Data Sheet PRO-D3/1101
Supersedes PRO-D3/501

PRO-series Dissolved Oxygen Transmitter

(Model PRO-D3 measures in ppm, mg/l or percent saturation)

CE

Certified Compliant to
European Community Standards

■ **Versatile Functionality.**
The PRO-D3 transmitter is ideal for monitoring dissolved oxygen concentrations throughout a municipal or industrial wastewater treatment plant. Typical applications include aeration basins, aerobic/anaerobic digestors, and final effluent.

■ **Multiple Measurements.**
The PRO-D3 can be selected to measure dissolved oxygen in ppm, mg/l or percent saturation, and temperature. The measured D.O. and temperature can be displayed separately or together. The corresponding 4-20 mA analog output value can also be shown.

■ **Versatile Hookup Capability.**
PRO-series transmitters can be wired in a two, three or four-wire hookup arrangement to meet your application requirement.

■ **Compact Size and NEMA 4X Universal Mounting.**
The compact PRO-series transmitter can be panel, wall, or pipe mounted.

■ **Multiple Language Capability.**
All screens can be selected for display in English or Spanish. (Different languages such as French or German may also be substituted.)

■ **"Menu-guided" Operation.**
The simple keypad and logical menu structure make this transmitter easy to use. Menu screens guide you through setup, operation, calibration, and test/maintenance functions.

■ **Passcode-protected Access.**
For security, use the passcode feature to restrict configuration and calibration settings to only authorized personnel.

■ **Electromagnetic Conformance.**
All PRO-series transmitters exceed U.S. and meet European standards for EMI and RFI emissions and immunity.

■ **Simple Interactive Diagnostics.**
Built-in diagnostics continuously test transmitter and sensor operation. Warning messages are provided for a punctured sensor membrane, depleted electrolyte, and other sensor and transmitter failure conditions.

■ **Multiple Calibration Methods.**
The PRO-D3 provides three calibration methods. Traditional sample calibration requires entry of a known sample value. For air calibration, the sensor is held in air as the transmitter computes calibration based on a pre-entered atmospheric pressure/altitude value and the temperature of the 100% saturated air. Saturation calibration requires the sensor to be in a 100% air-saturated process or clean water. In addition to an atmospheric pressure/altitude value, the transmitter uses an entered salinity value and temperature to compute calibration.

■ **Isolated 4-20 mA Analog Output.**
The isolated 4-20 mA analog output can represent the measured dissolved oxygen or temperature. During calibration, the analog output is automatically held at the last measured value and, upon completion, returned to its active state.

■ **OEM Versions Available.**
PRO-series transmitters can be packaged or configured to accommodate OEM-specific needs.

Specifications

Operational:

Display ..... Two-line by 16 character LCD

NOTE: *The measured dissolved oxygen and temperature can be displayed separately or shown together on a single screen. The corresponding 4-20 mA analog output can also be shown.*

Measurement	Ranges
Dissolved Oxygen	0-99.99 ppm, 0-99.99 mg/l or 0-999.9% saturation
Temperature	32.0-212.0°F or 0.0-100.0°C
Analog Output	4.00-20.00 mA

Ambient Conditions ..... Operation: -4 to +140°F (-20 to +60°C); 0 to 95% relative humidity, non-condensing
Storage: -22 to +158°F (-30 to +70°C); 0 to 95% relative humidity, non-condensing

Temperature Compensation ..... Automatic from 32.0-122.0°F (0.0-50.0°C), or manually fixed at a user-entered temperature

Sensor-to-Transmitter Distance ..... 1000 ft. (305 m) maximum

Power Requirements (Class 2 Power Supply):
- Two-wire Hookup ..... 16-30 VDC
- Three-wire Hookup ..... 14-30 VDC (16 VDC minimum with RS-485 serial communication)
- Four-wire Hookup ..... 12-30 VDC (16 VDC minimum with RS-485 serial communication)

D.O. Calibration Methods:
- Sample Cal ..... Enter one sample value (determined by laboratory analysis or comparison reading)
- Air Cal ..... For use only when the sensor is calibrated in air. The transmitter computes and displays the ppm value based on the user-entered atmospheric pressure or altitude, and the temperature of the 100% saturated air.
- Saturation Cal ..... For use only when the process or clean water is known to be 100% saturated with air. The transmitter computes and displays the ppm value based on the user-entered atmospheric pressure or altitude and salinity, and the temperature of the 100% saturated process or clean water.

