

# General Specifications

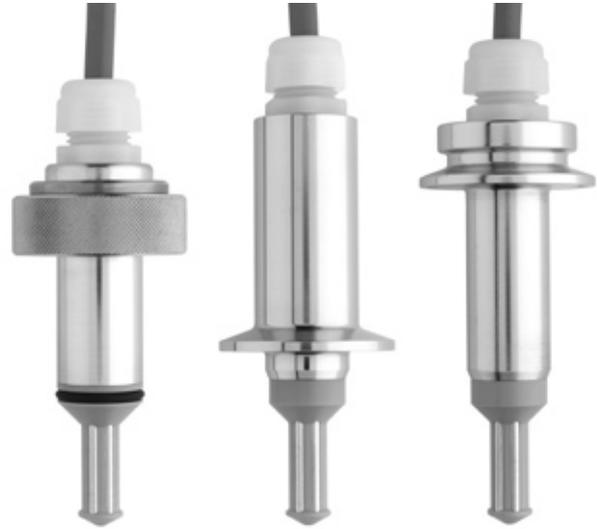
## Hamilton Conductivity Sensors for biotech and pharmaceutical industry

Yokogawa's SC450G and SC202G(S) have proven to work very well over a wide range of conductivity values with suitable 4-electrode sensors. The Hamilton CONDUCELL 4US sensors for Triclover and INGOLD process connections has often been successfully used where the access port is too narrow for the Inductive Sensors.

Now Hamilton has released the CONDUCELL 4USF-PG-120 sensor, which is made of PEEK and fits in a simple PG13,5 process connection. The electrical connection is a VARIOPIN and it is a welcome addition to the program.

These sensors have been designed to measure accurately over an extremely wide conductivity range. They are ideal for the pharmaceutical, food and beverage industries where it is necessary to monitor product and cleaning chemicals within the same process stream.

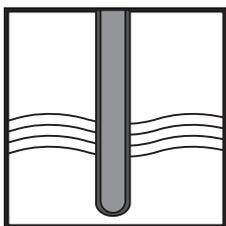
Because of the sanitary requirements in these industries these sensors are suitable for steam sterilisation and CIP cleaning. In addition to that all wetted parts are electro-polished and the materials used are approved by the FDA



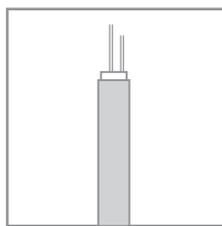
### FEATURES

- Range 0 to 1 S/cm
- Open easy to clean cell geometry
- Surface roughness <N5 (0.4micron)
- Suitable for steam sterilisation & CIP
- Maximum pressure 6 bar G
- Temperature range -20 to 135°C
- Integrated PT1000
- Wetted parts to FDA DIN 1.4435 SS PEEK & EPDM
- VP connector in 4USF model

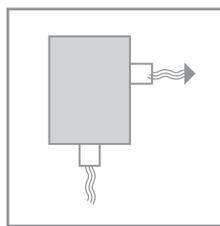
### System Configuration



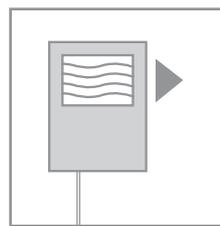
Sensors



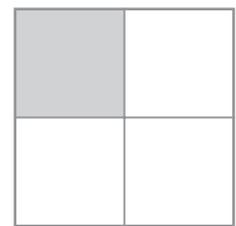
Cables



Fittings



Transmitters



Accessories

### Conducell 4US

These 4-pole conductivity sensors are especially suited for applications with large variations in conductivity. These sensors have been tested extensively and they have a very good linearity over a wide range.

The Conducell 4US is available with a tri-clover and a 25mm port-size process connection. It can be installed without any further need for a fitting.

The Conducell 4USF has a diameter of only 12 mm so it can be inserted in many standard armatures.

