

Overview



Pointek CLS200 (standard version) is a versatile inverse frequency shift capacitance level and material detection switch with optional rod/cable choices and configurable output. CLS200 is ideal for detection of liquids, solids, slurries, foam, and interfaces and has the ability to tune out buildup on the probe.

Benefits

- Potted construction protects signal circuit from shock, vibration, humidity, and/or condensation
- High chemical resistance
- Level detection independent of tank or pipe earth reference
- Insensitive to product buildup due to high frequency oscillation
- 3 LED indicators for sensor status, output status, and power
- Suitable for API 2350

Application

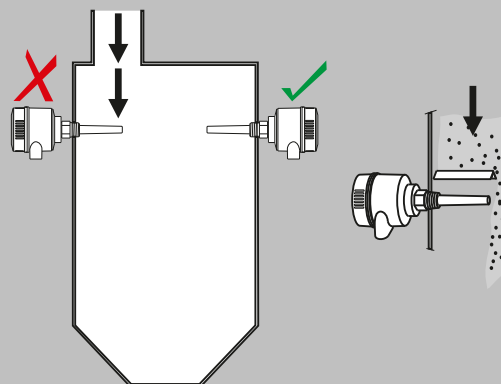
Pointek CLS200 standard version has 3 LED indicators with basic relay and solid-state switch alarms. Universal switch for solids/liquids and interface.

The power supply is galvanically isolated and accepts a wide range of voltages (12 to 250 V AC/DC). When used with thermal isolator, the stainless steel and PPS (PVDF optional) materials used in the probe construction provide a temperature rating up to 125 °C (257 °F) on the process wetted portion of the probe. The switch responds to any material with a dielectric constant of 1.5 or more by detecting a change in oscillating frequency, and it can be set to detect before contact or on contact with the probe. The CLS200 operates independently of the tank wall or pipe so it does not require an external reference electrode for level detection in a non-conductive vessel such as concrete or plastic (EMC regulations applicable in some regions).

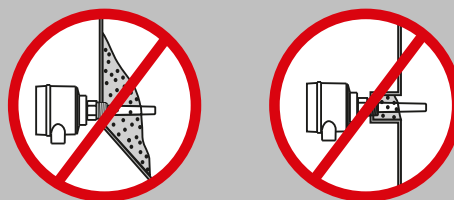
- Key Applications: liquids, slurries, powders, granules, pressurized applications, hazardous areas

Configuration

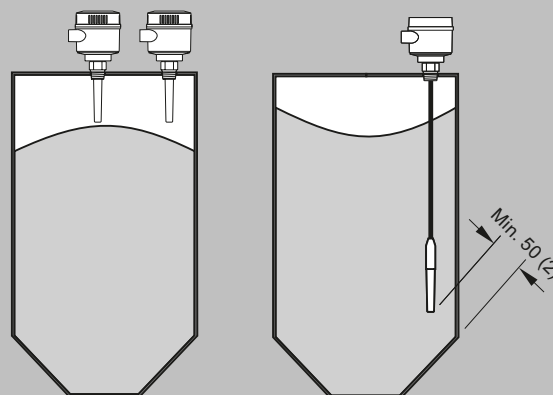
Installation



Keep unit out of path of falling material, or protect probe from falling material.



Avoid areas where material build up occurs.



Install probe at least 50 (2) from tank wall.

Pointek CLS200 installation, dimensions in mm (inch)

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Selection and ordering data

Pointek CLS200 RF Capacitance point level switch, rod design Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe.	Article No. 7ML5630- ● ● ● ● ● - ● ● ● 0		
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Process connection			
<u>Threaded, 316L stainless steel</u>			
¾" NPT [(Taper), ASME B1.20.1]	0	A	
1" NPT [(Taper), ASME B1.20.1]	0	B	
1¼" NPT [(Taper), ASME B1.20.1]	0	C	
1½" NPT [(Taper), 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 SO 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 (Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.)	6	K	
Probe length			
(length from flange face) (threaded lengths include process thread)			
<u>Note: No Y01 needed in Order code for standard lengths</u>			
Compact [threaded 120 mm (4.72 inch), Flanged 98 mm (3.86 inch)]		A	
Extended rod, 250 mm (9.84 inch)		B	
Extended rod, 350 mm (13.78 inch)		C	
Extended rod, 500 mm (19.69 inch)		D	
Extended rod, 750 mm (29.53 inch)		E	
Extended rod, 1 000 mm (39.37 inch)		F	
Extended rod, 1 250 mm (49.21 inch)		G	
Extended rod, 1 350 mm (53.15 inch)		H	
Extended rod, 1 500 mm (59.06 inch)		J	
Extended rod, 1 750 mm (68.90 inch)		K	
Extended rod, 2 000 mm (78.74 inch)		L	
<u>Add Order code Y01 and plain text: "Insertion length ... mm"</u>			
Extended rod, 210 ... 1 000 mm (8.27 ... 39.37 inch)		M	
Extended rod, 1 001 ... 2 000 mm (39.41 ... 78.74 inch)		N	
Extended rod, 2 001 ... 3 000 mm (78.78 ... 118.11 inch)		P	

Selection and ordering data (continued)

		Article No.										
Pointek CLS200 RF Capacitance point level switch, rod design Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe.		7	M	L	5	6	3	0	-	0	0	0
Extended rod, 3 001 ... 4 000 mm (118.15 ... 157.48 inch)											Q	
Extended rod, 4 001 ... 5 000 mm (157.52 ... 196.85 inch)											R	
Extended rod, 5 001 ... 5 500 mm (196.89 ... 216.53 inch)											S	
Thermal isolator												
Without thermal isolator											0	
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]											1	
Remote mount electronics and mounting bracket												
With 2 m (79 inch) of cable ¹⁾²⁾											2	
With 5 m (197 inch) of cable ¹⁾²⁾											3	
Wetted seals												
FKM											0	
FFKM [for process temperatures above -20 °C (-4 °F)]											1	
Probe material												
316L stainless steel with PPS probe body											0	
316L stainless steel with PVDF probe body											1	
Approvals												
Dust Ignition Proof:CE, RCM, ATEX II 1/2 D T100 °C											C	
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II 1 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °Cb											D	
Flameproof Enclosure with IS Probe, with WHG approval: CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C											E	
Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G, CSA/FM Class III T4											F	
Explosion Proof Enclosure with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D, CSA/FM Class II, Div. 1, Groups E, F, G, CSA/FM Class III T4											G	
General Purpose (CSA, FM)											H	
General Purpose (CE, RCM)											J	
General Purpose (CSA, FM, CE, RCM) with WHG approval											K	
Enclosure and lid												
Aluminum epoxy coated												
2 x ½" NPT via adapter - cable inlet, IP65											A	
2 x M20 x 1.5 cable inlet, IP65											B	
2 x ½" NPT via adapter - cable inlet, IP68											C	
2 x M20 x 1.5 cable inlet IP68											D	

¹⁾ Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection.

²⁾ Available with Approval options F, G, and H.

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection Certificate Type 3.1 per EN 10204	C12
SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]	C20
INMETRO ¹⁾	E34
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Selection and ordering data (continued)

Selection and Ordering data	Order code
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approvals options C, D, E.

Pointek CLS200 RF Capacitance point level switch, cable design Detects level and interface in liquids, solids, slurries, and foam. Cable extension options to 30 m (98.43 ft), adaptable sensitivity, with the ability to tune out build-up on probe.	Article No.
7ML5631-●●●●●-●●●●●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Process connection	
<u>Threaded, 316L stainless steel</u>	
¾" NPT [(Taper), ASME B1.20.1]	0 A
1" NPT [(Taper), ASME B1.20.1]	0 B
1¼" NPT [(Taper), ASME B1.20.1]	0 C
1½" NPT [(Taper), 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>	
Extended cable, 3 000 mm (118.11 inch), length can be determined by customer on assembly ¹⁾	A
Extended cable, 6 000 mm (236.22 inch), length can be determined by customer on assembly ¹⁾	B

Selection and ordering data (continued)

	Article No.										
Pointek CLS200 RF Capacitance point level switch, cable design Detects level and interface in liquids, solids, slurries, and foam. Cable extension options to 30 m (98.43 ft), adaptable sensitivity, with the ability to tune out build-up on probe.	7	M	L	5	6	3	1	-			0
Add Order code Y01 and plain text: "Insertion length ... mm"											
Extended cable, 500 ... 5 000 mm (19.69 ... 196.85 inch)										C	
Extended cable, 5 001 ... 1 000 mm (196.89 ... 393.70 inch)										D	
Extended cable, 10 001 ... 15 000 mm (393.74 ... 590.55 inch)										E	
Extended cable, 15 001 ... 20 000 mm (590.59 ... 787.4 inch)										F	
Extended cable, 20 001 ... 25 000 mm (787.44 ... 984.25 inch)										G	
Extended cable, 25 001 ... 30 000 mm (984.29 ... 1 181.1 inch)										H	
Thermal isolator											
Without thermal isolator										0	
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]										1	
Remote mount electronics and mounting bracket											
With 2 m (79 inch) of cable ²⁾										2	
With 5 m (197 inch) of cable ²⁾										3	
Wetted seals											
FKM and PTFE										0	
FFKM and PTFE [for process temperatures above -20 °C (-4 °F)]										1	
Probe material											
FEP jacketed cable with PPS probe body										0	
FEP jacketed cable with PVDF probe body										1	
Approvals											
Dust Ignition Proof: CE, RCM, ATEX II 1/2 D T100 °C											C
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II 1 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C											D
Flameproof Enclosure with IS Probe, with WHG approval: CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C											E
Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G, CSA/FM Class III T4											F
Explosion Proof Enclosure with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D, CSA/FM Class II, Div. 1, Groups E, F, G, CSA/FM Class III T4											G
General Purpose (CSA, FM)											H
General Purpose (CE, RCM)											J
General Purpose (CSA, FM, CE, RCM) with WHG approval											K
Enclosure and lid											
Aluminum epoxy coated											
2 x ½" NPT via adapter - cable inlet, IP65											A
2 x M20 x 1.5 cable inlet, IP65											B
2 x ½" NPT via adapter - cable inlet, IP68											C
2 x M20 x 1.5 cable inlet, IP68											D

¹⁾ Sensor detached to allow customer to set desired cable length.

²⁾ Available with Approvals options F ... H.

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection Certificate Type 3.1 per EN 10204	C12
SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]	C20

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Selection and ordering data (continued)

Selection and Ordering data	Order code
INMETRO ¹⁾	E34
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	
See accessories shown following CLS200 Digital selection and ordering data.	

¹⁾ Available only with Approvals options C, D, E.

	Article No.										
Pointek CLS200 RF Capacitance point level switch, sanitary rod design	7ML5632-	●	●	●	●	●	-	●	●	●	0
Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe.											
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Process connection											
<u>Sanitary 316L stainless steel</u>											
1" sanitary fitting clamp	8	A									
1½" sanitary fitting clamp	8	B									
2" sanitary fitting clamp	8	C									
2½" sanitary fitting clamp	8	D									
3" sanitary fitting clamp (Note: Sanitary connection dimensionally corresponds to the applicable ISO 2852 standard)	8	E									
Probe length											
(length from process connection face)											
<u>Note: No Y01 needed in Order code for standard lengths</u>											
Compact, 98 mm (3.86 inch)										A	
Extended rod, 250 mm (9.84 inch)										B	
Extended rod, 350 mm (13.78 inch)										C	
Extended rod, 500 mm (19.69 inch)										D	
Extended rod, 750 mm (29.53 inch)										E	
Extended rod, 1 000 mm (39.37 inch)										F	
Extended rod, 1 250 mm (49.21 inch)										G	
Extended rod, 1 350 mm (53.15 inch)										H	
Extended rod, 1 500 mm (59.06 inch)										J	
Extended rod, 1 750 mm (68.90 inch)										K	
Extended rod, 2 000 mm (78.74 inch)										L	
<u>Add Order code Y01 and plain text:</u>											
<u>"Insertion length ... mm"</u>											
Extended rod, 110 ... 350 mm (4.3 ... 13.78 inch)										M	
Extended rod, 351 ... 1 000 mm (13.78 ... 39.37 inch)										N	
Extended rod, 1 001 ... 2 000 mm (39.41 ... 78.74 inch)										P	
Extended rod, 2 001 ... 3 000 mm (78.78 ... 118.11 inch)										Q	
Extended rod, 3 001 ... 4 000 mm (118.15 ... 157.48 inch)										R	
Extended rod, 4 001 ... 5 000 mm (157.52 ... 196.85 inch)										S	
Extended rod, 5 001 ... 5 500 mm (196.89 ... 216.53 inch)										T	
Thermal isolator											
Thermal isolator										0	
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]										1	
Remote mount electronics and mounting bracket											
Remote mount electronics and mounting bracket										2	
Remote mount electronics with 5 m (197 inch) of cable										3	
Wetted seals											
FKM										0	
FFKM [for process temperatures above -20 °C (-4 °F)]										1	
Probe material											
316L stainless steel with PPS probe body										0	
316L stainless steel with PVDF probe body										1	

Selection and ordering data (continued)

	Article No.									
Pointek CLS200 RF Capacitance point level switch, sanitary rod design Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe.	7	M	L	5	6	3	2	-	0	0
Approvals										
Dust Ignition Proof: CE, RCM, ATEX II ½ D T100 °C										C
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II 1 G EEx d[ia] IIC T6 ... T4, ATEX II ½ D T100 °C										D
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II 1 G EEx d[ia] IIC T6 ... T4, ATEX II ½ D T100 °C										E
Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups 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
General Purpose (CE, RCM)										J
General Purpose (CSA, FM, CE, RCM) with WHG approval										K
Enclosure and lid										
Aluminum epoxy coated										
2 x ½" NPT via adapter - cable inlet, IP65										A
2 x M20 x 1.5 cable inlet, IP65										B
2 x ½" NPT via adapter - cable inlet, IP68										C
2 x M20 x 1.5 cable inlet, IP68										D

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection Certificate Type 3.1 per EN 10204	C12
SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]	C20
INMETRO ¹⁾	E34
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approvals options C, D, E.

