Level Measurement

Point level measurement

Ultrasonic non-contacting switch / Pointek ULS200

Overview

The Pointek ULS200 is an ultrasonic non-contacting switch with two switch points for level detection of bulk solids, liquids and slurries in a wide variety of industries; ideal for sticky materials.

Benefits

- 2 switch outputs for high-high, high, low, and low-low level alarms or pump up/pump down control
- Integral temperature compensation
- AC or DC power supply
- Electronics provided with fail-safe function
- Threaded and sanitary fitting clamp process connections
- Polycarbonate enclosure, Type 6/NEMA 6/IP67
- Easy, two-button programming

Application

The measuring range for bulk solids is max. 3 m (9.8 ft) and 5 m (16.4 ft) for liquids and slurries. Unlike invasive contacting devices, there is no material buildup on the sensor.
The level switch has a rugged design, combining the transducer and electronics in one durable device. It has no moving parts and is virtually maintenance-free.
The transducer, available in ETFE or PVDF copolymer, is inert to most chemicals. This means the device can be used in the chemical, petrochemical, water, and wastewater industries. A sanitary version of the ULS200, with an industry standard flange option, is easy to remove from the application for cleaning. It thus satisfies the prerequisites for use in the food, beverage, and pharmaceutical industries. The Pointek ULS200 delivers superior performance while reducing maintenance, downtime, and equipment replacement costs.

- Key Applications: liquids, slurries, fluid materials, plugged chute detection, chemical industry
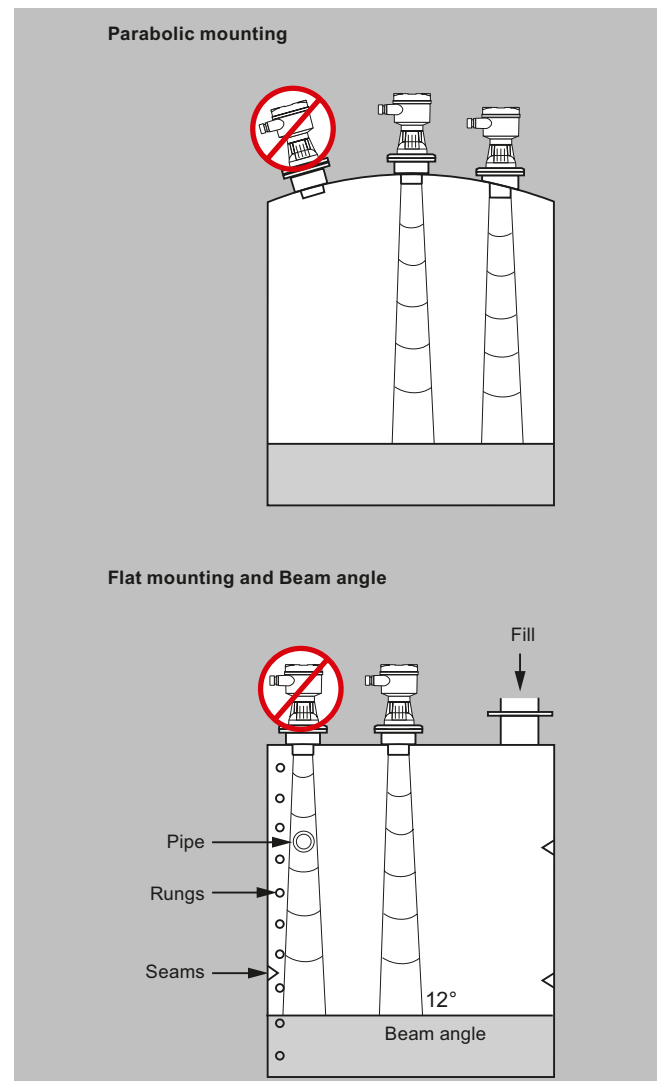
Design

Installation

The Pointek ULS200 should be mounted in an area that is within the temperature range specified and that is suitable to the enclosure rating and materials of construction. The cover should be accessible to allow programming, wiring and display viewing.
It is advisable to keep the Pointek ULS200 away from high voltage or current runs, contactors and SCR control drives.
Locate the Pointek ULS200 so that it has a clear sound path perpendicular to the material surface. The sound path should not intersect the fill path, rough walls, seams, rungs etc.

Mounting and Interconnection

The Pointek ULS200 is available in three thread types: 2" NPT, R 2" (BSPT), EN 10226 or PF2 and can be fitted with the optional 75 mm (3 inch) flange adapter for mating to 3" ASME, DN 65, PN 10, and JIS 10K 3B sized flanges.
Separate cables and conduit may be required to conform to standard instrumentation wiring or electrical codes.

