



# IOTRON™ SENSORS

## INTEGRATED INDUSTRIAL pH SENSOR SPECIFICATIONS

<u>Sensor Part Number &amp; Short Description:</u>	<b>8451</b> – Acid Fluoride & HF Resistant pH Sensor - Twist Lock Quick Disconnect Installs Double O-Ring seals for inline interface & 1" MNPT for immersion/submersible interface
<u>Configuration Type:</u>	<i>Interface with Twist Lock Quick Disconnect Receptacle for Inline Use or 1" MNPT rear threads with insertion tube for immersion or waterproofing seal for submersible installs</i>
<u>General Sensor Specifications:</u>	
Operating Temperature Range:	-5 to 105°C (Recommended for -5 to +70 °C in strong HF & fluoride at low pH media)
Operating Pressure Range:	1 to 50 psig (6.9 to 345 kPa) with 1"MNPT KYNAR® (PVDF) Twist Lock Receptacle 1 to 100 psig (6.9 to 690 kPa) with 1"MNPT Ketaspire® PEEK Twist Lock Receptacle
Sensor Body Material:	RYTON® R-4-230BL (Poly-Phenylene-Sulfone, PPS)
Junction Support Matrix Material:	KYNAR® (Poly-Vinylidene-Fluoride, PVDF) Standard or Polypropylene (PP) - <b>8451PP</b>
O-Rings Material of Construction:	Viton®-75 is standard, 2 each redundant O-rings are used to ensure seal integrity; CV-75 ("W"), Simriz® 485 ("U") or Kalrez® 4079 ("K") are available as upgrade options
External Dimensions:	See Drawing 8-1
<u>pH Measurement Specifications:</u>	
Measurement pH Range:	0 to 14 pH (0 to 11 pH with High HF Resistant Option, Alpha Prefix "HF")
Measuring Glass Type:	Hemispherical Glass
pH Glass Dimensions:	0.315" (8.0 mm) DIA, 0.354" (9.0 mm) DIA with High HF Option (Alpha Prefix "HF")
Initial Impedance:	< 800 MΩ @ 25 °C, < 1,500 MΩ @ 25 °C with High HF Option (Alpha Prefix "HF")
Sodium Ion Error:	Less than 0.15 pH in sodium (Na <sup>+</sup> ) solutions at pH 14.00 (without "HF" option invoked)
Acidic Error:	Less than 0.05 pH in hydrochloric acid (HCl) solutions at 0.00 pH (for standard version)
<u>Reference System Specifications:</u>	
Type:	Double Junction Standard (Triple Junction Optional, Alpha Prefix "TJ")
Reference Half Cell:	Ag/AgCl, Saturated KCl
Primary Junction:	Porous Ceramic, Sat. KCl in crosslinked polymer, Interfaced to Secondary Junction
Secondary Junction:	Solid-State Non-Porous Cross-Linked Polymer embedded in Kynar/Polypropylene Matrix holds excess KCl assuring saturation at all temps for stability & long sensor service life
<u>Supported Order Options with Alpha Prefix Order Code Designation:</u>	Ammonia gas resistant ("A"), Organic Media Resistant ("L"), Solvent Resistant ("TS"), 3-Wire TC ("M"), ACCU-TEMP Fast TC ("X"), Add Protective Tines 4 ea ("GR"), Add Protective Tines 2 ea ("GRO"), Shielded Preamp Cable ("BL")
<b><i>Inquire to factory for specials</i></b>	
<u>Example Recommended Applications:</u>	Acid fluoride etching solutions or fluoride wastewater treatment systems where low pH conditions may exist or strong acid cleaning is required to remove fouling from sensor.
<u>Storage and Shelf Life:</u>	One (1) year from date of dispatch from factory when stored at indoor ambient room temperature with proper orientation & protector cap.
<u>Available Configurations &amp; Options:</u>	
Integrated Components:	- Temperature Compensation Element (compatible type must be specified) - Solution Ground Liquid Earth, 316SS (alpha prefix "Y"), or Platinum (alpha prefix "Pt") - Analog Conventional or Differential Preamplifier (Contact factory for available options) - Smart digital sensor board for use with 3TX-HiQ-pH Intelligent pH & ORP transmitters
Analog Sensors without integral preamplifier:	Terminated with Male BNC connector (-MBNC) or Tinned Lead Wires (-TL)
Analog Sensors with integral preamplifier:	Terminated with Tinned Lead Wires (-TL) or Quick Disconnect NEMA 6P Snap (-Q7M)
Analog Dual pH & ORP All-in-one Sensors <i>without integral preamplifier style only:</i>	Terminated with tinned lead wires (-TL), Alpha Prefix "PtD", 2 each reference half-cells allow for simultaneous use on two completely separate input channels or transmitters
Digital Smart Sensors:	Terminated with IP67/NEMA 6P rated waterproof & corrosion resistant snap connector. For 3TX-HiQ-pH Intelligent pH/ORP transmitters or HiQDT style with RS-485 MODBUS RTU to interface with any suitable PLC or SCADA (Minimum Quantities may apply)

1

2

3

REVISION HISTORY		
REV	DESCRIPTION	DATE

APPROVED

O-RINGS (2 EACH)

LOCKING PINS FOR TWIST-LOCK QUICK-DISCONNECT FEATURE

0.95" DIA.

1" - 11.5 NPT  
1.31" DIA MAX

1.69"

1.25"

8.00"

0.3" MAX

A

A

NOTES

1. All dimensions are in inches, unless otherwise indicated with tolerances as detailed below
2. Sensor body material of construction is RADEL (8X31), PEEK (8X41) or RYTON (8X51, 8X52)
3. O-ring material of construction is Viton-75 standard; CV75, Simriz 485 & Kalrez 4079 Optional
4. Drawing as shown is without protective tines. The maximum displacement of the sensor past the end of the body in this configuration is 0.3" inches yielding a max overall length of 8.3 inches.
5. With Protective tines "GR" (4 places, 90 degrees apart) or "GRO" (2 places, 180 degrees apart) configurations overall sensor length is 8.00 inches.
6. This sensor is only suitable for inline installation when used with ASTI 1" MNPT Twist Lock Receptacle.
7. Do not use any sensor beyond the factory defined maximum temperature or pressure rating.

B

B



Advanced Sensor Technologies U.S.A.  
Website: <http://www.astisensor.com>

TITLE  
Sensor for Inline Twist Lock Quick Disconnect Use

SIZE	PROJECT	DRAWING NO.	REV
B	TWIST-LOCK	8-1 pH SENSORS	/

SCALE	MODEL	SHEET	OF
Not to Scale	8X31,8X41,8X51,8X52	1	1

2

1

3