

# SITRANS L Level instruments

## Point level measurement

### Pointek CLS 100

#### Overview



The Pointek CLS 100 is a compact 2-wire capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries, and foam.

#### Benefits

- Easy installation with verification by built-in LED
- Low maintenance with no moving parts
- Sensitivity adjustment
- Integrated cable or PBT (VALOX<sup>®</sup>) enclosure versions available
- Intrinsically safe, dust-ignition-proof and general purpose options available

<sup>®</sup>Valox is a registered trademark of the General Electric Company.

#### Application

Pointek CLS 100's short insertion length of 100 mm (4") and versatility in various applications and in vessels or pipes makes it a good replacement for traditional capacitance sensors.

Its advanced tip-sensing technology provides accurate, repeatable switchpoint performance. The PPS (Polyphenylene sulfide) probe (optional PVDF [Polyvinylidene Fluoride]) is chemically resistant with an effective process operating temperature range from -40 to 100 °C (-40 to 212 °F). The fully potted design ensures reliability in a vibrating environment such as agitated tanks up to 4 g. When used with a SensGuard protection cover, it is protected from shearing, impact and abrasion in tough primary processes.

The Pointek CLS 100 is available in three versions. The integrated cable version has a stainless steel process connection, and probe options of PPS or PVDF. The all-plastic version has a thermoplastic polyester enclosure with a PPS process connection combined with a PPS probe. The standard enclosure version has a thermoplastic polyester enclosure with a stainless steel process connection in combination with a PPS or PVDF probe.

#### Technical specifications

##### Mode of operation

- Measuring principle: Capacitive level detection

##### Input

- Measured variable: High and low
- Measuring range: Up to 100 mm

##### Rated operating conditions

###### Installation conditions

- Location: Indoor/outdoor

###### Ambient conditions

- Ambient temperature: -40 to +85 °C (-40 to + 185 °F)
- Installation category: II
- Pollution degree: 4

###### Medium conditions

Liquids, bulk solids, slurries and interfaces

- Dielectric constant  $\epsilon_r$ : Min. 1.5
- Temperature: -40 to +100 °C (-40 to +212 °F)
- Pressure (vessel): -1 to 10 bar (146 psi) gauge, nominal

- Degree of protection
  - enclosure version: IP68/Type 4X/NEMA 4X
  - cable version: IP65/Type 4X/NEMA 4X
- Cable inlet: ½" NPT (M20x1.5 optional)

