Pointek CLS 100

Overview

Pointek CLS 100 is a compact 2-wire inverse frequency shift 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 enclosure versions available
- Intrinsically Safe, Dust Ignition Proof and General Purpose options available

Application

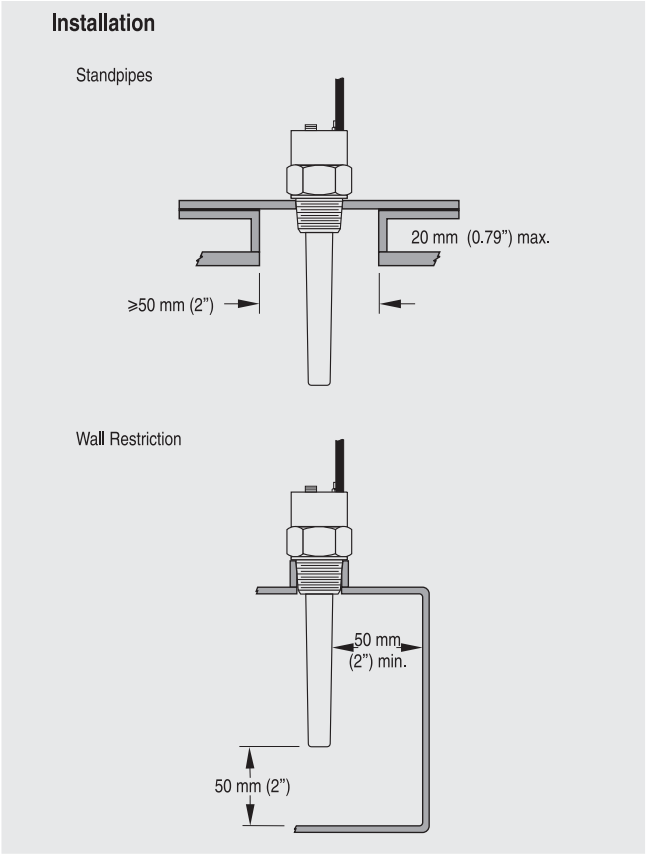
Pointek CLS 100's short insertion length of 100 mm (4") and versatility in various applications and in vessels or pipes makes it a good replacement for traditional capacitance sensors.

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, the CLS 100 is protected from shearing, impact and abrasion in tough primary processes.

The Pointek CLS 100 is available in three versions. The integral cable version has a stainless steel process connection and probe options of PPS or PVDF. The fully synthetic 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.

- Key Applications: liquids, slurries, powders, granules, food and pharmaceuticals, chemicals, hazardous areas

