

ISO-9001:2015 certified

# SCL Series Capacitance Point Level Sensor

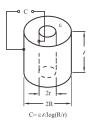
More than just another level measurement company ....



## PRODUCT INTRODUCTION

## **OPERATING PRINCIPLE**

The SCL series is used for high, low and intermediate level monitoring. The SCL product line consists of two complimentary models, the SCL17 and the SCL18. Both the SCL17 and SCL18 are capacitance point level sensors designed to operate by generating an electrostatic field between the wall of the tank (GND) and the active sensing portion of the probe through the target material, and detecting the change in capacitance within this field caused by the presence or absence of the target material.



As the target material approaches the active sensing portion of the SCL17 or SCL18 probe, the capacitance in the field increases. When the capacitance reaches a predetermined threshold the output circuit of the sensor is triggered and changes state. This predetermined threshold is set by the calibration adjustment/setting of the SCL17 or SCL18 during installation and initial setup. The primary difference between the SCL17 and SCL18 is in the method of setting the calibration.

SCL18	SCL17	
Provides the highest degree of performance and reliability over the widest range of applications	Provides high performance and reliability with a lower price point	
Calibrated at factory. Recalibration by pushbutton in empty vessel condition if required	Calibrated at factory. DIP switch setting and potentiometer adjustment for recalibration if required	
Time delay adjustable for BOTH material presence and material absence detection conditions; 0~30s	Time delay adjustable for material presence detection condition only; 0~6s	
Very wide assortment of probe styles, material and process connections	Very wide assortment of probe styles, material and process connections	
For use with non-sticking liquids, and dry freely flowing solids	For use with non-sticking liquids, and dry freely flowing solids	
cULus Approval for Ordinary Locations		

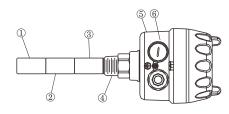
## **FEATURES**

- Universal power supply 20-250VAC/VDC
- Pushbutton recalibration using microcontroller technology (SCL18 only)
- Fully adjustable time delay, uncovered-to-covered as well as covered-to-uncovered (SCL18 only)
- · Local LED indication available
- · Optional cover chain eases installation
- Ideal cost effective sensor for non-stick liquids and dry freely flowing solids, including corrosive materials
- Remote test function
- Up to 392°F (200°C) operating temperature available
- Standard, coated, cable, low-profile and high temperature probe versions

## **INDUSTRY USE**

- Concrete Production
- Cement
- Asphalt
- Agriculture
- Feed & Grain Processing
- Plastic Processing
- Food
- Pharmaceutical
- Chemical
- Ceramic
- Water/Wastewater
- Steel

## STRUCTURE FOR THE STANDARD PROBE (TYPE A)



- 1. Active probe section: Made of 304SS, 316SS or 316LSS
- 2. Main insulation section: Low dielectric material, made of PTFE or UPE, used to insulate the active probe section from the grounding section
- 3. Grounding section: 304SS, 316SS or 316LSS
- 4. Process connection: 1" NPT; 304SS, 316SS or 316LSS
- 5. Housing: die-cast aluminum, powder coated
- 6. Conduit Entrance:3/4" NPT

## **APPLICATIONS**

## For Material Presence Detection

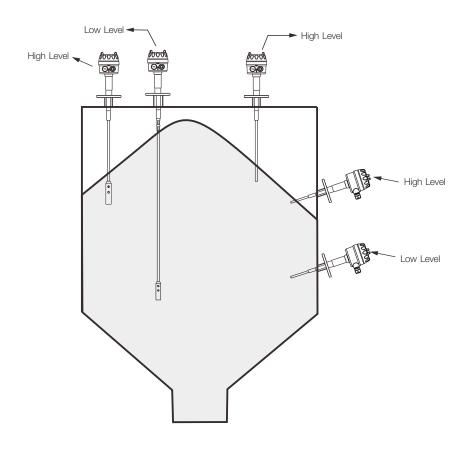
- Trigger an alarm or illuminate an indicating light
- · Close a valve to shut off vessel filling of material
- · Open a valve to discharge material from a temporary storage vessel

## For Material Absence Detection

- · Trigger an alarm or illuminate an indicating light
- Close a valve to stop the discharge of material
- Open a valve to begin filling vessel with material