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Selection and ordering data (continued)

	Article No.										
Pointek CLS200 RF Capacitance point level switch, sliding coupling design Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe.	7ML5633-	●	●	●	●	●	-	●	●	●	0
Process connection <u>Threaded, 316L stainless steel</u>											
¾" NPT [(Taper), ASME B1.20.1]	0	A									
1" NPT [(Taper), ASME B1.20.1]	0	B									
1¼" NPT [(Taper), ASME B1.20.1]	0	C									
1½" NPT [(Taper), 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									
Probe length (length from flange face) (threaded lengths include process thread) <u>Note: No Y01 needed in Order code for standard lengths</u>											
Extended rod, 350 mm (13.78 inch)										C	
Extended rod, 500 mm (19.69 inch)										D	
Extended rod, 750 mm (29.53 inch)										E	
Extended rod, 1 000 mm (39.37 inch)										F	
Extended rod, 1 250 mm (49.21 inch)										G	
Extended rod, 1 350 mm (53.15 inch)										H	
Extended rod, 1 500 mm (59.06 inch)										J	
Extended rod, 1 750 mm (68.90 inch)										K	
Extended rod, 2 000 mm (78.74 inch)										L	
<u>Add Order code Y01 and plain text: "Insertion length ... mm"</u>											
Extended rod, 350 ... 1 000 mm (13.78 ... 39.37 inch)										M	
Extended rod, 1 001 ... 2 000 mm (39.41 ... 78.74 inch)										N	
Extended rod, 2 001 ... 3 000 mm (78.78 ... 118.11 inch)										P	
Extended rod, 3 001 ... 4 000 mm (118.15 ... 157.48 inch)										Q	
Extended rod, 4 001 ... 5 000 mm (157.52 ... 196.85 inch)										R	
Extended rod, 5 001 ... 5 500 mm (196.89 ... 216.53 inch)										S	
Thermal isolator											
Without thermal isolator									0		
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]									1		
Remote mount electronics and mounting bracket											
With 2 m (79 inch) of cable ¹⁾									2		
With 5 m (197 inch) of cable ¹⁾									3		
Wetted seals											
FKM and PTFE									0		
FFKM and PTFE [for process temperatures above -20 °C (-4 °F)]									1		
Probe material											
316L stainless steel with PPS probe body										0	
316L stainless steel with PVDF probe body										1	
Approvals											
Dust Ignition Proof: CE, RCM, ATEX II 1/2 D T100 °C											C
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II 1 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C											D
Flameproof Enclosure with IS Probe, with WHG approval: CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C											E
Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4											F
Explosion Proof Enclosure with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4											G
General Purpose (CSA, FM)											H

Selection and ordering data (continued)

Pointek CLS200 RF Capacitance point level switch, sliding coupling design									
Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe.									
Article No. 7ML5633-●●●●●-●●●●0									
General Purpose: CE, RCM								J	
General Purpose (CSA, FM, CE, RCM) with WHG approval								K	
Enclosure and lid									
Aluminum epoxy coated									
2 x ½" NPT via adapter - cable inlet, IP65									A
2 x M20 x 1.5 cable inlet, IP65									B
2 x ½" NPT via adapter - cable inlet, IP68									C
2 x M20 x 1.5 cable inlet, IP68									D

¹⁾ Available with Approvals options F ... H.

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection Certificate Type 3.1 per EN 10204	C12
SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]	C20
INMETRO ¹⁾	E34
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approval options C, D, E.

Technical specifications

Pointek CLS200 - Standard	
Mode of operation	
Measuring principle	Inverse frequency shift capacitive level detection
Input	
Measured variable	Change in picoFarad (pF)
Output	
Output signal	
• 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 2 000 VA AC
- Time delay (ON and/or OFF)	1 ... 60 s
• Solid-state output	
- Output	Galvanically isolated

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Technical specifications (continued)

Pointek CLS200 - Standard	
- Protection	Against reversed polarity (bipolar)
- Max. switching voltage	<ul style="list-style-type: none"> • 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 ... 60 s
Rated operating conditions¹⁾	
Installation conditions	
• Location	Indoor/outdoor
Ambient conditions	
• Ambient temperature	-40 ... +85 °C (-40 ... +185 °F) ²⁾
• Storage temperature	-40 ... +85 °C (-40 ... +185 °F)
• Installation category	II
• Pollution degree	4
Medium conditions	Liquids, bulk solids, slurries and interfaces
• Relative dielectric constant ϵ_r	Min. 1.5
• Process temperature	
- Without thermal isolator	-40 ... +85 °C (-40 ... +185 °F) ²⁾
- With thermal isolator	-40 ... +125 °C (-40 ... +257 °F)
• Process pressure (rod version)	-1 ... +25 bar g (-14.6 ... +365 psi g) (nominal)
• Process pressure (cable version) ³⁾	-1 ... +10 bar g (-14.6 ... +150 psi g) (nominal)
• Process pressure (sliding coupling version)	-1 ... +10 bar g (-14.6 ... +150 psi g) (nominal)
Electromagnetic compatibility	
To comply with CE EMC regulations (where applicable); the CLS200 should be installed per the instruction manual.	
Design	
Material	
• Enclosure	Epoxy-coated aluminum with gasket
• Optional thermal isolator	316L stainless steel
Connection	Removable terminal block, max. 2.5mm ²
Degree of protection	IP65/Type 4/NEMA 4 (optional IP68)
Cable inlet	2 x M20 x 1.5 thread (option: 2 x ½" NPT conduit entry including 1 plugged entry)
Power supply	
12 ... 250 V AC/DC, 0 ... 60 Hz max. 2 W	
Certificates and approvals	
General Purpose	CSA, FM, CE, RCM
Dust Ignition Proof	ATEX II ½ D T100 °C
Flameproof Enclosure With IS Probe	ATEX II 1 G EEx d[ia] IIC T6 ... T4 ATEX II ½ D T100 °C
Dust Ignition Proof with IS Probe	CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4
Explosion Proof Enclosure With IS Probe	CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4
Marine	Lloyds Register of Shipping, Categories ENV1, ENV2, and ENV5
Overfill Protection	WHG (Germany) VLAREM II
Others	Pattern Approval (China), SIL

¹⁾ When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also CLS200 pressure/temperature curves.

²⁾ Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F)

³⁾ Pressure rating of process seal is temperature dependent. See also CLS200 pressure/temperature curves.

Technical specifications (continued)

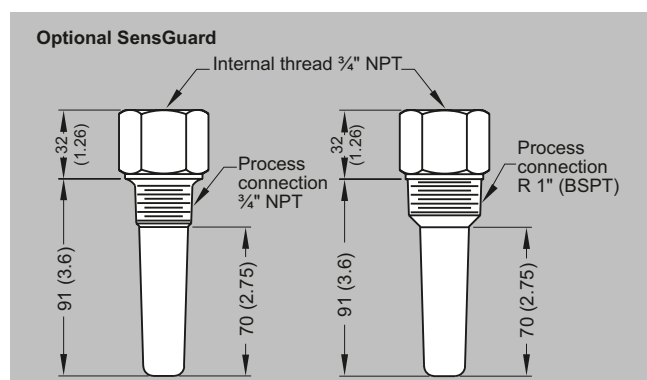
Design: Probe	Rod version	Sanitary version	Cable version	Sliding Coupling version
Max. length	5 500 mm (216.53 inch)	5 500 mm (216.53 inch)	<ul style="list-style-type: none"> 30 000 mm (1 181.1 inch) liquids and slurries 5 000 mm (196.85 inch) solids (under loads) 	5 500 mm (216.53 inch)
Process connection	R ¾", 1", 1¼", 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] ¾", 1", 1¼", 1½" NPT [(Taper), ASME B1.20.1] G ¾", 1", 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] 316L stainless steel/ASME/EN flange	1½", 2" sanitary fitting clamp 316L stainless steel	R ¾", 1", 1¼", 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] ¾", 1", 1¼", 1½" NPT [(Taper), ASME B1.20.1] G ¾", 1", 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] 316L stainless steel ASME/EN flange	R ¾", 1", 1¼", 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] ¾", 1", 1¼", 1½" NPT [(Taper), ASME B1.20.1] G ¾", 1", 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]
Extension material	316L stainless steel optional PFA coated ¹⁾	316L stainless steel	Fluoroethylene propylene (FEP) cable with stainless steel core	316L stainless steel
Sensor wetted parts	PPS (optional PVDF)	PPS (optional PVDF)	PPS (optional PVDF)	PPS (optional PVDF)
O-ring seal material	FKM (optional FFKM) ²⁾	FKM (optional FFKM) ²⁾	FKM (optional FFKM) ²⁾	FKM (optional FFKM) ²⁾
Thermal isolator ³⁾	Optional	Optional	Optional	Optional
Extension	User selected length	User selected length	Cable extension	User selected length

¹⁾ PFA coating (7ML5634 and 7ML5644) has 120 micron thickness

²⁾ For caustic materials, consult a local sales person for alternative O-rings. For more information, please visit http://www.automation.siemens.com/aspa_app.

³⁾ Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F)

Options



Optional SensGuard, dimensions in mm (inch)

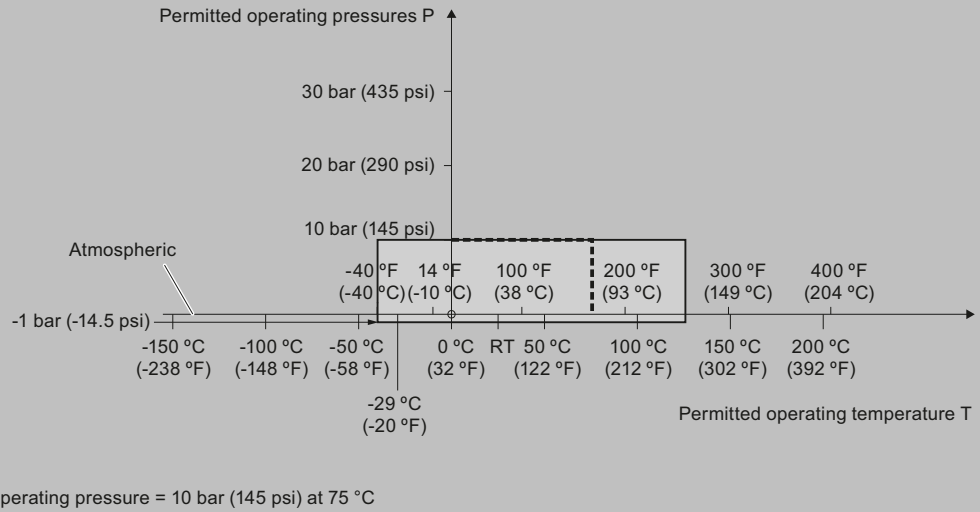
Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

