

# +GF+ SIGNET 2222 Magnetostrictive Level Sensors

3-2222.099 (B-11/01)



See ordering tree for part number reference.

## Features

- Continuous level measurement with  $\pm 0.1\%$  accuracy and 0.01 in. resolution
- Standard lengths from 6 to 16 ft. in 2-foot increments
- Constructed of 316SS or SYGEF® PVDF
- 4 to 20mA or S<sup>3</sup>L™ output
- 5/8 in. sensing tube which contains sensor electronics and magnetostrictive wire
- Microprocessor based
- Adjustable 3/4 in. NPT fitting
- CE (pending)

## Application

- Level measurement of non-coating liquids such as water, acids, bases and other corrosive chemicals
- Inventory management
- Storage tank monitoring
- Leak detection
- Pump protection
- Overflow protection

## Description

+GF+ SIGNET 2222 Magnetostrictive Level Sensors provide precise continuous level measurement with  $\pm 0.1\%$  full scale accuracy and 0.01 in. (0.25mm) resolution. The float level technology is simple and reliable, ideally suited for non-coating liquid applications. Corrosion resistant SYGEF® PVDF or 316SS sensors from 6 to 16 ft. (1.8 to 4.9m) are standard in 2-foot (0.6m) increments, with

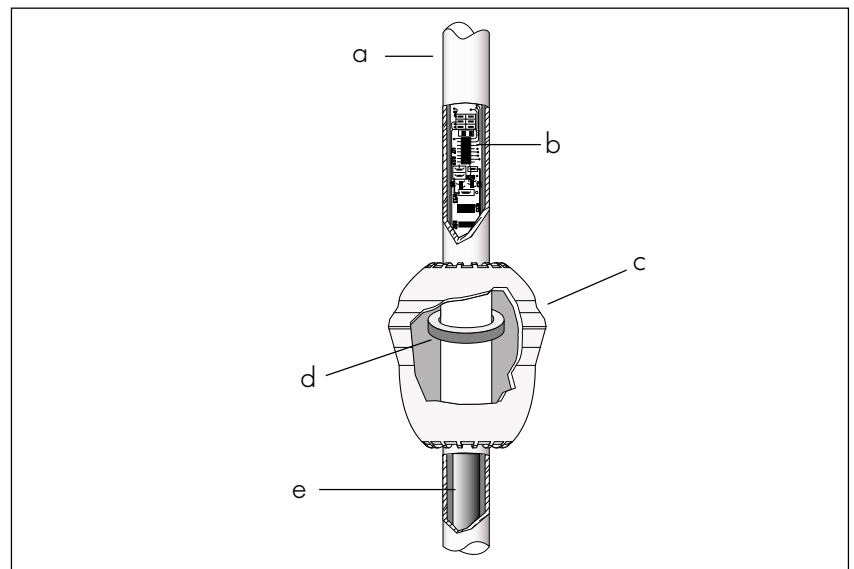
optional lengths available. Output options include 4 to 20mA or S<sup>3</sup>L™ (SIGNET Sensor Serial Link) output.

S<sup>3</sup>L™ output is used for connection to other +GF+ SIGNET instrumentation such as the 8250 Level Transmitter. The 8250 offers local display, automatic level-to-volume conversion, up to four relays for level control, and much more.

