

ULTRA Series Digital Smart Conductivity Sensor



PRODUCT CODE: TT-ULTRA-CON-DSS

For exceptional performance in aggressive environments

The ULTRA Series Smart Digital Conductivity sensor with integral RS485 Modbus RTU communications allows for a simple and fully portable installation. The sensor may be calibrated anywhere (lab, shop or field) and interface with any data acquisition or control system in the field via the RS485 Modbus RTU output. Temperature and cell constant calibrations can be done with the sensor left in service if grab sample adjustments are desired to agree with reference values. Waterproof and corrosion-resistant NEMA 6P QCD quick connect plugs come standard for easy seamless hot-swap of sensors from service for cleaning, recalibration, and other maintenance requirements.

Features

- Sensor stores temperature and cell constant calibrations including days in use since they were performed
- Redundant O-ring seals for high on-stream reliability and long sensor service lifetime
- Suitable for a measurement ranging from 20 to 200,000 $\mu\text{S}/\text{cm}$ with chemical resistance for a wide variety of media
- Open front-end geometry resists clogging and reduces maintenance. Ideal for remote installations
- Cell constants of $K=0.1/\text{cm}$, $K=0.2/\text{cm}$, $K=1.0/\text{cm}$ & $K=2.0/\text{cm}$
- Computed units available are salinity (PSU) and selectable total dissolved solids (TDS) units of NaCl, KCl or 442
- Digital Smart Sensor Technology, Modbus RTU (RS485)
- Plug 'n play connectivity

Installation Types

- Sanitary Inline Sensor Holder
- ULTRA Series Inline Hot Tap Assembly
- TOUGH Series insertion rod
- Fully Submersible when installed on an immersion rod
- All immersion applications

Digital Smart Sensor DSS Technology

- Connect directly to PLC/SCADA/DCS
- Calibrate anywhere, lab or workshop
- Stores history for advanced sensor management & diagnostics
- Compatible with the ULTRA 2.0 Advanced Sensor Management Software





ULTRA Series Digital Smart Conductivity Sensor



ULTRA Series Digital Smart Conductivity Sensor, cell constant $K=0.1$

Digital Smart Sensor DSS Technology

Seriously Different, Next Level Smart Technology

Turtle Tough's Smart Sensor technology has revolutionized the way we manage and communicate with sensors. With onboard microprocessors and memory, our Smart technology has transformed how we connect, manage maintenance, monitor performance, and manage data compared to our analogue predecessors.

This evolution has made it possible to:

- Save hours of maintenance per sensor install
- Eliminate field calibration
- Easily integrate into existing equipment
- Automate smart sensors diagnostic and management

Benefits of Conductivity Smart Digital Sensors

- Integral Modbus RTU RS485 interfaces all-modern PLC controllers and data acquisition systems.
- The communicator provides easy management of field installations without the cost of a mating analyser.
- Windows software for setup and calibration of DSS conductivity sensors allow for easy and low-cost field commissioning for setup and pre-calibration of sensors without the cost of an analyser.
- Intelligent management of sensor calibrations and service life-cycle for efficient commissioning and maintenance.
- All aspects of the installation are completely portable from the shop to the field site location.
- The 'Days in Use' since calibration was performed is stored allowing for optimal maintenance planning.
- All digital sensors ensure reliable operation even in noisy process environments.
- No degradation in digital output even with very long cable runs. Max of 1,000 metres (3,280 feet) with 12VDC power supply to support remote installation sites and consolidation of collected data.
- Bridging connections and modifying installations easily without loss of signal quality with NEMA 6P and IP67 rated quick-disconnect waterproof and corrosion-resistant dual snap connector. Simple plug and play operation for intelligent maintenance planning and smart management of sensor installations and stocking.
- Low-cost quick connect digital extension cables facilitate the consolidation of DSS sensors outputs into a one panel enclosure where many remote field installations can be conveniently viewed at once.
- All extension cables for DSS sensors are inter-compatible. Uniform extension cables minimize stocking. Separate field installation guide details available options to commission and exchange sensors

