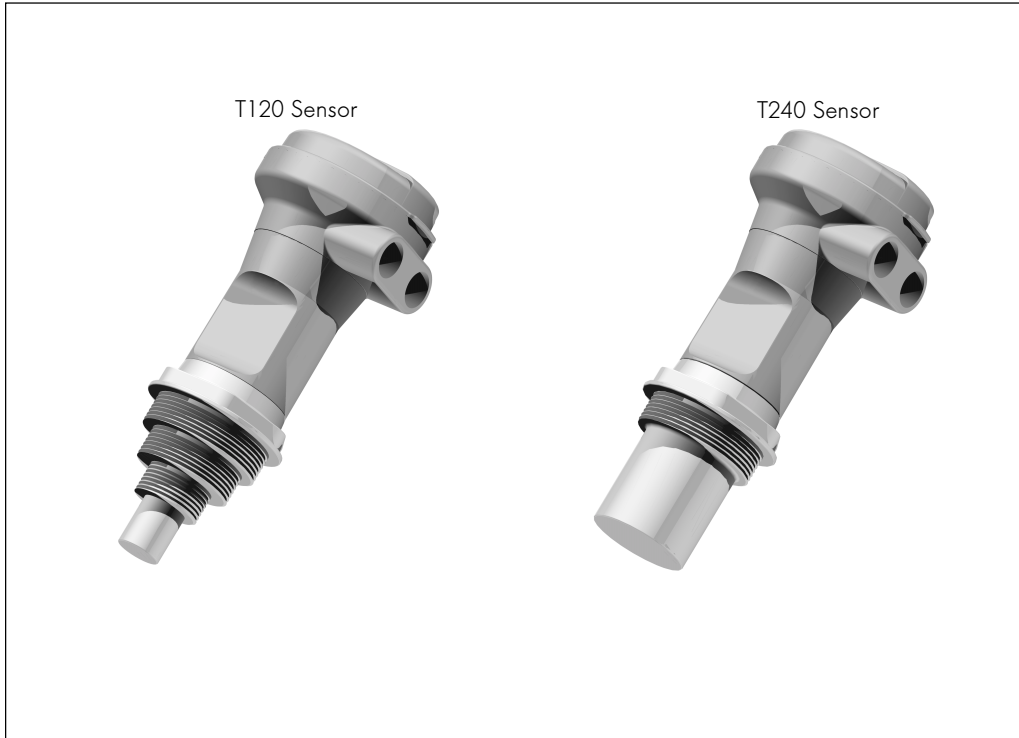


+GF+ SIGNET 2210 Ultrasonic Continuous Level Sensors

3-2210.099 (B-1 1/01)



Description

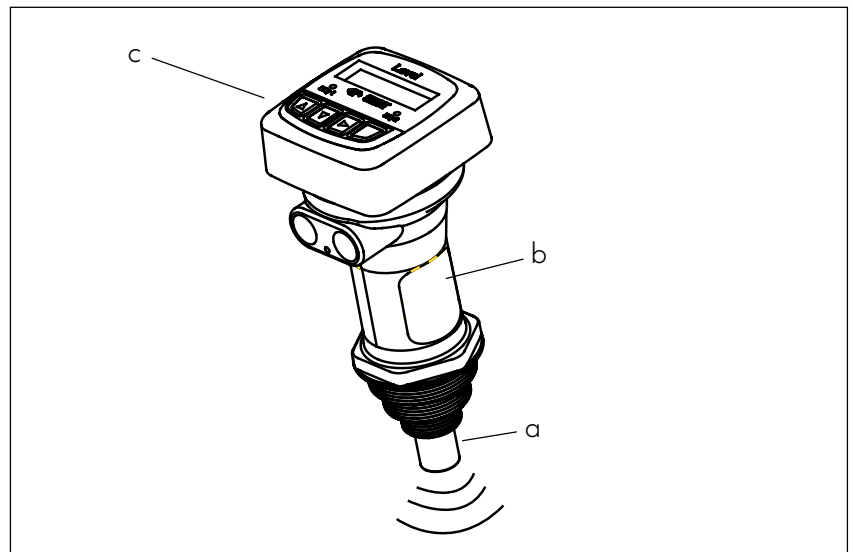
+GF+ SIGNET 2210 Ultrasonic Level Sensors provide accurate and reliable continuous level measurement up to 20 feet. The non-contacting ultrasonic technology is ideally suited for demanding level applications including chemicals and corrosive environments, slurries, and dirty or coating liquids. These sensors are available with three output options: fixed 4 to 20mA output, field-

scaleable 4 to 20mA output, and S³L™ (SIGNET Sensor Serial Link) output.

S³L™ 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

- Ultrasonic pulses are emitted from the transducer at the tip of the sensor, then reflected by the surface of the liquid back to the transducer.
- Microprocessor-based sensor electronics determine level measurement by the amount of time between pulse transmission and reception.
- Sensor shown here with integral transmitter for local display, 4 to 20mA adjustment, level-to-volume conversion, relays for level control, etc. (Transmitters sold separately. See 8250 data sheet for details.)



Features

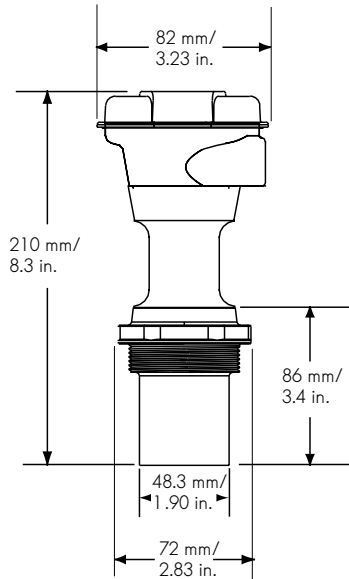
- Non-contacting level measurement up to 20 ft.
- Accuracy: $\pm 0.25\%$ of span
- 4 to 20mA or S³L™ output
- Factory fixed or field scaleable 4 to 20mA output
- 6° beam angle (T120)
14° beam angle (T240)
- Automatic temperature compensation
- 10 ft. version features 1 in., 1.5 in and 2 in. process connection (NPT or ISO)
- 20 ft. version features 2 in. process connection (NPT or ISO)
- Corrosion resistant Tefzel® body
- NEMA 4X/IP65
- Terminal block for convenient wiring
- CE (pending)

Application

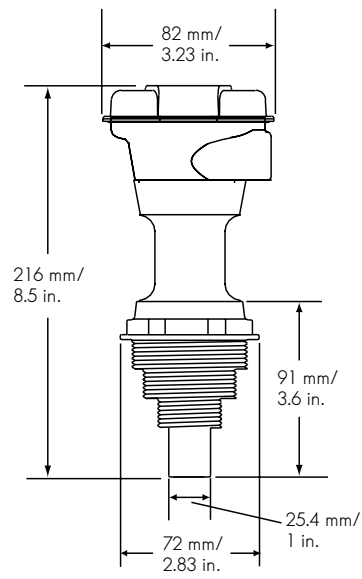
- Inventory Management
- Storage Tank Monitoring
- Neutralization Tanks
- Plating Lines
- Waste Sumps
- Clarifiers
- Pump Protection
- Overflow Protection

Dimensions

3-2210-T240-XX

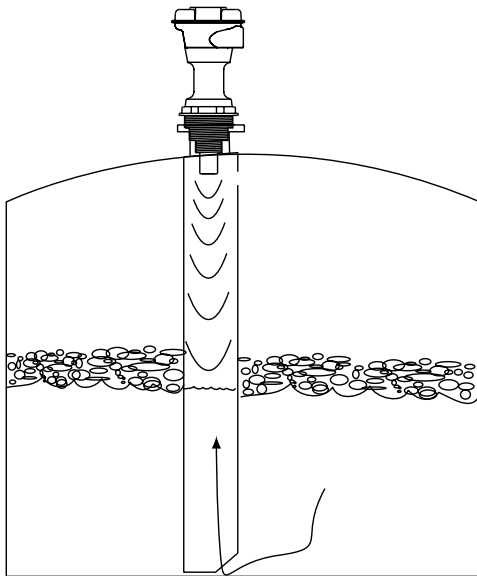


3-2210-T120-XX



Installation

The ideal ultrasonic sensor installation provides a completely unobstructed path for the ultrasonic signal to travel to the surface of the fluid and back. The sensor should be mounted vertically and sufficiently far from walls, inlets, outlets or sources of turbulence in order to avoid signal distortion or false echoes.



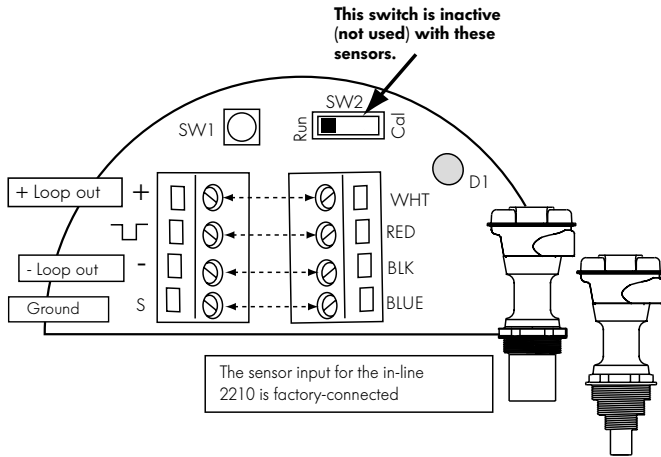
Installing the sensor inside a stand pipe is often the most effective method of overcoming problems due to turbulence and foaming.

