

Water Quality Monitor

Q45D Dissolved Oxygen Transmitter

OVERVIEW

Dissolved oxygen monitoring applications requiring a simple 2-wire transmitter or battery-operated instrument are easily satisfied using the model Q45D transmitter. Adaptable to either optical or galvanic dissolved oxygen sensors, this unit is ideal for installations where only analog signals are needed and low power operation is preferred. For applications requiring AC operation, relay outputs, automatic sensor cleaning or digital communication, refer to the Badger Meter model Q46D brochure.

The optical element is designed to last a minimum of two years in normal operation, but will more often provide a life of 3...5 years, unless mechanical damage occurs. Optical sensors do not require flow across the sensing element so accurate measurements can be made more accurately in systems with low flows. Unlike some optical sensors, this sensor is not degraded by exposure to sunlight.

The galvanic dissolved oxygen sensor uses a rugged 5 mil Teflon membrane to resist mechanical abrasions and tears. The membrane serves as a barrier to allow molecular oxygen to diffuse into the reaction cell where it is reduced, producing a small current which is proportional to oxygen concentration.

APPLICATIONS

- **Aeration Systems**
- **Wastewater Effluent**
- **Water Distribution**
- **Fish Farming**
- **Rivers and Streams**

SENSOR OPTIONS



Figure 1: Optical sensor



Figure 2: Galvanic sensor



FEATURES

- Loop-powered or battery-operated
- External 5...17V DC version for solar power applications
- Adapts to Optical or Galvanic sensors
- Submersion or flowcell sensor options
- Simple air-calibration
- Large, easy-to-read LCD display
- Display D.O. in ppm, mg/l, or % saturation
- Clear menu-driven user interface
- NEMA 4X (IP-66) enclosure
- Wall or pipe mounting bracket
- Built-in PID controller

SPECIFICATIONS

Electronic Monitor

Display Range	0...40.00 ppm or 0...40.00 mg/l 0...200.0 % saturation
Accuracy	Greater of 0.3% of value or 0.02 ppm
Repeatability	0.02 ppm
Sensitivity	0.01 ppm
Linearity	0.1%
Temperature Drift	0.1%/°C
Sensor Type	Optical or galvanic membraned
Temperature Input	Pt100 RTD in sensor for temperature compensation
Power	2-wire unit: 17...30V DC, 25 mA max Battery unit: Two AA alkaline batteries External DC: 5...17V DC, 10 mA max
Analog Outputs	2-wire unit: Single 4...20 mA DC, 450 ohms max Battery unit: Two 0...2.5V DC, 50K ohms min External DC: Two 0...2.5V DC, 50K ohms min
Output Isolation	600V galvanic isolation
Enclosure	NEMA 4X (IP66) polycarbonate, V-0 flammability
Mounting Options	Wall or pipe mounting bracket supplied
Conduit Entries	Two PG9 cord grips, 0.16...0.31 in. diameter cable
Ambient Temperature	Operating: -40°...140° F (-40°...60° C) Storage: -40°...158° F (-40°...70° C)
Ambient Humidity	0...95%, non-condensing
Size	4.4 (H) × 4.4 (W) × 3.5 (D) in. (111 × 111 × 90 mm)
Weight	2-wire or External DC unit: 1 lb (0.45 kg) Battery unit: 2 lb (0.9 kg)
Certifications	CE marked to BS EN 61326-1:2006 standard UL and CSA general purpose



See Q46D Datasheet for sensor specs



Figure 3: Battery powered version with handle

ORDERING INFORMATION

Model Q2-A-BB-C Dissolved Oxygen Transmitter

Suffix A - Power

5	24V DC, 2-wire (single output only)
6	Battery-operated with two 0...2.5V DC outputs
7	External 5...17V DC with two 0...2.5V DC outputs

Suffix B - Sensor Style

D1	Submersible membraned sensor with 15 ft cable
D2	Submersible membraned sensor with 30 ft cable
D5	Flow type membraned sensor with 25 ft interface cable (select flow cell from options list)
D6	Optical dissolved oxygen sensor, 30 ft (9 m) cable
WW	None

Suffix C - Membrane Type

1	5 mil (standard)
2	2 mil
3	Not applicable (for optical sensor)

Accessories

00-0628	Submersion mounting bracket kit for Galvanic sensor
07-0100	Universal junction box, NEMA 4X
31-0001	5-c sensor interconnect cable, max 1000 feet
31-0038	7-c sensor interconnect cable, max 300 feet
00-0624	Mounting bracket kit for optical sensor
45-0043	Pipe adapter for optical
47-0005	2 in. U-bolt, 304SS
00-0625	1-1/2 in. flow tee assembly
00-0043	Constant-head flow cell
00-1522	Sealed flow cell

Notes

- All systems are supplied with one package of membranes, one 120 cc bottle of electrolyte, and one spare parts kit containing 3 each of all O-rings and special screws.
- Pipe mount requires two 2 in. U-bolts (47-0005).