

## Precision level detection When space and price matter

# precision

For level detection in constricted spaces, the compact Pointek® CLS 100 is the economical solution: it's precise, reliable and simple to install, all at a low cost. This 2-wire switch detects interfaces, solids, liquids, slurries, and foam using a unique approach to capacitance technology, based on extensive field experience.

Inverse Frequency Technology and the use of an Advanced Sensitive-Tip ensure high accuracy, resolution and repeatable switch point, while tank walls, variations in product quality, vapour and dust have a negligible effect.

Pointek CLS 100 – a million in one

[www.siemens.com/level](http://www.siemens.com/level)

### Pointek CLS 100

Compact design and short insertion length. Ideal for constricted spaces and for small vessels or pipes up to 100 mm (4").

Inverse Frequency Capacitance technology results in higher accuracy and resolution.

Advanced Sensitive-Tip technology for accurate and repeatable switch point.

Tank walls, variations in product quality, vapor and dust have a negligible effect on the readings.

Automated Sensor Test program tells you if circuitry and sensor are fully working. No need to remove the unit from the tank.

Choice of PPS or PVDF probes, and PPS or stainless steel process connections.



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# Technical specifications

	Pointek CLS 100 Stainless steel process connection (cable and enclosure version)	Pointek CLS 100 Synthetic process connection (all-plastic enclosure version only)
<b>Power</b>	<ul style="list-style-type: none"> <li>■ General purpose and/or dust ignition proof: 10 to 33 V DC</li> <li>■ Intrinsically safe: 10 to 30 V DC</li> </ul>	
<b>Performance</b>	Measurement range: Up to 100 mm Measured value: High and low	
<b>Outputs</b>	Alarm output: mA: 4/20 mA or 20/4 mA 2-wire loop Transistor output: <ul style="list-style-type: none"> <li>■ Standard model: Solid state 40 V DC/ 28 V AC, max. 2 VA</li> <li>■ Intrinsically safe model: 30 V DC</li> </ul> Relay 30 V DC, 2A; 125 V AC, 0.5 A, 110 V DC, 0.5 A	
<b>Mechanical</b>	Enclosure: <ul style="list-style-type: none"> <li>■ Cable version: 316 stainless steel (1.4401)</li> <li>■ Enclosure version: PBT (or 316 stainless steel), transparent thermoplastic polyester lid</li> </ul> All synthetic version: PBT, transparent thermoplastic polyester lid	
Process connection	316 stainless steel (1.4401)	Process connection and sensor: PPS (Uni-construction)
Process seal	FPM (optional FFKM)	
Sensor	PPS (optional PVDF)	
<b>Process conditions</b>	Ambient temperature: -40 to 85 °C (-40 to 185 °F) Process temperature: -40 to 100 °C (-40 to 212 °F) Pressure: -1 to 10 bar (146 psi) gauge, nominal Dielectric constant (εr): 1.5 minimum Location: Indoor/outdoor Altitude: 2000 m (6562 ft) max.	
<b>Approvals</b>	CE, CSA, FM, ATEX, WHG/VbF overfill protection (Germany), PED 97/23/EC, Lloyd's Register of Shipping, categories ENV1, ENV2, and ENV5	

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# Million in one

Signal processing with field experience

Siemens level measurement instruments come with extensive field experience. Siemens Milltronics developed the signal processing technology for level instruments based on the experience of a million instruments in industrial applications.

With this experience we understand the importance of reliability, and we know what it takes to make a trusted and accurate level instrument for demanding applications. That's why our engineers invented Inverse Frequency capacitance technology and Advanced Sensitive-Tip technology, and that's why these instruments carry so many patents. With Siemens Milltronics you get the experience of a million applications in one instrument.





## Level detection When precision matters most



**Pointek CLS 200**

Inverse Frequency capacitance technology results in higher accuracy and resolution.

Advanced Sensitive-Tip technology for accurate and repeatable switch point.

Tank walls, variations in product quality, vapor and dust have a negligible effect on the readings.

Automated Sensor Test program tells you if circuitry and sensor are fully working. No need to remove the unit from the tank.