## Material and Approximate Dielectric Constant for Reference

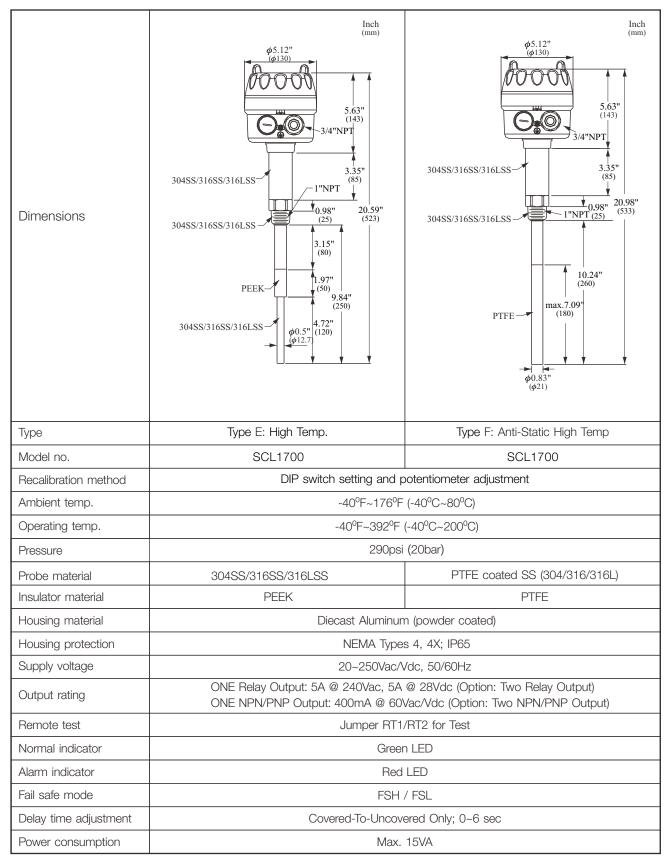
LIQUID	APPROX. DIELECTRIC CONSTANT	POWDER BULK SOLID	APPROX. DIELECTRIC CONSTANT
Water	81	Flour	2.4
Vitriol	37	Styrofoam	2
Methanol	30	Whole Corn	1.8
Butanol	11	Milk Powder	1.8
Ethanol	2.5	Talc	1.8
Cooking Oil	2~4	Rice bran	1.7
Diesel Oil	2.1	Plastic Pellet	1.5~1.8



## **TYPES & SPECIFICATIONS - SCL17**

	Inch (mm)	Inch (mm)		
Dimensions	φ5.12" (φ130)  5.63" (143)  304SS/316SS/316LSS  1"NPT 1.97" (50) (50) 1.97" (150) (50) 1.97" (50) (50) 1.97" (50) (60) 1.97" (150) (60) (60) 1.97" (100) (60) (60) 1.97" (100) (60) (60) 1.97" (100)	φ5.12" (φ130)  5.63" (143)  0.98" (25)  1"NPT 3.15" (80)  1.97" (50) 9.84" (250)  304SS/316SS/316LSS  φ0.5" (120) (φ12.7)		
Туре	Type A: Standard	Type B: Standard		
Model no.	SCL1700	SCL1700		
Recalibration method	DIP switch setting and potentiometer adjustment			
Ambient temp.	-40°F~176°F (-40°C~80°C)			
Operating temp.	-40°F~176°F (-40°C~80°C)			
Pressure	290psi (20bar)			
Probe material	304SS/316SS/316LSS			
Insulator material	UPE (UHMW Polyethylene)			
Housing material	Diecast Aluminum (powder coated)			
Housing protection	NEMA Types 4, 4X; IP65			
Supply voltage	20~250Vac/Vdc, 50/60Hz			
Output rating	ONE Relay Output: 5A @ 240Vac, 5A @ 28Vdc (Option: Two Relay Output) ONE NPN/PNP Output: 400mA @ 60Vac/Vdc (Option: Two NPN/PNP Output)			
Remote test	Jumper RT1/RT2 for Test			
Normal indicator	Green LED			
Alarm indicator	Red LED			
Fail safe mode	FSH / FSL			
Delay time adjustment	Covered-To-Uncovered Only; 0~6 sec			
Power consumption	Max. 15VA			