TT-ULTRA-CON-DSS



Standard and High Range

Cell Constant of ULTRA-CON-DSS	Full Range of Raw Conductivity Input	Temp. Compensated Conductivity at 25°C	Temp. Compensated Conductivity at 75°C	Temp. Compensated Conductivity at 125°C
K=0.1/cm Standard K=0.1/cm Hi Range	20-2,000 $\mu\text{S/cm}$ 200-20,000 $\mu\text{S/cm}$	20-2,000 $\mu\text{S/cm}$ 200-10,000 $\mu\text{S/cm}$	10-1,000 $\mu\text{S/cm}$ 100-10,000 $\mu\text{S/cm}$	7-667 $\mu\text{S/cm}$ 66-6,667 $\mu\text{S/cm}$
K=0.2/cm Standard K=0.2/cm Hi Range	40-4,000 $\mu\text{S/cm}$ 400-40,000 $\mu\text{S/cm}$	40-4,000 $\mu\text{S/cm}$ 400-20,000 $\mu\text{S/cm}$	20-2,000 $\mu\text{S/cm}$ 200-20,000 $\mu\text{S/cm}$	13-1,333 $\mu\text{S/cm}$ 133-13,333 $\mu\text{S/cm}$
K=1.0/cm Standard K=1.0/cm Hi Range	200-20,000 $\mu\text{S/cm}$ 2,000-200,000 $\mu\text{S/cm}$	200-20,000 $\mu\text{S/cm}$ 2,000-100,000 $\mu\text{S/cm}$	100-10,000 $\mu\text{S/cm}$ 1,000-100,000 $\mu\text{S/cm}$	67-6,667 $\mu\text{S/cm}$ 667-66,667 $\mu\text{S/cm}$
K=2.0/cm Standard K=2.0/cm Hi Range	400-40,000 $\mu\text{S/cm}$ 4,000-400,000 $\mu\text{S/cm}$	400-40,000 $\mu\text{S/cm}$ 4,000-200,000 $\mu\text{S/cm}$	200-20,000 $\mu\text{S/cm}$ 2,000-200,000 $\mu\text{S/cm}$	133-13,333 $\mu\text{S/cm}$ 1,333-133,333 $\mu\text{S/cm}$

The temperature compensated conductivity ranges shown above at each temperature assumes the typical 2% per °C coefficient is used. If an alternate temperature compensation coefficient is used recommended conductivity ranges will vary accordingly (inquire to factory). Contact Turtle Tough for applications where the measurement is below 0°C. Please note that standard and high range are user selectable. Both ranges utilise the same hardware and this can be toggled in user settings.

Ultralow Range

Cell Constant of ULTRA-CON-DSS	Full Range of Raw Conductivity Input	Temp. Compensated Conductivity at 25°C	Temp. Compensated Conductivity at 75°C	Temp. Compensated Conductivity at 125°C
K=0.1/cm Ultralow	0.2-20 $\mu\text{S/cm}$ 0.050-5.000 $\text{M}\Omega$	0.2-20 $\mu\text{S/cm}$ 0.05-5.000 $\text{M}\Omega$	0.1-10 $\mu\text{S/cm}$ 0.100-10.000 $\text{M}\Omega$	0.067-6.667 $\mu\text{S/cm}$ 0.150-15.000 $\text{M}\Omega$
K=0.2/cm Ultralow	0.400-40 $\mu\text{S/cm}$ 0.025-2.500 $\text{M}\Omega$	0.400-40 $\mu\text{S/cm}$ 0.025-2.500 $\text{M}\Omega$	0.200-20 $\mu\text{S/cm}$ 0.050-5.000 $\text{M}\Omega$	0.133-13.333 $\mu\text{S/cm}$ 0.075-7.500 $\text{M}\Omega$
K=1.0/cm Ultralow	2.0-200 $\mu\text{S/cm}$ 0.005-0.500 $\text{M}\Omega$	2.0-200 $\mu\text{S/cm}$ 0.005-0.500 $\text{M}\Omega$	1.0-100 $\mu\text{S/cm}$ 0.010-1.00 $\text{M}\Omega$	0.667-66.667 $\mu\text{S/cm}$ 0.015-1.500 $\text{M}\Omega$
K=2.0/cm Ultralow	4.0-400 $\mu\text{S/cm}$ 0.0025-0.250 $\text{M}\Omega$	4.0-400 $\mu\text{S/cm}$ 0.0025-0.250 $\text{M}\Omega$	2.0-200 $\mu\text{S/cm}$ 0.005-0.500 $\text{M}\Omega$	1.333-133.33 $\mu\text{S/cm}$ 0.0075-0.750 $\text{M}\Omega$

