

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Overview



Pointek CLS300 (standard version) is an inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Benefits

- Patented Active-Shield technology so measurement is unaffected by material buildup or nozzle interference in active shield section
- Performs in extremely abrasive conditions because of solid rod construction
- Three LED indicators for adjustment control, output status and power
- High-temperature version up to +400 °C (+185 °F)

Application

Pointek CLS300 standard version has three LED indicators with basic relay and solid-state switch alarms.

The robust design of CLS300 makes it specifically applicable for heavy solids applications where abrasive materials occur as in the mining industry.

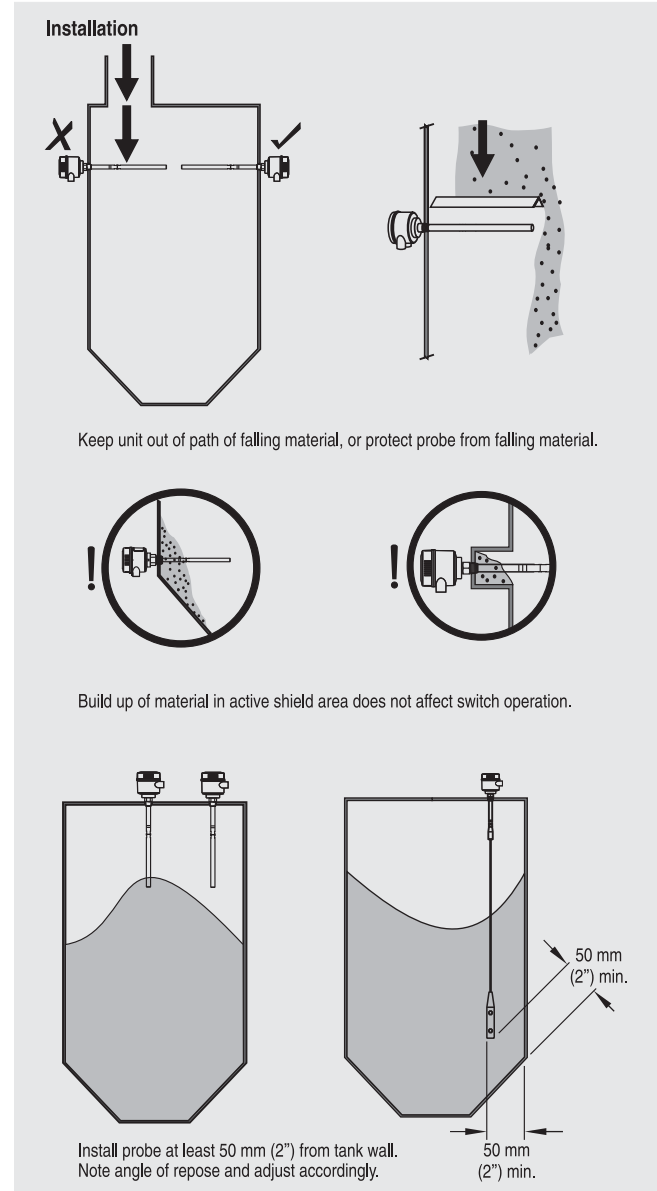
The fully potted electronics are unaffected by condensation, dust or vibration.

Wetted parts are made of stainless steel with a PFA shield for high chemical resistance, and of ceramic and stainless steel for high temperature version. Materials with low or high dielectric constants can be accurately detected. The unique Active Shield suppresses interference from material buildup or long installation nozzles.

The unique modular design of the Pointek CLS300 provides a wide range of configurations, process connections, extensions and approvals to meet the temperature and pressure requirements of specific applications. The modular design makes ordering easier and reduces stocking requirements. A wide range of probe configurations are available, including rod and cable versions.

- Key Applications: liquids, slurries, bulk solids, relatively high pressure and temperature, hazardous areas, milling and mining applications

Configuration



Pointek CLS300 installation

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Technical specifications

Mode of operation	
Measuring principle	Inverse frequency shift capacitive level detection
Input	
Measured variable	Change in picroFarad (pF)
Output	
<u>Output signal</u>	
• Relay output	1 SPDT Form C relay
- Max. contact voltage	• 30 V DC • 250 V AC
- Max. contact current	• 5 A (DC) • 8 A (AC)
- Max. switching capacity	• 150 W (DC) • 2000 VA (AC)
- Time delay (ON and/or OFF)	1 to 60 s
• Solid-state output	
- Output	Galvanically isolated
- Protection	Against reversed polarity (bipolar)
- Max. switching voltage	• 30 V (DC) • 30 V peak (AC)
- Max. load current	82 mA
- Voltage drop	< 1 V, typical at 50 mA
- Time delay (pre or post switching)	1 to 60 s
Accuracy	
Resolution	
- Min. sensitivity (pF)	1% change in actual capacitance
- Max. temperature error	0.2% of actual capacitance value
Rated operating conditions¹⁾	
<u>Installation conditions</u>	
Location	Indoor/outdoor
<u>Ambient conditions</u>	
• Ambient temperature	-40 to +85 °C (-40 to +185 °F) ²⁾
<u>Medium conditions</u>	
• Relative dielectric constant ϵ_r	Min. 1.5

• Process temperature	
- Rod/Cable version	-40 to +200 °C (-40 to +392 °F) ²⁾
- High-temperature version	-40 to +400 °C (-40 to +752 °F)
• Process pressure ³⁾	-1 to +35 bar g (-14.6 to +511 psi g)
Design	
• Material (enclosure)	Powder-coated aluminum with gasket
• Degree of Protection	Standard: Type 4/NEMA 4/IP65 Optional: Type 4/NEMA 4/IP68
• Cable inlet	2 x M20x1.5 thread (option: 2 x 1/2" NPT conduit entry including 1 plugged entry)
Controls and displays	
• Displays	3 LEDs, for probe status, output status and power supply
• Potentiometers	2 potentiometers for time delay and sensitivity
• Switches	5 DIP switches for delay on/off, fail-safe high/low, time delay test/adjust, high/low sensitivity, test delay settings
Power supply	
• Supply	12 to 250 V AC/DC, 0 to 60 Hz, galvanically isolated, 2 W
Certificates and approvals	
• General Purpose	CSA, FM
• Dust Ignition Proof with IS Probe	CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4
• Explosion Proof Enclosure with IS Probe	CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4
• Others	Pattern Approval (China)
¹⁾ When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also Pressure/Temperature curves starting on page 5/54. ²⁾ Thermal isolator is used if process connection temperature exceeds +85 °C (+185 °F). ³⁾ Pressure rating of process seal is temperature dependent. See Pressure/Temperature curves starting on page 5/54.	

5

Design: Probe			
	Rod version	High Temperature version	Cable version
Length	Min. 250 mm (9.8"), max. 1000 mm (40")	Min. 250 mm (9.8"), max. 1000 mm (40")	Min. 1000 mm (40"), max. 25000 mm (984")
Sensor wetted parts	PFA (no insulation on active probe), 316L stainless steel	Ceramic (ZrO ₂ ¹⁾ (no insulation on active probe), 316L stainless steel	316 stainless steel, optional PFA
O-ring seal material	FKM (optional FFKM)	Graphite	FKM (optional FFKM)
Thermal isolator	Optional	Standard	Optional
Extension	User selectable length	User selectable length	User selectable cable length

¹⁾ Zirconium Oxide

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Selection and Ordering data

Order No.

Pointek CLS300 - Standard - Rod Version with Threaded or Flanged process connection

C) 7 M L 5 6 5 0 - 0

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Process Connection

Threaded, 316L stainless steel

- 3/4" NPT [(Taper), ANSI/ASME B1.20.1] **0 A**
- 1" NPT [(Taper), ANSI/ASME B1.20.1] **0 B**
- 1 1/4" NPT [(Taper), ANSI/ASME B1.20.1] **0 C**
- 1 1/2" NPT [(Taper), ANSI/ASME B1.20.1] **0 D**
- R 3/4" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] **1 A**
- R 1" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] **1 B**
- R 1 1/2" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] **1 D**
- G 3/4" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] **3 A**
- G 1" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] **3 B**
- G 1 1/2" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] **3 D**

Welded flange, 316L stainless steel, raised face

- 1" ASME, 150 lb **5 A**
- 1" ASME, 300 lb **5 B**
- 1" ASME, 600 lb **5 C**
- 1 1/2" ASME, 150 lb **5 D**
- 1 1/2" ASME, 300 lb **5 E**
- 1 1/2" ASME, 600 lb **5 F**
- 2" ASME, 150 lb **5 G**
- 2" ASME, 300 lb **5 H**
- 2" ASME, 600 lb **5 J**
- 3" ASME, 150 lb **5 K**
- 3" ASME, 300 lb **5 L**
- 3" ASME, 600 lb **5 M**
- 4" ASME, 150 lb **5 N**
- 4" ASME, 300 lb **5 P**
- 4" ASME, 600 lb **5 Q**

Welded flange, 316L stainless steel, Type A flat faced

- DN 25, PN 16 **6 A**
- DN 25, PN 40 **6 B**
- DN 40, PN 16 **6 C**
- DN 40, PN 40 **6 D**
- DN 50, PN 16 **6 E**
- DN 50, PN 40 **6 F**
- DN 80, PN 16 **6 G**
- DN 80, PN 40 **6 H**
- DN 100, PN 16 **6 J**
- DN 100, PN 40 **6 K**

(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)

Probe length (length from flange face)
(threaded lengths include process thread)

Note: No Y01 needed in order code for standard lengths

- Standard version, rod 350 mm (13.78") **A**
- Extended rod, length 500 mm (19.69") **B**
- Extended rod, length 750 mm (29.53") **C**
- Extended rod, length 1000 mm (39.37") **D**

Selection and Ordering data

Order No.