## Technical Features

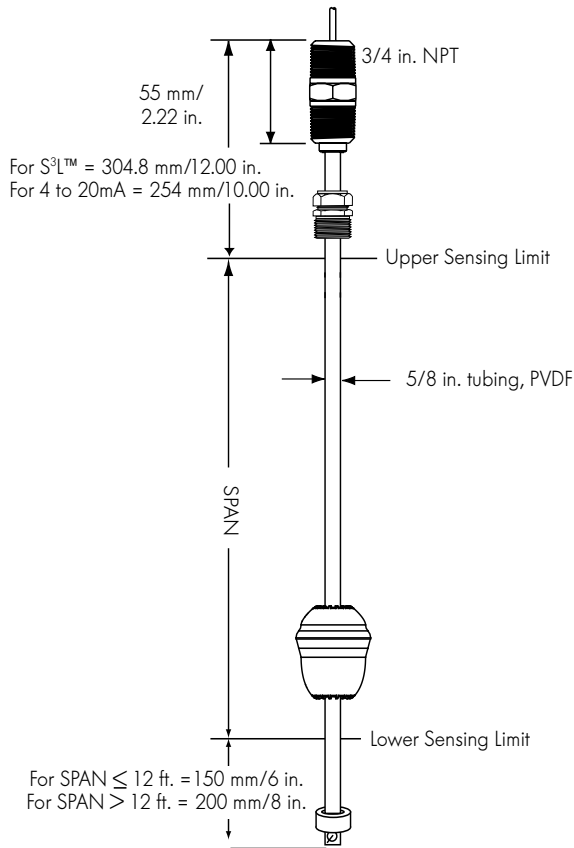
+GF+ SIGNET 2222 Magnetostrictive Level Sensors consist of a NEMA 6/IP68 tube, which houses the sensor electronics, a magnetostrictive wire and a float with an embedded magnet. The position of the magnet in the float is precisely determined by its interaction with signal pulses in the wire. Float position is then converted to a 4 to 20mA output, or processed into a level measurement via the S<sup>3</sup>L™ output option.

- a) 5/8 in. tube, NEMA 6/IP68
- b) Sensor Electronics
- c) Float
- d) Magnet
- e) Magnetostrictive Wire

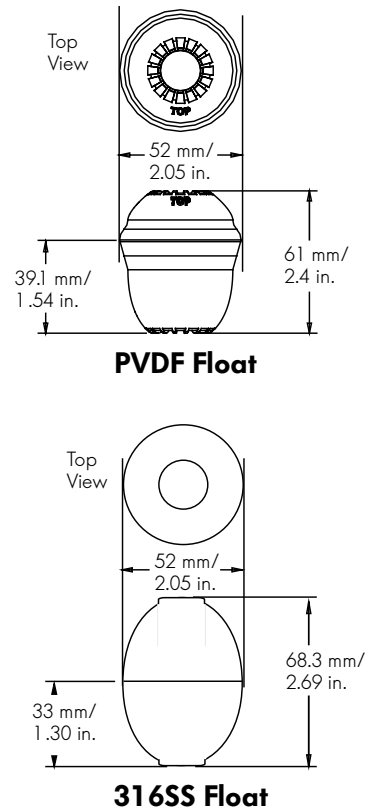
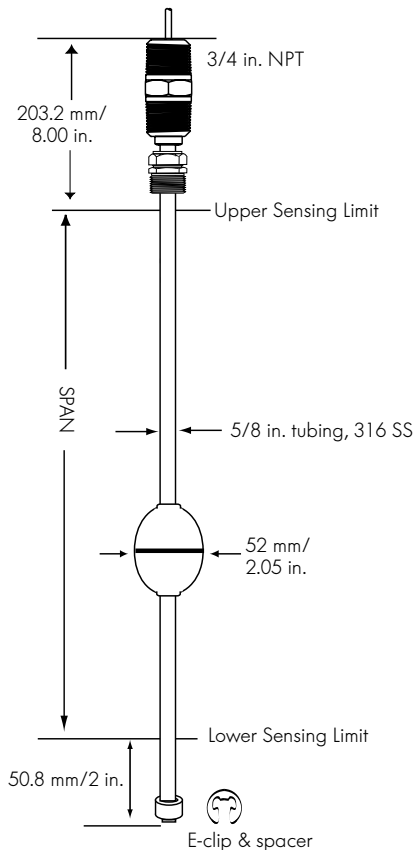


