

# General Specifications

## Model SC4A Conductivity Sensors and Fittings for 2-electrode Systems

### Insertion Sensors

Stainless steel or Titanium 2-electrode sensors with cell constants of 0.02 cm<sup>-1</sup>, 0.10 cm<sup>-1</sup>, and fixed cables 3 to 20 meters in length.

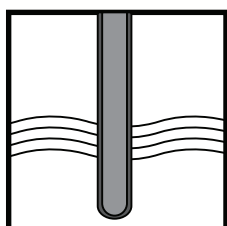
Intended for the low conductivity applications found in the semi-conductor, power, water and pharmaceutical industries, these sensors are designed in a convenient compact style. There are several mounting possibilities, including a compression gland, giving a simple effective method of direct insertion in process pipework. The sensors are made from a combination of wetted materials approved by FDA. This makes them ideally suited for the monitoring of pure water systems used in the preparation of injectable solutions. For this kind of application, sanitary clamp mountings are most often used. As with all Yokogawa conductivity sensors, the cell constants are individually calibrated in our laboratories using an ASTM method traceable to NIST international standards.

### Features

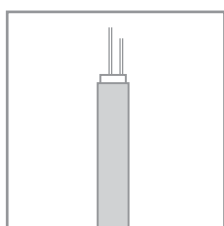
- Precise individually calibrated cell constant.
- Fast temperature response.
- Built-in Pt1000 temperature sensor.
- Fixed cable length 3, 5, 10, 15 or 20 mtr.
- Direct process insertion.
- Wide range of mountings.
- Compatible with PR4A retractably assembly.
- The sensor is polished to meet pharmaceutical requirements.



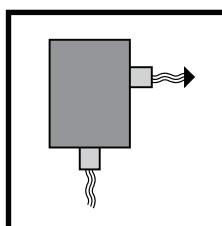
### System Configuration



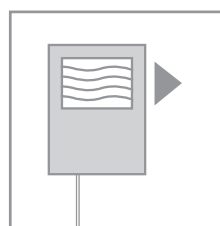
Sensors



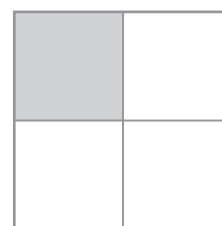
Cables



Fittings



Transmitters



Accessories

**Specifications SC4A-AD**

**General Specifications - Materials - Wetted Parts**

- Body & electrodes : Stainless steel AISI 316  
or Titanium grade 2 or 3
- O-ring : EPDM FDA
- Mounting adapter : PVDF or Stainless steel AISI 316
- Insulation : PEEK (Poly Ether Ether Ketone)
- Surface Roughness : 0.8µm (R432)

**Operating Specifications (Sensor)**

- Measuring system : 2-electrode (4-wire)
- Maximum pressure : 10 bar (142 PSIG)
- Maximum temperature: 110°C (230 °F)
- Temperature response: < 1 minute for 90% of a step change
- Sterilize : At 135°C (275 °F)

**Shipping details**

- Package size : wxhxd 220 x 220 x 90 cm  
wxhxd 215 x 150 x 55 cm
- Package weight : Approx. 1.6 kg. 3.5 lb

| Model                 | Suffix | Option | Description                     |
|-----------------------|--------|--------|---------------------------------|
| SC4A*                 |        |        | 19 mm conductivity sensor       |
| -T                    |        |        | Titanium                        |
| -S                    |        |        | Stainless steel (EHEDG model)   |
| Fitting-type          | -AD    |        | For adapter mounting            |
| Sensor length         | -09    |        | 9 cm                            |
|                       | -15    |        | 15 cm                           |
| Cellconstant          | -002   |        | 0.02/cm                         |
| -010                  |        | 0.1/cm |                                 |
| Cable length          | -03    |        | 3 mtr                           |
| -05                   |        | 5 mtr  |                                 |
| -10                   |        | 10 mtr |                                 |
| -15                   |        | 15 mtr |                                 |
| -20                   |        | 20 mtr |                                 |
|                       | -T1    |        | Pt1000                          |
| AD only               | /PS    |        | 3/4"NPT Stainless Steel adapter |
|                       | /PF    |        | 3/4"NPT PVDF adapter            |
| (option /PS required) | /FF    |        | Stainless Steel flow fitting    |
| Certificates          | /Q     |        | Quality Inspection Certificate  |

\* 3.1 Material certificate according to EN 10024 is standard delivered with this sensor.

