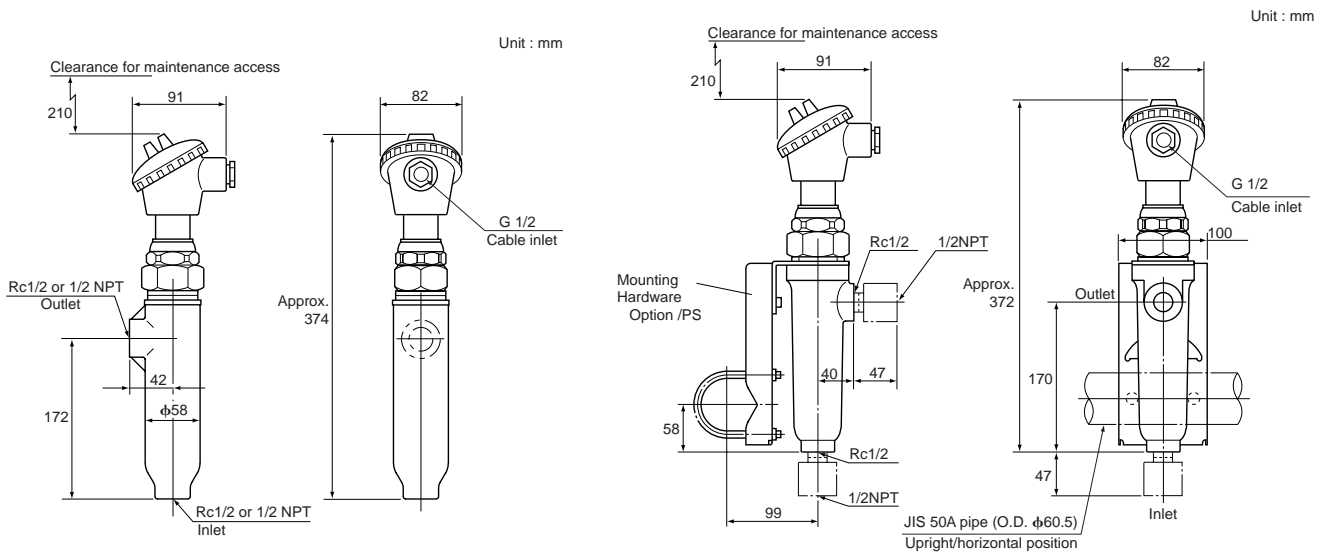


Flange Type

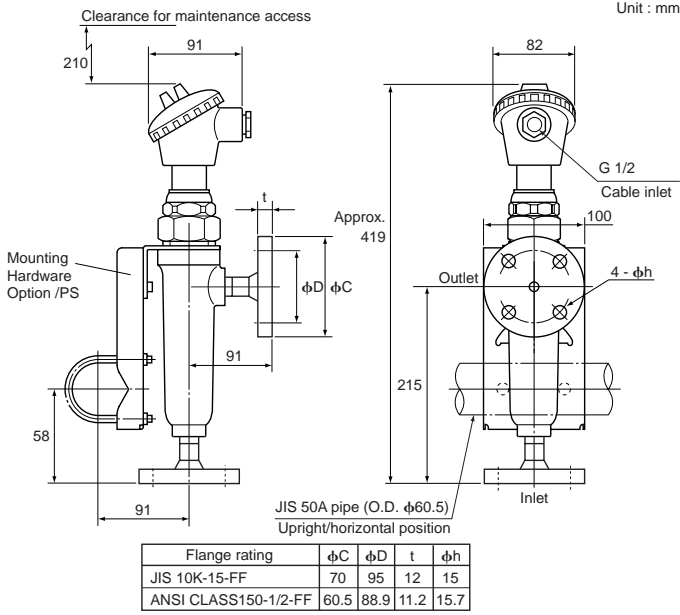


Flow-through Type
(screw connection, Chamber material: SCS14)

