**Level Measurement**
Point level measurement - RF Capacitance switches

**Pointek CLS200 - Standard**

**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

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**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)
## Technical specifications

### Mode of operation

| Measuring principle | Inverse frequency shift capacitive level detection |

### Input

| Measured variable | Change in picoFarad (pF) |

### Output

<table>
<thead>
<tr>
<th>Output signal</th>
<th>1 SPDT Form C relay</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Max. contact voltage</td>
<td>30 V DC</td>
</tr>
<tr>
<td>• Max. contact current</td>
<td>5 A DC</td>
</tr>
<tr>
<td>• Max. switching capacity</td>
<td>150 W DC</td>
</tr>
<tr>
<td>• Time delay (ON and/or OFF)</td>
<td>1 ... 60 s</td>
</tr>
<tr>
<td>• Output</td>
<td>Galvanically isolated</td>
</tr>
<tr>
<td>• Protection</td>
<td>Against reversed polarity (bipolar)</td>
</tr>
<tr>
<td>• Max. switching voltage</td>
<td>30 V DC</td>
</tr>
<tr>
<td>• Voltage drop</td>
<td>&lt; 1 V, typical at 50 mA</td>
</tr>
<tr>
<td>• Time delay (pre or post switching)</td>
<td>1 ... 60 s</td>
</tr>
</tbody>
</table>

### Rated operating conditions

<table>
<thead>
<tr>
<th>Installation conditions</th>
<th>Indoor/outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td>Installation category</td>
<td>II</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>4</td>
</tr>
<tr>
<td>Medium conditions</td>
<td>Liquids, bulk solids, slurries and interfaces</td>
</tr>
<tr>
<td>Relative dielectric constant $\varepsilon_r$</td>
<td>Min. 1.5</td>
</tr>
<tr>
<td>Process temperature</td>
<td></td>
</tr>
<tr>
<td>- Without thermal isolator</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td>- With thermal isolator</td>
<td>-40 ... +125 °C (-40 ... +257 °F)</td>
</tr>
<tr>
<td>Process pressure (rod version)</td>
<td>-1 ... +25 bar g (-14.6 ... +365 psi g) (nominal)</td>
</tr>
<tr>
<td>Process pressure (cable version)$^3$</td>
<td>-1 ... +10 bar g (-14.6 ... +150 psi g) (nominal)</td>
</tr>
<tr>
<td>Process pressure (sliding coupling version)</td>
<td>-1 ... +10 bar g (-14.6 ... +150 psi g) (nominal)</td>
</tr>
</tbody>
</table>

### Electromagnetic compatibility

To comply with CE EMC regulations (where applicable), the CLS200 should be installed per the instruction manual.

### Design

<table>
<thead>
<tr>
<th>Material</th>
<th>Epoxy-coated aluminum with gasket 316L stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional thermal isolator</td>
<td>Removable terminal block, max. 2.5 mm²</td>
</tr>
<tr>
<td>Cable inlet</td>
<td>IP65/Type 4/NEMA 4 (optional IP68)</td>
</tr>
<tr>
<td>Cable inlet</td>
<td>2 x M20 x 1.5 thread (option: 2 x ½” NPT conduit entry including 1 plugged entry)</td>
</tr>
</tbody>
</table>

### 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 1/2 D T100 °C
- Flameproof Enclosure With IS Probe: ATEX II 1 G Ex d[ia] IIC T6 ... T4
- Dust Ignition Proof With IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G
- Explosion Proof Enclosure: CSA/FM Class II, Div. 1, Groups A, B, C, D
- Marine: Lloyds Register of Shipping, Categories ENV1, ENV2, and ENV5
- Overfill Protection: WHG (Germany)
- Others: Pattern Approval (China), SIL

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$^1$ When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also Pressure/temperature curves on page 4/35.

$^2$ 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 on page 4/35.
## Level Measurement

### Point level measurement - RF Capacitance switches

**Pointek CLS200 - Standard**

### Design: Probe

<table>
<thead>
<tr>
<th></th>
<th>Rod version</th>
<th>Sanitary version</th>
<th>Cable version</th>
<th>Sliding Coupling version</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max. length</strong></td>
<td>5 500 mm (216.53 inch)</td>
<td>5 500 mm (216.53 inch)</td>
<td>• 30,000 mm (1.181.1 inch) liquids and slurries</td>
<td>5 500 mm (216.53 inch)</td>
</tr>
<tr>
<td><strong>Process connection</strong></td>
<td>R ¾&quot;, 1&quot;, 1¼&quot;, 1½&quot; (BSPT), EN 10226/PT (JIS-T), JIS B 0203</td>
<td>1½&quot;, 2&quot; sanitary fitting clamp 316L stainless steel</td>
<td>R ¾&quot;, 1&quot;, 1¼&quot;, 1½&quot; (BSPT), EN 10226/PT (JIS-T), JIS B 0203</td>
<td>R ¾&quot;, 1&quot;, 1¼&quot;, 1½&quot; (BSPT), EN 10226/PT (JIS-T), JIS B 0203</td>
</tr>
<tr>
<td></td>
<td>G ¾&quot;, 1&quot;, 1½&quot; (BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202</td>
<td></td>
<td>G ¾&quot;, 1&quot;, 1½&quot; (BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202</td>
<td>G ¾&quot;, 1&quot;, 1½&quot; (BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202</td>
</tr>
<tr>
<td><strong>Extension material</strong></td>
<td>316L stainless steel ASME/EN flange</td>
<td>316L stainless steel</td>
<td>Fluoroethylene propylene (FEP) cable with stainless steel core</td>
<td>316L stainless steel</td>
</tr>
<tr>
<td><strong>Sensor wetted parts</strong></td>
<td>PPS (optional PVDF)</td>
<td>PPS (optional PVDF)</td>
<td>PPS (optional PVDF)</td>
<td>PPS (optional PVDF)</td>
</tr>
<tr>
<td><strong>O-ring seal material</strong></td>
<td>FKM (optional FFKM)²</td>
<td>FKM (optional FFKM)²</td>
<td>FKM (optional FFKM)²</td>
<td>FKM (optional FFKM)²</td>
</tr>
<tr>
<td><strong>Thermal isolator</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Extension</strong></td>
<td>User selected length</td>
<td>User selected length</td>
<td>Cable extension</td>
<td>User selected length</td>
</tr>
</tbody>
</table>

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](http://www.automation.siemens.com/aspa_app).
3) Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F)
## Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Pointek CLS200 - Standard - Rod Version with Threaded or Flanged process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5630-0</td>
<td><strong>Threaded or Flanged process connection</strong></td>
</tr>
</tbody>
</table>

**Versatile inverse frequency shift capacitance level and material detection switch with optional rod/cable choices and configurable output.**

**(1) Availability of rod choices, cable, and materials varies by application.**

**Click on the Article No. for the online configuration in the PIA Life Cycle Portal.**

#### Process connection

- Threaded, 316L stainless steel
  - ⅜" NPT [(Taper), ANSI/ASME B1.20.1]
  - ⅜" NPT [(Taper), ANSI/ASME B1.20.1]
  - ⅜" NPT [(Taper), ANSI/ASME B1.20.1]
  - R ¾" [(BSPP), EN 10226/PT (JIS-T), JIS B 0203]
  - R ⅛" [(BSPP), EN 10226/PT (JIS-T), JIS B 0203]
  - G ¾" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]
  - G ⅛" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]

**Welded flange, 316L stainless steel, raised face**

- 1" ASME, 150 lb
- 1" ASME, 300 lb
- 1" ASME, 600 lb
- ⅛" ASME, 150 lb
- ⅛" ASME, 300 lb
- ⅛" ASME, 600 lb
- 2" ASME, 150 lb
- 2" ASME, 300 lb
- 2" ASME, 600 lb
- 3" ASME, 150 lb
- 3" ASME, 300 lb
- 3" ASME, 600 lb
- 4" ASME, 150 lb
- 4" ASME, 300 lb
- 4" ASME, 600 lb

**Welded flange, 316L stainless steel, flat faced**

- DN 25, PN 16
- DN 25, PN 40
- DN 40, PN 16
- DN 40, PN 40
- DN 50, PN 16
- DN 50, PN 40
- DN 80, PN 16
- DN 80, PN 40
- DN 100, PN 16
- DN 100, PN 40