The table above shows conductivity limits for each cell constant in ultralow range mode. Max temperature compensated conductivity at each °C assumes a typical 2% per °C compensation coefficient (for ultrapure water temp. comp. scheme will differ). The lower bound for each conductivity range indicates the lowest conductivity that should be measured with that particular cell constant for the given °C and mode. The Ultralow range sensor must be specified at the time of order. Ultra low range uses special internal hardware and this cannot be changed after the point of manufacture.



Product Code

TT-ULTRA-CON-DSS-HTP-12M- -

↑ sensor series ↑ measurement ↑ output ↑ temperature ↑ cable ↑ feature ↑ feature

ULTRA Series Digital Smart Conductivity Sensors can be customised to suit your application. Your Turtle Tough representative will assist you in determining what upgrades might be necessary from the base sensor specification. The following list describes the available upgrades and how they might benefit your application. Some options may incur additional charges.*

Code	Features	Description
CON	Measurement Type	Conductivity Measurement
DSS	Direct Smart Sensor Modbus RTU (RS485)	Output Communication: Digital Smart Sensors (DSS1) provide a feature-rich open-source Modbus RTU (RS485) output directly from the sensor
HTP	for High Temperature and Pressure	Designed for inline installations at pressure up to 500psig and temperature up to 205°C. Available with 25mm (1.0") and 57mm (2.25") insertion depth configurations. Refer to cell constant table for applicable ranges.
SUB	Fully Submersible	1" front-end x 1" back-end MNPT, Kynar body complete with standard waterproofing for fully submersible applications.
ULW	Ultra Low Range	Ultra Low Range mode increases resolution at low conductivity levels. This option utilises special hardware which must be optioned at time of order. Please refer to cell constant tables for measurement ranges.
PK	PEEK Insulator	Upgrade to PEEK insulator. Required for special applications for resistance to heat and/or certain types of media. Only to be optioned if recommended by Turtle Tough.
VI, AF, or KA	Viton, AFLAS or KALREZ O-rings	Upgrade the O-rings from EPDM to Viton (-VI), AFLAS (-AF) or KALREZ (-KA)
TI, MON or HAST	Titanium, Monel, Hast C-276	Upgrade the electrodes from 316SS to Titanium (-TI), Monel (-MON), Hast C-276 (-HAST)
12M	12m Cable Option	Increase the standard cable length from 6m to 12m.
CPV	Cable Protection Vinyl	4m of vinyl tubing encapsulates the sensor cabling for added protection from harsh environments or strain relief on cable. 60 °C resistant.
CPN	Cable Protection Norprene	4m of high norprene tubing is used to encapsulate the sensor cabling protecting it from high temperature environments. 135 °C resistant.