Pointek CLS300 - Standard - Rod Version with Threaded or Flanged process connection

C) 7 M L 5 6 5 0 - 0

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Add order code Y01 and plain text:

"Insertion length ... mm"

- Extended rod, factory adjusted length 250 to 499 mm (9.8 to 19.65") **E**
- Extended rod, factory adjusted length 500 to 749 mm (19.69 to 29.49") **F**
- Extended rod, factory adjusted length 750 to 999 mm (29.53 to 39.3") **G**

Thermal Isolator

- Without thermal isolator **0**
- With thermal isolator [for process connection temperatures over +85 °C (+185 °F)] **1**

Wetted Seals

- FKM **0**
- FFKM [for process temperatures above -20°C (-4°F)] **1**

Probe Material

- 316L Stainless steel with PFA lining and PEEK solators **0**

Approvals

- Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Gr. E, F, G **F**
- CSA/FM Class III T4 **G**
- Explosion Proof Enclosure with IS Probe:
CSA/FM Class I, Div. 1, Gr. A, B, C, D **H**
- CSA/FM Class II, Div. 1, Gr. E, F, G **H**
- CSA/FM Class III T4 **H**
- General Purpose (CSA, FM) **H**

Enclosure and Lid

Aluminum epoxy coated

- 2 x 1/2" NPT via adapter - cable inlet, IP65 **A**
- 2 x M20x1.5 cable inlet, IP65 **B**
- 2 x 1/2" NPT via adapter - cable inlet, IP68 **C**
- 2 x M20x1.5 cable inlet, IP68 **D**

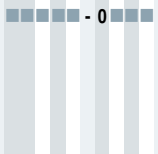
Active Shield Length

- Standard length - (125 mm threaded, 105 mm flanged) **0**
- Extended shield - (250 mm threaded, 230 mm flanged)¹ **1**
- Extended shield - (400 mm threaded, 380 mm flanged)² **2**

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Selection and Ordering data	Order No.
<p>Pointek CLS300 - Standard - Rod Version with Threaded or Flanged process connection C)</p> <p>Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.</p>	<p>7 M L 5 6 5 0 -</p> 
<p>Further designs</p> <p>Please add "-Z" to Order No. and specify Order code(s).</p>	<p>Order code</p>
<p>Total insertion length: enter the total insertion length in plain text description</p>	<p>Y01</p>
<p>Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text</p>	<p>Y15</p>
<p>Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000</p>	<p>C11</p>
<p>Inspection Certificate Type 3.1 per EN 10204</p>	<p>C12</p>
<p>Operating Instructions</p> <p>Note: The Operating Instructions should be ordered as a separate line on the order.</p> <p>This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.</p>	<p>See page 5/53</p>
<p>Accessories</p>	<p>See page 5/53</p>
<p>1) Available with Probe version options B to D, F, G only [≥ 500 mm (19.69")]</p> <p>2) Available with Probe version options C, D, and, G only [≥ 750 mm (29.53")]</p>	
<p>C) Subject to export regulations AL: N, ECCN: EAR99</p>	

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Selection and Ordering data

Order No.

Pointek CLS300 - Standard - Cable Version with Threaded or Flanged process connection

7 M L 5 6 5 1 -

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Process Connection

Threaded, 316L stainless steel

1¼" NPT [(Taper), ANSI/ASME B1.20.1]

0 C

1½" NPT [(Taper), ANSI/ASME B1.20.1]

0 D

R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]

1 D

G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]

3 D

Welded flange, 316L stainless steel, raised face

1½" ASME, 150 lb

5 D

1½" ASME, 300 lb

5 E

1½" ASME, 600 lb

5 F

2" ASME, 150 lb

5 G

2" ASME, 300 lb

5 H

2" ASME, 600 lb

5 J

3" ASME, 150 lb

5 K

3" ASME, 300 lb

5 L

3" ASME, 600 lb

5 M

4" ASME, 150 lb

5 N

4" ASME, 300 lb

5 P

4" ASME, 600 lb

5 Q

Welded flange, 316L stainless steel, Type A flat faced

DN 40, PN 16

6 C

DN 40, PN 40

6 D

DN 50, PN 16

6 E

DN 50, PN 40

6 F

DN 80, PN 16

6 G

DN 80, PN 40

6 H

DN 100, PN 16

6 J

DN 100, PN 40

6 K

(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)

Probe length (length from flange face)

(threaded lengths include process thread)

Note: No Y01 needed in order code for standard lengths

Extended cable, 3000 mm (118.11"), length can be shortened by customer

A

Extended cable, 6000 mm (236.22"), length can be shortened by customer

B

Add order code Y01 and plain text:

"Insertion length ... mm"

Extended cable, 500 to 1000 mm (19.69 to 39.37")

E

Extended cable, 1001 to 5000 mm (39.41 to 196.85")

F

Extended cable, 5001 to 10000 mm (196.89 to 393.70")

G

Extended cable, 10001 to 15000 mm (393.74 to 590.55")

H

Extended cable, 15001 to 20000 mm (590.59 to 787.40")

J

Extended cable, 20001 to 25000 mm (787.44 to 984.25")

K

Thermal Isolator

Without thermal isolator

0

With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]

1

Selection and Ordering data

Order No.

Pointek CLS300 - Standard - Cable Version with Threaded or Flanged process connection

7 M L 5 6 5 1 -

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Wetted Seals

FKM

0

FFKM [for process temperatures above -20°C (-4°F)]

1

Probe Material

Bare 316L stainless steel cable, PEEK isolators and 316L stainless steel cable weight

0

PFA coated cable, PEEK isolators and 316L stainless steel cable weight

1

Approvals

Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4

F

Explosion Proof Enclosure with IS Probe:
CSA/FM Class I, Div. 1, Gr. A, B, C, D
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4
General Purpose (CSA, FM)

G

H

Enclosure and Lid

Aluminum epoxy coated

2 x ½" NPT via adapter - cable inlet, IP65

2 x M20x1.5 cable inlet, IP65

A

2 x ½" NPT via adapter - cable inlet, IP68

B

2 x M20x1.5 cable inlet, IP68

C

D

Active Shield Length

Standard length - (125 mm threaded, 105 mm flanged)

0

Extended shield - (250 mm threaded, 230 mm flanged)¹⁾

1

Extended shield - (400 mm threaded, 380 mm flanged)¹⁾

2

Further designs

Order code

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

Total insertion length: enter the total insertion length in plain text description

Y01

Stainless steel tag [69 x 50 mm (2.71 x 1.97")]:
Measuring-point number/identification
(max. 16 characters) specify in plain text

Y15

Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000
Inspection Certificate Type 3.1 per EN 10204


C11

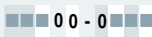
C12

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Selection and Ordering data	Order No.
Pointek CLS300 - Standard - Cable Version with Threaded or Flanged process connection	C) 7 M L 5 6 5 1 -
Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.	
Operating Instructions	See page 5/53
Note: The Operating Instructions should be ordered as a separate line on the order.	
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
Accessories	See page 5/53
1) Available with Probe version options A, B, F to K, only [≥ 1000 mm (39.7")]	
C) Subject to export regulations AL: N, ECCN: EAR99	

Selection and Ordering data	Order No.
Pointek CLS300 - Standard - High Temperature Rod Version with Threaded or Flanged process connection	C) 7 M L 5 6 5 2 -
Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.	
Process Connection	
<u>Threaded, 316L, stainless steel</u>	
3/4" NPT [(Taper), ANSI/ASME B1.20.1]	0 A
1" NPT [(Taper), ANSI/ASME B1.20.1]	0 B
1 1/4" NPT [(Taper), ANSI/ASME B1.20.1]	0 C
1 1/2" NPT [(Taper), ANSI/ASME B1.20.1]	0 D
R 3/4" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 A
R 1" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 B
R 1 1/2" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 D
G 3/4" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 A
G 1" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 B
G 1 1/2" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 D
<u>Welded flange, 316L, stainless steel, raised face</u>	
1" ASME, 150 lb	5 A
1" ASME, 300 lb	5 B
1" ASME, 600 lb	5 C
1 1/2" ASME, 150 lb	5 D
1 1/2" ASME, 300 lb	5 E
1 1/2" ASME, 600 lb	5 F
2" ASME, 150 lb	5 G
2" ASME, 300 lb	5 H
2" ASME, 600 lb	5 J
3" ASME, 150 lb	5 K
3" ASME, 300 lb	5 L
3" ASME, 600 lb	5 M
4" ASME, 150 lb	5 N
4" ASME, 300 lb	5 P
4" ASME, 600 lb	5 Q
<u>Welded flange, 316L, stainless steel, Type A flat faced</u>	
DN 25, PN 16	6 A
DN 25, PN 40	6 B
DN 40, PN 16	6 C
DN 40, PN 40	6 D
DN 50, PN 16	6 E
DN 50, PN 40	6 F
DN 80, PN 16	6 G
DN 80, PN 40	6 H
DN 100, PN 16	6 J
DN 100, PN 40	6 K
(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)	
Probe length (length from flange face) (threaded lengths include process thread)	
<u>Note: No Y01 needed in order code for standard lengths</u>	
Rod 350 mm (13.78")	A
Extended rod, length 500 mm (19.69")	B
Extended rod, length 750 mm (29.53")	C
Extended rod, length 1000 mm (39.37")	D

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Standard

Selection and Ordering data

Order No.

