

# When the level matters

2260 / 2270

Ultrasonic level transmitter / sensors

228X

Point level switches



# Benefits

## Non-contact level sensors and various ultrasonic level switches – reliable and maintenance-free

Various measurement- and detection principles for nearly all liquids and types of vessels. From closed tank systems to open basins. Our sensors stand for easy installation and operation, stable and absolutely reliable measurement results as well as long service life and therefore optimal cost-efficiency. All components in GF Piping Systems are ideally coordinated. From the initial concept to installation, from sensor to fitting – everything from a single source!



### + Easy

#### **One-stop shopping:**

One source and one contact for all your components and questions concerning integration in existing or newly designed processes for liquid control systems.

#### **Everything at a glance:**

Large display for a fast and clear overview of all the key data.

#### **Programmed as needed:**

In simple applications, the sensors work reliably with factory settings. With Quick-Set or Expert Menu, sensors can be easily and optimally adjusted to the application.

### + Reliable

#### **Intelligent signal processing:**

Reliable measurements even with turbulent surfaces, steam or foam.

#### **Foreign object recognition (Echo-Map):**

Avoid incorrect measurements or failures due to interfering objects. The system can differentiate between foreign objects and the actual level.

#### **Narrow beam:**

Enables reliable measurement in small tanks and close to static objects.

### + Economical

#### **High resistance and long lifetime:**

The sensors are available in a variety of materials (PP, PVDF, PPS, stainless steel) – compliant with the medium.

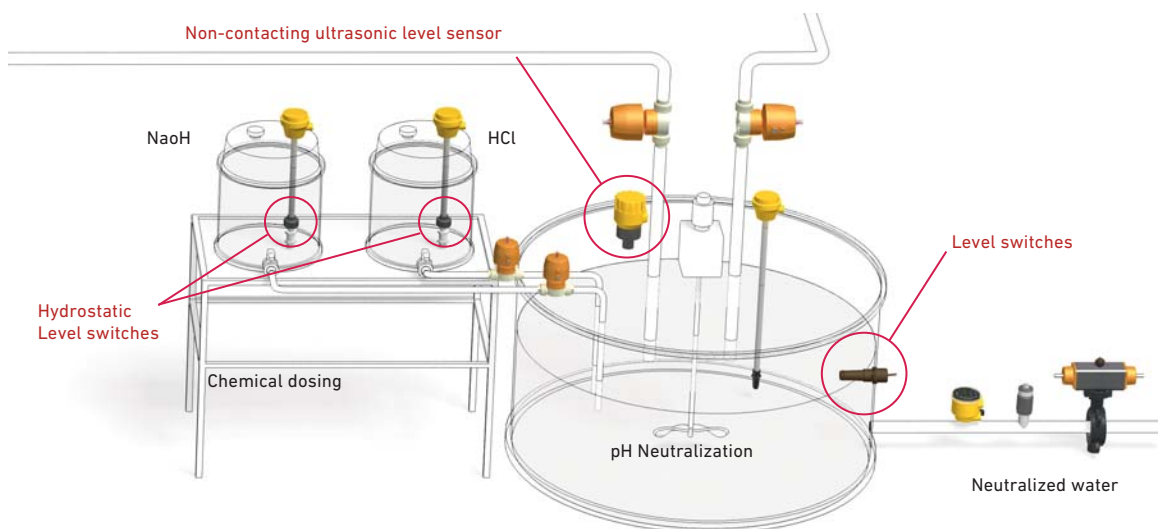
#### **The benefits:**

- Extended life time despite contact with corrosive liquids
- Lower maintenance costs
- Simple product selection

# Applications

**Circuits that flow and are precisely coordinated.  
Process reliability and efficiency – that's what matters**

Wherever high precision is a crucial factor, you will find systems from GF Piping Systems. Features like easy handling and durability applies to all products from GF Piping Systems. Their full potential is brought to bear when they are implemented in automated processes. With the experts from Georg Fischer on your side, individual requirements can be taken into consideration. We find and create solutions together with our customers for nearly any application.



## A practical application: demineralization of water

A good example of how components must seamlessly work together is the process loop for generating ultrapure water, from which all foreign substances are removed. For example, ultrapure water is often used in the pharmaceutical industry or semiconductor manufacturing. Another important market segment is water treatment. While continuous measuring level sensors indicate and transmit a liquid level or

volume level switches protect a system against overflowing or a pump against dry run. From sensor to fitting, all the key components come from one source and were designed by the professionals at GF Piping Systems. One partner – one perfect solution!



Tank filling



Water treatment

# Performance data that will convince you



## 2260 / 2270 Ultrasonic level sensor



### Narrow beam

- Safe installation in case of limited spaces
- Reliable measurement on diffuse surfaces

### Large display / Quick-set Menu

- Comfortable reading of levels / volumes
- Fast instrument start-up
- 32-point linearization
- Open channel flow measurement

### Echo map - Disturbing object recognition

- Safe installation in case of limited spaces

### Pre-programmed tank shapes

- Set up of volume calculation in just a few minutes

Specifications	Value
Measurement principle	Ultrasonic, time of flight
Measurement range	0.2-4 m (0.65 to 13 ft) 0.25-6 m (0.82 to 20 ft) 0.45-15 m (1.5 to 49 ft)
Accuracy	+/- 0.2% of measurement value +/-0.05% of measurement range
Process connection	BSP, NPT thread or flange
Sensor material	PP, PVDF
Working temperature	-30 ° - +90 °C (-22 °F to 194 °F)
Supply voltage	12-36 V DC
Output	4-20 mA, HART, relay
Approvals	CE, ATEX, RoHS

## 2250 Hydrostatic level sensor



### Embedded pressure membrane

- High protection against mechanical damages

### Front- / backside process thread

- Easy installation in tank walls or submersed from top of the tank

### Two pressure ranges

- Optimized resolution for various tank sizes

Specifications	Value
Measurement principle	Pressure, hydrostatic
Measurement range	0-7 m (0-23 ft) / 0-35 m (0-115 ft)
Accuracy	+/- 1% of measurement range
Process connection	½" thread bolting
Sensor material	PVDF, ceramic
Working temperature	-15 ° - +85 °C (5 °F to 185 °F)
Supply voltage	5 VDC (S <sup>3</sup> L), 12-24 VDC (4-20 mA)
Output	S <sup>3</sup> L, 4-20 mA
Connection	Cable
Approvals	CE, FCC, RoHS

## 2280 Tuning forks



For safe operation in critical applications

**Cable, DIN connector and connection terminals**

- Easy wiring in various applications

**No moving parts**

- No maintenance costs

Specifications	Value
Sensor material	Stainless steel 1.4571
Output	3-wire PNP/NPN, 2-wire AC, relay
Connection	Cable, DIN plug, terminal box
Approvals	CE, ATEX, WHG
Process connection	1" BSP, 1" NPT

## 2284 Ultrasonic gap switch



**PPS Full-plastic body**

- Optimized chemical compatibility

**Compact size**

- Easy installation in pipes and small systems

Specifications	Value
Sensor material	PPS
Output	Relay
Connection	Cable, terminal box
Approvals	CE
Process connection	3/4" NP T, 1" BSP, 1" NPT

## 2281 Conductive multipoint switch



**Individual cutting of electrodes**

- Easy adaptation of switching points on site

**Up to 4 switching points in one sensor**

- 4 times faster installation
- Cost effective solution

Specifications	Value
Sensor material	Stainless steel PP
Output	External relay
Connection	Cable, terminal box
Approvals	CE
Process connection	1 1/2"

## 2282 Guided float switch



**PP or PVDF full-plastic body**

- Optimized chemical compatibility

**Ultra compact housing**

- Easy installation in compact systems

Specifications	Value
Sensor material	PP, PVDF
Output	Reedcontact
Connection	Cable
Approvals	CE
Process connection	1/2" BSP, 1/2" NPT

## 2285 Float switch



**Double chambered enclosure**

- High operational safety

**Mercury free switching contact**

- Safe use in drinking- and waste water applications

Specifications	Value
Sensor material	PP
Output	Microswitch
Connection	Cable
Approvals	CE

# Ordering information – Ultrasonic Level transmitters /-sensors /-switches

## 2250 Hydrostatic level sensor

Description	PVC-U Union connection - pipe connection	
	Code	Type
NPT, digital (S <sup>3</sup> L), 35 m (115 ft), 3/4"	159 001 241	3-2250-11L
NPT, digital (S <sup>3</sup> L), 7 m (23 ft), 3/4"	159 001 242	3-2250-11U
NPT, current (4 to 20 mA), 35 m (115 ft), 3/4"	159 001 247	3-2250-21L
NPT, current (4 to 20 mA), 7 m (23 ft), 3/4"	159 001 248	3-2250-21U

