Sensaras

CLS860 Series

Sound Steadfast Solutions

Made in the U.S.A.

Continuous Measurement Through Liquid

Description

Ultrasonic Point Level System 8600 Series is designed to detect continuously the level of Ultra-Pure Liquid Chemical in Bubblers and Ampoules in the Semiconductor industry in PVD, CVD and ALD processes. The probe fits in the ¾" VCR fill port of the standard ampoules or non-invasively through the side of a Sensaras designed canisters to sense the interface height of the liquid from the bottom. There are no moving parts to the probe that may introduce impurities. It is not dependent on the color, dielectric, density and viscosity of the chemical. The design allows for multiple sensing points calibrated by the customer. All wetted parts of the invasive probe is 316LSS, electro-polish finish and leak tested. Each probe is custom made to user's specifications and requirements.The electronics are remotely mounted from the probes to allow for higher temperature applications. There is no calibration or adjustments between sensors or liquids.

Operation

The 8600 Series unit consists of a pair of piezoelectric elements, mounted at the bottom of the invasive probe. The pairs of the elements is able to transmit an ultrasonic signal that is able to be received the reflection from the top of the liquid. The ultrasonic signal is processed using the speed of sound to calculate the height of the liquid. Temperature is compensated by measuring the liquid media. The circuit converts the digital signal to a USB, Analog and Transistor (points) output.

Applications	*Industries served*
Continuous level monotering	*Semiconductor*
High Level / Overflow Alarm	
Low Level / Stop , Refill	
Non-contact	*Medical / Pharmicutical*

Sensor material 316LSS is standard, other materials available

CONSULT C A BRIGGS COMPANY FOR CUSTOMIZATION

SEP/2019

Order from: C A Briggs Company
622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

Specifications / Features

Dimensions

Electronics

Input: 24VDC

Output: Level Analog Out (4-20mA or 0-5V)

Temperature Analog Out (4-20mA or 0-5V)

4 set points (NPN) with local display

Lost echo or Fault NPN Out

USB, Digital Out and programming,

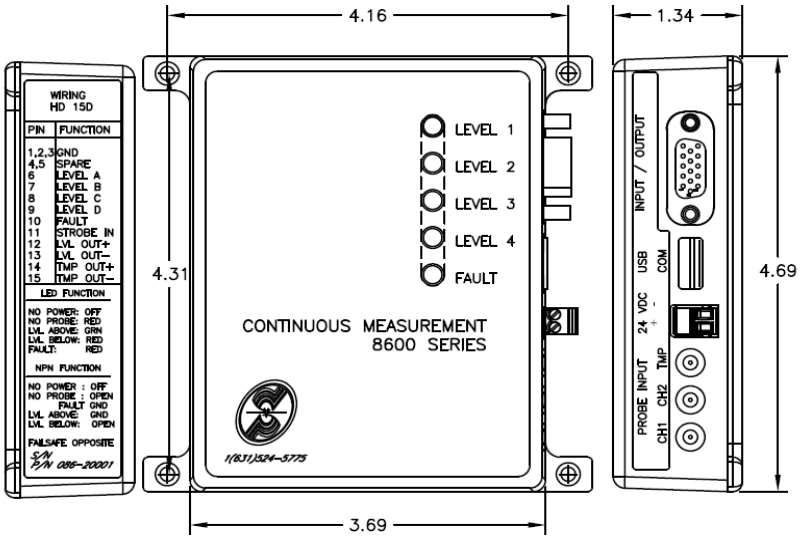
Bluetooth wireless connection.

Repeatability: Typical +/- 0.01”(.25mm)

Accuracy: +/- 0.04 (1mm)

Current consumption: Typical 250mA max

No Calibration for Liquid Properties



Sensor

Material: C-Probe (Invasive) 316LSS

S-Probe (non-Invasive) Epoxy

Built In Level Sensing with 316LSS canister

Minimum Sensing: C-Probe 0.75” of probe

S-Probe 0.4” of canister

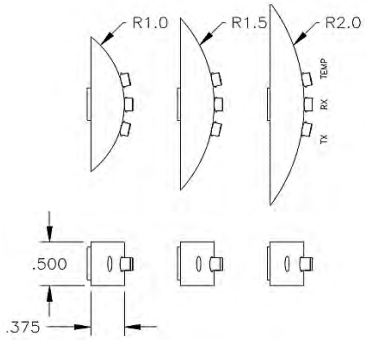
BILS 0.2” of canister Consult Factory

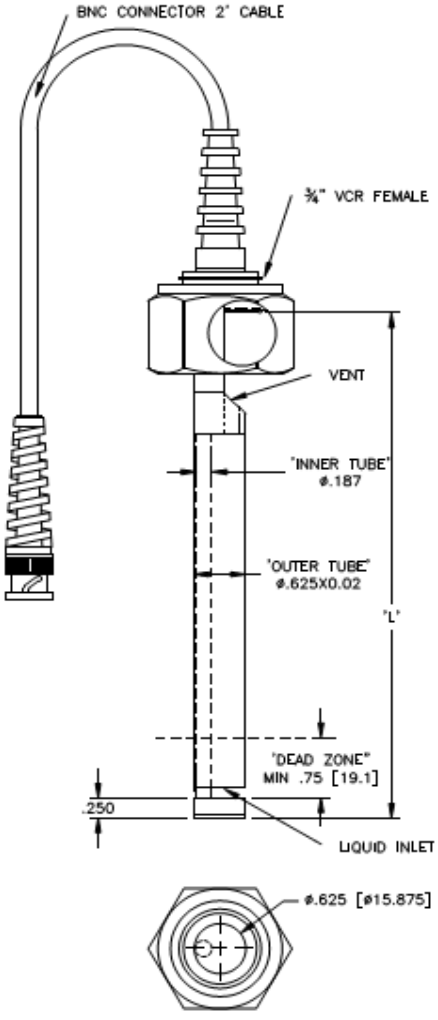
Max Range: 999.99mm Consult Factory

Sensor Temperature: -0° to 125°C (C-Probe)

-0° to 85°C (S-Probe)

-0° to 125°C (BILS)





Design Options and Ordering information

Please call Sensaras for part numbers for electronics and sensors

Warranrty

Sensaras’ level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

SEP/2019

Sensaras

PLS160 Series

Sound Steadfast Solutions

Made in the U.S.A.

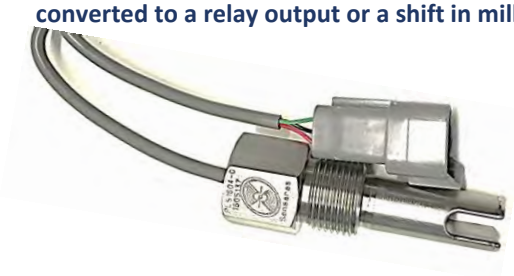
Invasive Point Level System — **Low Cost Fork Sensor**

Description

The Ultrasonic Point Level System 160 Series is an ideal solution for detecting liquid in compact spaces. With integrated electronics it is a direct replacement for Float Switches, Capacitance and Optical Detectors. The PLS 160 detects liquid regardless of any change in density, color, dielectric constant, or viscosity. The PLS 1600 does not require calibration or periodic maintenance. The sensor is constructed in 316 SS and is available in lengths of up to 99". Sensaras can provide the PLS 160 in a variety of engineered plastics to obtain the ideal corrosion resistance in process vessels.

Operation

The 161 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the 5/16" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output.



A cost effective reliable solution!

How to Order	PLS160-	_	-	_	-	_	-	_	-	_
Input:	9-30VDC -	2	|	|	|	|	-	|	|	|
Output: NPN & PNP or Loop Pwr-		- -	2	|	|	|	-	|	|	|
	1A SPDT -	- -	3	|	|	|	-	|	|	|
Mounting: Integral (no enclosure) -		- -	- -	0	|	|	-	|	|	|
Cable (remote):	in feet -	- -	- -		01	|	-	|	|	|
Actuation point inches (1.25"std) -		- -	- -			03	-	|	|	|
Process connection	3/4"NPT -	- -	- -	- -	- -	- -	-	3	|	|
	Flange ANSI 150# -	- -	- -	- -	- -	- -	-	A	|	|
	Flange ANSI 300# -	- -	- -	- -	- -	- -	-	B	|	|
	Flange Sanitary -	- -	- -	- -	- -	- -	-	C	|	|
	Flange ANSI 600# -	- -	- -	- -	- -	- -	-	D	|	|
	Flange size 1" -	- -	- -	- -	- -	- -	-	- -	1	|
	1.5"-	- -	- -	- -	- -	- -	-	- -	0	|
	2"-	- -	- -	- -	- -	- -	-	- -	2	|
Sensor Material 316LSS-		- -	- -	- -	- -	- -	-	- -	- -	S

Applications	Industries served
High Level / Overflow Alarm	Upstream Oil & Gas
Low Level / Pump Protection	Midstream Oil & Gas
Condensate Pots	Water & Waste- Water
Sump Water / Oil Detection	Chemical & Petrochemical
Lubricant Circulation Equipment	Pulp & Paper
Fill Machine Level Control	Food & Beverage
Pump Leak Detection	Military, Subsea / Surface
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available

Other flange and pressure ratings available

CONSULT C A BRIGGS CO FOR CUSTOMIZATION

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Sales@cabriggs.com - www.cabriggs.com

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Specifications / Features

Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.

Probe material: 316SS Standard.
Optional material available.