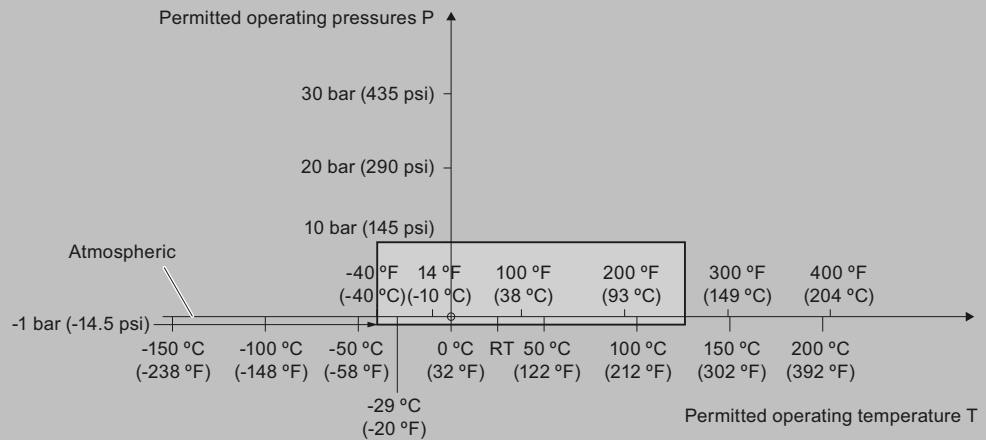
Characteristic curves

Pressure/temperature curve
CLS200 sliding coupling
threaded process connections
(7ML5633 and 7ML5643)



Pointek CLS200 process pressure/temperature derating curves (7ML5633 and 7ML5643)

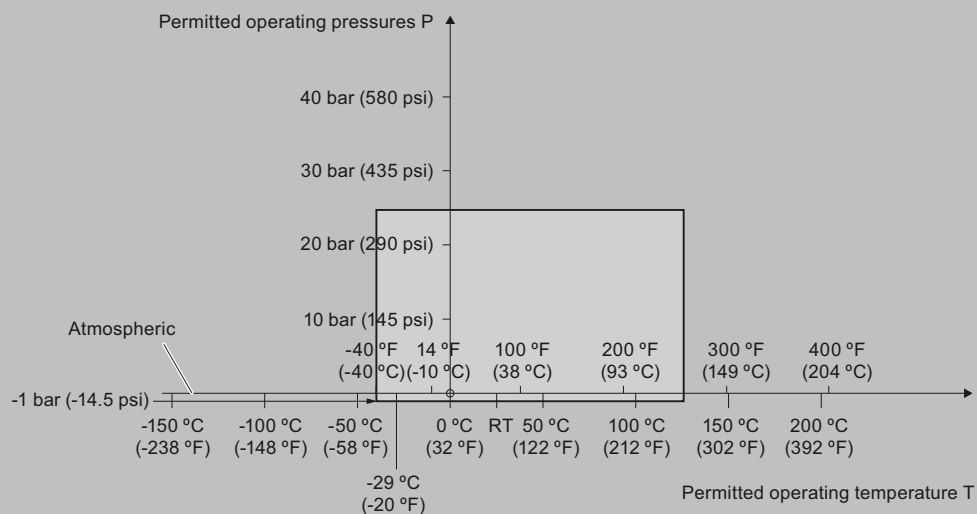
Pressure/temperature curve
CLS200 cable
Threaded process connections
(7ML5631 and 7ML5641)



Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)

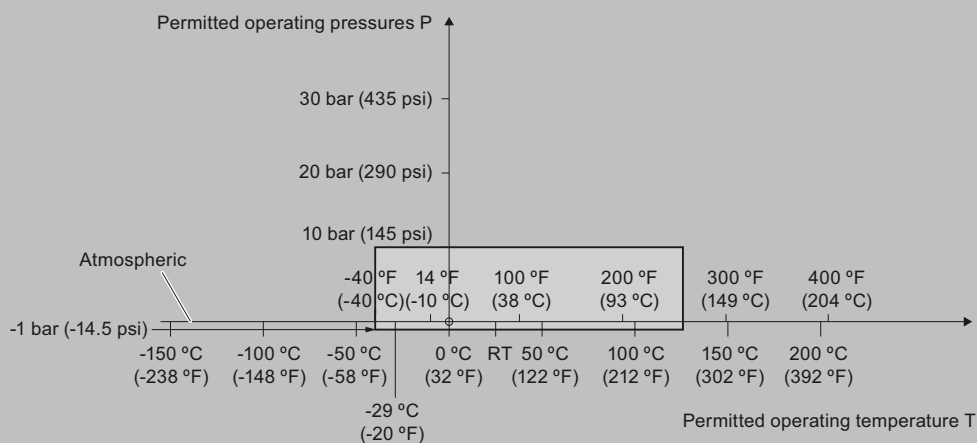
Characteristic curves (continued)

Pressure/temperature curve
CLS200 compact and extended rod
Threaded process connections
(7ML5630 and 7ML5640)



Pointek CLS200 process pressure/temperature derating curves (7ML5630 or 7ML5640)

Pressure/temperature curve
CLS200 compact and extended sanitary type
Sanitary process connections
(7ML5632 and 7ML5642)



Pointek CLS200 process pressure/temperature derating curves (7ML5632 and 7ML5642)

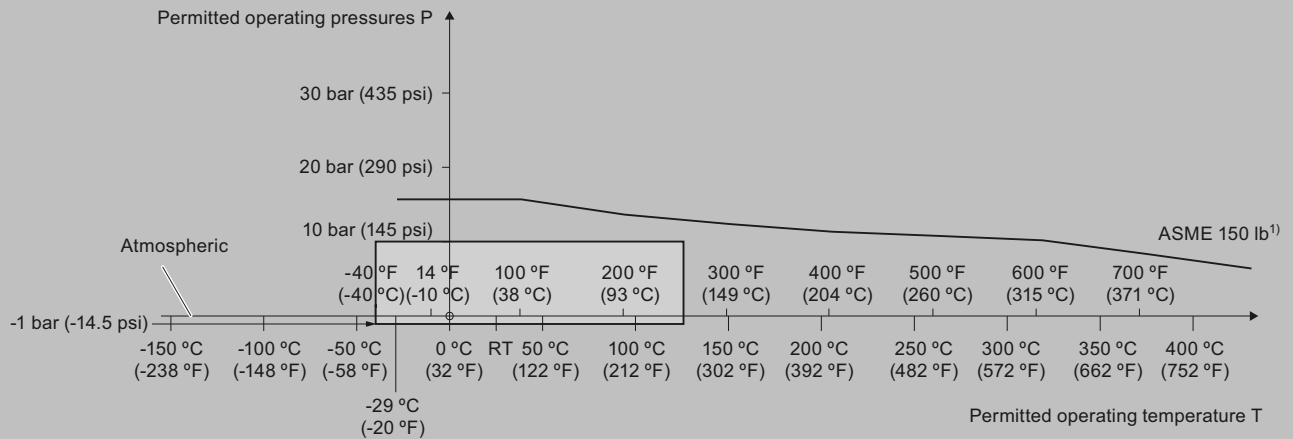
Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Characteristic curves (continued)

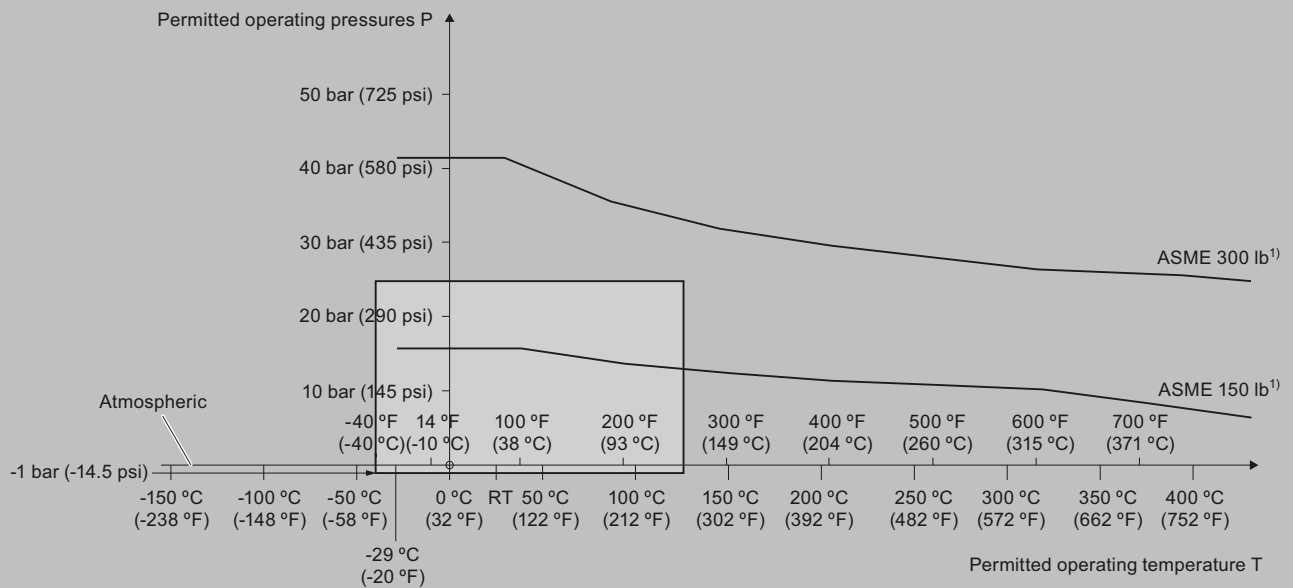
Pressure/temperature curve
CLS200, cable
ASME flanged process connections
(7ML5631 and 7ML5641)



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

Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)

Pressure/temperature curve
CLS200 compact and extended rod
ASME flanged process connections
(7ML5630 and 7ML5640)

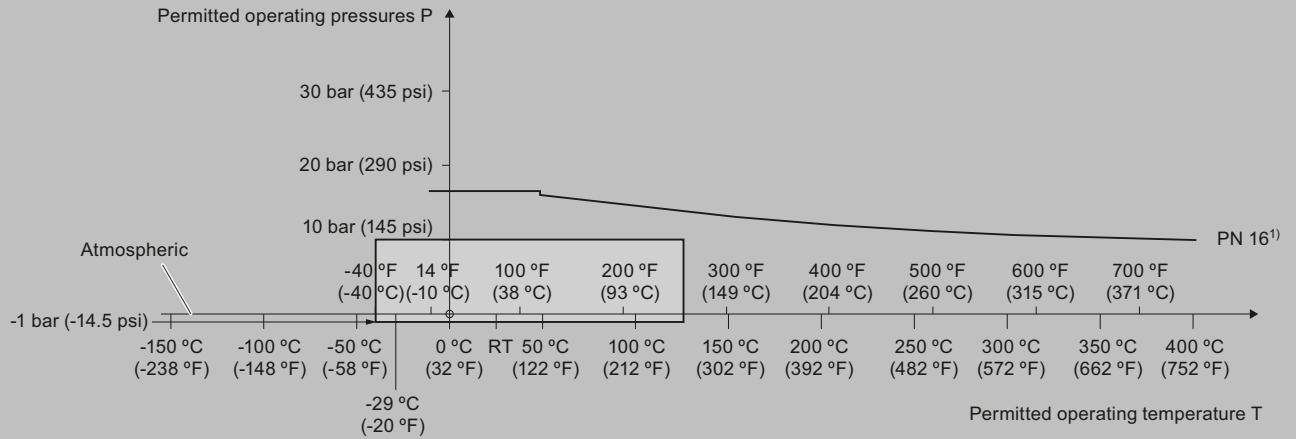


¹⁾ The curve denotes the minimum allowable flange class for the shaded area below.