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

### Probe length

<table>
<thead>
<tr>
<th>(length from flange face)</th>
<th>(threaded lengths include process thread)</th>
<th>Note: No Y01 needed in Order code for standard lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 mm (4.72 inch)</td>
<td>A</td>
<td>Compact threaded (120 mm (4.72 inch), Flanged 98 mm (3.86 inch))</td>
</tr>
<tr>
<td>250 mm (9.84 inch)</td>
<td>B</td>
<td>Extended rod, 250 mm (9.84 inch)</td>
</tr>
<tr>
<td>350 mm (13.78 inch)</td>
<td>C</td>
<td>Extended rod, 350 mm (13.78 inch)</td>
</tr>
<tr>
<td>500 mm (19.69 inch)</td>
<td>D</td>
<td>Extended rod, 500 mm (19.69 inch)</td>
</tr>
<tr>
<td>1,000 mm (39.37 inch)</td>
<td>E</td>
<td>Extended rod, 1,000 mm (39.37 inch)</td>
</tr>
<tr>
<td>1,250 mm (49.21 inch)</td>
<td>F</td>
<td>Extended rod, 1,250 mm (49.21 inch)</td>
</tr>
<tr>
<td>1,500 mm (59.06 inch)</td>
<td>G</td>
<td>Extended rod, 1,500 mm (59.06 inch)</td>
</tr>
<tr>
<td>1,750 mm (68.90 inch)</td>
<td>H</td>
<td>Extended rod, 1,750 mm (68.90 inch)</td>
</tr>
<tr>
<td>2,000 mm (78.74 inch)</td>
<td>J</td>
<td>Extended rod, 2,000 mm (78.74 inch)</td>
</tr>
</tbody>
</table>

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**Add Order code Y01 and plain text:**

- Insertion length: ... mm
- Extended rod, 210 ... 1,000 mm (8.27 ... 39.37 inch)
- Extended rod, 1,001 ... 2,000 mm (39.41 ... 78.74 inch)
- Extended rod, 2,001 ... 3,000 mm (78.78 ... 118.11 inch)
- Extended rod, 3,001 ... 4,000 mm (118.15 ... 157.48 inch)
- Extended rod, 4,001 ... 5,000 mm (157.52 ... 196.85 inch)
- Extended rod, 5,001 ... 5,500 mm (196.89 ... 216.53 inch)

### Thermal isolator

**Without thermal isolator**

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

### Remote mount electronics and mounting bracket

**With 2 m (79 inch) of cable**

- With 5 m (197 inch) of cable

### Wetted seals

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

### Probe material

- 316L stainless steel with PPS probe body
- 316L stainless steel with PVDF probe body

### Approvals

- Dust Ignition Proof:
  - CE, RCM, ATEX II 1/2 D T100 °C
- Flameproof Enclosure with IS Probe:
  - CE, RCM, ATEX II 1 G EEEx d[ia] IIC T6 ... T4,
  - ATEX II 1/2 D T100 °C
- Flameproof Enclosure with IS Probe, with WHG approval:
  - CE, RCM, ATEX II 1/2 G EEEx d[ia] IIC T6 ... T4,
  - 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 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
- General Purpose (CSA, FM):
  - K
- General Purpose (CE, RCM):
  - J
- General Purpose (CSA, FM, CE, RCM) with WHG approval:
  - H

### Enclosure and lid

- Aluminum epoxy coated
- 2 x ⅛" NPT via adapter - cable inlet, IP65
- 2 x ⅜" NPT via adapter - cable inlet, IP68
- 2 x ⅜" NPT via adapter - cable inlet, IP68
- 2 x M20 x 1.5 cable inlet IP68
- 2 x M20 x 1.5 cable inlet IP65
- 2 x ½" NPT via adapter - cable inlet, IP65
- 2 x ½" NPT via adapter - cable inlet, IP68
- 2 x ¾" NPT via adapter - cable inlet, IP65
- 2 x ¾" NPT via adapter - cable inlet, IP68
- 2 x G ¾" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]
- 2 x G ⅛" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]

1) Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection
2) Available with approval options F, G, and H
Level Measurement
Point level measurement - RF Capacitance switches

Pointek CLS200 - Standard

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

Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]; Measuring-point number/identification (max. 27 characters) specify in plain text

Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000

SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]

Selection and Ordering data

Article No.

Pointek CLS200 - Standard - Cable Version with Threaded or Flanged process connection

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.

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Process connection
Threaded, 316L stainless steel

1” NPT [(Taper), ANSI/ASME B1.20.1] 0 A
1¼” NPT [(Taper), ANSI/ASME B1.20.1] 0 B
1½” NPT [(Taper), ANSI/ASME B1.20.1] 0 C

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 1¼” [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] 1 D

G ¾” [(BSPP), EN ISO 228-1/FF (JIS-P), JIS B 0202] 3 A
G 1” [(BSPP), EN ISO 228-1/FF (JIS-P), JIS B 0202] 3 B
G 1¼” [(BSPP), EN ISO 228-1/FF (JIS-P), JIS B 0202] 3 D

Material inspection Certificate Type 3.1 per EN 10204

SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]

Operating Instructions
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation

Accessories
See page 4/34

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol *. For details see page 10/11 in the appendix.

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### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Pointek CLS200 - Standard - Cable Version with Threaded or Flanged process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5631-0</td>
<td>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.</td>
</tr>
</tbody>
</table>

**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
- With 5 m (197 inch) of cable: 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 Ex 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 Ex 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: F
- Explosion Proof Enclosure with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D: 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: A
- 2 x ½” NPT via adapter - cable inlet, IP65: B
- 2 x M20 x 1.5 cable inlet, IP65: C
- 2 x ½” NPT via adapter - cable inlet, IP68: D
- 2 x M20 x 1.5 cable inlet, IP68: E

1) Sensor detached to allow customer to set desired cable length
2) Available with Approvals options F ... H

---

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Further designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y01</td>
<td>Total insertion length: enter the total insertion length in plain text description</td>
</tr>
<tr>
<td>Y15</td>
<td>Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]; Measuring-point number/identification (max. 27 characters) specify in plain text</td>
</tr>
<tr>
<td>C11</td>
<td>Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000</td>
</tr>
<tr>
<td>C12</td>
<td>Material inspection Certificate Type 3.1 per EN 10204</td>
</tr>
<tr>
<td>C20</td>
<td>SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]</td>
</tr>
</tbody>
</table>

**Operating Instructions**

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

**Accessories**

- See page 4/34

- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.
Level Measurement
Point level measurement - RF Capacitance switches

**Pointek CLS200 - Standard**

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Selection and Ordering data</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5632-70</td>
<td>Pointek CLS200 - Standard - Rod with Sanitary process connection</td>
</tr>
</tbody>
</table>

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.

- **Process connection**
  - Sanitary 316L stainless steel
  - 1” sanitary fitting clamp
  - 1¼” sanitary fitting clamp
  - 2” sanitary fitting clamp
  - 2½” sanitary fitting clamp
  - 3” sanitary fitting clamp

- **Probe length**
  - (length from process connection face)
  - [Note: No Y01 needed in Order code for standard lengths]
  - Compact, 98 mm (3.86 inch)
  - Extended rod, 250 mm (9.84 inch)
  - Extended rod, 350 mm (13.78 inch)
  - Extended rod, 500 mm (19.69 inch)
  - Extended rod, 750 mm (29.53 inch)
  - Extended rod, 1,000 mm (39.37 inch)
  - Extended rod, 1,250 mm (49.21 inch)
  - Extended rod, 1,500 mm (59.06 inch)
  - Extended rod, 1,750 mm (68.90 inch)
  - Extended rod, 2,000 mm (78.74 inch)

- **Add Order code Y01 and plain text:**
  - Insertion length, mm
  - M
  - P
  - Insulation length, mm
  - Q
  - R
  - S
  - T

- **Thermal isolator**
  - Without thermal isolator
  - With thermal isolator (for process connection temperatures over 85 °C (185 °F))

- **Remote mount electronics and mounting bracket**
  - Remote mount electronics with 2 m (79 inch) of cable
  - Remote mount electronics with 5 m (197 inch) of cable

- **Wetted seals**
  - FKM
  - FFKM

- **Probe material**
  - 316L stainless steel with PPS probe body
  - 316L stainless steel with PVDF probe body

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Selection and Ordering data</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5632-70</td>
<td>Pointek CLS200 - Standard - Rod with Sanitary process connection</td>
</tr>
</tbody>
</table>

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.

