

# General Specifications

Model SX42  
2-electrode Conductivity sensors  
for high temperature



These high temperature conductivity sensors have a stainless steel body and a ceramic insulation, especially designed to withstand high temperatures (up to 250°C) and pressures (up to 40 bar). A special treatment of the electrodes ensures optimal resistance against polarisation.

The flanged model has an integral connection box, the threaded models are provided with a Amphenol connector to fit the Yokogawa WU40 cable or Variopin connector to fit with Yokogawa WU10/WE10-cable.

All sensors have a pre-calibrated cell constant and a built-in temperature element for automatic temperature compensation. Sensors with the Variopin connector are equipped with an ID-chip in which calibration information is stored for easy setup when connected to a SENCOM Smart Adapter model SA11-C1. For metal sensors a 3.1 material certificate is included. The sensors, except those equipped with Variopin connector, are ATEX certified for installation in zone 0 environments when connected to a certified intrinsically safe Yokogawa analyser, model SC202S or FLXA21 or a certified intrinsically safe circuit with defined output parameters.

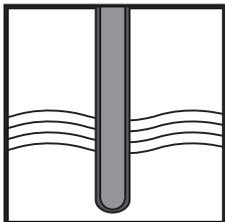
The combination of the sensor plug and cable is watertight and can handle temperatures upto 100°C. The aluminium connection box of the flanged types has been selected to have a easy connection with high temperature cabling.

## Features

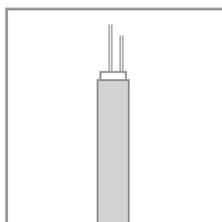
- High temperature and pressure ratings
- Built-in temperature resistor: Pt1000
- Fast temperature response
- Plug and cable form a water tight connection to IP67
- Model with flange has an integral connection box
- Threaded models have standardized connections 1" NPT or R1
- Selection of two cell constant 0.10 cm<sup>-1</sup> or 0.01 cm<sup>-1</sup>
- Sensor with 8 pin Variopin with ID chip for SENCOM SA11-C1 use
- ATEX/IECEx certified
- Optimal resistance against polarisation



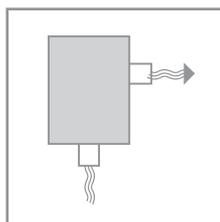
## System Configuration



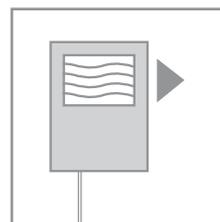
Sensors



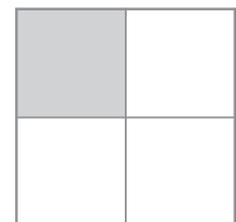
Cables



Fittings



Transmitters



Accessories

**Specifications**

**General Specifications**

**Measuring elements**

2-electrode measuring system  
Pt1000 temperature sensor

**Materials**

Wetted parts sensor:  
Body : Stainless Steel AISI 316L  
Electrodes : Stainless Steel AISI 316L  
Insulation : Ceramic (aluminium oxide)

**Connector:**

Amphenol: Contacts : gold plated  
Plug : Polyamide

**Variopin:**

Contacts : gold plated  
Material : Nickel-plated brass  
Insulation : PEEK, UL94-V0  
IP class : IP67

**Terminal box flanged models:**

Housing : Aluminium  
Insulation : Ceramic

**Functional specifications (at 25°C)**

Temperature element : Pt1000 to IEC 751

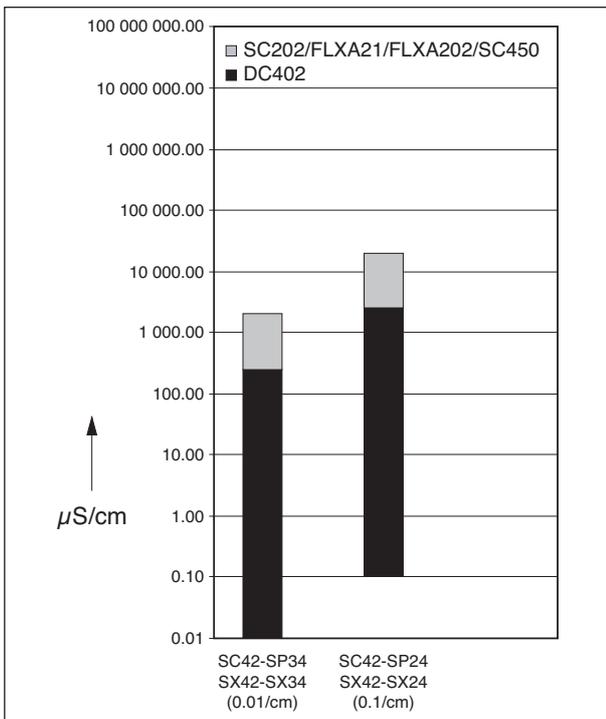
Nominal Cell Constant (C.C.)

