

SITRANS L Level instruments

Point level measurement

Pointek CLS 100

Overview



The 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 (VALOX®) enclosure versions available
- Intrinsically safe, dust-ignition-proof and general purpose options available

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

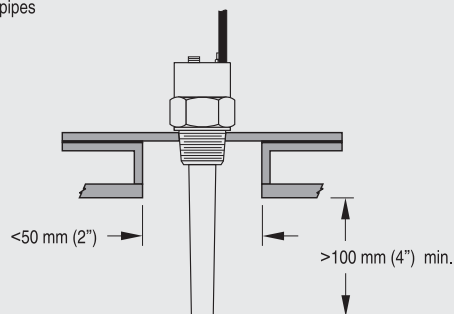
The Pointek CLS 100 is available in three versions. The integrated cable version has a stainless steel process connection and probe options of PPS or PVDF. The fully synthetic version has a thermoplastic polyester enclosure with a PPS process connection combined with a PPS probe. The standard enclosure 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, petrochemicals, relatively high pressure and temperature, hazardous areas

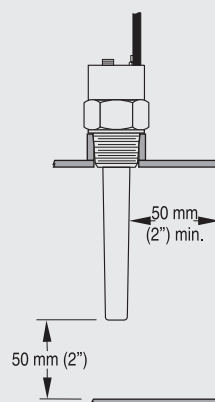
Configuration

Installation

Standpipes



Wall Restriction



Pointek CLS 100 installation

Technical specification

Mode of operation

Measuring principle Capacitive level detection

Input

Measured variable High and low
Sensor length 100 mm (4")

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 ϵ_r Min. 1.5
- Temperature -40 to +100 °C (-40 to +212 °F)
- Pressure (vessel) -1 to 10 bar g (146 psi g), 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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	Stainless steel process connection (cable or enclosure version)	Synthetic process connection (fully synthetic enclosure version only)
Output		
Output signal		
• Alarm output	4/20 mA loop or 20/4 mA 2-wire loop	4/20 mA loop or 20/4 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
• Failsafe mode	Min. or max.	Min. or max.
Accuracy		
Repeatability	2 mm (0.08")	2 mm (0.08")
Design		
Process connection material of probe/wetted parts	Connection: 316 stainless steel (1.4404); Process seal: FPM (optional FFKM); Sensor: PPS (optional PVDF)	PPS process connection and PPS sensor (Uni-Construction)
Construction		
	<u>Cable version</u>	
Material (body)	316 stainless steel (1.4404)	
• Process connection	¾" NPT or 1" BSPT	
• Connection	4 conductors, 1 m (3.3 ft), 0.5 mm ² (22 AWG), shielded, polyester jacket	
	<u>Enclosure version</u>	<u>Fully synthetic 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, ½" NPT wiring entrance, M20 x 1.5 optional	Removable internal 5-point terminal block, ½" NPT wiring entrance, M20 x 1.5 optional
Certificates and approvals		
	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

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Point level measurement

Pointek CLS 100

Selection and Ordering data

Order No.

Pointek CLS 100, stainless steel process connection

7ML 5 5 0 1 -
0

Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries and foam using inverse frequency technology

Process connection

¾" NPT (ANSI/ASME B1.20.1)
1" BSPT (EN 10226-1)

A
E

Approvals

General Purpose
ATEX II 1/2 GD T107C / FM and CSA Class II and III, Div 1, Groups E, F and G T4¹⁾
ATEX II 1 GD T107C / FM and CSA Class I, II, III, Div 1, Groups A to D

A
B
C

Device version

Cable version (PPS probe)
Enclosure version (PPS probe), ½" NPT cable inlet
Enclosure version (PPS probe), M20x1.5 cable inlet (adapter)

1
3
7

Cable version with PVDF probe body
Enclosure version with PVDF probe body (½" NPT)
Enclosure version with PVDF probe body, M20 x 1.5 cable inlet (adapter)

5
6
8

Overfill protection

Not required
WHG, German overfill protection

0
1

Further designs

Please add "-Z" to Order No. and specify Order code(s).

FFPM seal O-ring

Inspection Certificate Type 3.1 per EN 10204

A22
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, ¾" NPT (PPS)
Only available for CLS 100 with ¾" NPT thread
Sensguard, 1" BSPT (PPS)
Only available for CLS 100 with ¾" NPT thread
Tag, Stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosure

7ML1830-1DL
7ML1830-1DM
PBD-45000786

1) available for the cable version only, versions 1 and 5

Selection and Ordering data

Order No.