Pointek CLS200 process pressure/temperature derating curves (7ML5630 and 7ML5640)

Characteristic curves (continued)

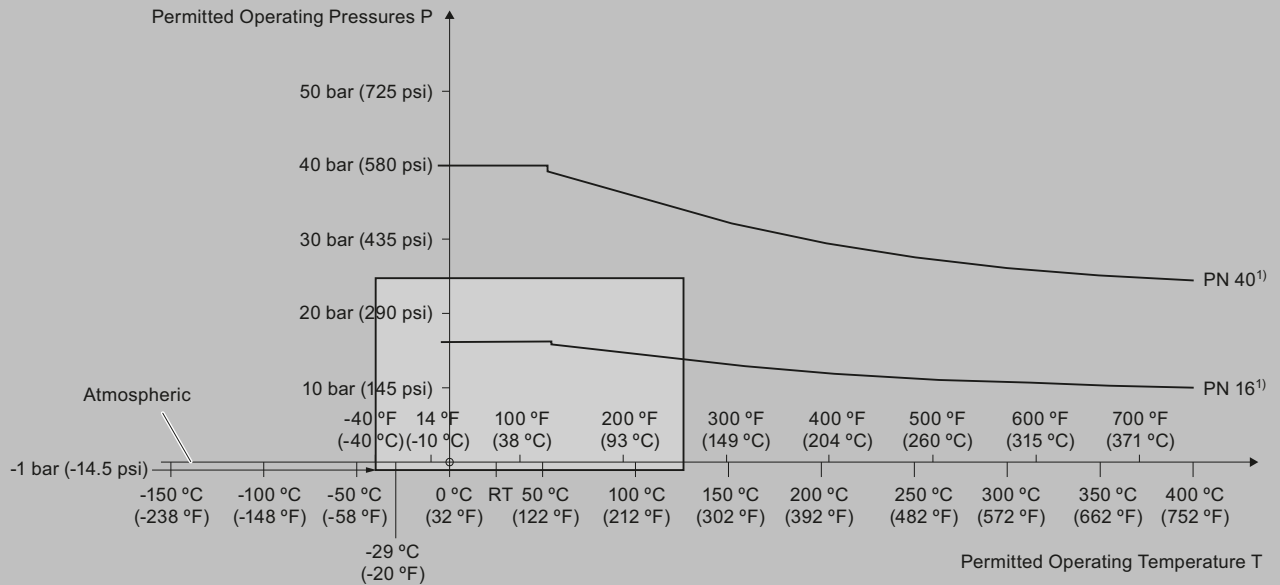
Pressure/temperature curve
CLS200 cable
EN flanged process connections
(7ML5631 and 7ML5641)



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

Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)

Pressure/Temperature Curve
CLS200 Compact and Extended Rod
EN Flanged Process Connections
(7ML5630 and 7ML5640)



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

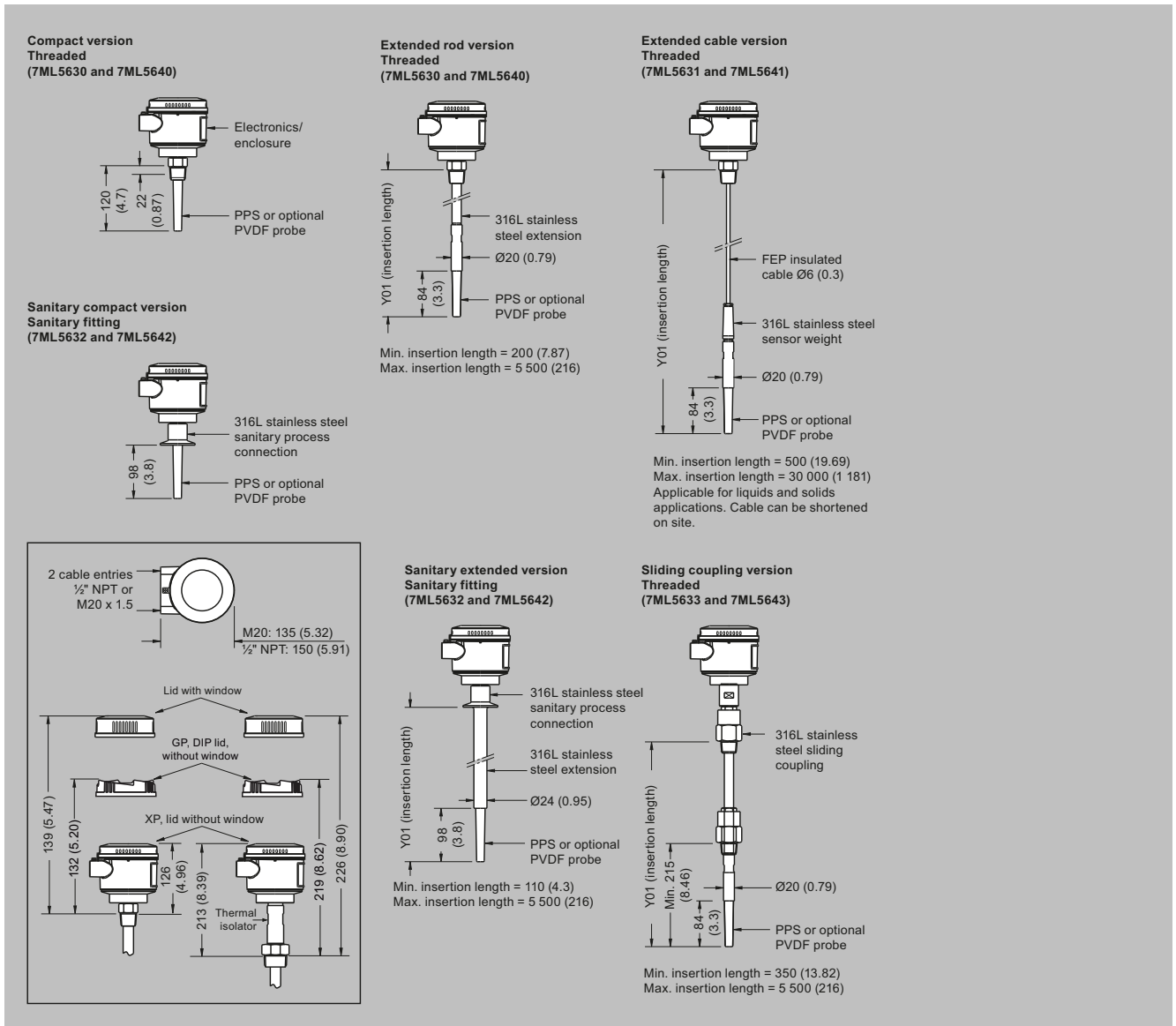
Pointek CLS200 process pressure/temperature derating curves (7ML5630 and 7ML5640)

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

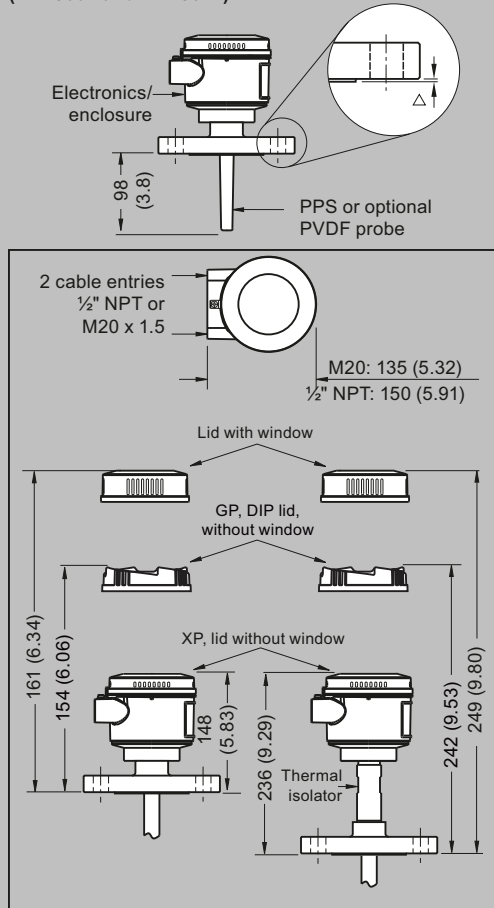
Dimensional drawings



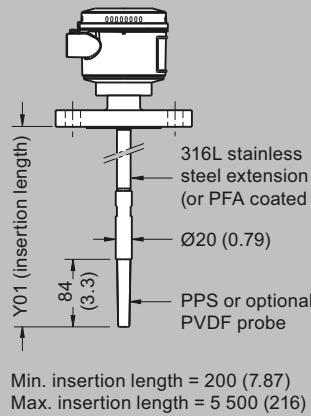
Pointek CLS200 threaded/sanitary process connection, dimensions in mm (inch)

Dimensional drawings (continued)

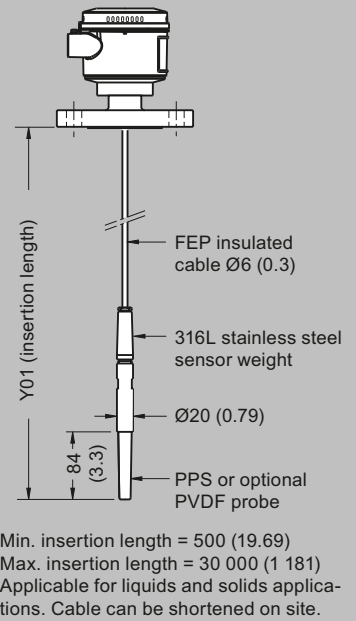
Compact version
Welded Flange (7ML5630 and 7ML5640)
Welded Flange, PFA coated
(7ML5634 and 7ML5644)



Extended rod version
Welded Flange (7ML5630 and 7ML5640)
Welded Flange, PFA coated
(7ML5634 and 7ML5644)



Extended cable version
Welded Flange
(7ML5631 and 7ML5641)



Flange Facing (raised face)	
Flange Class	Facing thickness
△ ASME 150/300	2 (0.08)
△ ASME 600/900	7 (0.28)
△ PN16/40	2 (0.08)

Insertion length does not include any raised face/gasket face dimension (see Flange Facing Table above)

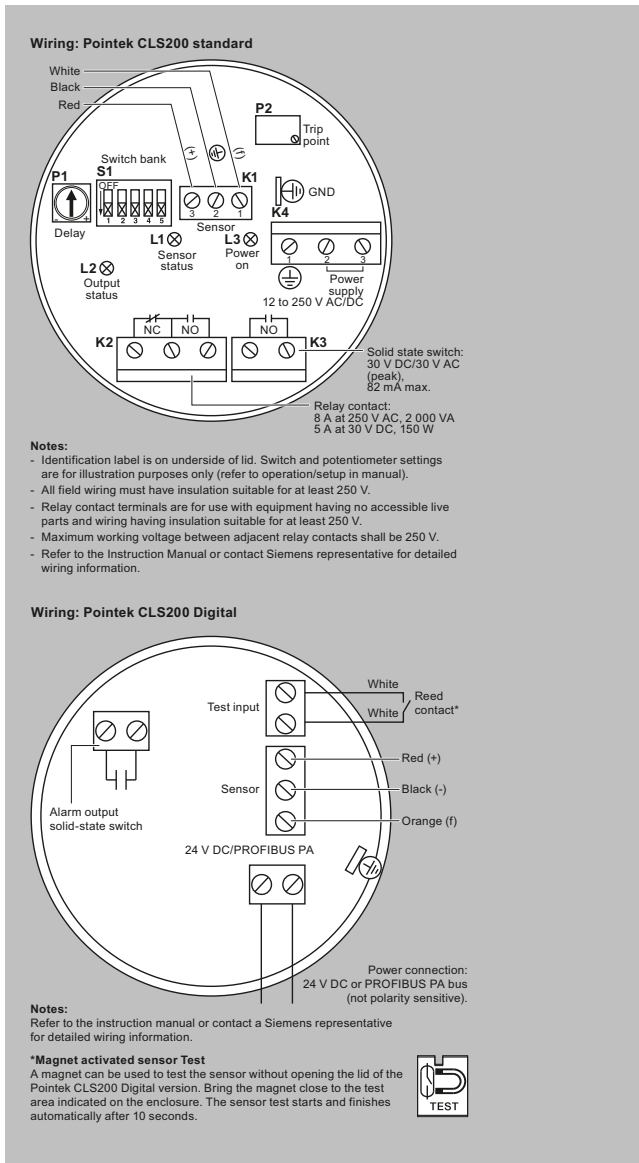
Pointek CLS200 flanged process connections, dimensions in mm (inch)

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Standard

Circuit diagrams



Pointek CLS200 connections

Overview



Pointek CLS200 (digital version) is a versatile inverse frequency shift capacitance level and material detection switch with optional rod/cable choices and configurable output. CLS200 is ideal for detection of liquids, solids, slurries, foam, and interfaces and has the ability to tune out buildup on the probe. The digital version includes PROFIBUS PA, an LCD display, and advanced diagnostic features.

Benefits

- Potted construction protects signal circuit from shock, vibration, humidity, and/or condensation
- High chemical resistance
- Level detection independent of tank or pipe earth reference
- Insensitive to product buildup due to high frequency oscillation
- 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 CLS200 digital version provides an integral LCD display for stand-alone use, and also provides PROFIBUS PA communication (Profile version 3.0, Class B) for connection to a network. The power supply is galvanically isolated and accepts a wide range of voltages (12 to 30 V DC). When used with thermal isolator, the stainless steel and PPS (PVDF optional) materials used in the probe construction provide a temperature rating up to 125 °C (257 °F) on the process wetted portion of the probe. The switch responds to any material with a dielectric constant of 1.5 or more by detecting a change in oscillating frequency, and it can be set to detect before contact or on contact with the probe. The menu-driven setup allows precise control of the switch point signal damping and alarm functions.