# Dimensions

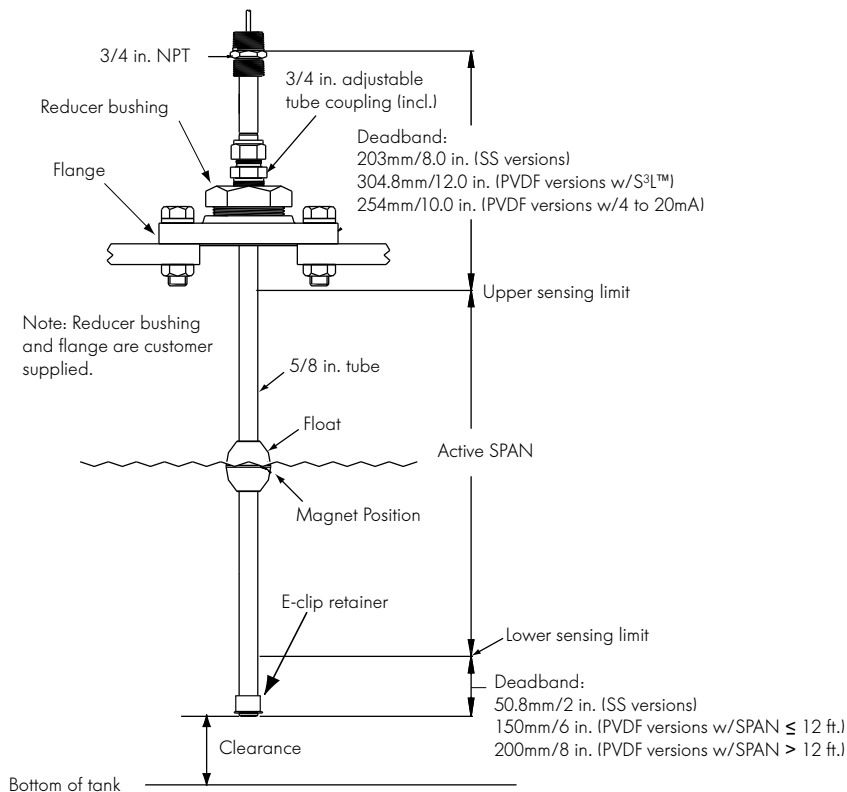
## 3-2222-VX



## 3-2222-SX



# Installation



The 3-2222 Magnetostrictive Level Sensor is available in six standard measurement lengths with active SPANs ranging from 6 to 16 ft. (1.8 to 4.8m). The illustration at the left shows additional dimensions that should be reviewed before selecting sensor length. The expansion characteristics of the vessel must be considered in order to properly determine clearance requirements.

For the 4 to 20mA output sensors:

- When the float is at the lower sensing limit, the output is 4mA.
- When the float is at the upper sensing limit, the output is 20mA.

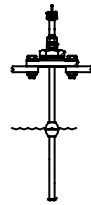
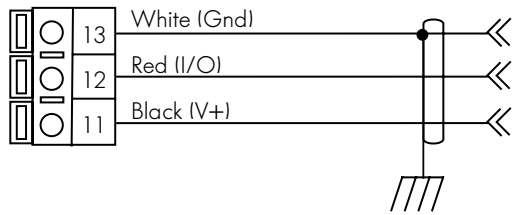
For S<sup>3</sup>L™ serial output sensors:

- The output can be defined by programming the +GF+ SIGNET instrument, such as the 8250 Level Transmitter.

**\*NOTE:** Installation requires 3/4 in. NPT to 2 in. (or greater) reducer bushing or flange. See instruction manual for more installation recommendations.

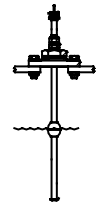
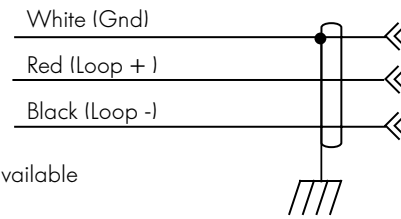
## Wiring

8250 I/O  
Terminals



Note: Optional Junction Boxes available for wiring convenience.