Pointek CLS300 - Standard - High Temperature Rod Version with Threaded or Flanged process connection C) 7 M L 5 6 5 2 - 0 0 - 0

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Add order code Y01 and plain text:

"Insertion length ... mm"

Extended rod, factory adjusted length 250 to 499 mm (9.8 to 19.65")

Extended rod, factory adjusted length 500 to 749 mm (19.69 to 29.49")

Extended rod, factory adjusted length 750 to 999 mm (29.53 to 39.3")

Wetted Seals

Graphite

Probe Material

316L Stainless steel with ceramic (ZrO₂) isolators

Approvals

Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4

Explosion Proof Enclosure with IS Probe:
CSA/FM Class I, Div. 1, Gr. A, B, C, D
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4

General Purpose (CSA, FM)

Enclosure and Lid

Aluminum epoxy coated

2 x 1/2" NPT via adapter - cable inlet, IP65

2 x M20x1.5 cable inlet, IP65

2 x 1/2" NPT via adapter - cable inlet, IP68

2 x M20x1.5 cable inlet, IP68

Active Shield Length

Standard length -
(125 mm threaded, 105 mm flanged)

Extended shield -
(250 mm threaded, 230 mm flanged)¹⁾

Extended shield -
(400 mm threaded, 380 mm flanged)²⁾

Further designs

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

Total insertion length: enter the total insertion length in plain text description

Stainless steel tag [69 x 50 mm (2.71 x 1.97")]:
Measuring-point number/identification
(max. 16 characters) specify in plain text

Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000
Inspection Certificate Type 3.1 per EN 10204

0 0 - 0

E

F

G

0

0

F

G

H

A

B

C

D

0

1

2

Order code

Y01

Y15

C11

C12

Selection and Ordering data

Order No.

Pointek CLS300 - Standard - High Temperature Rod Version with Threaded or Flanged process connection C) 7 M L 5 6 5 2 - 0 0 - 0

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Operating Instructions

Note: The Operating Instructions should be ordered as a separate line on the order.

This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.

Accessories

- 1) Available with Probe version options B to D, F, G only [≥ 500 mm (19.69")]
- 2) Available with Probe version options C, D, and, G only [≥ 750 mm (29.53")]

C) Subject to export regulations AL: N, ECCN: EAR99H

0 0 - 0

See page 5/53

See page 5/53

Overview



Pointek CLS300 (digital version) is an inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present. The digital version includes PROFIBUS PA, an LCD display, and advanced diagnostic features.

Benefits

- Patented Active-Shield technology so measurement is unaffected by material buildup or nozzle interference in active shield section
- Performs in extremely abrasive conditions because of solid rod construction
- Push-button calibration, full-function diagnostics
- High sensitivity allows installation in a wide range of liquids, solids or slurry applications
- Integral LCD display allows for easy menu-driven setup
- PROFIBUS PA communication (SIMATIC PDM compatible)

Application

Pointek CLS300 digital version provides an integral LCD display for stand-alone use, with PROFIBUS PA communication (Profile version 3.0, Class B) when required. Solid-state switch alarm is standard.

The robust design of CLS300 makes it specifically applicable for heavy solids applications where abrasive materials occur as in the mining industry.

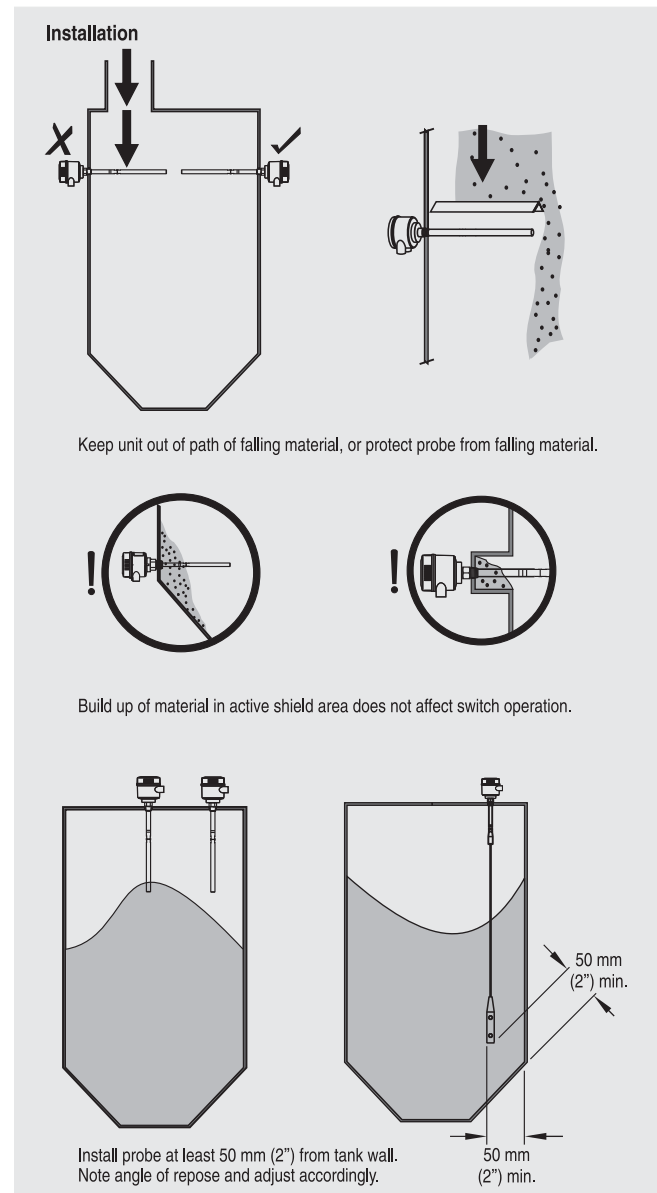
The fully potted electronics are unaffected by condensation, dust or vibration.

Wetted parts are made of stainless steel with a PFA shield for high chemical resistance, and of ceramic and stainless steel for high temperature version. Materials with low or high dielectric constants can be accurately detected. The unique Active Shield suppresses interference from material buildup or long installation nozzles.

The unique modular design of the Pointek CLS300 provides a wide range of configurations, process connections, extensions and approvals to meet the temperature and pressure requirements of specific applications. The modular design makes ordering easier and reduces stocking requirements. A wide range of probe configurations are available, including rod and cable versions.

- Key Applications: liquids, slurries, bulk solids, relatively high pressure and temperature, hazardous areas, milling and mining applications

Configuration



Pointek CLS300 installation

Technical specifications

Mode of operation		Controls and displays	
Measuring principle	Inverse frequency shift capacitive level detection	<ul style="list-style-type: none"> Local display Configuration 	LCD <ul style="list-style-type: none"> Locally, using 3 button keypad (for standalone operation) Remotely, using SIMATIC PDM (for installation on a network)
Input		Power supply	
Measured variable	Change in picoFarad (pF)	<ul style="list-style-type: none"> Bus voltage (at process connection) Current consumption 	<ul style="list-style-type: none"> Standard: 12 to 30 V DC Intrinsically Safe: 12 to 24 V DC 12.5 mA
Output		Certificates and approvals	
<ul style="list-style-type: none"> Solid-state output Output Protection Max. switching voltage Max. load current Voltage drop Time delay (pre or post switching) Fail-safe mode Connection 	Galvanically isolated Against reversed polarity (bipolar) <ul style="list-style-type: none"> 30 V (DC) 30 V peak (AC) 82 mA < 1 V, typical at 50 mA Programmable by user (0 to 100 s) Min. or max. Removable terminal block	<ul style="list-style-type: none"> General Purpose Dust Ignition Proof With IS Probe Intrinsically Safe Non-incendive Explosion Proof with IS Probe Others 	CSA, FM CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 CSA/FM Class I, Div. 2, Gr. A, B, C, D CSA/FM Class II, Div. 2, Gr. F, G CSA/FM Class III T4 or T6 CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 Pattern Approval (China)
Accuracy		Communication	
Resolution		PROFIBUS PA (IEC 61158 CPF3 CP3/2) Bus physical layer: IEC 61158-2 MBP-(IS) Device profile: PROFIBUS PA profile for Process Control Devices Version 3.0, Class B FISCO field device	
<ul style="list-style-type: none"> Min. sensitivity (pF) Max. temperature error 	1% change in actual capacitance 0.2% of actual capacitance value		
Rated operating conditions ¹⁾			
<u>Installation conditions</u>			
Location	Indoor/outdoor		
<u>Ambient conditions</u>			
<ul style="list-style-type: none"> Ambient temperature 	-40 to +85 °C (-40 to +185 °F) ²⁾		
<u>Medium conditions</u>			
<ul style="list-style-type: none"> Relative dielectric constant ϵ_r Process temperature Rod/Cable version High Temperature version Process pressure³⁾ 	Min. 1.5 Liquids, bulk solids, slurries and interfaces, and applications with viscous materials -40 to +200 °C (-40 to +392 °F) ²⁾ -40 to +400 °C (-40 to +752 °F) -1 to +35 bar g (-14.6 to +511 psi g)		
Design			
<ul style="list-style-type: none"> Material (enclosure) Degree of protection Cable inlet 	Powder-coated aluminum with gasket Standard: Type 4/NEMA 4/IP65 Optional: Type 4/NEMA 4/IP68 2 x M20x1.5 thread (option: 2 x 1/2" NPT conduit entry including 1 plugged entry)		

