Type 2734-2736 pH/ORP Electrodes

Industrial

Product description

The GF 2734-2736 pH and ORP electrodes are ideal for a wide range of harsh applications with low concentrations of poisoning ions, and chemicals that react with silver ion, Ag+. The superior glass formulation provides excellent chemical resistance in acidic and alkaline/ caustic environments. The large area PTFE reference junction, salt bridge and reference electrode are constructed to increase the total reference effectiveness, resist chemical attack, help resist coating, and ensure long service life in harsh applications.
The DryLoc® connector with corrosion resistant gold plated contacts readily connects the sensor to the mating 2751 pH/ORP Smart Sensor Electronics. The robust PPS threaded sensor body and choice of flat, bulb pH, or flat ORP sensing elements provide a broad range of chemical compatibility for a wide variety of applications.
There is an optional pH sensing version available for applications with HF. The HF version is for applications where traces of hydrofluoric acid (2% or less) will attack standard pH glass.
The quick temperature response is available in a Pt1000 temperature sensor and allows compatibility with the GF 9900 and 9950 instruments.
The sensors incorporate o-ring seal for use with ½" to 4" GF Installation fittings. They can also be mounted directly into reducing tees, DN20 to DN100 (¾ to 4 inch).
Sensor tip must be in flow path.

Features

- Enhanced reference formulation to resist chemical poisoning and prolong the life of the electrodes in harsh environments
- PTFE reference junction resists fouling and chemical attack
- Superior pH glass (bulb style) formulation for excellent chemical resistance in acidic and alkaline/caustic environments
- PPS body for broad range of chemical compatibility
- Memory chip enabled for access to a range of unique features when connected to the GF 2751 pH/ORP Smart Sensor Electronics
- Patented reference design for exceptional performance*
- Patented DryLoc® connector with gold plated contacts
- Mounts in GF standard installation fittings from DN15 to DN100 (½ to 4 in.)
- NPT or ISO 7/1-R 3/4 threaded sensors for use with reducing tees DN 20 to DN100 (¾ to 4 in.)
- Special design allows for installation at any angle, even inverted or horizontal
- Quick temperature response
- Bulb and flat HF resistant glass available for trace HF, in less than 2% concentration applications

* U.S. Patent Nos.: 6,666,701, 7,799,193 B2, 7,867,371 B2 and 8,211,282 B2

Applications

- Water & Wastewater Treatment
- Neutralization Systems
- Plating Baths
- Air Scrubbers
- Metal Removal
- Process Control
- Cooling Towers

Technical Data

General

General			
Performance	Efficiency	>95% @ 25 °C (77 ° F)	
Operating Range	pH	0 to 14 pH	
	ORP	±2'000 mV	
	3-2734-HF, 3-2736-HF	Hydrofluoric acid resistant glass, pH 6 or below; trace HF ≤2%	
Compatibility	2751 pH/ORP Smart Sensor Electronics (for 9900, 9950, Profibus Concentrator, 4 to 20 mA)		
Temperature Sensor	Pt1000	Compatible with type 2751 pH/ORP Smart Sensor Electronics for connection to a PLC or to the type 9900 or 9950 instruments and 0486 Profibus Concentrator	
Process Connection	¾ in. NPT	ISO 7/1-R ¾	Mounts into GF fittings

Wetted Materials	
pH	PPS, glass, PTFE, FKM
ORP	PPS, glass, PTFE, FKM, Platinum

Max. Temperature/Pressure Rating		
Operating Temperature Range	10 °C to 100 °C	50 °F to 212 °F
Operating Pressure Range	0 to 6.9 bar (0 to 100 psi) @ 10 °C to 65 °C (50 °F to 149 °F)	
	Linearity Derated 6.9 to 4.0 bar (100 to 58 psi) @ 65 °C to 100 °C (149 °F to 212 °F)	

Recommended Storage Temperature		
	0 °C to 50 °C	32 °F to 122 °F
The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)		
The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F).		

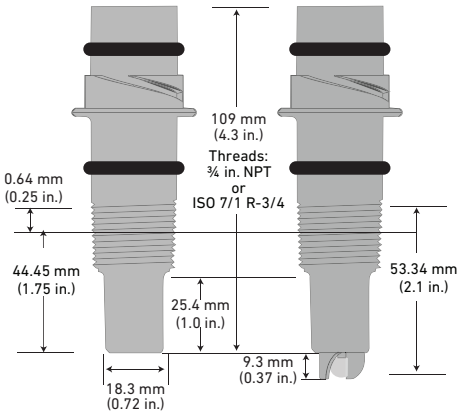
Mounting	
In-line/Vertical Mounting	Use the sensor threads
	Use a GF standard fitting ½ to 4 in.
	Sensor can be mounted at any angle
Submersible Mounting	Use threads on type 2751
	Requires ¾ in. NPT or ISO 7/1-R ¾ male threaded liquid tight extension conduit.