- **Approvals**
  - Dust Ignition Proof:
    - CE, RCM, ATEX II 1/2 D T100 °C
  - Flameproof Enclosure with IS Probe:
    - CE, RCM, ATEX II 1 G Ex d[ia] IIC T6 ... T4
  - ATEX II 1/2 D T100 °C
  - Flameproof Enclosure with IS Probe, with WHG approval:
    - CE, RCM, ATEX II 1/2 G Ex d[ia] IIC T6 ... T4
    - 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
  - 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
  - General Purpose (CSA, FM)
  - General Purpose (CE, RCM)
  - General Purpose (CSA, FM, CE, RCM) with WHG approval

- **Enclosure and lid**
  - Aluminum epoxy coated
  - 2 x ½” NPT via adapter - cable inlet, IP65
  - 2 x M20 x 1.5 cable inlet, IP65
  - 2 x M20 x 1.5 cable inlet, IP68
  - 2 x M20 x 1.5 cable inlet, IP68

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Further designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y01</td>
<td>Please add “-Z” to Article No. and specify Order code(s).</td>
</tr>
<tr>
<td>Y15</td>
<td>Total insertion length: enter the total insertion length in plain text description</td>
</tr>
<tr>
<td>C11</td>
<td>Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]</td>
</tr>
<tr>
<td>C12</td>
<td>Measuring-point number/identification (max. 27 characters) specify in plain text</td>
</tr>
<tr>
<td>C20</td>
<td>Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000</td>
</tr>
<tr>
<td></td>
<td>Material inspection Certificate Type 3.1 per EN 10204</td>
</tr>
<tr>
<td></td>
<td>SIL/IEC 61508 Declaration of Conformity [SIL 2 (overspill)]</td>
</tr>
</tbody>
</table>

### Operating Instructions

- All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation

### Accessories

- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.
## Level Measurement

**Point level measurement - RF Capacitance switches**

### Pointek CLS200 - Standard

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML6533-00</td>
<td>Pointek CLS200 - Standard - Sliding Coupling with Threaded process connection</td>
</tr>
</tbody>
</table>

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.

- **Process connection**
  - Threaded, 316L stainless steel
  - ¾” NPT ([Taper], ANSI/ASME B1.20.1)
  - 1” NPT ([Taper], ANSI/ASME B1.20.1)
  - 1¾” NPT ([Taper], ANSI/ASME B1.20.1)
  - R ¼” (BSPT), EN 10226/PT (JIS-T), JIS B 0203
  - R ½” (BSPT), EN 10226/PT (JIS-T), JIS B 0203
  - R ¾” (BSPT), EN 10226/PT (JIS-T), JIS B 0203
  - G ¼” (BSPP), EN ISO 228-1/FF (JIS-P), JIS B 0202
  - G ½” (BSPP), EN ISO 228-1/FF (JIS-P), JIS B 0202
  - G ¾” (BSPP), EN ISO 228-1/FF (JIS-P), JIS B 0202

- **Probe length**
  - (length from flange face)
  - Threaded length’s include process thread

- **Note:** No Y01 needed in Order code for standard lengths.

- **Extended rod, 350 mm (13.78 inch)**
- **Extended rod, 500 mm (19.69 inch)**
- **Extended rod, 750 mm (29.53 inch)**
- **Extended rod, 1,000 mm (39.37 inch)**
- **Extended rod, 1,250 mm (49.21 inch)**
- **Extended rod, 1,500 mm (59.06 inch)**
- **Extended rod, 1,750 mm (66.90 inch)**
- **Extended rod, 2,000 mm (78.74 inch)**

- **Add Order code Y01 and plain text:**

- **Insertion length ... mm**
  - **Extended rod, 350 ... 1,000 mm (13.78...39.37 inch)**
  - **Extended rod, 1,001 ... 2,000 mm (39.41...78.74 inch)**
  - **Extended rod, 2,001 ... 3,000 mm (78.79...118.11 inch)**
  - **Extended rod, 3,001 ... 4,000 mm (118.15...157.48 inch)**
  - **Extended rod, 4,001 ... 5,000 mm (157.52...196.89 inch)**
  - **Extended rod, 5,001 ... 5,500 mm (196.9...216.53 inch)**

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

- **Remote mount electronics and mounting bracket**
  - With 2 m (79 inch) of cable
  - With 5 m (197 inch) of cable

- **Wetted seals**
  - FKM and PTFE
  - FFKM and PTFE [for process temperatures above -20 °C (-4 °F)]

- **Probe material**
  - 316L stainless steel with PPS probe body
  - 316L stainless steel with PVDF probe body

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML6533-00</td>
<td>Pointek CLS200 - Standard - Sliding Coupling with Threaded process connection</td>
</tr>
</tbody>
</table>

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.

**Approvals**

- **Dust Ignition Proof:**
  - CE, ATEX II 1/2 G EEx d IIC T6 ... T4, ATEX II 1/2 D T100 °C
  - Flameproof Enclosure with IS Probe: CE, ATEX II 1/2 G EEx d[i]a IIC T6 ... T4
  - Flameproof Enclosure with IS Probe, with WHG approval: CE, ATEX II 1/2 D T100 °C
  - Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G
  - Flameproof Enclosure with IS Probe: CSA/FM Class III T4
  - General Purpose (CSA, FM)
  - General Purpose (CE, RCM)
  - General Purpose (CSA, FM, CE, RCM) with WHG approval

**Enclosure and lid**

- Aluminum epoxy coated
  - 2 x ½” NPT via adapter - cable inlet, IP65
  - 2 x M20 x 1.5 cable inlet, IP65
  - 2 x ½” NPT via adapter - cable inlet, IP68
  - 2 x M20 x 1.5 cable inlet, IP68
  - Available with Approvals options F ... H

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.

### Selection and Ordering data

#### Further designs

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

- **Order code**
  - Total insertion length: enter the total insertion length in plain text description
  - Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]
  - Measuring-point number/identification (max. 27 characters) specify in plain text
  - Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000
  - Material inspection Certificate Type 3.1 per EN 10204
  - CE, RCM, CSA/FM Class I, Div. 1, Groups A, B, C, D
  - CSA/FM Class II, Div. 1, Groups E, F, G

- **Ordering data**
  - With WHG approval:
    - CSA/FM Class III T4
  - General Purpose (CSA, FM)
  - General Purpose (CE, RCM)
  - General Purpose (CSA, FM, CE, RCM) with WHG approval

**Operating Instructions**

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation).

**Accessories**

- See page 4/34

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.
Pointek CLS200 - Standard - PFA Coated Rod

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.

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Selection and Ordering data

Pointek CLS200 - Standard - PFA Coated Rod with PFA Coated Flanged process connection

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.

Thermal isolator

Without thermal isolator

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

Remote mount electronics and mounting bracket

With 2 m (79 inch) of cable
With 5 m (197 inch) of cable

Wetted seals

FKM

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

Probe material

PFA Coated 316L stainless steel with PPS probe body

PFA Coated 316L stainless steel with PVDF probe body

Approvals

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, Div. 1, Groups E, F, G

CSA/FM Class III T4

General Purpose (CSA, FM)

Enclosure and lid

Aluminum epoxy coated

Order code(s).

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

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

Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]:

Measuring-point number/identification (max. 27 characters) specify in plain text

Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000

Material inspection Certificate Type 3.1 per EN 10204

SIL/IEC 61508 Declaration of Conformity

[SIL 2 (overspill)]

Operating Instructions

All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation

Accessories

See page 4/34

Process connection

Welded flange, 316L stainless steel, raised face

1" ASME, 150 lb
1" ASME, 300 lb
1" ASME, 600 lb
1½" ASME, 150 lb
1½" ASME, 300 lb
1½" ASME, 600 lb
2" ASME, 150 lb
2" ASME, 300 lb
2" ASME, 600 lb
3" ASME, 150 lb
3" ASME, 300 lb
3" ASME, 600 lb
4" ASME, 150 lb
4" ASME, 300 lb
4" ASME, 600 lb

Welded flange, 316L stainless steel, flat faced

DN 25, PN 16
DN 25, PN 40
DN 40, PN 16
DN 40, PN 40
DN 50, PN 16
DN 50, PN 40
DN 80, PN 16
DN 80, PN 40
DN 100, PN 16
DN 100, PN 40

(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 threaded lengths (threaded lengths include process thread)

Standard lengths

Compact, 98 mm (3.86 inch)
Extended rod, 250 mm (9.84 inch)
Extended rod, 350 mm (13.78 inch)
Extended rod, 500 mm (19.69 inch)
Extended rod, 750 mm (29.53 inch)
Extended rod, 1,000 mm (39.37 inch)
Extended rod, 1,250 mm (49.21 inch)
Extended rod, 1,350 mm (53.15 inch)
Extended rod, 1,500 mm (59.06 inch)
Extended rod, 1,750 mm (68.90 inch)
Extended rod, 2,000 mm (78.74 inch)
Add Order code Y01 and plain text:

"Insertion length ... mm"

Extended rod, 200 ... 1,000 mm (7.87 ... 39.37 inch)
Extended rod, 1,001 ... 2,000 mm (39.41 ... 78.74 inch)
Extended rod, 2,001 ... 3,000 mm (78.78 ... 118.11 inch)
Extended rod, 3,001 ... 4,000 mm (118.15 ... 157.48 inch)
Extended rod, 4,001 ... 5,000 mm (157.52 ... 196.85 inch)
Extended rod, 5,001 ... 5,500 mm (196.89 ... 216.53 inch)

Enclosure and lid

Aluminum epoxy coated

2 x ½" NPT via adapter - cable inlet, IP65
2 x M20 x 1.5 cable inlet, IP65
2 x ½" NPT via adapter - cable inlet, IP68
2 x M20 x 1.5 cable inlet, IP68

Thermal isolator

With 5 m (197 inch) of cable
With 2 m (79 inch) of cable

Wetted seals

FKM

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

Order code

See page 4/34
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 setup 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

Avoid areas where material build-up occurs.