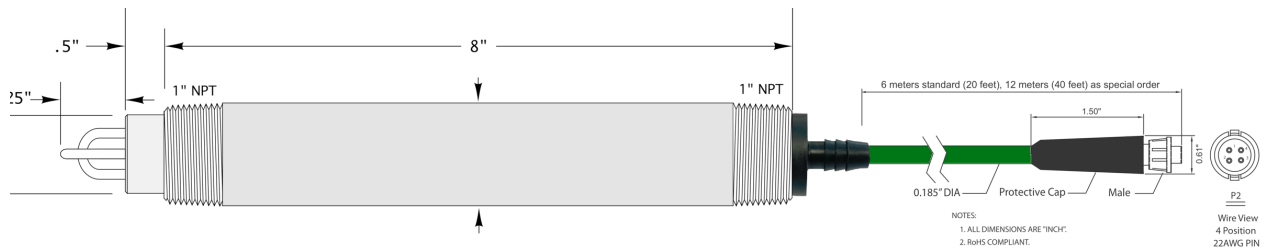
To order add the codes of the features you want to add to your sensor to suit your application:



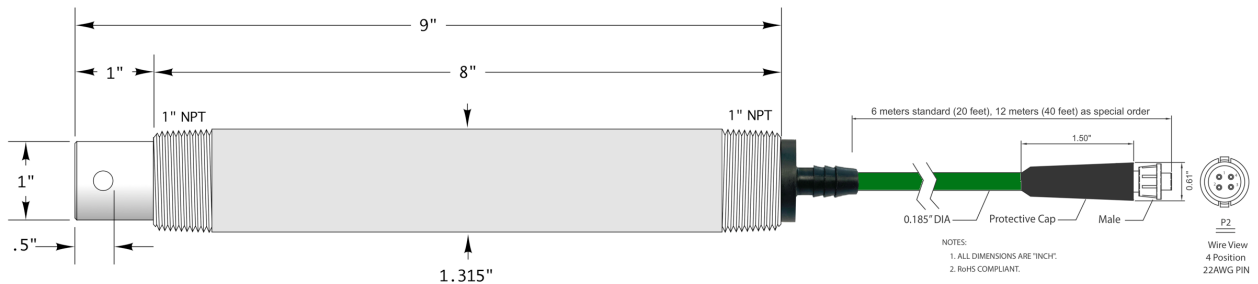
Specifications

Product Name		ULTRA Series Digital Smart Conductivity
Product Code		TT-ULTRA-CON-DSS
Measuring Type		Conductivity
Output		DSS1- Modbus RTU (RS485)
Operating Temperature Inline use		-35 to +120 °C (-31 to +248 °F) **
Operating Temperature Submersible use		-15 to +85 °C (-31 to +185 °F) **
Operating Pressure		Max 100 psig @ 120°C
Process Connections		1" MNPT KYNAR Front and Rear Threads
Wetted Materials of Construction	Insulator	Teflon
	O-Rings	EPDM Standard (Viton/Aflas/Kalrez optional)
	Electrodes	316SS Standard (Titanium, Monel, Hast C-276 optional)
	Sensor body (Front)	Kynar (Poly-Vinylidene-Fluoride)
Temperature Element		Pt1000 temperature sensor (included standard, required for all DSS sensors)
Temperature Input Range		-40 to +210 °C (-31 to +410 °F) ±0.3°C Limited by actual sensor specs **
Cell Constants Available		K = 0.1, 0.2, 1.0 or 2.0 /cm
Cable Length Limits		Standard 6m (20ft), 12m (40ft) optional. Please note that DSS sensors can support cable runs of up to 1000m with appropriate hardware. 12VDC supply
End of Cable Terminations		Quick Connect Plug - NEMA 6P (-QCD)
Storage and Shelf-Life		1 year from date of dispatch from factory when stored at ambient.
Submersible Assemblies		Back-end waterproofing or cable protection available
Sealing Hose options		Vinyl and NORPRENE tubing available for extreme waterproofing
Warranty		12 Month Conditional Warranty. Go to turtletoughsensors.com/support/warranty-returns

