

# Level instruments

## Point level measurement - Ultrasonic 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 or aluminum enclosures, 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

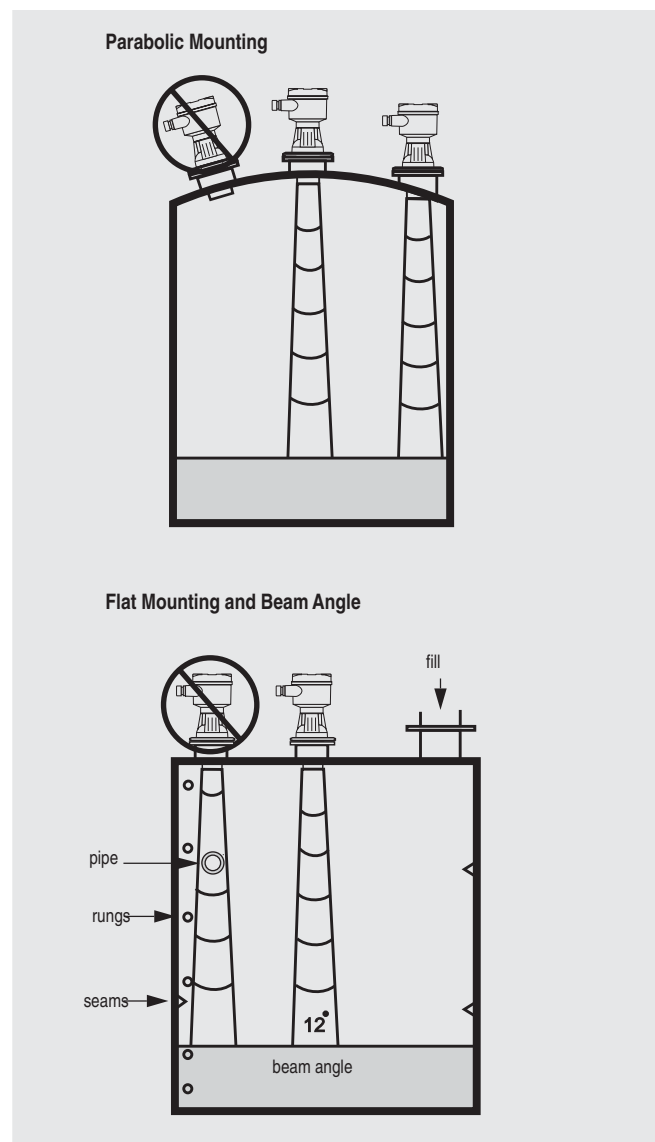
Locate the Pointek ULS200 so that it has a clear sound path perpendicular to the material surface. The sound path should not intersect the fill path, rough walls, seams, rungs etc.

#### 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") 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

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### Technical specifications

<b>Mode of operation</b>	
Measuring principle	Ultrasonic level switch
<b>Measuring range</b>	
Measuring range in liquids	0.25 to 5 m (0.8 to 16.4 ft)
Measuring range in bulk solids	0.25 to 3 m (0.8 to 9.8 ft)
<b>Output</b>	
AC Version (relay)	2 SPDT Form C contacts rated 5 A at 250 V AC, resistive load
DC Version (relay)	2 SPDT Form C contacts rated 5 A at 48 V DC
DC Version (transistor)	2 switches, rated max. 100 mA, 48 V DC
<b>Accuracy</b>	
AC/DC version	
- Resolution	3 mm (0.1")
- Repeatability	0.25% of measuring range
<b>Rated operation conditions</b>	
<u>Installation conditions</u>	
- Location	Indoors/outdoors
- Beam angle	12°
<u>Ambient conditions</u>	
- Ambient temperature	-40 to +60 °C (-40 to +140 °F)
- If mounted in metal threads	-20 to +60 °C (-5 to +140 °F)
<u>Medium conditions</u>	
- Process pressure	0.5 bar (7.25 psi) max.
<b>Design</b>	
Material	Polycarbonate or epoxy-coated aluminum with gasket
Weight	Approx. 1.5 kg (3.3 lbs)
Transducer material	PVDF copolymer
Threaded mounting	2" NPT [(Taper), ANSI/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
<b>Power supply</b>	
AC version	100 to 230 V AC, ± 15%, 50/60 Hz, max. 12 VA, 5 W
DC version	18 to 30 V DC, 3 W
<b>Displays and controls</b>	
Display	LCD, three digits, 9 mm (0.35") high, for display of distance between sensor face and material, multisegment graphic for operating state
Memory	EEPROM, non-volatile
Programming	2 keys