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

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

Pointek CLS200 installation, dimensions in mm (inch)
Level Measurement
Point level measurement - RF Capacitance switches

Pointek CLS200 - Digital

### Technical specifications

<table>
<thead>
<tr>
<th>Mode of operation</th>
<th>Measuring principle</th>
<th>Inverse frequency shift capacitive level detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>Measured variable</td>
<td>Change in picoFarad (pF)</td>
</tr>
<tr>
<td>Output</td>
<td>Output signal</td>
<td>Galvanically isolated</td>
</tr>
<tr>
<td></td>
<td>- Output</td>
<td>Against reversed polarity (bipolar)</td>
</tr>
<tr>
<td></td>
<td>- Protection</td>
<td>• 30 V (DC)</td>
</tr>
<tr>
<td></td>
<td>- Max. switching voltage</td>
<td>• 30 V peak (AC)</td>
</tr>
<tr>
<td></td>
<td>- Max. load current</td>
<td>&lt; 1 V typical at 50 mA</td>
</tr>
<tr>
<td></td>
<td>- Voltage drop</td>
<td>Programmable by user (0 ... 100 s)</td>
</tr>
<tr>
<td></td>
<td>- Time delay (ON and/or OFF)</td>
<td>Min. or max.</td>
</tr>
<tr>
<td></td>
<td>- Fail-safe mode</td>
<td>Removable terminal block</td>
</tr>
<tr>
<td></td>
<td>- Connection</td>
<td></td>
</tr>
</tbody>
</table>

### Rated operating conditions

<table>
<thead>
<tr>
<th>Installation conditions</th>
<th>Indoor/outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td>- Without thermal isolator</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td>- With thermal isolator</td>
<td>-40 ... +125 °C (-40 ... +257 °F)</td>
</tr>
<tr>
<td>Process pressure (rod version)</td>
<td>-1 ... +25 bar g (-14.6 ... +365 psi g)</td>
</tr>
<tr>
<td>(nominal)</td>
<td></td>
</tr>
<tr>
<td>Process pressure (cable version)</td>
<td>-1 ... +10 bar g (-14.6 ... +150 psi g)</td>
</tr>
<tr>
<td>(nominal)</td>
<td></td>
</tr>
<tr>
<td>Process pressure (sliding coupling version)</td>
<td>-1 ... +10 bar g (-14.6 ... +150 psi g)</td>
</tr>
<tr>
<td>(nominal)</td>
<td></td>
</tr>
</tbody>
</table>

### Design

<table>
<thead>
<tr>
<th>Material</th>
<th>Epoxy-coated aluminum with gasket 316L stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure</td>
<td>Removable terminal block, max. 2.5 mm²</td>
</tr>
<tr>
<td>Optional thermal isolator</td>
<td>IP65/Type 4/NEMA 4 (optional IP68)</td>
</tr>
<tr>
<td>Connection</td>
<td>2 x M20 x 1.5 thread (option: 2 x ½” NPT conduit entry including 1 plugged entry)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td></td>
</tr>
<tr>
<td>Cable inlet</td>
<td></td>
</tr>
<tr>
<td>Electromagnetic compatibility</td>
<td>To comply with CE EMC regulations (where applicable); the CLS200 should be installed per the instruction manual.</td>
</tr>
</tbody>
</table>

### Power supply

<table>
<thead>
<tr>
<th>Bus voltage</th>
<th>Standard: 12 ... 30 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>12.5 mA</td>
</tr>
</tbody>
</table>

### Certificates and approvals

<table>
<thead>
<tr>
<th>General Purpose</th>
<th>CSA, FM, CE, RCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Ignition Proof</td>
<td>ATEX II 1/2 D T100 °C</td>
</tr>
<tr>
<td>Intrinsically Safe</td>
<td>ATEX II 1 G EEx ia IIIC T6 ... T4</td>
</tr>
<tr>
<td>Non-incendive</td>
<td>CSA/FM Class I, Div. 2, Groups A, B, C, D</td>
</tr>
<tr>
<td>Non-Sparking</td>
<td>ATEX II 3 G Ex nA II T6 ... T4</td>
</tr>
<tr>
<td>Marine</td>
<td>Lloyds Register of Shipping, Categories ENV1, ENV2, and ENV5</td>
</tr>
<tr>
<td>Others</td>
<td>Pattern Approval (China)</td>
</tr>
</tbody>
</table>

### Communication

<table>
<thead>
<tr>
<th>PROFIBUS PA</th>
<th>(IEC 61158 CP/3 CP3/2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus physical layer</td>
<td>IEC 61158-2 MSP (IS)</td>
</tr>
<tr>
<td>Device profile</td>
<td>PROFIBUS PA profile for Process Control Devices Version 3.0, Class B</td>
</tr>
<tr>
<td>FISCO field device</td>
<td></td>
</tr>
</tbody>
</table>

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1) When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also Pressure/temperature curves on page 4/35.
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 on page 4/35.
4) Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection.
## Level Measurement

### Point level measurement - RF Capacitance switches

#### Pointek CLS200 - Digital

<table>
<thead>
<tr>
<th>Design: Probe</th>
<th>Rod version</th>
<th>Sanitary version</th>
<th>Cable version</th>
<th>Sliding Coupling version</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max. length</strong></td>
<td>5 500 mm (216.53 inch)</td>
<td>5 500 mm (216.53 inch)</td>
<td>• 30,000 mm (1181.1 inch) liquids and slurries</td>
<td>5 500 mm (196.85 inch) solids (under loads)</td>
</tr>
<tr>
<td><strong>Extension material</strong></td>
<td>316L stainless steel</td>
<td>316L stainless steel</td>
<td>Fluoethylene propylene (FEP) cable with stainless steel core</td>
<td>316L stainless steel</td>
</tr>
<tr>
<td><strong>Sensor wetted parts</strong></td>
<td>PPS (optional PVDF)</td>
<td>PPS (optional PVDF)</td>
<td>PPS (optional PVDF)</td>
<td>PPS (optional PVDF)</td>
</tr>
<tr>
<td><strong>O-ring seal material</strong></td>
<td>FKM (optional FFKM)2)</td>
<td>FKM (optional FFKM)2)</td>
<td>FKM (optional FFKM)2)</td>
<td>FKM (optional FFKM)2)</td>
</tr>
<tr>
<td><strong>Thermal isolator3)</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Extension</strong></td>
<td>User selected length</td>
<td>User selected length</td>
<td>Cable extension</td>
<td>User selected length</td>
</tr>
</tbody>
</table>

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](http://www.automation.siemens.com/aspa_app).
3) Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F).
Level Measurement
Point level measurement - RF Capacitance switches

Pointek CLS200 - Digital

Selection and Ordering data

Pointek CLS200 - Digital - Rod
with Threaded or Flanged process connection

Versatile inverse frequency shift capacitance level and material detection switch with optional process connection choices and configurable output. CLS200 is ideal for detection of liquids, solids, slurry, foam, and interfaces, and has the ability to tune out buildup on the probe.

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Process connection</th>
<th>Threaded or Flanged process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5640-0</td>
<td>Threaded, 316L stainless steel</td>
<td></td>
</tr>
<tr>
<td>7ML5640-0</td>
<td>7/8&quot; NPT (Taper), ANSI/ASME B1.20.1</td>
<td></td>
</tr>
<tr>
<td>7ML5640-0</td>
<td>1&quot; NPT (Taper), ANSI/ASME B1.20.1</td>
<td></td>
</tr>
<tr>
<td>7ML5640-0</td>
<td>1¼&quot; NPT (Taper), ANSI/ASME B1.20.1</td>
<td></td>
</tr>
<tr>
<td>7ML5640-0</td>
<td>1½&quot; NPT (Taper), ANSI/ASME B1.20.1</td>
<td></td>
</tr>
<tr>
<td>7ML5640-0</td>
<td>R ¾&quot; [BSPT], EN 10226/PT (JIS-T), JIS B 0203</td>
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<tr>
<td>7ML5640-0</td>
<td>R 1&quot; [BSPT], EN 10226/PT (JIS-T), JIS B 0203</td>
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<td>7ML5640-0</td>
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<tr>
<td>7ML5640-0</td>
<td>G ¾&quot; [BSP], EN ISO 228-1/PF (JIS-P), JIS B 0202</td>
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<td>7ML5640-0</td>
<td>G 1&quot; [BSP], EN ISO 228-1/PF (JIS-P), JIS B 0202</td>
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<tr>
<td>7ML5640-0</td>
<td>G 1½&quot; [BSP], EN ISO 228-1/PF (JIS-P), JIS B 0202</td>
<td></td>
</tr>
</tbody>
</table>