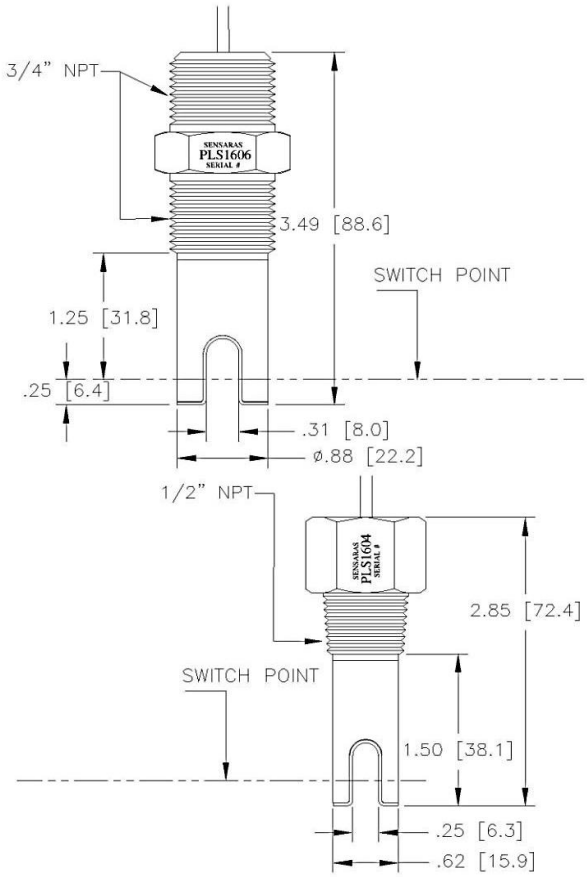
Actuation point: 1.25” Standard.
Up to 99” available.

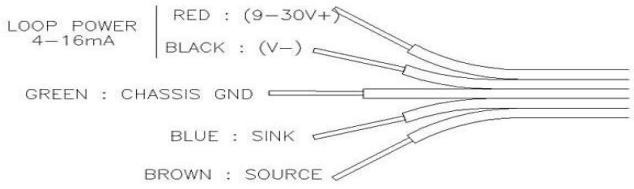
Sensor Temperature: -0° to 100°C
Sensor Pressure: 500 PSIG 316LSS.
Liquid viscosity : From 1 to 50,000 cps

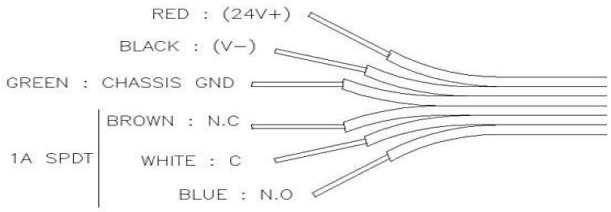
Process connection: 1/2" & 3/4" NPT Standard
Flanges mounting available.

Electronic mounting : Integral

Dimensions







Warranty

Sensaras’ level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

SEP/2019

Sensaras

PLS161 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Fork Sensor

Description

The Ultrasonic Point Level System 161 Series is an ideal solution for detecting liquid in storage vessels, tanks and pipes. With integrated electronics it is a designed for almost any liquid level application. The probe is constructed in 316LSS material. The electronic module is captured in a plastic cassette and is mounted in a NEMA 4/ 7 explosion proof housing. No calibration for the system is required. An LED indicator on the electronic module offers a visual status of the system. Field selectable Fail safe allows for the relays to be energized on power up or in normal condition to de-energized when liquid is present. A Demand Push button self-test feature on the electronic module assures the user the system is functioning correctly. A half second delay is added from WET to DRY to avoid false trip due to wave action.

Operation

The 161 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the 5/16" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output

How to Order	*PLS161-*	_	-	_	-	_	-	_	-	_	-	_	-	_
Input:	*24VDC*	0	|	|	|	|	-	|	|	|			
	90 to 240VAC	1	|	|	|	|	-	|	|	|			
	9-30VDC	2	|	|	|	|	-	|	|	|			
Output:	*10 ADPDT*	-	-	0	|	|	|	-	|	|	|			
	Loop Power (4-20mA)	-	-	1	|	|	|	-	|	|	|			
Mounting:	*Integral*	-	-	-	-	1	|	|	-	|	|	|			
	Remote	-	-	-	-	2	|	|	-	|	|	|			
Cable (remote):	*in feet*	-	-	-	-	-	-	01	|	-	|	|	|			
Actuation point inches (1.25"std)		-	-	-	-	-	-	-	-	00	-	|	|	|			
									-	|	|	|			
Process connection	*3/4"NPT*	-	-	-	-	-	-	-	-	-	-	03	|	|			
	Flange ANSI 150#	-	-	-	-	-	-	-	-	-	-	A	|	|			
	Flange ANSI 300#	-	-	-	-	-	-	-	-	-	-	B	|	|			
	Flange Sanitary	-	-	-	-	-	-	-	-	-	-	C	|	|			
	Flange size 1"	-	-	-	-	-	-	-	-	-	-	-	-	1	|			
	1.5"	-	-	-	-	-	-	-	-	-	-	-	-	0	|			
	2"	-	-	-	-	-	-	-	-	-	-	-	-	2	|			
	Sensor Material	-	-	-	-	-	-	-	-	-	-	-	-	-	S			

Applications	*Industries served*
High Level / Overflow Alarm	*Upstream Oil & Gas*
Low Level / Pump Protection	*Midstream Oil & Gas*
Condensate Pots	*Water & Waste- Water*
Sump Water / Oil Detection	*Chemical & Petrochemical*
Lubricant Circulation Equipment	*Pulp & Paper*
Fill Machine Level Control	*Food & Beverage*
Pump Leak Detection	*Military, Subsea / Surface*
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available
Other flange and pressure ratings available
Other remote mounted enclosures available
CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

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Sales@cabriggs.com - www.cabriggs.com

SEP/2019

Specifications / Features

Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.

Probe material: 316SS Standard.
Optional material available.

Actuation point: 1.25” Standard.
Up to 99” available.

Sensor Temperature: -20° to 150°C
Sensor Pressure: 1000 PSIG 316LSS.
Liquid viscosity : From 1 to 50,000 cps

Process connection: ¾” NPT Standard
Flanges mounting available.

Input options: 24VDC, 90 to 240VAC,
Output Options: 10A DPDT

Loop Power 4-16mA
Push Button Demand Self-Test
Field Select Fail-Safe Option
LED Output Indicator

Electronic mounting : Integral or Remote
Enclosure: Nema 4 / 7

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

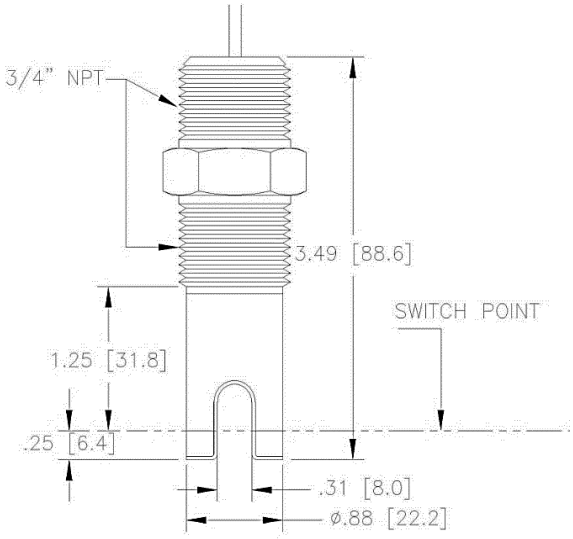
Warranrty

Sensaras’ level sensors are warranted against inherent defects for a period of two years from the date of shipment.

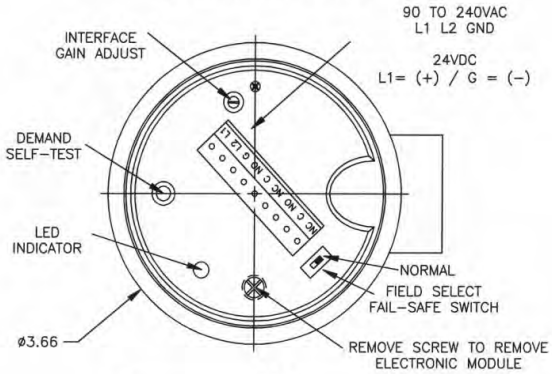
Performance Guarantee

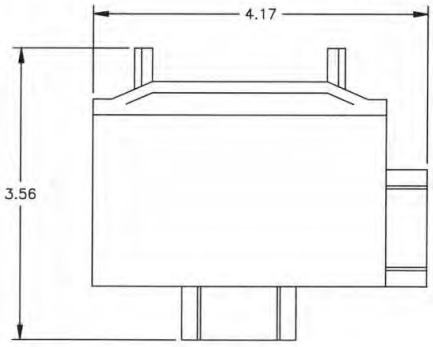
Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

Dimensions



ELECTRONIC MODULE
ENCLOSURE DIMENSIONS





Sensaras

PLS162 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Gap Sensor

Description

The Ultrasonic Point Level System 162 Series is an ideal solution for detecting liquid in storage vessels, tanks and pipes. With integrated electronics it is a designed for almost any liquid level application. The probe is constructed in 316LSS material. The electronic module is captured in a plastic cassette and is mounted in a NEMA 4/ 7 explosion proof housing. No calibration for the system is required. An LED indicator on the electronic module offers a visual status of the system. Field selectable Fail safe allows for the relays to be energized on power up or in normal condition to de-energized when liquid is present. A Demand Push button self-test feature on the electronic module assures the user the system is functioning correctly. A half second delay is added from WET to DRY to avoid false trip due to wave action.