Shipping Weight		
	0.25 kg	0.55 lb

Standards & Approvals	
	CE, UKCA, FCC, RoHS compliant, China RoHS
	Manufactured under ISO 9001, ISO 14001 and ISO 45001

See pressure-temperature diagrams for more information.

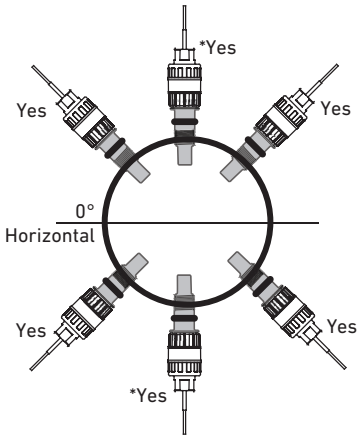
Dimensions



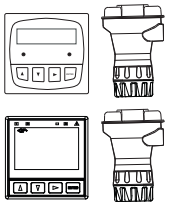
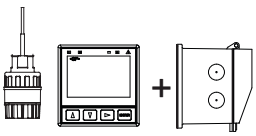
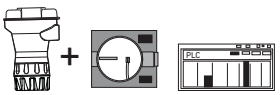
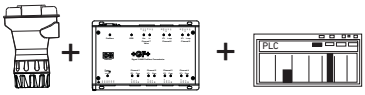
Mounting angle using GF Fittings

Types 2734-2736 may be mounted at any angle without affecting the performance

Avoid locations with air pockets and sediment



System Overview

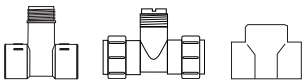
Panel Mount	Pipe, Tank, Wall	4 to 20 mA Output	Automation System
GF Instruments with 2751 Smart Sensor Electronics - 9900 - 9950	GF Instruments with 2751 Smart Sensor Electronics - 9900 and Rear Enclosure	2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder Programmable Logic Controller, or - Programmable Automation Controller	2751 Smart Sensor Electronics with - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller
			

Type 2734-2736 DryLoc® pH/ORP Electrodes

All sold separately

Panel Mount	Pipe, Tank, Wall	4 to 20 mA Output	Automation System

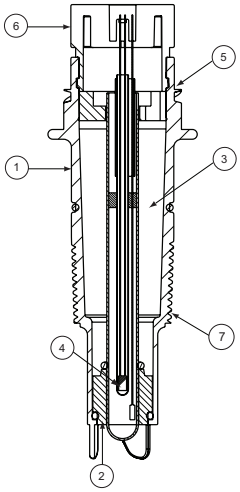
In-Line Installation -
GF and threaded ½ in to 4 in fittings only
Reducing tees ¾"–4". Sensor tip must be in flow.



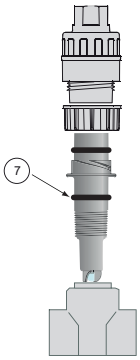
Submersible Installation -
Customer supplied pipe extension
or conduit with ¾ in. NPT or ISO 7/1-R ¾ threads

Electrode Key Features and Benefits:

1. PPS body for chemical compatibility with most harsh chemicals.
2. Porous PTFE junction resists fouling, chemicals, and build-up.
3. Enhanced reference chemistry to resist poisoning and to prolong the life of the electrodes in harsh media applications.
4. Internal temperature sensor located in the glass stem for a quick temperature response.
5. Memory chip enabled for convenient data storage and access (calibration data, operational data, and manufacturing data), electrode health monitoring via glass impedance measurement when used in connection with the 2751 pH/ORP Smart Sensor Electronics.
6. DryLoc® connector with corrosion resistant gold plated pins for quick and easy sensor removal. Resists moisture and dirt intrusion.
7. Threads for NPT or ISO process connection into reducing tees. Use off-the-shelf GF reducing tees DN20 to DN100 (¾ to 4 in.). Sensor tip must be in flow.
8. Mounts directly into GF fittings (½ in. to 4 in.).
9. Mount submersed into a tank via the 2751 pH/ORP Smart Sensor Electronics.

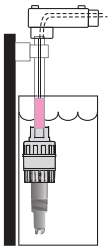


Dual-patented reference design for long life.