Analog Output ..... Isolated 4-20 mA output with 0.004 mA (12-bit) resolution

NOTE: *Output can be assigned to represent the measured dissolved oxygen or temperature. Parameter values can be entered to define the endpoints at which the 4 mA and 20 mA output values are desired (range expand). During calibration, the output is automatically held at the last measured value and, upon completion, returned to its active state.*

Maximum Loop Load ..... Dependent on power supply voltage, transmitter hookup arrangement, and wire resistance:

Maximum Permissible Loads							
Transmitter Hookup Arrangement	Power Supply Voltage						
	12 VDC	14 VDC	16 VDC	20 VDC	24 VDC	28 VDC	30 VDC
Two-wire Hookup	- - - -	- - - -	100 ohms	300 ohms	500 ohms	700 ohms	800 ohms
Three-wire Hookup	- - - -	500 ohms	600 ohms	800 ohms	1000 ohms	1200 ohms	1300 ohms
Four-wire Hookup	400 ohms	500 ohms	600 ohms	800 ohms	1000 ohms	1200 ohms	1300 ohms

Memory Backup (non-volatile) ..... All user settings are retained indefinitely without battery backup

EMI/RFI Conformance ..... Exceeds U.S. and meets European standards for conducted and radiated emissions and immunity; certified CE compliant for applications as specified by EN 50081-2 for emissions and EN 50082-2 for immunity

Electrical Certifications:
- General Purpose (pending) ..... UL, C-UL, FM, and CENELEC
- Class 1, Division 2 (pending) ..... UL, C-UL and FM: Groups A, B, C, D, F, and G

Analyzer Performance (Electrical, Analog Outputs):

Accuracy* ..... ± 0.1% of span
Sensitivity* ..... ± 0.05% of span
Repeatability* ..... ± 0.05% of span
Temperature Drift* ..... Zero and Span: ± 0.02% of span per °C
Response Time ..... 1-60 seconds to 90% of value upon step change (with output filter setting of zero)

*These performance specifications are typical at 25°C.

Mechanical:

Enclosure ..... Polycarbonate; NEMA 4X general purpose; choice of included mounting hardware
Mounting Configurations ..... Panel, wall or pipe mounting
Dimensions ..... With Back Cover: 3.75 in. W x 3.75 in. H x 2.32 in. D (95 mm W x 95 mm H x 60 mm D)
Without Back Cover for Panel Mount: 3.75 in. W x 3.75 in. H x 0.75 in. D (95 mm W x 95 mm H x 19 mm D)
Net Weight ..... 10 oz. (280 g) approximately

Ordering Information

MODEL NUMBER (see Notes 1 and 2)

PRO-D3A	Dissolved oxygen transmitter with wall/pipe mount kit for use with GLI membrane D.O. sensor
PRO-D3B	Dissolved oxygen transmitter with panel mount kit (includes gasket, retainer plate, and four screws) for use with GLI membrane D.O. sensor
PRO-D3C	Basic dissolved oxygen transmitter without mounting hardware (electronics only) for use with GLI membrane D.O. sensor

RESERVED CATEGORY

EQUIPMENT TAGGING (specify tag data)

N	None
P	Paper
S	Stainless steel

1 **Product Number**

Choose item from each category.

Ordering Notes:

1. The standard on-screen languages for PRO-series transmitter operation are English and Spanish. A different language (French, German, etc.) may be substituted for Spanish. Please specify the desired language.

2. Each transmitter is supplied with a CD-ROM containing operating manuals (in PDF-file format) for all of the PRO-series transmitters. Paper manuals are also available (see Accessories at right).