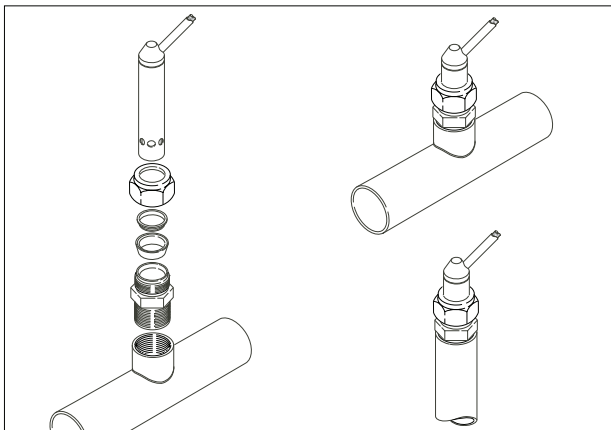
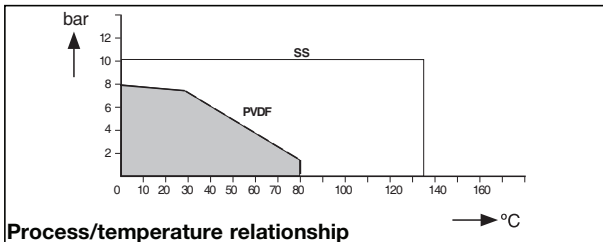


Figure 1. Mounted sensor with the option /PS and /PF

GS 12D7J4-01E-E

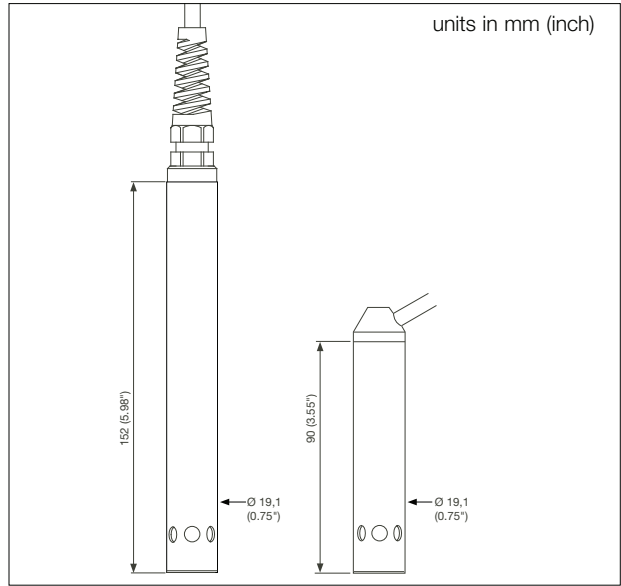


Figure 2. SC4A-AD-15 SC4A-AD-09

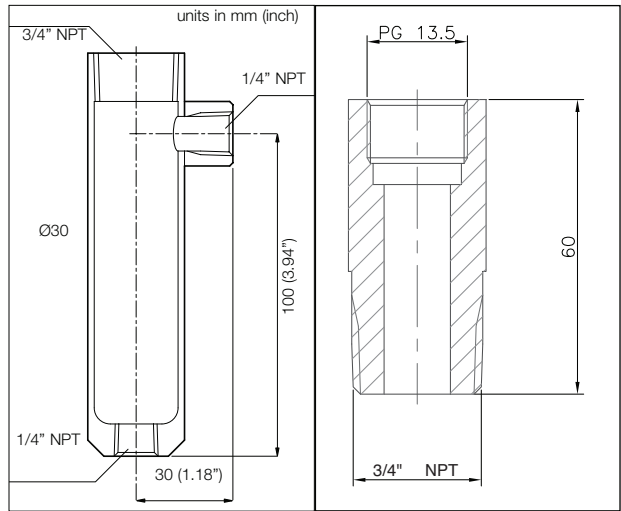


Figure 3. Flow fitting (SS) option /FF K1598 AC (incl. 3.1 B certificate)

Figure 4. Adapter K1598JB (noryl) or K1523JD (SS) to fit sensors with PG13,5 process connection in K1598AC flow fitting

## Specifications SC4A-SA/SB/SC

### General Specifications

The SC4A-E is a FDA approved conductivity sensor with full traceability and supporting documents.