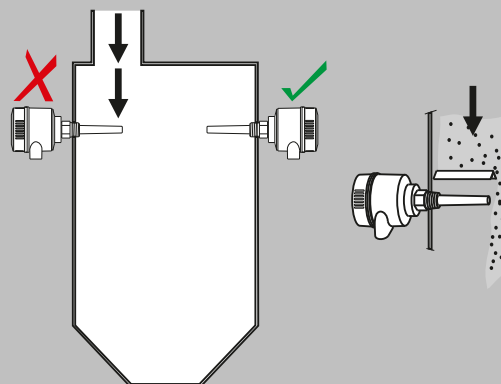
When connected to the PROFIBUS network, advanced diagnostics and set up using SIMATIC PDM are possible.

The CLS200 operates independently of the tank wall or pipe so it does not require an external reference electrode for level detection in a non-conductive vessel such as concrete or plastic (EMC regulations applicable in some regions).

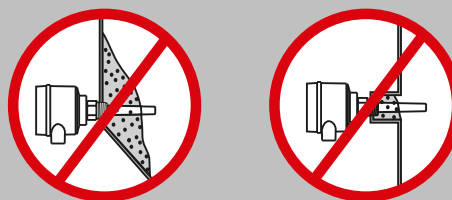
- Key Applications: liquids, slurries, powders, granules, pressurized applications, hazardous areas

Configuration

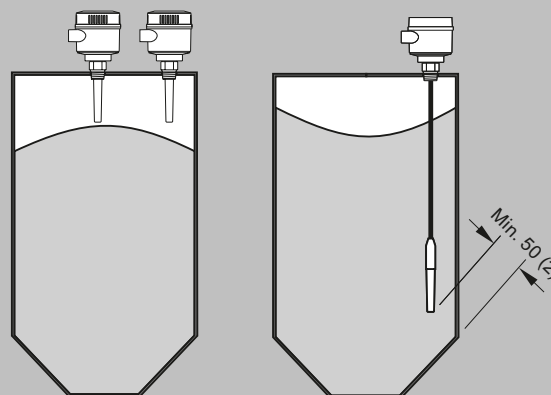
Installation



Keep unit out of path of falling material, or protect probe from falling material.



Avoid areas where material build up occurs.



Install probe at least 50 (2) from tank wall.

Pointek CLS200 installation, dimensions in mm (inch)

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Selection and ordering data

	Article No.	
Pointek CLS200 RF Capacitance point level switch, digital, rod design Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital com- munications.	7ML5640-	● ● ● ● ● - ● ● ● 0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Process connection		
<u>Threaded, 316L stainless steel</u>		
¾" NPT [(Taper), ASME B1.20.1]	0	A
1" NPT [(Taper), ASME B1.20.1]	0	B
1¼" NPT [(Taper), ASME B1.20.1]	0	C
1½" NPT [(Taper), 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)		
Note: No Y01 needed in Order code for standard lengths		
Compact [threaded 120 mm (4.72 inch), Flanged 98 mm (3.86 inch)]		A
Extended rod, 250 mm (9.84 inch)		B
Extended rod, 350 mm (13.78 inch)		C
Extended rod, 500 mm (19.69 inch)		D
Extended rod, 750 mm (29.53 inch)		E
Extended rod, 1 000 mm (39.37 inch)		F
Extended rod, 1 250 mm (49.21 inch)		G
Extended rod, 1 350 mm (53.15 inch)		H
Extended rod, 1 500 mm (59.06 inch)		J
Extended rod, 1 750 mm (68.90 inch)		K
Extended rod, 2 000 mm (78.74 inch)		L
<u>Add Order code Y01 and plain text: "Insertion length ... mm"</u>		
Extended rod, 210 ... 1 000 mm (8.27 ... 39.37 inch)		M

Selection and ordering data (continued)

		Article No.										
Pointek CLS200 RF Capacitance point level switch, digital, rod design Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital communications.		7	M	L	5	6	4	0	-	0	0	0
Extended rod, 1 001 ... 2 000 mm (39.41 ... 78.74 inch)											N	
Extended rod, 2 001 ... 3 000 mm (78.78 ... 118.11 inch)											P	
Extended rod, 3 001 ... 4 000 mm (118.15 ... 157.48 inch)											Q	
Extended rod, 4 001 ... 5 000 mm (157.52 ... 196.85 inch)											R	
Extended rod, 5 001 ... 5 500 mm (196.89 ... 216.53 inch)											S	
Thermal isolator												
Without thermal isolator											0	
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]											1	
Remote mount electronics and mounting bracket												
With 2 m (79 inch) of cable ²⁾											2	
With 5 m (197 inch) of cable ²⁾											3	
Wetted seals												
FKM											0	
FFKM [for process temperatures above -20 °C (-4 °F)]											1	
Probe material												
316L stainless steel with PPS probe body											0	
316L stainless steel with PVDF probe body											1	
Approvals												
Non-Sparking: CE, RCM, ATEX II 3 G Ex nA II T6 ... T4, ATEX II 2 D IP6X T100 °C											B	
Dust Ignition Proof: CE, RCM, ATEX II ½ D T100 °C											C	
Intrinsically Safe: ¹⁾ CE, RCM, ATEX II 1 G EEx ia IIC T6 ... T4, ATEX II ½ D IP6X T100 °C											D	
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II ½ G EEx d[ia] IIC T6 ... T4, ATEX II ½ D T100 °C											E	
Non-incendive: CSA/FM Class I, Div. 2, Groups A, B, C, D CSA/FM Class II, Div. 2, Groups F, G CSA/FM Class III T4 or T6											F	
Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4											G	
Intrinsically Safe: ¹⁾ CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4											H	
Explosion Proof with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4											J	
General Purpose (CSA, FM)											K	
General Purpose (CE, RCM)											L	
Enclosure and lid												
Aluminum epoxy coated												
2 x ½" NPT via adapter - cable inlet, IP65											A	
2 x M20 x 1.5 cable inlet, IP65											B	
2 x ½" NPT via adapter - cable inlet, IP68											C	
2 x M20 x 1.5 cable inlet, IP68											D	

¹⁾ Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection.

²⁾ Available with Approvals options F, G, H, J, and K.

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Selection and ordering data (continued)

Selection and Ordering data	Order code
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection certificate Type 3.1 per EN 10204 INMETRO ¹⁾	C12 E34
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approvals options C and E.

Pointek CLS200 RF Capacitance point level switch, digital, cable design	Article No.										
Detects level and interface in liquids, solids, slurries, and foam. Cable extension options to 30 m (98.43 ft), adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital communications.	7ML5641-	●	●	●	●	●	-	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Process connection											
<u>Threaded, 316L stainless steel</u>											
¾" NPT [(Taper), ASME B1.20.1]	0	A									
1" NPT [(Taper), ASME B1.20.1]	0	B									
1¼" NPT [(Taper), ASME B1.20.1]	0	C									
1½" NPT [(Taper), 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									

Selection and ordering data (continued)

Pointek CLS200 RF Capacitance point level switch, digital, cable design Detects level and interface in liquids, solids, slurries, and foam. Cable extension options to 30 m (98.43 ft), adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital communications.	Article No. 7ML5641- ● ● ● ● ● - ● ● ● ● 0									
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, 3 000 mm (118.11 inch), length can be determined by customer on assembly									A	
Extended cable, 6 000 mm (236.22 inch), length can be determined by customer on assembly									B	
Add Order code Y01 and plain text: "Insertion length ... mm"										
Extended cable, 500 ... 5 000 mm (19.69 ... 196.85 inch)									C	
Extended cable, 5 001 ... 10 000 mm (196.89 ... 393.70 inch)									D	
Extended cable, 10 001 ... 15 000 mm (393.74 ... 590.55 inch)									E	
Extended cable, 15 001 ... 20 000 mm (590.59 ... 787.40 inch)									F	
Extended cable, 20 001 ... 25 000 mm (787.44 ... 984.25 inch)									G	
Extended cable, 25 001 ... 30 000 mm (984.29 ... 1 181.10 inch)									H	
Thermal isolator										
Without thermal isolator									0	
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]									1	
Remote mount electronics and mounting bracket										
With 2 m (79 inch) of cable ²⁾									2	
With 5 m (197 inch) of cable ²⁾									3	
Wetted seals										
FKM and PTFE									0	
FFKM and PTFE [for process temperatures above -20 °C (-4 °F)]									1	
Probe material										
FEP jacketed cable with PPS probe body									0	
FEP jacketed cable with PVDF probe body									1	
Approvals										
Non-Sparking: CE, RCM, ATEX II 3 G Ex nA II T6 ... T4, ATEX II 2 D IP6X T100 °C										
Dust Ignition Proof: CE, RCM, ATEX II ½ D T100 °C										
Intrinsically Safe: ¹⁾ CE, RCM, ATEX II 1 G EEx ia IIC T6 ... T4, ATEX II ½ D IP6X T100 °C										
Flameproof Enclosure with IS Probe: CE, RCM, ATEX II ½ G EEx d[ia] IIC T6 ... T4, ATEX II ½ D T100 °C										
Non-incendive: CSA/FM Class I, Div. 2, Groups A, B, C, D CSA/FM Class II, Div. 2, Groups F, G CSA/FM Class III T4 or T6										
Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4										
Intrinsically Safe: ¹⁾ CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4										
Explosion Proof with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4										
General Purpose (CSA, FM)										
General Purpose (CE, RCM)										
Enclosure and lid										
Aluminum epoxy coated										
2 x ½" NPT via adapter - cable inlet, IP65										A
2 x M20 x 1.5 cable inlet, IP65										B

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Selection and ordering data (continued)

Pointek CLS200 RF Capacitance point level switch, digital, cable design Detects level and interface in liquids, solids, slurries, and foam. Cable extension options to 30 m (98.43 ft), adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital communications.	Article No.										
	7ML5641-	●	●	●	●	●	-	●	●	●	0
2 x 1/2" NPT via adapter - cable inlet, IP68											C
2 x M20 x 1.5 cable inlet, IP68											D

¹⁾ Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection.

²⁾ Available with Approvals options F, G, H, J, and K.

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection Certificate Type 3.1 per EN 10204 INMETRO ¹⁾	C12 E34
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approvals options C and E.

Pointek CLS200 RF Capacitance point level switch, digital, sanitary rod design. Detects level and interface in liquids, solids, slurries, and foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital communications.	Article No.										
	7ML5642-	●	●	●	●	●	-	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Process connection Sanitary 316L stainless steel											
1" sanitary fitting clamp	8	A									
1½" sanitary fitting clamp	8	B									
2" sanitary fitting clamp	8	C									
2½" sanitary fitting clamp	8	D									
3" sanitary fitting clamp (Note: Sanitary connection dimensionally corresponds to the applicable ISO 2852 standard.)	8	E									
Probe length (length from process connection face) Note: No Y01 needed in Order code for standard lengths											
Compact, 98 mm (3.86 inch)										A	
Extended rod, 250 mm (9.84 inch)										B	
Extended rod, 350 mm (13.78 inch)										C	
Extended rod, 500 mm (19.69 inch)										D	
Extended rod, 750 mm (29.53 inch)										E	
Extended rod, 1 000 mm (39.37 inch)										F	
Extended rod, 1 250 mm (49.21 inch)										G	
Extended rod, 1 350 mm (53.15 inch)										H	
Extended rod, 1 500 mm (59.06 inch)										J	

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Selection and ordering data (continued)

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Total insertion length: enter the total insertion length in plain text description	Y01
Stainless steel tag [70 x 13 mm (2.75 x 0.5 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and ISO 9000	C11
Material inspection Certificate Type 3.1 per EN 10204 INMETRO ¹⁾	C12 E34
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approvals options C and E.

