The **PRECISION pH & ORP Sensor** is highly accurate and durable. Specifically designed for clean applications that require lab-like precision in an industrial application.

PRECISION pH & ORP Sensor

Features

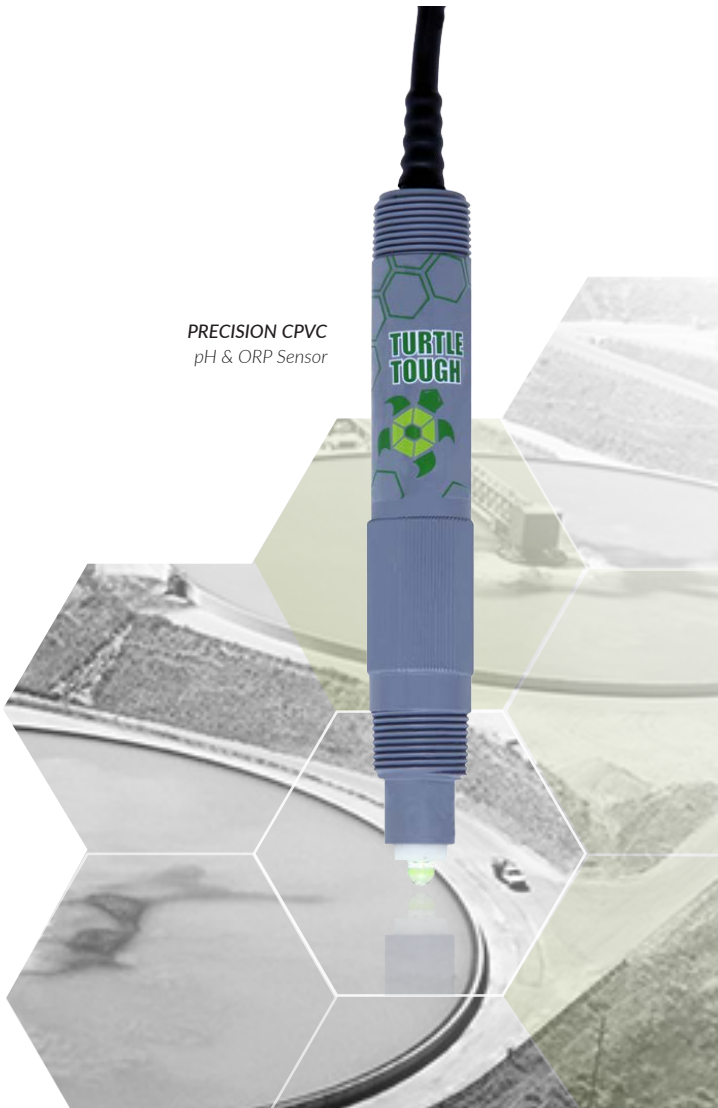
- High Accuracy Double junction HDPE reference
- Tough glass
- CPVC or Ryton body materials
- 6m cable with Quick Connect plugs
- Also available in conventional analogue to connect with most brands of analysers

Sensor output types

- Direct Smart Sensor (MODBUS RTU)
- Proprietary Digital (RS485)
- Analogue

Installation types

- CPVC ¾"" x ¾" MNPT
- Ryton ½" x ¾" MNPT



PRECISION CPVC
pH & ORP Sensor

PRECISION pH & ORP Sensor

CPVC *RYTON*

The PRECISION series sensors are a highly accurate and durable sensor for clean applications that require lab-like precision in an industrial application.

This series has a highly responsive solid state reference combined with our tough industrial glass making this sensor extremely effective when glass or lab grade electrodes suffer breakages, drift or unsustainable cleaning and calibration schedules. This is an excellent sensor choice for industrial applications that don't require the performance of our TOUGH & ULTRA TOUGH series sensors.

