Optical Liquid Level Switches

LLHT Glass Tip Series

- Designed for applications requiring a robust metal housing and a wide operating temperature range
- Choice of 316L or 303 stainless steel housing with Borosilicate glass sensing tip
- Choice of terminations
- For liquids up to 140°C
- Short circuit protected



Description

Built for harsh industrial environments, LLHT Series switches feature a rugged stainless steel body and durable Borosilicate glass tip, making them ideal for high pressure, high temperature, and chemically aggressive applications. Using solid-state infrared optics, the sensor detects most oil- and water-based liquids, with immunity to ambient light, foam, and bubbles. Outputs are available in N or P-type configurations, sourcing or sinking up to 200mA at 12–30V_{DC}, with user-configurable wet/dry switching and LED status indication.
With pressure ratings up to 80 bar and operating temperatures from -25...+140°C (extended version), the LLHT Series delivers reliable liquid level detection in the toughest conditions. [b]

Specifications

Technical Specifications	
Supply voltage (Vs)	12V_{DC} to 30V_{DC}
Supply current (Is)	25mA max.
Output sink and source current (Iout)	200mA max
Operating temperatures (process)	LLHT187: -25...+100°C (-13°F...+212°F)
	LLHT287: -25...+140°C (-13°F...+284°F)
Operating temperatures (ambient)	LLHT187: -25...+80°C (-13°F...+176°F)
	LLHT287: -25...+80°C (-13°F...+176°F)
Housing material	Stainless steel with Borosilicate glass tip [a]
Sensor termination	M12 Brad Harrison connector or PUR 3x0.25mm², 2m cable
Output Values	
Output Voltage Vout: (Iout = 200mA) Vs = 12—30V_{DC}	
Output high	Vout = Vs - 1.5V max
Output low	Vout = 0V + 0.5V max

Core Applications

- Valve / pump control
- Leak detection
- Clean environments
- Tank level control; fill/empty
- Overfill protection
- Sump level switching

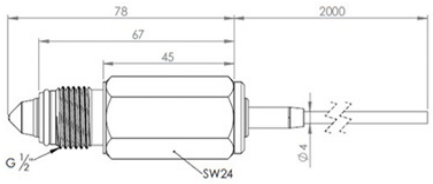
[a] Before use check that the fluid in which you wish to use these devices is compatible with Borosilicate glass.

[b] Avoid reflective surfaces within 50mm of the sensing tip

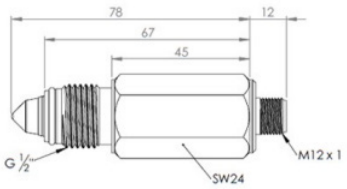
Outline Drawing

All dimensions shown in mm. Tolerances = ±1mm.

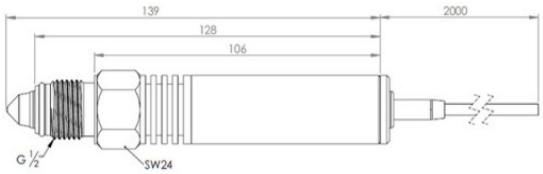
LLHT187-3XX



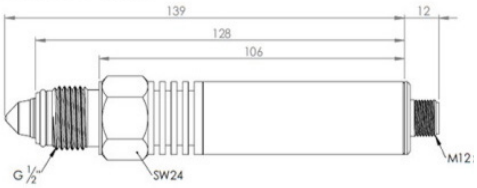
LLHT187-4XX



LLHT287-3XX



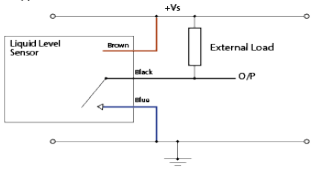
LLHT287-4XX



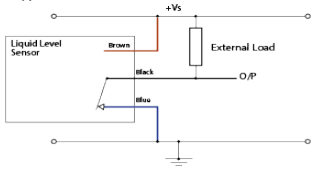
Circuit Diagrams

In order to suit any application, these sensors have been designed with various output circuit configurations. They are identified by the 2-digit code at the end of the part number as shown in Order Information.

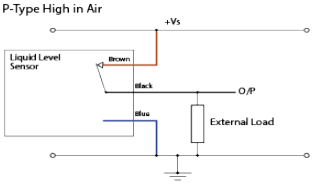
11 N-Type High in Air



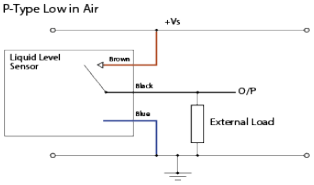
12 N-Type Low in Air



13 P-Type High in Air



14 P-Type Low in Air



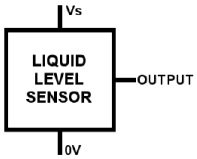
CAUTION: Take care when connecting loads.
The minimum load impedance should not exceed Vs/max output current
Note: Shorting the output to Vs or 0V will result in irreparable damage to the sensor.

Housing Specifications

Installation drawings and 3D (.step) files available on the product webpage.

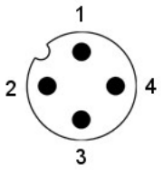
Housing Type		
	LLHT187	LLHT287
Thread	G1/2" (1/2" BSPP)	
Pressure [c]	80 bar / 1160 psi maximum	
Sensor Termination	Cable: PUR 3 x 0.25mm2, 2m long (IP68)	
	M12x1 Brad Harrison micro (IP67)	

Electrical Interface



Wire	Designation
Brown	Vs
Black	Output
Blue	0V

Brad Harrison micro



Output Type / Logic				
Pin	11	12	13	14
1	Vs	Vs	Vs	Vs
2	-	Low in air N-Type Output	-	High in air P-Type Output
3	0V	0V	0V	0V
4	High in air N-Type Output	-	Low in air P-Type Output	-

[c] When correctly sealed.

Ordering Guide

Generate your specific part number using the convention shown below.
Use only those letters and numbers that correspond to the sensor and output options you require — omit those you do not.

a DwyerOmega brand

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Housing Type	Housing Material	Termination	Output Logic
1 ~78mm long Max. process temp = 100°C	Blank 303 grade stainless steel	3 Cable 2.0m (IP68)	11 N-Type High in air
2 ~138mm long Max. process temp = 140°C	316 316L grade stainless steel	4 M12x1 Brad Harrison (IP67)	12 N-Type Low in air
			13 P-Type Low in air
			14 P-Type High in air

Accessory Table

Thread	Accessory	Material	Order Code
1/2" BSPP	Weld nut	Stainless steel	LLHT12BSP

Caution

Do not exceed maximum ratings and ensure sensor(s) are operated in accordance with their requirements.

Carefully follow all wiring instructions. Incorrect wiring can cause permanent damage to the device.

SST Sensing Ltd recommend using alcohol based cleaning agents. Do NOT use chlorinated solvents such as trichloroethane as these are likely to attack the sensor material.

Failure to comply with these instructions may result in product damage.

Information

As customer applications are outside of SST Sensing Ltd.'s control, the information provided is given without legal responsibility. Customers should test under their own conditions to ensure that the equipment is suitable for their intended application. Before use, check that the fluid in which you wish to use these devices is compatible with Borosilica

General Note: SST Sensing Ltd. reserves the right to make changes to product specifications without notice or liability. All information is subject to SST Sensing Ltd's own data and considered accurate at time of going to print.

For technical assistance or advice, please email: sensors@dwyeromega.com