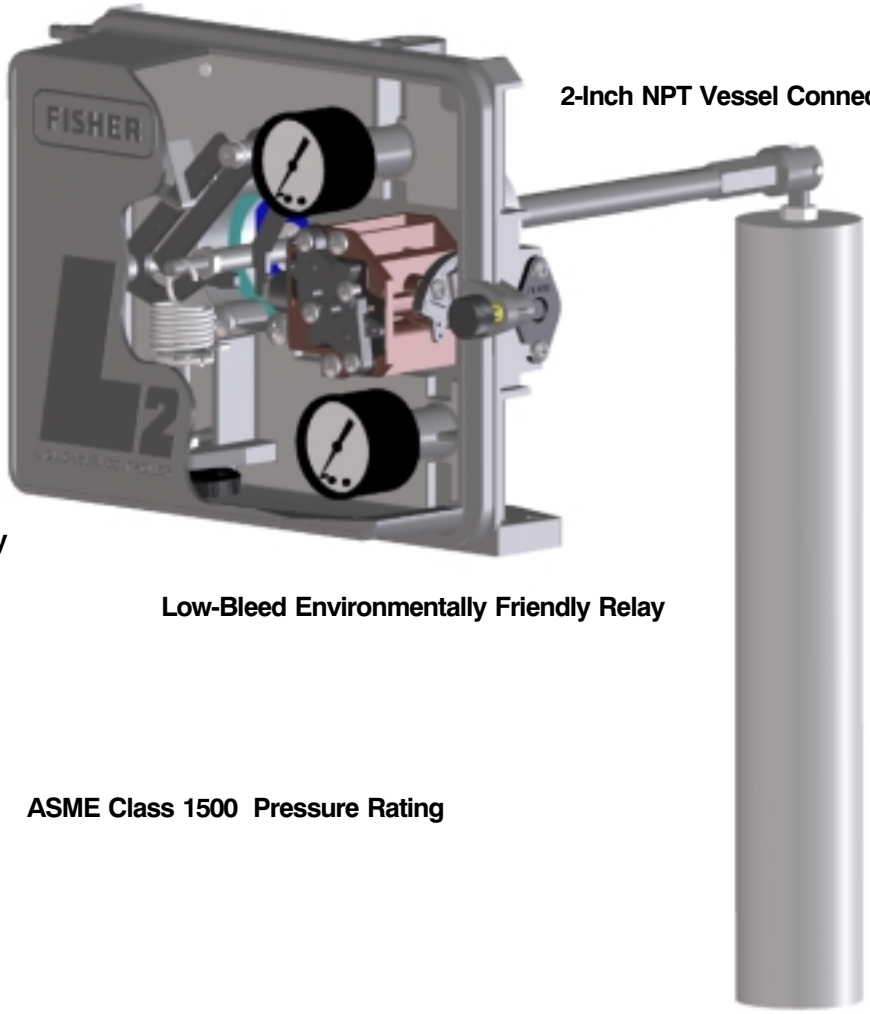
Type *L2* Liquid Level Controller

Snap-Acting or Throttling Control

Vent-Away Case



2-Inch NPT Vessel Connection

Field-Reversible Output

NACE Service Ready

Low-Bleed Environmentally Friendly Relay

ASME Class 1500 Pressure Rating

Field-Configurable Vertical or Horizontal Displacer

W8335

NOW....ONE PNEUMATIC LIQUID LEVEL CONTROLLER THAT MEETS A WIDE RANGE OF APPLICATIONS

Figure 1. Features

L2 Liquid Level Controller

Figure 2. Type L2 Liquid Level Controller

The rugged Type *L2* liquid level controller uses a displacer type sensor (see figures 1 and 2) to detect liquid level or the interface of two liquids of different specific gravities. This controller is ideal for controlling level on gas separators and scrubbers. The reliability of the Type *L2* design makes it well suited for high pressure liquid level applications in natural gas production, compression, and processing. The device delivers a pneumatic output signal to a control valve. The sensor uses a threaded 2-inch NPT connection to the vessel.

Features

- **Snap-Acting or Throttling Control—**One standard controller available as either throttling or snap-acting.

- **Field-Reversible Output—**The controller can be adjusted in the field for direct or reverse action without additional parts. The controller also has adjustable gain sensitivity.

- **NACE Service Ready—**Standared construction uses materials that comply with the recommendations of NACE MR0175 (National Association of Corrosion Engineers).

