

Model X80 Universal Transmitter for Hazardous Locations

The X80 transmitter is an industrial-grade platform designed to support ECD's intelligent measurement systems across a wide range of water and wastewater applications.

Designed for municipal and industrial environments, the X80 supports reliable process monitoring, control, and compliance for both standard and hazardous-area installations.

One transmitter. Built for demanding measurement applications.



The ECD 6 Point Advantage

- 1 Universal Transmitter:** Single, or Dual Channel Measures pH, ORP, DO, Specific Ion, Turbidity, Conductivity or Resistivity
- 2 Hazardous Location Approved**
- 3 Graphic LCD Display & Intuitive Menu Structure:** Easy Navigation
- 4 Use with ECD Digital Intelligent Sensors** — Factory-calibrated and equipped with onboard data storage.
- 5 4-20 mA output with MODBUS RTU or HART®:** Flexible configurations for all applications
- 6 Rugged Corrosion Resistant 316 Stainless Steel Housing**



Description

The ECD Model X80 Universal Transmitter is a single or dual channel transmitter designed for the continuous measurement of pH, ORP, pION, Dissolved Oxygen, Turbidity, Conductivity or Resistivity in a general purpose industrial environment. The Model X80 transmitter digitally communicates with any ECD Model S88 or S80 Intelligent Sensor, automatically configuring the transmitter's menus and display screens to the measured parameter. The same transmitter can be used for any of the measurements, i.e. plug an S88 Conductivity Sensor into the X80 pH transmitter and it will automatically reconfigure into a conductivity transmitter. There is no longer any need to inventory multiple instrument types. One Model T80 Transmitter will automatically configure to any of the listed measurements.

Sensors

The Model S88 Intelligent Sensors facilitate two way communication with the Model X80 Transmitters. The type of sensor, identity and serial number are stored in the sensor's memory along with calibration registers. The Model S88 Sensors are calibrated at factory so they are ready to use when connected to a Model X80 Transmitter. The Model S88/80 Sensors are waterproof and submersible with all internal components epoxy encapsulated inside the 3/4" O.D. housing. The Model S88 Sensors use the same field proven, easily replaceable electrodes as the Model S10, S17 and S80 sensors, saving time and money.

Display

The Model X80 Transmitter features a large viewed LCD display. Loop powered instruments have black lettering on a grey background, while the 24 VDC powered instruments have blue lettering on a white background when the LED backlight is on. The Model X80 has three easily switchable main display screens (six screens for two channel units):

The Data Screen displays the measurement type, the measured value with units, the % milliamp output of the 4-20 mA channel and the temperature.

The mV Screen displays the measurement type, the raw millivolt signal from the sensor, the % milliamp output of the 4-20 mA channel and the temperature.

The Graphical Screens display the measurement type, the measured value with units and a graphical representation of the % milliamp output.

Three graphical styles are available;

- Trend Line
- Bar Graph
- Gauge

The status of alarm relays, energized/de-energized is displayed on transmitters with relays.

Menus

Menu navigation is accomplished using magnetic switches. Soft keys display the function associated with each button. Pressing any of the buttons twice within 2 seconds activates the Model X80 soft key menus. The primary selections are:

- Calibration Menu
- Info Screens
- Configuration Menu
- Simulate Menu

Calibration

Model S80/S88 Sensors come pre-calibrated from the factory. Field calibrations are easily performed with the Model X80. The calibration menu includes:

- Auto Cal Function
- Two-point Calibration
- Single-point Calibration
- Standardize Function or Manual Calibration

Where previously determined offset and slope values are entered manually into the Model X80 Transmitter.

Configuration

The Configuration Menus allow the Model X80 Transmitter's display and output functions and the Model S88 Sensor's characteristics to be configured or adjusted. Display screens include:

- Hold Function
- Graphical Display Style
- Back Light and Contrast Adjustments
- Labels/Tags - for naming the transmitter
- Password Protection
- Factory Default Reset

Output Screens include setting the addresses for MODBUS or HART® outputs, setting the 4-20 mA Range, Fault Settings and configuring the Alarm Relays.

Info

The Info Screens provide Transmitter and Sensor Information.

The transmitter screens display the:

- Name
- Firmware Version
- Power
- Output Configuration
- Serial #

The sensor screens displays the:

- Name
- Stored Calibration Data
- Part #
- Serial #

Simulate

The Simulate Menu allows the input and output signals to be simulated. The outputs are easily tested by entering a 4-20 mA output value or energizing and de-energizing each of the relays.

The Ramp function cycles the signal across the configured 4-20 mA range, i.e. the transmitter generates a signal from 0 pH to 14 pH and back to 0 pH; generating a 4-20 mA output.

The cycle time and duration are adjustable, allowing sufficient time for an individual to walk to the control room to verify the output.

Power Supply and Outputs

The Model X80 Transmitter is available as a loop powered transmitter or a 24 VDC powered transmitter. The loop powered version has a 4-20 mA output with an optional HART® output.