Online commissioning of parameters allows for full advantage of sensitivity and accuracy of the instrument: number of counts, set points, adjustable hysteresis, time delay, and output status. You can setup and make setup adjustments from the control room or other remote locations.



# precision



Pointek® CLS 200 is the ideal solution for level detection in general process conditions with high chemical and physical abuse . It's a versatile 2-wire capacitance switch with a high chemical resistance for level detection of interfaces, solids, liquids, slurries and foam, and for simple pump control.

Pointek CLS 200 applies a unique approach to capacitance technology that is based on extensive field experience. It includes Inverse Frequency technology and an Advanced Sensitive-Tip, ensuring high accuracy, resolution and repeatability.

Pointek CLS 200 – a million in one

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# Technical specifications

Pointek CLS 200		
	Analog	Digital
<b>Power</b>	<ul style="list-style-type: none"> <li>■ 12 to 250 V AC/DC, 50/60 Hz</li> <li>■ 2 VA / 2 W maximum</li> <li>■ 2 VA / 2 W maximum</li> </ul>	<ul style="list-style-type: none"> <li>■ Standard: 9 to 32 V DC</li> <li>■ Intrinsically safe: 9 to 24 V DC</li> <li>■ Explosion proof: 12 to 250 V AC/DC</li> </ul>
<b>Performance</b>	<ul style="list-style-type: none"> <li>■ Measurement frequency: - 5.5 MHz <math>\epsilon_r = 1</math>; - 1.1 MHz @ <math>\epsilon_r = 80</math></li> <li>■ Repeatability: <math>\pm 1\%</math> of measurement</li> <li>■ Hysteresis: dependent on <math>\epsilon_r</math>; max. 2 mm (0.08") @ <math>\epsilon_r = 1.5</math></li> </ul>	
<b>Interface</b>		
Configuration	Locally using dip switches and potentiometers	<ul style="list-style-type: none"> <li>■ Remotely using SIMATIC PDM</li> <li>■ Locally using 3 button keypad</li> </ul>
Display	Transmitter with 3 LED indicators	Local digital LCD display
Communication		<ul style="list-style-type: none"> <li>■ PROFIBUS PA (IEC 61158 CPF3 CP3/2)</li> <li>■ Bus physical layer: IEC 61158-2 MBP-(IS)</li> <li>■ Device profile: PROFIBUS PA profile for Process Control Devices Version 3.0, Class B</li> <li>■ FISCO field device</li> </ul>
Outputs	<ul style="list-style-type: none"> <li>■ Relay: 1 form 'C' (SPDT), non-inductive</li> <li>■ Solid state switch</li> <li>■ Time delay: 'on/off alarm' selectable</li> <li>■ Fail-safe operation (high or low)</li> <li>■ Delay timers: 2</li> </ul>	<ul style="list-style-type: none"> <li>■ Solid-state switch</li> <li>■ Delay timers: 2 (Fall Time and Rise Time)</li> <li>■ Time delay: controlled by software</li> <li>■ Fail-safe operation (high or low)</li> <li>■ Relay (or mA) output: optional with added pcb board (stand-alone)</li> </ul>
<b>Mechanical</b>		
Enclosure	<ul style="list-style-type: none"> <li>■ Epoxy coated aluminium with gasket</li> <li>■ Optional thermal isolator, 316 stainless steel (1.4404)</li> <li>■ Type 4 / NEMA 4 / IP68</li> <li>■ Installation category: II</li> <li>■ Pollution degree: 4</li> </ul>	
Process connection	<ul style="list-style-type: none"> <li>■ 316 stainless steel (1.4404) (Standard and Cable)</li> <li>■ Compliant Sanitary flange connector (Sanitary)</li> <li>■ Thermal Isolator</li> </ul>	
Sensor	<ul style="list-style-type: none"> <li>■ Sensor PPS (optional: PVDF)</li> <li>■ Max. 5.5 m (18 ft); extension 316 stainless steel (1.4404) (Standard and Sanitary )</li> <li>■ Max 35 m (115 ft); extension (stainless steel) with FEP coating (Cable)</li> </ul>	
<b>Process conditions</b>		
Ambient temperature	-40 to 85 °C (-40 to 185 °F)	
Process temperature standard	<ul style="list-style-type: none"> <li>■ -40 to 85 °C (-40 to 185 °F)</li> <li>■ Standard with temperature extension: -40 to 125 °C (-40 to 257 °F)</li> <li>■ Slide coupling: ambient temperature</li> </ul>	
Pressure	<ul style="list-style-type: none"> <li>■ Standard and rigid extension versions 0 to 25 bar / 365 psi / 2500 kPa, gauge, nominal</li> <li>■ Cable version 0 to 10 bar / 150 psi gauge, nominal</li> <li>■ Optimal slide coupling version: ambient pressure</li> </ul>	
Dielectric constant	(Er): 1.5 minimum	
Location	Indoor/outdoor	
Altitude	2000 m (6562 ft) max.	
<b>Approvals</b>	CE, CSA <sub>NRTL/C</sub> , FM, 3A, ATEX, WHG/VbF overfill protection (Germany), Vlareem, Lloyd's Register of Shipping, categories ENV1, ENV2, and ENV5	

