

**ECD**

# T23 Series Transmitters



**ELECTRO-CHEMICAL DEVICES**



## **T23 Series Transmitters**

pH, ORP, Specific Ion, Dissolved Oxygen,  
Conductivity and Resistivity Measurements



## Features

- Choice of multiple measurement parameters
- Two Channel Capability
- SENTINEL Diagnostics
- Isolated Outputs
- Auto Buffer Calibration
- 24 VDC loop-powered or 110/220 VAC power option
- Multiple Mounting Configurations

## Benefits

- Measure pH, ORP, Specific Ion, Dissolved Oxygen, Conductivity, and Resistivity
- Lower cost with multi sensor operation
- Predictive sensor diagnostics reduces down time
- Protects overall system inputs and outputs
- Ease of Maintenance
- Minimize wiring & overall installation cost
- Pipe, Wall, Handrail, or Panel Installation choices

## Description

The Model T23 two-wire transmitter provides simplicity in a powerful package. A choice of measurement parameters include: pH, ORP, Specific Ion, Dissolved Oxygen, Conductivity and Resistivity.

**MULTI-CHANNEL CAPABILITY** allows the Model T23 to accept up to two sensor inputs, each having temperature compensation, and provides up to three selected outputs. Any combination of pH, ORP, Specific Ion, or Dissolved Oxygen can be accepted as an input. (Conductivity or Resistivity transmitters are only available as single channel units)

The **SENTINEL** is the next generation sensor technology. By utilizing the "SENTINEL" sensor reference diagnostics, the user can easily monitor the reference electrode's degradation due to depletion or process contamination. The "prephault" indication is clearly displayed as a bar graph on the main process menu (or as an optional output). The bar graph will flash when it is time to replace an electrode. This feature allows just in time delivery of the consumable component of the sensor, eliminating unforeseen downtime.



**Multi-Channel and Sensor Options**

pH, ORP, pION



**SENTINEL "prephault" Sensor Diagnostics**

# Model T23 Transmitter

# Transmitters

The **AUTO BUFFER CALIBRATION** feature allows the user to perform buffer calibrations that are stored in memory for future reference. After the buffer points have been initially stored in memory, activate calibration and insert the sensor into standard solutions. Wait for the sensor reading to stabilize and save the data. There are no buffer value adjustments to make.

The simplicity of the T23 transmitter allows **one person** to quickly perform calibrations through the power of the micro processor. All configuration and calibration functions are easily performed via the membrane key pad eliminating the need for any mechanical potentiometer adjustments. The membrane keys allow for easy calibrations while insuring NEMA 4X environmental integrity.

**ISOLATED OUTPUTS** are standard with the Model T23. The Model T23 accepts signals from various ECD sensors, processes the information and provides up to three fully isolated 4-20mA or 20-4mA outputs. The outputs are expandable and reversible.

**OPTIONAL OUTPUTS** are available with the Model T23, including a three-mode proportional control output for any measured parameter. Other outputs available are differential, average and ratio outputs. An additional relay option provides (two) 5 amp relays that can be used as alarm or control set points.

**POWER REQUIREMENT** of the Model T23 is typically 24 VDC loop-powered with an optional 110/220 VAC power supply. In case of power interruption, the calibration and configuration data are retained in the EEPROM memory.

**CONDUCTIVITY TRANSMITTERS-** If an application requirement includes resistivity, conductivity, or specific concentration measurement, the Model T23 Transmitter will provide a new level of simplicity and reliability. Built in sensor diagnostics indicate the validity of the sensor measurement with each calibration. Sensor models are available for both magnetic and contacting type sensors. Common applications include: sulfuric acid, TDS, sodium hydroxide, boiler blow-down, cooling tower water control and leak detection.