	Inch (mm)	Inch (mm)		
Dimensions	φ5.12" (φ130)  5.63" (143)  φ5.51" (140)  304SS  φ0.75" (φ19) φ4.13" (φ105)  UPE  10.04" (255)  φ0.98"  φ0.98"	φ5.12" (φ130)  5.63" (143) 3/4"NPT  10.24" (260)  max.7.09" (180) φ0.83" (25)		
Туре	Type C: Anti-Corrosive	Type D: Anti-Static		
Model no.	SCL1700	SCL1700		
Recalibration method	DIP switch setting and potentiometer adjustment			
Ambient temp.	-40°F~176°F (-40°C~80°C)			
Operating temp.	-40°F~248°F (-40°C~120°C) -40°F~176°F (-40°C~80°C)			
Pressure	290psi (20bar)			
Probe material	PVDF coated 304SS (not in contact with target material)	UPE (UHMW Polyethylene) coated SS (304/316/316L)		
Insulator material	UPE (UHMW Polyethylene) UPE (UHMW Polyethylene)			
Housing material	Diecast Aluminum (powder coated)			
Housing protection	NEMA Types 4, 4X; IP65			
Supply voltage	20~250Vac/Vdc, 50/60Hz			
Output rating	ONE Relay Output: 5A @ 240Vac, 5A @ 28Vdc (Option: Two Relay Output) ONE NPN/PNP Output: 400mA @ 60Vac/Vdc (Option: Two NPN/PNP Output)			
Remote test	Jumper RT1/RT2 for Test			
Normal indicator	Green LED			
Alarm indicator	Red LED			
Fail safe mode	FSH / FSL			
Delay time adjustment	Covered-To-Uncovered Only; 0~6 sec			
Power consumption	Max. 15VA			



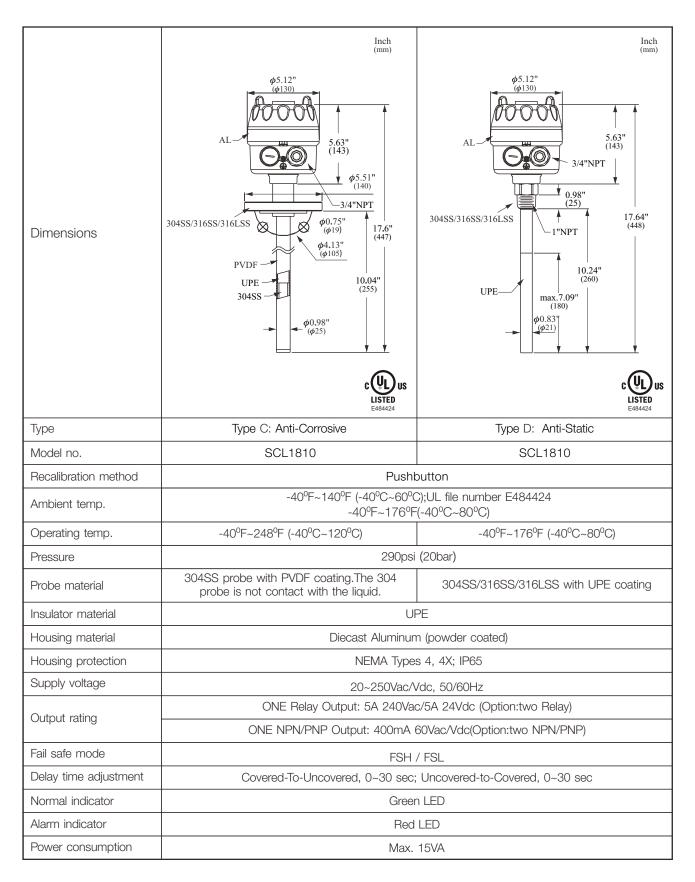
Dimensions	12.52" (φ130) 3/4"NPT 304SS 1"NPT 3.15" (80) 2.76" 118.11" (70) (3000) 40.24" φ0.24" φ0.83" (φ21) 304SS/316SS/316LSS	φ5.12" (φ130)  5.63" (143)  3.35" (85) 15.87" (403)  1.97" (50)  1.97" (50)  2.76" (70) 118.11" (3000)  φ0.24" (φ21)  φ0.83" (φ21)		
Туре	Type G: Cable Extended	Type H: Cable Extended High Temp.		
Model no.	SCL1701	SCL1701		
Recalibration method	DIP switch setting and potentiometer adjustment			
Ambient temp.	-40°F~176°F (-40°C~80°C)			
Operating temp.	-40°F~176°F (-40°C~80°C)	-40°F~392°F (-40°C~200°C)		
Pressure	290psi	(20bar)		
Probe material	30-	4SS		
Insulator material	UPE (UHMW Polyethylene)	PEEK		
Housing material	Diecast Aluminum (powder coated)			
Housing protection	NEMA Type:	s 4, 4X; IP65		
Supply voltage	20~250Vac/Vdc, 50/60Hz			
Output rating	ONE Relay Output: 5A @ 240Vac, 5A @ 28Vdc (Option: Two Relay Output) ONE NPN/PNP Output: 400mA @ 60Vac/Vdc (Option: Two NPN/PNP Output)			
Remote test	Jumper RT1/RT2 for Test			
Normal indicator	Green LED			
Alarm indicator	Red LED			
Fail safe mode	FSH / FSL			
Delay time adjustment	Covered-To-Uncovered Only; 0~6 sec			
Power consumption	Max. 15VA			