Extended rod, 2 000 mm (78.74 inch)
Extended rod, 1 750 mm (68.90 inch)
Extended rod, 1 500 mm (59.06 inch)
Extended rod, 1 350 mm (53.15 inch)
Extended rod, 1 250 mm (49.21 inch)
Extended rod, 1 000 mm (39.37 inch)
Extended rod, 350 mm (13.78 inch)
Extended rod, 250 mm (9.84 inch)
Extended rod, 200 mm (7.84 inch)
Extended rod, 150 mm (5.90 inch)
Extended rod, 100 mm (3.93 inch)
Extended rod, 25 mm (0.98 inch)
Extended rod, 20 mm (0.79 inch)
Extended rod, 15 mm (0.59 inch)
Extended rod, 10 mm (0.39 inch)
Extended rod, 5 mm (0.20 inch)

Welded flange, 316L stainless steel, raised face

1" ASME, 150 lb
1" ASME, 300 lb
1½" ASME, 150 lb
1½" ASME, 300 lb
2" ASME, 150 lb
2" ASME, 300 lb
3" ASME, 150 lb
3" ASME, 300 lb
4" ASME, 150 lb
4" ASME, 300 lb
4½" ASME, 300 lb

Welded flange, 316L stainless steel, raised face

Type A flat faced

DN 25, PN 16
DN 25, PN 40
DN 40, PN 16
DN 40, PN 40
DN 50, PN 16
DN 50, PN 40
DN 80, PN 16
DN 80, PN 40
DN 100, PN 16
DN 100, PN 40

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))
Extended rod, 250 mm (9.84 inch)
Extended rod, 350 mm (13.78 inch)
Extended rod, 500 mm (19.69 inch)
Extended rod, 750 mm (29.53 inch)
Extended rod, 1 000 mm (39.37 inch)
Extended rod, 1 250 mm (49.21 inch)
Extended rod, 1 500 mm (59.06 inch)
Extended rod, 1 750 mm (68.90 inch)
Extended rod, 2 000 mm (78.74 inch)

With 5 m (197 inch) of cable2)
With 2 m (79 inch) of cable2)

 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 1/2 D T100 °C

Intrinsically Safe1):
CE, RCM, ATEX II 1 G EEx ia IIC T6 ... T4, ATEX II 1/2 D IP6X T100 °C

Flameproof Enclosure with IS Probe:
CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C

Non-incendive:
ATEX II 1/2 D T100 °C

Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Groups A, B, C, D
CSA/FM Class II, Div. 2, Groups F, G
CSA/FM Class III T4 or T6

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

Approvals

Intrinsically Safe1):
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

Wetted seals

FKM
FKFM (for process temperatures above -20 °C (-4 °F))

Remote mount electronics and mounting bracket
With 2 m (79 inch) of cable2)
With 5 m (197 inch) of cable2)

Thermal isolator

Without thermal isolator
With thermal isolator for process connection temperatures over 85 °C (185 °F)

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 1/2 D T100 °C

Intrinsically Safe1):
CE, RCM, ATEX II 1 G EEx ia IIC T6 ... T4, ATEX II 1/2 D IP6X T100 °C

Flameproof Enclosure with IS Probe:
CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C

Non-incendive:
ATEX II 1/2 D T100 °C

Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Groups A, B, C, D
CSA/FM Class II, Div. 2, Groups F, G
CSA/FM Class III T4 or T6

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

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 1/2 D T100 °C

Intrinsically Safe1):
CE, RCM, ATEX II 1 G EEx ia IIC T6 ... T4, ATEX II 1/2 D IP6X T100 °C

Flameproof Enclosure with IS Probe:
CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C

Non-incendive:
ATEX II 1/2 D T100 °C

Dust Ignition Proof with IS Probe:
CSA/FM Class II, Div. 1, Groups A, B, C, D
CSA/FM Class II, Div. 2, Groups F, G
CSA/FM Class III T4 or T6

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)
Pointek CLS200 - Digital

Selection and Ordering data

**Article No.**

**Pointek CLS200 - Digital - Rod with Threaded or Flanged process connection**

Versatile inverse frequency shift capacitance level and material detection switch with optional process connection 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.

**Enclosure and lid**

- Aluminum epoxy coated
- 2 x ½” NPT via adapter - cable inlet, IP65
- 2 x ¼” NPT via adapter - cable inlet, IP68

1) Barrier or Intrinsically Safe power supply required for Intrinsically Safe protection
2) Available with Approvals options F, G, H, J, and K

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.

**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
- Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]:
- Measuring-point number/identification (max. 27 characters): enter in plain text
- Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000
- Material inspection Certificate Type 3.1 per EN 10204

Operating Instructions

All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation

Accessories

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.

Selection and Ordering data

**Article No.**

**Pointek CLS200 - Digital - Cable with Threaded or Flanged process connection**

Versatile inverse frequency shift capacitance level and material detection switch with optional process connection 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.

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

**Process connection**

Threaded, 316L stainless steel

- 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

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
- 1¼” ASME, 150 lb 5 D
- 1¼” ASME, 300 lb 5 E
- 1¼” 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

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 25, PN 16</td>
<td>6 A</td>
</tr>
<tr>
<td>DN 25, PN 40</td>
<td>6 B</td>
</tr>
<tr>
<td>DN 40, PN 16</td>
<td>6 C</td>
</tr>
<tr>
<td>DN 40, PN 40</td>
<td>6 D</td>
</tr>
<tr>
<td>DN 50, PN 16</td>
<td>6 E</td>
</tr>
<tr>
<td>DN 50, PN 40</td>
<td>6 F</td>
</tr>
<tr>
<td>DN 80, PN 16</td>
<td>6 G</td>
</tr>
<tr>
<td>DN 80, PN 40</td>
<td>6 H</td>
</tr>
<tr>
<td>DN 100, PN 16</td>
<td>6 J</td>
</tr>
<tr>
<td>DN 100, PN 40</td>
<td>6 K</td>
</tr>
</tbody>
</table>

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

### Point level measurement - RF Capacitance switches

### Pointek CLS200 - Digital

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pointek CLS200 - Digital - Cable with Threaded or Flanged process connection</strong></td>
<td>7ML5641-00</td>
</tr>
<tr>
<td>Versatile inverse frequency shift capacitance level and material detection switch with optional process connection 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.</td>
<td></td>
</tr>
<tr>
<td><strong>Probe length</strong> (length from flange face) (threaded lengths include process thread)</td>
<td></td>
</tr>
<tr>
<td>Note: No Y01 needed in Order code for standard lengths Extended cable, 10 000 mm (196.85 inch) length can be determined by customer on assembly</td>
<td></td>
</tr>
<tr>
<td>Add Order code Y01 and plain text:</td>
<td></td>
</tr>
<tr>
<td><strong>Insertion length</strong> ... mm</td>
<td>A B C D E F G H</td>
</tr>
<tr>
<td>Extended cable, 500 ... 5 000 mm (196.85 ... 984.25 inch)</td>
<td></td>
</tr>
<tr>
<td>Extended cable, 10 001 ... 10 000 mm (984.47 ... 984.25 inch)</td>
<td></td>
</tr>
<tr>
<td>Extended cable, 15 000 mm (984.25 inch)</td>
<td></td>
</tr>
<tr>
<td>Extended cable, 20 000 ... 25 000 mm (984.25 ... 1 181.10 inch)</td>
<td></td>
</tr>
<tr>
<td><strong>Thermal isolator</strong> Without thermal isolator With thermal isolator (for process connection temperatures over 85 °C (185 °F))</td>
<td>0 1</td>
</tr>
<tr>
<td><strong>Remote mount electronics and mounting bracket</strong> With 2 m (79 inch) of cable</td>
<td>2 3</td>
</tr>
<tr>
<td>With 5 m (197 inch) of cable</td>
<td></td>
</tr>
<tr>
<td><strong>Wetted seals</strong> FKM and PTFE FFKM and PTFE (for process temperatures above -20 °C (-4 °F))</td>
<td>0 1</td>
</tr>
<tr>
<td><strong>Probe material</strong> FEP jacketed cable with PPS probe body FEP jacketed cable with PVDF probe body</td>
<td>0 1</td>
</tr>
<tr>
<td><strong>Approvals</strong> Non-Sparking: CE, RCM, ATEX II 3 G Ex nA I T6 ... T4, ATEX II 2 D IP6X T100 °C</td>
<td></td>
</tr>
<tr>
<td>Dust Ignition Proof: CE, RCM, ATEX II 1/2 D T100 °C</td>
<td></td>
</tr>
<tr>
<td>Intrinsically Safe:1) CE, RCM, ATEX II 1 G EEx ia IIC T6 ... T4, ATEX II 1/2 D IP6X T100 °C</td>
<td></td>
</tr>
<tr>
<td>Flameproof Enclosure with IS Probe: CE, RCM, ATEX II 1/2 G EEx d[ia] IIC T6 ... T4, ATEX II 1/2 D T100 °C</td>
<td></td>
</tr>
<tr>
<td>Dust Ignition Proof with IS Probe: CSA/FM Class II, Div. 1, Groups E, F, G</td>
<td></td>
</tr>
<tr>
<td>Intrinsically Safe:1) CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class I, Div. 2, Groups E, F, G</td>
<td></td>
</tr>
<tr>
<td>Explosion Proof with IS Probe: CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class I, Div. 2, Groups E, F, G</td>
<td></td>
</tr>
<tr>
<td><strong>Selection and Ordering data</strong></td>
<td><strong>Order code</strong></td>
</tr>
<tr>
<td><strong>Further designs</strong> Please add “-Z” to Article No. and specify Order code(s).</td>
<td></td>
</tr>
<tr>
<td>Total insertion length: enter the total insertion length in plain text description</td>
<td>Y01</td>
</tr>
<tr>
<td>Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]:</td>
<td>Y15</td>
</tr>
<tr>
<td>Measuring-point number/identification (max. 27 characters) specify in plain text</td>
<td></td>
</tr>
<tr>
<td>Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000</td>
<td></td>
</tr>
<tr>
<td>Material inspection Certificate Type 3.1 per EN 10204</td>
<td>C11</td>
</tr>
<tr>
<td>Operating Instructions All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a></td>
<td>C12</td>
</tr>
</tbody>
</table>