Accessories (order separately):

- **Retrofit Wall/Pipe Mount Kit 1000A3457-001**

  This hardware kit enables an existing panel-mounted PRO-series transmitter to be wall or pipe mounted.

- **Retrofit Panel Mount Kit 1000A3455-001**

  This hardware kit enables an existing wall or pipe-mounted PRO-series transmitter to be panel mounted.

- **Operating Manual No. PRO-D3**

  A paper booklet operating manual for the PRO-D3 dissolved oxygen transmitter.

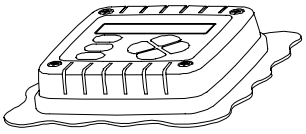
Dissolved Oxygen Sensors

GLI offers Ross technology and Clark technology membrane dissolved oxygen sensors. Refer to data sheet 5600 or 5500 respectively for sensor specifications, mounting hardware, accessories, and air blast cleaning systems.

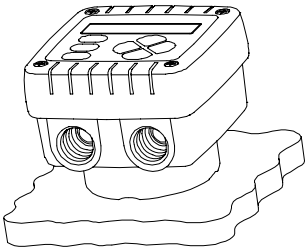
Engineering Specification

1. The microprocessor-based transmitter shall accept a GLI membrane dissolved oxygen sensor.
2. The transmitter shall measure dissolved oxygen and process temperature.
3. The transmitter shall be operable in multiple languages.
4. The transmitter shall have a two-line by 16 character LCD. It shall display the measured dissolved oxygen and temperature separately or together on a single screen. The corresponding 4-20 mA analog output value shall also be shown.
5. The transmitter shall have these dissolved oxygen calibration methods:
   a) Sample Cal: Enter one sample value (determined by laboratory analysis or comparison reading).
   b) Air Cal: For use only when the sensor is calibrated in air. The transmitter computes and displays the ppm value based on the entered atmospheric pressure/altitude, and the temperature of the 100% saturated air.
   c) Saturation Cal: For use only when the process or clean water is known to be 100% saturated with air. The transmitter computes and displays the ppm value based on the entered atmospheric pressure/altitude, and the temperature and salinity of the 100% saturated process or clean water.
6. The transmitter shall have a passcode to restrict configuration and calibration settings to only authorized personnel.
7. The transmitter shall provide automatic temperature compensation or fixed manual temperature compensation at a user-entered temperature.
8. The transmitter shall have user-test diagnostics for transmitter and sensor operation without requiring special test equipment.
9. The transmitter shall have an isolated 4-20 mA analog output that can be assigned to represent the measured dissolved oxygen or temperature. Parameter values can be entered to define the endpoints at which the 4 mA and 20 mA analog output values are desired (range expand). During calibration, the analog output is automatically held at the last measured value and, upon completion, returned to its active state.
10. The transmitter shall be GLI International, Inc. Model PRO-D3.

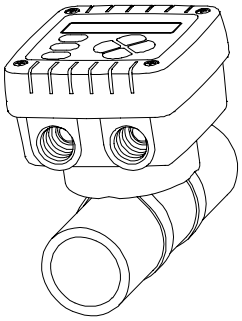
Mounting Configurations



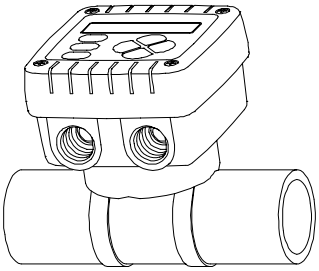
PANEL MOUNT



WALL MOUNT



VERTICAL PIPE MOUNT



HORIZONTAL PIPE MOUNT

Model 5500 and 5600-series Membrane Dissolved Oxygen Sensors

(for use with Model PRO-D3 Transmitter)

Model 5600-series Ross Technology sensor pictured. For complete details and specifications on either sensor, refer to data sheet “5500” or “5600” respectively.

Data Sheet PRO-D3

Worldwide Headquarters and Sales:

GLI International, Inc.
9020 West Dean Road
Milwaukee, Wisconsin 53224
U.S.A.

Phone: [414] 355-3601
Fax: [414] 355-8346
E-mail: info@gliint.com
Web: www.gliint.com

Represented By: