

Type 2284 Ultrasonic Gap Switch



Product description

The type 2284 Ultrasonic Gap Switch consists of polyphenylene sulphide (PPS) and is highly corrosion resistant in most liquids. The gap switch is designed for high or low level alarms in different tank applications as well as pump control.

If there is a liquid present, the signal will be transmitted across the gap and the integral electronics will switch the output circuitry to signal the presence of a liquid.

It can be mounted in any position in a tank using a $\frac{3}{4}$ in. or 1 in. thread available in BSP and NPT thread forms.

Function

In one end of the fork there is an ultrasonic generator, on the other end a receiver. The sensor always attempts to transmit an ultrasonic signal over the fork gap. The ultrasonic waves are received when the gap is closed via the medium. As long as there is air between the generator and the receiver, no transfer will take place. When the receiver discerns ultrasonic waves, the load relay switches. The principle makes the 2284 less prone to deposits than other level switches. As long as there is an air gap between the ultrasonic generator and the receiver, the state is recognized accurately.

Since the sensor has no moving parts, it is mechanically particularly rugged and long-lived. The cable connection is completely encapsulated. The entire sensor can therefore be submerged.

Benefits/features

- Relay output
- Corrosion-resistant PPS housing
- 1"- and $\frac{3}{4}$ " threaded mounting
- Small in-tank dimensions
- Compact sensor for narrow spaces
- Self contained full plastic body
- No moving sensor parts



Applications

- Cooling water
- Demineralized water
- Water/Glycol solutions
- Chemicals
- Pump/Valve control

Technical data

General

Type	2284-Q-4xC
Repeatability	±2 mm (0.08 in.)

Environment

Process temperature	-20 °C to + 70 °C (-4 °F to +158 °F)
Ambient temperature	-20 °C to + 70 °C (-4 °F to +158 °F)
Process pressure (absolute)	72.5 psi (5 bar)
Maximum viscosity	5000 cSt 20 °C (68 °F)

Housing

Housing and sensor material	PPS
Cable material	PVC
Protection rating	IP66/IP68 (3m) / NEMA 6P (10 ft.)
Process connection	¾" or 1" BSP/NPT