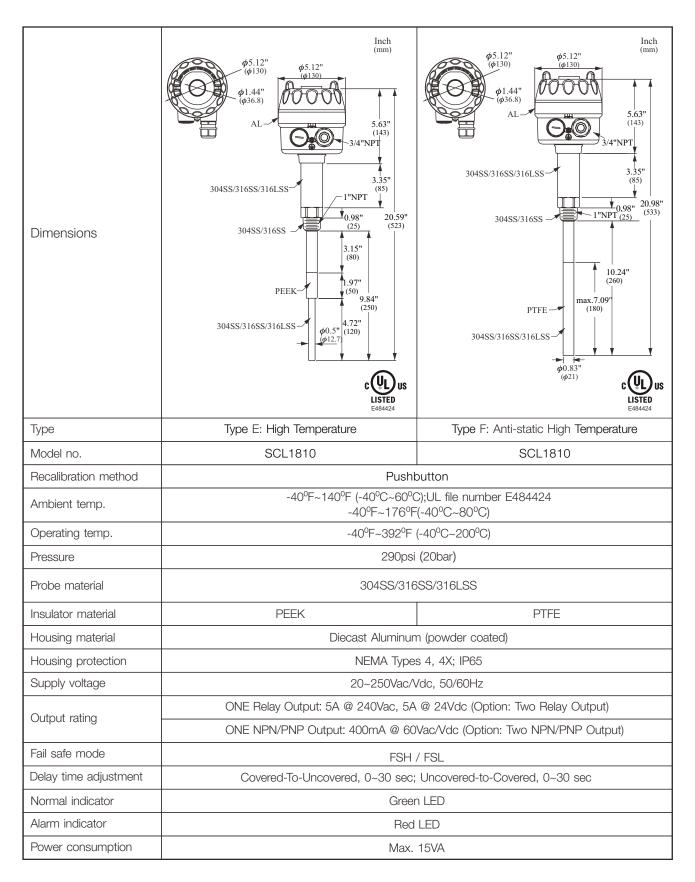
	Inch (mm)	Inch (mm)	
Dimensions	φ5.12" (φ130)  5.63" (143) 6.93" (3693) (176) 8.9" (226) (φ155) (φ155) (φ2.95" (φ130) (φ75)	φ5.12" (φ130)  5.63" (143) 3/4"NPT 10.08" (256) (256) (256) (311) (256) (256) (311) (256) (256) (311) (256) (256) (256) (256) (257) (257) (258)	
Туре	Type J: Low Profile	Type K: Low Profile High Temp	
Model no.	SCL1702	SCL1702	
Recalibration method	DIP switch setting and potentiometer adjustment		
Ambient temp.	-40°F~176°F	(-40°C~80°C)	
Operating temp.	-40°F~176°F (-40°C~80°C)	-40°F~392°F (-40°C~200°C)	
Pressure	290psi	(20bar)	
Probe material	304SS/316SS/316LSS	304SS/316SS/316LSS	
Insulator material	UPE (UHMW Polyethylene)	PTFE	
Housing material	Diecast Aluminur	m (powder coated)	
Housing protection	NEMA Types 4, 4X; IP65		
Supply voltage	20~250Vac/Vdc, 50/60Hz		
Output rating	ONE Relay Output: 5A @ 240Vac, 5A @ 28Vdc (Option: Two Relay Output) ONE NPN/PNP Output: 400mA @ 60Vac/Vdc (Option: Two NPN/PNP Output)		
Remote test	Jumper RT1/RT2 for Test		
Normal indicator	Green LED		
Alarm indicator	Red LED		
Fail safe mode	FSH / FSL		
Delay time adjustment	Covered-To-Uncovered Only; 0~6 sec		
Power consumption	Max. 15VA		