### Features

- Suitable for steam sterilization, autoclaving and CIP
- Sanitary: surface quality is N5 (0.4mm) and electro-polished
- All wetted parts are FDA compliant

### General Specifications 4US

#### Wetted Parts

|                     |               |
|---------------------|---------------|
| Body and electrodes | DIN 1.4435 SS |
| Insulators          | PEEK          |
| O-ring              | EPDM          |

#### Operating Specifications

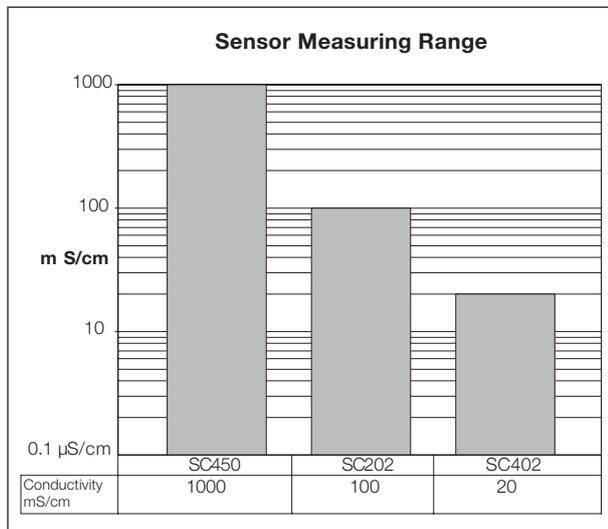
|                   |                          |
|-------------------|--------------------------|
| Measuring systems | 4 electrode              |
| Measuring range   | 0.1 micro S/cm to 1 S/cm |
| Temperature range | -20 to 135°C             |
| Maximum pressure  | 6 bar @ 135°C            |

#### Physical Specifications

|                |                                 |
|----------------|---------------------------------|
| Surface finish | Electro polished N5 (0.4micron) |
| Cable length   | 5m                              |



| Part No.  | Description   |
|-----------|---|
| 10/237600 | CONDUCELL 2UP-PG-120                                    |
| 10/237700 | CONDUCELL 4US-G125-62/25                                |
| 10/237750 | CONDUCELL 4US-T150-50                                   |
| 10/237760 | CONDUCELL 4US-T150-100                                  |
| 10/237620 | CONDUCELL 4USF-PG-120<br>(4 stainless steel electrodes) |
| 10/237627 | CONDUCELL 4UHF-PG-120<br>(4 Hastelloy C electrodes)     |



GS 12D7J5-E-E

### General Specifications 4USF

#### Wetted Parts

|                     |               |
|---------------------|---------------|
| Body and electrodes | DIN 1.4435 SS |
| Insulators          | PEEK          |
| O-ring              | EPDM          |

#### Operating Specifications

|                   |                                 |
|-------------------|---------------------------------|
| Measuring systems | 4 electrode                     |
| Measuring range   | 0.1 micro S/cm to 1 S/cm        |
| Temperature range | -20 to 150°C                    |
| Maximum pressure  | 10 bar @ 150°C / 20 bar @ 135°C |

#### Physical Specifications

|                |                                 |
|----------------|---------------------------------|
| Surface finish | Electro polished N5 (0.4micron) |
|----------------|---------------------------------|



### General Specifications 4USF-VV, -4USF-BC, -4USF-AF 200, -4USF-DF 80

Description same as CONDUCELL 4USF-PG, but there are different process connctions:

- VV - Tuchenhagen Varivent DN50/60
- BC - Neumo Bioconnect
- AF 200 - ANSI flange 2.00"
- DF 80 - DIN flange DN 80mm

#### Example: 4US-G125-62/25

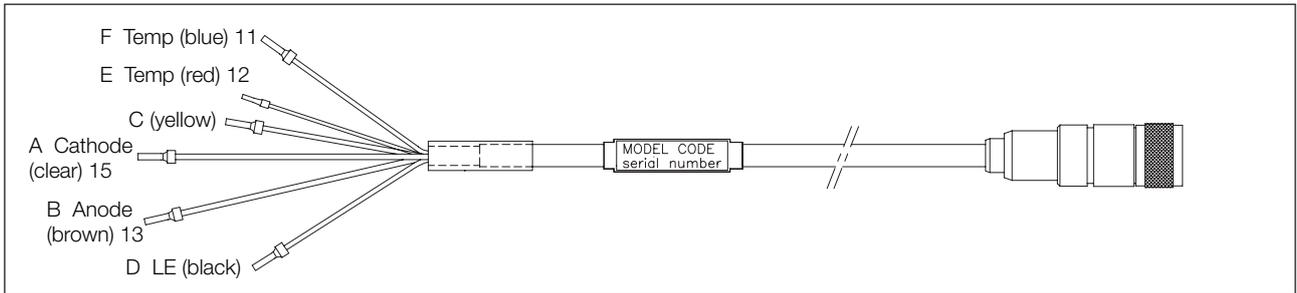
- 4: 4-Pole
- U: Undefined/open field
- S: Stainless steel;
- H: Hastelloy C;
- T: Titanium;
- P: Pt Electrodes
- F: Flat electrode arrangement for easy cleaning
- G125: G1.25";
- T150: Triclamp 1.5" connection;
- PG: PG13.5
- 62: 62 mm shaft length
- /25: (optional) O-ring, seals at 25 mm