	Article No.										
Pointek CLS200 RF Capacitance point level switch, digital, sliding coupling design. Detects level and interface in liquids, solids, slurries, and, foam. Adjustable, 5.5 m (18.04 ft), insertion, adaptable sensitivity, with the ability to tune out build-up on probe. With display and digital communications.	7	M	L	5	6	4	3	-	0	0	0
Process connection Threaded, 316L stainless steel											
¾" NPT [(Taper), ASME B1.20.1]	0	A									
1" NPT [(Taper), ASME B1.20.1]	0	B									
1¼" NPT [(Taper), ASME B1.20.1]	0	C									
1½" NPT [(Taper), 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									
Probe length (length from flange face) (threaded lengths include process thread) Note: No Y01 needed in Order code for standard lengths											
Extended rod, 350 mm (13.78 inch)											C
Extended rod, 500 mm (19.69 inch)											D
Extended rod, 750 mm (29.53 inch)											E
Extended rod, 1 000 mm (39.37 inch)											F
Extended rod, 1 250 mm (49.21 inch)											G
Extended rod, 1 350 mm (53.15 inch)											H
Extended rod, 1 500 mm (59.06 inch)											J
Extended rod, 1 750 mm (68.90 inch)											K
Extended rod, 2 000 mm (78.74 inch)											L
Add Order code Y01 and plain text: "Insertion length ... mm"											
Extended rod, 350 ... 1 000 mm (13.82 ... 39.37 inch)											M
Extended rod, 1 001 ... 2 000 mm (39.41 ... 78.74 inch)											N
Extended rod, 2 001 ... 3 000 mm (78.78 ... 118.11 inch)											P
Extended rod, 3 001 ... 4 000 mm (118.15 ... 157.48 inch)											Q
Extended rod, 4 001 ... 5 000 mm (157.52 ... 196.85 inch)											R
Extended rod, 5 001 ... 5 500 mm (196.89 ... 216.53 inch)											S
Thermal isolator											
Without thermal isolator											0
With thermal isolator [for process connection temperatures over 85 °C (185 °F)]											1

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Selection and ordering data (continued)

Selection and Ordering data	Order code
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	See accessories shown following CLS200 Digital selection and ordering data.

¹⁾ Available only with Approvals options C and E.

Selection and Ordering data	Article No.
Accessories	
SensGuard, ¾" NPT (PPS). Only available for CLS200 with ¾" NPT thread.	7ML1830-1DL
SensGuard, R 1" (BSPT) (PPS). Only available for CLS200 with ¾" NPT thread.	7ML1830-1DM
One metallic cable gland M20 x 1.5, -40 ... +80 °C (-40 ... +176 °F), Dust Ignition Proof, with integrated shield connection (available for PROFIBUS PA)	7ML1930-1AQ
General Purpose	
½" NPT General Purpose Cable Entry IP68/IP69K NEMA 6, -40 ... +80 °C (-40 ... +176 °F), Dust Ignition Proof, cable size 6 ... 12 mm (0.236 ... 0.472 inch)	7ML1830-1JA
M20 x 1.5 General Purpose Cable Entry IP68/IP69K NEMA 6, -40 ... +80 °C (-40 ... +176 °F), Dust Ignition Proof, cable size 7 ... 12 mm (0.275 ... 0.472 inch)	7ML1830-1JC
Hazardous Locations	
1/2" NPT EMC rated Cable Gland: Dust Ignition Proof, Flameproof Exd, and Increased Safety ATEX II 2 GD ExtD A21 (Zone 1, Zone 2, Zone 21, Zone 22, and in Gas Groups IIA, IIB and IIC) 60 ... +80 °C IP66, IP67, IP68, NEMA4X, cable sizes 5.5 ... 12 mm (0.216 ... 0.472 inch)	7ML1830-1JB
M20 EMC rated Cable Gland: Dust Ignition Proof, Flameproof Exd, and Increased Safety ATEX II 2 GD ExtD A21 (Zone 1, Zone 2, Zone 21, Zone 22 and in Gas Groups IIA, IIB and IIC) 60 ... +80 °C IP66, IP67, IP68, NEMA4X, cable sizes 5.5 ... 12 mm (0.216 ... 0.472 inch)	7ML1830-1JD
Blind threaded flanges are available. Customers interested in a custom designed device should consult a local sales person. For more information, please visit http://www.automation.siemens.com/aspa_app .	
Pointek Specials	See Pointek Specials following the CLS300 Digital selection and ordering data.

Technical specifications

Pointek CLS200 - Digital	
Mode of operation	
Measuring principle	Inverse frequency shift capacitive level detection
Input	
Measured variable	Change in picroFarad (pF)
Output	
Output signal	
• Solid-state output	
- Output	Galvanically isolated
- Protection	Against reversed polarity (bipolar)
- Max. switching voltage	<ul style="list-style-type: none"> • 30 V (DC) • 30 V peak (AC)
- Max. load current	82 mA
- Voltage drop	< 1 V, typical at 50 mA
- Time delay (ON and/or OFF)	Programmable by user (0 ... 100 s)
• Fail-safe mode	Min. or max.
• Connection	Removable terminal block
Rated operating conditions¹⁾	
Installation conditions	
• Location	Indoor/outdoor
Ambient conditions	
• Ambient temperature	-40 ... +85 °C (-40 ... +185 °F) ²⁾
• Storage temperature	-40 ... +85 °C (-40 ... +185 °F)
• Installation category	II
• Pollution degree	4
Medium conditions	Liquids, bulk solids, slurries, and interfaces
• Relative dielectric constant ϵ_r	Min. 1.5
• Process temperature	
- Without thermal isolator	-40 ... +85 °C (-40 ... +185 °F) ²⁾
- With thermal isolator	-40 ... +125 °C (-40 ... +257 °F)
• Process pressure (rod version)	-1 ... +25 bar g (-14.6 ... +365 psi g) (nominal)
• Process pressure (cable version) ³⁾	-1 ... +10 bar g (-14.6 ... +150 psi g) (nominal)
• Process pressure (sliding coupling version)	-1 ... +10 bar g (-14.6 ... +150 psi g) (nominal)
Design	
Material	
• Enclosure	Epoxy-coated aluminum with gasket
• Optional thermal isolator	316L stainless steel
Connection	Removable terminal block, max. 2.5 mm ²
Degree of protection	IP65/Type 4/NEMA 4 (optional IP68)
Cable inlet	2 x M20 x 1.5 thread (option: 2 x ½" NPT conduit entry including 1 plugged entry)
Electromagnetic compatibility	To comply with CE EMC regulations (where applicable); the CLS200 should be installed per the instruction manual.
Power supply	
Bus voltage	Standard: 12 ... 30 V DC Intrinsically Safe: 12 ... 24 V DC
Current consumption	12.5 mA
Certificates and approvals	
General Purpose	CSA, FM, CE, RCM
Dust Ignition Proof	ATEX II 1/2 D T100 °C
Dust Ignition Proof with IS Probe	CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4
Flameproof Enclosure with IS Probe	ATEX II 1/2 G EEx d[ia] IIC T6 ... T4 ATEX II ½ D T100 °C
Explosion Proof with IS Probe	CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Technical specifications (continued)

Pointek CLS200 - Digital	
Intrinsically Safe ⁴⁾	ATEX II 1 G EEx ia IIC T6 ... T4 ATEX II ½ D IP6X T100 °C CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4
Non-incendive	CSA/FM Class I, Div. 2, Groups A, B, C, D CSA/FM Class II, Div. 2, Groups F, G CSA/FM Class III T4 or T6
Non-Sparking	ATEX II 3 G Ex nA IIC T6 ... T4 ATEX II 2 D IP6X T100 °C UKEX II 3 G Ex ec IIC T6 ... T4 UKEX II 2 D IP6x T100°C
Marine	Lloyds Register of Shipping, Categories ENV1, ENV2, and ENV5
Others	Pattern Approval (China)
Communication	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

¹⁾When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also CLS200 pressure/temperature curves.

²⁾Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F)

³⁾Pressure rating of process seal is temperature dependent. See also CLS200 pressure/temperature curves.

⁴⁾Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection

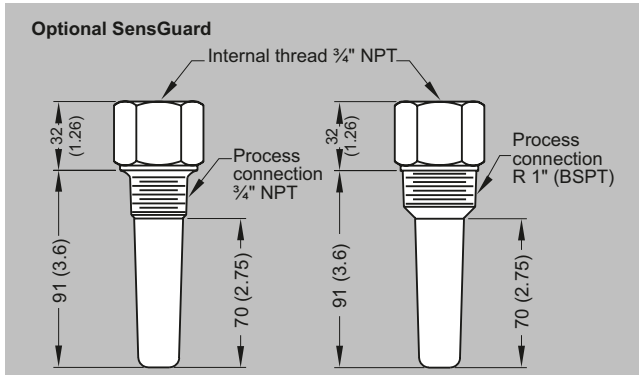
Design: Probe	Rod version	Sanitary version	Cable version	Sliding Coupling version
Max. length	5 500 mm (216.53 inch)	5 500 mm (216.53 inch)	<ul style="list-style-type: none"> 30 000 mm (1 181.1 inch) liquids and slurries 5 000 mm (196.85 inch) solids (under loads) 	5 500 mm (216.53 inch)
Process connection	R ¾", 1", 1¼", 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] ¾", 1", 1¼", 1½" NPT [(Taper), ASME B1.20.1] G ¾", 1", 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] 316L stainless steel ASME/EN flange	1½", 2" sanitary fitting clamp 316L stainless steel	R ¾", 1", 1¼", 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] ¾", 1", 1¼", 1½" NPT [(Taper), ASME B1.20.1] G ¾", 1", 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] 316L stainless steel ASME/EN flange	R ¾", 1", 1¼", 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] ¾", 1", 1¼", 1½" NPT [(Taper), ASME B1.20.1] G ¾", 1", 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]
Extension material	316L stainless steel optional PFA coated ¹⁾	316L stainless steel	Fluoroethylene propylene (FEP) cable with stainless steel core	316L stainless steel
Sensor wetted parts	PPS (optional PVDF)	PPS (optional PVDF)	PPS (optional PVDF)	PPS (optional PVDF)
O-ring seal material	FKM (optional FFKM) ²⁾	FKM (optional FFKM) ²⁾	FKM (optional FFKM) ²⁾	FKM (optional FFKM) ²⁾
Thermal isolator ³⁾	Optional	Optional	Optional	Optional
Extension	User selected length	User selected length	Cable extension	User selected length

¹⁾ PFA coating (7ML5634 and 7ML5644) has 120 micron thickness

²⁾ For caustic materials, consult a local sales person for alternative O-rings. For more information, please visit http://www.automation.siemens.com/aspa_app.

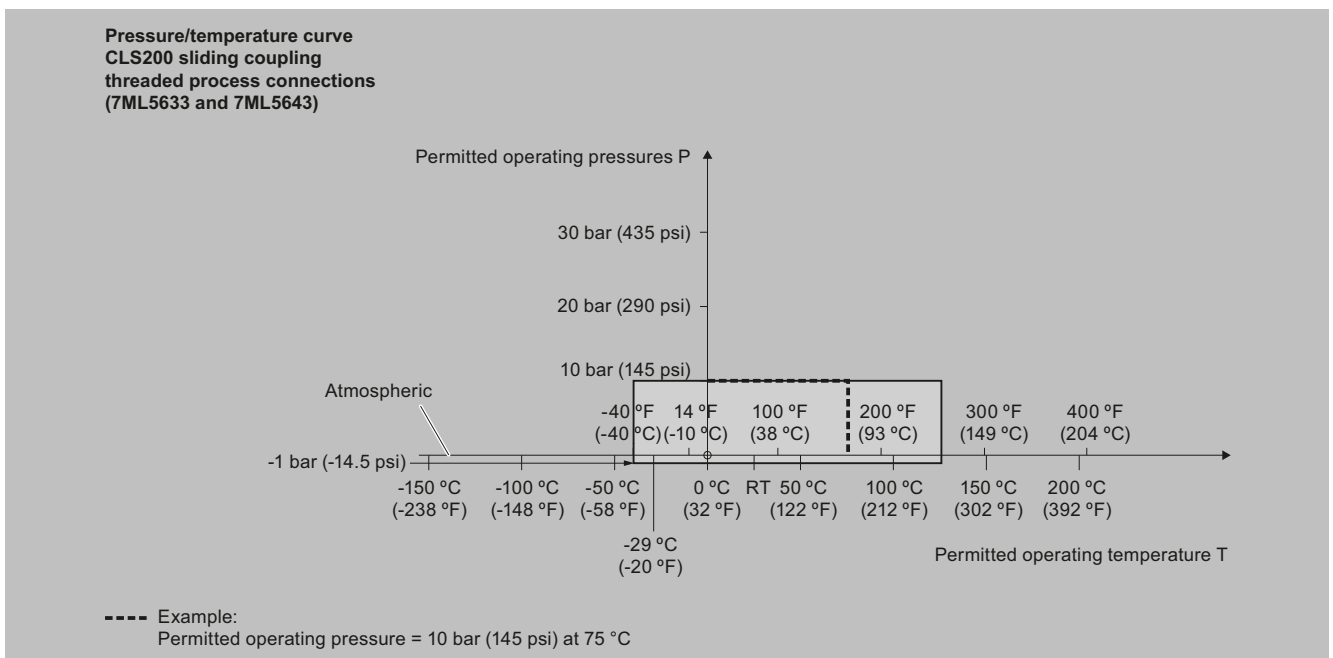
³⁾ Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F).