1) When operation is in areas classified as hazardous, observe restrictions according to relevant certificate.
 See also Pressure/Temperature curves starting on page 5/54.
 2) Thermal isolator is used if process connection temperature exceeds +85 °C (+185 °F)
 3) Pressure rating of process seal is temperature dependent.
 See Pressure/Temperature curves starting on page 5/54.
 4) Barrier or Intrinsically safe power supply required for Intrinsically Safe protection

Design: Proble

	Rod version	High Temperature version	Cable version
Length	Min. 250 mm (9.8"), max. 1000 mm (40")	Min. 250 mm (9.8"), max. 1000 mm (40")	Min. 1000 mm (40"), max. 25000 mm (984")
Sensor wetted parts	PFA (no insulation on active probe), 316L stainless steel	Ceramic (ZrO ₂ ¹⁾) (no insulation on active probe), 316L stainless steel	316 stainless steel, optional PFA
O-ring seal material	FKM (optional FFKM)	Graphite	FKM (optional FFKM)
Thermal isolator	Optional	Standard	Optional
Extension	User selectable length	User selectable length	User selectable cable length

1) Zirconium Oxide

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Digital

Selection and Ordering data	Order No.
Pointek CLS300 - Digital - Rod with Threaded or Flanged process connection	7 M L 5 6 6 0 - 0
Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.	
Process Connection <u>Threaded, 316L stainless steel</u>	
¾" NPT [(Taper), ANSI/ASME B1.20.1]	0 A
1" NPT [(Taper), ANSI/ASME B1.20.1]	0 B
1¼" NPT [(Taper), ANSI/ASME B1.20.1]	0 C
1½" NPT [(Taper), ANSI/ASME B1.20.1]	0 D
R ¾" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 A
R 1" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 B
R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 D
G ¾" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 A
G 1" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 B
G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 D
<u>Welded flange, 316L stainless steel, raised face</u>	
1" ASME, 150 lb	5 A
1" ASME, 300 lb	5 B
1" ASME, 600 lb	5 C
1½" ASME, 150 lb	5 D
1½" ASME, 300 lb	5 E
1½" ASME, 600 lb	5 F
2" ASME, 150 lb	5 G
2" ASME, 300 lb	5 H
2" ASME, 600 lb	5 J
3" ASME, 150 lb	5 K
3" ASME, 300 lb	5 L
3" ASME, 600 lb	5 M
4" ASME, 150 lb	5 N
4" ASME, 300 lb	5 P
4" ASME, 600 lb	5 Q
<u>Welded flange, 316L stainless steel, Type A flat faced</u>	
DN 25, PN 16	6 A
DN 25, PN 40	6 B
DN 40, PN 16	6 C
DN 40, PN 40	6 D
DN 50, PN 16	6 E
DN 50, PN 40	6 F
DN 80, PN 16	6 G
DN 80, PN 40	6 H
DN 100, PN 16	6 J
DN 100, PN 40	6 K
(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)	
Probe length (length from flange face) (threaded lengths include process thread)	
<u>Note: No Y01 needed in order code for standard lengths</u>	
Standard version, rod 350 mm (13.78")	A
Extended rod, length 500 mm (19.69")	B
Extended rod, length 750 mm (29.53")	C
Extended rod, length 1000 mm (39.37")	D

Selection and Ordering data	Order No.
Pointek CLS300 - Digital - Rod with Threaded or Flanged process connection	7 M L 5 6 6 0 - 0
Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.	
Add order code Y01 and plain text: <u>"Insertion length ... mm"</u>	
Extended rod, factory adjusted length 250 to 499 mm (9.8 to 19.65")	E
Extended rod, factory adjusted length 500 to 749 mm (19.69 to 29.49")	F
Extended rod, factory adjusted length 750 to 999 mm (29.53 to 39.3")	G
Thermal Isolator Without thermal isolator	0
With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]	1
Wetted Seals FKM	0
FFKM [for process temperatures above -20°C (-4°F)]	1
Probe Material 316L Stainless steel with PFA lining and PEEK isolators	0
Approvals Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 Intrinsically Safe ¹⁾ CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 Explosion Proof Enclosure with IS Probe: CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 General Purpose (CSA, FM)	E F G H
Enclosure and Lid <u>Aluminum epoxy coated</u> 2 x ½" NPT via adapter - cable inlet, IP65 2 x M20x1.5 cable inlet, IP65 2 x ½" NPT via adapter - cable inlet, IP68 2 x M20x1.5 cable inlet, IP68	A B C D
Active Shield Length Standard length - (125 mm threaded, 105 mm flanged) Extended shield - (250 mm threaded, 230 mm flanged) ²⁾ Extended shield - (400 mm threaded, 380 mm flanged) ³⁾	0 1 2

5

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Digital

Selection and Ordering data

Order No.

Pointek CLS300 - Digital - Rod with Threaded or Flanged process connection

7 M L 5 6 6 0 -

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Further designs

Order code

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

Total insertion length: enter the total insertion length in plain text description

Y01

Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text

Y15

Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000 Inspection Certificate Type 3.1 per EN 10204

C11

C12

Operating Instructions

See page 5/53

Note: The Operating Instructions should be ordered as a separate line on the order.

This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.

Accessories

See page 5/53

- 1) Barrier or Intrinsically safe power supply required for Intrinsically Safe protection
- 2) Available with Probe version options B to D, F, G only [≥ 500 mm (19.69")]
- 3) Available with Probe version options C, D, and, G only [≥ 750 mm (29.53")]

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

Selection and Ordering data

Order No.

Pointek CLS300 - Digital - Cable with Threaded or Flanged process connection

7 M L 5 6 6 1 -

Versatile inverse frequency shift capacitance level switch with optional process connection choices and configurable output, ideal for detection of liquids, solids, slurries, foam and interfaces

Process Connection

Threaded, 316L stainless steel

1/4" NPT [(Taper), ANSI/ASME B1.20.1]

0 C

1/2" NPT [(Taper), ANSI/ASME B1.20.1]

0 D

R 1/2" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]

1 D

G 1/2" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]

3 D

Welded flange, 316L stainless steel, raised face

1/2" ASME, 150 lb

5 D

1/2" ASME, 300 lb

5 E

1/2" ASME, 600 lb

5 F

2" ASME, 150 lb

5 G

2" ASME, 300 lb

5 H

2" ASME, 600 lb

5 J

3" ASME, 150 lb

5 K

3" ASME, 300 lb

5 L

3" ASME, 600 lb

5 M

4" ASME, 150 lb

5 N

4" ASME, 300 lb

5 P

4" ASME, 600 lb

5 Q

Welded flange, 316L stainless steel, Type A flat faced

DN 40, PN 16

6 C

DN 40, PN 40

6 D

DN 50, PN 16

6 E

DN 50, PN 40

6 F

DN 80, PN 16

6 G

DN 80, PN 40

6 H

DN 100, PN 16

6 J

DN 100, PN 40

6 K

(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)

Probe length (length from flange face)

(threaded lengths include process thread)

Note: No Y01 needed in order code for standard lengths

Extended cable, 3000 mm (118.11"), length can be shortened by customer

A

Extended cable, 6000 mm (236.22"), length can be shortened by customer

B

Add order code Y01 and plain text:

"Insertion length ... mm"

Extended cable, 500 to 1000 mm (19.69 to 39.37")

E

Extended cable, 1001 to 5000 mm (39.41 to 196.85")

F

Extended cable, 5001 to 10000 mm (196.89 to 393.70")

G

Extended cable, 10001 to 15000 mm (393.74 to 590.55")

H

Extended cable, 15001 to 20000 mm (590.59 to 787.40")

J

Extended cable, 20001 to 25000 mm (787.44 to 984.25")

K

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Digital

Selection and Ordering data	Order No.
Pointek CLS300 - Digital - Cable with Threaded or Flanged process connection Versatile inverse frequency shift capacitance level switch with optional process connection choices and configurable output, ideal for detection of liquids, solids, slurries, foam and interfaces	C) 7 M L 5 6 6 1 - 0
Thermal Isolator Without thermal isolator With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]	0 1
Wetted Seals FKM FFKM [for process temperatures above -20°C (-4°F)]	0 1
Probe Material Bare 316L stainless steel cable, PEEK isolators and 316L stainless steel cable weight PFA coated cable, PEEK isolators and 316L stainless steel cable weight	0 1
Approvals Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 Intrinsically Safe ¹⁾ CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 Explosion Proof Enclosure with IS Probe: CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4 General Purpose (CSA, FM)	E F G H
Enclosure and Lid <u>Aluminum epoxy coated</u> 2 x ½" NPT via adapter - cable inlet, IP65 2 x M20x1.5 cable inlet, IP65 2 x ½" NPT via adapter - cable inlet, IP68 2 x M20x1.5 cable inlet, IP68	A B C D
Active Shield Length Standard length - (125 mm threaded, 105 mm flanged) Extended shield - 250 mm threaded, 230 mm flanged) ²⁾ Extended shield - (400 mm threaded, 380 mm flanged) ²⁾	0 1 2
Further designs Please add "-Z" to Order No. and specify Order code(s).	Order code
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	Y15
Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000 Inspection Certificate Type 3.1 per EN 10204	C11 C12

Selection and Ordering data	Order No.
Pointek CLS300 - Digital - Cable with Threaded or Flanged process connection Versatile inverse frequency shift capacitance level switch with optional process connection choices and configurable output, ideal for detection of liquids, solids, slurries, foam and interfaces	C) 7 M L 5 6 6 1 - 0
Operating Instructions Note: The Operating Instructions should be ordered as a separate line on the order. This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	See page 5/53
Accessories	See page 5/53
1) Barrier or Intrinsically safe power supply required for Intrinsically Safe protection 2) Available with Probe version options A, B and, F to K only [≥ 1000 mm (39.7")]	
C) Subject to export regulations AL: N, ECCN: EAR99	

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300 - Digital

Selection and Ordering data

Order No.