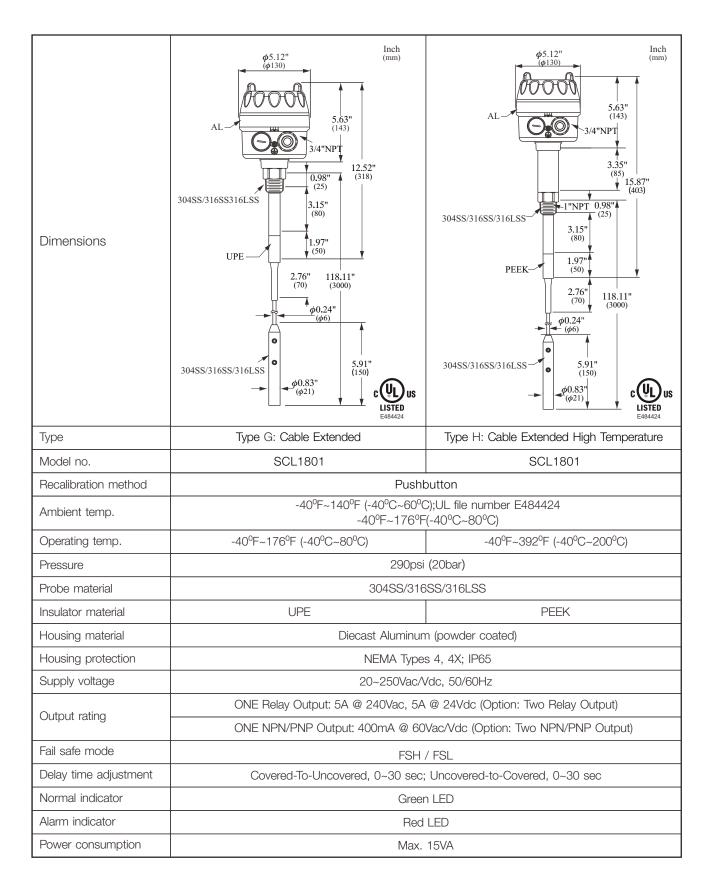
	Inch (mm)		
Dimensions	## AL ## 5.63" (143)  304SS/316SS/316LSS  ## 1.97" (250-2500) (50)  1.97" (250-2500) (50)  4.72" (120)  304SS/316SS/316LSS  ## 4.72" (120)		
Туре	Type L: Solid Extended		
Model no.	SCL1700		
Recalibration method	DIP switch setting and potentiometer adjustment		
Ambient temp.	-40°F~176°F (-40°C~80°C)		
Operating temp.	-40°F~176°F (-40°C~80°C)		
Pressure	290psi (20bar)		
Probe material	304SS/316SS/316LSS		
Insulator material	UPE (UHMW Polyethylene)		
Housing material	Diecast Aluminum (powder coated)		
Housing protection	NEMA Types 4, 4X; IP65		
Supply voltage	20~250Vac/Vdc, 50/60Hz		
Output rating	ONE Relay Output: 5A @ 240Vac, 5A @ 28Vdc (Option: Two Relay Output) ONE NPN/PNP Output: 400mA @ 60Vac/Vdc (Option: Two NPN/PNP Output)		
Remote test	Jumper RT1/RT2 for Test		
Normal indicator	Green LED		
Alarm indicator	Red LED		
Fail safe mode	FSH / FSL		
Delay time adjustment	Covered-To-Uncovered Only; 0~6 sec		
Power consumption	Max. 15VA		