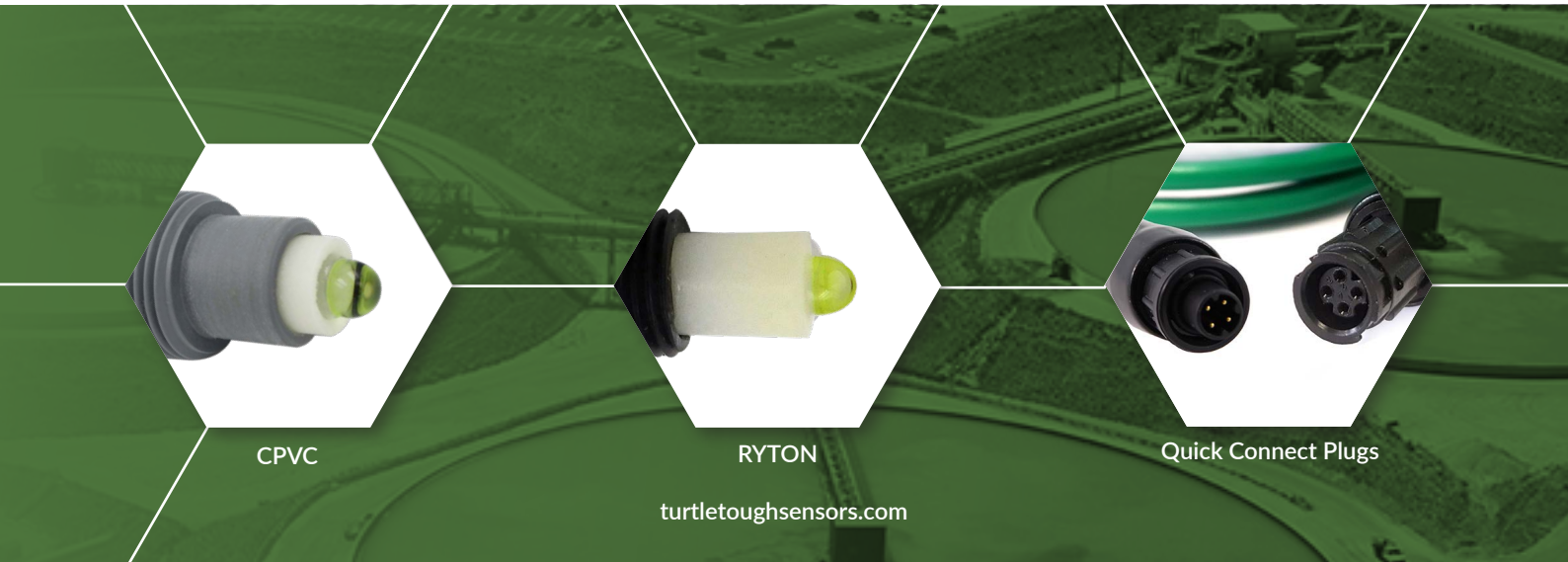
Customise for your process

Our PRECISION pH and ORP sensors are available with the following options that allow you to configure the sensor for your application:

- CPVC body ¾" x ¾" MNPT
- Ryton body ½"x ¾" MNPT
- 3m, 6m or 12m cable lengths
- Temperature Compensation

Smart Sensor Technology

Smart Sensors have revolutionised the way our customers manage and maintain sensors. Unlike most other smart sensors, Turtle Tough provide you with the option of a propriety digital signal or an open-source MODBUS RTU signal that is universally accepted. This allows the sensor to be directly connected to your industrial network without the need for proprietary hardware. Turtle Tough also provide state-of-the-art analysers and controllers should you require a sophisticated turnkey control solution. Digital Smart sensors have the added benefit of storing a detailed performance history and diagnostics on¬board enabling superior sensor management. Sensors can be cleaned and calibrated offline to facilitate a hot swapping maintenance regime. Need to know more about hot swapping? Ask our team.



Output types

Code	Installation Type	Description
-CPVC	**Direct Smart Sensor (MODBUS RTU)**	SMART Sensors with DSS output provide a feature rich open source MODBUS RTU output directly from the sensor. This enables the sensor to interface directly with a PLC or compatible data acquisition device and allows a variety of options for system integration.
-RYTON	**Proprietary Digital (RS485)**	SMART Sensors with PD output provide a closed source proprietary digital signal to connect with dedicated Turtle Tough hardware. This dedicated protocol provides a closed environment to ensure the highest level of stability.
-A	**Analogue**	Analogue Technology

Sensor installation types

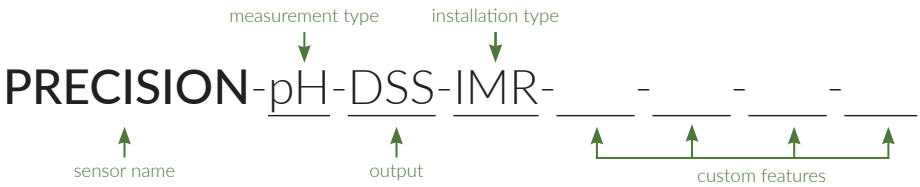
Code	Technology Output	Description
-CPVC	**CPVC**	¾" front-end MNPT x ¾" back-end MNPT Inline Sensor.
-RYTON	**RYTON**	½" front-end MNPT x ¾" back-end MNPT Inline Sensor.

