

**Intrinsically Safe Loop-Powered Ultrasonic Transmitter**

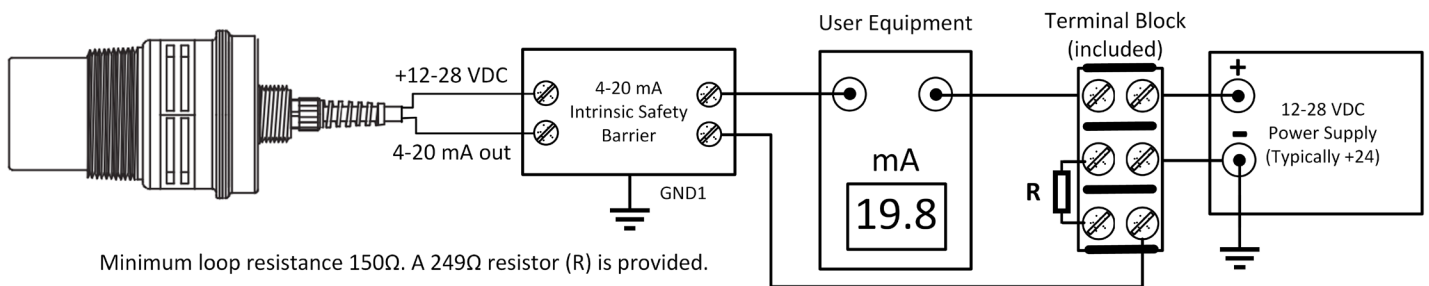
The SafeSonic 25-L is an intrinsically safe non-contact sensor with a 1-25 ft. range that transmits a 4-20 mA signal proportional to measured distance. It is CSA certified for use in hazardous areas in the USA and Canada.



	Model Number	Description	Wiring													
	SSPC-L25-6	6-ft. cable	Connect the <b>RED</b> wire to a +12 to 28 VDC power source at the monitoring equipment.  Connect the <b>BLACK</b> wire to the monitoring equipment's 4-20 mA current loop input. Circuit resistance plus input resistance must be greater than 150 Ω. A 249-ohm resistor is supplied.													
	SSPC-L25-10	10-ft. cable														
	SSPC-L25-20	20-ft. cable														
	SSPC-L25-30	30-ft. cable														
	SSPC-L25-50	50-ft. cable														
	SSPC-L25-100	100-ft. cable														
	SSPC-L25--0	M12 Male Connector on sensor  	<table border="1"> <thead> <tr> <th>Pin</th> <th>Connection</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+VDC in (typ +24)</td> </tr> <tr> <td>2</td> <td>unused</td> </tr> <tr> <td>3</td> <td>4-20 mA out</td> </tr> <tr> <td>4</td> <td>unused</td> </tr> <tr> <td>5*</td> <td>unused</td> </tr> </tbody> </table>	Pin	Connection	1	+VDC in (typ +24)	2	unused	3	4-20 mA out	4	unused	5*	unused	* Pin not typically installed
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1	+VDC in (typ +24)															
2	unused															
3	4-20 mA out															
4	unused															
5*	unused															

**System Wiring**

An isolation barrier is required when installing in a CID1 hazardous area. The barrier, supplied by the installer, is located in the non-hazardous area. Refer to drawing DWG 9002747 Rev A2 for hazardous area installations.



The SAFESONIC 25-L must be installed according to drawing DWG 9002747 Rev A2 to meet intrinsically safe approvals. Failure to do so will invalidate all safety approvals and ratings.



**DANGER:** Do not disconnect equipment installed in hazardous locations unless power has been switched off or area is known to be non-hazardous.

## Installation Guidelines

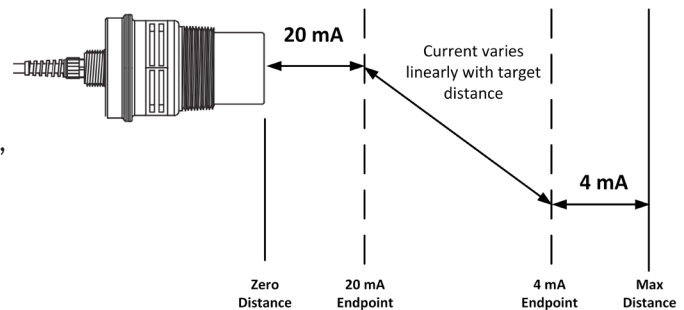
The SafeSonic 25-L can be installed in an area indoors or outdoors that meets the following criteria:

- Ambient temperature between -40°F to 140°F (-40°C and 60°C)
- Measurement path must be a clear and perpendicular to the target surface
- Do not mount the transmitter where material inflows will be detected
- Measurement path is free of obstructions that can reflect ultrasound energy back to the transmitter
- The transmitter should be hand tightened to prevent cross threading.

## Calibration & Adjustment

The factory default output calibration is 20 mA at 1 ft. and 4 mA at 25-ft as shown to the right. Within this range, alternate calibrations can be provided by Senix.

Users can adjust sensors using the UA-RCD-L Remote Configuration Device and SenixSAFE-L software from the non-hazardous side of the barrier.



If calibration is performed while the sensor is installed in a hazardous area, Stahl safety barrier part number 9001/51-280-110-141 must be used. It is available at [www.r-stahl.com](http://www.r-stahl.com) or a designated dealer. See page 6 of this document for a product data sheet.

## Specifications

- Operating range: 1 to 25 ft (0.3-7.6 m)
- Accuracy: +/- 0.25% of reading
- Resolution: 0.1 in. (2.5 mm)
- Mounting: 2 in. NPT lower threads, 3/4" in. NPT upper threads
- Supply voltage: 12 to 28 VDC (loop current 4-20 mA)
- Load resistance + input resistance: min 150 Ω; 249 Ω optimal  
Maximums: 600 Ω @ 24 VDC, 150 Ω @ 12 VDC
- Output: 4 to 20 mA (loop-powered); 23 mA at failsafe after 15 seconds
- Pre-Calibration: 20 mA @ 1 ft., 4 mA @ 25ft
- Update rate: 9 sec nominal; varies with setup and liquid height rate of change
- Beam pattern: 9° off axis
- Temperature compensation: Internal
- Materials: Transducer- PVDF (Kynar®), Body - PC/PBT
- Approvals: Class I, Div. 1, Groups C & D, T3  
Class I, Zone 0, AEx ia IIB, T3  
Ex ia IIB, T3
- Ingress rating: IP65

## General Care

The SafeSonic 25-L is very low maintenance and requires minimal care. Periodic inspection is recommended if the environment can cause accumulation of debris on the transmitter face that might affect performance. Inspect the threads whenever you remove the sensor from duty or change its location. Hand tighten only.

## Product Support

Contact Senix at the following by phone or email:

Phone: +802-489-7300 or (800) 67-SENIX (USA and Canada), Email: support@senix.com

Senix Corporation, 10516 Route 116, Suite 300, Hinesburg, VT 05461 USA

## Warranty

Senix makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose. All specifications are subject to change without notice.

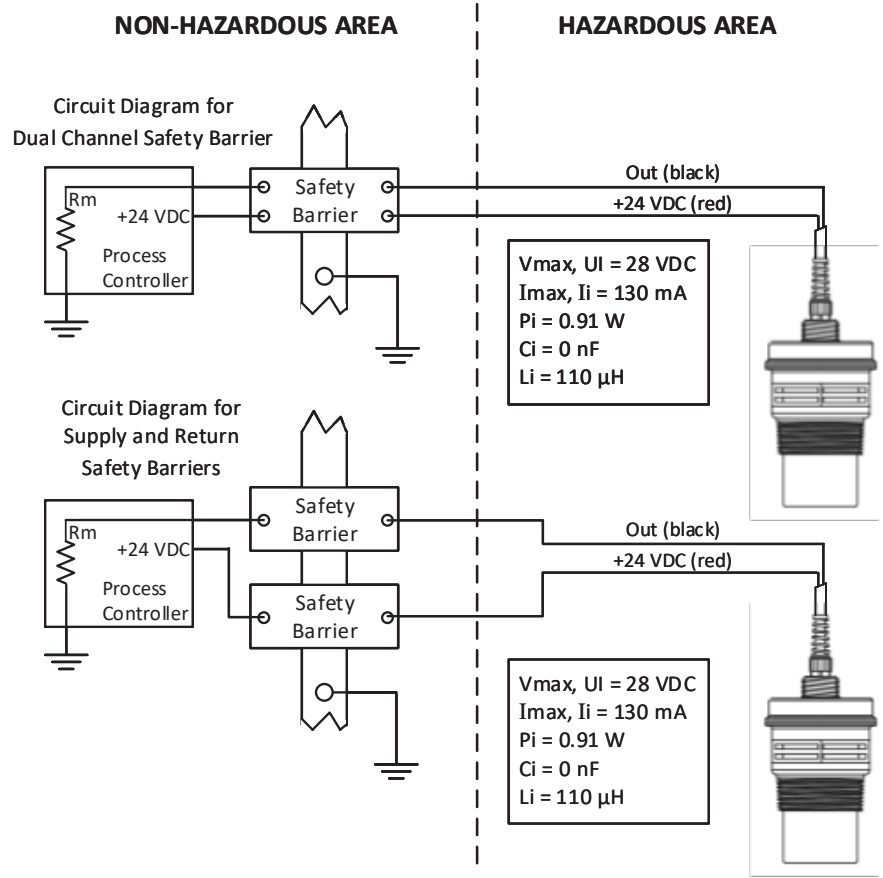
Senix, Inc. will repair or replace, at our option, any part found by us to be defective in material or workmanship if the product is received by Senix, freight prepaid, within one year from the date of original shipment to buyer.

**Disclaimer and Release.** The warranties, obligations and liabilities of Senix and the remedies of buyer set forth above are exclusive and in substitution for, and buyer hereby waives, releases and renounces all other warranties, obligations and liabilities of Senix and all other rights, claim, and remedies of buyer against Senix, expressed or implied, arising by law or otherwise, including but not limited to: (A) Any implied warranty or merchantability or fitness; (B) Any implied warranty arising from course of performance, course of dealing or usage of trade; (C) Any obligation, liability, right, claim or remedy in tort, whether or not arising from the negligence of Senix (whether active, passive or imputed); and (D) Any obligation, liability, right, claim or remedy for loss or damage to any product.

**Exclusion of Consequential and Other Damages.** Senix shall have no obligation or liability, whether arising in contract (including warranty), tort (including active, passive or imputed negligence) or otherwise, for loss of use, revenue or profit with respect to any non-conformance or defect in any product delivered under this agreement, or for any other direct, incidental or consequential damages.

**Governing Law.** The terms and conditions of this agreement shall be governed by the domestic law of the State of Vermont, U.S.A.

Installation in:  
 Class I Division 1 Groups C and D  
 Class I Zone 0 Ex ia IIB; Aex ia IIB T3



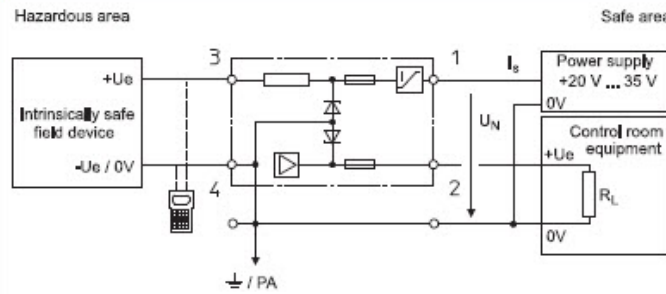
- Install in accordance with CEC, NEC articles 504, 505 and ISA RP12.6 Recommended Practice for the Installation of Intrinsical ly Safe Circuits.
- **WARNING: EXPLOSION HAZARD – DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS**  
 AVERTISSEMENT – DE DECONNECTER L’EQUIPMENT; COUPER LE COURANT DU S’ ASSURER QUE L’EMPLACEMENT EST DESIGNE NON DANGEREUX.
- **WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – Clean only with a damp cloth**  
 AVERTISSEMENT – Surface non conductrice du boîtier peuvent être facturés par MEDIA non conductrice, CLEAN avec un chiffon humide
- **WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY**  
 AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE

DWG 9002747 Rev A2

**Single-Channel Safety Barriers for Transmitters**  
Series 9001/51



**Single-Channel Safety Barriers for Transmitters**



- Application for HART transmitters
- Earthed electric circuit
- Connection to unregulated power supply  $U_N$  between + 20 and 35 V DC
- Installation possible in Division 2 and Zone 2
- The PA and OV of the control system must have equal potentials

**Selection Table**

$U_N$	Safety values							Order number
	$U_o$	$I_o$	$P_o$	IIC		IIB		
	V	mA	mW	$L_o$ (mH)	$C_o$ ( $\mu$ F)	$L_o$ (mH)	$C_o$ ( $\mu$ F)	
20 ... 35	28	91	637	2,2	0,083	14	0,65	9001/51-280-091-141
20 ... 35	28	110	770	1,2	0,083	9	0,65	9001/51-280-110-141

**Technical data**

Version	9001/51-280-091-141	9001/51-280-110-141
Supply current	$I_s \leq 50$ mA	$I_s \leq 50$ mA
Accuracy	$\pm 0,05$ %	$\pm 0,05$ %
Temperature influence	$\pm 0,1$ % / 10 K	$\pm 0,1$ % / 10 K
Longterm drift	$\pm 0,05$ %	$\pm 0,05$ %
Rated operational current	$I_N = 3,6$ mA ... 22 mA	$I_N = 3,6$ mA ... 22 mA
Load	$R_L \leq 350$ $\Omega$	$R_L \leq 500$ $\Omega$ ( $U_N \leq 23,5$ V) $R_L \leq 750$ $\Omega$ ( $U_N > 23,5$ V)
Transmitter supply voltage	$U_{min}$ ( $I_N = 20$ mA) $U_N - 9,5$ V 14 V	$U_{min}$ ( $I_N = 20$ mA) $U_N - 8,5$ V 15 V
	$U_N \leq 23,5$ V $> 23,5$ V	$U_N \leq 23,5$ V $> 23,5$ V

**Functional and Maximum Safety Values**

$U_N$	Nominal voltage	$P_o$	Maximum power
$U_o$	Maximum voltage	$L_o$	Maximum permissible external inductance
$I_o$	Maximum current	$C_o$	Maximum permissible external capacity