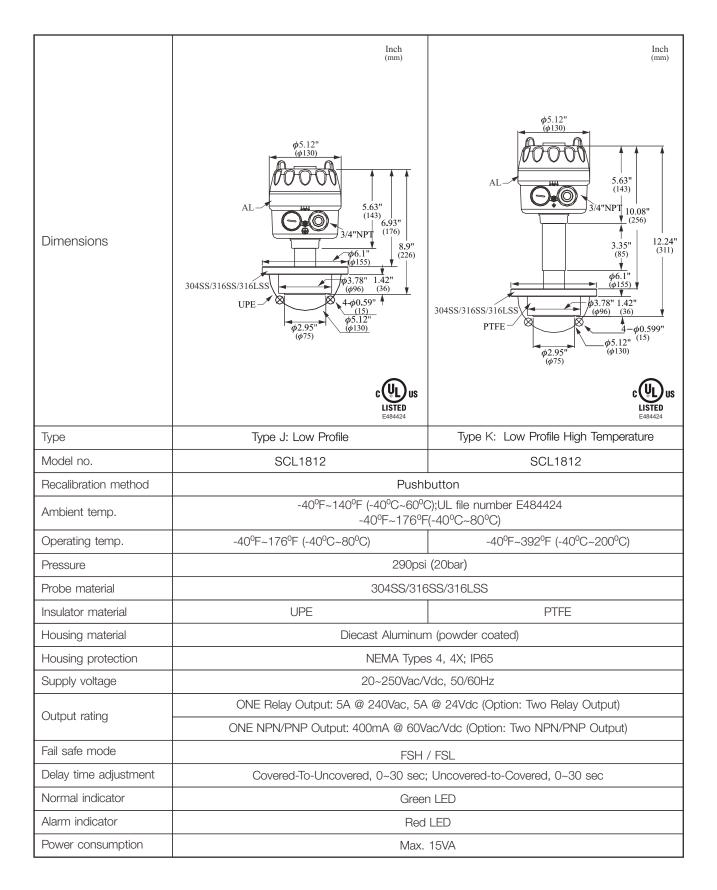
## **TYPES & SPECIFICATIONS - SCL18**

	Inch (mm)	Inch (mm)	
Dimensions	φ5.12" (φ130)  5.63" (143)  304SS/316SS/316LSS  1"NPT 1.97" (50) (1.97" 5.91" (50) (1.97"	φ5.12" (φ130)  304SS/316SS/316LSS  0.98" (25)  1"NPT 3.15" (80) 1.97" (50) 9.84" (250)  304SS/316SS/316LSS  φ0.5" (120) φ12.7)  c Us LISTED E484424	
Туре	Type A: Standard	Type B: Standard	
Model no.	SCL1810	SCL1810	
Recalibration method	Pushbutton		
Ambient temp.	-40°F~140°F (-40°C~60°C);UL file number E484424 -40°F~176°F(-40°C~80°C)		
Operating temp.	-40°F~176°F (-40°C~80°C)		
Pressure	290psi (20bar)		
Probe material	304SS/316SS/316LSS		
Insulator material	UPE		
Housing material	Diecast Aluminum (powder coated)		
Housing protection	NEMA Types 4, 4X; IP65		
Supply voltage	20~250Vac/Vdc, 50/60Hz		
Output rating	ONE Relay Output: 5A 240Vac/5A 24Vdc (Option:two Relay)		
Output rating	ONE NPN/PNP Output: 400mA 60Vac/Vdc(Option:two NPN/PNP)		
Fail safe mode	FSH / FSL		
Delay time adjustment	Covered-To-Uncovered, 0~30 sec; Uncovered-to-Covered, 0~30 sec		
Normal indicator	Green LED		
Alarm indicator	Red LED		
Power consumption	Max. 15VA		



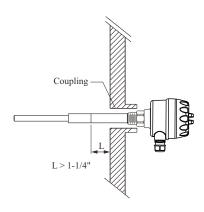


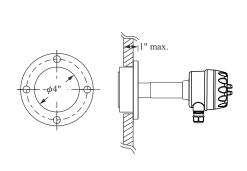


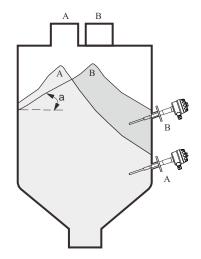


	Inch (mm)		
Dimensions	304SS/316SS/316LSS  4.72" (120)  304SS/316SS/316LSS  4.72" (120)  304SS/316SS/316LSS  4.72" (120)  304SS/316SS/316LSS		
Туре	Type L: Solid Extended		
Model no.	SCL1810		
Recalibration method	Pushbutton		
Ambient temp.	-40°F~140°F (-40°C~60°C); UL file number E484424 40°F~176°F (-40°C~80°C)		
Operating temp.	-40°F~176°F (-40°C~80°C)		
Pressure	290psi (20bar)		
Probe material	304SS/316SS/316LSS		
Insulator material	UPE (UHMW Polyethylene)		
Housing material	Diecast Aluminum (powder coated)		
Housing protection	NEMA Types 4, 4X; IP65		
Supply voltage	20~250Vac/Vdc, 50/60Hz		
Output rating	ONE Relay Output: 5A @ 240Vac, 5A @ 24Vdc (Option: Two Relay Output) ONE NPN/PNP Output: 400mA @ 60Vac/Vdc (Option: Two NPN/PNP Output)		
Remote test	Jumper RT1/RT2 for Test		
Fail safe mode	FSH / FSL		
Delay time adjustment	Covered-To-Uncovered, 0~30 sec; Uncovered-to-Covered, 0~30 sec		
Normal indicator	Green LED		
Alarm indicator	Red LED		
Power consumption	Max. 15VA		