##### Power supply

- Standard: 10 to 33 V DC
- Intrinsically-safe: 10 to 30 V DC

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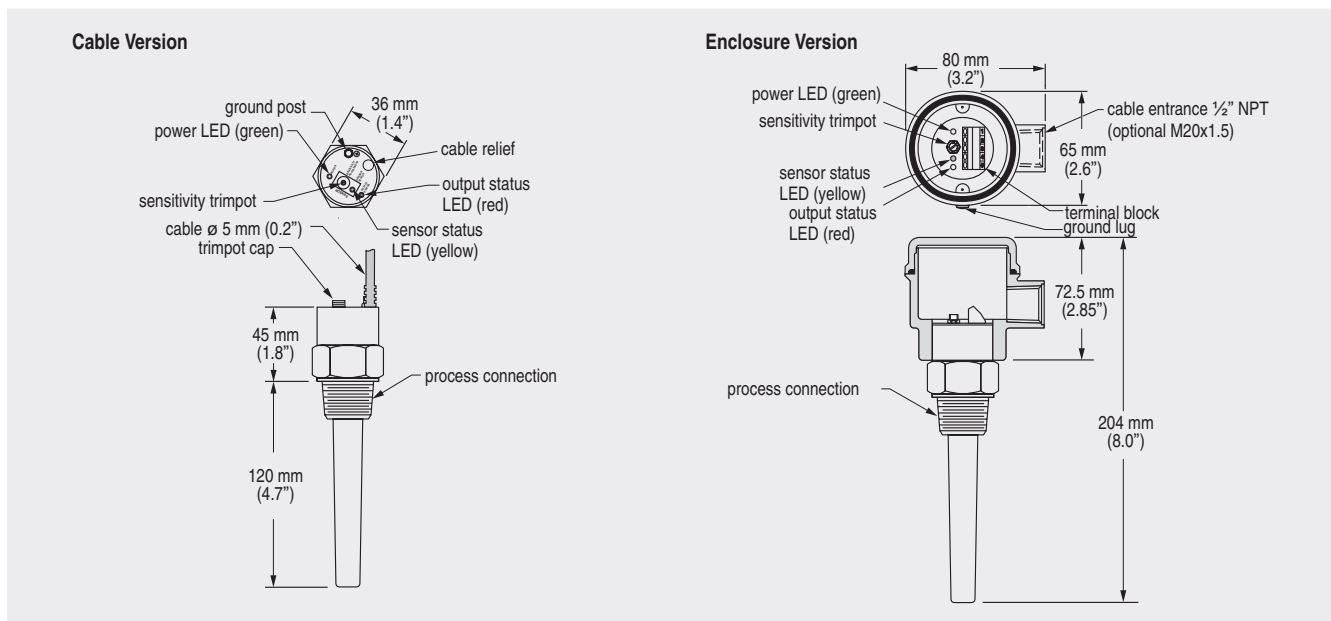
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	Stainless steel process connection (cable or enclosure version)	Synthetic process connection (all-plastic enclosure version only)
<b>Output</b>		
Output signal		
• Alarm output	4/20 mA loop or 20/4 mA two-wire loop	4/20 mA loop or 20/4 mA two-wire loop
• Transistor output		
- Standard	Solid state: 40 V DC/28 V AC, max. 100 mA, max. 2 VA	Relay: 30 V DC, 2A; 125 V AC, 0.5 A; 110 V DC, 0.5 A
- Intrinsically-safe	30 V DC	Not applicable
• Fail safe mode	Min or max	Min or max
<b>Accuracy</b>		
Repeatability	2 mm (0.08")	2 mm (0.08")
<b>Design</b>		
Process connection material of probe/wetted parts	Connection: 316 stainless steel (1.4401); Process seal: FPM (optional FFKM); Sensor: PPS (optional PVDF)	PPS process connection and PPS sensor (Uni-Construction)
<b>Construction</b>	<u>Cable version</u>	
Material (body)	316 stainless steel (1.4401)	
• Process connection	¾" NPT or 1" BSPT	
• Connection	4 conductors, 1 m (3.3 ft), 0.5 mm <sup>2</sup> (22 AWG), shielded, polyester jacket	
	<u>Enclosure version</u>	<u>All-plastic version</u>
• Material		
- Body	Impact-proof thermoplastic polyester (VALOX)	Impact-proof PBT (VALOX)
- Lid	Transparent thermoplastic polyester (VALOX)	Transparent thermoplastic polyester (VALOX)
• Connection	Internal 5-point terminal block	Removable Internal 5-point terminal block, ½" NPT wiring entrance, M20x1.5 optional
<b>Certificates and approvals</b>	CE, FM and CSA Class I, II, III, Div 1, Groups A to G, T4 ATEX II 1/2 GD T107C; WHG overfill protection (Germany); Lloyd's Register of Shipping, Categories ENV1, ENV2, and ENV5	CE, FM and CSA Class I, II, III, Div 1, Groups A to G, T4 ATEX II 1/3 D 107C; WHG overfill protection (Germany); Lloyd's Register of Shipping, Categories ENV1, ENV2, and ENV5

### Dimensional drawings



Pointek CLS 100 dimensions

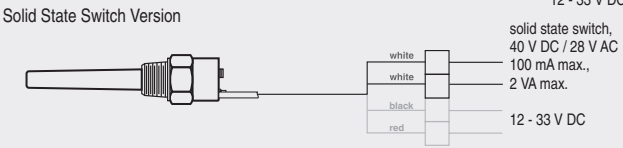
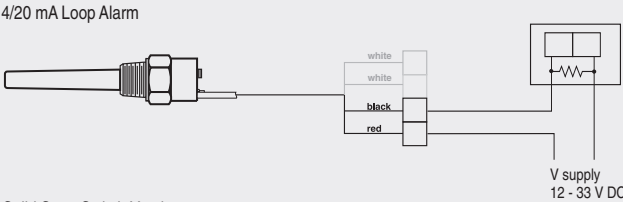
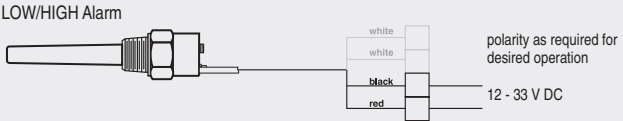
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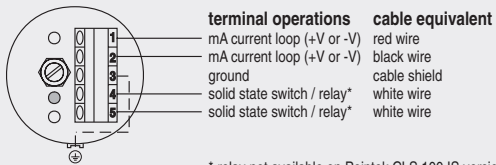
### Pointek CLS 100