(7) Sensor in threaded reducing tee

(8) Sensor in GF fitting

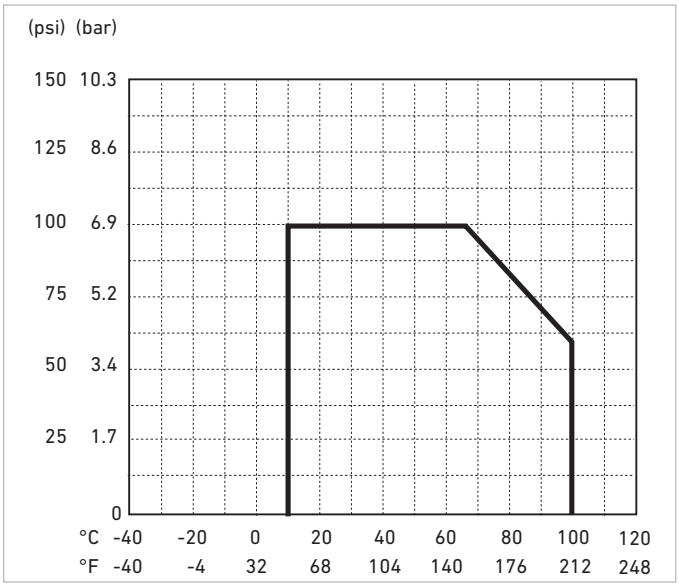


(9) Sensor in submersible installation

Pressure-temperature diagram

Note

The pressure-temperature diagram is specifically for the GF sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification.



Application Tips

- Use the flat glass electrodes when a self-cleaning feature is desired; especially useful in applications with abrasive chemicals, in-line installations.
- Use the 2736-0X bulb protected electrodes in high pH alkaline/caustic applications (10 to 14 pH) or in applications of low pH range (0 to 3 pH).
- ORP electrodes are generally used for chemical reaction monitoring, not control.
- Ensure that sensor materials are chemically compatible with the process liquid.
- Keep electrode tip wet, avoid air pockets and sediment.

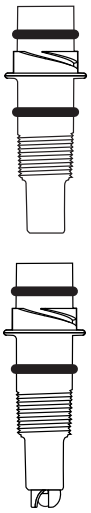
Buffer Solutions

Buffer Solution	Quinhydrone
3822-7004 3822-7007 3822-7010	3822-7115

The GF pH buffers are ideal for calibration. The liquid solutions are conveniently packaged in one pint (473 ml) bottles. pH buffer kits in powder pillows are available for mixing fresh solutions with water at the time of use.
All pH buffes are color coded for easy identifiation; 4.01 pH is red, 7.00 pH is yellow, and 10.00 pH is blue.
All pH buffers are traceable to NIST standards. The 4.01 and 7.00 buffer solutions can be used to calibrate ORP sensors when saturated with quinhydrone

Ordering Information

Mfr. Part No.	Code	Tip Design	Temperature Element
pH Electrodes - Temperature element Pt1000; use with 2751 pH/ORP Smart Sensor Electronics*			
3-2734-00	159 001 774	Flat	3/4 in. NPT, Thread
3-2734-01	159 001 775	Flat	ISO 7/1-R 3/4 Thread
3-2734-HF-00	159 001 776	Flat, HF Resistant[1]	3/4 in. NPT, Thread
3-2734-HF-01	159 001 777	Flat, HF Resistant[1]	ISO 7/1-R 3/4 Thread
3-2736-00	159 001 778	Bulb	3/4 in. NPT, Thread
3-2736-01	159 001 779	Bulb	ISO 7/1-R 3/4 Thread
3-2736-HF-00	159 001 780	Bulb, HF resistant[1]	3/4 in. NPT, Thread
3-2736-HF-01	159 001 781	Bulb, HF resistant[1]	ISO 7/1-R 3/4 Thread
ORP Electrodes - Compatible with 2751 pH/ORP Smart Sensor Electronics			
3-2735-60	159 001 782	Platinum, Flat, 10 KΩ ID, ¾ in. NPT	3/4 in. NPT, Thread
3-2735-61	159 001 783	Platinum, Flat, 10 KΩ ID, ISO 7/1 R¾	ISO 7/1-R 3/4 Thread



* The 2751 Sensor Electronics has a digital (S^3L) output which is used with 9900 or 9950 instruments, and 0486 Profibus Concentator.
It also has a 4 to 20 mA output for connections to PLCs, data recorders, etc.

[1] HF resistant ‹2% HF

! The 2734 and 2736 pH electrodes are not compatible with the type 2760 Preamplifier.

Accessories and Replacement Parts

Mfr. Part	Code	Description
1220-0021	**198 801 000**	O-ring, FKM (2 required per sensor)
3-2700.395	**159 001 605**	Calibration kit: includes 3 polypropylene cups, box used as cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gm bottle quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
3-2759	**159 000 762**	pH/ORP System Tester (adapter cable sold separately)
3-2759.391	**159 000 764**	2759 DryLoc adapter cable (for use with 2751)
3-0700.390	**198 864 403**	pH Buffer Kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4.01 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7.00 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10.00 buffer solution, 1 pint (473 ml) bottle
3800-5000	**159 838 107**	3.0M KCl storage solution for pH and ORP, 1 pint (473 ml) bottle
3-2700.397	**159 001 870**	Protective cap for pH/ORP electrodes, 5 pieces
3-2700.398	**159 001 886**	O-ring lubricant Kit (5 packs of Super Lube®, 1cc each)

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