Pointek CLS 100, PPS Process connection

7ML 5 6 1 0 -
0

Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries and foam using inverse frequency technology

Process connection

¾" NPT (ANSI/ASME B1.20.1) (PPS probe body)
1" BSPT (EN 10226-1) (PPS probe body)

A
B

Approvals

General Purpose
ATEX II 1/3 D 107C / FM and CSA Class II and III, Div.1, Groups E, F and G, T4

A
B

Versions/Options

Enclosure version, PPS process connection, ½" NPT cable inlet

1

Enclosure version, PPS process connection, M20 x 1.5 adapter

2

Overfill protection

Not required
WHG, German overfill protection

0
1

Instruction manual

Quick start manual, multi-language
Note: due to ATEX regulations one Quick start manual is included with every product

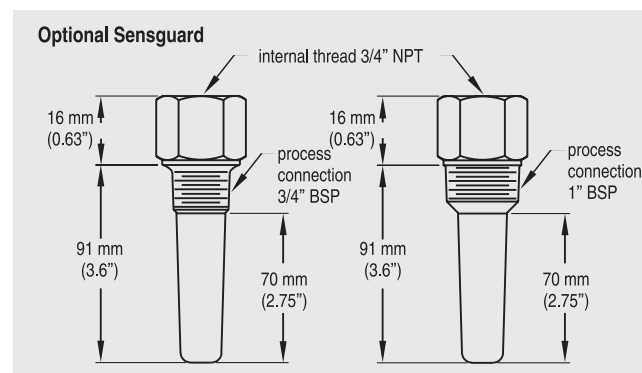
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Optional equipment

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Only available for CLS 100 with ¾" NPT thread
Sensguard, 1" BSPT (PPS)
Only available for CLS 100 with ¾" NPT thread
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosures

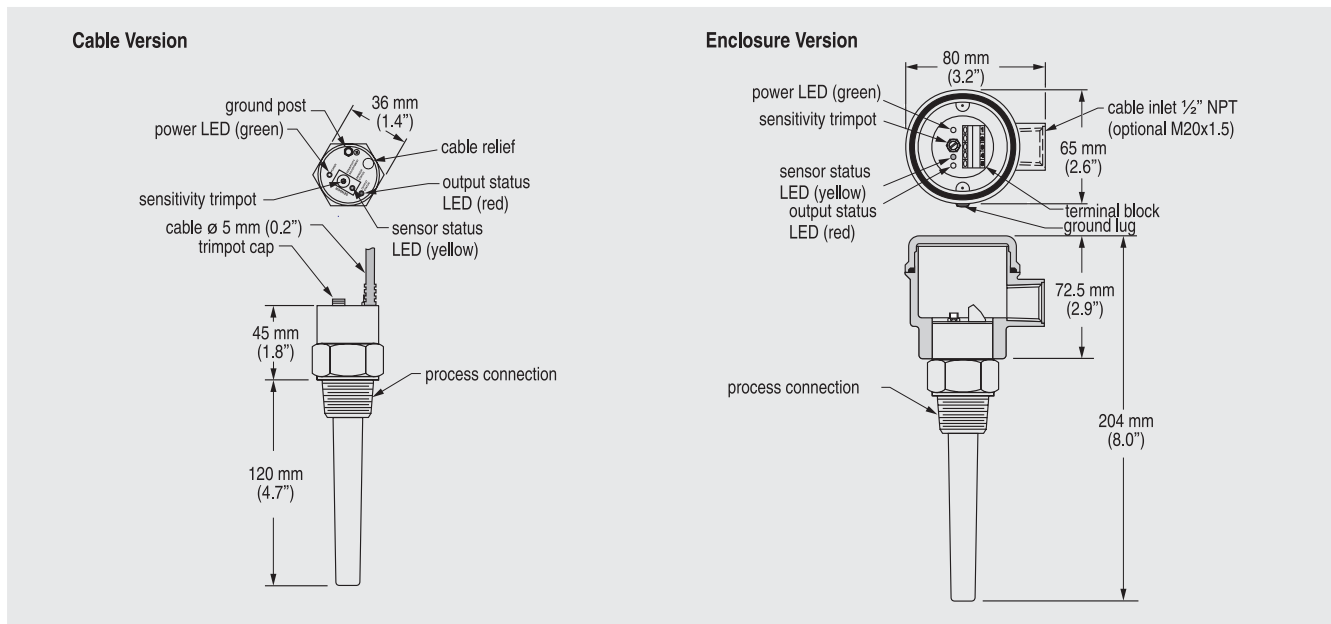
7ML1830-1DL
7ML1830-1DM
PBD-45000786

Options



Optional Sensguard dimensions

Dimensional drawings

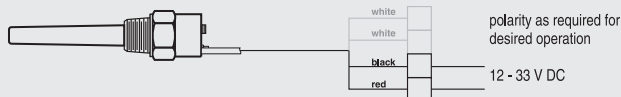


Pointek CLS 100 dimensions

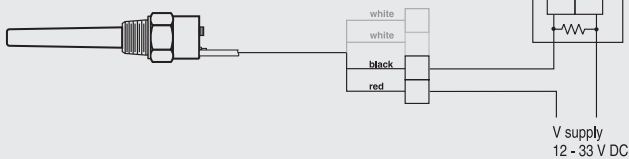
Schematics

Integrated Cable version - Non Intrinsically Safe

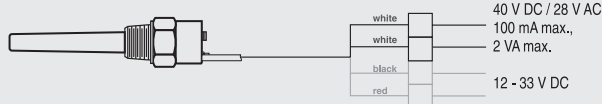
LOW/HIGH Alarm



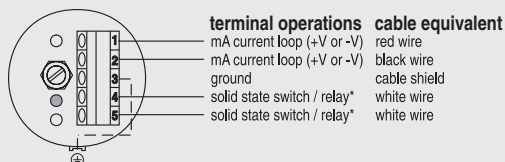
4/20 mA Loop Alarm



Solid State Switch Version



Enclosure and Fully Synthetic 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