- EPDM O-ring (21 CFR 177.2600)
- SS is 1.4435
- Double O-ring construction (EPDM 21 CFR 177.2450)
- Virgin PEEK isolator (21 CFR 177.2415)
- Surface roughness Ra < 0.4µm (R416)
- Meets EHEDGE/AAA specifications
- 2% accuracy for the Cell constant
- Batch certificate downloadable from Yokogawa website

### Materials

#### Wetted Parts

|                   |   |
|-------------------|---|
| Body & electrodes | : Stainless steel AISI 316I (1.4435)  |
| O-ring            | : EPDM, FDA migration tested<br>21 CFR 177.2600                             |
| Mounting adapter  | : Stainless steel AISI 316I Tri-clamp<br>according to ISO 2852-1993         |
| Insulation        | : PEEK (Poly Ether Ether Ketone)<br>FDA migration tested 21 CFR<br>177.2415 |
| Surface Roughness | : 0.5µm   |

#### Operating Specifications (Sensor)

|                      |                                       |
|----------------------|---------------------------------------|
| Measuring system     | : 2-electrode, 4-wire                 |
| Maximum pressure     | : 10 bar (142 PSIG)                   |
| Maximum temperature  | : 110°C (230 °F)                      |
| Temperature response | : < 1 minute for 90% of a step change |
| Sterilize            | : At 135°C (275 °F)                   |

#### Operating Specifications options /SB1, /SB2, /SA1, /SA2, /SC1

|                     |                     |
|---------------------|---------------------|
| Stainless Steel     |                     |
| Maximum pressure    | : 10 bar (142 gpsi) |
| Maximum temperature | : 135°C (275°F)     |

| Model Code   | Suffix code | Option | Description                    |
|--------------|-------------|--------|--------------------------------|
| SC4A         |             |        | 19 mm conductivity sensor      |
|              | -E          |        | EPDM FDA                       |
| Fitting-type | -SA         |        | 25mm port                      |
|              | -SB         |        | 1-1 1/2" tri-clamp (ISO 2852)  |
|              | -SC         |        | 2" tri-clamp (ISO 2852)        |
| Always       | -NN         |        | fixed length                   |
| Cellconstant | -002        |        | 0.02/cm                        |
|              | -010        |        | 0.1/cm                         |
| Cable length | -03         |        | 3 meter                        |
|              | -05         |        | 5 meter                        |
|              | -10         |        | 10 meter                       |
|              | -15         |        | 15 meter                       |
|              | -20         |        | 20 meter                       |
| SA only      | /SA1        |        | Straight welding socket        |
|              | /SA2        |        | Angle welding socket 15°       |
| SB only      | /SB1        |        | tri-clamp 1"                   |
|              | /SB2        |        | tri-clamp 1 1/2"               |
| SC only      | /SC1        |        | tri-clamp 2"                   |
|              | -T1         |        | Pt1000                         |
| Certificates |             | /Q     | Quality Inspection Certificate |

\* 3.1 Material certificate according to EN 10024 is standard delivered with this sensor.