Configuration

Pointek ULS200 mounting

■ Selection and ordering data

Pointek ULS200 Ultrasonic point level switch Non-contact, 5 m (16.4 ft) range, for bulk solids, liquids, and slurries.	Article No. 7ML1510- ●	●	●	0	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Power supply					
24 V DC, relay output	1				
24 V DC, transistor output	2				
100 ... 230 V AC, relay output	3				
Approvals					
CE, UKCA, RCM, CSA Class I, II, Div. 2[1]		J			
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, $_c$CSA$_{US}$, FM		K			
Transducer/Process connection					
ETFE, 2" NPT [(Taper), ASME B1.20.1]			A		
EFTE, R 2" [(BSPT), EN 10226]			B		
EFTE, G 2" [(BSPP), EN ISO 228-1]			C		
PVDF copolymer, 2" NPT [(Taper), ASME B1.20.1]			E		
PVDF copolymer, R 2" [(BSPT), EN 10226]			F		
PVDF copolymer, G [(BSPP), EN ISO 228-1]			G		
PVDF copolymer, 4" sanitary mounting[2]			J		
Enclosure/cable inlet					
Polycarbonate					
• Cable inlet PG 13.5					1
• Cable inlet ½" NPT					2
Aluminum					
Aluminum housing, Cable inlet PG 13.5					3
Aluminum housing, Cable inlet 1/2" NPT					4

[1] Available with Enclosure/cable inlet option 2 only.
[2] Available with Approvals option K only.

Selection and ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s)	
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	**Y15**

Spare parts and accessories	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77 inch), one text line, suitable for enclosures	7ML1930-1AC
Universal Box Bracket Mounting Kit	7ML1830-1BK
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT	7ML1830-1BT
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT	7ML1830-1BU
2" BSP nylon plastic locknut	7ML1830-1DQ
2" NPT nylon plastic locknut	7ML1830-1DT
4" sanitary mounting clamp	7ML1830-1BR
Spare Parts	
Polycarbonate Lid	7ML1830-1LG

Level Measurement
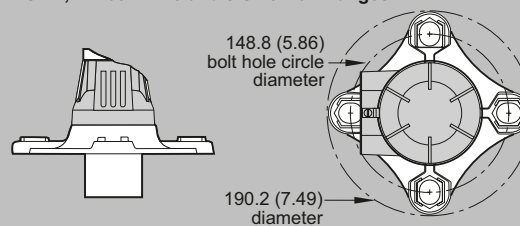
Point level measurement