| Value at 25°C | Accuracy | Stability [Months] | Certified by | Package                 | Order No. |
|---------------|----------|--------------------|--------------|-------------------------|-----------|
| 1.3 µS/cm     | ± 1      | %12                | DFM          | Glass bottle 300 mL     | 238 973   |
| 5 µS/cm       | ± 1      | %36                | DFM          | Glass bottle 300 mL     | 238 926   |
| 15 µS/cm      | ± 1      | %36                | DFM          | Glass bottle 300 mL     | 238 927   |
| 84 µS/cm      | ± 1      | %18                | DFM          | 1 Calpack bottle 500 mL | 238 984   |
| 100 µS/cm     | ± 1      | %36                | DFM          | Glass bottle 300 mL     | 238 934   |
| 147 µS/cm     | ± 1      | %18                | DFM          | 1 Calpack bottle 500 mL | 238 985   |
| 1413 µS/cm    | ± 1      | %36                | DFM          | Glass bottle 300 mL     | 238 928   |
| 1413 µS/cm    | ± 1      | %18                | DFM          | 1 Calpack bottle 500 mL | 238 986   |
| 12288 µS/cm   | ± 1      | %18                | DFM          | 1 Calpack bottle 500 mL | 238 988   |

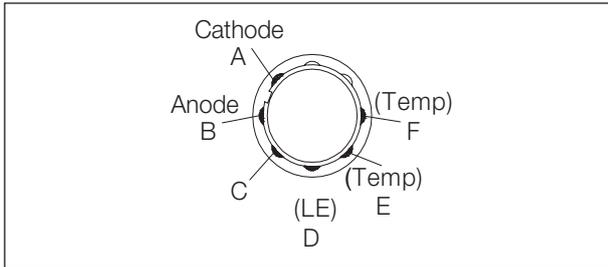
**Cables for Industrial Applications**

- Internal anti-noise sheath for accurate measurement.
- Gold plated spring O-connectors parts, for good electrical contact under the most severe conditions.
- Coaxial plug and socket with watertight sealing that meets the requirements of IP 65.
- Cables for industrial appl. and for laboratory use are available.

**Dimensions FU20**



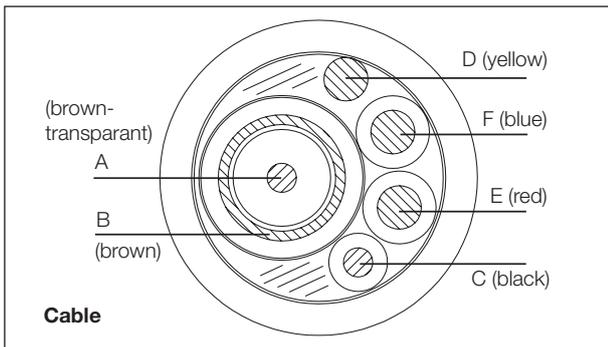
**Connector lay out**



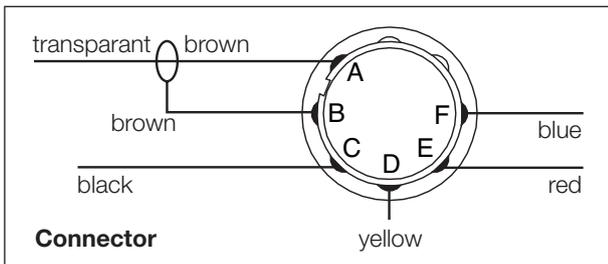
**Model and Suffix codes**

| Model          | Suffix Code | Description            |
|----------------|-------------|------------------------|
| WU10           |             | Universal sensor cable |
| Connector type | -V          | Variopin               |
| Cable type     | -S          | Single Coax            |
| Cable length   | -03         | 3 meters               |
|                | -05         | 5 meters               |
|                | -10         | 10 meters              |
|                | -15         | 15 meters              |
|                | -20         | 20 meters              |