Operation

The 1620 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the ½" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output

How to Order

How to Order	PLS162-	_	-	_	-	_	-	_	-	_	-	_	_
Input:	24VDC	-	0	|	|	|	|	-	|	|	|
	90 to 240VAC	-	1	|	|	|	|	-	|	|	|
	9-30VDC	-	2	|	|	|	|	-	|	|	|
Output:	10 ADPDT	-	-	0	|	|	|	-	|	|	|
	Loop Power (4-20mA)	-	-	1	|	|	|	-	|	|	|
Mounting:	Integral	-	-	-	1	|	|	-	|	|	|
	Remote	-	-	-	2	|	|	-	|	|	|
Cable (remote):	in feet	-	-	-	-	01	|	-	|	|	|
Actuation point	inches (01"std)	-	-	-	-	-	01	-	|	|	|
								-	|	|	|
Process connection	3/4"NPT	-	-	-	-	-	-	-	03	|	|
	Flange ANSI 150#	-	-	-	-	-	-	-	A	|	|
	Flange ANSI 300#	-	-	-	-	-	-	-	B	|	|
	Flange Sanitary	-	-	-	-	-	-	-	C	|	|
	Flange size 1"	-	-	-	-	-	-	-	-	1	|
	1.5"-	-	-	-	-	-	-	-	-	0	|
	2"-	-	-	-	-	-	-	-	-	2	|
	Sensor Material	-	-	-	-	-	-	-	-	-	S

Applications	Industries served
High Level / Overflow Alarm	Upstream Oil & Gas
Low Level / Pump Protection	Midstream Oil & Gas
Condensate Pots	Water & Waste- Water
Sump Water / Oil Detection	Chemical & Petrochemical
Lubricant Circulation Equipment	Pulp & Paper
Fill Machine Level Control	Food & Beverage
Pump Leak Detection	Military, Subsea / Surface
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available
Other flange and pressure ratings available
Other remote mounted enclosures available
CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

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Sales@cabriggs.com - www.cabriggs.com

Specifications / Features

Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.

Probe material: 316SS Standard.
Optional material available.
(Kynar (PVDF), CPVC, Titanium)
Actuation point: 1.0" Standard.
Up to 99" available.

Sensor Temperature: -20° to 150°C
Sensor Pressure: 1000 PSIG 316LSS.
Liquid viscosity : From 1 to 75,000 cps

Process connection: ¾" NPT Standard
Flanges mounting available.

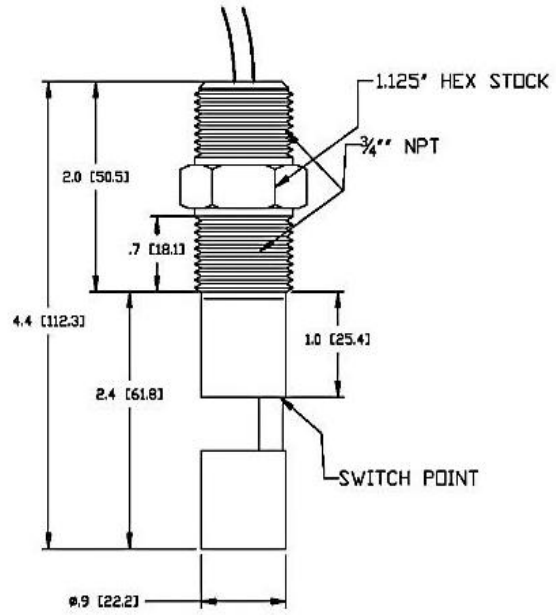
Input options: 24VDC, 90 to 240VAC,
Output Options: 10A DPDT
Loop Power 4-16mA

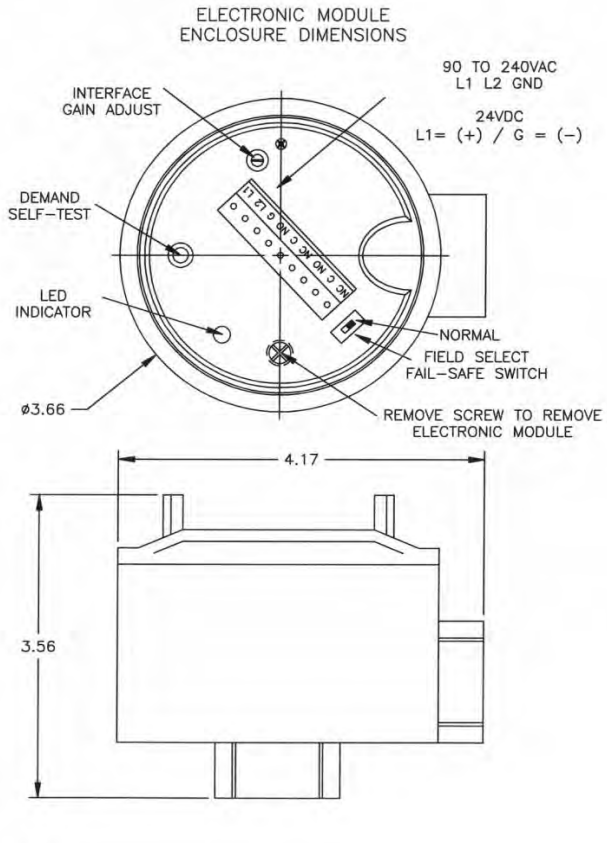
Push Button Demand Self-Test
Field Select Fail-Safe Option
LED Output Indicator

Electronic mounting : Integral or Remote
Enclosure: Nema 4 / 7

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

Dimensions





Warranty

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Performance Guarantee

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Sensaras

PLS163 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Sludge Blanket Sensor

Description

Ultrasonic Point Level System 163 Series is an ideal solution for detecting when sludge in clarifiers or tanks is at a desired level. Maintaining the proper level of sludge contributes to improved plant efficiency and effluent quality by providing for automatic sludge withdrawal for a controllable time period so that sludge of a desired density is delivered to the digester or thickener and preventing the carryover of solids into the effluent system. Constructed in 316LSS material. The electronic module is captured in a plastic cassette and is mounted in a NEMA 4/ 7 explosion proof housing. An LED indicator on the electronic module offers a visual status of the system. Field selectable Relay Fail Safe option is standard. A Demand Push button self-test feature on the electronic module assures the user the system is functioning correctly. The sensor's construction provides the flexibility of using one sensor for a single point or a number of sensors to detect the sludge at various levels.

Operation

The 163 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the 6" gap of the sensor. The control unit senses the change in the percent solid by means of the attenuation of the sonic energy being transmitted through the liquid. Thin or clear liquids exhibits less attenuation than viscous liquids, emulsions or liquids with entrained solids. Since present solids is the predominant variable, the attenuation becomes greater as the settled sludge builds up to the level of the sensor. This attenuation is detected by the control system, the amplifier gain adjustment in the control unit is set so that the relays energize only when the level of sludge is within the path of the ultrasonic signal of the sensor.

How to Order	*PLS163-*	_-	_-	_-	_-	_-	_-	_-	_-
Input:	*24VDC -*	0	|	|	|	|	|	|	|
	90 to 240VAC -	1	|	|	|	|	|	|	|
	9-30VDC -	2	|	|	|	|	|	|	|
Output:	*10 ADPDT-*	--	0	|	|	|	|	|	|
	Loop Power (4-20mA) -	--	1	|	|	|	|	|	|
Mounting:	*Integral -*	--	--	1	|	|	|	|	|
	Remote -	--	--	2	|	|	|	|	|
Cable (remote):	*in feet -*	--	--	--	01	|	|	|	|
Actuation point inches (03"std) -		--	--	--	--	03	|	|	|
	Gap (6" std) -	--	--	--	--	--	6	|	|
Process connection	*3/4"NPT -*	--	--	--	--	--	--	03	|
	Sensor Material -	--	--	--	--	--	--	--	S

Sensor material 316LSS is standard, other materials available

Other remote mounted enclosures available

CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

Order from: **C A Briggs Company**

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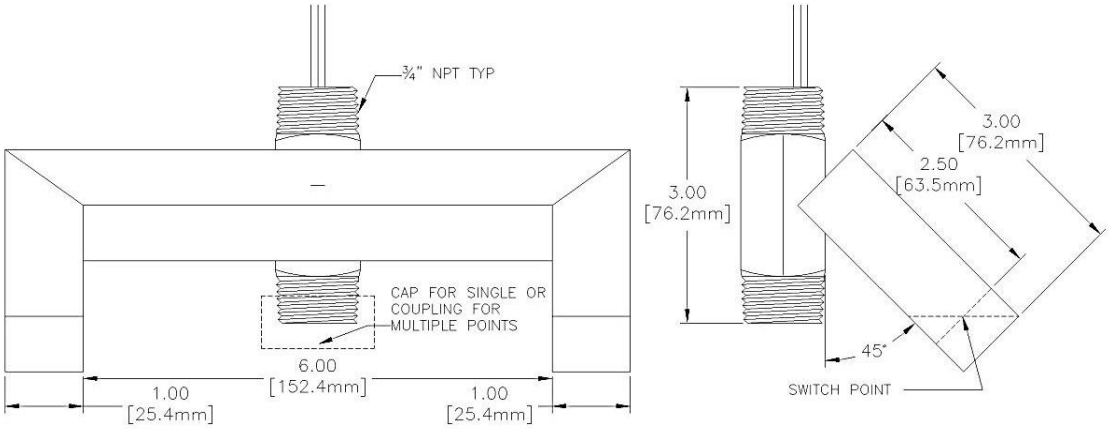
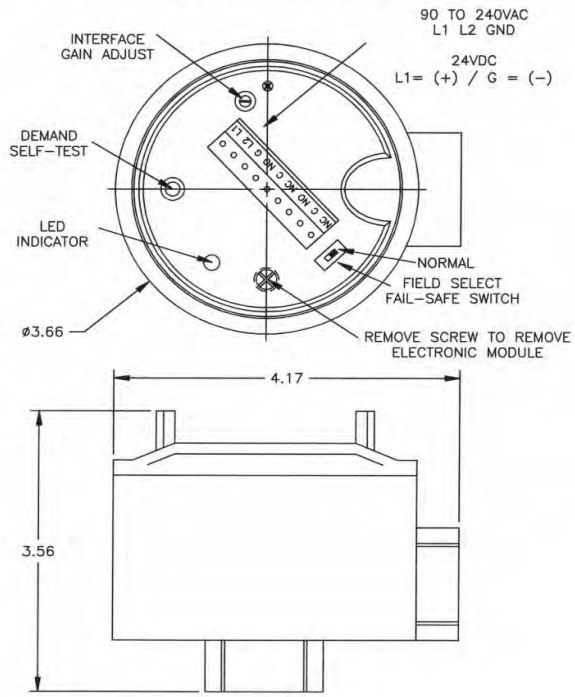
SEP/2019