## INSTALLATION CONSIDERATIONS

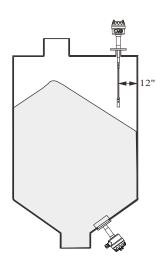


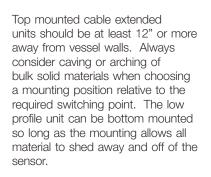


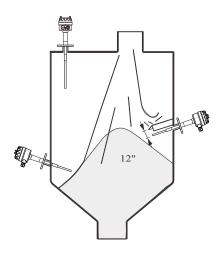


To install SCL standard type probe ensure that a minimum length of 1-1/4" of the insulation section is kept inside of the vessel or else incorrect sensitivity adjustment can occur resulting in false signaling due to a build-up of material in the coupling or sensing of the coupling or vessel wall.

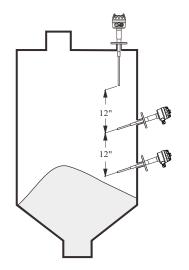
For installation of a Low Profile Type SCL probe please ensure that the maximum vessel wall thickness is 1" or the sensor may falsely indicate material presence due to detecting of the vessel wall. If the vessel fill inlet is not in the Center of the vessel for a bulk solid material ensure that the material angle of repose, caving and arching is taken into consideration. For best performance the sensor should be mounted at a downward angle that exceeds the angle of repose of the material.

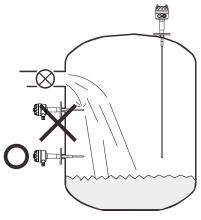


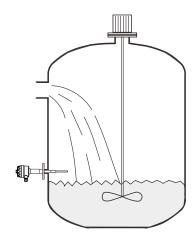




Mount the sensor away from the fill inlet so it will not be in the path of incoming material. Direct falling material can damage the probe. The installation of a protective baffle or shield 8" above the sensor is recommended if the sensor might be exposed to falling material.



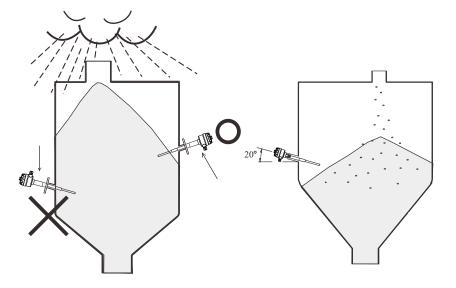


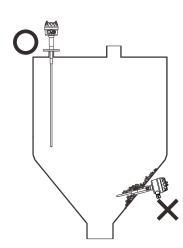


Make sure to observe minimum distance between probes is 12".

- X: Do not mount the level sensor under the filling inlet so it will not be in the path of incoming material.
- O: Mount the sensor away from incoming material or use top mount away from fill inlet.

When using the sensor to monitor fluid level when waves exist ensure that the sensor time delay is activated and properly set in order to eliminate nuisance switching action.



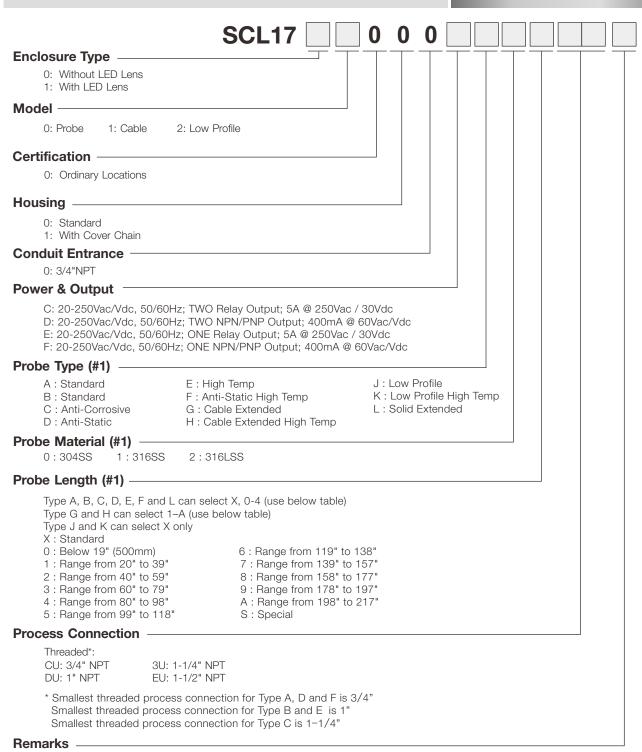


- X: Incorrect enclosure orientation or loose conduit/cord fitting can cause moisture leaks into sensor and cause damage.
- O: Make sure that the conduit entrance is pointed down and all fittings are tight.