The standpipe should extend below the lowest fluid level, so the end of the pipe is never above the surface. Also, the pipe must be vented at the top to allow fluid level to rise and fall freely.

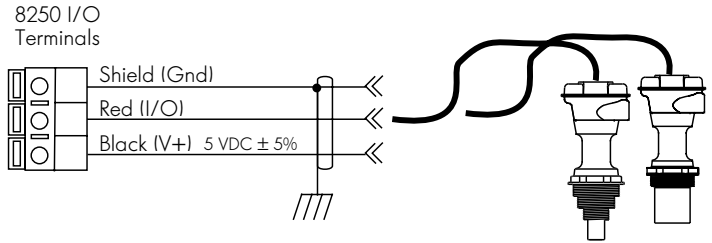
***Note:** See instruction manual for more detailed installation recommendations.

Wiring

4 to 20mA Loop



S³L™ Output



Technical Data

General

Wetted material

Sensor body: Tefzel®

Gasket: ISO: FPM standard (EPDM optional)
NPT: FPM and EPDM optional (sold separately)

Enclosure: NEMA 4X / IP65

Process Connection:

T120 Sensors: Multi-thread housing with:

- NPT 1 in. • ISO 7/1-R 1
- NPT 1.5 in. • ISO 7/1-R 1 1/2
- NPT 2 in. • ISO 7/1-R 2

T240 Sensors: 2 in. NPT or ISO 7/1-R 2 threads

Storage and operating temperature: 70°C max.

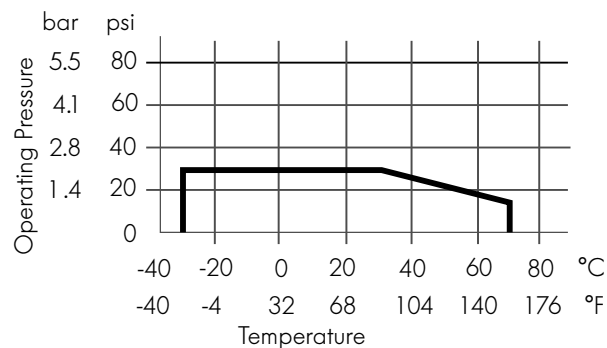
Maximum pressure: 30 psi @ 25°C

Relative humidity: 0 to 95%, non-condensing

Weight: 0.95 kg (2.09 lb)

Standards & Approvals

- CE (pending)
- EN 50082-2 Heavy Industry Immunity
- EN 50081-1 Light Industry Emissions



Output Specifications:

T120 sensors: Range 6 in. min. (deadband) to 10 ft. max.

Frequency: 100 KHz

Beam angle: 6°

T240 sensors: Range 12 in. min. (deadband) to 20 ft. max.

Frequency: 50 KHz

Beam angle: 14°

System accuracy: 0.25% of range

Response time: < 2s

2210-1X S³L™ Output (Serial ASCII, TTL level 9600 bps)

Power requirement: 5VDC ±5% regulated, 10mA max.
(provided by 8250 Level Transmitter)

Reverse polarity and short circuit protected

2210-2X 4 to 20mA Output (Span fixed at full scale)

- 4mA = far end of range (10 ft. or 20 ft.: tank empty, for example)
- 20mA = near end of range (6 in. or 12 in. deadband distance; tank full, for example)

Loop power requirement: 24 VDC ±10%

Maximum loop impedance: 300Ω @ 24 VDC

Reverse polarity and short circuit protected

2210-3X 4 to 20mA Output with EasyCal:

- Current loop output with EasyCal to scale 4 to 20mA output across entire sensor range; output reversible