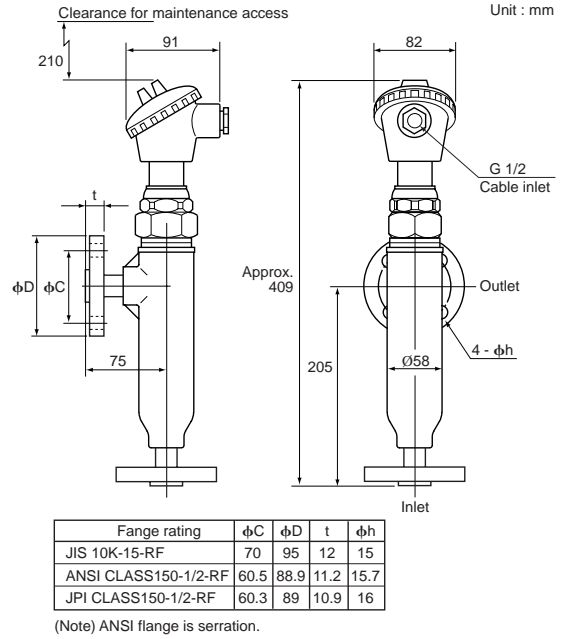
Flow-through type + Mounting hardware (/PS)
(screw connection, chamber material: polypropylene)



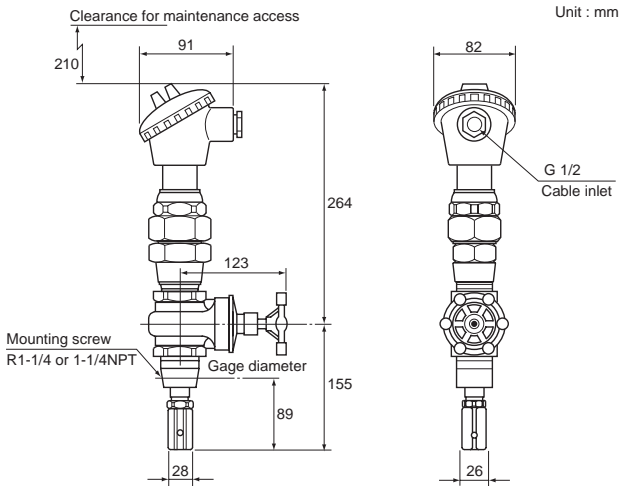
Flow-through type + Mounting hardware (PS)
 (screw connection, chamber material: polypropylene)



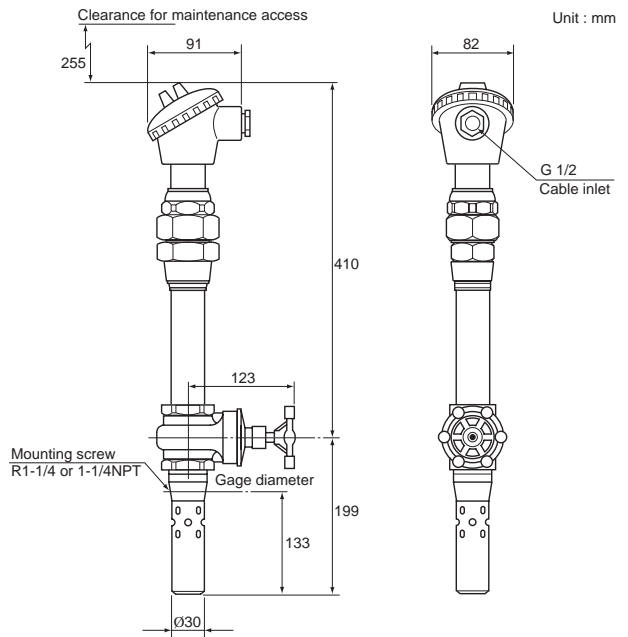
Flow-through type
 (screw connection, chamber material: SCS14)



