

HiQDT-EX-LEDTX Explosion-Proof (EX) Controllers for Hazardous Locations with Smart Digital RS-485 MODBUS RTU HiQDT pH, ORP & D.O. Sensors



Smart Digital HiQDT MODBUS RTU sensors are interfaced with NEMA 6P waterproof snap connectors ensuring that sensor maintenance requires no screwdriver use of any kind. The Safe-Touch through-glass button programming means that no IR remote or magnetic device is needed to interface the HiQDT-EX-LEDTX controller for simple operation with just your finger in the field.

Ratings, Approvals & Details

- FM, CSA, ATEX & IECEx
- Class I, Div I, Groups B,C,D
- Operate from -40°C to +60°C
- 1 ea 4-20mA & 4 ea Relays Std
- ScanView Windows software for configuration & setup
- 12-24 VDC or 85-265 VAC
- Master mode with 1 sensor
- Snooper mode up to 8 sensors
- Hot-swap plug & play sensors
- Simple single button output hold & release operation

HiQDT-EX-LEDTX Downloads

- Product Brochure
- Hardware Manual
- Software Manual

HiQDT-NEMA4X-LEDTX Controllers for Safe Non-Hazardous Locations with Smart Digital RS-485 MODBUS RTU HiQDT pH, ORP & D.O. Sensors

Ratings & Approvals and Power Options

- CE, CSA & UL for safe non-hazardous areas
- 12-24 VDC or 85-265 VAC Operation

Hardware Configurations & Features

- Single or Dual Channel NEMA 4X Packages
- 1/8-DIN Panel Mount Package
- 1 each 4-20mA & 4 each relays are standard
 o Expandable to 3 each 4-20mA outputs

Software Configurations & Features

- MODBUS RTU master for 1 each sensor
- MODBUS RTU snooper up to 4 each sensors
 - Snooper acts as field display to remote PLC or SCADA and HiQDT sensors
- Predictive Maintenance Notification Relays
- Field Datalogging feature available as option
- Windows Datalogging w/ ScanView Software

HiQDT-NEMA4X-LEDTX Downloads

- Product Brochure
- Hardware Manual
- Software Manual
- Supplement for Dual pH/ORP Sensors



The HiQDT-NEMA4X-LEDTX controller shown above is the simplest package in the master configuration offering hot-swap plug and play operation with precalibrated smart digital MODBUS RTU sensors for fool-proof operation. The dual channel configuration (not shown above) has 2 each of the controllers panel mounted in the same NEMA 4X enclosure ideal for redundancy or when multiple parameters need to be measured at the same installation location.

Snooper configuration has 4 each connection ports standard in the NEMA 4X enclosure packages. Inquire to factory if you are planning ot use 1/8-DIN panel mount installation scheme for snooper to ensure practice commissioning.



DEFAULT 16 MODBUS REGISTERS DISPLAYED FOR MASTER CONFIGURATION OF HIQDT-EX-LEDTX & HIQDT-NEMA4X-LEDTX CONTROLLERS WITH SMART DIGITAL HIQDT MODBUS RTU pH, ORP AND DISSOLVED OXYGEN (D.O.) TYPE SENSORS

HiQDT-pH Master Configuration pH Sensor Item Number Time since Acid Slope Cal Month of Manufacture 3.91 PH 4.0 days 1418 ItEm 1 month Temperature Celsius Asymmetric Potential (A.P.) Slope for Alkaline Range Software Revision 21.7 dEgC 8 SoFtw 59.2 mV/PH **-**54.6 ™ Raw mV Input Time since Offset Cal Time since Base Slope Ca Min Temp in Use (Celsius) 117 AbSmV 4.0 dAYS 159.8 days 18.1 min-C Total Days in Use Slope for Acid Range ear of Manufacture Max Temp in Use (Celsius) 159.8 days 56.2 mV/PH 2018 YEAr 31.4 mAX-C **HiQDT-DO Master Configuration** Dissolved Oxygen PPM Sensor Item Number Air Pressure Month of Manufacture 6 month 8.39 dOPPm 18017 ItEm 760 mmHg **Temperature Celsius** Raw mV Input Slope in mV per DO PPM Software Revision 15.10 AbSmV 5 SoFtw 25.6 dEgC 1.80 mV/PP Percent Saturation 6 Saturation w/o Salinity Fime since Slope Calibration Min Temp in Use (Celsius) 109.1 PErCnt 101.9 CALPct 26.0 days 18.5 min-C Salinity Total Days in Use Year of Manufacture Max Temp in Use (Celsius) 65.5 time 12.2 PSu 2019 YEAr 54.0 mAX-C