### Accessories

- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 10/11 in the appendix.
tune out buildup on the probe.

CLS200 is ideal for detection of liquids, solids, slurries, foam, and interfaces, and has the ability to tune out buildup on the probe.

Sanitary process connection

Versatile inverse frequency shift capacitance level and material detection switch with optional process connection choices and configurable output.

Pointek CLS200 - Digital - Rod with Sanitary process connection

Process connection
Sanitary 316L stainless steel

1' sanitary fitting clamp
1½' sanitary fitting clamp
2' sanitary fitting clamp
2½' sanitary fitting clamp
3' sanitary fitting clamp

Probe length (length from process connection face)

Note: No Y01 needed in Order code for

Standard lengths
Compacted, 98 mm (3.86 inch)
Extended rod, 250 mm (9.84 inch)
Extended rod, 350 mm (13.78 inch)
Extended rod, 500 mm (19.69 inch)
Extended rod, 750 mm (29.53 inch)
Extended rod, 1,000 mm (39.37 inch)
Extended rod, 1,250 mm (49.21 inch)
Extended rod, 1,500 mm (59.06 inch)
Extended rod, 1,750 mm (68.90 inch)
Extended rod, 2,000 mm (78.74 inch)

Add Order code Y01 and plain text:

"Insertion length . . mm"

Extended rod, 710 . . 350 mm (4.3 . . 13.78 inch)
Extended rod, 710 . . 1,000 mm (13.82 . . 39.37 inch)
Extended rod, 710 . . 2,000 mm (30.41 . . 78.74 inch)
Extended rod, 2,001 . . 3,000 mm (78.78 . . 118.11 inch)
Extended rod, 3,001 . . 4,000 mm (118.15 . . 157.48 inch)
Extended rod, 4,001 . . 5,000 mm (157.52 . . 196.85 inch)
Extended rod, 5,001 . . 7,500 mm (196.89 . . 216.53 inch)

Thermal isolator
Without thermal isolator
With thermal isolator for process connection temperatures over 85 °C (185 °F)

Remote mount electronics and mounting brackets
With 2 m (79 inch) of cable2)
With 5 m (197 inch) of cable2)

Wetted seals
FKM
FKM [for process temperatures above -20 °C (-4 °F)]

Probe material
316L stainless steel with PPS probe body
316L stainless steel with PVDF probe body

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 1/2 D T100 °C

Intrinsically Safe:
CE, RCM, ATEX II 1 G Ex ia IIC T6 ... T4,
ATEX II 1/2 D IP6X T100 °C

Flameproof Enclosure with IS Probe:
CE, RCM, ATEX II 1/2 G EEx d[iA] IIC T6 ... T4,
ATEX II 1/2 D T100 °C
Level Measurement
Point level measurement - RF Capacitance switches

Pointek CLS200 - Digital

Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Pointek CLS200 - Digital - Rod with Sliding coupling with Threaded process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML643-0</td>
<td>Versatile inverse frequency shift capacitance level and material detection switch with optional process connection 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.</td>
</tr>
</tbody>
</table>

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Process connection

<table>
<thead>
<tr>
<th>Threaded, 316L stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>½&quot; NPT [(Taper), ANSI/ASME B1.20.1] 0 A</td>
</tr>
<tr>
<td>1&quot; NPT [(Taper], ANSI/ASME B1.20.1] 0 B</td>
</tr>
<tr>
<td>1½&quot; NPT [(Taper], ANSI/ASME B1.20.1] 0 C</td>
</tr>
<tr>
<td>R ¼&quot; [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] 1 A</td>
</tr>
<tr>
<td>G ¼&quot; [(BSPP), EN ISO 228-1/F (JIS-P), JIS B 0202] 1 D</td>
</tr>
<tr>
<td>R ½&quot; [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] 1 B</td>
</tr>
<tr>
<td>G ½&quot; [(BSPP), EN ISO 228-1/F (JIS-P), JIS B 0202] 1 C</td>
</tr>
<tr>
<td>R ¾&quot; [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] 1 F</td>
</tr>
<tr>
<td>G ¾&quot; [(BSPP), EN ISO 228-1/F (JIS-P), JIS B 0202] 1 E</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Insertion length</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended rod, 350 mm (13.78 inch)</td>
<td>C</td>
</tr>
<tr>
<td>Extended rod, 500 mm (19.69 inch)</td>
<td>D</td>
</tr>
<tr>
<td>Extended rod, 750 mm (29.53 inch)</td>
<td>E</td>
</tr>
<tr>
<td>Extended rod, 1,000 mm (39.37 inch)</td>
<td>F</td>
</tr>
<tr>
<td>Extended rod, 1,250 mm (49.21 inch)</td>
<td>G</td>
</tr>
<tr>
<td>Extended rod, 1,500 mm (59.06 inch)</td>
<td>H</td>
</tr>
<tr>
<td>Extended rod, 1,750 mm (68.90 inch)</td>
<td>I</td>
</tr>
<tr>
<td>Extended rod, 2,000 mm (78.74 inch)</td>
<td>J</td>
</tr>
</tbody>
</table>

Add Order code Y01 and plain text: "Insertion length ... mm"

<table>
<thead>
<tr>
<th>Order code</th>
<th>mm</th>
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<tbody>
<tr>
<td>M</td>
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<tr>
<td>N</td>
<td>1200</td>
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<td>P</td>
<td>1500</td>
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<td>Q</td>
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<tr>
<td>R</td>
<td>2500</td>
</tr>
<tr>
<td>S</td>
<td>3000</td>
</tr>
</tbody>
</table>

Thermal isolator

<table>
<thead>
<tr>
<th>Without thermal isolator</th>
</tr>
</thead>
<tbody>
<tr>
<td>With thermal isolator (for process connection temperatures over 85 °C (185 °F))</td>
</tr>
</tbody>
</table>

Remote mount electronics and mounting bracket

| With 2 m (79 inch) of cable | 2 |
| With 5 m (197 inch) of cable | 3 |

Wetted seals

| FKM and PTFE (for process temperatures above -20 °C (-4 °F)) |
| FFKM and PTFE (for process temperatures above -20 °C (-4 °F)) |

Probe material

| 316L stainless steel with PPS probe body |
| 316L stainless steel with PVDF probe body |

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 1/2 D T100 °C |
| Intrinsically Safe: CE, RCM, ATEX II 1 G Ex ia II T6 ... T4, ATEX II 1/2 D IP6X T100 °C |

Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Pointek CLS200 - Digital - Rod with Sliding coupling with Threaded process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML643-0</td>
<td>Versatile inverse frequency shift capacitance level and material detection switch with optional process connection 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.</td>
</tr>
</tbody>
</table>

Flameproof Enclosure with IS Probe:
- CE, RCM, ATEX II 1/2 G Ex d[ia] IIC T6 ... T4, ATEX II 1/2 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:
  - 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 (CE, RCM)
- General Purpose (CSA, FM)

Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Selection and Ordering data</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML643-0</td>
<td>Pointek CLS200 - Digital - Rod with Sliding coupling with Threaded process connection</td>
</tr>
</tbody>
</table>

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

Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]:

Measuring-point number/identification (max. 27 characters) specify in plain text

Manufacturer’s test certificate: M to DIN 55350, Part 18 and ISO 9000

Material inspection Certificate Type 3.1 per EN 10204

Operating Instructions
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Accessories
See page 4/34

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 10/11 in the appendix.
## Level Measurement

### Pointek CLS200 - Digital

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5644-7ML5644-0</td>
<td>Pointek CLS200 - Digital - PFA Rod with PFA Flanged process connection</td>
</tr>
</tbody>
</table>

Versatile inverse frequency shift capacitance level and material detection switch with optional process connection 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.