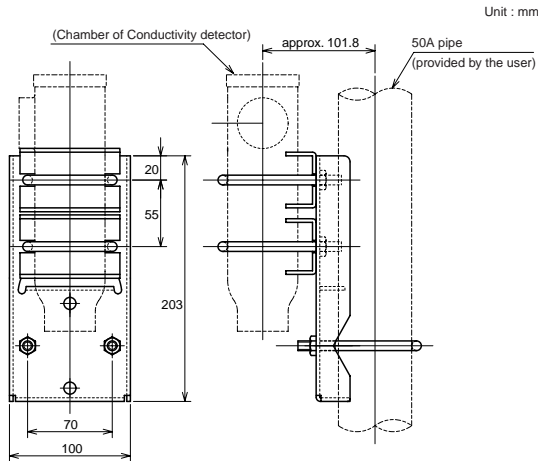
Screw-in type with gate valve
SC210G-A



SC210G-B

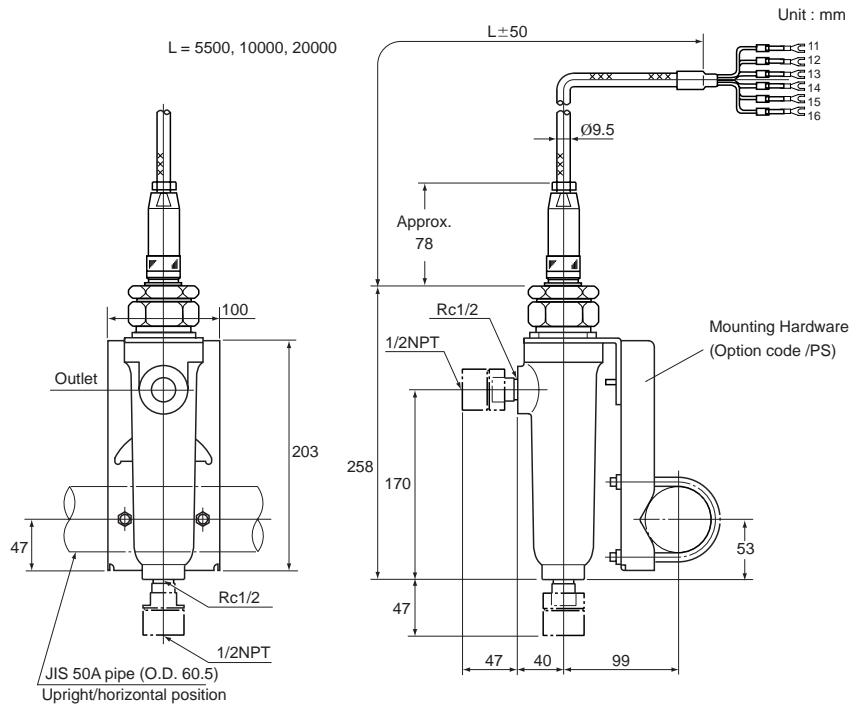


Mounting hardware for flow-through type SCS14 chamber
 (option: /SS)



5. SC211G

Flow-through Type + Mounting Hardware (/PS)
(screw connection, chamber material: Polypropylene)



Flow-through Type + Mounting Hardware (/PS)
(Flange connection, chamber material: Polypropylene)