- **Low-Bleed Environmentally Friendly Relay—**Low-bleed relays conserve operating medium and reduce the impact on the environment.

- **Vent-Away Case—**The ability to pipe away exhaust permits using natural gas as the operating medium.

- **ASME Class 1500 Pressure Rating—**Sensor assembly is designed and specified for ASME B16.34 Class 1500 service.

- **Field-Configurable Vertical or Horizontal Displacer—**Displacer may be adjusted in the field for vertical or horizontal operation without additional parts

- **Easy Maintenance—**Both the controller and the sensor can be easily disassembled to inspect the process seals and for maintenance.

- **Vibration Resistant Sensor Dynamics—**O-Ring friction and process pressure sensitivity are minimal. Performance stays constant with process pressure changes and controller remains vibration resistant.

Specifications

Available Configurations

Controllers: Snap-acting or throttling.
Sensor: Displacer-type liquid level sensor for mounting to side of tank. Displacer travel is transmitted to controller by pivotal movement of displacer rod.

Input Signal(1)

Type: Liquid level or liquid-to-liquid interface

Level Change Required for Full Change in Output Signal in a 1.0 Specific Gravity Liquid, with 1.4 bar (20 psig) Supply, Direct Action, and Standard 1-7/8 X 12-Inch (48 x 305 mm) Vertical Displacer with Standard Lever Arm Length:

Control Mode	Minimum Proportional Band Level Change, mm (Inches)(2)	Maximum Proportional Band Level Change, mm (Inches)(2)
Throttling	102 (4)	305 (12)
On-off	127 (5)	305 (12)
Snap-acting	13 (0.5)	20 (0.8)

Minimum Specific Gravity(3)

Throttling Controller: Minimum specific gravity, or specific gravity differential for interface applications, is 0.1 (See note 4).
Snap-Acting Controller: Minimum specific gravity, or specific gravity differential for interface applications, is 0.1

Output Signal(1)

Pneumatic ■ on-off or ■ proportional pressure signal
Ranges:
Throttling: ■ 0.2 to 1.0 bar (3 to 15 psig) or ■ 0.4 to 2.0 bar (6 to 30 psig)
On-Off: 0 (off) or full supply pressure (on)
Action: Field-reversible between direct (increasing level increases output signal) and reverse (increasing level decreases output signal)

Supply Pressure Requirements

Throttling Controller:
Throttling: 1.4 bar (20 psig) for 0.2 to 1.0 bar (3 to 15 psig) output signal and 2.4 bar (35 psig) for 0.4 to 2.0 bar (6 to 30 psig) output signal
On-Off: Any desired pressure between 1.4 and 3.4 bar (20 and 50 psig)

Snap-Acting Controller: Any desired pressure between 1.4 and 5.2 bar (20 and 50 psig) direct, and 1.4 and 2.4 bar (20 and 35 psig) reverse

Do not use supply pressure below 1.4 bar (20 psig).

Steady-State Air Consumption(5)

Throttling Controller: ≤0.03 normal m^3/hr (1.0 scfh) at 1.4 bar (20 psig) supply pressure
Snap-Acting Controller: ≤0.03 normal m^3/hr (1.0 scfh) at 1.4 bar (20 psig) supply pressure or ≤0.04 normal m^3/hr (1.5 scfh) at 2.4 bar (35 psig) supply pressure in tripped condition; air consumption increases during trip

Standard Displacer Size

48 x 305 mm, 541 cm^3 (1-7/8 x 12 inches, 33 in^3

Maximum Displacer Working Pressure(6)

258 bar (3750 psig)

Maximum Displacer Insertion Length(7)

Standard lever arm length plus one 6-inch extension, horizontal or vertical

Maximum Sensor Working Pressure(6)

Consistent with Class 1500 pressure temperature ratings per ASME B16.34 up to maximum pressure of 258.5 bar (3750 psig)

Construction Materials

Controller:
Case and Cover: Marine grade aluminum
Relay Body: Thermoplastic
Fasteners: Stainless steel
Diaphragm: Nitrile
O-Rings: Nitrile
Case and Cover Gasket: Neoprene
Sensor Gasket: Composition
Relay Gasket: Nitrile
Throttling Levers: Stainless steel

Sensor:
Pivot Assembly: Stainless steel
Sensor Spring: Stainless steel
Sensor Body: LCC
O-Rings: Highly saturated Nitrile(8) or fluorelastomer
Displacer: Polyvinylchloride (PVC)