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

<table>
<thead>
<tr>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welded flange, PFA coated, 316L stainless steel raised face</td>
</tr>
<tr>
<td>1” ASME, 150 lb</td>
</tr>
<tr>
<td>1” ASME, 300 lb</td>
</tr>
<tr>
<td>1” ASME, 600 lb</td>
</tr>
<tr>
<td>1 1/2” ASME, 150 lb</td>
</tr>
<tr>
<td>1 1/2” ASME, 300 lb</td>
</tr>
<tr>
<td>1 1/2” ASME, 600 lb</td>
</tr>
<tr>
<td>2” ASME, 150 lb</td>
</tr>
<tr>
<td>2” ASME, 300 lb</td>
</tr>
<tr>
<td>2” ASME, 600 lb</td>
</tr>
<tr>
<td>3” ASME, 150 lb</td>
</tr>
<tr>
<td>3” ASME, 300 lb</td>
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<tr>
<td>3” ASME, 600 lb</td>
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<tr>
<td>4” ASME, 150 lb</td>
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<tr>
<td>4” ASME, 300 lb</td>
</tr>
<tr>
<td>4” ASME, 600 lb</td>
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<table>
<thead>
<tr>
<th>Probe length</th>
</tr>
</thead>
<tbody>
<tr>
<td>(length from process connection face)</td>
</tr>
<tr>
<td>No: No Y01 needed in Order code for standard lengths</td>
</tr>
<tr>
<td>Compact, 98 mm (3.86 inch)</td>
</tr>
<tr>
<td>Extended rod, 250 mm (9.84 inch)</td>
</tr>
<tr>
<td>Extended rod, 350 mm (13.78 inch)</td>
</tr>
<tr>
<td>Extended rod, 500 mm (19.69 inch)</td>
</tr>
<tr>
<td>Extended rod, 750 mm (29.53 inch)</td>
</tr>
<tr>
<td>Extended rod, 1,000 mm (39.37 inch)</td>
</tr>
<tr>
<td>Extended rod, 1,250 mm (49.21 inch)</td>
</tr>
<tr>
<td>Extended rod, 1,500 mm (59.06 inch)</td>
</tr>
<tr>
<td>Extended rod, 1,750 mm (68.90 inch)</td>
</tr>
<tr>
<td>Extended rod, 2,000 mm (78.74 inch)</td>
</tr>
</tbody>
</table>

| Add Order code Y01 and plain text: |
| Insertion length: mm |
| Extended rod, 200…1,000 mm (7.87…39.37 inch) |
| Extended rod, 1,001…2,000 mm (39.41…78.74 inch) |
| Extended rod, 2,001…3,000 mm (78.78...118.11 inch) |
| Extended rod, 3,001…4,000 mm (118.15…157.48 inch) |
| Extended rod, 4,001…5,000 mm (157.52…196.85 inch) |
| Extended rod, 5,001…5,500 mm (196.89…216.53 inch) |

<table>
<thead>
<tr>
<th>Thermal isolator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without thermal isolator</td>
</tr>
<tr>
<td>With thermal isolator for process connection temperatures over 85 °C (185 °F)</td>
</tr>
</tbody>
</table>

### Remote mount electronics and mounting bracket

- With 2 m (79 inch) of cable
- With 5 m (197 inch) of cable

<table>
<thead>
<tr>
<th>Wetted seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>FKM</td>
</tr>
<tr>
<td>FFKM (for process temperatures above -20 °C (-4 °F))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Probe material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFA Coated 316L stainless steel with PPS probe body</td>
</tr>
<tr>
<td>PFA Coated 316L stainless steel with PVDF probe body</td>
</tr>
</tbody>
</table>

### Approvals

- 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

#### Intrinsicly 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)

### Enclosure and lid

- Aluminum epoxy coated
- 2 x ½” NPT via adapter - cable inlet, IP65
- 2 x M20 x 1.5 cable inlet, IP65
- 2 x ½” NPT via adapter - cable inlet, IP68
- 2 x M20 x 1.5 cable inlet, IP68

### Operating Instructions

- All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

### Accessories

See page 4/34
# Level Measurement

Point level measurement - RF Capacitance switches

## Pointek CLS200 – Standard and Digital

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SensGuard, ¾&quot; NPT (PPS)</td>
<td>7ML1830-1DL</td>
</tr>
<tr>
<td>Only available for CLS200 with ¾&quot; NPT thread</td>
<td>7ML1830-1DM</td>
</tr>
<tr>
<td>SensGuard, R 1&quot; (BSPT) (PPS)</td>
<td>7ML1930-1AQ</td>
</tr>
<tr>
<td>Only available for CLS200 with ¾&quot; NPT thread</td>
<td>7ML1830-1JA</td>
</tr>
<tr>
<td>One metallic cable gland M20 x 1.5, -40 ... +80 °C (-40 ... +176 °F) with integrated shield connection (available for PROFIBUS PA)</td>
<td>7ML1830-1JC</td>
</tr>
<tr>
<td>General Purpose</td>
<td>7ML1830-1JB</td>
</tr>
<tr>
<td>1/2&quot; NPT General Purpose Cable Entry IP68/IP69K NEMA6, -40 ... +100 °C (-40 ... +212 °F), cable size 6 ... 12 mm (0.236 ... 0.472 inch)</td>
<td>7ML1830-1JD</td>
</tr>
<tr>
<td>M20 x 1.5 General Purpose Cable Entry IP68/IP69K NEMA6, -40 ... -100 °C (-40 ... -122 °F), cable size 7 ... 12 mm (0.276 ... 0.472 inch)</td>
<td>7ML1830-1JA</td>
</tr>
<tr>
<td>Hazardous Locations</td>
<td>7ML1830-1JC</td>
</tr>
<tr>
<td>1/2&quot; NPT EMC rated Cable Gland: Dust Ignition Proof, Flameproof Exd, and Increased Safety ATEX II 2 GD Exd 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)</td>
<td>7ML1830-1JB</td>
</tr>
<tr>
<td>M20 EMC rated Cable Gland: Dust Ignition Proof, Flameproof Exd, and Increased Safety ATEX II 2 GD Exd 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)</td>
<td>7ML1830-1JD</td>
</tr>
</tbody>
</table>

### Options

**Optional SensGuard**

- Internal thread ½" NPT.

**Internal thread**

- Process connection
  - ¾" NPT
  - R 1" (BSPT)

**Process connection**

- 91 (3.6) mm
- 70 (2.75) mm

**Dimensions**

- Optional SensGuard, dimensions in mm (inch)

---

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](http://www.automation.siemens.com/aspa_app).

*Pointek Specials*

See page 4/62
**Characteristic curves**

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

Permitted operating pressures $P$

- 30 bar (435 psi)
- 20 bar (290 psi)
- 10 bar (145 psi)
- Atmospheric

Permitted operating temperature $T$

- -150 °C (-238 °F)
- -100 °C (-148 °F)
- -50 °C (-58 °F)
- 0 °C (32 °F)
- RT 50 °C (122 °F)
- 100 °C (212 °F)
- 150 °C (302 °F)
- 200 °C (392 °F)
- 300 °C (572 °F)
- 400 °F (204 °C)

**Example:**
Permitted operating pressure = 10 bar (145 psi) at 75 °C

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

**Pressure/temperature curve**
- CLS200 cable threaded process connections (7ML5631 and 7ML5641)

Permitted operating pressures $P$

- 30 bar (435 psi)
- 20 bar (290 psi)
- 10 bar (145 psi)
- Atmospheric

Permitted operating temperature $T$

- -150 °C (-238 °F)
- -100 °C (-148 °F)
- -50 °C (-58 °F)
- 0 °C (32 °F)
- RT 50 °C (122 °F)
- 100 °C (212 °F)
- 150 °C (302 °F)
- 200 °C (392 °F)
- 300 °C (572 °F)
- 400 °F (204 °C)

Pointek CLS200 process pressure/temperature derating curves (7ML5631 and 7ML5641)
Level Measurement
Point level measurement - RF Capacitance switches

Pointek CLS200 Standard and Digital

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

Permitted operating pressures $P$

Permitted operating temperature $T$

Atmospheric

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

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

Pointek CLS200 Standard and Digital

![Pressure/temperature curve](image)