## 4 to 20 mA Output



## Technical Data

### General

Sensor Material: 316SS or SYGEF® PVDF  
 Rating: NEMA 6/IP68  
 Float Material: 316SS (standard on 316SS sensor)  
 SYGEF® PVDF (standard on SYGEF® PVDF sensor)  
 Compression  
 Coupling: 316SS on 316SS sensor  
 Nylon on SYGEF® PVDF sensor  
 Weight Material: 316SS (Optional)  
 Active SPAN: Standard from 6 ft. to 16 ft. span in two ft. increments (add Deadband dimensions to Active SPAN for overall sensor length. For custom lengths consult factory.  
 Cable length: 152 mm (6 in.)  
 Mounting: 3/4 in. NPT  
 Operating temp.: -20 to 70°C (-4 to 158°F)  
 Pressure rating:  
 316SS: 150 psi max. (10.3 bar)  
 SYGEF® PVDF: 30 psi max. (2.1 bar)  
 Shipping weight: 2.2kg per 1m (1.45 lbs. per 1 ft.)

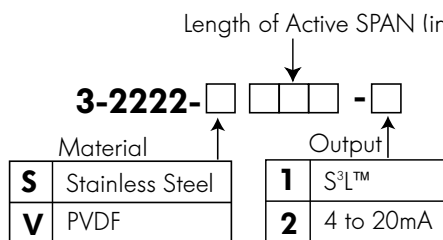
### Electrical

Input Power (S<sup>3</sup>L™): 5VDC (provided by 3-8250)  
 Input Power (4 to 20mA): 24VDC ± 10%  
 Reverse polarity protected  
 4 to 20 mA Loop impedance: 500Ω @ 24VDC  
 Accuracy: ± 0.1% of span or ± 0.2 in. (0.05 cm) whichever is greater, at 25°C  
 Temperature stability: 0.01% of reading per °C from 25°C  
 Repeatability: ± 0.01 in. (0.25 mm)

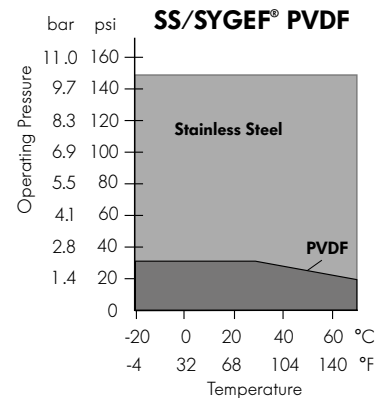
### Standards/Approvals:

- S<sup>3</sup>L™: serial output sensors: CE
- Current output sensors: CE pending

## Ordering Tree



Example: 3-2222-S072-1  
 1.8m (72 in.) Magnetostrictive Sensor w/S<sup>3</sup>L™ Output



## Ordering Information

Mfr. Part No.	Code	Description
3-2222-S072-1	159 000 703	1.8m/6 ft. Magnetostrictive Level Sensor, SS S <sup>3</sup> L™ Output
3-2222-S096-1	159 000 704	2.4m/8 ft. Magnetostrictive Level Sensor, SS S <sup>3</sup> L™ Output
3-2222-S120-1	159 000 705	3.0m/10 ft. Magnetostrictive Level Sensor, SS S <sup>3</sup> L™ Output
3-2222-S144-1	159 000 706	3.7m/12 ft. Magnetostrictive Level Sensor, SS S <sup>3</sup> L™ Output
3-2222-S168-1	159 000 707	4.3m/14 ft. Magnetostrictive Level Sensor, SS S <sup>3</sup> L™ Output
3-2222-S192-1	159 000 708	4.9m/16 ft. Magnetostrictive Level Sensor, SS S <sup>3</sup> L™ Output
3-2222-S072-2	159 000 709	1.8m/6 ft. Magnetostrictive Level Sensor, SS 4 to 20mA Output
3-2222-S096-2	159 000 710	2.4m/8 ft. Magnetostrictive Level Sensor, SS 4 to 20mA Output
3-2222-S120-2	159 000 711	3.0m/10 ft. Magnetostrictive Level Sensor, SS 4 to 20mA Output
3-2222-S144-2	159 000 712	3.7m/12 ft. Magnetostrictive Level Sensor, SS 4 to 20mA Output
3-2222-S168-2	159 000 713	4.3m/14 ft. Magnetostrictive Level Sensor, SS 4 to 20mA Output
3-2222-S192-2	159 000 714	4.9m/16 ft. Magnetostrictive Level Sensor, SS 4 to 20mA Output