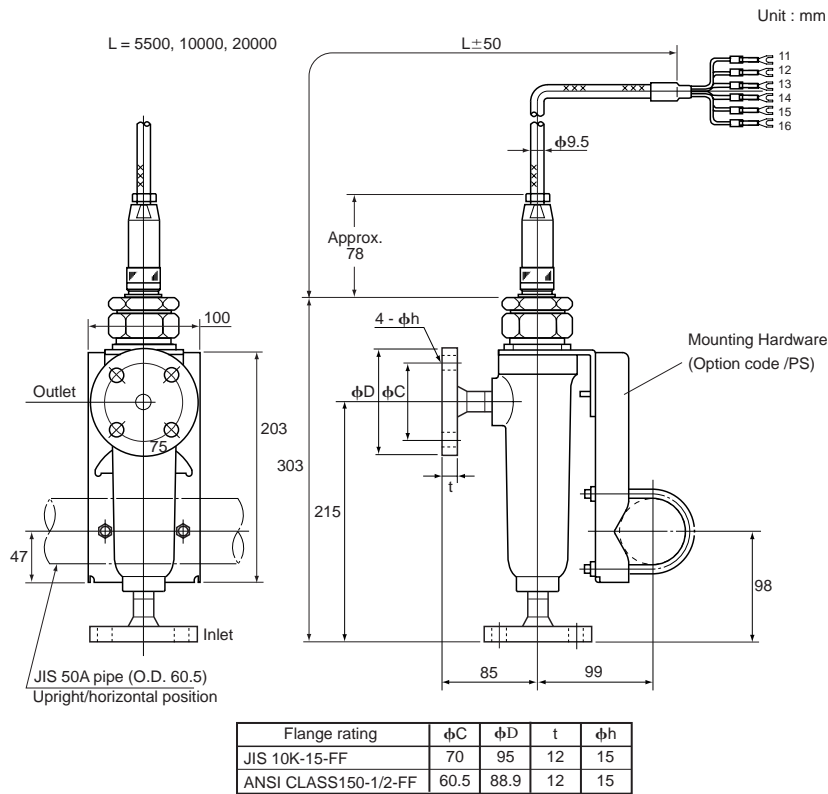


TABLE OF CORROSION-RESISTANT MATERIALS

Note: This table shows corrosion resistances against each specified chemical only. If two or more kinds of chemical are mixed in a sample, the properties may be different from those shown in this table.

- ◎ Very suitable
- Suitable
- △ Slightly unsuitable
- × Unusable


Example of Description
 Concentration Temperature Judgement
 % °C ◎

		Holder material			Electrode material				Seal O-ring material					
		Polypropylene		SUS316		Epoxy resin		PVDF		Viton				
Inorganic acids	Hydrochloric acid	5	20	◎	5	30	×	5	30	◎	Strong acid ◎ Weak acid ◎			
			80	◎				10	60	×				
	Hypochlorous acid	10	20	◎	14	30	×	15	30	×		20	40	◎
			40	○										
	Nitric acid	10	20	◎	10	30	◎	10	30	◎		10	100	○
		80	◎				25	60	×					
	Sulfuric acid	3	20	◎	5	30	◎	5	20	○	5	30	◎	
		3	100	◎	5	100	×	10	60	×	5	100	×	
	Phosphoric acid	30	60	◎	15	30	◎	5	30	◎	5	30	◎	
		30	100	△	5	b	◎	25	100	×	5	60	○	
Alkali	Ammonia water	15	80	◎	10	b	◎	10	b	◎	10	b	◎	Strong alkali × Weak alkali △
		15	100	○	28	65	◎	28	65	◎	28	65	◎	
	Caustic potash				10	b	◎	10	60	○	10	b	◎	
					25	b	◎	25	b	×	25	b	○	
	Caustic soda	20	80	◎	20	30	◎	20	60	◎	20	30	◎	
		20	100	◎	20	b	◎	20	b	×	20	b	◎	
	Potassium carbonate				5	b	◎	5	b	◎	5	b	◎	
					35	b	◎	35	b	○	35	b	○	
	Sodium carbonate	sat.	100	◎	25	b	◎	25	b	◎	25	b	◎	
Chlorides	Zinc chloride				20	b	△	20	60	○	20	b	◎	
	Aluminum chloride				25	25	×				10	b	◎	
					25	25	×				25	b	×	
	Ammonium chloride	35	40	◎	25	b	△	25	20	○	25	b	◎	
	Potassium chloride				sat.	60	◎	sat.	60	◎	sat.	60	◎	
	Calcium chloride	sat.	80	◎	25	b	○	25	b	◎	25	b	◎	
			sat.	100	◎									
	Ferric chloride	20	40	◎	30	b	×	30	60	○	30	b	◎	
		60	◎				100	×						
	Sodium chloride 20% + C12 (saturated) (Electrolyte)		100	◎		90	×		90	×		90	◎	
	Sea water		24	◎		24	△		60	○		24	◎	
Sulfates	Ammonium sulfate	5	60	◎	20	b	◎	20	b	◎	20	b	◎	
					sat.	30		sat.	30	○	sat.	30	◎	
	Potassium sulfate				10	b	◎	10	b	◎	10	b	◎	
	Sodium sulfate				20	b	◎	20	b	◎	20	b	◎	
Ni-trates	Ammonium nitrate	Good corrosion resistance against all salts normally used			20	b	◎	20	b	◎	20	b	◎	
	Sodium nitrate				50	b	◎	50	b	◎	50	b	◎	
Others	Sodium sulfite				20	b	◎				20	b	◎	
	Hydrogen peroxide				10	30	◎	10	30	◎	10	30	◎	
	Sodium hypochlorite	10	90	◎	2	60 to 90	×	2	60 to 90	×	15	30	◎	
			20	80	◎									
	Potassium bichromate				10	b	◎	10	20	○	10	b	◎	
	Alcohol	96	70	◎	100	b	◎	80	60	○	80	100	○	
	Acetic acid	100	70	◎	100	70	◎	10	60	○	10	100	○	
Phenol	100	20	◎	95	30	◎	100	20	×	100	20	○		
Aromatic solvent	100	20	×	100	25	◎	100	20	×	100		○		