## T23 Displays with Measurement Parameters

DO Display		ORP Display	
DO	8.4 ppm	ORP	-500.0
	44.6% 25.0°C		25.0% 25.0°C

pH Display		pION Display	
pH	7.00	F-	10.0 ppm
	50.0% 25.0°C		10.0% 25.0°C

Conductivity Display		Resistivity Display	
CD	5.00 mS	RS	18.00 M
	50.0% 25.0°C		50.0% 25.0°C

### Calibration

Auto Buffer Cal  
One Person Cal

**Isolated Outputs**  
Up to 3 independent  
4 to 20 mA signals

**Optional Outputs**  
PID Control  
Temperature  
**SENTINEL** Diagnostics  
Differential  
Average  
Ratio  
(Two) 5 Amp Relays

+24 VDC, 4 to 20 mA  
Loop Powered

**Options**  
Internal 110/220 VAC  
power supply

## Specifications

### Measurement Range

pH: -2 to 14.5 pH  
 ORP: -1000 to 1000 mV  
 Specific Ion: 1 to 1000 ppb, ppm, ppt  
 Dissolved O2: 0 to 40 ppm, mg/l or % saturation  
 Conductivity: 0 to 2 Siemens  
 Resistivity: 0 to 2 meg-ohms  
 0 to 20 meg-ohms

### Display

Menu driven, 32 character alphanumeric, Supertwist LCD, The main menu simultaneously displays; (1) Process Identity, (2) Process Value and Engineering Units, (3) Percent Output, (4) Temperature in °C or °F.

### Operating Temperature

-20° C to 70° C (-4° F to 158° F)

### Temperature Compensation

Automatic with RTD, -30°C to 140°C (-22°F to 284°F) Accuracy within +/- 0.1° C from 0° to 100°C (32°F to 212°F).

### Output

4-20 mA or 20-4 mA, linear and expandable. Up to a maximum of three outputs.

### Input Power

+24 VDC nominal (13.5 to 50 VDC)  
 Optional 110/220 VAC @ 50-60Hz

### Relay Ratings (optional)

5A @ 250VAC / 5A @ 30 VDC  
 resistive max. (2) SPDT

### Max Loop Impedance

525 ohms @ 24 VDC for 4-20 mA compliance on primary output; approximately 800 ohms on secondary outputs.

### Accuracy

+/- 0.10% of full scale

### Linearity

+/- 0.05% of full scale

### Sensitivity

+/- 1.0 mV

### Repeatability

+/- 1.0 mV

### Response Time

T90 in 1 second

### Noise Rejection 50/60 Hz

Greater than 70 db

### Input / Output Isolation

Maximum 300 volts between process input and any 4-20 mA output (single and multiple channel outputs). No Isolation between inputs on multiple channel instruments.

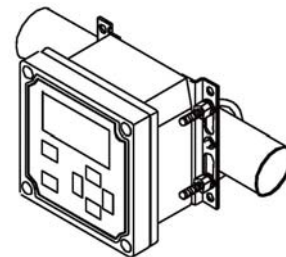
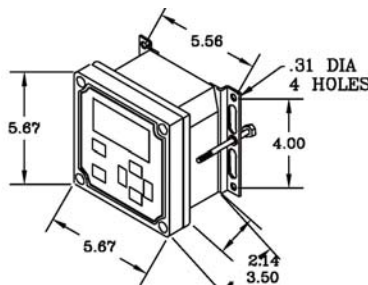
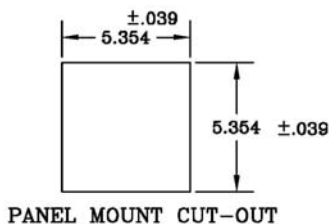
### Enclosure

NEMA 4X, weatherproof, ½ DIN, (L x W x D) 5.7" X 5.7" X 3.0" (14.4cm X 14.4cm X 8.9cm)

### Shipping Weight

1.6 lbs (0.7kg)

## Mounting Dimensions - (inches)



Specifications subject to change without notice.

### Represented by:

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