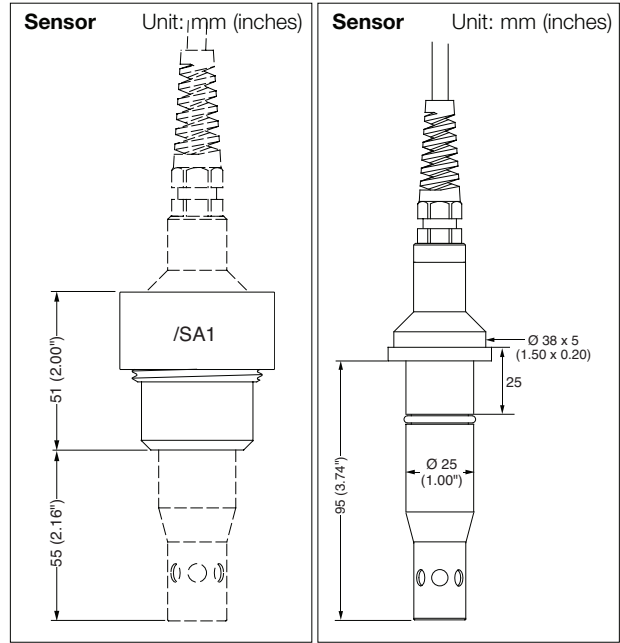


Figure 6. Option /SA1

Figure 7. Sensor SC4A-SA

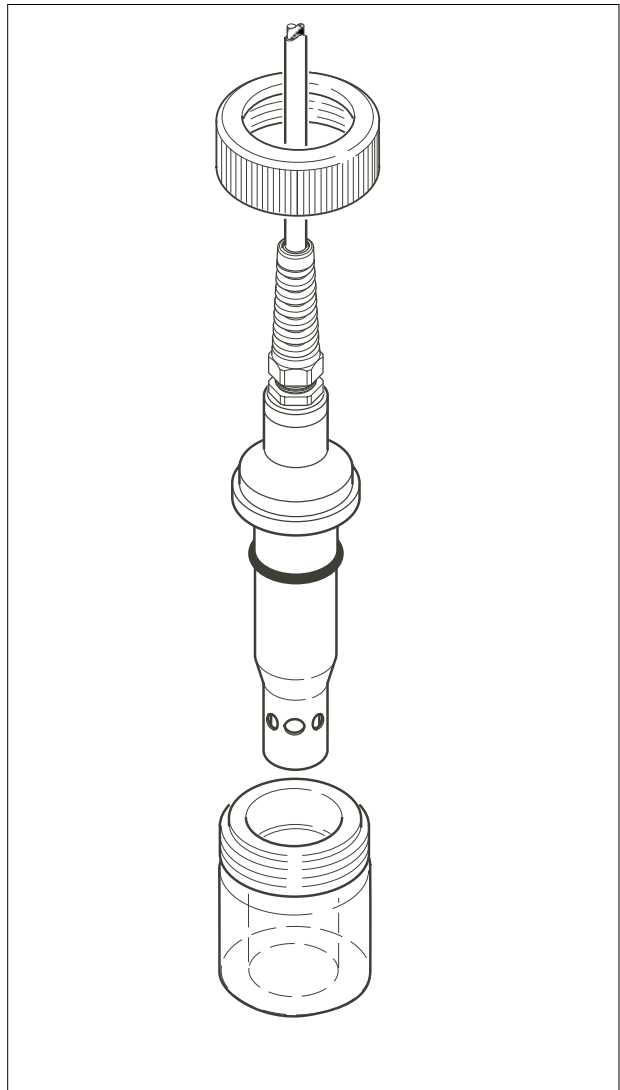


Figure 8. Mounted Sensor SC4A -SA

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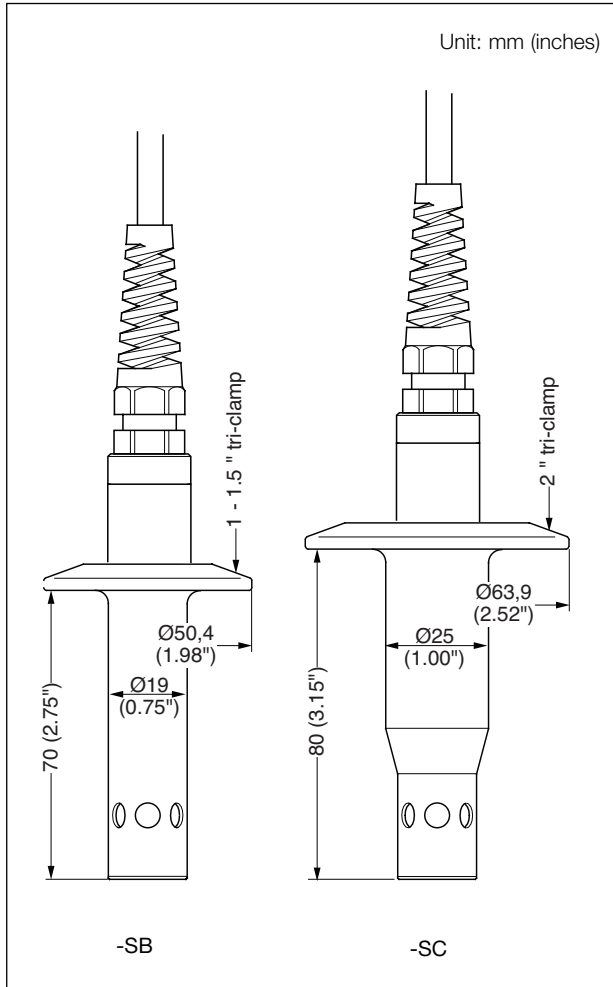