Options



Optional SensGuard, dimensions in mm (inch)

Characteristic curves



Pointek CLS200 process pressure/temperature derating curves (7ML5633 and 7ML5643)

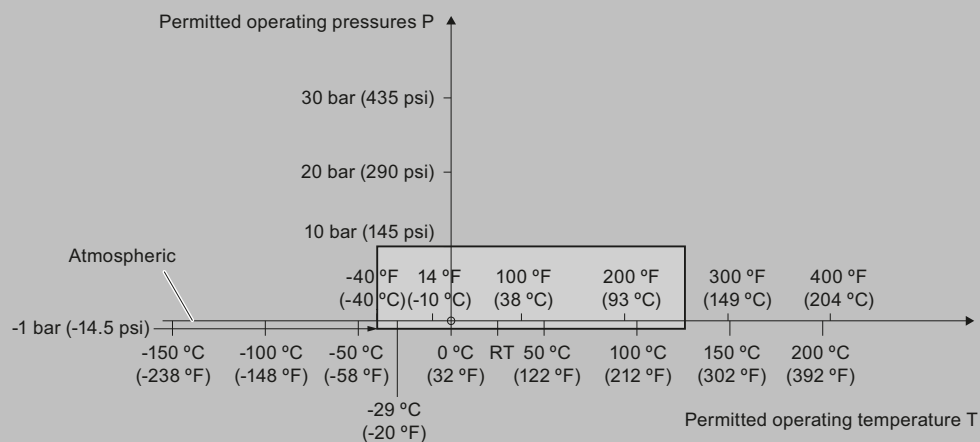
Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

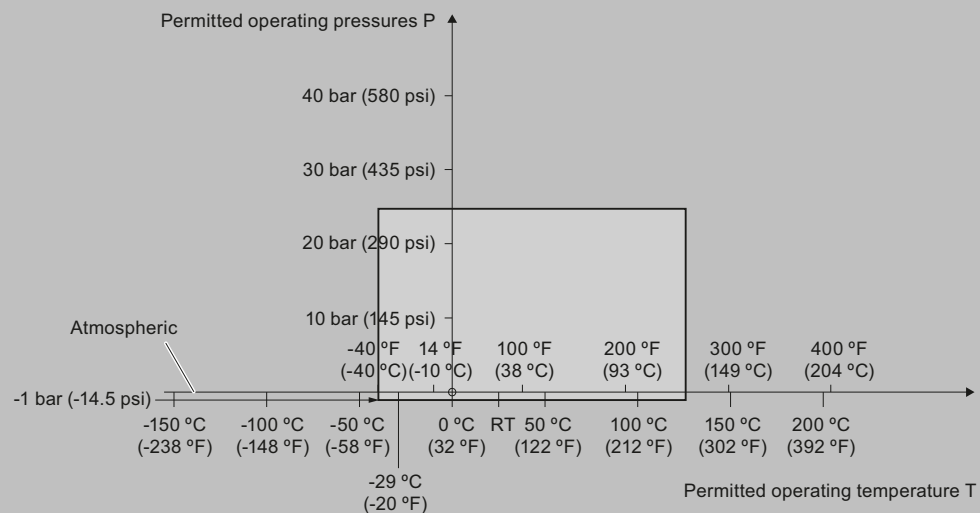
Characteristic curves (continued)

Pressure/temperature curve
CLS200 cable
Threaded process connections
(7ML5631 and 7ML5641)



Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)

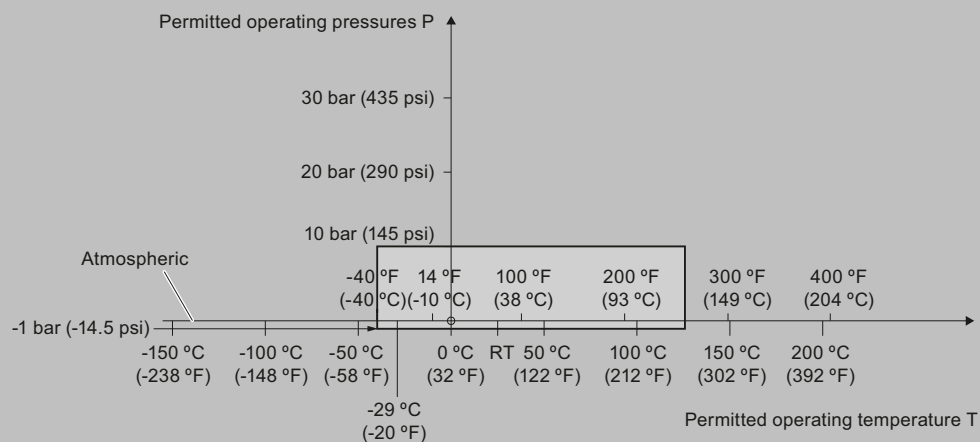
Pressure/temperature curve
CLS200 compact and extended rod
Threaded process connections
(7ML5630 and 7ML5640)



Pointek CLS200 process pressure/temperature derating curves (7ML5630 or 7ML5640)

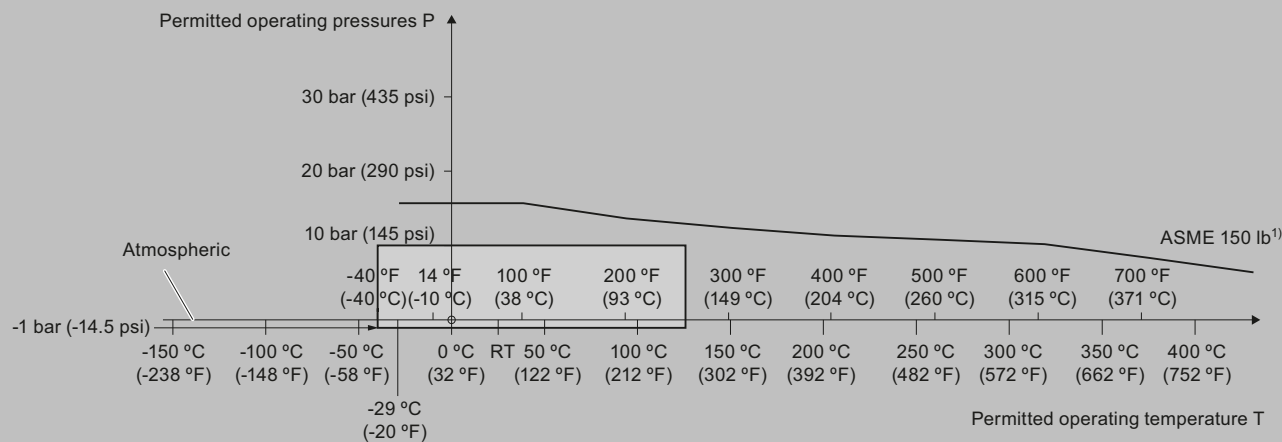
Characteristic curves (continued)

Pressure/temperature curve
CLS200 compact and extended sanitary type
Sanitary process connections
(7ML5632 and 7ML5642)



Pointek CLS200 process pressure/temperature derating curves (7ML5632 and 7ML5642)

Pressure/temperature curve
CLS200, cable
ASME flanged process connections
(7ML5631 and 7ML5641)



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

Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)

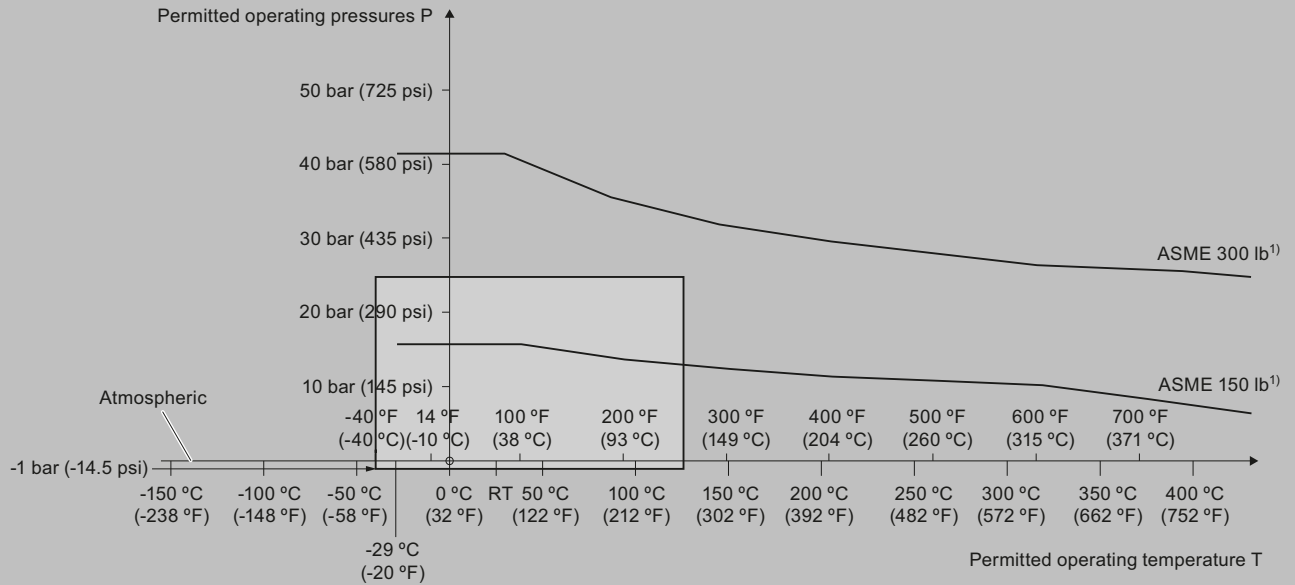
Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Characteristic curves (continued)

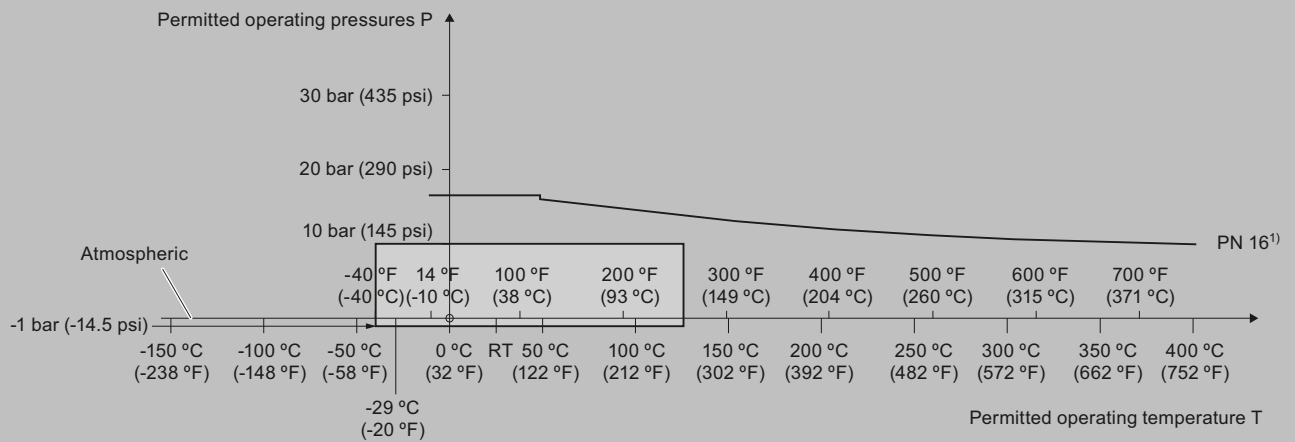
Pressure/temperature curve
CLS200 compact and extended rod
ASME flanged process connections
(7ML5630 and 7ML5640)



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

Pointek CLS200 process pressure/temperature derating curves (7ML5630 and 7ML5640)

Pressure/temperature curve
CLS200 cable
EN flanged process connections
(7ML5631 and 7ML5641)