#### Schematics

##### Integrated Cable Version - Non Intrinsically Safe



##### Enclosure and All-plastic Version



##### Note:


When driving an inductive load (for example, an external relay), a protection diode must be connected in the correct polarity to prevent possible switch damage due to inductive spikes generated by switching the inductor (please refer to instruction manual).  
Intrinsically Safe Models - please follow local regulations and area classifications; refer to instruction manual for more details.

Pointek CLS 100 connections


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Ordering data	Order No.
<b>Pointek CLS 100, stainless steel process connection</b> Compact 2-wire capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries, and foam using inverse frequency technology	<b>7 ML 5 5 0 1 -</b> 
<b>Process connection</b> 3/4" NPT thread 1" BSPT thread	<b>A</b> <b>E</b>
<b>Approvals</b> General Purpose ATEX II 1/2 GD T107C / FM and CSA Class II and III, Div 1, Groups E, F, and G T4 ATEX II 1 GD T107C / FM and CSA Class I, II, III, Div 1, Groups A to D	<b>A</b> <b>B</b> <b>C</b>
<b>Device version</b> Cable version (PPS probe) Enclosure version (PPS probe), 1/2" NPT cable entry Enclosure version (PPS probe), M20x1.5 cable entry (adapter) Cable version with PVDF probe body Enclosure version with PVDF probe body (1/2" NPT) Enclosure version with PVDF probe body, M20x1.5 cable entry (adapter)	<b>1</b> <b>3</b> <b>7</b> <b>5</b> <b>6</b> <b>8</b>
<b>Overfill protection</b> Not required WHG, German overfill protection	<b>0</b> <b>1</b>
<b>Further designs</b> Please add "-Z" to Order No. and specify Order code(s). FFPM seal O-ring Test Certificate, Acceptance test certificate B to DIN 50049 section 3.1 and EN 10204	<b>A22</b> <b>C12</b>
<b>Instruction Manual</b> Quick start manual, multi-language Note: Due to ATEX regulations one Quick start manual is included with every product	<b>C) 7ML1998-5QJ81</b>
<b>Optional Equipment</b> Sensguard, 3/4" NPT (PPS) Only available for CLS 100 with 3/4" NPT thread Sensguard, 1" BSPT (PPS) Only available for CLS 100 with 3/4" NPT thread Tag, Stainless steel, 12 x 45 mm, one text line, suitable for enclosure	<b>7ML1830-1DL</b> <b>7ML1830-1DM</b> <b>PBD-45000786</b>

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

Ordering data	Order No.
<b>Pointek CLS 100, PPS Process Connection</b> Compact 2-wire capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries, and foam using inverse frequency technology	<b>7 ML 5 6 1 0 -</b> 
<b>Process connection</b> 3/4" NPT thread (PPS probe body) 1" BSPT thread (PPS probe body)	<b>A</b> <b>B</b>
<b>Approvals</b> General Purpose ATEX II 1/3 D 107C / FM and CSA Class II and III, Div.1, Group E, F and G, T4	<b>A</b> <b>B</b>
<b>Versions/Options</b> Enclosure version, PPS process connection, 1/2" NPT cable entry Enclosure version, PPS process connection, M20x1.5 adapter	<b>1</b> <b>2</b>
<b>Overfill protection</b> Not required WHG, German overfill protection	<b>0</b> <b>1</b>
<b>Instruction Manual</b> Quick start manual, multi-language Note: due to ATEX regulations one Quick start manual is included with every product	<b>C) 7ML1998-5QJ81</b>
<b>Optional Equipment</b> Sensguard, 3/4" NPT (PPS) Only available for CLS 100 with 3/4" NPT thread Sensguard, 1" BSPT (PPS) Only available for CLS 100 with 3/4" NPT thread Tag, stainless steel, 12 x 45 mm, one text line, suitable for enclosures	<b>7ML1830-1DL</b> <b>7ML1830-1DM</b> <b>PBD-45000786</b>

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