

AST41 Contacting Conductivity Sensors for Inline Installations at High Pressures to 500 psig & High Temperature to 205°C



AST41 in K=0.05/cm cell constant with J-Box



AST41 in K=2.0/cm cell constant with J-Box

- AST41 was designed for high pressure and temperature conductivity measurement, and is an ideal choice for:
 - Blowdown control, condensate monitoring, leak detection on heat exchangers and steam purity measurements
 - Ideal for boiler condensate and blowdown control without cooler type installations
- High temperature and pressure water and steam is a severe environment for any elastomer requiring special features:
 - Dual EPDM O-ring seals ensure reliability (Viton & Kalrez Optional). Front seal absorbs brunt of chemical attack, allowing rear O-ring to operate in protected environment ensuring continued sealing & long service.
 - The result is that sensor life is more than double what can be expected of single sealed, or epoxy sealed units.
- Compact design for 3/4" NPT process interface with longer insertion depths available as special-order option
- With explosion proof junction box; Class I, Groups C, D & Class II, Groups E, F, G; weatherproof painted aluminum
- Wetted insulator materials of construction are PEEK insulator with 316SS sensor body and inner electrode as standard.
- Available cell constants of K=0.05/cm, K=0.1/cm, K=0.2/cm, K=1.0/cm & K=2.0/cm cover many conductivity ranges.
 - Typical area of use is 5 to 200,000 $\mu\text{S}/\text{cm}$. Below 5 $\mu\text{S}/\text{cm}$ a cell constant of K=0.01/cm or lower is required
 - K=0.05/cm cell constant can be used for ranges as low as 5-100 $\mu\text{S}/\text{cm}$ or as high as 25-2,500 $\mu\text{S}/\text{cm}$
 - K=0.1/cm cell constant can be used for ranges as low as 10-200 $\mu\text{S}/\text{cm}$ or as high as 50-5,000 $\mu\text{S}/\text{cm}$
 - K=0.2/cm cell constant can be used for ranges as high as 20-20,000 $\mu\text{S}/\text{cm}$
 - K=1.0/cm cell constant can be used for range as high as 100-100,000 $\mu\text{S}/\text{cm}$
 - K=2.0/cm cell constant can be used for range as high as 200-200,000 $\mu\text{S}/\text{cm}$
- Cable length is 10 feet standard but extended lengths as integral cable or else by means of quick-disconnect waterproof and corrosion-resistant snap connections are available for ease of removal for cleaning and/or recalibration.



AST41 Contacting Conductivity Sensors Specifications

Measurement Range:	Dependent Upon Cell Constant and Mating Transmitter Employed *
Operating Temperature:	-35 to +150 °C (-31 to +302 °F) for Standard Version ** -35 to +205 °C (-31 to +401 °F) for Hi-Temp Version **
Operating Pressure:	Max 100 psig @ 150°C for Standard Version Max 250 psig @ 205°C for Hi-Temp Version Max 500 psig @ 100°C for Standard & Hi-Temp Versions
Process Connections:	3/4" MNPT Front Threads with EX J-Box Installed for Inline Installations 3/4" MNPT Front & Rear Threads without J-Box for Immersion
Wetted Materials of Construction:	
Insulator:	PEEK
O-Rings:	EPDM (Standard) or Viton/Kalrez (Optional), Redundant
Electrodes:	316SS Standard
Sensor Body:	316SS Standard
Temperature Element:	Standard with Pt1000 or Pt100 temperature sensor; Other TC elements such a Balco 3K resistor and 10K Thermistor are also available upon request
Cell Constants Available for Models	
AST41:	K = 0.05, 0.1, 0.2, 1.0 or 2.0 /cm
Cable Length Limits:	Standard 10 feet (3 meters), Max is 100 feet (30 meters)
End of Cable Terminations:	Tinned Leads (-TL) or NEMA 6P rated waterproof and corrosion-resistant quick disconnect snap connector in 5-pole (Q5M/Q5F) or 4-pole (Q4M/Q4F) version
Storage and Shelf-Life:	One (1) year from date of dispatch from factory when stored at ambient.
Dimensional Details:	See following pages for drawing of each particular cell constant configuration.

* Contact factory to confirm that your desired measurement range is suitable for the chosen cell constant & mating instrument.

** Contact factory for applications where the measurement is below 0°C prior to specifying sensor for project or commissioning.