Specifications / Features *Dimensions*



Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.
Probe material: 316SS Standard.
Actuation point: 3.0" Standard.
cable Up to 50" available.
Sensor Temperature: -20° to 150°C
Sensor Pressure: 1000 PSIG 316LSS.
Liquid viscosity : From 1 to 75,000 cps
Process connection: ¾" NPT Standard
Input options: 24VDC, 90 to 240VAC,
Output Options: 10A DPDT
Loop Power 4-16mA
Push Button Demand Self-Test
Field Select Fail-Safe Option
Electronic mounting : Integral or Remote
Enclosure: Nema 4 / 7

ELECTRONIC MODULE ENCLOSURE DIMENSIONS



Warranrty

Sensaras' level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

SEP/2019

Sensaras

PLS164 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Cryogenic Fork Sensor

Description

The Ultrasonic Point Level System 164 Series is an ideal solution for detecting low temperature liquid from -50° to 120°C in storage vessels, tanks and pipes. With integrated electronics it is a designed for almost any liquid level application. The probe is constructed in 316LSS material. The electronic module is captured in a plastic cassette and is mounted in a NEMA 4/ 7 explosion proof housing. An LED indicator on the electronic module offers a visual status of the system. Field selectable Fail safe allows for the relays to be energized on power up or in normal condition to de-energized when liquid is present. A Demand Push button self-test feature on the electronic module assures the user the system is functioning.

Operation

The 164 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the 5/16" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output

How to Order	*PLS161-*	_-	_-	_-	_-	_-		_-	_-	_
Input:	*24VDC -*	0	|	|	|	|	-	|	|	|
	90 to 240VAC -	1	|	|	|	|	-	|	|	|
	9-30VDC -	2	|	|	|	|	-	|	|	|
Output:	*10 ADPDT-*	--	0	|	|	|	-	|	|	|
	Loop Power (4-20mA) -	--	1	|	|	|	-	|	|	|
Mounting:	*Integral -*	--	--	1	|	|	-	|	|	|
	Remote -	--	--	2	|	|	-	|	|	|
Cable (remote):	*in feet -*	--	--	--	01	|	-	|	|	|
Actuation point inches (1.25"std) -		--	--	--	--	00	-	|	|	|
							-	|	|	|
Process connection	*3/4"NPT -*	--	--	--	--	--	-	03	|	|
	Flange ANSI 150# -	--	--	--	--	--	-	A	|	|
	Flange ANSI 300# -	--	--	--	--	--	-	B	|	|
	Flange Sanitary -	--	--	--	--	--	-	C	|	|
	Flange size 1" -	--	--	--	--	--	-	--	1	|
	1.5"-	--	--	--	--	--	-	--	0	|
	2"-	--	--	--	--	--	-	--	2	|
	Sensor Material -	--	--	--	--	--	-	--	--	S

Applications	*Industries served*
High Level / Overflow Alarm	*Upstream Oil & Gas*
Low Level / Pump Protection	*Midstream Oil & Gas*
Condensate Pots	*Water & Waste- Water*
Sump Water / Oil Detection	*Chemical & Petrochemical*
Lubricant Circulation Equipment	*Pulp & Paper*
Fill Machine Level Control	*Food & Beverage*
Pump Leak Detection	*Military, Subsea / Surface*
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available
Other flange and pressure ratings available
Other remote mounted enclosures available
CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

SEP/2019

Order from: C A Briggs Company
622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

Specifications / Features

Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.

Probe material: 316SS Standard.
Sensor tip cryogenic epoxy.

Actuation point: 1.25” Standard.
Up to 99” available.

Sensor Temperature: -50° to 120°C
Sensor Pressure: 200 PSIG 316LSS.
Liquid viscosity : From 1 to 50,000 cps

Process connection: ¾” NPT Standard
Flanges mounting available.

Input options: 24VDC, 90 to 240VAC,
Output Options: 10A DPDT

Loop Power 4-16mA
Push Button Demand Self-Test
Field Select Fail-Safe Option
LED Output Indicator

Electronic mounting : Integral or Remote
Enclosure: Nema 4 / 7

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

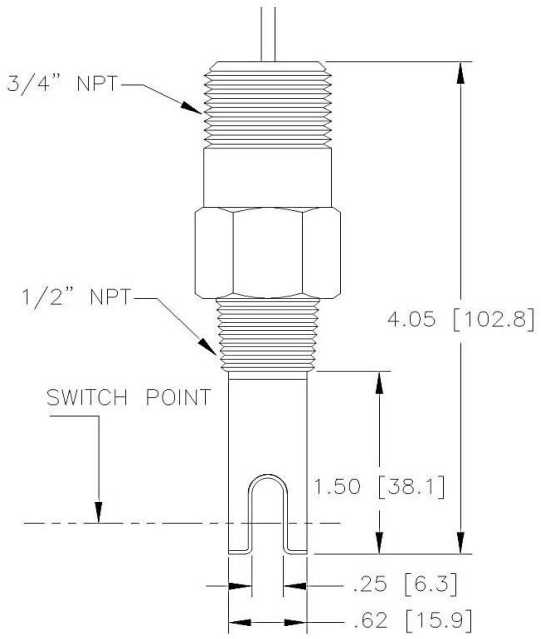
Warranrty

Sensaras’ level sensors are warranted against inherent defects for a period of two years from the date of shipment.

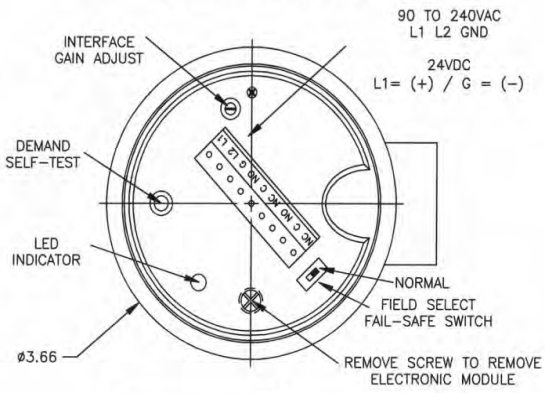
Performance Guarantee

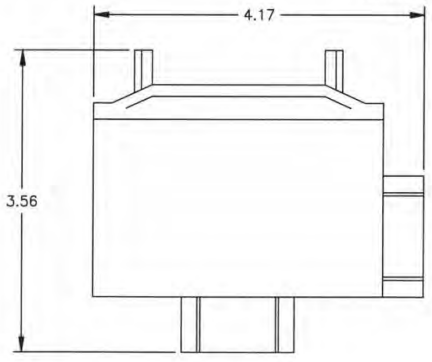
Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

Dimensions



ELECTRONIC MODULE
ENCLOSURE DIMENSIONS





Designed to meet intrinsic safety for Hazardous locations.

SEP/2019

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622 Mary Street; Suite 101; Warminster, PA 18974
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Sales@cabriggs.com - www.cabriggs.com

Sensaras

PLS166 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Solar Powered Sensor

Description

The Ultrasonic Point Level System 166 Series is an ideal solution for detecting liquid in storage vessels, tanks and pipes using solar power. With integrated electronics it is a designed for almost any liquid level application where supplying power is an issue. The probe is constructed in 316LSS material. The electronic module, solar power system and accessories are mounted in a powder coated die cast aluminum enclosure. No calibration for the system is required. A LED strobe indicator on the enclosure offers a visual status of the system. An audio alarm and reset switch is standard along with the battery status and a Demand Push button self-test feature on the electronic module assures the user the system is functioning correctly. A 0.5 second delay is added from WET to DRY to avoid false trip due to wave action.

Operation

The 166 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the ½" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output

How to Order

	PLS162-	_	-	_	-	_	-	_	-	_	-	_
Input:	*12VDC*	4	|	|	|	|	-	|	|	|
			|	|	|	|	-	|	|	|
			|	|	|	|	-	|	|	|
Output:	*Audiable and LED*	-	-	6	|	|	|	-	|	|	|
					|	|	|	-	|	|	|
Mounting:	*Integral*	-	-	-	1	|	|	-	|	|	|
	Remote	-	-	-	2	|	|	-	|	|	|
Cable (remote):	*in feet*	-	-	-	-	01	|	-	|	|	|
Actuation point inches (01"std)		-	-	-	-	-	01	-	|	|	|
								-	|	|	|
Process connection	*3/4"NPT*	-	-	-	-	-	-	-	03	|	|
	Flange ANSI 150#	-	-	-	-	-	-	-	A	|	|
	Flange ANSI 300#	-	-	-	-	-	-	-	B	|	|
	Flange Sanitary	-	-	-	-	-	-	-	C	|	|
	Flange size 1"	-	-	-	-	-	-	-	-	1	|
	1.5"	-	-	-	-	-	-	-	-	0	|
	2"	-	-	-	-	-	-	-	-	2	|
	Sensor Material	-	-	-	-	-	-	-	-	-	S

Applications	*Industries served*
High Level / Overflow Alarm	*Upstream Oil & Gas*
Low Level / Pump Protection	*Midstream Oil & Gas*
Condensate Pots	*Water & Waste- Water*
Sump Water / Oil Detection	*Chemical & Petrochemical*
Lubricant Circulation Equipment	*Pulp & Paper*
Fill Machine Level Control	*Food & Beverage*
Pump Leak Detection	*Military, Subsea / Surface*
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available
Other flange and pressure ratings available
Other remote mounted enclosures available
CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

SEP/2019

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622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

Specifications / Features

Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.