Description	PVC-U Union connection - Metric pipe connection	
	Code	Type
ISO, digital (S <sup>3</sup> L), 7 m (23 ft)	159 001 478	3-2250-11U-1
ISO, digital (S <sup>3</sup> L), 35 m (115 ft)	159 001 479	3-2250-11L-1
ISO, current (4 to 20 mA), 7 m (23 ft)	159 001 482	3-2250-21U-1
ISO, current (4 to 20 mA), 35 m (115 ft)	159 001 483	3-2250-21L-1

## 2260 Ultrasonic level transmitters

4-20 mA output

Description	BSP thread / DIN flange		NPT thread / DIN flange	
	Code	Type	Code	Type
4 m (13.1 ft) range, PP sensor, 1 1/2" thread	159 300 090	2260-P-ODB-4	159 300 120	2260-P-ODN-4
6 m (19.7 ft) range, PP sensor, 1 1/2" thread	159 300 092	2260-P-ODB-6	159 300 122	2260-P-ODN-6
15 m (49.2 ft) range, PP sensor, Flange DIN DN125 / ANSI 5"	159 300 094	2260-P-ODF-15	159 300 124	2260-P-ODA-15
4 m (13.1 ft) range, PVDF sensor, 1 1/2" BSP thread	159 300 101	2260-V-ODB-4	159 300 131	2260-V-ODN-4
6 m (19.7 ft) range, PVDF sensor, 2" BSP thread	159 300 103	2260-V-ODB-6	159 300 133	2260-V-ODN-6
15 m (49.2 ft) range, PVDF sensor, Flange DIN DN125 / ANSI 5"	159 300 105	2260-V-ODF-15	159 300 135	2260-V-ODA-15

4-20 mA output, Relay, HART Protocol

Description	BSP thread / DIN flange		NPT thread / DIN flange	
	Code	Type	Code	Type
4 m (13.1 ft) range, PP sensor, 1 1/2" thread	159 300 091	2260-P-2DB-4	159 300 121	2260-P-2DN-4
6 m (19.7 ft) range, PP sensor, 2" thread	159 300 093	2260-P-2DB-6	159 300 123	2260-P-2DN-6
15 m (49.2 ft) range, PP sensor, Flange DIN DN125 / ANSI 5"	159 300 095	2260-P-2DF-15	159 300 125	2260-P-2DA-15
4 m (13.1 ft) range, PVDF sensor, 1 1/2" BSP thread	159 300 102	2260-V-2DB-4	159 300 132	2260-V-2DN-4
6 m (19.7 ft) range, PVDF sensor, 2" BSP thread	159 300 104	2260-V-2DB-6	159 300 134	2260-V-2DN-6
15 m (49.2 ft) range, PVDF sensor, Flange DIN DN125 / ANSI 5"	159 300 106	2260-V-2DF-15	159 300 136	2260-V-2DA-15

4-20 mA output, HART Protocol, ATEX

Description	BSP thread / DIN flange		NPT thread / DIN flange	
	Code	Type	Code	Type
4 m (13.1 ft) range, PVDF sensor, 1 1/2" thread	159 300 112	2260-V-1DBX-4	159 300 142	2260-V-1DNX-4
6 m (19.7 ft) range, PVDF sensor, 2" thread	159 300 113	2260-V-1DBX-6	159 300 143	2260-V-1DNX-6
15 m (49.2 ft) range, PVDF sensor, Flange DIN DN125 / ANSI 5"	159 300 114	2260-V-1DBX-15	159 300 144	2260-V-1DAX-15

## 2270 Ultrasonic level sensors

4-20 mA output, HART Protocol

Description	BPS thread		NPT thread / DIN flange	
	Code	Type	Code	Type
4 m (13.1 ft) range, PP sensor, 1 1/2" thread	159 300 155	2270-P-1B-4	159 300 169	2270-P-1N-4
6 m (19.7 ft) range, PP sensor, 2" thread	159 300 156	2270-P-1B-6	159 300 170	2270-P-1N-6
4 m (13.1 ft) range, PVDF sensor, 1 1/2" thread	159 300 162	2270-V-1B-4	159 300 176	2270-V-1N-4
6 m (19.7 ft) range, PVDF sensor, 2" thread	159 300 163	2270-V-1B-6	159 300 177	2270-V-1N-6

