

ZEUS™ **SMART DIGITAL ORP SENSORS WITH ULTRA-RUGGED CONSTRUCTION FOR TOUGH PROCESS MEASUREMENT APPLICATIONS**

Description of Most Important
Common Core Features:

- Industrial ORP Sensors for Severe Service Inline, Immersion & Submersible Use**
- Waterproofing seal for complete cable isolation for submersion and field washdowns
 - Solid-state reference nearly impervious to ammonia, chlorine, sulfides & most solvents
 - ACCU-TEMP Fast Response Pt1000 Temperature Compensation "TC" element
 - Rugged thick 3.0mm (0.12") protective tines guard configuration, 4 each 90° apart
 - Thick 5.6mm (0.22") sensor body for 1.66" O.D. to endure tough mechanical wear
 - Standard 6 meters (20 feet) of integral cable with thick PVC jacket for aggressive use

Smart Digital Configuration of ZEUS™ ORP Sensors:

Short lead times for urgent
commissioning of new systems
or replacement of existing installs
with very robust & advanced digital
ORP measurement technology

FEATURES SPECIFIC TO SMART DIGITAL ZEUS™ CONFIGURATION

- * Integral smart digital board stores calibrations & transmitter configuration in sensor
- * Waterproof NEMA 6P quick disconnect HiQ4M Snap Corrosion Resistant Connector
- * Up to 610 meters (2,000 feet) noise insensitive digital cable with HiQ4F extensions
- * True plug and play sensor with automatic loading of calibration values for hot-swap
- * Calibrate conveniently in lab or shop and install quick-disconnect sensor in the field
- * Calibrate with sophisticated HiQ Windows software or any 3TX-HiQ-pH transmitter
- * Offset calibration yields relative mV ORP measurement for consistent control setpoints
- * Entire transmitter configuration can be downloaded to sensor or uploaded from sensor to intelligent 3TX-HiQ-pH transmitter for advanced management of field installations
- * Stores last five mV & temperature offset calibrations together with associated dates
- * See 3TX-HiQ documentation for complete set of smart digital features & functionality

Process Connections:

- 1" MNPT Threads on Front for Inline Screw-in Installations
- 1.25" MNPT Threads on Back for Immersion & Submersible Installations

General Sensor Specifications:

- Operating Temperature Range: -15 to +150°C for Inline/Immersion Use (Max +85°C for fully submersible installations)
- Operating Pressure Range: 1 to **200 psig** (6.9 to 1379 kPa)
- Sensor Body Material: RADEL® R-5000 NT (Poly-Phenyl-Sulfone, PPSU)
- Junction Support Matrix Material: KYNAR® (Poly-Vinylidene-Fluoride, PVDF)
- External Dimensional Drawing: See ZEUS™ Digital ORP Sensor 1"-1.25" MNPT Inline / Immersion / Submersible

ORP Measurement Specifications:

- Measurement mV Range: -1,000 to +1,000 mV absolute
- Measuring Glass Type: **Low Profile Platinum Ball Configuration;** For Slurries, High Pressure & Velocity
- ORP Glass Dimensions: 0.197" (5.0 mm) DIA

Reference System Specifications:

- Type: Triple Junction Standard
- Reference Half Cell: Ag/AgCl, Saturated KCl
- Triple 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
- Primary & Secondary Junctions: - Porous Ceramic, Saturated KCl in crosslinked polymer, Interfaced to Triple Junction

Some Selected Examples of
Recommended Applications:

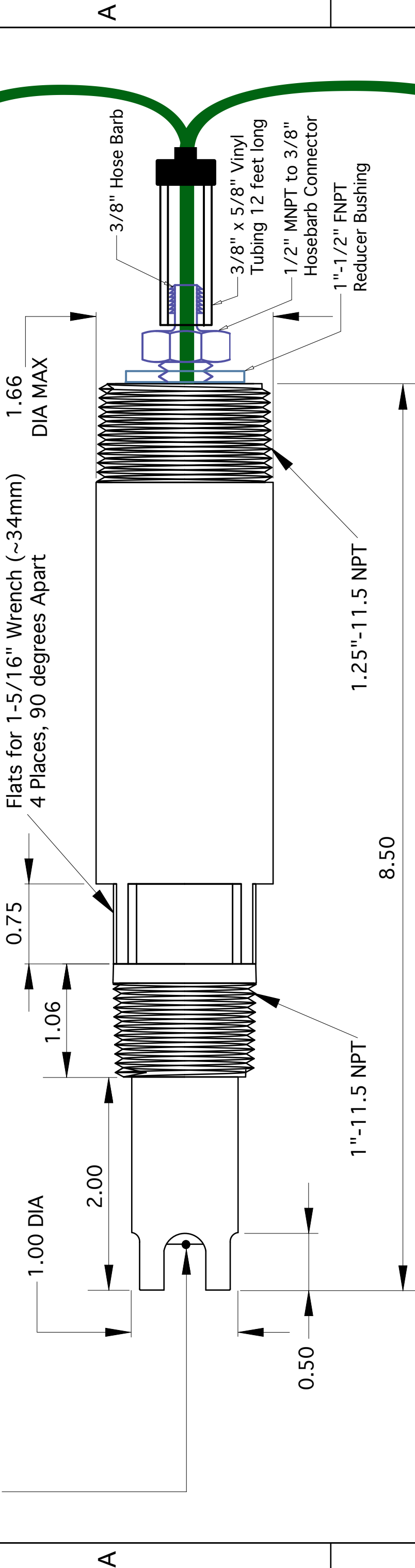
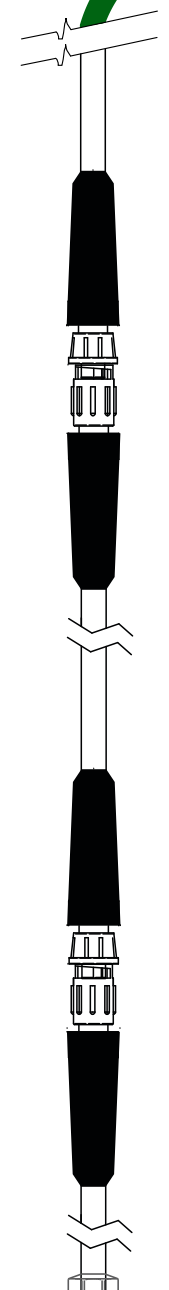
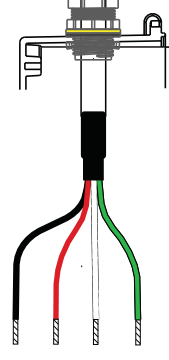
- Any process media where the redox (ORP) potential is monitored or controlled.
- Industrial & mining autoclaves, abrasive slurry & high viscosity solutions, sulfide service.
- Any measurement where aggressive chemical cleaning is needed to remove fouling or low-maintenance operation is required with minimal cleaning and re-calibration.
- Not for use in low conductivity, steam sterilization or steam type processes.**

Storage and Shelf Life:

- One (1) year from date of dispatch from ASTI factory when stored at indoor ambient room temperature with proper orientation & protector cap.

Platinum Low-Profile Ball Sealed into Glass ORP Sensing Element

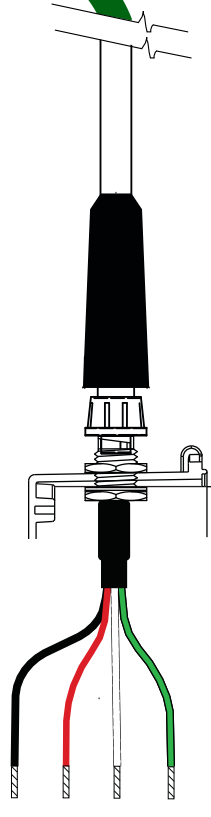
Installation Approach # 3 Special for Smart Digital 3TX-HiQ Configuration



NOTES

1. All dimensions are in inches with tolerances as detailed below
2. Sensor body material of construction is RADEL R-5000 NT
3. Support matrix for solid-state cross-linked conductive polymer reference system is KYNAR (PVDF) material of construction
4. Protective tines 4 places, 90 degrees apart, 0.12 inches (3.0mm) thick
5. Smart digital 3TX-HiQ-pH configuration uses HiQ4M quick disconnect snap connector with 20 feet cable. Use HiQ4F snap cable extensions to achieve desired total cable length for field install.
7. See hook-up schematic to interface tinned leads to mating 3TX-HiQ-pH intelligent pH transmitter.
8. Do not use any sensor beyond the factory defined maximum temperature or pressure rating.

Installation Approach # 1 for Smart Digital 3TX-HiQ Configuration



A B



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

DRAWN BY TADP		CHECKED BY TADP		APPROVED BY MJP	
TOLERANCES		1 Place: ± .1		3 Places: ± .005	
		2 Places: ± .01		4 Places: ± .0005	
		Angular: ± 0.25°			
TITLE 1"-1.25" MNPT Inline / Immersion / Submersible					
SIZE B	PROJECT ULTRA RUGGED	DRAWING NO. ZEUS™	Digital ORP Sensor		REV /
SCALE Not to Scale		MODEL Smart Digital 3TX-HiQ-pH		SHEET 1	OF 1