### Electronics/enclosure

Connection: terminal block, max. 2.5 mm<sup>2</sup> (14 AWG) solid/1.5 mm<sup>2</sup> (16 AWG) stranded

Degree of protection

IP67/Type 6/NEMA 6

Cable inlet

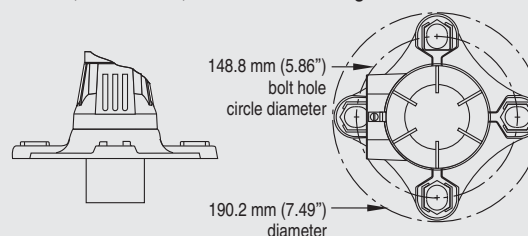
2 x 1/2" NPT or 2 x PG 13.5

### Certificates and approvals

- CE (EMC certificate available on request), CSA<sub>US/C</sub>, FM
- CSA/FM Class I, II, III, Div. 1, Gr A, B, C, D, E, F, G T4
- ATEX II 2G EEx md IIC T5
- C-TICK
- INMETRO: Br-EEx md IIC T5
- Functional Safety to SIL-1 in accordance with IEC 61508 and IEC 61511-1 Safe Failure Fraction (SFF) of 70% (Third party FMEDA Analysis - hardware only)

### Options

Flange adapter for mating 2" NPT or 2" BSP process connections to 3" ANSI, DN 65 PN10, and JIS 10K 3B flanges



Pointek ULS200 Optional Flange Adapter

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### Pointek ULS200

Selection and Ordering data	Order No.
<b>Pointek ULS200</b> 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	C) <b>7ML1510-</b>
<b>Power supply</b> 24 V DC, relay output 24 V DC, transistor output 100 to 230 V AC, relay output	1 2 3
<b>Approvals</b> CE, C-TICK, INMETRO, ATEX II 2G EEx md IIC T5 <sup>1)</sup> CE, C-TICK, CSA Class I, II, III, Div. 1 <sup>2)</sup> CE, C-TICK, FM Class I, II, III, Div. 1 <sup>2)</sup> CE, C-TICK, CSA Class I, II, Div. 2 <sup>3)</sup> CE, C-TICK, CSAus/c, FM	C F G J K
<b>Transducer/Process connection</b> ETFE, 2" NPT [(Taper), ANSI/ASME B1.20.1] ETFE, R 2" [(BSPT), EN 10226] ETFE, G 2" [(BSPP), EN ISO 228-1] PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1] PVDF copolymer, R 2" [(BSPT), EN 10226] PVDF copolymer, G [(BSPP), EN ISO 228-1] PVDF copolymer, 4" sanitary mounting <sup>4)</sup>	A B C E F G J
<b>Enclosure/cable inlet</b> Polycarbonate • Cable inlet PG 13.5 • Cable inlet ½" NPT Aluminum • Cable inlet PG 13.5 • Cable inlet ½" NPT	1 2 3 4
<b>Operating Instructions</b> Additional Multi-language Quick Start manual	C) <b>7ML1998-1XB82</b>
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
<b>Further designs</b> Please add <b>"-Z"</b> to Order No. and specify Order code(s).	Order code
SIL Declaration of Conformity for SIL-1 Proven in Use	<b>C20</b>
<b>Accessories</b> Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosures Universal Box Bracket Mounting Kit 3" ASME, DN 65, PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT 3" ASME, DN 65, PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT 2" BSPT Locknut, plastic 2" NPT Locknut 4" sanitary mounting clamp	Order No. <b>7ML1930-1AC</b> <b>7ML1830-1BK</b> <b>7ML1830-1BT</b> <b>7ML1830-1BU</b> <b>7ML1830-1DQ</b> <b>7ML1830-1DT</b> <b>7ML1830-1BR</b>
<b>Spare Parts</b> Polycarbonate Lid Aluminum Lid	<b>7ML1830-1LG</b> <b>7ML1830-1LH</b>