## 2280 Tuning forks

Description	BSP thread		NPT thread	
	Code	Type	Code	Type
Length 69 mm (2.72 in.), Stainless steel, 3-wire PNP-NPN, DIN connector, 1"	159 300 200	2280-S-5WBO-1	159 300 220	2280-S-5WNO-1
Length 69 mm (2.72 in.), Stainless steel, 3-wire PNP-NPN, Cable, 1"	159 300 201	2280-S-5WBC-1	159 300 221	2280-S-5WNC-1
Length 125 mm (4.92 in.), Stainless steel, 3-wire PNP-NPN, DIN connector, 1"	159 300 202	2280-S-5WBO-2	159 300 222	2280-S-5WNO-2
Length 125 mm (4.92 in.), Stainless steel, 3-wire PNP-NPN, Cable, 1"	159 300 203	2280-S-5WBC-2	159 300 223	2280-S-5WNC-2
Length 69 mm (2.72 in.), Stainless steel, 1 SPDT relay, PBT enclosure, 1"	159 300 240	2280-S-5WBT-1	159 300 242	2280-S-5WNT-1
Length 125 mm (4.92 in.), Stainless steel, 1 SPDT relay, PBT enclosure, 1"	159 300 241	2280-S-5WBT-2	159 300 243	2280-S-5WNT-2
Length 69 mm (2.72 in.), Stainless steel, 2-wire DC, DIN connector, ATEX, 1"	159 300 210	2280-S-5XWBO-1		
Length 69 mm (2.72 in.), Stainless steel, 2-wire DC, Cable, ATEX, 1"	159 300 211	2280-S-5XWBC-1		
Length 125 mm (4.92 in.), Stainless steel, 2-wire DC, DIN connector, ATEX, 1"	159 300 212	2280-S-5XWBO-2		
Length 125 mm (4.92 in.), Stainless steel, 2-wire DC, Cable, ATEX, 1"	159 300 213	2280-S-5XWBC-2		

## 2281 Conductive multipoint switch

Description	BSP thread	
	Code	Type
PBT enclosure, PP process connection for 2 electrodes + reference, 1 1/2"	159 300 250	2281-S-BT-2
PBT enclosure, PP process connection for 3 electrodes + reference, 1 1/2"	159 300 251	2281-S-BT-3
PBT enclosure, PP process connection for 4 electrodes + reference, 1 1/2"	159 300 252	2281-S-BT-4
Electrode, Stainless steel, 0.5 m (19.69 in.)	159 300 253	KLN-205
Electrode, Stainless steel, 1 m (39.37 in.)	159 300 254	KLN-210
Electrode, Stainless steel, 1.5 m (59.06 in.)	159 300 255	KLN-215
PP spacer	159 300 257	KLP-201
Relay, 1 SPDT contact, 24 - 240 V AC/DC	159 300 258	2281-1-Relay
Relay, 2 SPDT contacts, 24V AC/DC	159 300 259	2281-2-Relay

## 2282 Guided float switch

Description	BSP thread		NPT thread	
	Code	Type	Code	Type
PP sensor, DIN connector, 1/2"	159 300 260	2282-P-6OB	159 300 264	2282-P-6ON
PP sensor, Cable, 1/2"	159 300 261	2282-P-6CB	159 300 265	2282-P-6CN
PVDF sensor, DIN connector, 1/2"	159 300 262	2282-V-6OB	159 300 266	2282-V-6ON
PVDF sensor, Cable, 1/2"	159 300 263	2282-V-6CB	159 300 267	2282-V-6CN

## 2284 Ultrasonic gap switch

Description	BSP thread		NPT thread	
	Code	Type	Code	Type
PPS sensor, Cable, 3/4"	159 300 270	2284-Q-4BC		
PPS sensor, Cable, 1"	159 300 274	2284-Q-4BC	159 300 272	2284-Q-4NC

## 2285 Float switch

Description	Code	Type
PP float, PVC cable 5 m (16.5 ft), Microswitch No/Nc	159 300 280	2285-P-6C-5
PP float, PVC cable 10 m (33 ft), Microswitch No/Nc	159 300 281	2285-P-6C-10
PP float, PVC cable 20 m (66 ft), Microswitch No/Nc	159 300 282	2285-P-6C-20
Counterweight for 2285	159 300 289	2285-P-Weight

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