Configuration



Pointek CLS 100 installation

Technical specifications

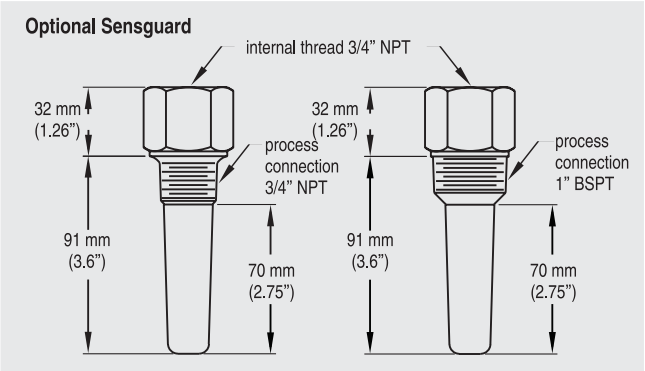
	Stainless steel process connection (integral cable or enclosure version)	Synthetic process connection (fully synthetic enclosure version only)
Mode of operation		
Measuring principle	Inverse frequency shift capacitive level detection	Inverse frequency shift capacitive level detection
Input		
Measured variable	Change in picoFarad (pF)	Change in picoFarad (pF)
Output		
Output signal		
• Alarm output	4 or 20/20 or 4 mA 2-wire loop	4 or 20/20 or 4 mA 2-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.
Accuracy		
Repeatability	2 mm (0.08")	2 mm (0.08")
Rated operating conditions		
Installation conditions		
• Location	Indoor/outdoor	Indoor/outdoor
Ambient conditions		
• Ambient temperature	-40 to +85 °C (-40 to +185 °F)	-40 to +85 °C (-40 to +185 °F)
• Installation category	II	II
• Pollution degree	4	4
Medium conditions		
• Dielectric contant εr	Min. 1.5	Min. 1.5
• Temperature	-40 to +100 °C (-40 to +212 °F)	-40 to +100 °C (-40 to +212 °F)
• Pressure (vessel)	-1 to 10 bar g (146 psi g), nominal	-1 to 10 bar g (146 psi g), nominal
• Degree of protection		
- enclosure version	IP68/Type 4X/NEMA 4X	IP68/Type 4X/NEMA 4X
- integral cable version	IP65/Type 4X/NEMA 4X	IP65/Type 4X/NEMA 4X
• Cable inlet	½" NPT (M20x1.5 optional)	½" NPT (M20x1.5 optional)
Design		
	Enclosure/Integral cable version	Fully synthetic version
• Material		
- Body (Enclosure version)	Thermoplastic polyester	Thermoplastic polyester
- Lid (Enclosure version)	Transparent thermoplastic polycarbonate (PC)	Transparent thermoplastic polycarbonate (PC)
- integrated cable body (Integral cable version)	316L stainless steel	
• Sensor length	100 mm (4")	100 mm (4")
• Process connection material of probe/wetted parts	Connection: 316L stainless steel; Process seal: FKM (optional FFKM); Sensor: PPS (optional PVDF)	PPS process connection and PPS sensor (Uni-Construction)
• Connection (Enclosure version)	Internal 5-point terminal block, ½" NPT wiring entrance, M20x1.5 optional	Removable internal 5-point terminal block, ½" NPT wiring entrance, M20 x 1.5 optional
• Connection (Integral cable version)	4 conductors, 1 m (3.3 ft), 0.5 mm² (22 AWG), shielded, polyester jacket	
• Process connection	¾" NPT or 1" BSPT	¾" NPT or 1" BSPT
Power supply		
• Standard	12 to 33 V DC	12 to 33 V DC
• Intrinsically Safe	10 to 30 V DC (Intrinsically Safe barrier required)	Not applicable
Certificates and approvals	• General: CE • Marine: Lloyd's Register of Shipping, categories ENV1, ENV2, and ENV5 • Hazardous: FM and CSA Class II and III, Div 1, Groups E, F and G T4; ATEX II 1/2 GD EEx ia T107C; FM and CSA Class I, II, III, Div 1, Groups A to D; ATEX II 1/2 GD T107C; ATEX II 1 GD T107C • Overfill protection: WHG (Germany)	• General: CE • Marine: Lloyd's Register of Shipping, categories ENV1, ENV2, and ENV5 • Hazardous: FM and CSA Class II and III, Div.1, Groups E, F and G T4 ; ATEX II 1/3 D 107C • Overfill protection: WHG (Germany)