MASTER CONFIGURATION NOTES:

- Scaling for 4-20mA analog output is full measurement range of the given sensor type by default, although this can be readily modified with ScanView Windows software as desired for your paticular installation.
 - Expansion module for HiQDT-NEMA4X-LEDTX controller adds 2 additional 4-20mA outputs. 2nd output typically used for temperature & 3rd output typically used for ORP in Dual pH/ORP sensors
- Default relay configurations are detailed below. Setpoints can be readily changed with ScanView software.
 - Relay 1 Low Set for pH (0.00), Std ORP (-1,000mV), Wide ORP (-2,000) or DO (0.00 ppm / 0.0 %)
 - Relay 2 Hi Set for pH (14.00), Std ORP (+1,000mV), Wide ORP (+2,000) or DO (150 ppm / 1,500 %)
 - Relay 3 Predictive Maintenance for Recalibration Default set as 30 days since last calibration
 - Relay 4 Predictive Maintenance for Reordering Default 365 for pH/ORP & 1,095 days for DO
- Datalogging for all 16 registers with free ScanView software when connected to USB port on controller
- Alternate registers can be polled from smart HiQDT sensors than those displayed above in the screenshots.
 - Contact factory if custom configuration is desired prior to dispatch of goods from factory.

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SNOOPER CONFIGURATION OF HIQDT-EX-LEDTX & HiQDT-NEMA4X-LEDTX WITH HiQDT MODBUS RTU pH, ORP & DISSOLVED OXYGEN SENSORS



ENHANCED INSTALLATIONS USING SMART DIGITAL MODBUS SENSORS



SNOOPER CONFIGURATION NOTES:

- Snooper configuration for smart HiQDT MODBUS RTU sensor slaves on bottom illustration can be correlated to 4-20mA loop-powered meter for analog control systems on top illustration where both devices serve as local display between the control system and the sensor and/or transmitter.
- Up to 8 each HiQDT MODBUS RTU sensors can be powered and polled in snooper configuration when installed in non-hazardous locations (max 1 each supported for hazardous EX type areas).
- HiQDT-EX-LEDTX & HiQDT-NEMA4X-LEDTX snooper configurations provide isolated power & isolated RS-485 serial port to fulfill installation requirements of HiQDT MODBSU RTU sensors.
- Any registers that are to be displayed and/or used as the basis of any analog output or contact relays must be polled by customer programmed MODBUS RTU master (PLC, SCADA,...etc).



Explosion-Proof (EX), NEMA 4X & PANEL LED Controllers for HiQDT MODBUS RTU Smart Digital pH, ORP & D.O. Sensors