Probe material: 316SS Standard.
Optional material available.

Actuation point: 4.0" Standard (integral).
Up to 99" available.

Sensor Temperature: -20° to 150°C
Sensor Pressure: 1000 PSIG 316LSS.
Liquid viscosity : From 1 to 75,000 cps

Process connection: ¾" NPT Standard
Flanges mounting available.

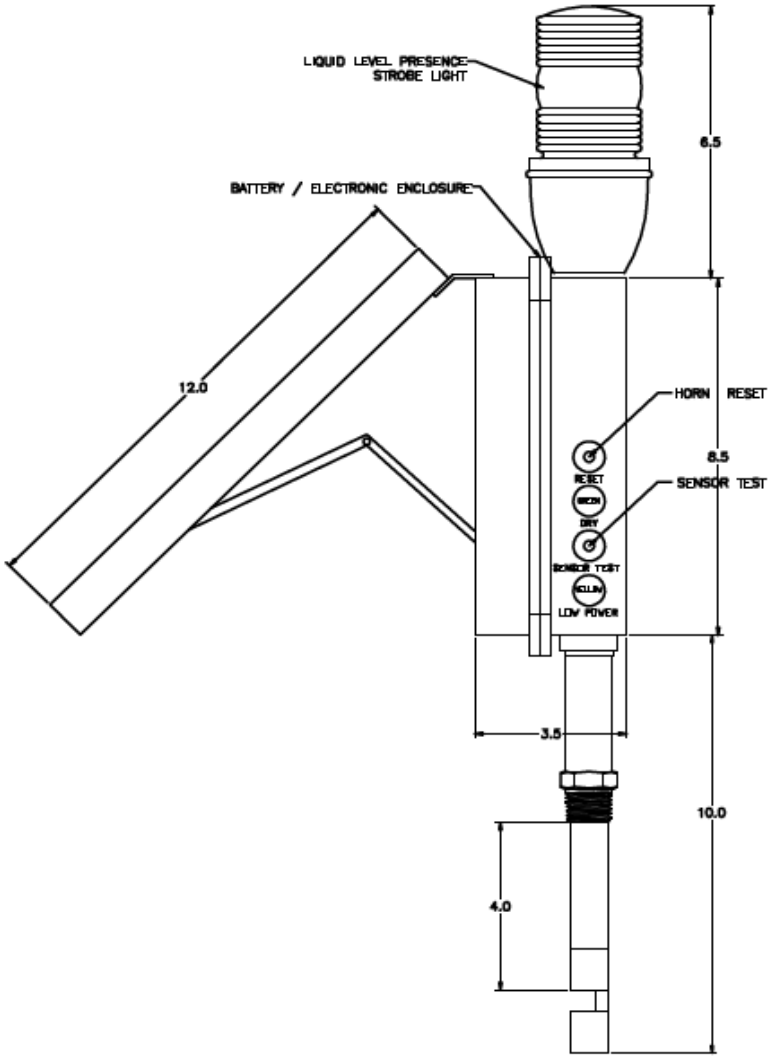
Input options: Solar powered 12VDC,
Output: Audiable Buzzer
Strobe LED

Push Button Demand Self-Test
Reset Audiable alarm switch
12V Battery

Electronic mounting : Integral or Remote

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

Dimensions



Warranrty

Sensaras' level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

SEP/2019

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Sales@cabriggs.com - www.cabriggs.com

Sensaras

PLS167 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Interface Gap Sensor

Description

The Ultrasonic Point Level System 167 Series is an ideal solution for detecting the interface level of two non-homogenous liquids, or the interface level of solids suspended in liquid. The probe is constructed in 316LSS material. The electronic module is captured in a plastic cassette and is mounted in a NEMA 4/ 7 explosion proof housing. An LED indicator on the electronic module offers a visual status of the system. Field selectable Fail safe allows for the relays to be energized on power up or in normal condition to de-energized when liquid is present. A Demand Push button self-test feature on the electronic module assures the user the system is functioning correctly.

Operation

The 1620 Series unit consists of two piezoelectric elements mounted in the housing of the sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the ½" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output

How to Order	PLS162-	_	-	_	-	_	-	_	-	_	-	_	-	_	_
Input:	24VDC -	0	|	|	|	|	|	|	|	|	|	|	|
	90 to 240VAC -	1	|	|	|	|	|	|	|	|	|	|	|
	9-30VDC -	2	|	|	|	|	|	|	|	|	|	|	|
Output:	10 ADPDT-	-	-	0	|	|	|	|	|	|	|	|	|	|
	Loop Power (4-20mA) -	-	-	1	|	|	|	|	|	|	|	|	|	|
Mounting:	Integral -	-	-	-	-	1	|	|	|	|	|	|	|	|
	Remote -	-	-	-	-	2	|	|	|	|	|	|	|	|
Cable (remote):	in feet -	-	-	-	-	-	-	01	|	|	|	|	|	|
Actuation point inches (01"std) -		-	-	-	-	-	-	-	-	01	|	|	|	|
	Gap (6" std) -	-	-	-	-	-	-	-	-	-	-	6	|	|	|
Process connection	3/4"NPT -	-	-	-	-	-	-	-	-	-	-	-	03	|	|
	Flange ANSI 150# -	-	-	-	-	-	-	-	-	-	-	-	A	|	|
	Flange ANSI 300# -	-	-	-	-	-	-	-	-	-	-	-	B	|	|
	Flange Sanitary -	-	-	-	-	-	-	-	-	-	-	-	C	|	|
	Flange size 1" -	-	-	-	-	-	-	-	-	-	-	-	-	1	|
	1.5"-	-	-	-	-	-	-	-	-	-	-	-	-	0	|
	2"-	-	-	-	-	-	-	-	-	-	-	-	-	2	|
	Sensor Material -	-	-	-	-	-	-	-	-	-	-	-	-	|	S

Applications	Industries served
High Level / Overflow Alarm	Upstream Oil & Gas
Low Level / Pump Protection	Midstream Oil & Gas
Condensate Pots	Water & Waste- Water
Sump Water / Oil Detection	Chemical & Petrochemical
Lubricant Circulation Equipment	Pulp & Paper
Fill Machine Level Control	Food & Beverage
Pump Leak Detection	Military, Subsea / Surface
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available
Other flange and pressure ratings available
Other remote mounted enclosures available
CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

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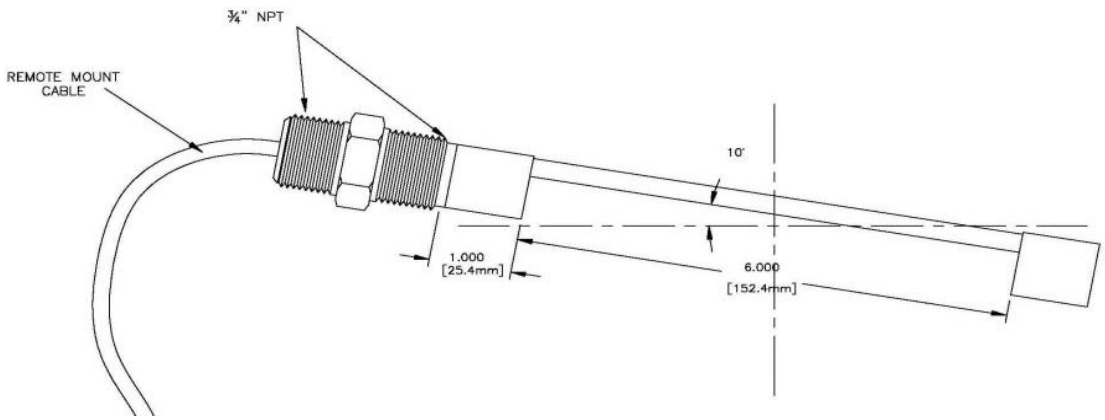
Order from: C A Briggs Company
622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