Pointek CLS 100

Selection and Ordering data	Order No.
Pointek CLS 100, stainless steel process connection	**7ML5501-**
Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries and foam	0
Process connection	
¾" NPT (ANSI/ASME B1.20.1)	A
1" BSPT (EN 10226-1)	E
Approvals	
General Purpose	A
ATEX II 1/2 GD EEx ia T107C/FM and CSA Class II and III, Div 1, Groups E, F and G T4	B
ATEX II 1 GD T107C/FM and CSA Class I, II, III, Div 1, Groups A to D	C
Device version	
Integral cable version (PPS probe)	1
Enclosure version (PPS probe), ½" NPT cable inlet	3
Enclosure version (PPS probe), M20x1.5 cable inlet (adapter)	7
Integral version with PVDF probe body	5
Enclosure version with PVDF probe body (½" NPT cable inlet)	6
Enclosure version with PVDF probe body, M20x1.5 cable inlet (adapter)	8
Overfill protection	
Not required	0
WHG, German overfill protection	1
Further designs	Order code
Please add "**-Z**" to Order No. and specify Order code(s).	
FFKM seal O-ring	**A22**
Inspection Certificate Type 3.1 per EN 10204	**C12**
Instruction manual	
Quick start manual, multi-language Note: Due to ATEX regulations, one Quick start manual is included with every product	**7ML1998-5QJ81**
Optional equipment	
Sensguard, 3/4" NPT (PPS) Only available for CLS 100 with 3/4" NPT thread	**7ML1830-1DL**
Sensguard, 1" BSPT (PPS) Only available for CLS 100 with 3/4" NPT thread	**7ML1830-1DM**
Tag, Stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosure	**7ML1930-1AC**
Siemens Intrinsically Safe Barrier (DC powered), ATEX II 1 G EEx ia	**7NG4122-1AA10**
½" NPT cable gland ATEX 1G, fits cable diameter 6.1 to 15.9 mm (Explosion Proof)	**7ML1830-1JB**
M20x1.5 cable gland ATEX 1G, fits cable diameter 6.1 to 15.9 mm (Explosion Proof)	**7ML1830-1JD**

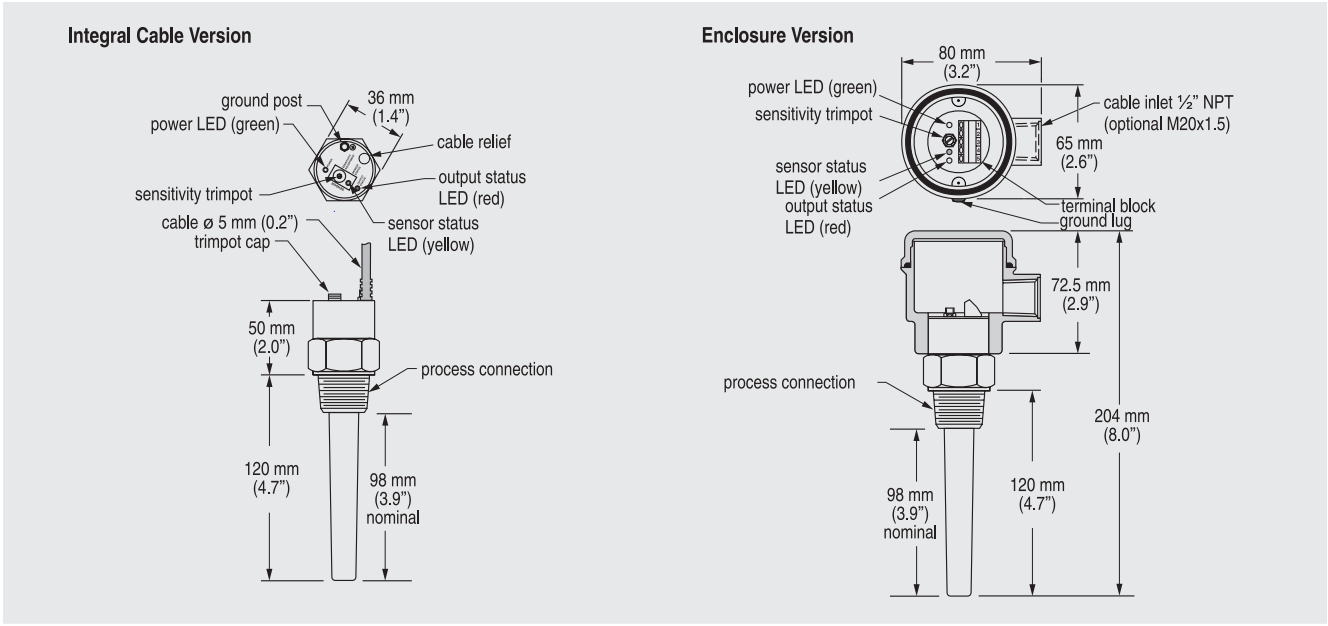
Selection and Ordering data	Order No.
Pointek CLS 100, PPS process connection	**7ML5610-**
Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries and foam	0
Process connection	
¾" NPT (ANSI/ASME B1.20.1) (PPS probe body)	A
1" BSPT (EN 10226-1) (PPS probe body)	B
Approvals	
General Purpose	A
ATEX II 1/3 D 107C/FM and CSA Class II and III, Div.1, Groups E, F and G T4	B
Versions/Options	
Enclosure version, PPS process connection, ½" NPT cable inlet	1
Enclosure version, PPS process connection, M20x1.5 adapter	2
Overfill protection	
Not required	0
WHG, German overfill protection	1
Instruction manual	
Quick start manual, multi-language Note: due to ATEX regulations one Quick start manual is included with every product	**7ML1998-5QJ81**
Optional equipment	
Sensguard, 3/4" NPT (PPS) Only available for CLS 100 with 3/4" NPT thread	**7ML1830-1DL**
Sensguard, 1" BSPT (PPS) Only available for CLS 100 with 3/4" NPT thread	**7ML1830-1DM**
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosures	**7ML1930-1AC**
½" NPT Cable gland ATEX 1G, fits cable diameter 6.1 to 15.9 mm (Explosion Proof)	**7ML1830-1JB**
M20x1.5 Cable gland ATEX 1G, fits cable diameter 6.1 to 15.9 mm (Explosion Proof)	**7ML1830-1JD**