Options

PRECISION 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 provides a description of the available upgrades and how they might benefit your application. Some options may incurr additional charges.

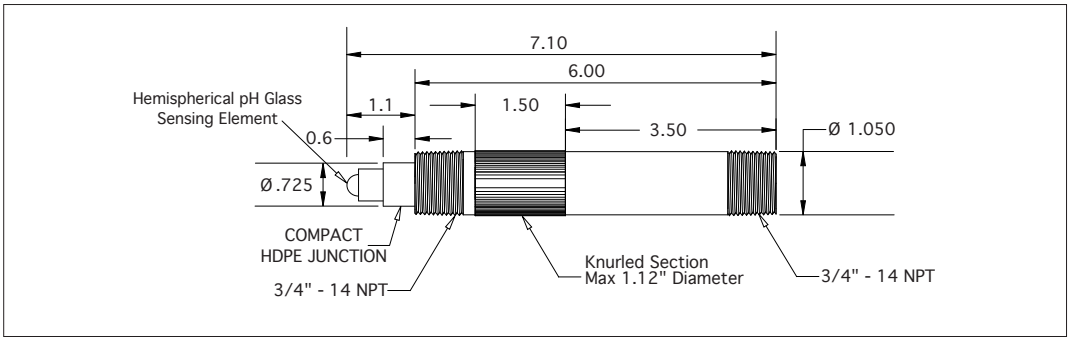
Code	Features	Description
-12M	**12m Cable**	Increase the standard cable length from 6m to 12m.
-TC	**TC**	Inbuilt PT1000 temperature compensator *(for Conv. Analogue version only).*
-6M	**6m Cable**	Increase the cable length from 3m to 6m *(for Conv. Analogue version only).*
-PHORP	**pH & ORP combination sensor**	Combination pH and ORP electrode. Combines both measurement elements into a single electrode. *Requires dual analyser inputs (one for each measurement).

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



PRECISION CPVC Inline pH/ORP Sensor

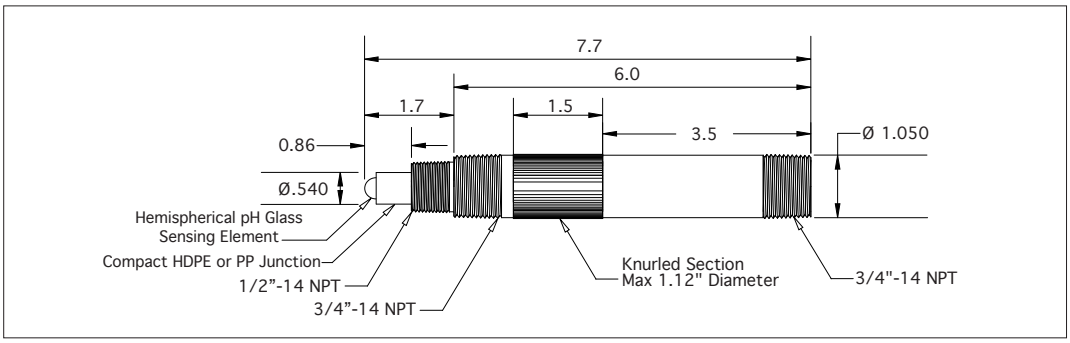
Order code: -CPVC



CPVC 3/4" front-end x 3/4" back-end MNPT Inline Sensor

PRECISION RYTON Inline pH/ORP Sensor

Order code: -RYTON



RYTON 1/2"front-end x 3/4" back-end MNPT Inline Sensor

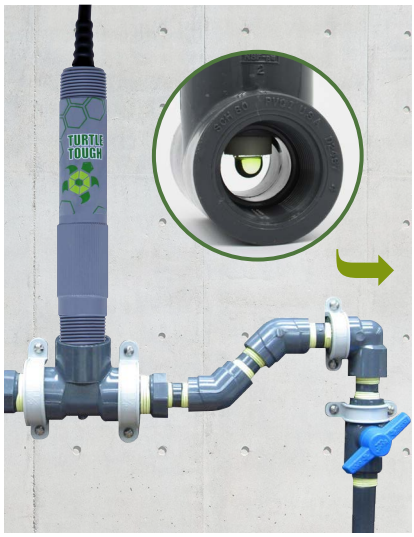
Specifications
PRECISION pH & ORP Sensor