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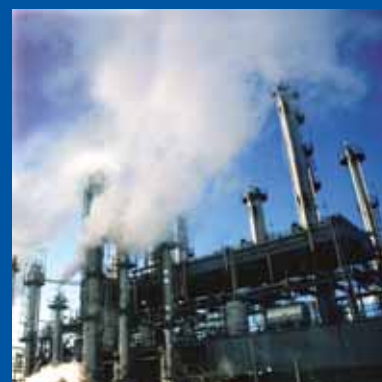
Certification No. 002284

## Million in one

### Signal processing with field experience

Siemens level measurement instruments come with extensive field experience. Siemens Milltronics developed the signal processing technology for level instruments based on the experience of a million instruments in industrial applications.

With this experience we understand the importance of reliability, and we know what it takes to make a trusted and accurate level instrument for demanding applications. That's why our engineers invented Inverse Frequency capacitance technology and Advanced Sensitive-Tip technology, and that's why these instruments carry so many patents. With Siemens Milltronics you get the experience of a million applications in one instrument.



# Hot levels, harsh conditions

## Pointek CLS 300 level switch

### Pointek CLS 300

Inverse Frequency Shift capacitance technology results in higher accuracy and resolution.

Patented Active Shield provides superior reliability.

Tank walls, variations in product quality, vapor and dust have a negligible effect on the readings.

Automated Sensor Test program tells you if circuitry and sensor are fully functional. No need to remove the unit from the tank.

Online commissioning of parameters allows for full advantage of sensitivity and accuracy of the instrument: number of counts, set points, adjustable hysteresis, time delay, and output status. Make adjustments from the control room or other remote locations.

A wide range of models available: rod and cable sensors up to 25 meters (82 ft); high temperature up to 400 °C (752 °F); intrinsically safe and explosion proof.



# precision

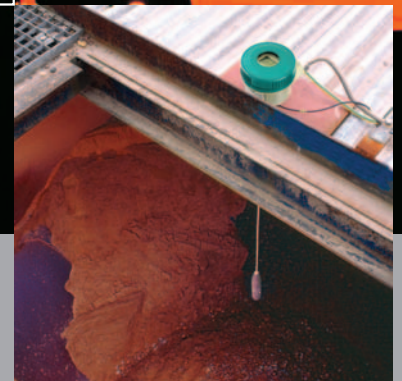
In harsh process conditions with high chemical and physical abuse, reliability and accuracy are critical for safe and economical operation.

For these conditions, Pointek® CLS 300 is the ideal level switch. It is used for high and low level alarm of interfaces, solids, liquids, slurries and viscous materials. This capacitance switch handles temperatures up to 400 °C (752 °F) and pressures from full vacuum to 35 bar (511 psi).

Pointek CLS 300 applies a unique approach to capacitance technology that is based on extensive field experience. It includes patented Active-Shield and Inverse Frequency Shift technology, ensuring high accuracy, resolution and repeatability.

Pointek CLS 300 – a million in one.

[www.siemens.com/level](http://www.siemens.com/level)



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# Technical specifications

Pointek CLS 300		
	Analog	Digital
<b>Power</b>	<ul style="list-style-type: none"> <li>■ 12 to 250 V AC/DC, 50/60 Hz</li> <li>■ 2 VA/2 W maximum</li> </ul>	<ul style="list-style-type: none"> <li>■ Standard: 9 to 32 V DC, max. 2 VA/2 W</li> <li>■ Intrinsically safe: 9 to 24 V DC, max. 2 VA/2 W</li> <li>■ Explosion proof: 12 to 250 V AC/DC</li> </ul>
<b>Performance</b>	<ul style="list-style-type: none"> <li>■ Measurement frequency: 600 KHz</li> <li>■ Repeatability: <math>\pm 1\%</math> of measurement</li> <li>■ Hysteresis: dependent on <math>\epsilon_r</math>; max. 2 mm (0.08") @ <math>\epsilon_r = 1.5</math></li> </ul>	
<b>Interface</b>		
Configuration	Locally using dip switches and potentiometers	<ul style="list-style-type: none"> <li>■ Remotely using SIMATIC PDM</li> <li>■ Locally using 3 button keypad (stand alone)</li> </ul>
Display	Transmitter with 3 LED indicators	Local digital LCD display
Communication		<ul style="list-style-type: none"> <li>■ PROFIBUS PA (IEC 61158 CPF3 CP3/2)</li> <li>■ Bus physical layer: IEC 61158-2 MBP(IS)</li> <li>■ Device profile: PROFIBUS PA profile for Process Control Devices Version 3.0, Class B</li> <li>■ FISCO field device</li> </ul>
Outputs	<ul style="list-style-type: none"> <li>■ Relay: 1 form 'C' (SPDT), non-inductive</li> <li>■ Solid state switch</li> <li>■ Time delay: 'on/off alarm' selectable</li> <li>■ Fail-safe operation (high or low)</li> <li>■ Delay timers: 2</li> </ul>	<ul style="list-style-type: none"> <li>■ Solid state switch</li> <li>■ Delay timers: 2 (Fall Time and Rise Time)</li> <li>■ Time delay: controlled by software</li> <li>■ Fail-safe operation (high or low)</li> <li>■ Relay or mA output: optional with added pcb board (stand alone)</li> </ul>
<b>Mechanical</b>		
Enclosure	<ul style="list-style-type: none"> <li>■ Powder coated aluminium with gasket</li> <li>■ Optional thermal isolator, 316 stainless steel (1.4404)</li> <li>■ Type 4 / NEMA 4 / IP65, IP68 optional</li> <li>■ Installation category: II</li> <li>■ Pollution degree: 4</li> </ul>	
Process connection	<ul style="list-style-type: none"> <li>■ 316 stainless steel (1.4404) (Standard and Cable)</li> <li>■ Thermal Isolator optional</li> </ul>	
Sensor	<ul style="list-style-type: none"> <li>■ PFA (Standard), stainless steel (1.4404) (Cable), 316L and ceramic (High Temperature)</li> <li>■ Max. 1 m (40") Standard sand High Temperature</li> <li>■ Max. 25 m (82 ft); stainless steel with FEP coating (Cable)</li> </ul>	
<b>Process conditions</b>		
Ambient temperature	-40 to 85 °C (-40 to 185 °F)	
Process temperature	<ul style="list-style-type: none"> <li>■ -40 to 200 °C (-40 to 392 °F) Standard</li> <li>■ -40 to 400 °C (-40 to 752 °F) High Temperature</li> </ul>	
Pressure	0 to 35 bar / 508 psi / 3500 kPa, gauge, nominal	-1 to 35 bar / 508 psi / 3500 kPa, gauge, nominal
Dielectric constant	$\epsilon_r$ : 1.5 minimum	
Location	Indoor/outdoor	
Altitude	2000 m (6562 ft) max.	
<b>Approvals</b>	CE, CSA <sup>WRTUC</sup> , FM, ATEX, WHG/VbF overfill protection (Germany), Vlare, Lloyd's Register of Shipping, categories ENV1, ENV2, and ENV5	

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