Options



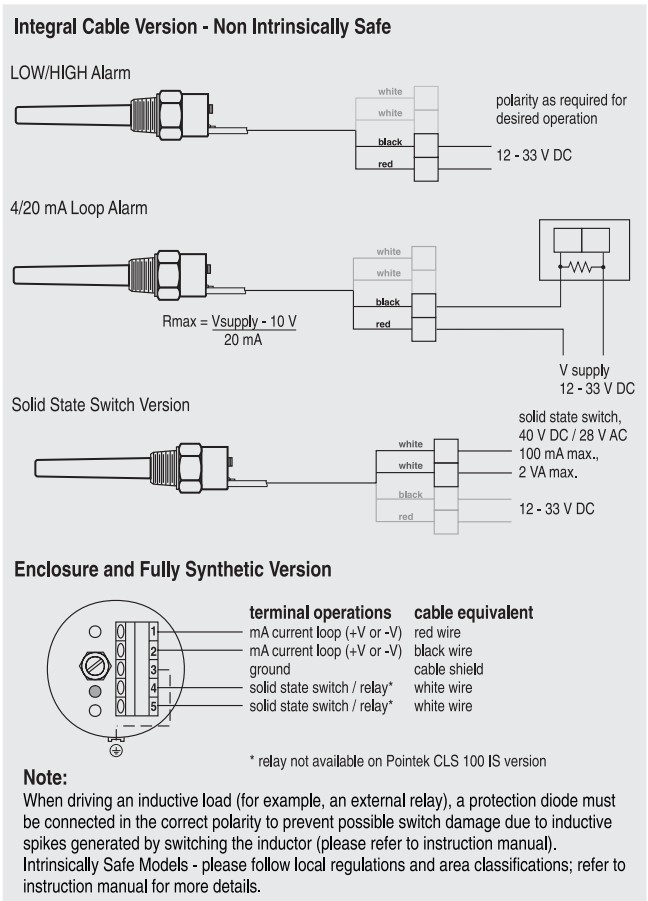
Optional Sensguard dimensions

Dimensional drawings



Pointek CLS 100 dimensions

Schematics



Pointek CLS 100 connections