▍ Technical specifications

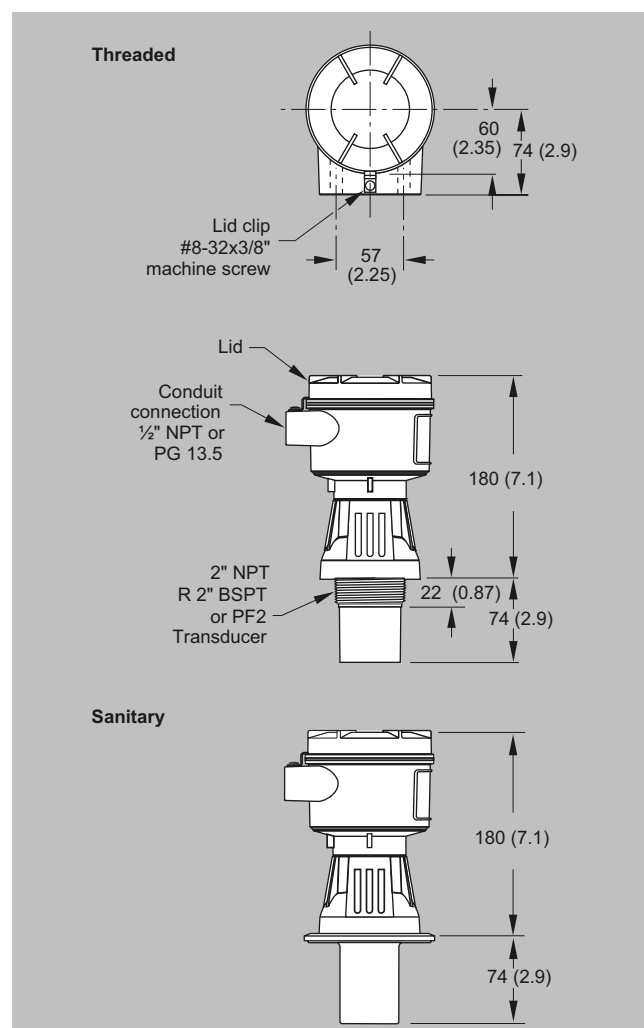| Pointek ULS200	
Mode of operation	
Measuring principle	Ultrasonic level switch
Measuring range	
Measuring range in liquids	0.25 ... 5 m (0.8 ... 16.4 ft)
Measuring range in bulk solids	0.25 ... 3 m (0.8 ... 9.8 ft)
Output	
AC Version (relay)	2 SPDT Form C contacts, rated 5 A at 250 V AC or 30 V DC, resistive load; rated 1 A at 48 V DC resistive load
DC Version (relay)	2 SPDT Form C contacts, rated 5 A at 30 V DC, resistive load; rated 1 A at 48 V DC resistive load
DC Version (transistor)	2 switches, rated max. 100 mA, 48 V DC
Accuracy	
AC/DC version	
• Resolution	3 mm (0.1 inch)
• Repeatability	0.25 % of measuring range
Rated operation conditions	
Installation conditions	
• Location	Indoors/outdoors
• Beam angle	12°
Ambient conditions	
• Ambient temperature	-40 ... +60 °C (-40 ... +140 °F)
• Storage temperature	-40 ... +60 °C (-40 ... +140 °F)
• If mounted in metal threads	-20 ... +60 °C (-5 ... +140 °F)
Medium conditions	
• Process pressure	0.5 bar (7.25 psi) max.
Design	
Material	Polycarbonate with gasket
Weight	Approx. 1.5 kg (3.3 lb)
Transducer material	PVDF or ETFE copolymer
Threaded mounting	2" NPT [(Taper), ASME B1.20.1] R 2" [(BSPT), EN 10226] or G 2" [(BSPP), EN ISO 228-1]
• Optional flange adapter	For 3" ASME, DN 65, PN 10, and JIS 10 K3B
Sanitary mounting	4" sanitary fitting clamp
Power supply	
AC version	100 ... 230 V AC, ± 15 %, 50/60 Hz, max. 12 VA, 5 W
DC version	18 ... 30 V DC, 3 W
Displays and controls	
Display	LCD, three digits, 9 mm (0.35 inch) high, for display of distance between sensor face and material, multi-segment graphic for operating state
Memory	EEPROM, non-volatile
Programming	2 keys
Electronics/enclosure	Connection: terminal block, max. 2.5 mm² (14 AWG) solid/1.5 mm² (16 AWG) stranded
Degree of protection	IP67/Type 6/NEMA 6
Cable inlet	2 x ½" NPT or 2 x PG 13.5
Certificates and approvals	CE, UKCA, cCSAUs, FM

▍ Options

Flange adapter for mating 2" NPT or 2" BSP process connections to 3" ASME, DN 65 PN 10 and JIS 10K 3B flanges
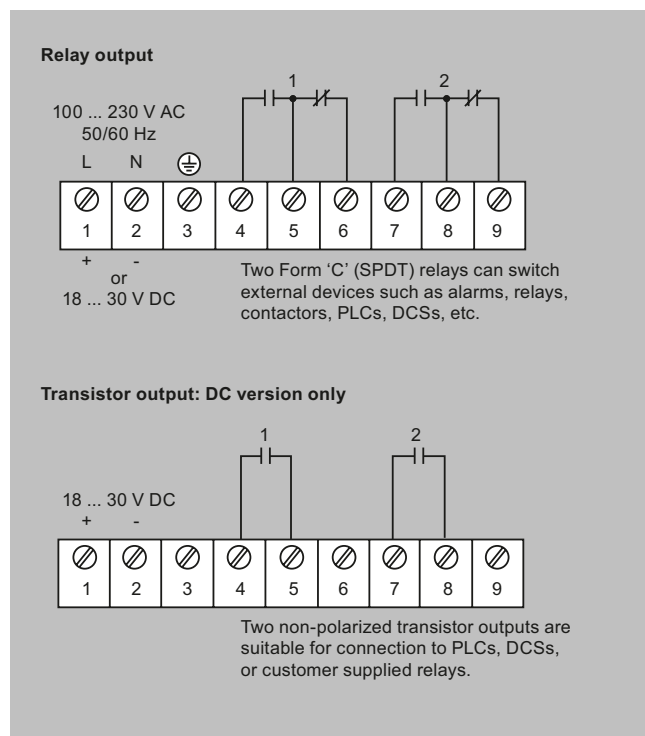

Pointek ULS200 optional flange adapter, dimensions in mm (inch)

▍ Dimensional drawings

Pointek ULS200, dimensions in mm (inch)

Circuit diagrams

Pointek ULS200 connections

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