–Continued–

L2 Liquid Level Controller

Specifications (continued)

Operative Ambient Temperature Limits(1)(6)

Controller: −29 to 71°C (−20 to 160°F)

Sensor Temperature Limits(1)(6)

Displacer: −29 to 79°C (−20 to 175°F)
O-Rings: −40 to 204°C (−40 to 400°F)

Sensor to Vessel Connection

2-inch (51 mm) screwed (NPT)

Controller Connections

Supply: 1/4 in. NPT female located on the bottom of the case

Output: 1/4 in. NPT female located on the top of the case
Case Vent: 1/4 in. NPT female with vent screen assembly located on the back of the case

Standard Supply, and Output Pressure Gauge Indications

Triple scale gauges in 0 to 60 psig/0 to 0.4 MPa/0 to 4.0 bar

Dimensions

Refer to Figure 3

1. This term is defined in ISA Standard 51.1.
2. Any deviation from the standard construction described in the input signal specification above requires special sizing considerations. Contact the Fisher sales office for information.
3. Minimum specific gravity values apply to both horizontal and vertical displacers with standard lever arm length (see dimension in figure 3).
4. Minimum specific gravity differential with standard displacer is 0.4. Minimum specific gravity differential of 0.1 is possible with special displacer. Consult your Fisher sales office for displacer sizing information.
5. Normal m^3/hr--Normal cubic meters per hour (0°C and 1.01325 bar, absolute). Scfh--Standard cubic feet per hour (60°F and 14.7 psia).
6. The pressure and temperature limits in this document and any applicable code limitations shold not be exceeded.
7. Standard lever arm length. See figure 3.
8. Highly saturated Nitrile (H--NBR) has exceptional resistance to swelling in sour applications.

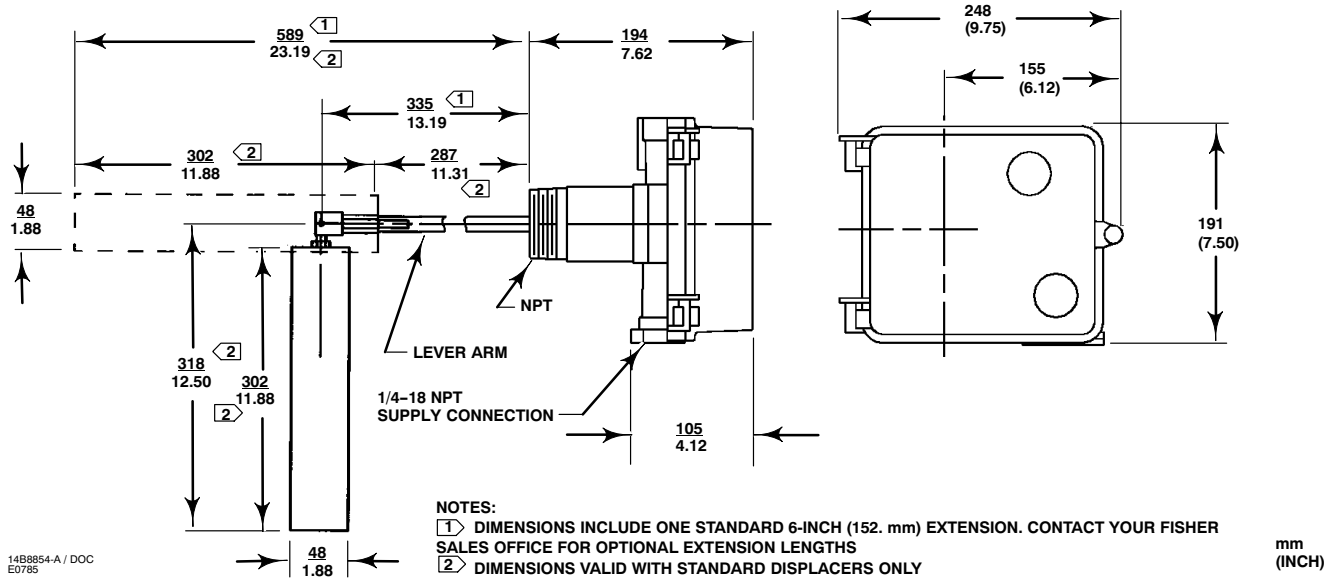


Figure 3. Dimensions

Note

Fisher does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for proper selection, use, and maintenance of any Fisher product remains solely with the purchaser and end-user.

L2 Liquid Level Controller

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