Pointek CLS300 - Digital - High Temperature Rod version with Threaded or Flanged process connection

C) 7 M L 5 6 6 2 -

0 0 - 0

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Process Connection

Threaded, 316L stainless steel

- 3/4" NPT [(Taper), ANSI/ASME B1.20.1] **0 A**
- 1" NPT [(Taper), ANSI/ASME B1.20.1] **0 B**
- 1 1/4" NPT [(Taper), ANSI/ASME B1.20.1] **0 C**
- 1 1/2" NPT [(Taper), ANSI/ASME B1.20.1] **0 D**
- R 3/4" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] **1 A**
- R 1" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] **1 B**
- R 1 1/2" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] **1 D**
- G 3/4" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] **3 A**
- G 1" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] **3 B**
- G 1 1/2" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] **3 D**

Welded flange, 316L stainless steel, raised face

- 1" ASME, 150 lb **5 A**
- 1" ASME, 300 lb **5 B**
- 1" ASME, 600 lb **5 C**
- 1 1/2" ASME, 150 lb **5 D**
- 1 1/2" ASME, 300 lb **5 E**
- 1 1/2" ASME, 600 lb **5 F**
- 2" ASME, 150 lb **5 G**
- 2" ASME, 300 lb **5 H**
- 2" ASME, 600 lb **5 J**
- 3" ASME, 150 lb **5 K**
- 3" ASME, 300 lb **5 L**
- 3" ASME, 600 lb **5 M**
- 4" ASME, 150 lb **5 N**
- 4" ASME, 300 lb **5 P**
- 4" ASME, 600 lb **5 Q**

Welded flange, 316L stainless steel,

Type A flat faced

- DN 25, PN 16 **6 A**
- DN 25, PN 40 **6 B**
- DN 40, PN 16 **6 C**
- DN 40, PN 40 **6 D**
- DN 50, PN 16 **6 E**
- DN 50, PN 40 **6 F**
- DN 80, PN 16 **6 G**
- DN 80, PN 40 **6 H**
- DN 100, PN 16 **6 J**
- DN 100, PN 40 **6 K**

(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)

Probe length (length from flange face)
(threaded lengths include process thread)

Note: No Y01 needed in order code for standard lengths

- Standard version, rod 350 mm (13.78") **A**
- Extended rod, length 500 mm (19.69") **B**
- Extended rod, length 750 mm (29.53") **C**
- Extended rod, length 1000 mm (39.37") **D**

Selection and Ordering data

Order No.

Pointek CLS300 - Digital - High Temperature Rod version with Threaded or Flanged process connection

C) 7 M L 5 6 6 2 -

0 0 - 0

Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.

Add order code Y01 and plain text:

"Insertion length ... mm"

- Extended rod, factory adjusted length 250 to 499 mm (9.8 to 19.65") **E**
- Extended rod, factory adjusted length 500 to 749 mm (19.69 to 29.49") **F**
- Extended rod, factory adjusted length 750 to 999 mm (29.53 to 39.3") **G**

Wetted Seals

Graphite

0

Probe Material

316L Stainless steel with ceramic (ZrO₂) isolators

0

Approvals

Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4

E

Intrinsically Safe¹⁾

CSA/FM Class I, Div. 1, Gr. A, B, C, D
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4

F

Explosion Proof Enclosure with IS Probe:
CSA/FM Class I, Div. 1, Gr. A, B, C, D
CSA/FM Class II, Div. 1, Gr. E, F, G
CSA/FM Class III T4

G

General Purpose (CSA, FM)

H

Enclosure and Lid

Aluminum epoxy coated

- 2 x 1/2" NPT via adapter - cable inlet, IP65 **A**
- 2 x M20x1.5 cable inlet, IP65 **B**
- 2 x 1/2" NPT via adapter - cable inlet, IP68 **C**
- 2 x M20x1.5 cable inlet, IP68 **D**

Active Shield Length

- Standard length - **0**
(125 mm threaded, 105 mm flanged)
- Extended shield - **1**
(250 mm threaded, 230 mm flanged)²⁾
- Extended shield - **2**
(400 mm threaded, 380 mm flanged)³⁾

Level instruments

Point level measurement - Capacitance switches

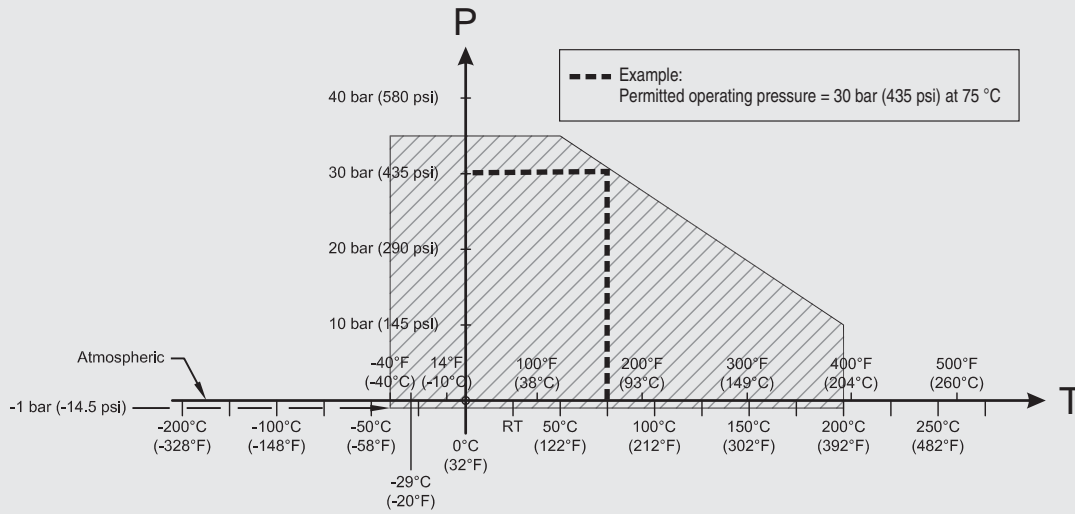
Pointek CLS300

Selection and Ordering data	Order No.
Pointek CLS300 - Digital - High Temperature Rod version with Threaded or Flanged process connection Inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.	C) 7ML 5 6 6 2 - 0 0 - 0
Further designs Please add "-Z" to Order No. and specify Order code(s).	Order code
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	Y15
Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	C11
Inspection Certificate Type 3.1 per EN 10204	C12
Operating Instructions Note: The Operating Instructions should be ordered as a separate line on the order. This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	See page 5/53
Accessories 1) Barrier or Intrinsically safe power supply required for Intrinsically Safe protection 2) Available with Probe version options B to D, F, G only [≥ 500 mm (19.69")] 3) Available with Probe version options C, D, and, G only [≥ 750 mm (29.53")] C) Subject to export regulations AL: N, ECCN: EAR99	See page 5/53

Selection and Ordering data	Order No.
Standard Version - Operating Instructions English German Standard version Quick Start guide, multi-language This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C) 7ML1998-5JH01 C) 7ML1998-5JH31 C) 7ML1998-5QY81
Digital Version - Operating Instructions English German Note: The Operating Instructions should be ordered as a separate line on the order. Digital version Quick Start guide, multi-language This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C) 7ML1998-5JJ01 C) 7ML1998-5JJ31 C) 7ML1998-5XA81
Accessories ½" NPT cable gland, nickel plated brass, fits cable diameter 6 to 12 mm (0.24 to 0.47") -40 to +100 °C (-40 to +212 °F), IP68 (General Purpose) ½" NPT cable gland, brass, ATEX II 2GD EEx d IIC and EEx e II, fits cable diameter 6.5 to 14 mm (0.26 to 0.55"), -60 to +130 °C (-76 to +266 °F), IP68 (Explosion Proof) M20x1.5 cable gland, PA polyamide, ATEX II 2G EEx e II, fits cable diameter 7 to 12 mm (0.28 to 0.47"), -20 to +70 °C (-4 to +158 °F), IP68 (General Purpose) M20x1.5 cable gland, brass, ATEX II 2GD EEx d IIC and EEx e II, fits cable diameter 10.5 to 15.9 mm (0.41 to 0.63"), under armour cable diameter 6.1 to 11.5 mm (0.24 to 0.45"), -60 to +130 °C (-76 to +266 °F), IP68 (Explosion Proof) One metallic cable gland M20x1.5, -40 to +80 °C (-40 to +176 °F) One metallic cable gland M20x1.5, -40 to +80 °C (-40 to +176 °F) with integrated shield connection (available for PROFIBUS PA)	7ML1830-1JA 7ML1830-1JB 7ML1830-1JC 7ML1830-1JD 7ML1930-1AP 7ML1930-1AQ
Blind threaded flanges are available. Please contact nacc.smpi@siemens.com with a completed application data sheet found on page 5/9	
Spare parts Test magnet (digital version) Amplifier/power supply, standard version Amplifier/power supply, digital version LCD display (digital version)	C) 7ML1830-1JE 7ML1830-1DJ 7ML1830-1JF 7ML1830-1JK