Ordering Information

Mfr. Part No.	Code	Description
3-2210-T120-11	159 000 733	3.0m (10 ft.) Measurement Range S ³ L™ Output, NPT
3-2210-T120-21	159 000 734	3.0m (10 ft.) Measurement Range 4 to 20mA Output, NPT
3-2210-T120-31	159 000 735	3.0m (10 ft.) Measurement Range 4 to 20mA Output w/EasyCal, NPT
3-2210-T240-11	159 000 736	6.1m (20 ft.) Measurement Range S ³ L Output, NPT
3-2210-T240-21	159 000 737	6.1m (20 ft.) Measurement Range 4 to 20mA Output, NPT
3-2210-T240-31	159 000 738	6.1m (20 ft.) Measurement Range 4 to 20mA Output w/EasyCal, NPT
3-2210-T120-12	159 000 825	3.0m (10 ft.) Measurement Range S ³ L Output, ISO
3-2210-T120-22	159 000 826	3.0m (10 ft.) Measurement Range 4 to 20mA Output, ISO
3-2210-T120-32	159 000 827	3.0m (10 ft.) Measurement Range 4 to 20mA Output w/EasyCal, ISO
3-2210-T240-12	159 000 828	6.1m (20 ft.) Measurement Range S ³ L Output, ISO
3-2210-T240-22	159 000 829	6.1m (20 ft.) Measurement Range 4 to 20mA Output, ISO
3-2210-T240-32	159 000 830	6.1m (20 ft.) Measurement Range 4 to 20mA Output w/EasyCal, ISO

Accessories

Mfr. Part No.	Code	Description
3-8050	159 000 184	Universal Mounting Kit
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 connector)
3-9000.392-2	159 000 841	Liquid Tight Connector Kit, PG 13.5 (1 connector)
3-2210.570	159 000 843	Gasket set, 1 in., 1.5 in., 2 in. FPM
3-2210.571	159 000 844	Gasket set, 1 in., 1.5 in., 2 in. EPDM
3-2210.390	159 000 831	EasyCal Retrofit Kit (for use with 2210-2X versions)

Engineering Specifications

- The sensor shall be constructed of Tefzel® with optional gaskets of FPM or EPDM.
- The sensor shall be rated NEMA 4X/IP65.
- The sensor shall be available in 3.0m (10 ft.) and 6.1 (20 ft.) measurement ranges. The 3.0m (10 ft.) version will feature a 25mm (1 in.), 38mm (1-1/2 in.) and 50mm (2 in.) NPT or ISO connection. The 6.1m (20 ft.) version will feature a 2 in. NPT or ISO connection.
- The sensor shall feature 4 to 20mA or S³L™ output.
- The sensor shall have an accuracy of ±0.25% of span.
- The sensor shall be CE approved (pending), EN50082-2, and EN50081-1.
- The sensor shall be +GF+ SIGNET 3-2210.

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

A	George Fischer Rohrleitungssysteme GmbH, Sandgasse 16, A-3130 Herzogenburg, Tel. 02782/56 43-0, Fax 02782/51 56
AUS	George Fischer IPS Pty Ltd., 186-190 Kingsgrove Road, Kingsgrove, NSW 2208, Tel. 02 9554 3977, Fax 02 9502 2561
B/L	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
BAR	George Fischer Ltda Av. dos Nações Unidas, 21689 CEP 04795-100 - S.Paulo - SP Tel.: 155111 247 1311 Fax: 155111 247 6009
CH	Georg Fischer Rohrleitungssysteme (Schweiz) AG, Amsler-Laffon-Strasse 1, Postfach, CH-8201 Schaffhausen, Tel. 052/631 3026, Fax 052/631 2897
D	Georg Fischer GmbH, Daimlerstraße 6, Postfach 1154, D-73093 Albershausen, Tel. 07161/302-0, Telex 727867, Fax 07161/302259
DK	Georg Fischer A/S, Klintehøj Vænge 17, DK-3460 Birkerød, Tel. 42/81 1975, Fax 42/81 1622
E	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
F	George Fischer S.A., 105-113, rue Charles Michels, B.P.174, F-93208 Saint-Denis Cedex 1, Tél. 1/4922 1341, Fax 1/4922 1300
GB	George Fischer Sales Limited, Paradise Way, Coventry, CV2 2ST, Tel. 01203/53 55 35, Telex 330032, Fax 01203/53 04 50-51
I	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
J	Georg Fischer Ltd., 2-47, Shikitsuhigashi, 1-chome, Naniwa-ku, Osaka 556, Tel. 6/6482838, Telex 5267785, Fax 6/6482565
N	Georg Fischer A.S., Bygdøy Allé 23, Postboks 3223 Elisenberg, N-0208 Oslo 2, Tel. 22/444110, Fax 22/434019
PRC	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
RA	George Fischer Inc., Lavalle 2614, 1640 Martinez Buenos Aires, Tel. 01/798 74 01, Fax 01/798 40 74
NL	Georg Fischer N.V., Lange Veenteweg 19, Postbus 35, NL-8160 AA Epe, Tel. 0578678222, Fax 0578621768
S/SF	Georg Fischer AB, Box 113, S-12523 Älvsjö-Stockholm, Tel. 08/7274700, Fax 08/7492370
SGP	George Fischer Pte. Ltd., 15 Kaki Bukit Road 2, KB Warehouse Complex, SGP-417 845 Singapore/Singapore, Tel. 7470611, Fax 7470577
USA*	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

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