

# Microprocessor-Based, pH and ORP Transmitters



For accurate measurements of pH and ORP, the model PHTX-692 and ORTX-692 transmitters provide local indication as well as a 4-20 mA output. The large PHTX-692 LCD can alternately indicate pH, temperature, the sensor's millivolt signal or the 4-20 mA output. The ORTX-692 measures ORP and provides a similar indication, except for pH. Each model requires only two wires, common for both output and power. No special cables are necessary. The isolated, dc current loop output features high noise immunity, permitting use of a simple twisted pair of wires. A single dc voltage power source can power multiple transmitters. The PHTX-692 uses either a 1000 ohm RTD or 300 ohm thermistor for automatic temperature compensation. Compatible sensors are described in this section.

When calibrating and configuring the instrument, clear, easily understood procedure messages will prompt the operator. Preprogrammed diagnostic messages flash automatically if system operating problems occur.

The isolated 4-20 mA instrument output eliminates problems caused by electrical interference. An output hold function can maintain the output during calibration or while configuring the instrument. A range expand feature allows the 4-20 mA output to represent a single pH unit or larger segment of the measuring scale (50 mV for model ORTX-692).

Both models are simple to operate. Using a watertight keypad, an operator configures and calibrates the system, and displays measurement data, without having to open the enclosure door.

Shown smaller than actual size.

Models PHTX-692  
and ORTX-692

**\$915**

- ✓ Indicates pH, Temperature, mV and mA Output
- ✓ Single or Two-Point Automated Calibration
- ✓ Automatic Recognition of Pre-Selected Buffer Values
- ✓ Diagnostic Error Messages
- ✓ Surface Mount, NEMA 4X Enclosure
- ✓ Isolated

Model PHE-6510  
with PHEH-65-10  
Submersible Flat  
Surface Electrode.  
See page DD-50  
for details



## SPECIFICATIONS

Operational Display: 4½ digit LCD with measurement unit and setup variable identifiers, 7/8" high digits

### MEASURING RANGE

Model PHTX-692: 0.00 to 14.00 pH, -500 to +500 mV and -10.0 to 110.0°C  
 Model ORTX-692: -2000 to +2000 mV and -10.0 to +110.0°C

### Temperature

**Compensation:** Automatic  
 0-100°C (32-212°F),  
 300 ohm thermistor or Pt  
 1000 RTD, switch selectable

Pressing EXAM/CANCEL changes the display from its measurement mode to an examination mode to show setup variables and their stored values. Pressing the NEXT key displays the next setup variable. The arrow keys change the displayed value to a new value. ENTER stores the displayed value into memory, and EXAM/CANCEL returns the display to its normal measurement mode without changing the stored value.

An internal, non-rechargeable battery retains user-entered setup values for approximately one year (at 25°C) if the loop power is lost or turned off. The battery's one-year backup capacity can be used over a period of up to ten years.

A security lock feature prevents unauthorized tampering of stored configuration values. For convenience, an operator can display stored data and calibrate the instrument while keypad entry is locked. Special codes lock and unlock keypad entry operation.

A NEMA 4X enclosure houses the PHTX-692 and the ORTX-692. The corrosion-resistant polycarbonate case has a hinged door which easily opens or removes to facilitate installation and servicing. Four screw fasteners provide quick access, and a terminal strip compartment, with separate access and weatherproof seals, permits electrical hookup without exposing the instrument circuitry to the environment. Each model contains four stainless steel mounting tabs for surface mounting.

**Ambient Conditions:** -30 to 50°C (-22 to 122°F), 0 to 95% relative humidity, non-condensing

**Sensor-to-Transmitter Distance:** 3 meters (10 feet) maximum for direct connection of conventional combination electrode

**Power Requirements:** 16 to 40 volts dc (24 Vdc recommended)

**Analog Output:** Isolated 4 to 20 mA with output hold feature

**Range Expand:** The 4-20 mA output can be made to represent a one pH unit or larger segment of the measuring scale (50 mV for Model ORTX-692 transmitter)

**Maximum Loop Load† (in series with ORTX-692, PHTX-692 and power supply):**

With 24 Vdc supply, 400 ohms  
 With 32 Vdc supply, 800 ohms  
 With 36 Vdc supply, 1200 ohms

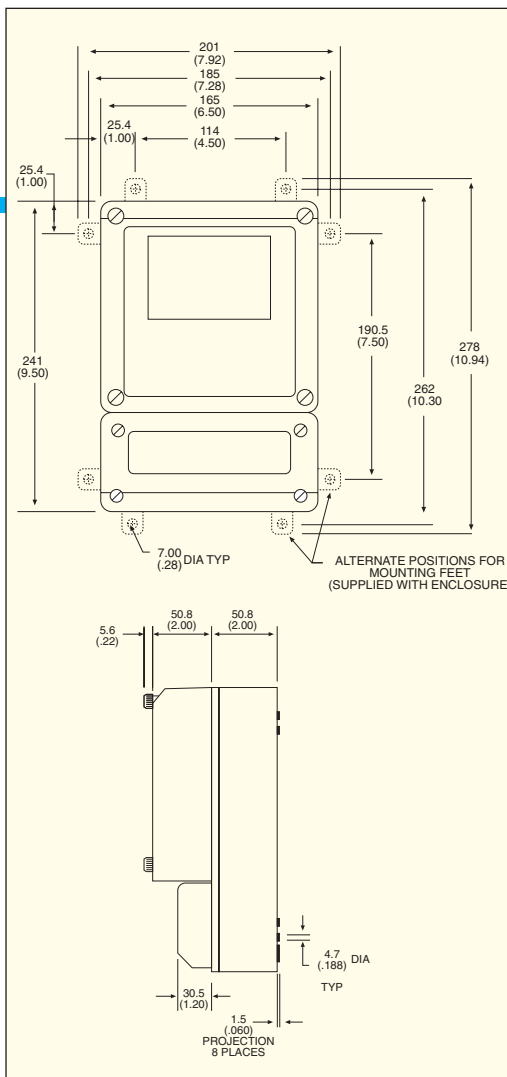
**NOTE:** For long cable runs, the resistance of the wire must be considered and may decrease maximum load capability.

† Not applicable when using barrier for intrinsic safety

**Analyzer Performance (Electrical, Analog Output):**

**Sensitivity:** 0.05% of span

**Stability:** 0.05% of span per 24 hrs., non-cumulative



**Non-linearity:** 0.05% of span

**Repeatability:** 0.1% of span or better

### TEMPERATURE DRIFT

**Zero:** 0.01% of span per °C

**Span:** 0.01% of span per °C

**Response Time:** 1 second to 90% of value upon step change

### MECHANICAL ENCLOSURE

General purpose—safe for Division 2; NEMA 4X. polycarbonate with two ½ inch conduit holes and four stainless steel mounting tabs (Carbon filled polycarbonate enclosure, silicone rubber seals, stainless steel fasteners)

**Mounting Configurations:** Surface mount; optional vertical or horizontal pipe mounting

**Net Weight:** 1.36 kg (3 lb) approximately

**Dimensions:** 278 H x 201 W x 107 mm D (10.94 x 7.92 x 4.22")

**MOST POPULAR MODELS HIGHLIGHTED!**

### To Order (Specify Model Number)

Model	Price	Description
PHTX-692	\$915	Two-Wire pH Transmitter
ORTX-692	915	Two-Wire ORP Transmitter

Ordering Example: PHTX-692 two wire pH transmitter, \$915.



#### UNITED STATES

[www.omega.com](http://www.omega.com)  
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Stamford, CT.

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