



# ScuL-Sense™ Stainless Steel High Pressure Chemical Sensor

## Liquid Level Sensor for The Chemical Industries

*Featuring Dynacheck® – Automatic and Continuous Self-Checking Circuitry*



### Chemical Sensor

The ScuL-Sense™ design is API/ATEX compliant and withstands temperature related stresses, dramatically improving reliability across a wide operating range.

### DESCRIPTION

Scully ScuL-Sense™ stainless steel optic sensors are designed for Chemical product overflow prevention and point level detection.

Scully offers a 5-year warranty on overflow prevention sensors for fixed tank trailer and storage tank applications. Scully sensors have the longest running safety record in the industry and are manufactured in Scully's U.S. factory, which prides itself on its strict quality and safety standards.

They are designed to be used with the Scully Intellitrol®, ST-15, and/or ST-35 series loading rack control monitors. They can be used for overflow prevention on road tankers, rail cars and storage tanks.

These chemical sensors are available in either 2 wire or 5 wire versions. The sensors are a critical component in Scully's unique and patented Dynacheck circuit design. When used in conjunction with Scully electronic monitoring equipment, our overflow protection sensor will provide consistent failsafe monitoring. By constantly checking a "closed loop" pulsing signal across the entire system, Scully ensures a safe and reliable loading operation. If rising fuel contacts the sensor, this signal is interrupted and the controlling pumps and valves are shutdown. No operator involvement is needed to end the loading operation.

Scully stainless steel chemical sensors are constructed of SS 316 Stainless Steel, Borosylicate (Pyrex® Glass) and SIMRIZ® O-rings and are compatible with a wide range of chemicals.\*

### FEATURES AND BENEFITS

- Maximum safety with Dynacheck— Automatic and continuous self-checking circuitry when used with Scully loading rack controls and vehicle onboard monitors.
- Usable to pressures of 600 PSI.
- Broad chemical compatibility.
- Wide Temperature Range.
- Shaft threaded inside and out and incorporates wrench flats.
- Fully compatible with Scully controllers.
- ATEX approvals per directive 94/9/EC.
- FM and CSA approvals for Class I, Division 1, Groups C and D hazardous locations.
- Meets requirements of API Recommended Practice RP-1004.
- Can be employed as part of a SIL system.



### IEC 61508 SIL 3 Capable

#### 2 Wire Model

$\lambda_{DU}=2.0 \text{ FIT}^*$     $\lambda_{SU}=110 \text{ FIT}^*$

#### 5 Wire Model

$\lambda_{DU}=1.0 \text{ FIT}^*$     $\lambda_{SU}=116 \text{ FIT}^*$

\*FIT = Failure In Time (1x10<sup>9</sup> failures per hour)

### CHEMICAL COMPATIBILITY

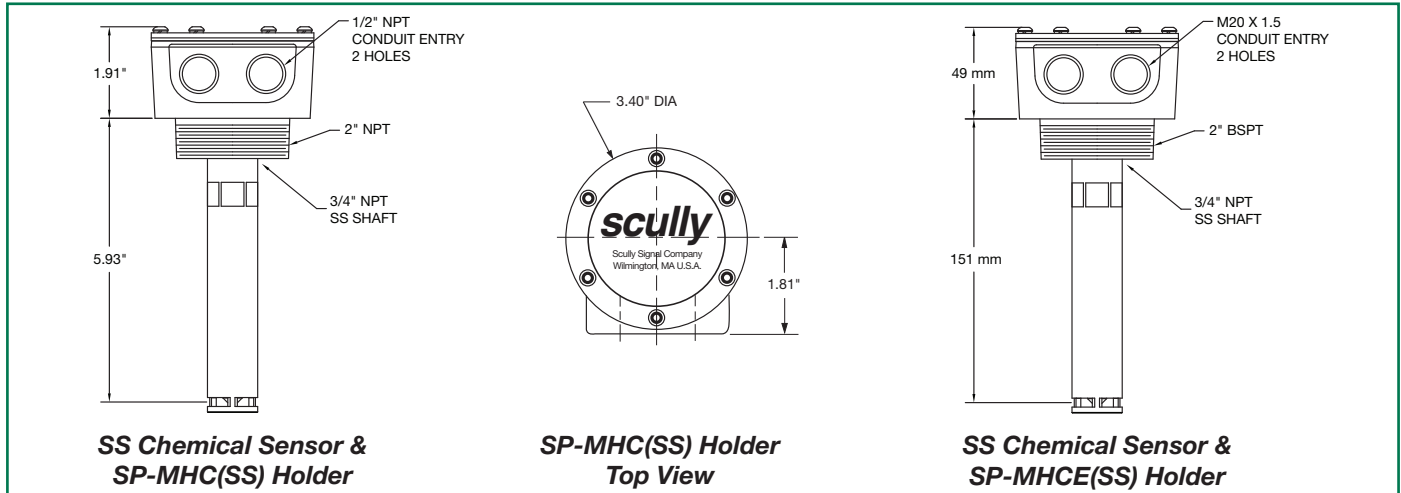
Compatible products include: *(not a complete list)*