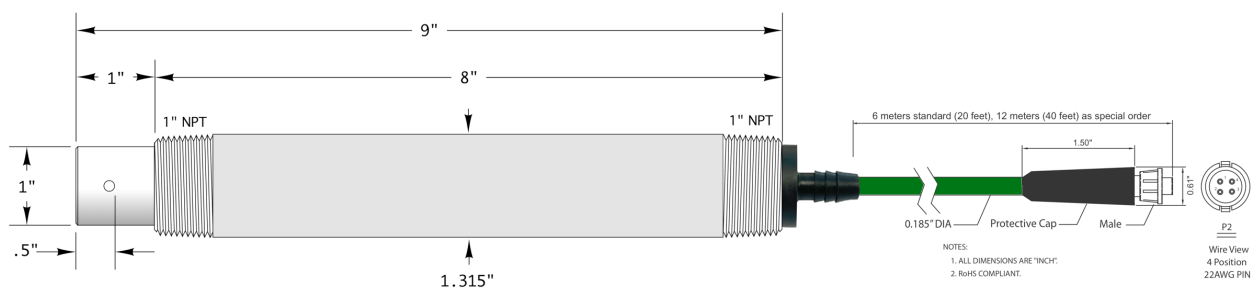
ULTRA Series Conductivity Sensor Cell constant K=0.1



ULTRA Series Conductivity Sensor Cell constant K=1.0



ULTRA Series Conductivity Sensor Cell constant K=2.0



Cell constant configurations are shown above without waterproofing option. Please inquire to factory for overall sensor length and dimensional details if a waterproofing option is to be added to sensor for submersible use.

ULTRA Series Digital Smart Conductivity Sensor with High Temp. & Pressure option



PRODUCT CODE: TT-ULTRA-CON-DSS-HTP

For inline installations at pressure up to 500 psig and temperatures up to 205°C (401°F)

Features

- Designed for high pressure and high temperature conductivity measurements
- Sensor stores temperature and cell constant calibrations
- Compact design for 3/4" NPT inline process interface
- Available in 1.0" and 2.25" insertion depth configurations
- Available cell constants of K=0.05/cm, K=0.1/cm, K=0.2/cm, K=1.0/cm & K=2.0/cm
- Sealing option allows for use in areas with high levels of moisture, washdowns, rain or corrosive environment
- Digital Smart Sensor Technology, Modbus RTU (RS485)
- Plug 'n play connectivity

Applications

- High-pressure desalination and reverse osmosis (RO) reject concentrate monitoring and control
- Blowdown control, condensate monitoring and leak detection on heat exchangers and steam purity measurements
- Boiler condensate and blowdown control and/or monitoring in installation locations without coolers

Installation Types

- Sanitary Inline Sensor Holder
- ULTRA Series Inline Hot Tap Assembly
- TOUGH Series insertion rod
- Fully Submersible when installed on an immersion rod
- All immersion applications

Digital Smart Sensor DSS Technology

- Connect directly to PLC/SCADA/DCS
- Calibrate anywhere, lab or workshop
- Stores history for advanced sensor management & diagnostics
- Compatible with the ULTRA 2.0 Advanced Sensor Management Software





ULTRA Series Digital Smart Conductivity Sensor with High Temperature & Pressure Option



The ULTRA Series Digital Smart conductivity Sensor with High Temperature and Pressure (HTP) option allows for a simple and fully portable installation. The sensor may be calibrated anywhere (*lab, shop or field*) and interfaced with any data acquisition or control system in the field via the RS485 MODBUS RTU output.

Temperature and cell constant calibrations can be done with sensor left in service if grab sample adjustments are desired to agree with reference values. Waterproof and corrosion-resistant NEMA 6P quick connect plugs come standard for a seamless hot-swap of sensors from service for cleaning, recalibration, and other maintenance requirements as well as eventual replacement in time.

