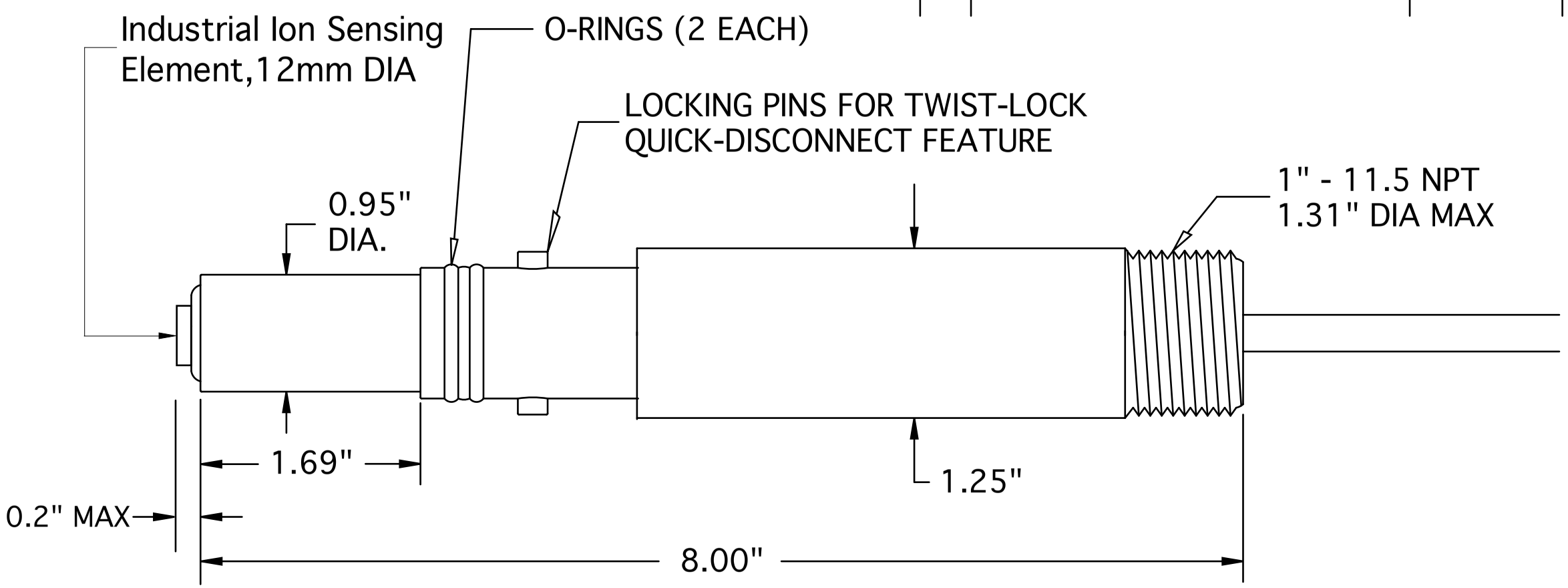
Sensor Part Number & Short Description:	**AB 8440 – Calcium (Ca^{2+})** Industrial Ion Selective (ISE) Twist Lock Sensor for Inline Quick Disconnect (w/ Double O-rings) & 1" MNPT for immersion/submersible use
Configuration Type:	*Interface with Twist Lock Quick Disconnect Receptacle for Inline Use or 1" MNPT rear threads with insertion tube for immersion or waterproofing seal for submersible installs*
General Sensor Specifications:	
Operating Temperature Range:	+5 to +40 °C Continuous (Maximum +50°C with Ultralow Option)
Operating Pressure Range:	1 to 10 psig (6.9 to 69 kPa) with 1"MNPT KYNAR® (PVDF) Twist Lock Receptacle
Sensor Body Material:	RADEL® R-5000 NT (Poly-Phenyl-Sulfone, PPSU)
Junction Support Matrix Material:	High-Density Polyethylene (HDPE) Standard for Standard & Ultralow Measurements KYNAR® (Poly-Vinylidene-Fluoride, PVDF) Optional for Aggressive Service Conditions
O-Rings Material of Construction:	Viton®-75 is standard, 2 each redundant O-rings are used to ensure seal integrity
External Dimensions:	See Drawing 8-ISE
ISE Measurement Specifications:	
Linear Measurement Range:	0.200 to 40,000 ppm ($5X10^{-6}$ to 1.0 Molar)
Lowest Limit of Detection	0.020 ppm ($5X10^{-7}$ Molar, a.k.a. 20ppb)
Given in Ratios of Permissible Excess: Interferring Ion / Measured Ion (in Molarity)	Na^{+} (2,000), Mg^{2+} ($5X10^{3}$), K^{+} (167)
Suitable pH range:	2.5 to 11 *
pH Considerations	* Note: The calcium ion selective sensor can only measured ionized calcium. Calcium bound in complexes or sparingly soluble forms cannot be detected. The equilibrium that defines the extent of total calcium present is in the measurable free ionized form may be both pH and temperature dependent. Contact factory for assistance with calibration.
ISE Sensing Element Dimensions:	0.315" (8mm) DIA active sensing region, 0.472" (12 mm) DIA overall sensing electrode
Initial Impedance:	< 100 MΩ @ 25 °C Standard Version, < 300 MΩ @ 25 °C with Ultralow Option
Reference System Specifications:	
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 HDPE/KYNAR Support Matrix holds excess KCl assuring saturation at all temps for stability & long sensor life
Supported Order Options with Alpha Prefix Order Code Designation:	Ammonia gas resistant ("A"), 3-Wire TC ("M"), ACCU-TEMP Fast-Response TC ("X"), 4 each Tines ("GR"), 2 each Tines ("GRO"), Shielded/Reinforced Preamp Cable ("BL")
Example Recommended Applications:	Industrial, municipal and food facilities that desire to monitor the total hardness by means of using the ionized calcium ion as an indirect realtime proxy. Environmental monitoring in rivers, lakes and ponds for public health and water quality. Low-level calcium detection for water softener applications and high-level calcium measurement for product quality monitoring and to proactively stop scaling on process piping.
Storage and Shelf Life:	One (1) year from date of dispatch from factory when stored at indoor ambient room temperature with proper orientation & protector cap.
Available Configurations & Options:	
Integrated Components:	- Pt1000 Temperature Compensation Element - Analog Conventional Preamplifier (Optional for noisy areas and/or long cable runs)
Analog Sensors without integral preamplifier:	Terminated with Tinned Lead Wires (-TL)
Analog Sensors with integral preamplifier:	Terminated with Tinned Lead Wires (-TL) or Quick Disconnect NEMA 6P Snap (-Q7M)

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



NOTES

1. All dimensions are in inches, unless otherwise indicated with tolerances as detailed below
2. Sensor body material of construction is RADEL for all 8XX0 series ion selective (ISE) models
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 0.2" inches yielding a max overall length of 8.2 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.

TOLERANCES	
1 Place: ± .1	3 Places: ± .005
2 Places: ± .01	4 Places: ± .0005
Angular: ± 0.25°	

DRAWN BY: RH
CHECKED BY: TADP
APPROVED BY: MJP

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-ISE Ion Selective Sensor	/

SCALE Not to Scale | MODEL 8XX0 | SHEET 1 OF 1