<sup>1)</sup> Available with enclosure/cable inlet option 4 only

<sup>2)</sup> Available with enclosure/cable inlet option 4 only and process connection options A and E only

<sup>3)</sup> Available with enclosure/cable inlet options 2 and 4 only

<sup>4)</sup> Available with approval option K only

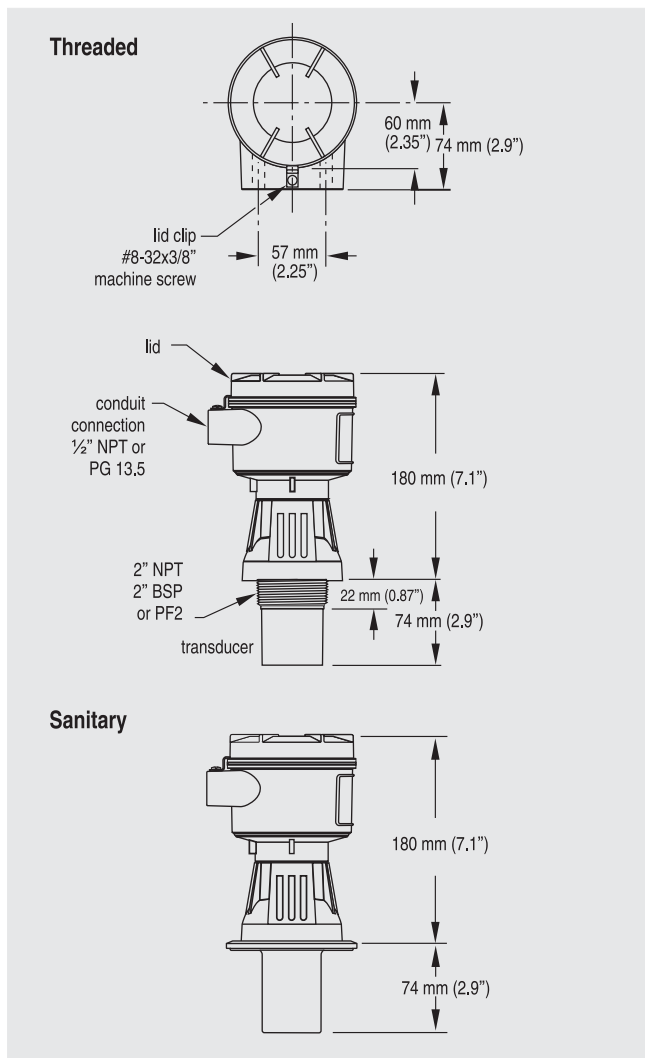
C) Subject to export regulations AL: N, ECCN: EAR99

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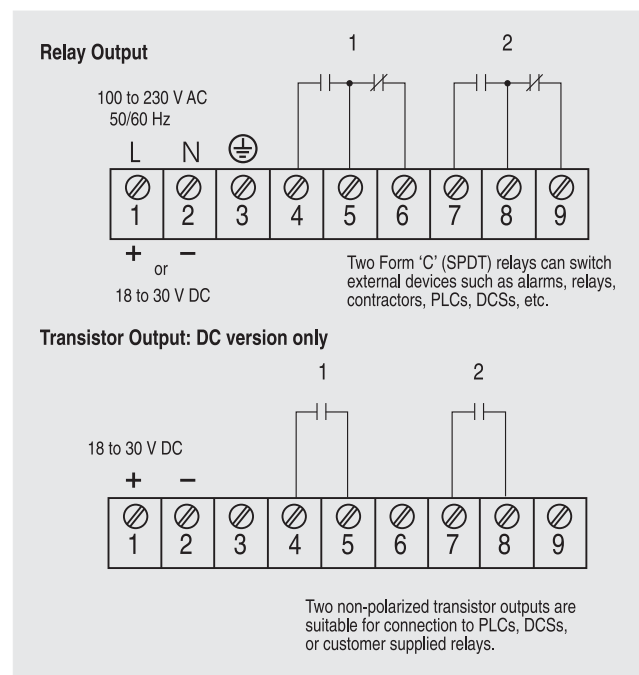
Pointek ULS200

### Dimensional drawings



Pointek ULS200 dimensions

### Schematics



Pointek ULS200 connections

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