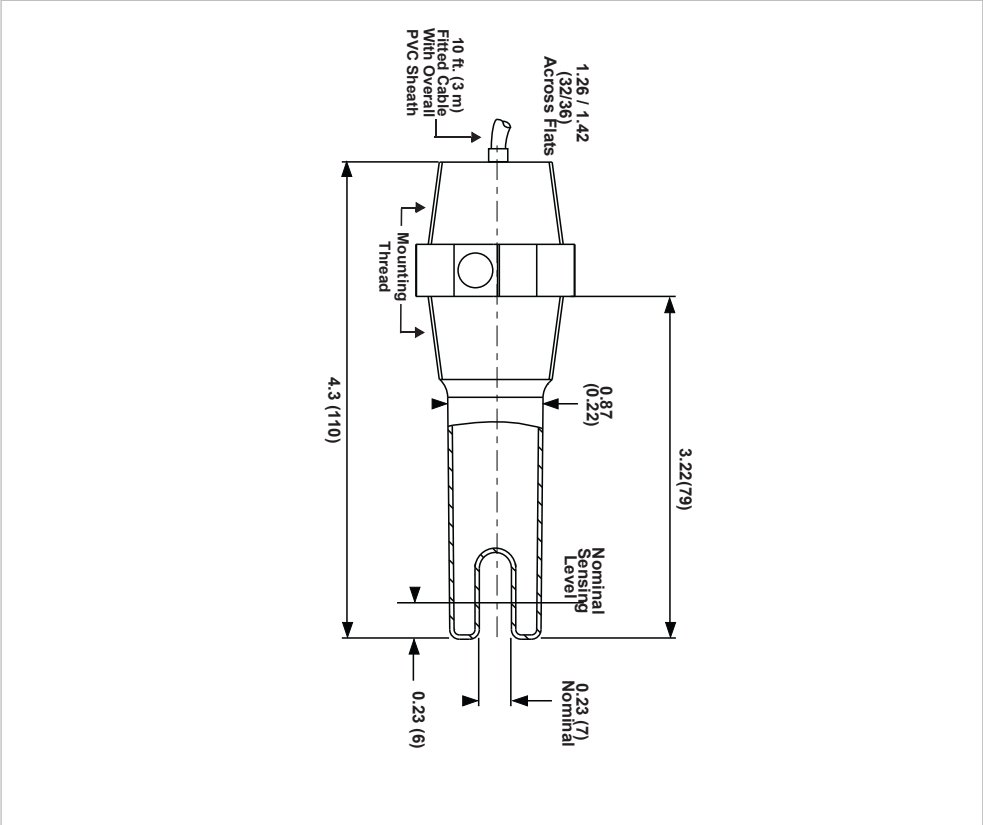
Electronics

Power supply	18 to 30 VDC / AC
Power consumption	≥ 25 mA
Maximum switching voltage	30 VDC / AC
Maximum switching current	1 A at 30 V residual 0.25 A at 30 V inductive
Reaction time	50 ms wet-dry, 0.5 s dry-wet
Cable type	5 core 7/0.2mm, 3m
Switching function	SPCO relay No/NC

Standards/approvals

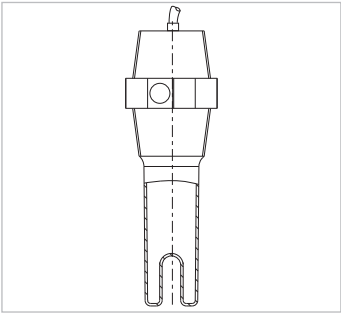
General approvals	CE, UKCA, RoHS
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Dimensions



Ordering Information

Manufacturer's part no.	Part no.	Description
Versions with BSP thread		
2284-Q-4BC	159 300 270	Body PPS, BSP ¾ in., cable 3 m
2284-Q-4BC	159 300 274	Body PPS, BSP 1 in., cable 3 m
Versions with NPT thread		
2284-Q-4NC	159 300 272	Body PPS, NPT 1 in., cable 3 m



Technical basics

The sensor changes its switch position when the fork gap is covered by a medium. Ensure prior to assembly that the switch can be positioned such that the fork can be freed of the medium without cleaning becoming necessary.

Handling

Installation notes

Position

Also observe the following points when positioning:

- The liquid can run out from the sensor gap.
- The distance between the sensor gap and container walls (or other installations in the container) should be at least 25 mm, so that no air or liquid bubbles can form.
- Turbulence in the vicinity of inlet/outlet valves or agitators is to be avoided.
- Do not install directly in the flow path of the liquid. If necessary, install baffle plates.

Maintenance notes

When used in media that leave behind no residues, no special maintenance steps are necessary. If deposits do occur, the sensor should be cleaned regularly.



Installation and maintenance must be performed according to the corresponding installation instructions. The installation manual is included with the product, see also the online product catalog at www.gfps.com

Tips for installation

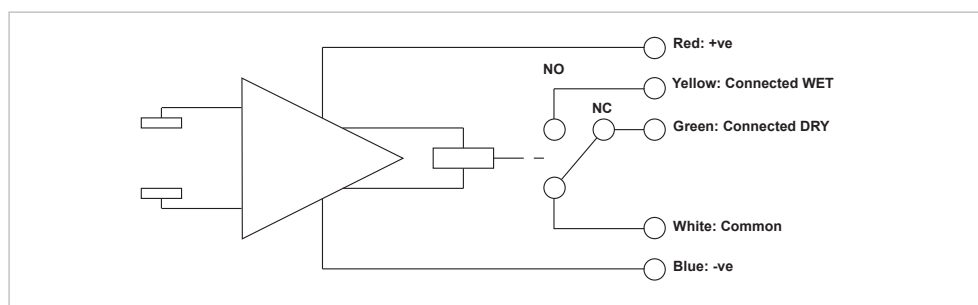
Interior and exterior installation

Since the sensor has a thread on both sides of the hexagonal hub, it can be installed on a tank either from the outside or the inside. Due to its completely encapsulated electronics, the sensor can be submerged entirely, if necessary.

Leak detection

Due to its material composition, the 2284 is also very well suited for use in detecting leaks in double pipes or double-wall tanks. In both cases, one should select as deep of a position as possible, in order to guarantee a quick reaction time in a moment of danger.

Wiring



- 1 Red, +ve
- 2 Yellow, contact NO
- 3 Green, contact NC
- 4 White, ground
- 5 Blue, -ve

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