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

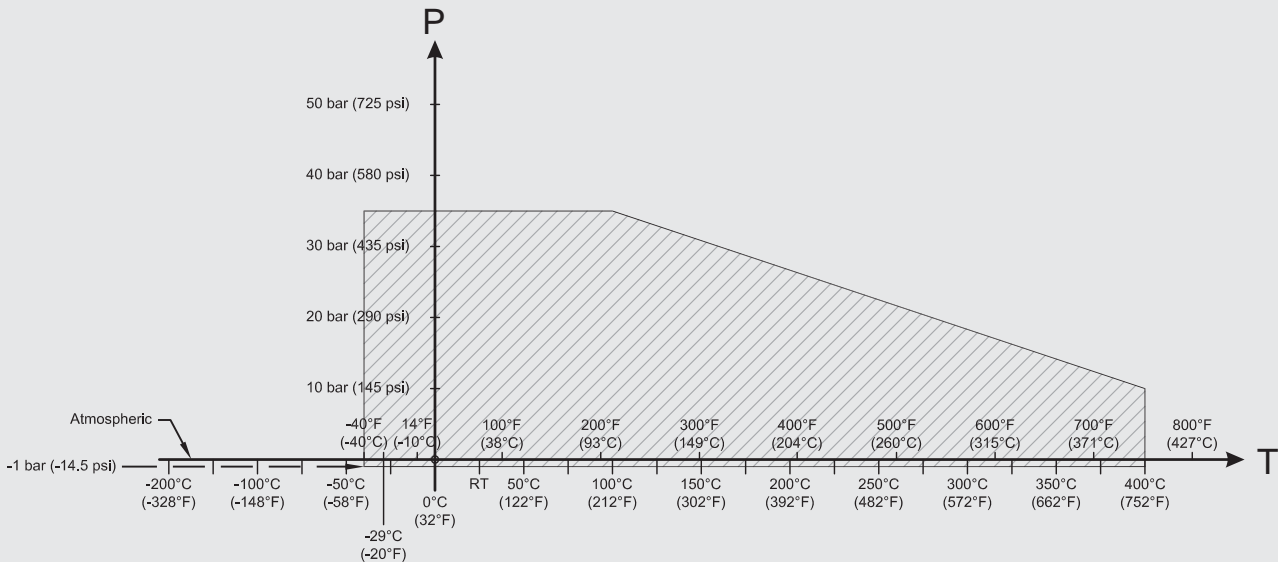
Characteristic curves



Pressure/Temperature Curve CLS300 Extended Rod and Cable Probes Threaded Process Connections (7ML5650, 7ML5651, 7ML5660 and 7ML5661)

P = Permitted Operating Pressures
T = Permitted Operating Temperature

Pointek CLS300 Process Pressure/Temperature derating curves (7ML5650, 7ML5651, 7ML5660 and 7ML5661)

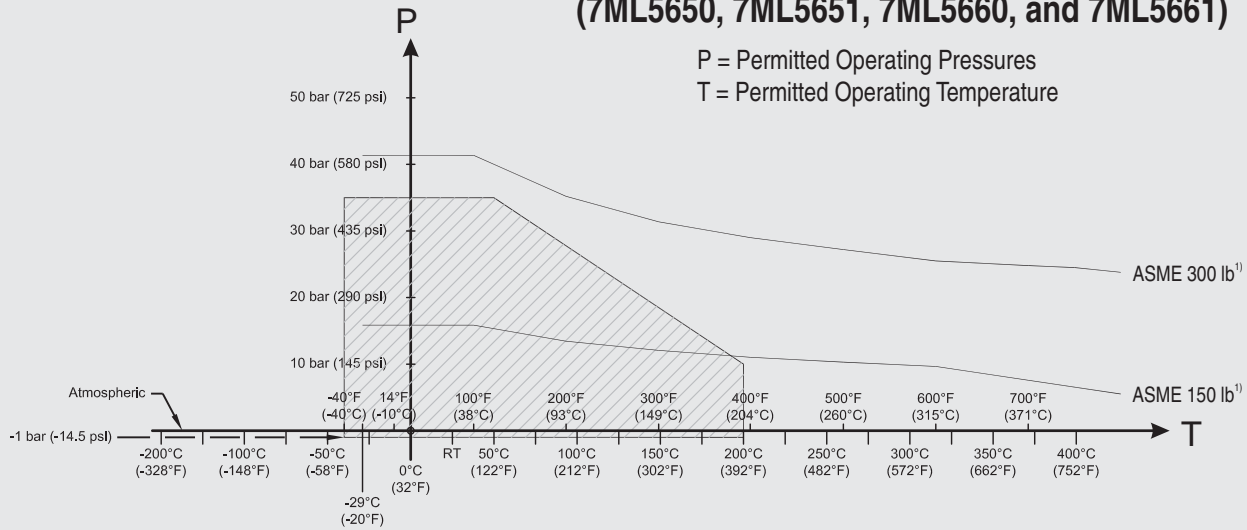


Pressure/Temperature Curve CLS300 High Temperature Rod Probes Threaded Process Connections (7ML5652 and 7ML5662)

P = Permitted Operating Pressures
T = Permitted Operating Temperature

Pointek CLS300 Process Pressure/Temperature derating curves (7ML5652 and 7ML5662)

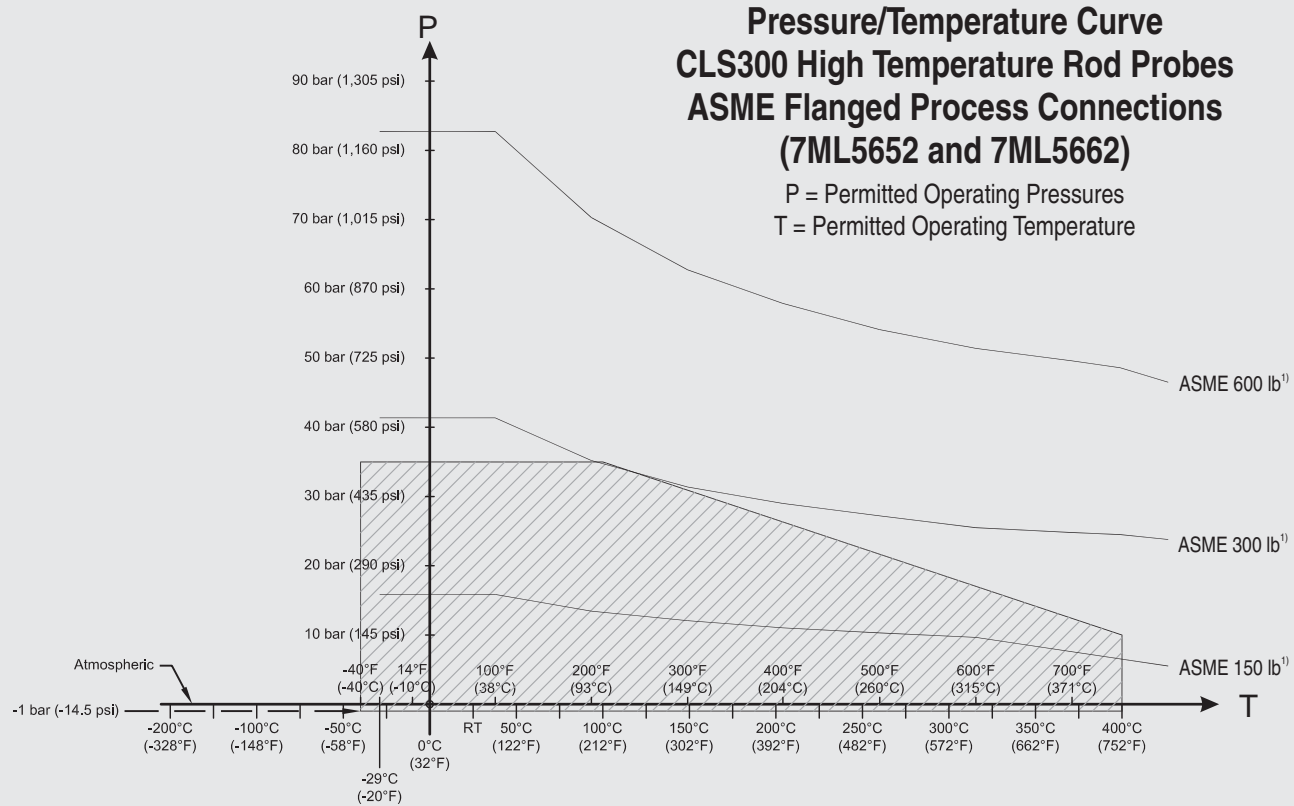
**Pressure/Temperature Curve
CLS300 Extended Rod and Cable Probes
ASME Flanged Process Connections
(7ML5650, 7ML5651, 7ML5660, and 7ML5661)**



1) The curve denotes the minimum allowable flange class for the shaded area below.