- |                            |                     |                             |
|----------------------------|---------------------|-----------------------------|
| ■ Gasoline                 | ■ Alcohols          | ■ Nitric Acid               |
| ■ Jet Fuel (JP3, JP4, JP5) | ■ Sodium Peroxide   | ■ Acetic Acid Glacial       |
| ■ Fuel Oils                | ■ Hydrogen Peroxide | ■ Stearic Acid              |
| ■ Oils                     | ■ Mineral Spirits   | ■ Methyl Ethyl Ketone (MEK) |
| ■ Ethanol                  | ■ Arsenic Acid      | ■ Phosphorus Trichloride    |
|                            | ■ Boric Acid        | ■ Methyl Bromide            |
|                            | ■ Carbonic Acid     |                             |

**\*NOTE:** Compatibility is based on compatibility with sensor components. In rare cases, optical properties of the chemical may interfere with proper operation. Always perform operational tests before deploying.



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**TECHNICAL SPECIFICATIONS**

**Temperature Range:** -40° F to +140° F (-40°C to +60°C)  
**Product Range:** Groups C & D hazardous materials and non-hazardous materials which are compatible with optic sensing technology. Consult the factory for specific chemical compatibility.  
**Exposed Materials:** SS 316 Stainless Steel, Borosilicate (Pyrex®) Glass, SIMRIZ® Seal.  
**Detection Level and Size:** Fixed, refer to diagram. The sensor may be adjusted to any length using 3/4" stainless steel pipe and a pipe coupling.  
**Level Repeatability:** ±1/16" (1 mm)  
**Electrical Leads:** 36" (45 cm) long Teflon insulated wires, 22 AWG (0.33 mm<sup>2</sup>)  
**Cable Entry:** Two holes, 1/2" NPT threads.

**Weight:** Sensor: 15.5 oz (0.45 kg)  
Holder: 2.8 lbs (1.27 kg)  
**Approvals:** SIL Capable



**North America:** The sensor is intrinsically safe for mounting in Class I, Division 1, Groups C and D Hazardous location in accordance with Scully Control unit approval ratings



**International:** The sensor is intrinsically safe for mounting in Zone 0 according to ATEX Directive 94/9/EC Ex ia IIB T5 Ga (-40°C ≤ Ta ≤ +60°C)



ORDERING INFORMATION		
Model	Description	Part Number
SP-TO(SS)	Two-Wire Optic Stainless Steel Chemical Sensor only	09375L1
SP-FU(SS)	Five-Wire Optic Stainless Steel Chemical Sensor only	09376L1
SP-FU(SS) "E"	Five-Wire Optic Stainless Steel Chemical Sensor only (EN13922 wire colours)	09376EL1
SP-MHC(SS)	Stainless Steel Holder assembly with 3/4" NPT thread (no sensor)	08585
SP-MHCE(SS)	Stainless Steel Holder assembly with 3/4" NPT, 2" BSPT, M20 (no sensor)	09477

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