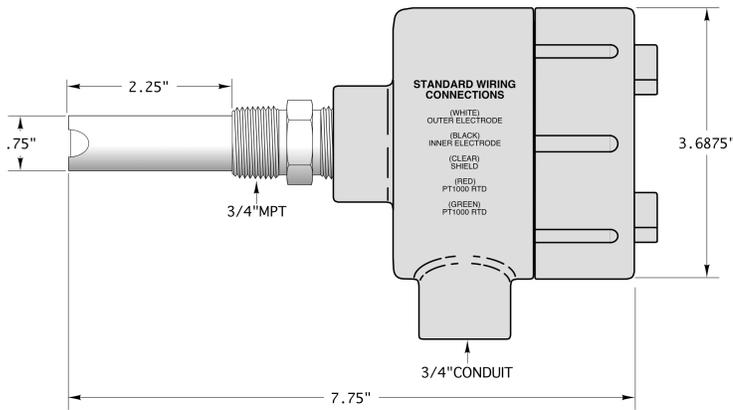
The table below contains the various available full conductivity ranges when the 3TX-CON transmitter is employed for various cells.

LOW RANGE OPTIMIZED			STANDARD RANGE			HIGH RANGE OPTIMIZED		
NOM CELL	CAL CELL RANGE	FULL RANGE	NOM CELL	CAL CELL RANGE	FULL RANGE	NOM CELL	CAL CELL RANGE	FULL RANGE
0.1L	0.05-0.15	0-200µS	0.1	0.03-0.17	0-5,000µS	0.2	0.06-0.34	0-20,000µS
1.0L	0.5-1.50	0-2mS	1.0	0.30-1.70	0-50mS	2.0	0.60-3.40	0-200mS
			2.0	0.60-3.40	0-100mS			

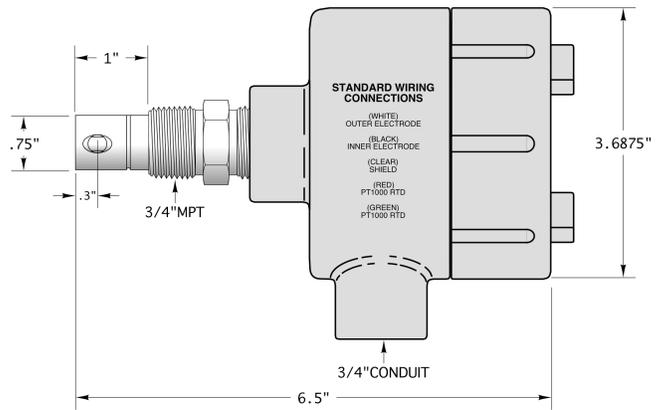
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Dimension Details for AST41 in Cell Constants 0.05, 0.1, 0.2, 1.0 & 2.0

AST41 K=0.2/cm Cell Constant with Extended Insertion Depth Option



AST41 K=0.05/cm, K=0.1/cm, K=1.0/cm & K=2.0/cm Cell Constants



*NOTE 1: The AST41 sensor can be supplied with ASTI supplied cable or else customer supplied cable can be used and connected to the terminals in the J-Box.
NOTE 2: The AST41 sensors can be supplied without J-Box if customer shall supply and install their own. Contact factory for assistance if you wish to use this scheme.*



Close-up of AST41 in K=0.05/cm cell constant. The K=0.1/cm cell constant is largely similar except for diameter & position of inner electrode.



Close-up of AST41 in K=2.0/cm cell constant. The K=1.0/cm cell constant is largely similar except for diameter of inner electrode & diameter of vent hole.



*AST41 in K=0.05/cm cell constant shown with J-Box & 30 feet of cable (top)
AST41 in K=2.0/cm cell constant shown with J-Box & 30 feet of cable (right)*



Photos of AST41 in Cell Constant $K=0.2/cm$ with extended insertion depth and without J-box



The AST41 in the $K=0.2/cm$ with extended insertion depth is an ideal choice for rugged submersible measurements especially when combined with the braid-reinforced blue cable option. The rear $\frac{3}{4}$ " MNPT threads should be interfaced with a suitable immersion tube (a.k.a. standpipe) if the planned installation is submersible style.



Various close-up views of the AST41 in the $K=0.2/cm$ with extended insertion depth in the without J-Box configuration. The open geometry can be ideal for situations of low-flow, high viscosity or else other potential fouling constituents that may be present in slurries and other abrasives in the solution. When used with the 3TX-CON transmitter this sensor can be used to measure up to 20,000 $\mu S/cm$ (20mS/cm) making it suitable for a wide range of potential applications.