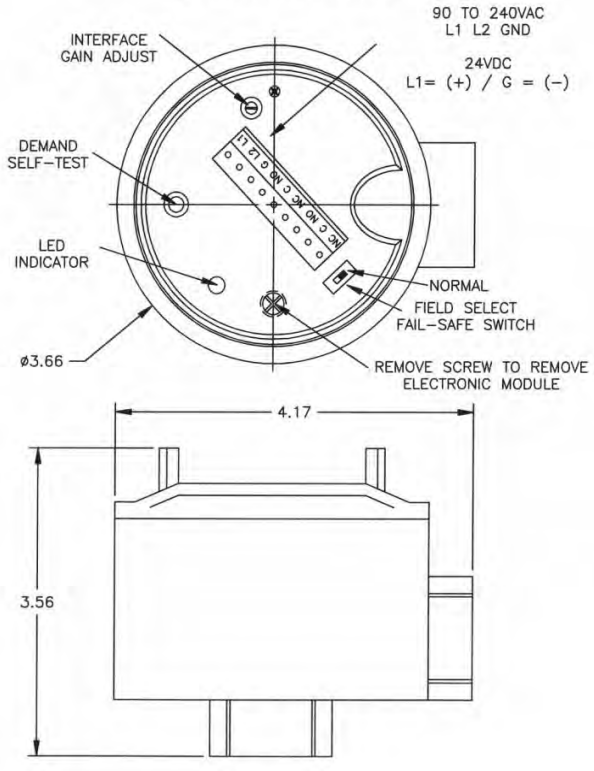
Specifications / Features *Dimensions*

SENSOR DIMENSIONS



Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.
Probe material: 316SS Standard.
Optional material available.
Actuation point: 1.0" Standard.
Up to 99" available.
Sensor Temperature: -20° to 150°C
Sensor Pressure: 1000 PSIG 316LSS.
Liquid viscosity : From 1 to 75,000 cps
Process connection: ¾" NPT Standard
Flanges mounting available.
Input options: 24VDC, 90 to 240VAC,
Output Options: 10A DPDT
Push Button Demand Self-Test
Field Select Fail-Safe Option
LED Output Indicator
Electronic mounting : Integral or Remote
Enclosure: Nema 4 / 7

ELECTRONIC MODULE ENCLOSURE DIMENSIONS



Warranrty

Sensaras' level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

SEP/2019

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622 Mary Street; Suite 101; Warminster, PA 18974
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Sales@cabriggs.com - www.cabriggs.com

Sensaras

PLS168 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Air-In-Line Sensor

Description

The Ultrasonic Point Level System 1680 Series is designed to non-invasively detect the presence or absence of liquid in a tube using Ultrasonic Technology to transmit and receive sound. There are no moving parts to the sensors. It is not dependent on the color, dielectric constant, density, viscosity of the liquid or the color, opacity and material of the tube. With an option of process fitting the sensor is easily installed and removes the variable of customer adjustment. The miniaturized electronics are built on the tube and encapsulated in an epoxy housing. The sensors can be built to any type of tube to detect the presence of bubbles or Air-In-Line that range in size from 6.3mm to 19mm. There is no calibration as each sensor is designed for the specific size tube, flow rate of the liquid, input and output of the user's specifications and requirements. Multiple points can be installed on the same tube. Consult Sensaras for sensors requiring a larger tube size.

Operation

The 168 Series unit consists of one or two piezoelectric elements mounted across a tube of material, outer diameter and wall thickness of the customer's specification. These elements convert electrical energy to mechanical energy in the form of an ultrasonic signal detecting the presence of liquid. The ultrasonic signal is attenuated with no liquid present and passes freely across the gap with the tube when liquid is present. The circuit detects the presence or absence of the ultrasonic signal and through a series of processing and filtering of the signal reliably determines the presence of bubbles and converts the signal to the desired output.

How to Order	PLS168-	_-	_-	_-	_-	_-	_-	_-	_-	_
Input:	24VDC -	0	|	|	|	|	|	|	|	|
Output:	Sink(NPN) Dry-	--	|	|	|	|	|	|	|	|
	Sink(NPN) Wet-	--	|	|	|	|	|	|	|	|
	Source(PNP) Dry-	--	0	|	|	|	|	|	|	|
	Source(PNP) Wet-	--	1	|	|	|	|	|	|	|
Mounting:	Integral -	--	--	1	|	|	|	|	|	|
	Remote -	--	--	2	|	|	|	|	|	|
Cable (remote):	in feet -	--	--	--	01	|	|	|	|	|
	Pipe OD-	--	--	--	0.25		|	|	|	|
	Pipe ID-	--	--	--	--	0.21		|	|	|
	Process connection -	--	--	--	--	--	--	1	|	|
	No Connection -	--	--	--	--	--	--	0	|	|
	Male -	--	--	--	--	--	--	M	|	|
	Female-	--	--	--	--	--	--	F	|	|
	VCR	--	--	--	--	--	--	--	V	|
	Pipe Material -	--	--	--	--	--	--	--	--	S

Applications	Industries served
High Level / Overflow Alarm	Upstream Oil & Gas
Low Level / Pump Protection	Midstream Oil & Gas
Condensate Pots	Water & Waste- Water
Sump Water / Oil Detection	Chemical & Petrochemical
Lubricant Circulation Equipment	Pulp & Paper
Fill Machine Level Control	Food & Beverage
Pump Leak Detection	Military, Subsea / Surface
	Maritime Shipping
	Inland Barges, ERC Cargo
	Semiconductor

Sensor material 316LSS is standard, other materials available

CONSULT C A BRIGGS CO. FOR CUSTOMIZATION
Sensor drawing will be sent to confirm design

SEP/2019

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622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

Specifications / Features

Input: 9-30VDC
Repeatability: 2mm or better.
Delay (on): 0.1 seconds.
Current consumption: Typical 25mA max
Housing: Epoxy
Probe material: 316SS Standard.
Bubble size: Typical +/- 60% of ID of tube (depending on material)
Pipe sizes from 6.3mm to 19mm
Sensor Temperature: -0° to 65°C

Design Options

Housing: PCV, Ultem, ABS for OEM custom

Input option: 5VDC,

Output option: TTL

Connsult Factory for other dimension

Optional material available.

Connector: Available (specify)

Remote Electronic module Optional

Status LED Avilable

Custom response time

Custom design to fix users form and fit

Warranrty

Sensaras' level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

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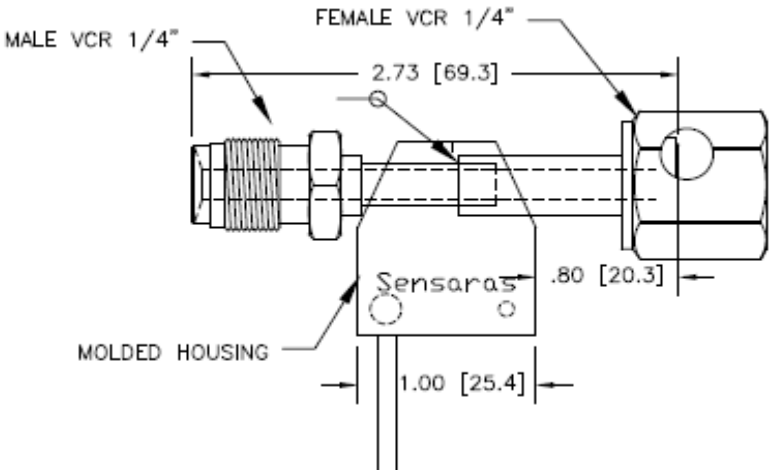
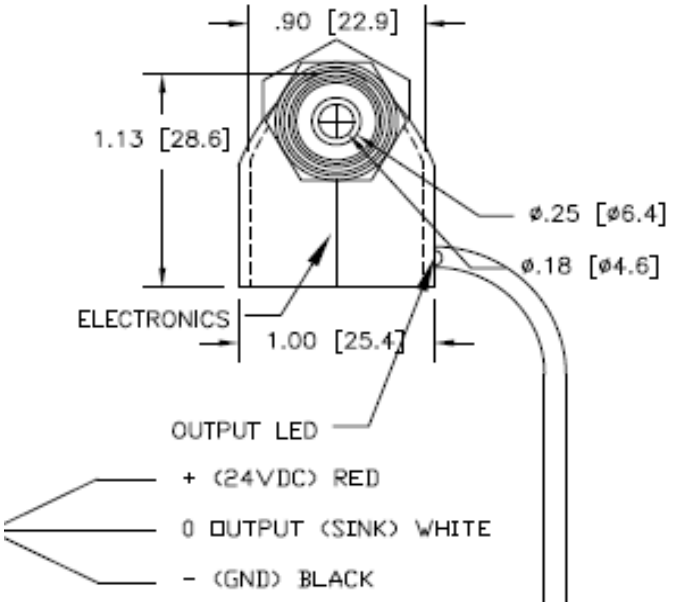
Dimensions





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Sensaras

PLS262 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Dual Gap Sensor

Description

The Ultrasonic Point Level System 262 Series is an ideal solution for controlling the level of liquid between two points in storage vessels and tanks. With integrated electronics it is a designed for almost any liquid level application. The probe is constructed in 316LSS material. The electronic module is captured in a plastic cassette and is mounted in a NEMA 4/ 7 explosion proof housing. No calibration for the system is required. An LED indicator on the electronic module offers a visual status of the system. With a control Auto Fill or Empty relay, Field selectable Fail safe allows for the relays to be energized on power up or in normal condition to de-energized when liquid is present. A Demand Push button self-test feature on the electronic module assures the user the system is functioning correctly. A 0.5 second delay is added from WET to DRY to avoid false trip due to wave action.

Operation

The 262 Series unit consists of two piezoelectric elements mounted in the housing of each sensor. These elements convert mechanical energy in the form of high frequency sound to electrical energy and vice versa. The elements are mounted parallel and opposite each other across the ½" gap in the probe. A high frequency sent from the electronics to the transmitting element, this vibrates the element at 2 to 4 MHz. Neither Air nor gases will carry sound at this high frequency and will not travel across the sensor gap. When the gap is filled with liquid, the sound will travel across the gap to vibrate the receiving element. The vibration generates an electrical signal that is amplified and read by the detector circuit in the electronics as a "wet" signal. The signal is converted to a relay output or a shift in milliamp output. Latching circutry is added for Auto Fill or Empty function.