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

Permitted operating pressures $P$

- 30 bar (435 psi)
- 20 bar (290 psi)
- 10 bar (145 psi)
- Atmospheric
  - 0 bar (-14.5 psi)
  - -100 °C (-148 °F)
  - -50 °C (-58 °F)
  - 0 °C (32 °F)
  - 50 °C (122 °F)
  - 100 °C (212 °F)
  - 150 °C (302 °F)
  - 200 °C (392 °F)
  - 250 °C (482 °F)
  - 300 °C (572 °F)
  - 350 °C (662 °F)
  - 400 °C (752 °F)

Permitted operating temperature $T$

- 30 °C (86 °F)
- 20 °C (68 °F)
- 10 °C (50 °F)
- 0 °C (32 °F)
- 50 °C (122 °F)
- 100 °C (212 °F)
- 150 °C (302 °F)
- 200 °C (392 °F)
- 250 °C (482 °F)
- 300 °C (572 °F)
- 350 °C (662 °F)
- 400 °C (752 °F)

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)

![Pressure/temperature curve](image)

Permitted Operating Pressures $P$

- 50 bar (725 psi)
- 40 bar (580 psi)
- 30 bar (435 psi)
- 20 bar (280 psi)
- 10 bar (145 psi)
- Atmospheric
  - 0 bar (-14.5 psi)
  - -100 °C (-148 °F)
  - -50 °C (-58 °F)
  - 0 °C (32 °F)
  - 50 °C (122 °F)
  - 100 °C (212 °F)
  - 150 °C (302 °F)
  - 200 °C (392 °F)
  - 250 °C (482 °F)
  - 300 °C (572 °F)
  - 350 °C (662 °F)
  - 400 °C (752 °F)

Permitted Operating Temperature $T$

- 50 °C (122 °F)
- 100 °C (212 °F)
- 150 °C (302 °F)
- 200 °C (392 °F)
- 250 °C (482 °F)
- 300 °C (572 °F)
- 350 °C (662 °F)
- 400 °C (752 °F)

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 switches

Pointek CLS200 Standard and Digital

Dimensional drawings

Compact version
Threaded
(7ML5630 and 7ML5640)

Extended rod version
Threaded
(7ML5630 and 7ML5640)

Extended cable version
Threaded
(7ML5631 and 7ML5641)

Sanitary compact version
Sanitary fitting
(7ML5632 and 7ML5642)

Sanitary extended version
Sanitary fitting
(7ML5632 and 7ML5642)

Sliding coupling version
Threaded
(7ML5633 and 7ML5643)

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

Wiring: Pointek CLS200 standard

- White
- Black
- Red

Switch bank: 
- P1
- S1
- L1
- L2
- L3
- K1
- K2
- K3
- K4

Solid state switch: 
- 30 V DC/30 V AC (peak), 82 mA max.
- Relay contact: 
  - 8 A at 250 V AC, 2 000 VA
  - 5 A at 30 V DC, 150 W

Sensor status: 
- Power on
- Delay
- Trip point

Output status:
- S1
- P2

Notes:
- 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.
- Relay contact terminals are for use with equipment having no accessible live parts and wiring having insulation suitable for at least 250 V.
- Refer to the Instruction Manual or contact Siemens representative for detailed wiring information.

Wiring: Pointek CLS200 Digital

- White
- Red (+)
- Black (-)
- Orange (f)

Alarm output solid-state switch
- Reed contact*

Sensor

Power connection:
- 24 V DC/PROFIBUS PA bus (not polarity sensitive)
- 24 V DC or PROFIBUS PA bus

Notes:
- 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 CLS200 Digital version. Bring the magnet close to the test area indicated on the enclosure. The sensor test starts and finishes automatically after 10 seconds.
## Level Measurement

Point level measurement - RF Capacitance switches

### Pointek CLS Specials

#### Selection and ordering data

<table>
<thead>
<tr>
<th>Pointek Specials¹</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLS100</strong></td>
<td></td>
</tr>
<tr>
<td>Polycarbonate Lid and Gasket, FKM</td>
<td>A5E01163671</td>
</tr>
<tr>
<td>Kit, Lid and gasket, CLS100 enclosure version</td>
<td>A5E01163671</td>
</tr>
<tr>
<td><strong>CLS100 Miscellaneous Parts</strong></td>
<td></td>
</tr>
<tr>
<td>Custom length of cable is available only for 7ML5501-xxx1x and 7ML5501-xxxS²</td>
<td></td>
</tr>
<tr>
<td><strong>CLS200 Gasket (IP65), Synprene</strong></td>
<td></td>
</tr>
<tr>
<td>Spare gasket, enclosure version (IP65 versions only)</td>
<td>A5E01163672</td>
</tr>
<tr>
<td><strong>CLS200 Gasket (IP68), Silicone</strong></td>
<td></td>
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<tr>
<td>Spare gasket, enclosure version (IP68 versions)</td>
<td>A5E01163673</td>
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<tr>
<td><strong>CLS200 Blind Lid</strong></td>
<td></td>
</tr>
<tr>
<td>Spare aluminum blind lid (for standard versions only)</td>
<td>A5E01163674</td>
</tr>
<tr>
<td><strong>CLS200 Lid with window</strong></td>
<td></td>
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<tr>
<td>Spare aluminum lid with window</td>
<td>A5E01163676</td>
</tr>
<tr>
<td><strong>CLS200 Sensor Kit for cable units</strong></td>
<td>Kit, sensor for cable units, PPS, Standard, FKM</td>
</tr>
<tr>
<td>Kit, sensor for cable units, PPS, Standard, FKM</td>
<td>A5E01163677</td>
</tr>
</tbody>
</table>

### Pointek Specials¹

<table>
<thead>
<tr>
<th>Article No.</th>
</tr>
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<tbody>
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<td>A5E01163678</td>
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<td>A5E01163693</td>
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<tr>
<td>A5E01163695</td>
</tr>
</tbody>
</table>

1) Pointek Specials
2) Custom length of cable is available only for 7ML5501-xxx1x and 7ML5501-xxxS
**Level Measurement**

**Pointek CLS Specials**

<table>
<thead>
<tr>
<th>Pointek Specials</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLS300 Cable Extensions, 316 stainless steel with PFA coating</strong></td>
<td></td>
</tr>
<tr>
<td>Kit, FFA cable extension, 1 m, adjustable by customer</td>
<td>A5E01163697</td>
</tr>
<tr>
<td>Kit, FFA cable extension, 3 m, adjustable by customer</td>
<td>A5E01163698</td>
</tr>
<tr>
<td>Kit, FFA cable extension, 5 m, adjustable by customer</td>
<td>A5E01163699</td>
</tr>
<tr>
<td>Kit, FFA cable extension, 10 m, adjustable by customer</td>
<td>A5E01163700</td>
</tr>
<tr>
<td>Kit, FFA cable extension, 15 m, adjustable by customer</td>
<td>A5E01163701</td>
</tr>
<tr>
<td>Kit, FFA cable extension, 20 m, adjustable by customer</td>
<td>A5E01163702</td>
</tr>
<tr>
<td><strong>CLS300 Rod Kits, 316L stainless steel</strong></td>
<td></td>
</tr>
<tr>
<td>Kit, stainless steel rod 180 mm (7.09 inch) to be used with CLS300 units only (with standard active shield). Insertion length after installation is 350 mm (13.78 inch).</td>
<td>A5E01163719</td>
</tr>
<tr>
<td>Kit, stainless steel rod 330 mm (12.99 inch) to be used with CLS300 units only (with standard active shield). Insertion length after installation is 500 mm (19.69 inch).</td>
<td>A5E01163720</td>
</tr>
<tr>
<td>Kit, stainless steel rod 580 mm (22.83 inch) to be used with CLS300 units only (with standard active shield). Insertion length after installation is 750 mm (29.53 inch).</td>
<td>A5E01163721</td>
</tr>
<tr>
<td>Kit, stainless steel rod 830 mm (32.68 inch) to be used with CLS300 units only (with standard active shield). Insertion length after installation is 1,000 mm (39.37 inch).</td>
<td>A5E01163722</td>
</tr>
<tr>
<td>Kit, stainless steel rod 1,330 mm (52.36 inch) to be used with CLS300 units only (with standard active shield). Insertion length after installation is 1,500 mm (59.06 inch).</td>
<td></td>
</tr>
<tr>
<td>Kit, stainless steel rod 1,830 mm (72.05 inch) to be used with CLS300 units only (with standard active shield). Insertion length after installation is 2,000 mm (78.74 inch).</td>
<td></td>
</tr>
<tr>
<td>Kit, stainless steel rod customized length up to 1 m</td>
<td></td>
</tr>
<tr>
<td>Kit, stainless steel rod customized length up to 2 m</td>
<td></td>
</tr>
</tbody>
</table>