Figure 9. Sensor SC4A

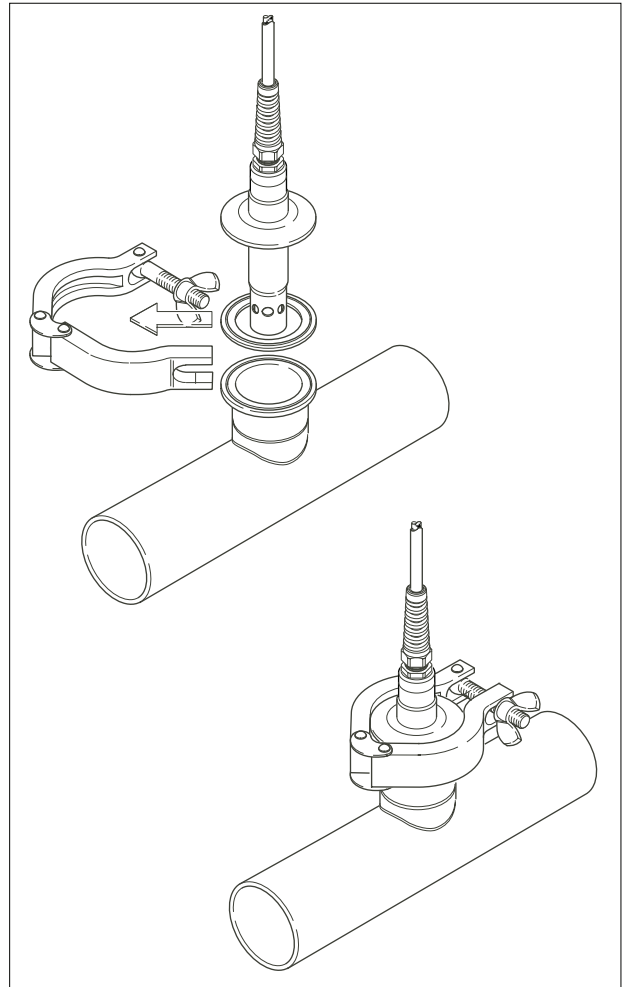


Figure 11. Mounting example

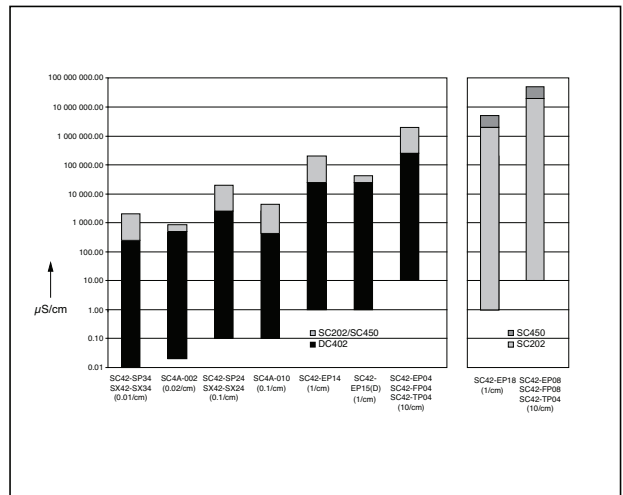


Figure 12. Suitable application area

## Specifications SC4A-PR

### General Specifications

#### Materials

#### Wetted Parts

- Body & electrodes : Stainless steel AISI 316  
or Titanium grade 2 or 3
- O-ring : Viton
- Mounting adapter : Retractable fitting
- Insulations : PEEK (Poly Ether Ether Ketone)

