The function of a Liquid Level Switch is to detect and monitor liquid levels.

Applications
The level switch can be installed in a number of locations in the refrigeration system such as liquid receivers, suction line accumulators and compressor crankcases.

The range is designed for use with HCFC, HFC and ammonia refrigerants, along with their associated oils. A 1” NPT level switch is recommended for ammonia applications. For other refrigerant/oil combinations, please contact Henry Technologies.

How it works
The S-94 series electronic level switches use infrared light reflecting from a conical glass prism as a means of detecting the absence of fluid at the level of the glass cone. An integral part of the switch is an infrared module, containing a light emitter and receiver.

When no fluid covers the lower half of the cone, infrared light from the emitter reflects from the inner surface of the cone back to the receiver. This signals the module to switch. When fluid covers the lower half of the cone, the light from the emitter disperses into the fluid. The resulting absence of reflected light is detected by the receiver and the module switches in the opposite direction.

Main Features
- Patented optical sensor technology
- Robust design
- Serviceable without refrigerant loss
- No moving parts
- Fused glass hermetic seal
- Flying leads and DIN connector options

# US patent 5278426

Technical Specification
Allowable operating pressure: 0 to 35 barg
Allowable operating temperature: -40°C to +99°C
Mounting: Horizontal only
Supply voltage: Refer to table
Switch inductive rating: 36VA pilot duty rated
Contact life: Over 1 million cycles at rated electrical load
Power for operation: 3.5mA AC, 5.5mA DC
Minimum load: 2mA (without bleed resistor)
Resistive rating: Refer to table
Contacts, power off: Normally Open (NO)
Contacts, power on: Refer to table
(liquid present)
Customer interface: Refer to table

Materials of Construction
The switch consists of a plated steel body with a built-in fused glass prism.
LIQUID LEVEL SWITCHES

Note: The optional 1” NPT level switches allow the unit to be mounted closer to the inner wall of the vessel. This eliminates the potential for a pool of liquid next to the glass prism, which can be detrimental to performance. A 1” NPT level switch is recommended for ammonia applications where residue can build up on the glass prism.

** Part No Voltage Resistive rating Contacts - power on & liquid present Customer Interface Wire colour codes Drawing reference Dimensions Replacement Module number Weight (kg) CE Cat
S-9400 120V 50/60 Hz 0.5 A N.C. flying leads Yellow & White fig.1 1/2” NPT 28.6 192 2-044-012 0.22 SEP
S-9420 208/240V 50/60 Hz 0.25A N.C. flying leads Red & White fig.1 1/2” NPT 31.8 192 2-044-015 0.22 SEP
S-9420A 208/240V 50/60 Hz 0.25A N.O. flying leads Red & White/Stripe fig.1 1/2” NPT 31.8 192 2-044-018 0.22 SEP
S-9424 24V AC/DC 0.5A N.C. flying leads Orange & White fig.1 1/2” NPT 31.8 192 2-044-013 0.22 SEP
S-9424A 24V AC/DC 0.5A N.O. flying leads Orange & White/Stripe fig.1 1/2” NPT 31.8 192 2-044-020 0.22 SEP

** A 1” NPT connection is available for the S-9400 series by ordering with a “-1” suffix (i.e. S-9424-1).

Note: load is to be wired between black and coloured leads.

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Installation – Main issues
1. Install a level switch horizontally. If the unit is mounted at an angle or vertically, liquid can be trapped which will cause switching problems.
2. Ensure that no object is within 50 mm of the glass prism.
3. Wiring diagrams are included in the Product Instruction sheets.
4. The switches should not be used with very dirty liquids.
5. Full instructions are given in the Product Instruction sheet, provided with each unit.