## Ordering Information (continued)

Mfr. Part No.	Code	Description
3-2222-V072-1	159 000 715	1.8m/6 ft. Magnetostrictive Level Sensor SYGEF® PVDF S <sup>3</sup> L™ Output
3-2222-V096-1	159 000 716	2.4m/8 ft. Magnetostrictive Level Sensor SYGEF® PVDF S <sup>3</sup> L™ Output
3-2222-V120-1	159 000 717	3.0m/10 ft. Magnetostrictive Level Sensor SYGEF® PVDF S <sup>3</sup> L™ Output
3-2222-V144-1	159 000 718	3.7m/12 ft. Magnetostrictive Level Sensor SYGEF® PVDF S <sup>3</sup> L™ Output
3-2222-V168-1	159 000 719	4.3m/14 ft. Magnetostrictive Level Sensor SYGEF® PVDF S <sup>3</sup> L™ Output
3-2222-V192-1	159 000 720	4.9m/16 ft. Magnetostrictive Level Sensor SYGEF® PVDF S <sup>3</sup> L™ Output
3-2222-V072-2	159 000 721	1.8m/6 ft. Magnetostrictive Level Sensor SYGEF® PVDF 4 to 20mA
3-2222-V096-2	159 000 722	2.4m/8 ft. Magnetostrictive Level Sensor SYGEF® PVDF 4 to 20mA
3-2222-V120-2	159 000 723	3.0m/10 ft. Magnetostrictive Level Sensor SYGEF® PVDF 4 to 20mA
3-2222-V144-2	159 000 724	3.7m/12 ft. Magnetostrictive Level Sensor SYGEF® PVDF 4 to 20mA
3-2222-V168-2	159 000 725	4.3m/14 ft. Magnetostrictive Level Sensor SYGEF® PVDF 4 to 20mA
3-2222-V192-2	159 000 726	4.9m/16 ft. Magnetostrictive Level Sensor SYGEF® PVDF 4 to 20mA

## Accessories

Mfr. Part No.	Code	Description
3-2220.391	159 000 699	Float, SS 52mm/2.05 in (Includes float and end stop)
3-2220.395	159 000 700	Float, SYGEF® PVDF (Includes float and end stop)
3-2220.393	159 000 701	Weight kit, 6 in., 4.5 lbs.
3-8050-1	159 000 753	Universal Mount Junction Box
3-8052	159 000 188	3/4 in. Integral Mounting Kit
3-8052-1	159 000 755	3/4 in. NPT Mount Junction Box
3-8250-2	159 000 766	Level Transmitter, Field Mount
3-8250-2P	159 000 767	Level Transmitter, Panel Mount
3-8250-3	159 000 768	Dual Channel Level Transmitter, Field Mount
3-8250-3P	159 000 769	Dual Channel Level Transmitter, Panel Mount
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 piece)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG13.5 (1 piece)

## Engineering Specifications

- The level sensor shall be constructed of 316SS or SYGEF® PVDF.
- The level sensor shall be microprocessor based for accuracy and reliability.
- The level sensor shall provide continuous position data with a resolution of 0.01 in.
- The level sensor shall allow for a blind 4 to 20mA or +GF+ SIGNET S<sup>3</sup>L™ output type.
- The level sensor shall be supplied with an adjustable 3/4 in. NPT fitting for flange installation.
- The level sensor shall be supplied with a nominal length of 152mm/6 in. cable.
- The level sensor shall meet CE requirements (pending).
- The level sensor shall be +GF+ SIGNET 3-2222.

