

Type 2610 Process Optical Dissolved Oxygen Sensor Gen II



Product Description

The type 2610 RDO® Pro is a rugged, reliable sensor designed to deliver accurate dissolved oxygen (DO) data across a wide measuring range while reducing maintenance costs. It features the latest optical technology for DO measurement and eliminates the replacement of membrane and reference solutions.

The type 2610 optical sensor cap is calibrated at the factory and requires no field calibration. The optical measurement technology resists abrasion and bleaching allowing for a long life in many harsh applications. The DO sensor has a built in Modbus RS485 and 4 to 20 mA current loop outputs for ease of interface to existing control systems. The 3-2610-51 version includes the GF (S³L) digital interface for direct connection with the 9900 SmartPro® Transmitter and 9950 SmartPro® Dual Channel Transmitter.

Additional features include a 10 m (32.8 ft) cable with stripped and tinned ends as well as a titanium temperature sensor for improved compatibility in salt water applications.

Features

- Measurement range: to 60 mg/L (ppm)
- Two year measurement cap life
- Optical measurement, no minimum flow requirements
- Rugged construction
- Calibration built into the measurement cap
- Accuracy ± 0.1 mg/L, 0 to 20 mg/L; $\pm 5\%$ of reading, 20 to 60 mg/L
- No membranes or filling solutions
- Digital (S³L), 4 to 20 mA or Modbus
- Installs in-line or submersible
- 3-2610-51 compatible with 9900 SmartPro Transmitter, 9950 Transmitter series



Applications

- Municipal and Industrial Wastewater Treatment
- Drinking Water Reservoir Monitoring
- Environmental Water Discharge Monitoring
- Aquatic Life Support
- Aquaculture
- Controlled Environment Agriculture (CEA)
- Mining

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Specifications

General

Sensor type	Optical luminescent dissolved oxygen sensor
Transmitter/Local Display	Optional, not required. Compatible with SmartPro instruments
Communications Options	Digital (S ³ L), 4-20 mA, Modbus (RS485)
Maximum Cable Length	Modbus and 4 to 20 mA: up to 1'219 m (4'000 ft) Digital (S ³ L): 38 m (125 ft)
Internal Mounting Thread	1¼ NPT
Power Requirements	12 to 24 VDC ±10% regulated (Note: external power supply, cannot be powered by GF transmitters directly)
4 to 20 mA output span	0 to 20 mg/L and 0 to 60 mg/L are factory defaults, either unit can be respanned anywhere in between (contact GF Sales office)

Performance

Salinity Range	0 to 42 PSU, fixed or real-time capable
pH Range	2 to 10 pH
Barometric Range	507 to 1115 mbar, fixed or real-time capable
Maximum Pressure	150 psi @25°C
Range	0 to 60 mg/L concentration
Units	mg/L, ppm, %SAT
Accuracy (DO)	±0.1 mg/L, 0 to 20 mg/L, ±5% of reading, 20 to 60 mg/L
Response Time of Cap	T90: 30 sec T95: 37 sec @ 25 °C
Repeatability	0.05 mg/L
Resolution	0.01 mg/L

Environmental

Wetted Materials	ABS, Titanium and FKM
Usage Life of Cap	2 years from the first instrument reading
Shelf Life of Cap	24 months from date of manufacture (install within 12 mo. of manufacture)
Operating Temperature	0 °C to 50 °C 32 °F to 122 °F
IP Rating	IP-67 with cap off, IP-68 with cap installed
Compliance	Heavy industrial, IEC 61000-6-2:2005
Storage Conditions, Cap	1 °C to 60 °C 33 °F to 140 °F, in factory container
Storage Conditions, Sensor	-5 °C to 60 °C 23 °F to 140 °F

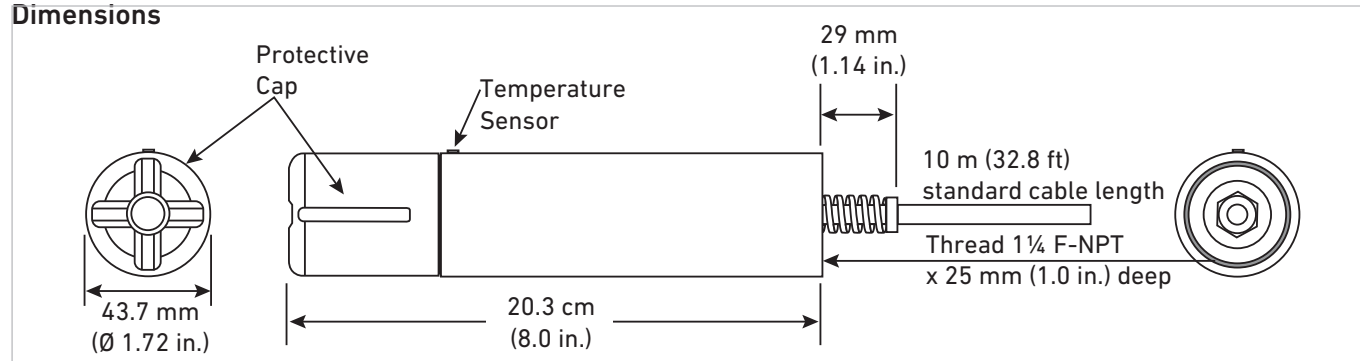
Warranty

Sensor	3 years from date of manufacture
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Standards and Approvals