When mounting from the side of the vessel, best performance the sensor should be mounted at a downward angle of 20°. This side mounting orientation reduces the possibility of damage due to inadvertent falling material and optimizes sensitivity and durability.

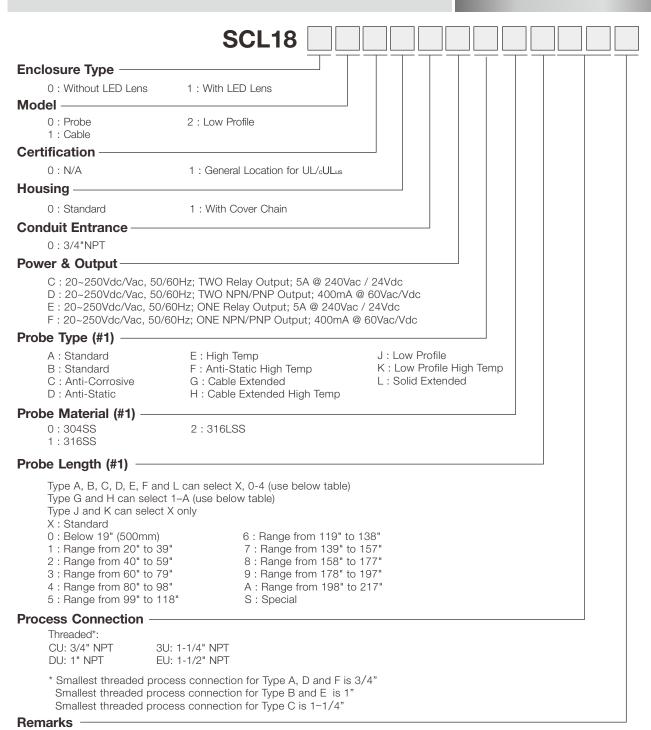
Use top mount installations of low level monitoring for slowly flowing materials.

## **ORDER INFORMATION – SCL17**



Specify exact length required

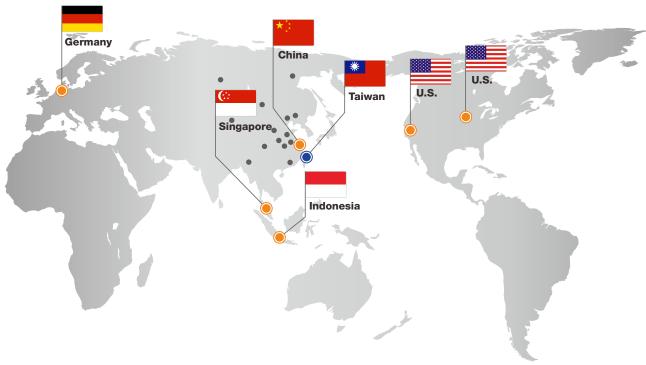
## **ORDER INFORMATION - SCL18**



Specify exact length required



## Global Network



## Asia

### Taiwan

FineTek Co., Ltd.
TEL: 886-2-2269-6789
FAX: 886-2-2268-6682
EMAIL: info@fine-tek.com

## China

Fine automation Co., Ltd. TEL: 86-21-6490-7260 FAX: 86-21-6490-7276 EMAIL: info.sh@fine-tek.com

#### Singapore

FineTek Pte Ltd.
TEL: 65-6452-6340
FAX: 65-6734-1878
EMAIL: info.sg@fine-tek.com

### Indonesia

FineTek Co., Ltd TEL: 62-(021)-2923-1688 FAX: 62-(021)-2923-1988 EMAIL: info.id@fine-tek.com

## North Amerca

## California, U.S.

Aplus Finetek Sensor Inc. TEL: 1-909-598-2488 FAX: 1-909 598-3188 EMAIL: info@aplusfine.com

#### Illinois, U.S.

Aplus Finetek Sensor Inc. TEL: 1-815-632-3132 FAX: 1-815-716-8464 EMAIL: info@aplusfine.com

## Europe

## Germany

FineTek GmbH
Frankfurter Str. 62, OG D-65428
Ruesselsheim, Germany
TEL: 49-(0)6142-17608-0
FAX: 49-(0)6142-17608-20
EMAIL: info@fine-tek.de



Represented by:		