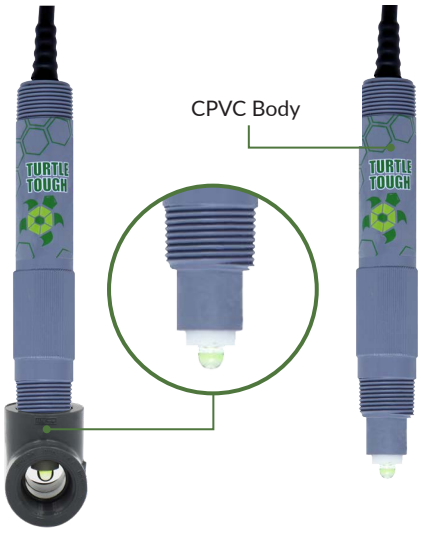
Sensor name		PRECISION	
Measuring type		pH *(-pH)*	ORP *(-ORP)*
Sensor installation types		CPVC ¾" front-end x ¾" back-end MNPT *(-CPVC)*	
		RYTON ½" front-end x ¾" back-end MNPT *(-RYTON)*	
Output types	-DSS	**Smart Digital sensor:** Direct Smart Sensor Technology *(-DSS)*. This open source digital signal output (MODBUS RTU) is compatible with a wide range of devices that can accept a MODBUS RTU signal*.	
	-PD	**Smart Digital Sensor:** Proprietary Digital technology (RS485) *(-PD)*. This closed source digital signal output is only compatible with select Turtle Tough Analysers*.	
	-A	**Analogue sensor:** Analogue Technology *(-A)*. Compatible with analysers that support a conventional non-preamplifier analogue*.	
Pressure	Immersion	Sensor rating 100 psi. *(690 kPa)*	
Temperature range		-5°C to 75°C	
Junction material		HDPE *(High-Density Polyethylene)*	
Cable length	-DSS -PD	**Smart Digital Sensors:** 6m	
	-A	**Analogue sensor:** 3m	
Temperature compensation		Pt1000	
Connection	-DSS -PD	**Smart Digital sensor:** Quick Connect Plug - 4PIN (NEMA 6P)	
	-A	**Analogue sensor:** Tinned Leads	
pH/ORP range		0 to 14 pH	±2,000 mV Absolute
Measuring element type		Proprietary Tough Glass	Platinum ball in low profile configuration
Element dimensions		8.0mm (0.315") Diameter	5.0mm (0.197") Diameter
Initial impedance		<800 M Ohms @ 25°C	N/A
Sodium ion error		< 0.15 pH in saturated Na^+ solutions at pH 14.00	N/A
Acidic errors		< 0.05 pH in HCl solutions at 0.00 pH	N/A
Reference type		Double Junction	
Reference half cell		Ag/AgCl, saturated KCl	
Primary junction		Porous Ceramic, Saturated KCl in Cross-linked polymer, interfaced to secondary junction	
Secondary junction		Solid-state non-porous cross-linked polymer embedded in Kynar support matrix holds excess KCl assuring saturation at all temps for stability & long sensor service life	
Special features		Acid/Fluoride, Ammonia, Chlorine and Sulphide Gas Resistant	
Storage		Keep at room temperature with closed protector cap, filled with storage solution in an upright position	
Warranty		12 month conditional warranty. Go to turtletoughsensors.com/support/warranty-returns	

*For compatibility, please consult with your Turtle Tough representative
** Please note that for most installations, the mating hardware is the limiting factor for the maximum pressure allowance with consideration also being given to operator safety.
Note: This specification is subject to variation as per any options applied. Each option indicates how it will alter or impact upon the standard specification.

Front-end Inline

All standard immersion type sensors have a ¾" front-end thread that can interface directly with the process.





Example of Turtle Tough's PRECISION CPVC sensor with a rear-end thread, used with a rod for easy handling and control in your process.

¾" back-end thread

Hot-Tap and Sanitary Tri-clover inline accesories are not included. Required components for complete assembly as: sensor holder, extension tube, sensor insertion rod are sold separately. Please contact your representative for a quote.