Pointek CLS300 Process Pressure/Temperature derating curves (7ML5650, 7ML5651, 7ML5660, and 7ML5661)

**Pressure/Temperature Curve
CLS300 High Temperature Rod Probes
ASME Flanged Process Connections
(7ML5652 and 7ML5662)**



1) The curve denotes the minimum allowable flange class for the shaded area below.

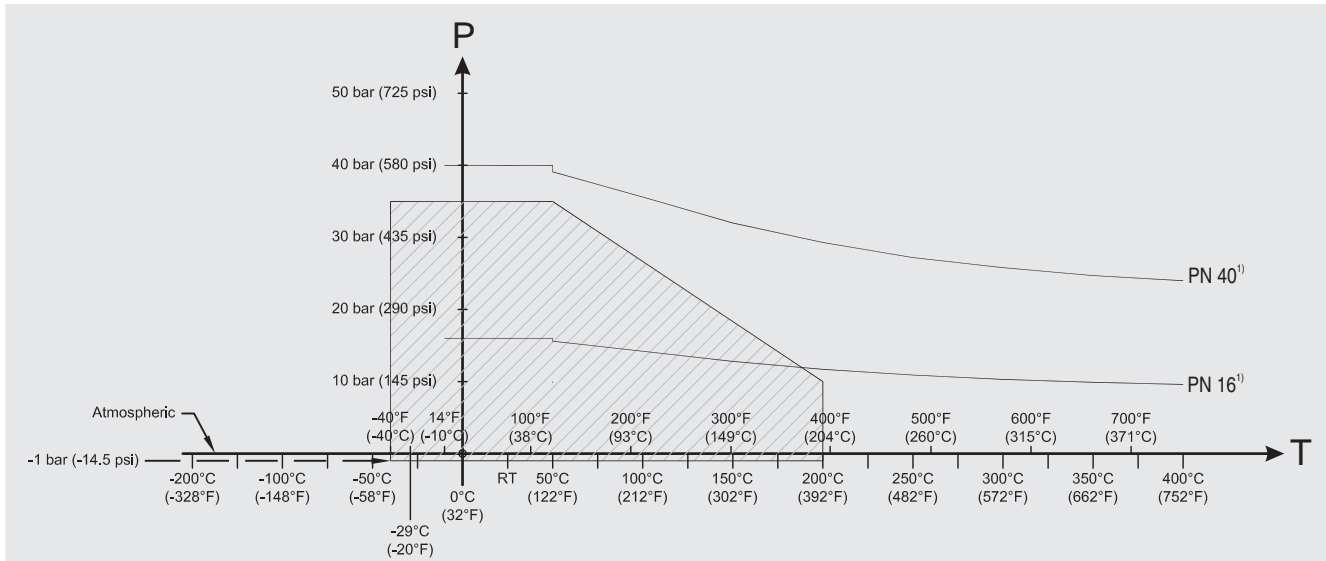
Pointek CLS300 Process Pressure/Temperature derating curves (7ML5652 and 7ML5662)

Level instruments

Point level measurement - Capacitance switches

Pointek CLS300

5

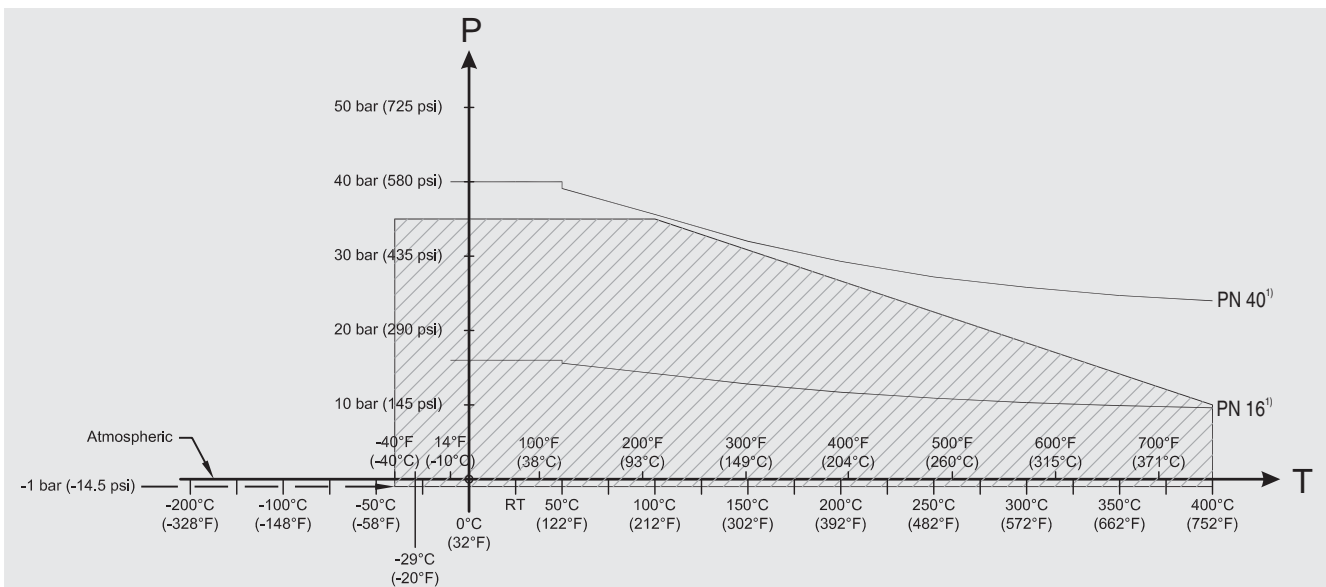


Pressure/Temperature Curve CLS300 Extended Rod and Cable Probes EN Flanged Process Connections (7ML5650, 7ML5651, 7ML5660 and 7ML5661)

P = Permitted Operating Pressures
T = Permitted Operating Temperature

1) The curve denotes the minimum allowable flange class for the shaded area below.

Pointek CLS300 Process Pressure/Temperature derating curves (7ML5650, 7ML5651, 7ML5660 and 7ML5661)



Pressure/Temperature Curve CLS300 High Temperature Rod Probes EN Flanged Process Connections (7ML5652 and 7ML5662)

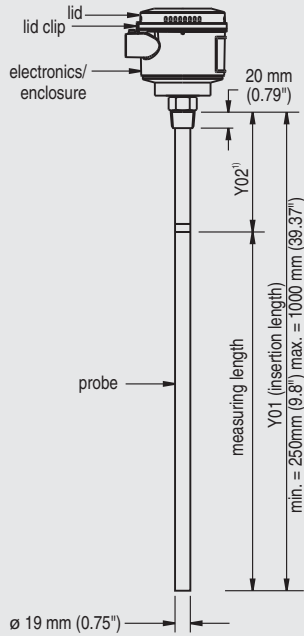
P = Permitted Operating Pressures
T = Permitted Operating Temperature

1) The curve denotes the minimum allowable flange class for the shaded area below.

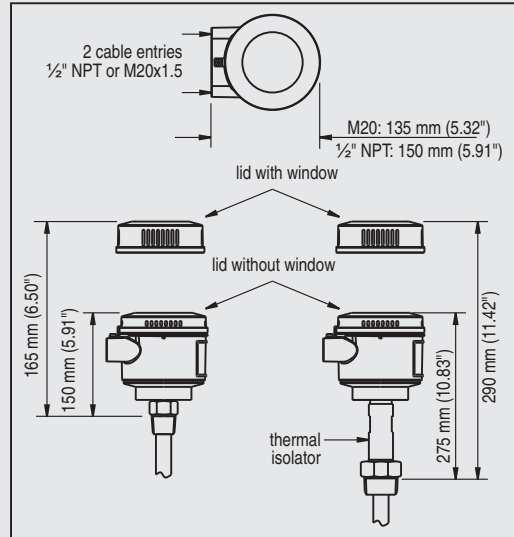
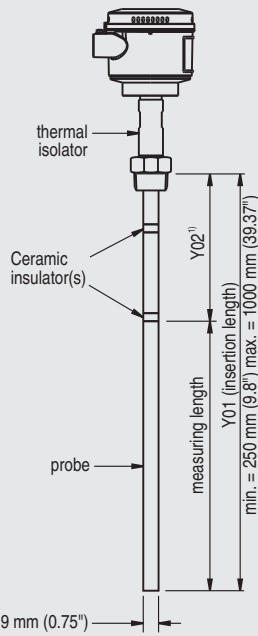
Pointek CLS300 Process Pressure/Temperature derating curves (7ML5652 and 7ML5662)

Dimensional drawings

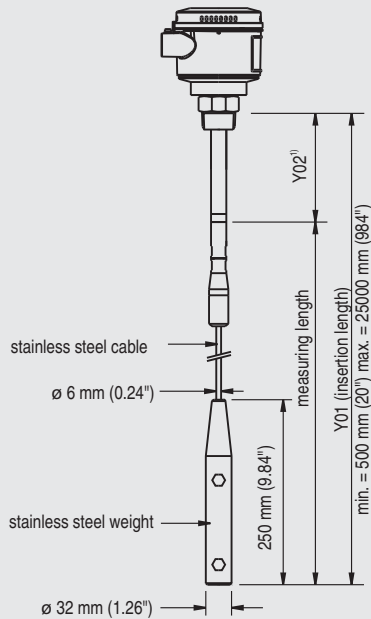
Rod version Threaded
(7ML5650 and 7ML5660)