The line powered instruments have a 4-20 mA output with MODBUS RTU (standard) or the optional HART® output.

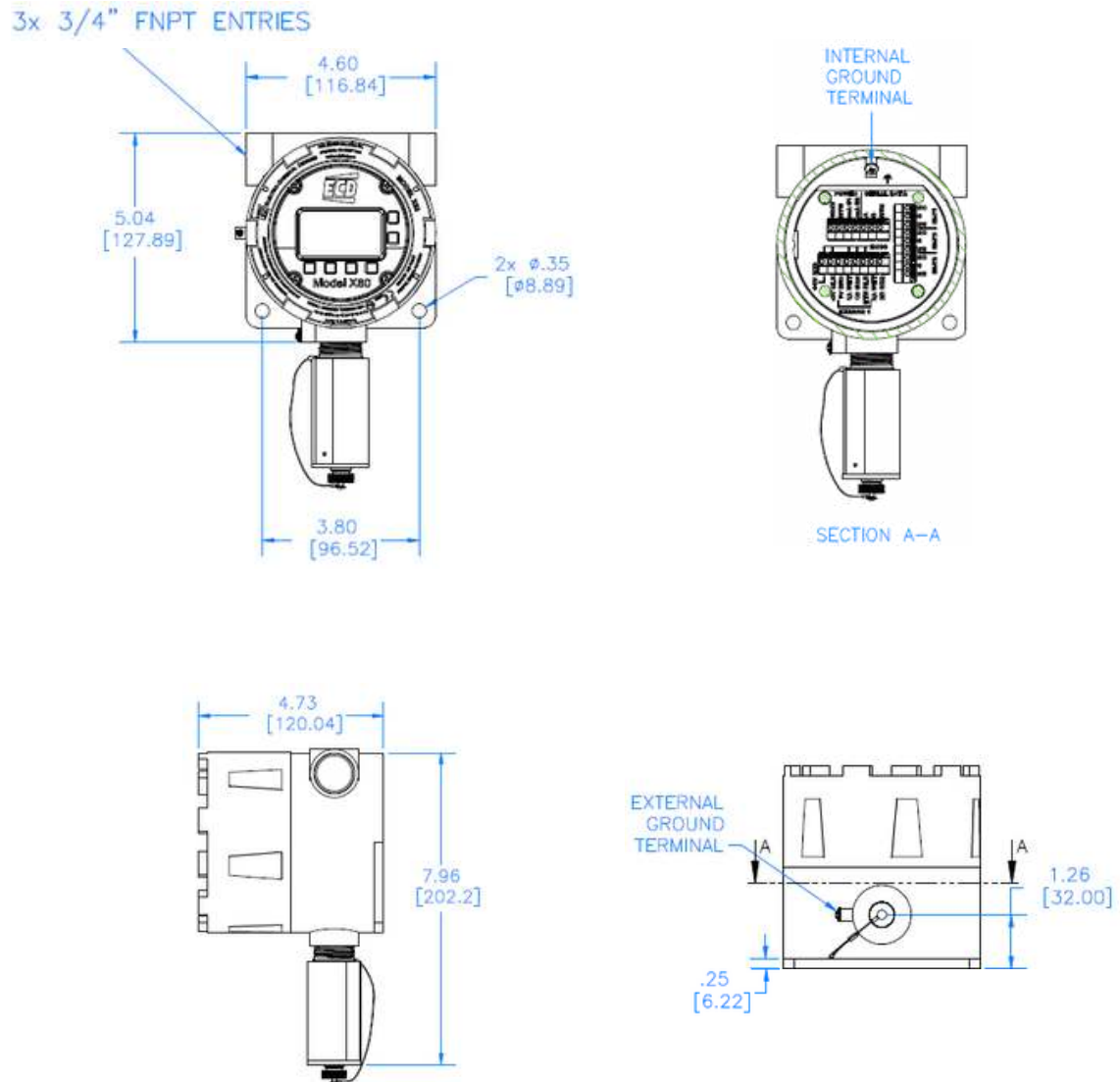
The 24 VDC Transmitter is also available with (3) Alarm relays that can be configured as Alarm Relays (setpoint), Time Relays or as a Fault Relay.