### For more information on these products, please contact your local sales company:

<b>A</b>	Georg Fischer Rohrleitungssysteme GmbH, Sandgasse 16, A-3130 Herzogenburg, Tel. 02782/56 43-0, Fax 02782/51 56
<b>AUS</b>	George Fischer IPS Pty Ltd., 186-190 Kingsgrove Road, Kingsgrove, NSW 2208, Tel. 02 9554 3977, Fax 02 9502 2561
<b>B/L</b>	Georg Fischer N.V./S.A., Digue du Canal 109-111 – Vaardijk 109-111, B-1070 Bruxelles/Brussel, Tél. 02/556 40 20, Fax 02/524 34 26
<b>BAR</b>	George Fischer Ltda Av. dos Nações Unidas, 21689 CEP 04795-100 - S.Paulo - SP Tel.: 155111 247 1311 Fax: 155111 247 6009
<b>CH</b>	Georg Fischer Rohrleitungssysteme (Schweiz) AG, Amsler-Laffon-Strasse 1, Postfach, CH-8201 Schaffhausen, Tel. 052/631 3026, Fax 052/631 2897
<b>D</b>	Georg Fischer GmbH, Daimlerstraße 6, Postfach 1154, D-73093 Albershausen, Tel. 07161/302-0, Telex 727867, Fax 07161/302259
<b>DK</b>	Georg Fischer A/S, Klintehøj Vænge 17, DK-3460 Birkerød, Tel. 42/81 1975, Fax 42/81 1622
<b>E</b>	Georg Fischer S.A., Sistemas de tuberías para la industria, Calle Isla de la Palma, 32 – Nave 1, E-28700 San Sebastián de los Reyes (Madrid), Tel. 91/663 80 00, Fax 91/663 81 76
<b>F</b>	George Fischer S.A., 105-113, rue Charles Michels, B.P.174, F-93208 Saint-Denis Cedex 1, Tél. 1/49221341, Fax 1/49221300
<b>GB</b>	George Fischer Sales Limited, Paradise Way, Coventry, CV2 2ST, Tel. 01203/53 55 35, Telex 330032, Fax 01203/53 04 50-51
<b>I</b>	Giorgio Fischer S.p.A., Via Sondrio 1, I-20063 Cernusco S/N (MI), Agente generale di vendita Tufira S.r.l., Tel. 02/92 18 61, Fax 02/92 14 07 85
<b>J</b>	George Fischer Ltd., 2-47, Shikitsuhigashi, 1-chome, Naniwa-ku, Osaka 556, Tel. 6/6482838, Telex 5267785, Fax 6/6482565
<b>N</b>	Georg Fischer A.S., Bygdøy Allé 23, Postboks 3223 Elisenberg, N-0208 Oslo 2, Tel. 22/444110, Fax 22/434019
<b>PRC</b>	Georg Fischer Piping Systems, Ltd., No. 218 Kang Qiao Dong Road, Pudong Shanghai 201319 Tel. 121 58 13 33 33, Fax 231 58 13 33 66
<b>RA</b>	George Fischer Inc., Lavalle 2614, 1640 Martinez Buenos Aires, Tel. 01/798 74 01, Fax 01/798 40 74
<b>NL</b>	Georg Fischer N.V., Lange Veenteweg 19, Postbus 35, NL-8160 AA Epe, Tel. 0578678222, Fax 0578621768
<b>S/SF</b>	Georg Fischer AB, Box 113, S-12523 Älvsjö-Stockholm, Tel. 08/7274700, Fax 08/7492370
<b>SGP</b>	George Fischer Pte. Ltd., 15 Kaki Bukit Road 2, KB Warehouse Complex, SGP-417 845 Singapore/Singapore, Tel. 7470611, Fax 7470577
<b>USA*</b>	George Fischer Inc., 2882 Dow Ave., Tustin, CA 92780-7285, Tel. 714/731-8800, Toll Free 800/854-4090, Fax 714/731-4688, e-mail: info@us.piping.georgefischer.com, Internet: http://www.us.piping.georgefischer.com

\*Serving North, Central, and South America

## +GF+ SIGNET

Signet Scientific Company, 3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057

For Worldwide Sales and Service, visit our website: [gfsignet.com](http://gfsignet.com) • e-mail: [info@gfsignet.com](mailto:info@gfsignet.com)

Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.