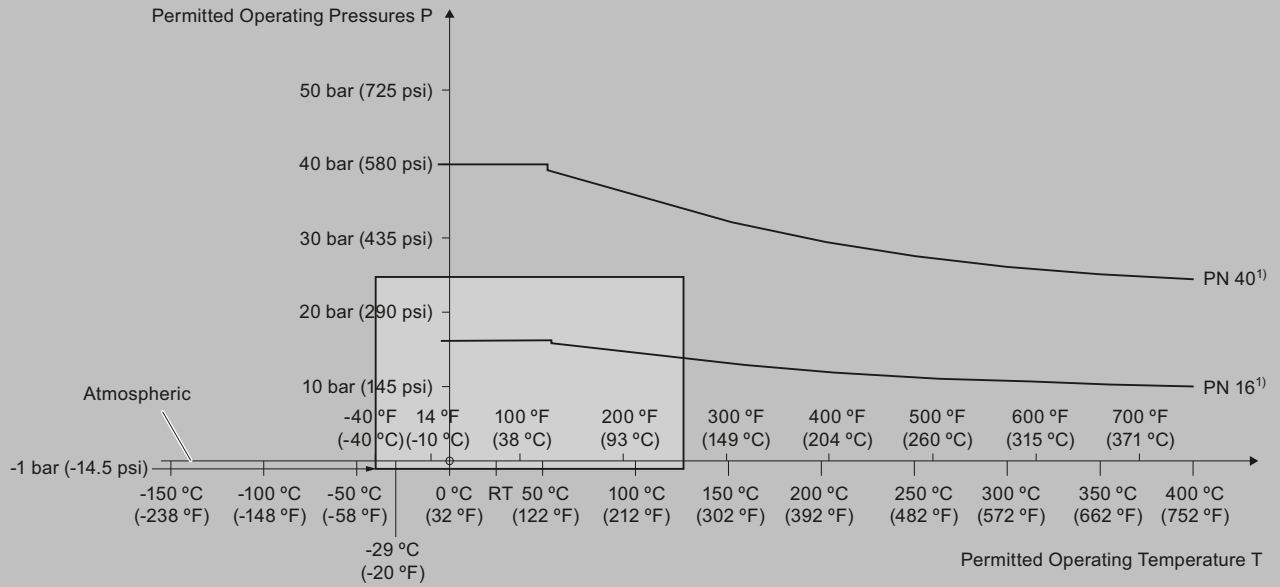


1) The curve denotes the minimum allowable flange class for the shaded area below.

Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)

Characteristic curves (continued)

Pressure/Temperature Curve
 CLS200 Compact and Extended Rod
 EN Flanged Process Connections
 (7ML5630 and 7ML5640)



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

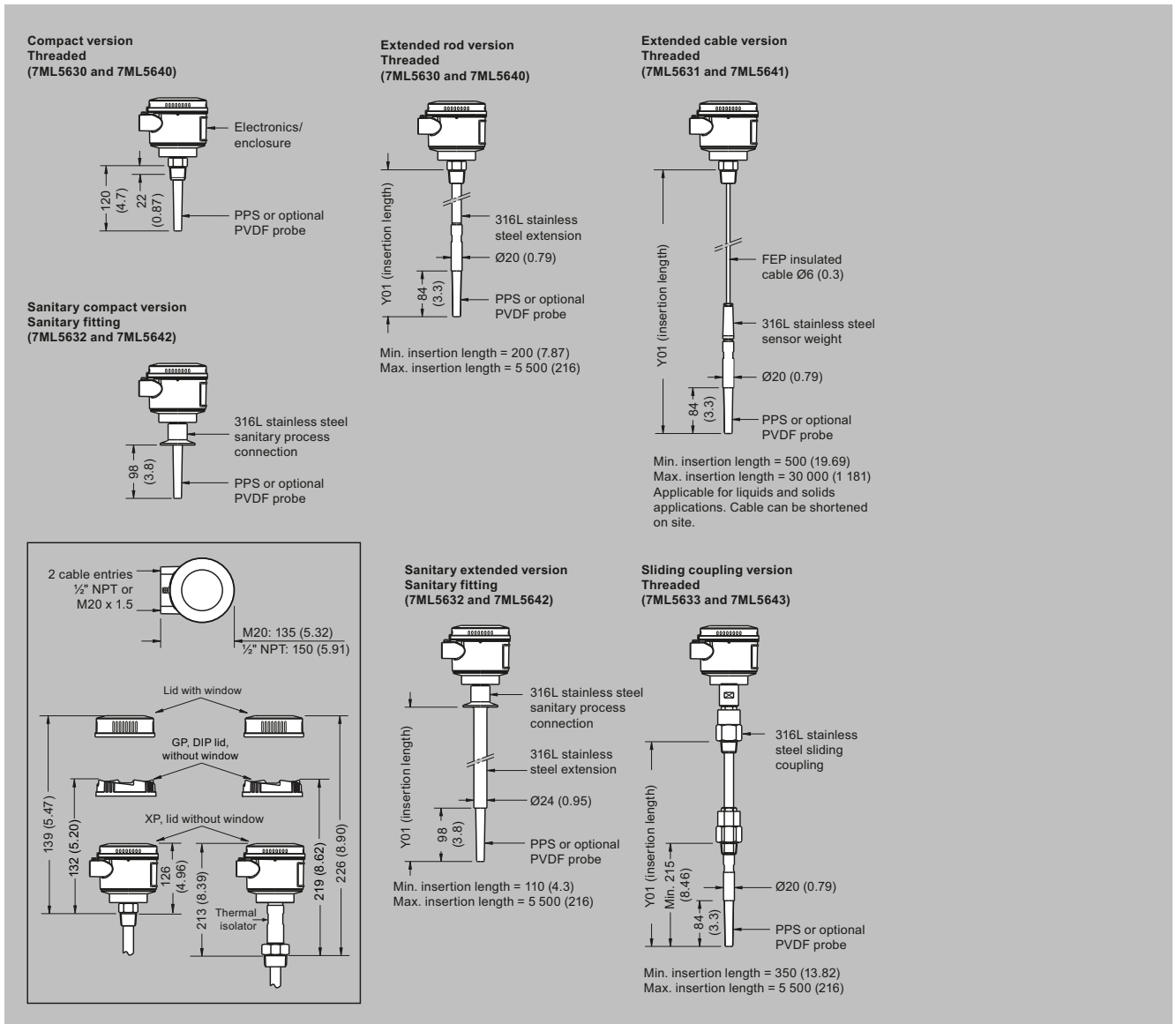
Pointek CLS200 process pressure/temperature derating curves (7ML5630 and 7ML5640)

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

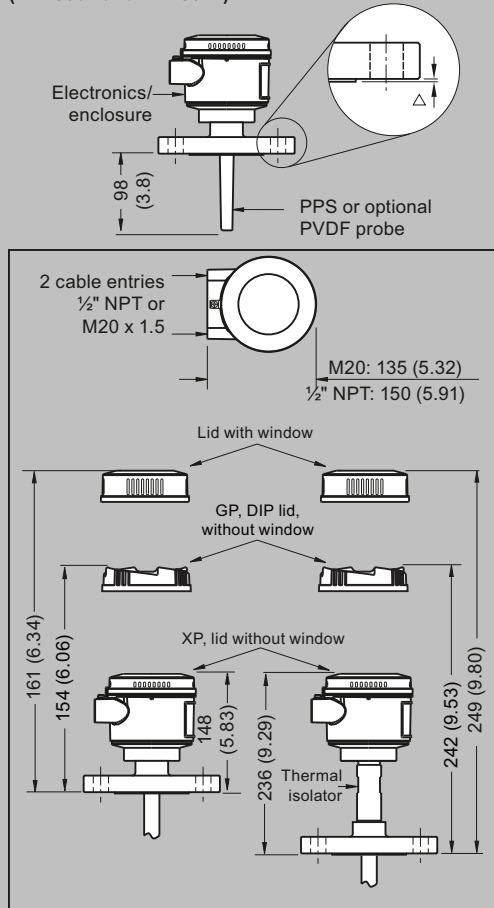
Dimensional drawings



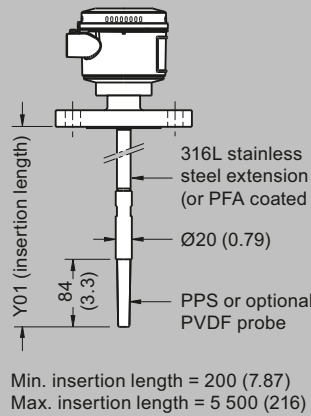
Pointek CLS200 threaded/sanitary process connections, dimensions in mm (inch)

Dimensional drawings (continued)

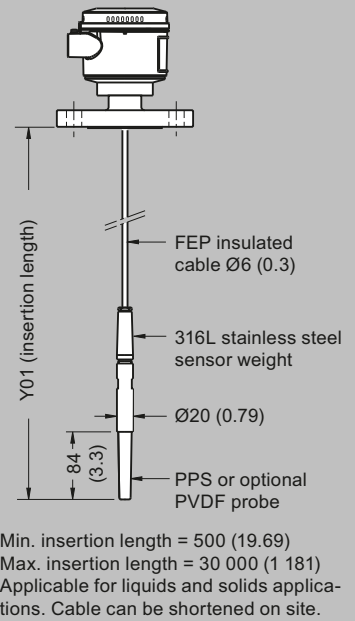
Compact version
Welded Flange (7ML5630 and 7ML5640)
Welded Flange, PFA coated
(7ML5634 and 7ML5644)



Extended rod version
Welded Flange (7ML5630 and 7ML5640)
Welded Flange, PFA coated
(7ML5634 and 7ML5644)



Extended cable version
Welded Flange
(7ML5631 and 7ML5641)



Flange Facing (raised face)	
Flange Class	Facing thickness
△ ASME 150/300	2 (0.08)
△ ASME 600/900	7 (0.28)
△ PN16/40	2 (0.08)

Insertion length does not include any raised face/gasket face dimension (see Flange Facing Table above)

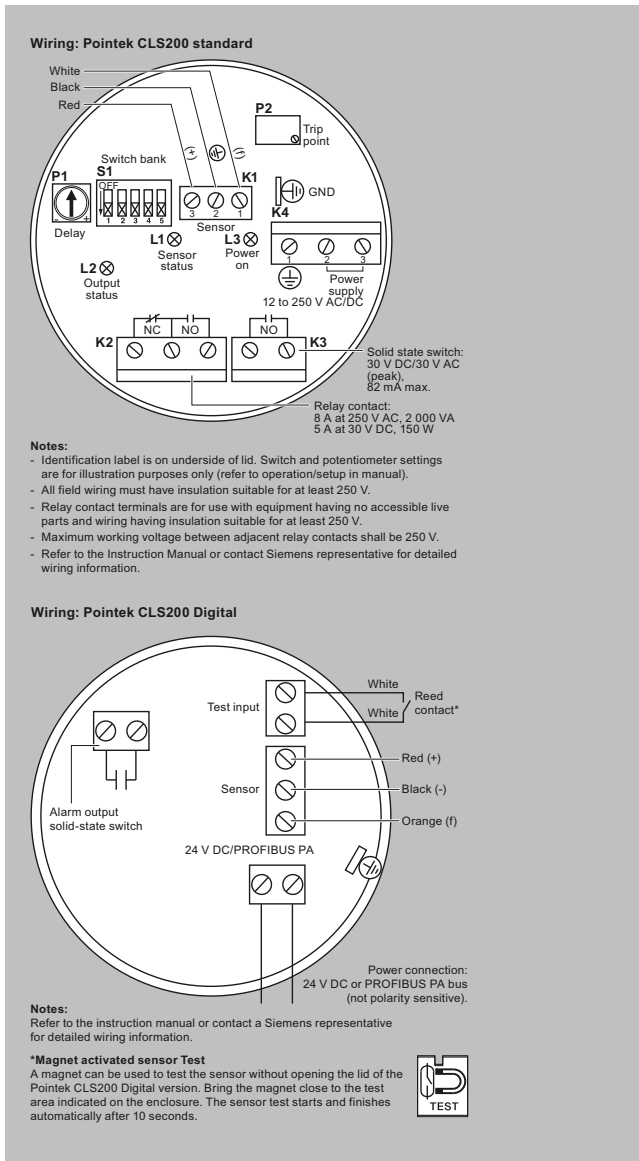
Pointek CLS200 flanged process connections, dimensions in mm (inch)

Level Measurement

Point level measurement

RF Capacitance / Pointek CLS200 - Digital

Circuit diagrams



Pointek CLS200 connections