(Note) b: Shows temperatures up to the boiling point. PVDF: Polyvinylidene difluoride

T09.eps

CAUTION



Select the material of wetted parts with careful consideration of process characteristics. Inappropriate selection may cause leakage of process fluids, which greatly affects facilities. Considerable care must be taken particularly in the case of strongly corrosive process fluid such as hydrochloric acid, sulfuric acid, hydrogen sulfide, and sodium hypochlorite. If you have any questions about the wetted part construction of the product, be sure to contact Yokogawa.

Conductivity Detectors/Sensors Inquiry Specifications

Thank you for inquiry about YOKOGAWA Conductivity Detector/Sensor. Please check (✓) the appropriate box (□) and write down the relevant information in the underlined blanks.

1. General Items

Name of your company: _____
 Person in charge : _____ Belongs to: _____ (Phone No.: _____)
 Name of plant : _____
 Measuring point : _____
 Purpose of use : Indication Record Alarm Control
 Power supply : _____ V AC, _____ Hz

2. Measuring Conditions

(1) Liquid temperature : _____ to _____, Normal _____ [°C]
 (2) Liquid pressure : _____ to _____, Normal _____ [kPa]
 (3) Flow rate : _____ to _____, Normal _____ [l/min.]
 (4) Flow speed : _____ to _____, Normal _____ [m/s]
 (5) Slurry or fouling components: No Yes
 (6) Name of measuring liquid : _____
 (7) Component of measuring liquid : _____
 (8) Others : _____

3. Installing Location

(1) Ambient temperature : _____
 (2) Installing location : Outdoors Indoors _____
 (3) Others : _____

4. Specification Requirements

(1) Measuring Range : _____
 (2) Transmission output : 4 to 20 mA DC 0 to 20 mA DC
 (3) Detector/Sensor : SC4AJ 2-electrode system (0.02 cm⁻¹) 2-electrode system (0.1 cm⁻¹)
 SC8SG 2-electrode system (0.01 cm⁻¹) 2-electrode system (10 cm⁻¹)
 4-electrode system (10 cm⁻¹)
 SC210G 2-electrode system (0.05 cm⁻¹) 2-electrode system (5 cm⁻¹)
 SC211G 4-electrode system (10 cm⁻¹)
 (4) Mounting type : SC4AJ Adapter mounting Welding socket Welding clamp
 SC8SG Screw-in Flow-through
 SC210G Screw-in Flange Flow-through
 Screw-in with gate valve
 SC211G Flow-through
 (5) Cable length : SC4AJ 3 m 5 m 10 m 15 m 20 m
 SC8SG 5.5 m 10 m 20 m
 SC210G 3 m 5 m 10 m 15 m 20 m
 SC211G 5.5 m 10 m 20 m
 (6) Dedicated cable for SC8SG : WU41 5.5 m 10 m 20 m
 (7) Others : _____