

Overview



SITRANS LCS050 is an ultra-compact, capacitance switch for point level detection in constricted spaces, water-based liquids, slurries, and foam.

Benefits

- Easy installation with no need for adjustment
- Low maintenance with no moving parts
- Highly visible 360-degree status indication
- M12 connector for ease of installation
- IO-Link communication option for advanced monitoring and configuration

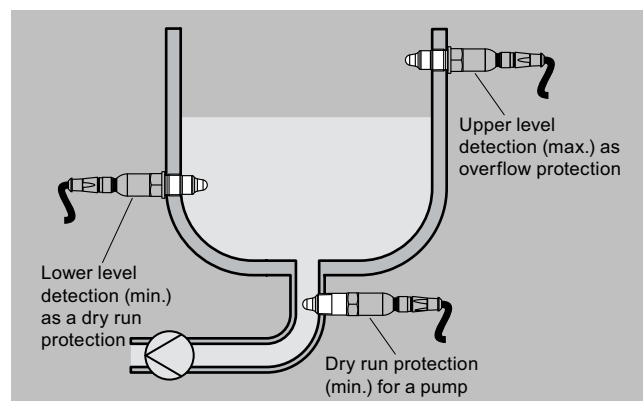
Application

The SITRANS LCS050's ultra-compact design, short insertion length of 15 mm (0.59 inch), and versatility in various applications in vessels or pipes, makes it a good replacement for traditional point level switches.

Its advanced alternating capacitance field at the sensor tip ensures material detection based on changes in capacitance, providing repeatable performance. The PEEK probe is chemically resistant with an effective process operating temperature range from -20 to +100 °C (-4 to +212 °F) and supports sterilization in place at 135 °C (275 °F) for up to 1 hour. The product design ensures reliability in a vibrating environment such as agitated tanks up to 5 g.

- Key Applications: water-based liquids with > 10 % water (alcohols, acids, cleaning agents), slurries and foam for point level, overflow and dry run protection including small pipes due to its compact design.

Configuration



SITRANS LCS050, installation examples

Level Measurement

Point level measurement

Capacitance switches / SITRANS LCS050

Selection and ordering data

		Article No.													
SITRANS LCS050 Point level switch Compact, point level switch, detects level in liquids. For use with overflow, high, low, and demand applications as well as pump protection. Compact design is ideal for confined spaces. Support for IO-Link communications.		7	M	L	5	7	7	2	-	0	-	0	A	A	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.															
Approvals															
Ordinary location															1
With FDA, Regulation (EC) No. 1935/2004															2
Process connection															
Thread M24 x 1.5 PN 25, DIN 13 / 316L, EPDM												A	A		
Thread G ½" PN 25, DIN 3852-A / 316L												A	B		
Thread G ½" PN 25, ISO228-1 / 316L (Ra < 0.76 µm); for ½" hygiene adapter												A	C		
Thread ½" NPT PN 25, ASME B1.20.1 / 316L												A	D		
Thread G ¾" PN 25, DIN 3852-A / 316L												A	E		
Thread ¾" NPT PN 25, ASME B1.20.1 / 316L												A	F		
Thread G 1" PN 25, DIN 3852-A / 316L												A	G		
Thread G 1" PN 25, ISO228-1, hygiene design / 316L (Ra < 0.76 µm), EPDM, for hygiene adapter sealing with O-ring												A	H		
Thread 1" NPT PN 25, ASME B1.20.1 / 316L												A	J		
Thread G 1" PN 25, ISO228-1, cone 40° / 316L (Ra < 0.76 µm); for hygiene adapter metallically sealing												A	K		
Electronics															
Three-wire transistor with IO-Link															1

Selection and ordering data

Accessories

Hygienic adapter for G ½" is available, contact factory for pricing.

Welded socket, suitable for LCS050 series, with threaded fittings or hygienic connections is available, contact factory for pricing

Operating instructions

Note: due to ATEX regulations one Quick start manual is included with every product.

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

Technical specifications

SITRANS LCS050	
Mode of operation	
Measuring principle	Capacitance level detection
Input	
Measured variable	Change in picoFarad (pF)
Output	
Output signal	
• Alarm output	Transistor (PNP/NPN) IO-Link acc. to IEC 61131-9
• Fail-safe mode	Min. or max.
Accuracy	
Hysteresis	Approx. 1 mm (0.04 inch)
Rated operating conditions	
Installation conditions	
• Location	Indoor/outdoor
Ambient conditions	
• Ambient temperature	-40 ... +70 °C (-40 ... +158 °F)
• Storage temperature	-40 ... +80 °C (-40 ... +176 °F)
• Installation category	I
• Pollution degree	4
Medium conditions	

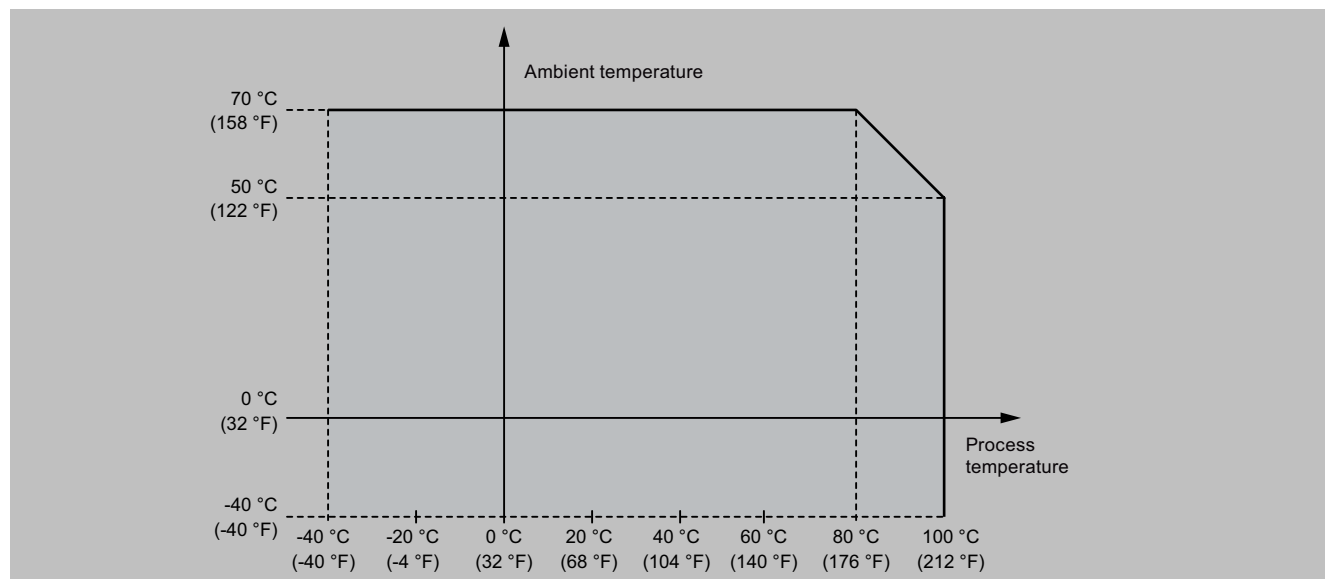
Technical specifications (continued)

SITRANS LCS050	
• Relative dielectric constant ϵ_r	Min. 2
• Process temperature	-20 ... +100 °C (-4 ... +212 °F) up to 1 hour, 135 °C (275 °F)
• Pressure (vessel)	-1 ... 25 bar/-100 ... 2 500 kPa (-14.5 ... 363 psig)
• Degree of protection	
- M 12x 1 plug	IP66/IP67/IP69
Design	<u>Enclosure/integral cable version</u>
Material	
• Body	316L and plastic (polycarbonate)
Sensor length	15 mm (0.59 inch)
Process connection material of probe/wetted parts	• Connection: 316L stainless steel • Device seal: FKM (hygienic version EPDM) • Sensor tip: PEEK
Connection (Enclosure version)	M12 x 1 plug
Process connection	Pipe thread, cylindrical (DIN 3852-A) G½, G¾, G1 pipe thread, conical (ASME B1.20.1) ½ NPT, ¾ NPT, 1 NPT metric fine thread, cylindrical M24 x 1.5

Technical specifications (continued)

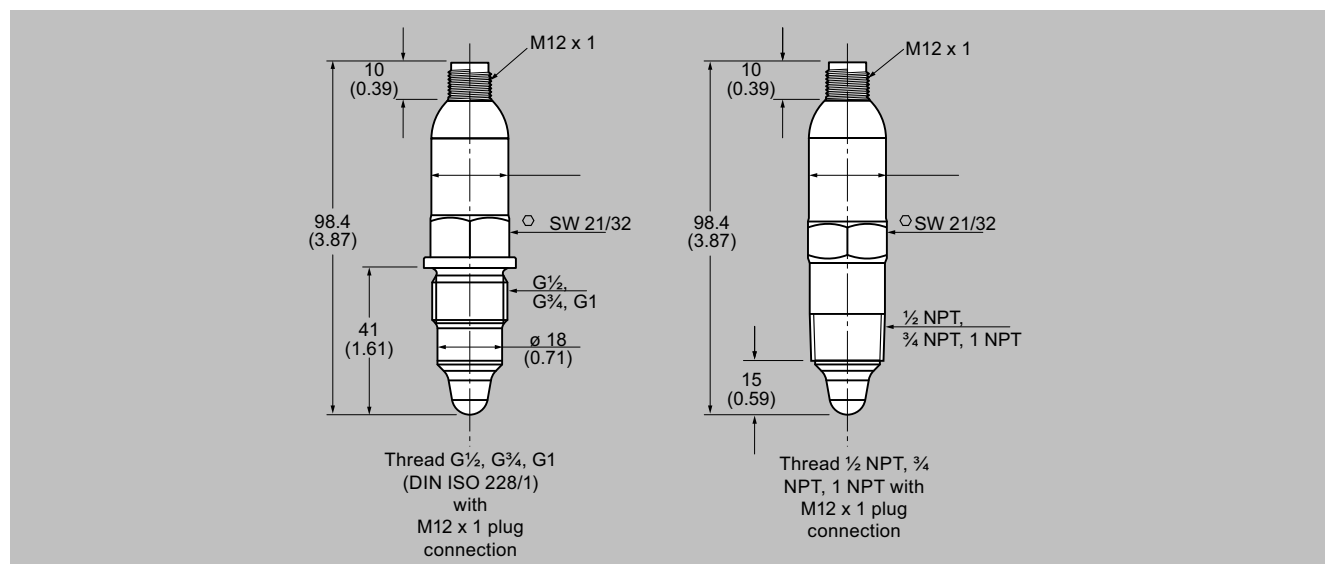
SITRANS LCS050	
Power supply	
Standard	12 ... 35 V DC
Certificates and approvals	General: CE, UKCA

Characteristic curves



SITRANS LCS050 ambient temperature/process temperature curve

Dimensional drawings



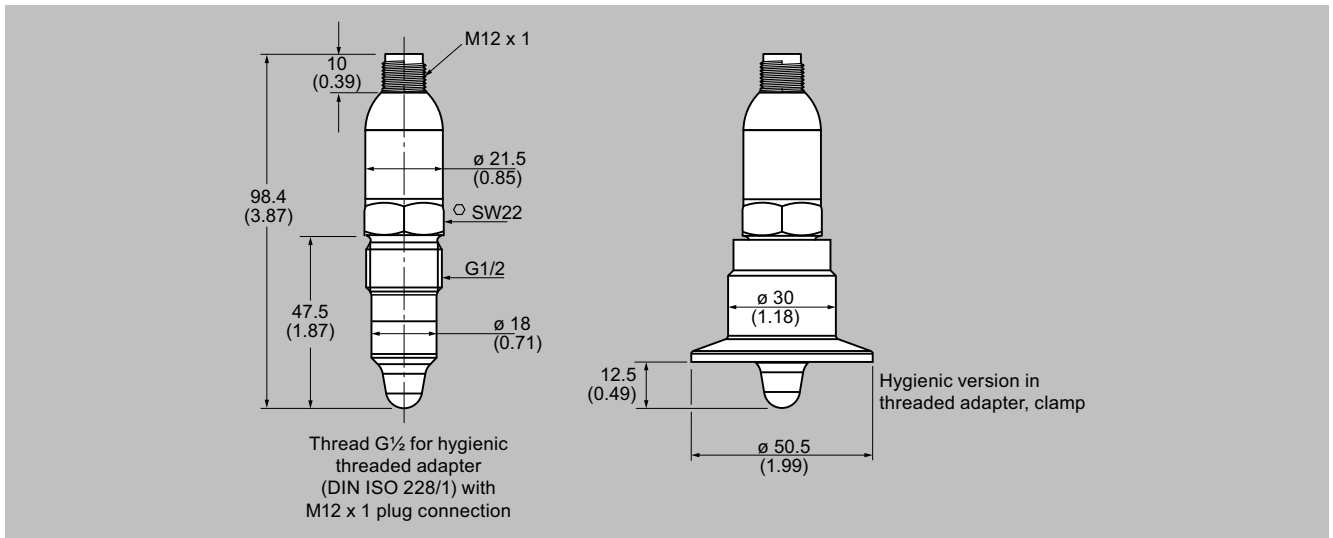
SITRANS LCS050, standard version - thread, dimensions in mm (inch)

Level Measurement

Point level measurement

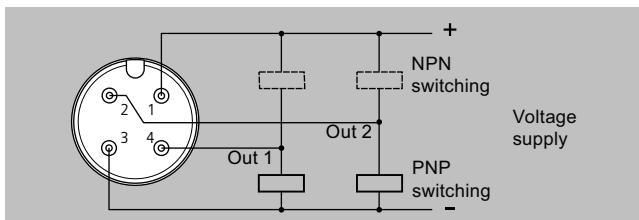
Capacitance switches / SITRANS LCS050

Dimensional drawings (continued)



SITRANS LCS050, hygienic version - thread, dimensions in mm (inch)

Circuit diagrams



SITRANS LCS050 connections