CE, FCC
RoHS Compliant, China RoHS

Dimensions



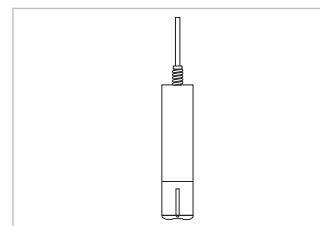
System Overview

Panel Mount (S ³ L)	Pipe, Tank, Wall (S ³ L)	4 to 20 mA	Automation System (S ³ L, 4-20 mA, or Modbus)	In-line Installation
GF Instruments - 9900 - 9950	GF Instruments 9900 with 3-8050 Universal Mount Kit	Customer Supplied Chart Recorder, Programmable Logic Controller, or Programmable Automation Controller	0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or Programmable Automation Controller	GF Pipe Adapter 3-2610.501
Type 2610-51 Optical luminescent dissolved oxygen sensor				
		All sold separately		

Ordering Information

Dissolved Oxygen Sensors

Mfr. Part No.	Code	Description
3-2610-51	159 001 849	Gen II Optical Dissolved Oxygen Sensor (0.2 to 20 ppm) with Digital (S ³ L), 4 to 20 mA, and Modbus output
3-2610-51-60	159 002 227	Gen II Optical Dissolved Oxygen Sensor (0.2 to 60 ppm) with Digital (S ³ L), 4 to 20 mA, and Modbus output



Replacement parts and tools

Mfr. Part No.	Code	Description
3-2610.392	159 310 122	Replacement Optical Dissolved Oxygen Sensor cap for 3-2610-31 and 3-2610-41 DO Sensors
3-2610.394	159 310 301	Replacement Optical Dissolved Oxygen Sensor cap for Gen II 3-2610-51 DO Sensor
3-0252	159 001 808	Configuration Tool



For installation options, see instruction manual and Specials Catalog.

Accessories

Contact GF Sales office for more information.

Dissolved Oxygen assembly overviews

Dissolved Oxygen Tee / Saddle Assembly

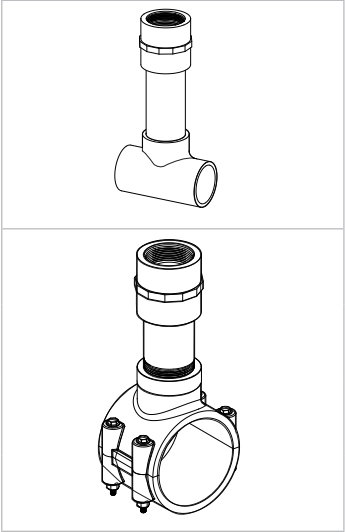
2 3-9900-1
3 3-9900.396
4 3-8052
5 3-2610.501 Pipe Adapter Kit
3-2610-XX DO Sensor
OR
1 PVC Tee and Saddle Assemblies

Dissolved Oxygen Float Assembly

2 4 3-9900-1 Transmitter with 3-8052 Integral Mount Kit
GF pipe extension with 45° elbow (sold separately)
6 3-2610.312 Rail Mount
1 in. M-NPT connection for pipe extension
7 Float Assembly
3/4" F-NPT connection for the required 3-2610.501 DO Adapter Kit (sold separately)
3-2610-XX DO Sensor

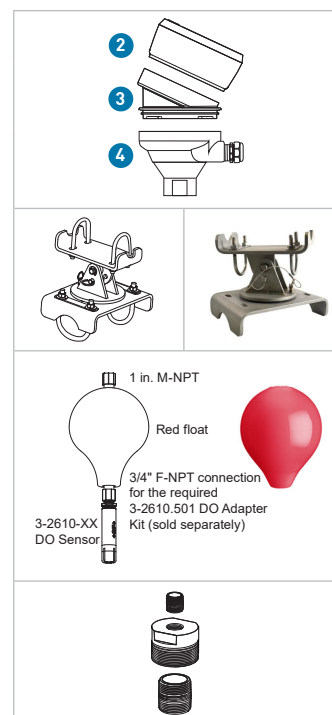
Saddles and Tees ¹

Mfr. Part No	Description
3-2610.100	2 in. Tee Assembly, PVC
3-2610.101-01	3 in. Saddle Assembly, PVC
3-2610.101-02	4 in. Saddle Assembly, PVC
3-2610.101-03	6 in. Saddle Assembly, PVC
3-2610.101-04	8 in. Saddle Assembly, PVC



Dissolved Oxygen Mounting Accessories

No.	Mfr. Part No	Designation	Description
2	3-9900-1	159 001 696	9900 Field Mount Transmitter
3	3-9900.396	159 001 701	Angle Adjustment Adapter Kit
4	3-8052	159 000 188	¾ in. Integral Mount Kit
6	3-2610.312	Rail Mount (Stainless Steel)	Securely mounts the piping assembly onto railing
7	3-2610.FLT	DO Float Assembly	The float assembly includes: <ul style="list-style-type: none"> • 1 in. M-NPT connection for extension pipe • Red float • ¾ in. F-NPT connection for required 3-2610.501 adapter kit
5	3-2610.501	DO Threaded Pipe Adapter Kit (SCH 80 PVC)	DO Threaded Pipe Adapter kit, includes one each: <ul style="list-style-type: none"> • ¾ in. close nipple • 2 in. M-NPT machined adapter • 1 ¼ in. close nipple



Dissolved Oxygen sensor accessories

Mfr. Part No	Designation	Description
3-2610-81950	DO Sensor Air-Blast	The compressed air adapter mounts to the DO sensor and connects to a 20 psi air source with a ¼" OD hose and makes it possible to automatically clean the sensor with compressed air.
3-2610-81300	DO Anti Fouling Guard	The copper protection is attached to the front of the sensor, thereby reducing biological contamination, improving measurement accuracy and extending the time between sensor cleanings.



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