How to Order	*PLS162-*	_ -	_ -	_ -	_ -	_ -	_ -	_ -	_ -	_
Input:	*24VDC* -	0	|	|	|	|	|	|	|	|
	90 to 240VAC -	1	|	|	|	|	|	|	|	|
Output:	*2 X 10A SPDT* -	- -	4	|	|	|	|	|	|	|
	Auto Fill Control -	- -	5	|	|	|	|	|	|	|
	Auto Empty Control -	- -	6	|	|	|	|	|	|	|
Mounting:	*Integral* -	- -	- -	1	|	|	|	|	|	|
	Remote -	- -	- -	2	|	|	|	|	|	|
Cable (remote):	*in feet* -	- -	- -	- -	01	|	|	|	|	|
Actuation point "A" (01"std) -		- -	- -	- -	- -	01	|	|	|	|
Actuation point "B" (03.5"std) -							3.5	|	|	|
Process connection	*3/4"NPT* -	- -	- -	- -	- -	- -	- -	03	|	|
	Flange ANSI 150# -	- -	- -	- -	- -	- -	- -	A	|	|
	Flange ANSI 300# -	- -	- -	- -	- -	- -	- -	B	|	|
	Flange Sanitary -	- -	- -	- -	- -	- -	- -	C	|	|
	Flange size 1" -	- -	- -	- -	- -	- -	- -	- -	1	|
	1.5" -	- -	- -	- -	- -	- -	- -	- -	0	|
	2" -	- -	- -	- -	- -	- -	- -	- -	2	|
	Sensor Material -	- -	- -	- -	- -	- -	- -	- -	- -	S

Applications	*Industries served*
High Level / Overflow Alarm	*Upstream Oil & Gas*
Low Level / Pump Protection	*Midstream Oil & Gas*
Condensate Pots	*Water & Waste- Water*
Sump Water / Oil Detection	*Chemical & Petrochemical*
Lubricant Circulation Equipment	*Pulp & Paper*
Fill Machine Level Control	*Food & Beverage*
Pump Leak Detection	*Military, Subsea / Surface*
	Maritime Shipping
	Inland Barges, ERC Cargo

Sensor material 316LSS is standard, other materials available
Other flange and pressure ratings available
Other remote mounted enclosures available
CONSULT C A BRIGGS CO. FOR CUSTOMIZATION

SEP/2019

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622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

Specifications / Features

Repeatability: 2mm or better.
Delay (on): 0.5 seconds Standard.

Probe material: 316SS Standard.
Optional material available.

Actuation point: 1.0" Standard.
Minumum distance between points 2.5".

Sensor Temperature: -20° to 150°C
Sensor Pressure: 1000 PSIG 316LSS.
Liquid viscosity : From 1 to 75,000 cps

Process connection: ¾" NPT Standard
Flanges mounting available.

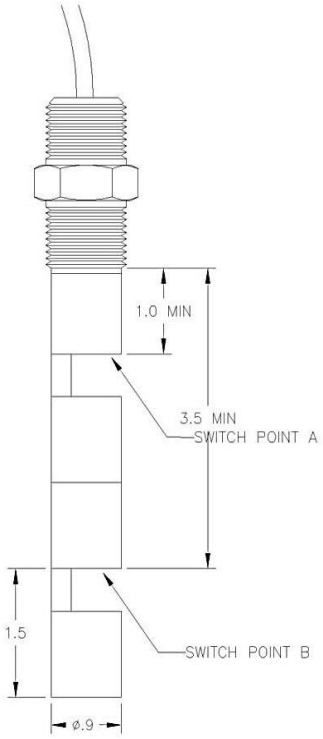
Input options: 24VDC, 90 to 240VAC,
Output Options: 2 X 10A SPDT,
Auto Fill/ Empty Control

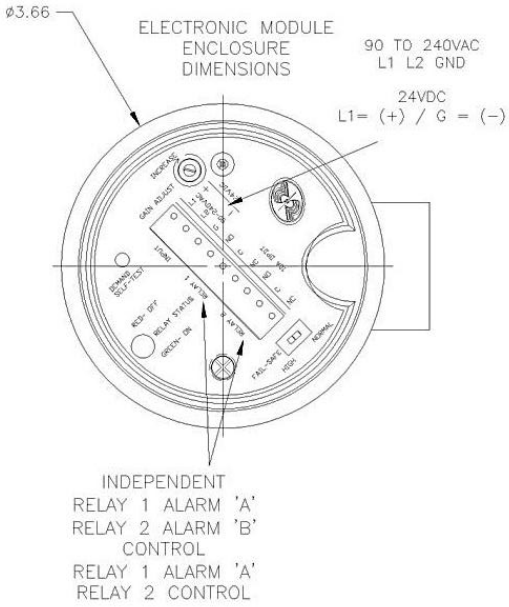
Push Button Demand Self-Test
Field Select Fail-Safe Option
LED Output Indicator

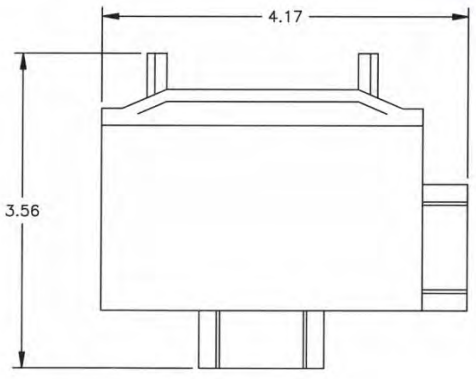
Electronic mounting : Integral or Remote
Enclosure: Nema 4 / 7

CSA Approval (pending) Explosion Proof
Class I Group CD
Class II Group EFG
Class III Type 4. EP. IP 65.

Dimensions







Warranrty

Sensaras' level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

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Sensaras

PLS 560 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System — Air Bubble Detector

Description

Ultrasonic Point Level System 5600 Series is designed to non-invasively detect the presence or absence of liquid in a tube using Ultrasonic Technology to transmit and receive sound. This could also be viewed as detecting the presence of bubbles in a tube or an Air Bubble Detector. There are no moving parts to the sensors. It is not dependent on the color, dielectric constant, density, viscosity of the liquid or the color, opacity and material of the tube. The miniaturized electronics are built in the sensor. The sensors can be built to any type of tube to detect the presence of bubbles or Air-In-Line that range in size from 1mm to 19mm. Consult Sensaras for sensors requiring a larger tube size. There is no calibration or adjustment as each sensor is designed for the specific size tube, flow rate of the liquid, input and output of the user's specifications and requirements.

Operation

The 5600 Series unit consists of one or two piezoelectric elements mounted across a gap in where the tube is freely inserted by the user. These elements convert electrical energy to mechanical energy in the form of an ultrasonic signal detecting the presence of liquid. The ultrasonic signal is attenuated with no liquid present and passes freely across the gap with the tube when liquid is present. The circuit detects the presence or absence of the ultrasonic signal and through a series of processing and filtering of the signal reliably determines the presence of bubbles and converts the signal to the desired output.

How to Order	*PLS168-*	_-	_-	_-	_-	_-		_-	_-	_
Input:	*24VDC -*	0	|	|	|	|	|	|	|	|
Output:	*Sink(NPN) Dry-*	- -	|	|	|	|	|	|	|	|
	Sink(NPN) Wet-	- -	|	|	|	|	|	|	|	|
	Source(PNP) Dry-	- -	0	|	|	|	|	|	|	|
	Source(PNP) Wet-	- -	1	|	|	|	|	|	|	|
Mounting:	*Integral -*	- -	- -	1	|	|	|	|	|	|
	Remote -	- -	- -	2	|	|	|	|	|	|
Cable (remote):	*in feet -*	- -	- -	- -	01	|	|	|	|	|
	Pipe OD-	- -	- -	- -	0.25	|	|	|	|	|
	Pipe ID-	- -	- -	- -	- -	0.21	|	|	|	|
	Tube Material -	- -	- -	- -	- -	- -	- -	T	|	|

Applications	*Industries served*
Infusion pumps	Medical / Pharmaceutical
Air Bubble Alarm	
Drip chamber	Semiconductor
Chemical, Vapor Deposition	
Atomic Layer Deposition	
Chemical dispensing	Chemical
Low level switch	
Liquid food dispensing	Food & Beverage
Fill bottle machine	Automation
Pump Leak Detection	

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Specifications / Features

Input: 9-30VDC
Repeatability: 2mm or better.
Delay (on): 0.1 seconds.
Current consumption: Typical 25mA max
Housing: Epoxy

Bubble size: Typical +/- 60% of ID of tube (depending on material)
Pipe sizes from 1mm to 19mm
Sensor Temperature: -0° to 65°C

Design Options

Housing: PCV, Ultem, ABS for OEM custom

Input option: 5VDC,

Output option: TTL

Connsult Factory for other dimension

Optional material available.