Feature or Functionality	Explosion Proof HiQDT-EX-LEDTX-PSXX 1	1/8-DIN Panel HiQDT-PANEL-LEDTX-PSXX ¹	NEMA 4X HiQDT-NEMA4X-LEDTX-PSXX ¹
Display	0.60" (15mm) upper & 0.46" (12mm) lower 6 digit LED (-9999999 to 999999) adjustable from five to zero decimal places Brightness is user adjustable including high intensity mode for best visbility even under bright direct sunlight		
Installation Styles Supported	1.5" to 2.5" NPS or DN 40 to 65 mm Pipe Mounting or Wall Mounting with 4 each slotted flanges	1/8-DIN Panel Mount	Wall/Plate Mounting Standard or Pipe Mounting with optional kit
Agency Approvals	FM & CSA Class I, Division I ATEX II 2 G D & IECEx d IIC T Gb	CE, CSA & UL listed for use in non-hazarduous safe areas UL & c-UL Listed. E160849; 508 Industrial Control Equipment.	
Calibration Methods	Windows Software or Battery Powered Handheld Communicator (HHC); Auto-buffer calibration on Windows software for 1.68, 4.00, 6.86, 7.00, 9.18, 10.00, 12.45 pH buffers; Separate acid slope (pH <7) and alkaline slope (pH>7) is supported for all calibration methods; Fully automated dry in air slope calibration for dissolved oxygen sensors		
Power Configurations	85-265 VAC 50/60 Hz 20W max (-PSAC) ¹ or 12-24 VDC ±10% 15W max (-PSDC) ¹		
Conduit Connections for Power, Outputs & Sensor Inputs	Four ¾" NPT threaded conduit openings and two ¾" NPT metal conduit plugs with 12 mm hex key fitting installed	Not Applicable (Panel Mount)	Up to 4 each HiQ4FP female panel connectors for 4 each HiQDT sensors Up to 6 each ½"MNPT cable glands factory installed for power & outputs
Enclosure Information	Explosion-proof die cast aluminum with glass window, corrosion resistant epoxy coating, color: blue. NEMA 4X, 7, & 9, IP68 rated	high impact plastic UL 94V-0 color: black	NEMA 4X thermoplastic polyester color: gray
Max Number of HiQDT Sensors	1 each Single Parameter in Master Configuration; 8 each Single or 4 each Dual Parameters for HiQDT-EX-LEDTX and 4 each Single or 2 each Dual Parameters for HiQDT-PANEL/NEMA4X-LEDTX in "Snooper" ² Configuration		
Typical Input Scheme for HiQDT Sensors	HiQ4F-Xm-TL female snap to tinned lead extension cable wired into 10VDC power supply for EX use	HiQ4F-Xm-TL female snap to tinned lead extension cable wired to 12VDC power for safe areas	HiQ4FP panel mount connectors can interface up to 4 each HiQDT smart digital sensors for "Snooper" Style
Power for HiQDT Sensors	Integral 10VDC 25mA max for EX or 200mA max for use in non-EX areas	Provided by 12VDC drive voltage from 4-20mA current loop output	Internal DIN-RAIL 12VDC power supply for 85-265 VAC or 9-36VDC
Analog Output	1 ea Scalable 4-20mA Max 700 Ω; 4kV Isolation input/output-to-power line and 500 V isolation for input-to-outputUp to 3 each 4-20mA Programmable outputs with use of Expansion Modul		
Contact Relays	4 ea Isolated SPDT (Form C) Max 3A @ 250VAC/30VDC ³ Deadband: 0-100% of span; Time Delay: 0 to 999.9 seconds. Each relay configurable for low or high setpoint. Settings are programmable and independent for each relay.		
Special Features	SafeTouch® Through-Glass Button Programming Ideal for EX area use	Simple plug and play operation for panel pH monitoring & control use	Serves as local display of process values and powers HiQDT sensors
Typical Applications for Master Configuration	Transmitter & controller for use in locations requiring explosion-proof electronics and/or installation areas with very aggressive environments	Transmitter & controller for use in facilities with existing panels where no secondary enclosure is needed	Transmitter & controller for field installations in safe non-hazarduous areas requiring NEMA 4X package
Typical Applications for "Snooper" ² Configuration	Local display in field for sensor(s) between field installation and PLC where data is to be acquired for monitoring or control purposes	Local display in field for sensor(s) between field installation and PLC with existing panels not requiring any secondary enclosure	Local display in field for sensor(s) between field installation and PLC where no panel or power supply exists and NEMA4X package is required

2. The "Snooper" configuration allows for reading any modbus registers requested by the RS-485 MODBUS PLC master when the HiQDT LED controller is installed between HiQDT smart digital RS-485 MODBUS RTU sensor slave and MODBUS RTU master.

3. If a higher amperage rating is required than what is specified for HiQDT LEDTX controller then please use an ice cube relay that has a suitable amperage rating for the required use as well as satisfactory electrical & safety rating for where it is to be installed.

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