



2-Wire Isolated Dissolved Oxygen Transmitter System

DOTX-45 transmitter shown smaller than actual size.

DOTX-45



- ✓ Reliable 3-Electrode Amperometric Sensor
- ✓ Replaceable Sensor Cartridge
- ✓ Sensor Membrane Puncture/Tear Diagnostic
- ✓ Microprocessor-Based System
- ✓ Large, Dual-Display Format
- ✓ Loop Powered, Fully Isolated

Sensor Features

The DOE-45PA dissolved oxygen sensor is a highly dependable membrane-covered galvanic sensor. The polymer membrane has hydrophobic properties to help resist fouling from biological growth and maximize diffusion of oxygen into the sensor. The DOE-45PA also has automatic temperature compensation to correct for membrane permeability errors.

Transmitter Features

The microprocessor-based transmitter is loop powered and fully isolated for high reliability. The transmitter includes devices that protect the system from power surges and brownout events. The large, high-contrast, super-twist display is readable over a wide operating temperature range, even in low-light conditions. The main display line consists of large, segmented characters with measurement units. The secondary display line displays calibration and diagnostic messages in readable dot-matrix characters. Two of four measured parameters can be displayed simultaneously. Programming is intuitive, with a 4-button, menu-driven interface. The 4 to 20 mA transmitter output can be configured to represent any portion of the measurement range. Output hold, alarm, and simulation features give the user complete control of the system output under any condition. Diagnostic messages clearly describe system conditions, which eliminates confusing error codes. The flexible calibration method includes stability monitors that check temperature and main parameter stability before accepting data.



DOE-45PA sensor sold separately, shown smaller than actual size.

Specifications

(DOE-45PA Sensor)

- Measuring Range:** 0 to 40 ppm
- Sensor Cable:** 9.1 m (30')
- Measurement Response Time:** 90% in less than 3 minutes
- Measurement Principle:** Membrane covered galvanic
- Electrode Material:**
 - Cathode:** Platinum
 - Anode:** Lead
- Electrolyte:** Potassium chloride based
- Pressure Range:** 0 to 150 psig @ 25°C (77°F)
- Temperature Compensation:** Pt100
- Temperature Range:** -5 to 55°C (23 to 131°F)
- Minimum Flow Rate:** 6 mm (0.02') per second
- Membrane Thickness:** 50 microns

Membrane Material:

- Membrane Material: FEP (fluorinated ethylene propylene)
- Wetted Materials:** 316 SS, FKM, Noryl
- Sensor Cable:** 5-conductor
- Sensor-to-Transmitter Distance:** 305 m (1000')
- Mounting:** Submersion 1 NPT
- Shipping Weight:** 0.45 kg (1 lb)
- Specifications (DOTX-45 Transmitter)**
- Performance Specifications**
- Displayed Parameters:** Main input, 0 to 40.0 ppm
- % Saturation:** 0 to 200%
- Loop Current:** 4 to 20 mA
- Sensor Temperature:** 0 to 50°C (32 to 122°F)
- Power:** 16 to 35 Vdc
- Main Parameter Range:** 0 to 40 ppm
- Repeatability:** 0.1% of span or better



Sensitivity: 0.05% of span
Non-Linearity: 0.1% of span
Stability: 0.1% of span per 24 hours, non-cumulative
Warm-Up Time:
 4 seconds to rated performance
Supply Voltage Effects: $\pm 0.05\%$ of span
Transmitter Response Time: 4 seconds to 90% of step input at lowest setting
Temperature Drift: Span or zero, 0.02% of span/ $^{\circ}\text{C}$
Temperature Compensation: 0 to 50 $^{\circ}\text{C}$ (32 to 122 $^{\circ}\text{F}$), Pt1000 element; sensor is internally compensated for membrane permeability changes with temperature
Sensor-to-Transmitter Distance:
 305 m (1000')
Enclosure: NEMA 4X (IP66), polycarbonate, stainless steel hardware, weatherproof and corrosion resistant, 112 H x 112 W x 89 mm D (4.4 x 4.4 x 3.5")
Mounting Options: Wall, panel, pipe, DIN rail, integral-sensor
Conduit Openings: 2-PG9 openings, 1-1 NPT center opening, cordgrips and plug included
Weight/Shipping Weight: 0.45 kg (1 lb)
Display: Large, high-contrast, super-twist LCD; 4-digit main display with sign, 19.1 mm (0.75"), 7-segment characters; 12-digit secondary display, 7.6 mm (0.3") 5 x 7 dot matrix character
Keypad: 4-key membrane type with tactile feedback, polycarbonate with UV coating, integral EMI/static shield and conductively coated window
Operating Temperature:
 -20 to 60 $^{\circ}\text{C}$ (-4 to 140 $^{\circ}\text{F}$)
Storage Temperature:
 -30 to 70 $^{\circ}\text{C}$ (-22 to 158 $^{\circ}\text{F}$)
Ambient Humidity:
 0 to 95%, non-condensing
Location: Designed for hazardous and non-hazardous areas
EMI/RFI Influence:
 Designed to EN 61326-1
Voltage Range: 16 to 35 Vdc (2-wire device)
Output Isolation: 600V galvanic isolation
Transmitter Cable Type:
 Belden twisted-pair, shielded
Filter: Adjustable 1 to 99 seconds additional damping to 90% step input
Temperature Input: Selectable Pt1000 or Pt100, automatic compensation



To Order	
Model No.	Description
DOTX-45	Dissolved oxygen transmitter
DOTX-45-115VAC-R2	Dissolved oxygen transmitter with relays
DOE-45PA**	Dissolved oxygen sensor
PSU-93	Unregulated power supply
PHTX-45-SMH	Submersion mounting hardware, 1.8 m (6')

Accessories

Model No.	Description
DOE-45PA-DOE**	DO electrolyte, 4 oz bottle
DOE-45PA-EC	Electrolyte chamber
DOE-45PA-MH	316 SS membrane holder
DOE-45PA-RLE	Replacement lead electrode
DOE-45PA-RM**	Membranes, 5 mil 10-pack
DOE-45PA-SE	Submersible sensing-element body
DOE-45PA-SH	Submersible sensing-element holder assembly
DOE-45PA-SM	Submersible sensing module

Comes complete with wall mount bracket and operator's manual.

** When purchasing the DOE-45PA for the first time it is necessary to also purchase the DOE-45PA-DOE electrolyte solution and DOE-45PA-RM membranes.

Ordering Examples: DOTX-45, dissolved oxygen transmitter, DOE-45PA, sensor, DOE-45PA-DOE, electrolyte solution 4 oz bottle, DOE-45PA-RM, 5 mil 10-pack membranes.

DOTX-45, dissolved oxygen transmitter, DOE-45PA, sensor, PSU-93, unregulated power supply, DOE-45PA-DOE, electrolyte solution 4 oz bottle, DOE-45PA-RM, 5 mil 10-pack membranes, DOE-45PA-MH, 316SS membrane holder.