SX42-SX24 : 0.1 cm<sup>-1</sup>  
SX42-SX34 : 0.01 cm<sup>-1</sup>

**Note:** The SX42 temperature sensor is designed for cell compensation and for indication. It is **NOT** designed for process temperature control.

**Operating range**

Conductivity at actual process temperature : 1 μS \* C.C. – 200 mS \* C.C.  
See Fig. 1



**Fig. 1. Sensor range**

**Temperature**

Threaded models (-BS,-NS) : 0°C to 200°C (32°F to 392°F)

Threaded models (-BV,-NV) : 0°C to 125°C (32°F to 257°F)

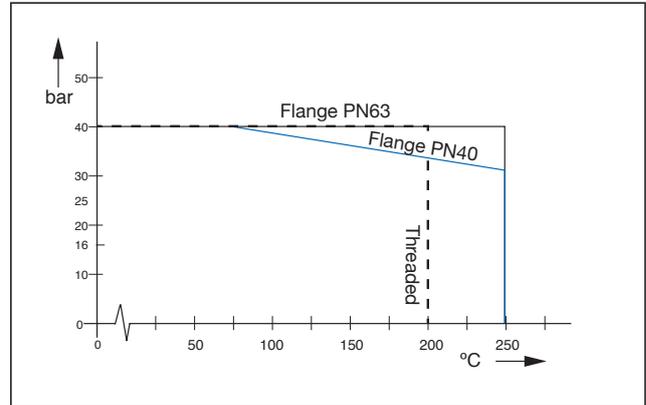
Flanged models : 0°C to 250°C (32°F to 482°F)

**Pressure**

Threaded models : 0 to 40 bar (0 to 363 PSIG)

Flanged model PN63 : 0 to 40 bar (0 to 580 PSIG)

Flanged model PN40 : 0 to 30 bar (0 to 435 PSIG)



**Fig. 2 Pressure vs. process temperature flanged / threaded models SX42**

**Cable length:**

Threaded models (-BS,-NS) : max. 60 meter with WU40 cable in combination with WF10 cable and BA10 junction box

**Threaded models (-BV,-NV)**

Variopin connector directly connected : max. 60 meter with WU10/WE10 (possibly in combination with WF10 cable and BA10 junction box)

For sensors with suffix -BV/NV combined with SA11 Smart Adapter : 3 meter WE10 cable (as option) combined with SA11 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 upto 100 m. The BA11 connection box is connected to the analyzer using a WU11 cable up to 100m

**Flanged models**

: max. 60 meter with customer specified high temperature cable

**Regulatory standards (not applicable for sensors with suffix code -BV or -NV)**

- ATEX	: Directive 2014/34/EU by applying: EN 60079-0 EN 60079-11 EN 60079-26
Certificate no.	: DEKRA 14ATEX0074 X  II 1 G Ex ia IIC T4... T6 Ga
- IECEx	
Applying standards	: IEC 60079-0 : IEC 60079-11 : IEC 60079-26
Certificate no.	: IECEx DEK 14.0032X Ex ia IIC T4...T6 Ga
Conformity	: EAC (Eurasia) TS (Taiwan)
- Electrical data for ATEX/IECEx	: For sensor input circuit connected to A certified intrinsically safe circuit with the following maximum values: U <sub>i</sub> = 14.4 V; I <sub>i</sub> = 116.5 mA; P <sub>i</sub> = 0.342 W or Certified intrinsically safe Yokogawa Contact Conductivity transmitter Model FLXA21 series or Model SC202S series. The effective internal capacitance C <sub>i</sub> and the effective internal inductance L <sub>i</sub> of the sensor depends only upon the properties and length of the integral 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

**WARNING**

Impact on the product shall be avoided.  
Electrostatic charges on the enclosure shall be avoided.  
From the safety point of view the circuits shall be assumed to be connected to earth.

**Regulatory standards (all types)**

<b>CE</b>	: Decision 768/2008/EC 
- Pressure	: Directive 2014/68/EU
Applying article	: 4.3 (Sound Engineering Practice)
- RoHS2	: Directive 2011/65/EU
Applying category	: 9 (Industrial monitoring and control instruments).