**Cable lay out**

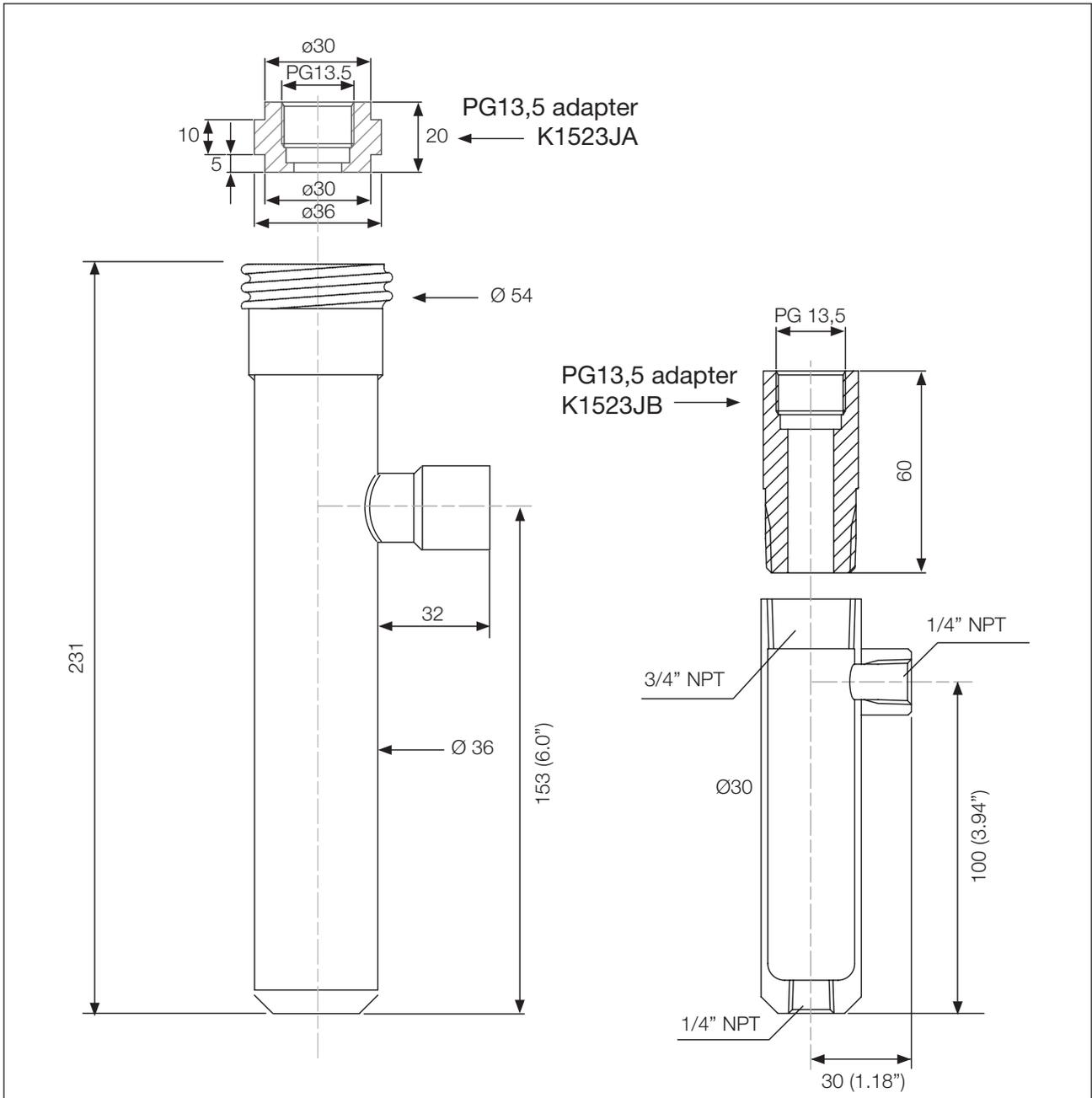


**Connector wiring**



**Unique Advantages:**

- Stable for at least 1 year (1.3 µS/cm), up to 3 years
- Certified standards with traceable calibration from DFM (can be viewed at [www.hamiltoncompany.com/cert](http://www.hamiltoncompany.com/cert))
- Expiration date on every bottle
- Bottles can remain open for up to 60 minutes and retain the certified value.



**Flow fitting FF40**  
**With Adapter K1523JA to fit sensors with a PG13,5**  
**process connection in FF40/FS40 and FD40 fittings.**  
**Material: Polypropylene**

**Flow fitting K1598AC (incl. 3.1 B certificate)**  
**with Adapter K1523JB to fit sensors with PG13,5 process**  
**connection**

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