Specifications

Input Specification	Digital Protocol, ECD S80/S88 Sensors, Liquid, Gas, Process Sensors	
Input Ranges	pH	-1.00 – 14.00 pH
	ORP	-1500 – +1500 mV
	pION	000.1 – 999.9 Auto Ranging: ppb ↔ ppm ↔ ppthousand
	Dissolved Oxygen	000.1 – 999.9 Auto Ranging: ppb, ppm, % SAT, mg/L
	Conductivity	0.055 μS – 2.00S Auto Ranging: μS, mS, S
	Resistivity	0.001 – 50.00 meg-ohms
	Turbidity	000.0 – 4000 NTU Auto Ranging: NTU, FNU, mg/L, ppm, % Solids
	Chlorine (Free or Total)	Auto Ranging: ppb ↔ ppm
	Temperature	-30°C – 140°C
Electrical / Mechanical	Materials: Electro Polished 316 SS Mounting: 2 x M4 (3/16") and 3 x 3/4" FNPT	
Display	128 x 64 Pixels (2.75" x 1.5") LCD Loop Powered: Black/Grey background 24 VDC Powered: Blue/White background LED Backlit	
Input Power	Code -0: Loop Powered, 24 VDC, 600 Ω maximum load (18-36VDC @ 35 mW min) Code -1: 24 VDC (18-36 VDC @ 250 mW minimum)	
Outputs	• 4-20 mA Output(s): Standard Single Channel or optional Second Channel • Modbus RTU (Standard) • HART® (Optional) • Alarm Relays: an Optional, Three (3) SPDT, From 1C, 250 VAC, 3 Amp Resistive maximum relays, User configurable as Hi/Lo or Fault Alarms	
Shipping	Size: 8" x 8" x 5" (20.5 x 20.5 x 12.7 cm) Weight: 316 SS (8 lbs / 3.65 kg)	Environmental Conditions • Ambient Temperature -20°C – 70°C • Storage Temperature -30°C – 85°C • Relative Humidity 0 – 90% NC
Hazardous Location Approvals	ATEX Certified Certification No: ITS16ATEX101458X  ATEX Certified Certification No: ITS16ATEX101458X 	X80 Transmitter  II 2 G Ex db mb [ia IIC Ga] IIC T4 Gb  0359 Model X80 Transmitter is intended for installation in hazardous locations with: • Zone 1 • Ex db mb Gb classification • -20°C < Ta < 55°C
	S88 Sensor  II 2 G Ex ia IIC T4 Ga  0359 Model S88 Sensor is intrinsically safe and intended for installation in hazardous locations with: • Zone 1 • Ex db mb Gb classification • -20°C < Ta < 55°C	 CSA Certified Explosion Proof Enclosure X80 Enclosure Class I, DIV 1, Groups B, C and D; Class II, DIV 1, Groups E, F, and G; Class III, DIV 1, TYPE 4X, Ex d IIB+H2;  FM Approved Explosion Proof Enclosure X80 Enclosure Class I, DIV 1, Groups B, C and D Class II, DIV 1, Groups E, F, and G Class III, DIV 1, NEMA 4X, IP66
Dimensions		

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Specifications



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Order Information

(A) Single Channel	(F) 316 Stainless Steel / No Approvals
(B) No Second Channel	
(C) Loop Power 24 VDC (Single Channel Only)	
(D) No Relays	
(E) HART®	

	A	B	C	D	E	F	Sample Order
X80	1	0	0	0	1	00	X80-10-001-00

A. Channel #1 Sensor Type

Part No.

1 (S88) S88 Digital Sensor, pH, ORP, pION, DO, ppb DO, Conductivity, Resistivity, Free Chlorine, Chlorine Dioxide

B. Channel #2 Sensor Type

Part No.

0 No Second Channel

1 (S88) S88 Digital Sensor, pH, ORP, pION, DO, ppb DO, Conductivity, Resistivity, Free Chlorine, Chlorine Dioxide

C. Power Supply and Relay Option

Part No.

0 (Loop) 2 Wire, Loop Power (24 VDC) (Single Channel Only)

1 24 VDC Power

D. Relay Option

Part No.

0 (NO RELAY) No Relays (Standard)

1 (RLY) 3 Relays (DC Powered Only)

E. Outputs

Part No.

0 (MA) 4-20 mA & **Modbus****

1 (H) HART®

2 (2MA) 2 x 4-20 mA & **Modbus****

3 (HM) Handrail Mounting Plate (including 2" hardware)

F. Housing Material / Approvals

Part No.

00 (SS) 316 Stainless Steel / No Approvals

01 (SS) 316 Stainless Steel / FM Approved

02 (SS) 316 Stainless Steel / **ATEX / IECEx Approved – Single Channel**

03 (SS) 316 Stainless Steel / **ATEX / IECEx Approved – Dual Channel**

Model X80 Spare Parts

Part No.

9310062 Fitting Plug ¾" NPT, Stainless Steel

9680044.1 Screwdriver with Magnetic Tip

2000138-X Sub Assembly Module Display & Control Boards (X = Specify Configuration)

2100240-X Power Supply Boards (X = Specify X80 Configuration)

9120019-1 S88 Sensor Barrier ***ATEX / IECEx Approved**

Model X80 Accessories

Part No.

1000014 HART Communicator Intrinsically Safe

1000260-6 Stainless Steel Sun Shield with Pole/Rail Mounting

**** Modbus – DC version ONLY.**

Note: Other configurations and specialized customizations are available.
Please contact Electro-Chemical Devices Support toll free at **800-729-1333** or your ECD Representative.

Represented By:



World Headquarters: 1500 North Kellogg Dr. | Anaheim, California, USA 92807

Phone: 714-695-0051

Fax: 714-695-0057

Email: sales@ecd.com

www.ecdi.com

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Equipment and Specifications may be updated periodically to enhance performance and reliability.