Low Range Configuration

The ULTRA Series Digital Smart High Temperature and Pressure Conductivity sensor comes in a Low-Range configuration at pressure up to 500 psig and temperature up to 205°C

- Available cell constants of $K=0.05/\text{cm}$, $K=0.1/\text{cm}$, $K=0.2/\text{cm}$, $K=1.0/\text{cm}$ and $K=2.0/\text{cm}$ for lower conductivity ranges.
- Computed MegaOhms (MW) units using linear user adjustable ATC coefficients or the non-linear ultrapure water ATC.
- Special configuration is available for $K=0.1/\text{cm}$ cell constant for use in ultrapure water (UPW) applications. This version has the characteristic non-linear temperature compensation curve necessary for pure water measurement as well as providing the computed resistivity units of MegaOhms (MW) which are most commonly used for such applications.

Digital Smart Sensor DSS Technology

Manage the health and performance of your sensors while maintaining an even closer eye on your process. Due to the onboard microprocessor and memory chip on the sensor's body, our Digital Smart Sensors perform all functions usually performed by an external analyser or transmitter. They store calibration information directly to the sensor and output a fully calibrated digital signal.

Smart sensors can store historical information such as:

- Time in service
- Calibration intervals
- Service conditions
- Diagnostic information (records changes to the sensor)

TT-ULTRA-CON-DSS-HTP



Standard and High Range

Cell Constant of HTP Conductivity DSS Sensor	Full Range of Raw Conductivity Input	Temp. Compensated Conductivity at 25°C	Temp. Compensated Conductivity at 75°C	Temp. Compensated Conductivity at 125°C	Temp. Compensated Conductivity at 175°C
K=0.05/cm Standard K=0.05/cm Hi Range	10-1,000 µS/cm 100-10,000 µS/cm	10-1,000 µS/cm 100-5,000 µS/cm	5-500 µS/cm 50-5,000 µS/cm	3.33-333.33 µS/cm 33.33-3,333.33 µS/cm	2.50-250 µS/cm 25-2,500 µS/cm
K=0.1/cm Standard K=0.1/cm Hi Range	20-2,000 µS/cm 200-20,000 µS/cm	20-2,000 µS/cm 200-10,000 µS/cm	10-1,000 µS/cm 100-10,000 µS/cm	6.67-666.67 µS/cm 66.67-6,666.67 µS/cm	5-500 µS/cm 50-5,000 µS/cm
K=0.2/cm Standard K=0.2/cm Hi Range	40-4,000 µS/cm 400-40,000 µS/cm	40-4,000 µS/cm 400-20,000 µS/cm	20-2,000 µS/cm 200-20,000 µS/cm	13.33-1,333.33 µS/cm 133.33-13,333.33 µS/cm	10-1,000 µS/cm 100-10,000 µS/cm
K=1.0/cm Standard K=1.0/cm Hi Range	200-20,000 µS/cm 2,000-200,000 µS/cm	200-20,000 µS/cm 2,000-100,000 µS/cm	100-10,000 µS/cm 1,000-100,000 µS/cm	67-6,667 µS/cm 667-66,667 µS/cm	50-5,000 µS/cm 500-50,000 µS/cm
K=2.0/cm Standard K=2.0/cm Hi Range	400-40,000 µS/cm 4,000-400,000 µS/cm	400-40,000 µS/cm 4,000-200,000 µS/cm	200-20,000 µS/cm 2,000-200,000 µS/cm	133-13,333 µS/cm 1,333-133,333 µS/cm	100-10,000 µS/cm 1,000-100,000 µS/cm

Temperature compensated conductivity ranges shown above at each temperature assumes the typical 2% per °C coefficient is used. If alternate temperature compensation coefficient is used recommended conductivity ranges will vary accordingly (inquire to factory). Please note that standard and high range are user selectable. Both ranges utilise the same hardware and this can be toggled in user settings.