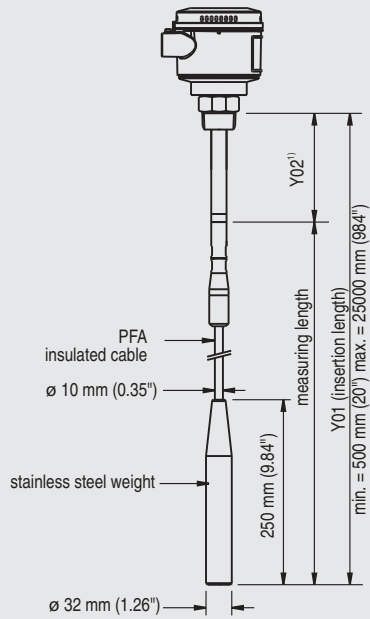
High temperature rod version Threaded
(7ML5652 and 7ML5662)



Cable version, non-insulated Threaded
(7ML5651 and 7ML5661)



Cable version, insulated Threaded
(7ML5651 and 7ML5661)



Note:

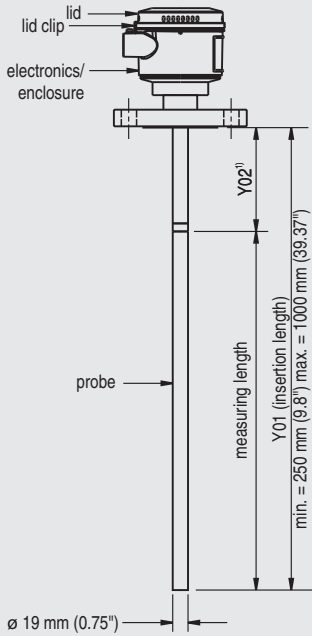
- 1) Extended Active Shield (Y02): standard length 125 mm (4.92").
Optional active shield lengths: 250 mm (9.84") or 400 mm (15.75").

Level instruments

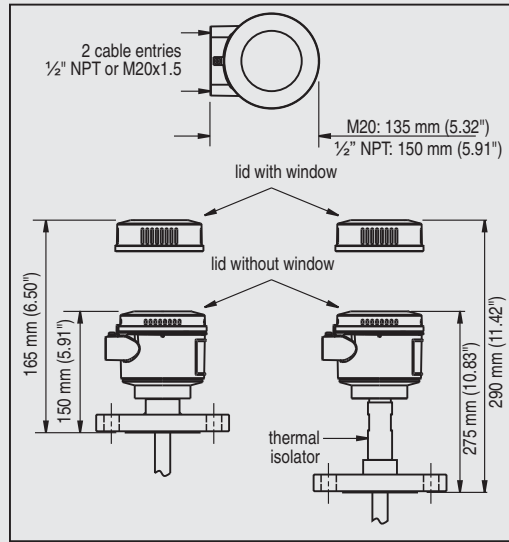
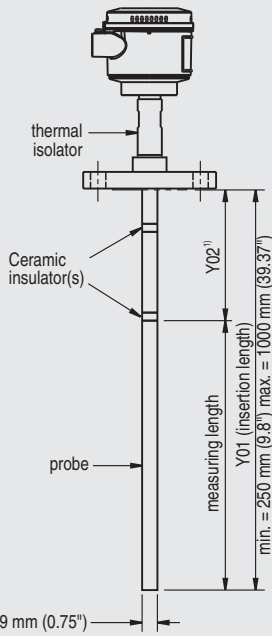
Point level measurement - Capacitance switches

Pointek CLS300

Rod version Welded flange
(7ML5650 and 7ML5660)

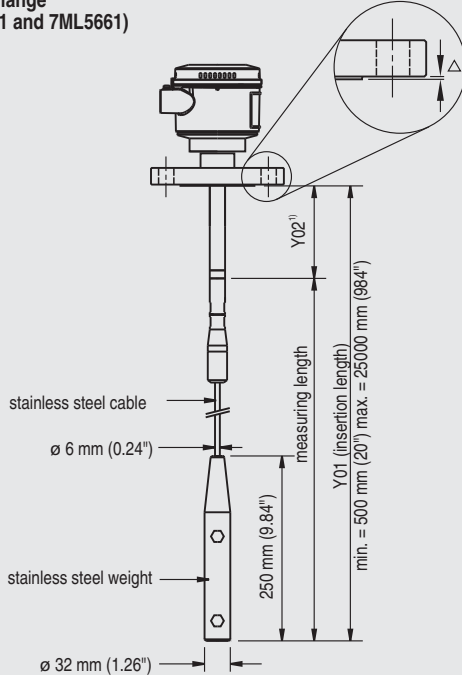


High temperature rod version
Welded flange
(7ML5652 and 7ML5662)

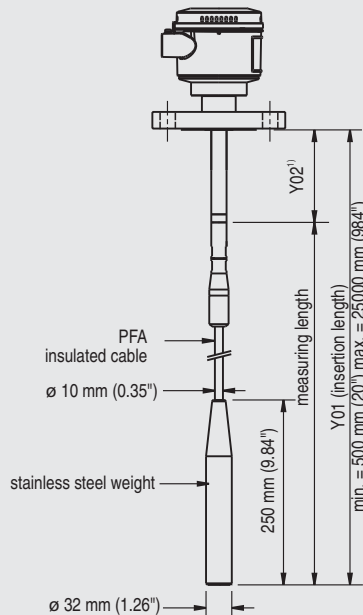


Flange Facing (raised face)	
Flange class	Facing thickness
△ ASME 150/300	2 mm (0.08")
△ ASME 600/900	7 mm (0.28")
△ PN 16/40	2 mm (0.08")

Cable version, non-insulated
Welded flange
(7ML5651 and 7ML5661)



Cable version, insulated
Welded flange
(7ML5651 and 7ML5661)



Notes:

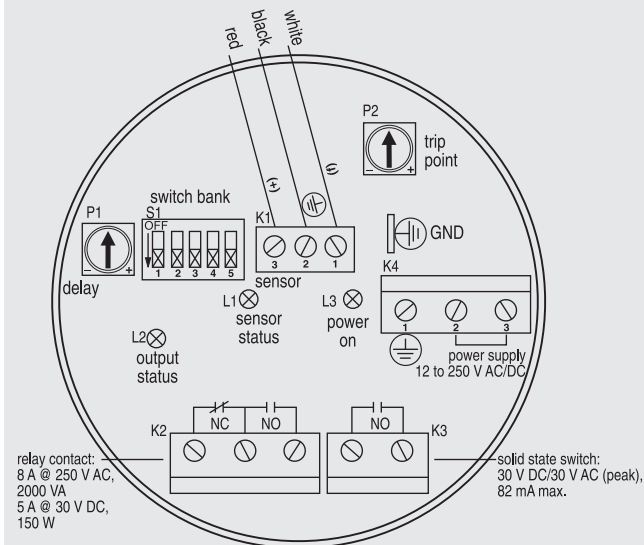
- 1) Extended Active Shield (Y02): standard length 105 mm (4.13").
Optional active shield lengths: 230 mm (9.06") or 380 mm (14.96").
- 2) Insertion length does not include any raised face/gasket face dimension (see Flange Facing table above).

Pointek CLS300 dimensions - Flanged Process Connections

5

Schematics

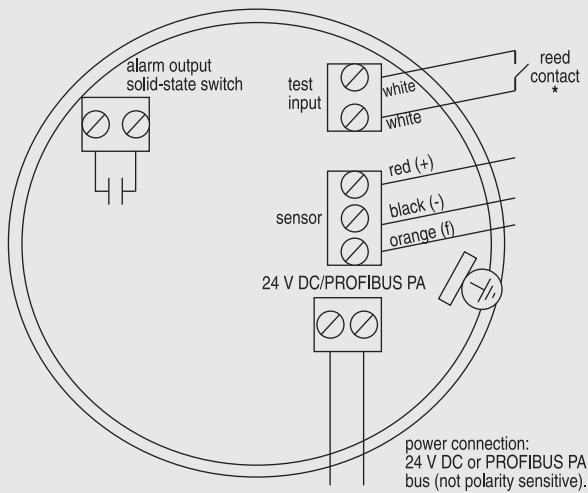
Wiring: Pointek CLS300 Standard



Note:

- Identification label is on underside of lid. Switch and Potentiometer settings are for illustration purposes only (Refer to Operation/Setup in manual).
- All field wiring must have insulation suitable for at least 250 V.
- Relay contact terminals are for use with equipment having no accessible live parts and wiring having insulation suitable for at least 250 V.
- Maximum working voltage between adjacent relay contacts shall be 250 V.
- Refer to the Instruction Manual or contact a Siemens representative for detailed wiring information.

Wiring: Pointek CLS300 Digital



Note:

Refer to the Instruction Manual or contact a Siemens representative for detailed wiring information.

***Magnet Activated Sensor Test**

A magnet can be used to test the sensor without opening the lid of the Pointek CLS300 Digital version. Bring the magnet close to the test area indicated on the enclosure. The sensor test starts and finishes automatically after 10 seconds.