#### Operating Specifications (Sensor)

- Measuring system : 2-electrode
- Maximum pressure : 10 bar (142 PSig)
- Maximum temperature: 110°C (230 °F)
- Temperature response: < 1 minute for 90% of a step change
- Sterilize : At 135°C (275 °F)
- Surface Roughness : 0.8µm (R432)

#### Shipping details

- Package size : wxhxd 220 x 220 x 90 cm  
wxhxd 215 x 150 x 55 cm
- Package weight : Approx. 1.6 kg. 3.5 lb

| Model Code   | Suffix code | Option | Description                    |
|--------------|-------------|--------|--------------------------------|
| SC4A*        |             |        | 19 mm conductivity sensor      |
|              | -T          |        | Titanium                       |
|              | -S          |        | Stainless steel                |
| Fitting-type | -PR         |        | For retractable mounting       |
| Always       | -NN         |        | fixed length                   |
| Cellconstant | -002        |        | 0.02/cm                        |
|              | -010        |        | 0.1/cm                         |
| Cable length | -03         |        | 3 meter                        |
|              | -05         |        | 5 meter                        |
|              | -10         |        | 10 meter                       |
|              | -15         |        | 15 meter                       |
|              | -20         |        | 20 meter                       |
|              | -T1         |        | Pt1000                         |
| Certificates |             | /Q*    | Quality Inspection Certificate |

\* 3.1 Material certificate according to EN 10024 is standard delivered with this sensor.

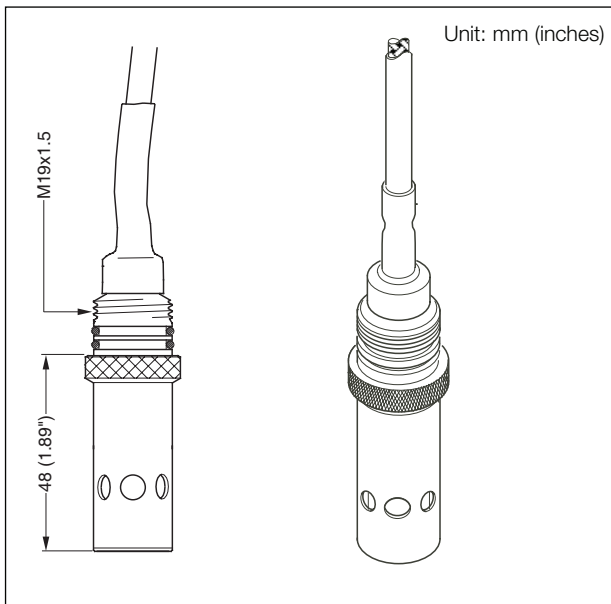


Figure 13. SC4A -PR

### Spare Parts SC4A

| Part no.                        | Description   |
|---------------------------------|---|
| <b>SC4A-S- AD and SC4A-T-AD</b> |   |
| K1542DF                         | Compression fitting in Stainless Steel (/PS)  |
| K1500DY                         | Ferrule set for K1542DF   |
| K1542CW                         | 3/4" npt adapter PVDF   |
| K1598AC                         | Flowfitting with 3.1 material certificate   |
| <b>SC4A-E-SA</b>                |   |
| K1542FA                         | Straight welding socket and mounting nut SS   |
| K1500BJ                         | O-rings in EPDM (5), FDA migration tested   |
| <b>SC4A-E-SB</b>                |   |
| K1542FC                         | Tri-Clamp mounting set for 1" triclamp (welding socket, sealing gasket and clamp ring) (/SB1)   |
| K1500HN                         | Sealing gasket in EPDM for K1542FC (3), FDA migration tested                                    |
| K1542FF                         | Tri-Clamp mounting set for 1,5" triclamp (welding socket, sealing gasket and clamp ring) (/SB2) |
| K1500BN                         | Sealing gasket in EPDM for K1542FF (3), FDA migration tested                                    |
| <b>SC4A-E-SC</b>                |   |
| K1542FE                         | Tri-Clamp mounting set for 2" triclamp (welding socket, sealing gasket and clamp ring) (/SC1)   |
| K1500BP                         | Sealing gasket in EPDM for K1542FE (3), FDA migration tested                                    |
| <b>SC4A-T-PR and SC4A-S-PR</b>  |   |
| K1500BE                         | O-rings in Viton (10)   |
| K1500ED                         | O-rings in Kalrez (2)   |

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