Ultralow Range Configuration

Cell Constant of HTP Conductivity DSS Sensor	Full Range of Raw Conductivity Input	Temp. Compensated Conductivity at 25°C	Temp. Compensated Conductivity at 75°C	Temp. Compensated Conductivity at 125°C	Temp. Compensated Conductivity at 175°C
K=0.05/cm Ultralow	0.100-10 µS/cm 0.100-10.000 MΩ	0.100-10 µS/cm 0.100-10.000 MΩ	0.050-5 µS/cm 0.200-20.000 MΩ	0.033-3.333 µS/cm 0.300-33.333 MΩ	0.025-2.5000 µS/cm 0.400-40.000 MΩ
K=0.1/cm Ultralow	0.200-20 µS/cm 0.050-5.000 MΩ	0.200-20 µS/cm 0.050-5.000 MΩ	0.100-10 µS/cm 0.100-10.000 MΩ	0.067-6.667 µS/cm 0.150-15.000 MΩ	0.050-5 µS/cm 0.200-20.000 MΩ
K=0.2/cm Ultralow	0.400-40 µS/cm 0.025-2.500 MΩ	0.400-40 µS/cm 0.025-2.500 MΩ	0.200-20 µS/cm 0.050-5.000 MΩ	0.133-13.333 µS/cm 0.075-7.500 MΩ	0.100-10 µS/cm 0.100-10.000 MΩ
K=1.0/cm Ultralow	2.0-200 µS/cm 0.005-0.500 MΩ	2.0-200 µS/cm 0.005-0.500 MΩ	1.0-100 µS/cm 0.010-1.00 MΩ	0.667-66.667 µS/cm 0.015-1.500 MΩ	0.050-5 µS/cm 0.200-20.000 MΩ
K=2.0/cm Ultralow	4.0-400 µS/cm 0.0025-0.250 MΩ	4.0-400 µS/cm 0.0025-0.250 MΩ	2.0-200 µS/cm 0.005-0.500 MΩ	1.333-133.33 µS/cm 0.0075-0.750 MΩ	1.0-100 µS/cm 0.010-1.00 MΩ

Temperature compensated conductivity ranges shown below at each °C assumes typical 2% per °C coefficient (for ultrapure water temperature compensation scheme differs). If alternate temperature compensation coefficient is used recommended conductivity ranges will vary accordingly. The Ultralow range sensor must be specified at the time of order. Ultra low range uses special internal hardware and this cannot be changed after the point of manufacture.