Connector: Available (specify)

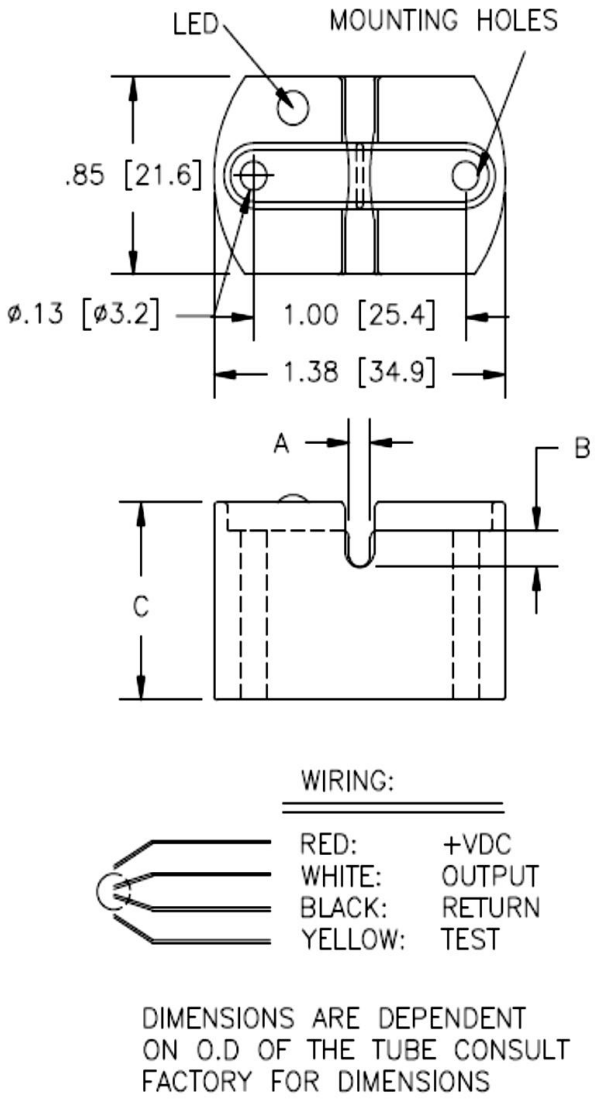
Remote Electronic module Optional

Status LED Avilable

Custom response time

Custom design to fix users form and fit

Dimensions



Warranrty

Sensaras' level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

Should the unit not perform as we claim within 45 days of delivery and was properly installed consistent with our stated requirements and specifications Sensaras will gladly accept a return of the unit for a full credit.

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Sensaras

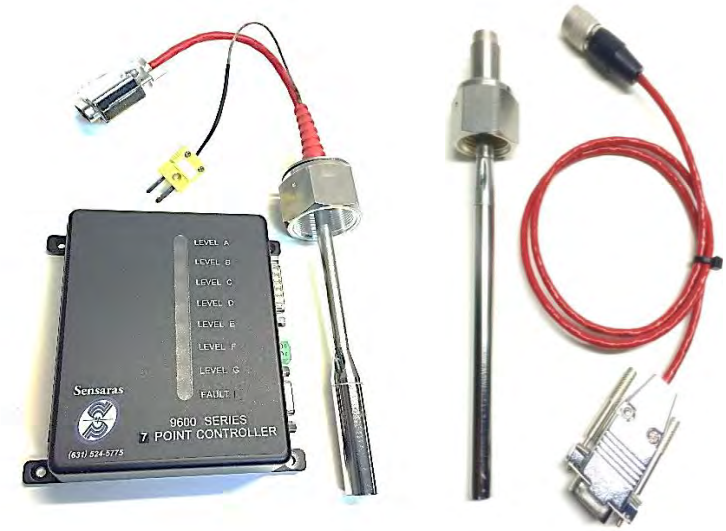
PLS960 Series

Sound Steadfast Solutions

Made in the U.S.A.

Invasive Point Level System

Multi-Point Level



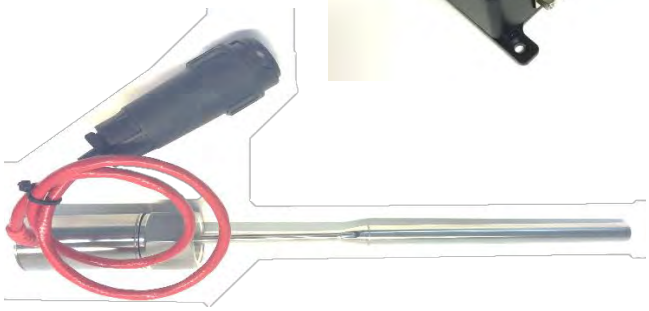
Description

The Ultrasonic Point Level System 960 Series is designed to detect the level of Ultra-Pure Liquid Chemical in Bubblers and Ampoules in the Semiconductor industry in PVD, CVD and ALD processes. The probe fits in the ½" or ¾" VCR fill port of the ampoules. There are no moving parts to the probe that may introduce impurities. It is not dependent on the color, dielectric, density and viscosity of the chemical. The design allows for multiple sensing points. All wetted parts of the probe is 316LSS, electro-polish finish and leak tested. Each probe is custom made to user's specifications and requirements. The electronics are remotely mounted from the probes to allow for higher temperature applications. There is no calibration or adjustments between sensors.

Operation

The 960 Series unit consists of a pair of piezoelectric elements per point, mounted between two tubes to detect presence or absence of liquid. The ultrasonic signal is attenuated with no liquid present and passes freely across the gap when liquid is present. The circuit detects the presence or absence of the ultrasonic signal and converts the signal to a relay output. A Relay for FAULT FUNCTION is standard on the electronics to detect if a sensors not connected, the wrong sensors is connected or if the output sequence is not in order. FAIL-SAFE and an independent WATCH-DOG-TIMER-CIRCUIT option adds safety should the electronic module lose power of if the processor fails.

Applications	*Industries served*
Continuous level monitoring	*Semiconductor*
High Level / Overflow Alarm	
Low Level / Stop , Refill	
	Medical / Pharmaceutical



Sensor material 316LSS is standard, other materials available
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Specifications / Features

Electronics

Input: 24VDC

Output: Up to 7 sensing points, 1A SPDT each set point

Independent Fault function, 1A SPDT

Optional: Local Temperature Display

Optional: Fail-Safe for relays

Optional: Fail-Safe and Watch-Dog-Timer Circuit function

No Calibration for Liquid Properties

Repeatability: Typical +/- 0.04”(1mm)

Accuracy: +/- 0.06 (1.5mm)

Current consumption: Typical 250mA max

Sensor

Material: 316LSS

Up to 7 sensing points on 3/4" VCR

Up to 4 sensing points on 1/2" VCR

K-type SLE thermocouple sensor Optional

Lowest point 5mm from end of probe

Minimum distance between set points: 2.5mm

Max length : 600mm

Consult factory for longer

Sensor Temperature: -0° to 125°C (standard)

Consult factory for temperature up to 150°C

Consult factory for more than 7 points (up to 16 available)

Design Options and Ordering information

Please call Sensaras for part numbers for electronics and sensors

Warranty

Sensaras’ level sensors are warranted against inherent defects for a period of two years from the date of shipment.

Performance Guarantee

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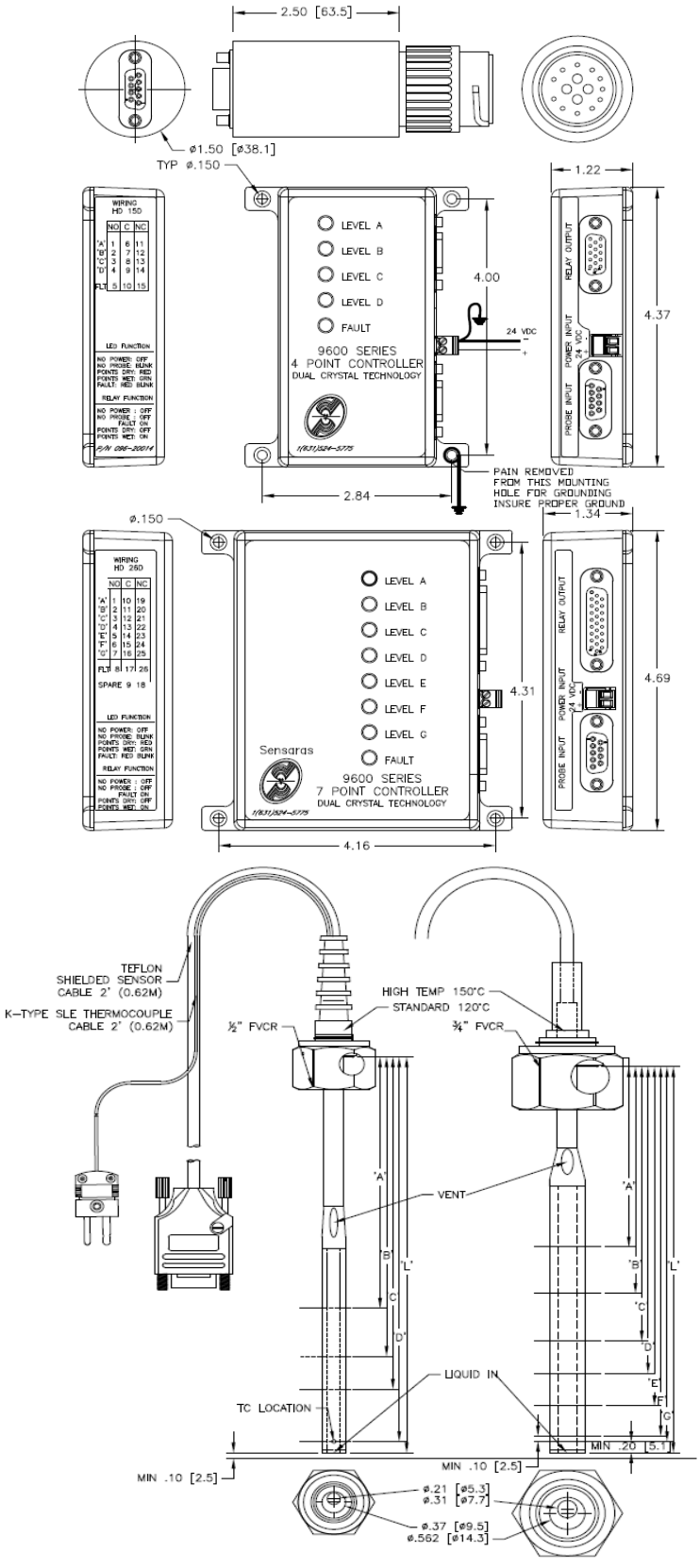
Dimensions



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