**Shipping details**

Package size (LxWxH)	
Threaded models	: 300 x 95 x 73 mm (11.8 x 3.7 x 2.9 ")
Flanged models	: 480 x 275 x 235 mm (18.9 x 10.8 x 9.3 ")
Package weight	
Threaded models	: 0.5 to 0.7 kg (1.1 to 1.5 lbs)
Flanged models	: 5.7 to 6.0 kg (12.6 to 13.2 lbs)

**Environmental conditions**

Storage temperature	: -30°C to 50°C (-22°F to 122°F)
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**Model and Suffix Codes**

Model Code	Suffix Code	Option Code	Description
SX42**			High temp. conductivity sensor with Pt1000 sensor
	-SX24 -SX34		Cell constant 0.1/cm Cell constant 0.01/cm
	-BS -BV* -NS -NV* -DF -EF -AF		ISO 7/1-R1 screw thread, plug-socket connection ISO 7/1-R1 screw thread, VarioPin conn.with SENCOM ID-chip 1-11½ NPT screw thread, plug-socket connection 1-11½ NPT screw thread, VarioPin conn. with SENCOM ID-chip DN50-PN63 EN flange DN50-PN40 EN flange 2" 600 LBS ANSI flange
Style		*A	Always *A style
Option			N/A

**\*Note:** Suffix -BV and -NV not ATEX/IECEx certified.

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

## Dimensions

Units: mm [inch]

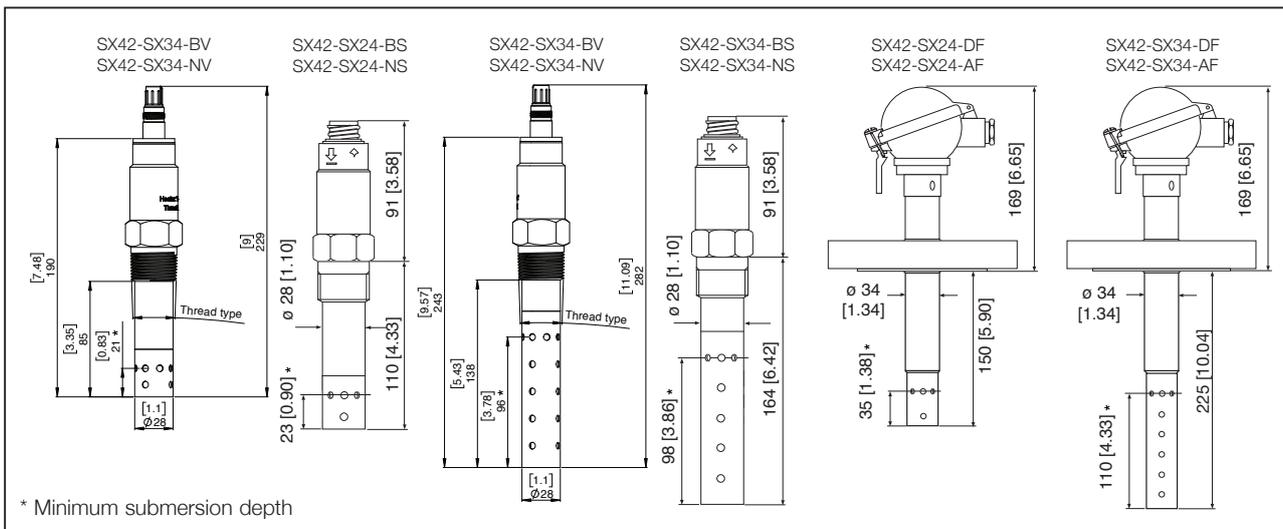


Figure 3. Dimensions Flanged & Threaded models

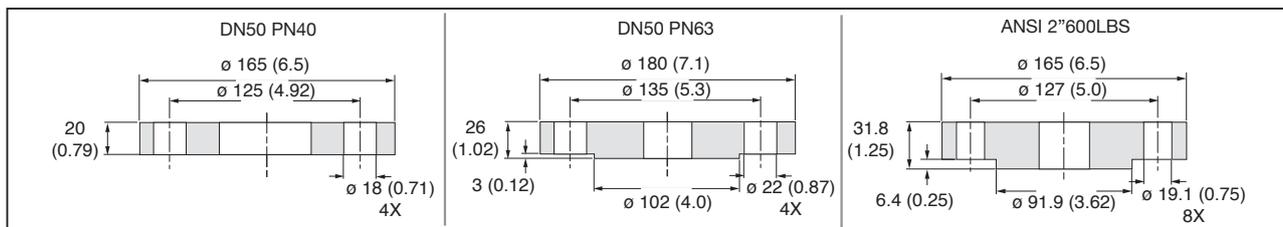


Figure 4. Flanges

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