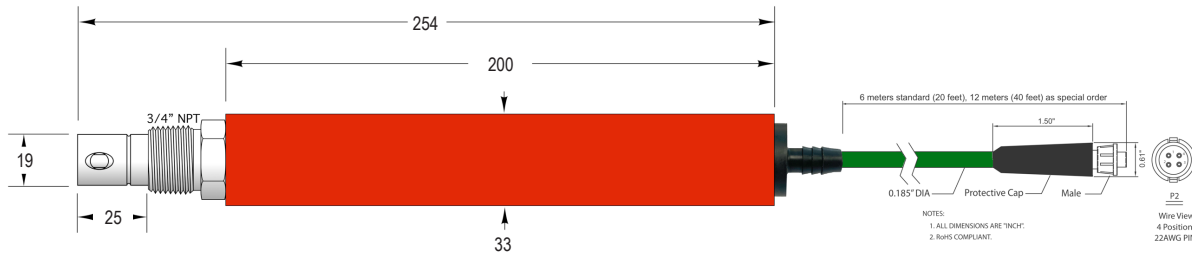


Specifications

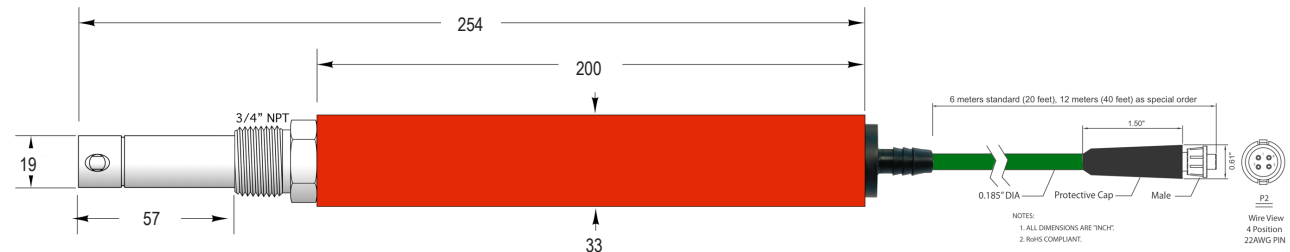
Product Name		ULTRA Series Digital Smart High Temperature & Pressure (HTP) Conductivity Sensor
Product Code		TT-ULTRA-CON-DSS-HTP
Measuring Type		Conductivity
Output		DSS1- Modbus RTU (RS485)
Special Features		For High Temperature and Pressure (HTP). Designed for inline installations at pressure up to 500psig and temperature up to 205°C. Available with 25mm (1.0") and 57mm (2.25") insertion depth configurations. Refer to cell constant table for applicable ranges.
Operating Temperature Inline use		-35 to +205 °C (-31 to +401 °F) **
Operating Pressure		Max 500 psig at 100°C or 250 psig at 205°C with front 316SS Threads
Process Connections		¾" MNPT 316SS Front Threads
Wetted Materials of Construction	Insulator	PEEK
	O-Rings	EPDM Standard (Viton/Aflas/Kalrez optional)
	Electrodes	316SS Standard
	Sensor body (Front)	316SS Standard
	Rear Nipple	CPVC or KYNAR (PVDF)
Insertion Depth Configurations		Standard 25mm or Extended 57mm
Temperature Element		Pt1000 temperature sensor (included standard, required for all DSS sensors)
Temperature Input Range		-40 to +210 °C (-31 to +410 °F) ±0.3°C Limited by actual sensor specs **
Cell Constants Available		K = 0.05, 0.1, 0.2, 1.0 or 2.0 /cm All cell constants are available in the 25mm and 57mm insertion depth configurations
Cable Length Limits		Standard 6m (20ft), 12m (40ft) optional. Please note that DSS sensors can support cable runs of up to 1000m with appropriate hardware. 12VDC supply
End of Cable Terminations		4-pole waterproof and corrosion-resistant NEMA 6P quick connector plug
Storage and Shelf-Life		1 year from date of dispatch from factory when stored at ambient
Sealing Hose Options		Vinyl & NORPRENE tubing available for extreme waterproofing
Warranty		12 Month Conditional Warranty. Go to turtletoughsensors.com/support/warranty-returns

Contact Turtle Tough for applications where the measurement is below 0°C or else above 175°C before purchase. Temperature-compensated conductivity ranges shown below at each temperature assumes the typical 2% per °C coefficient is used. If an alternate temperature compensation coefficient is used recommended conductivity ranges will vary accordingly (inquire to factory).

ULTRA SERIES HTP Conductivity Smart Sensor 25 mm insertion depth configuration



ULTRA SERIES HTP Conductivity Smart Sensor 57 mm insertion depth configuration



Notes:

1. All cell constants are available in both the standard 25mm and extended 57mm insertion depth configurations.
2. The wetted materials of construction for the front portion of the sensor are 316SS for metal electrodes and PEEK for the insulator
3. The material of construction for the rear 8" inch nipple is either CPVC or KYNAR (PVDF).
For inline installations using the front 3/4" MNPT threads only the 316SS & PEEK materials of construction are wetted.
4. The sensors may be installed at any orientation as desired. Care should be taken that the installation scheme is such that the measuring cell is always completed full at all times (*no entrapped air bubbles or times when this part of the line is dry*).
5. For batch operations where the tank is drained, installation with the sensor tip to the top of the tank (*inverted style*) is preferred.
6. For inline installations, the vent hole should be entirely in the path of flow and unobstructed by the compression fitting to ensure that the sample in the measuring cell is representative of the process fluid at all times. Alternatively, if the vent hole cannot be installed to be entirely in the flow the tip should be installed into the direction of flow typically at an elbow in the piping.
7. For low-flow installations please contact the factory for additional assistance. Custom insertion depth may be available for selected sensor configurations as special order options upon request.
8. Dimensions for all drawings are in mm.