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# VIBRATING LIQUID LEVEL SWITCH

## RESONATOR™

Model RS80

### FEATURES:

- Direct Replacement for Ultrasonic Gap Switches, RF Capacitance Switches, Float Switches and Other Technologies
- Immune to Low to Medium Coating or Build-Up on Sensor
  - ⇒ Temperatures between -40°F to 350°F (-40°C to 177°C)
  - ⇒ Pressures to 2000 psig (138 bar)
  - ⇒ Viscosity up to 20000 cP
  - ⇒ Density from 0.5 SG
- Robust Sensing Element
- Standard 3/4" MNPT Process Connection
- Single Compartment Housing with Viewing Cover
- Field Selectable Parameters with External Magnet or Internal Pushbuttons (Fail Safe, Density)
- Modular Electronics with Alarm Status LED
- Continuous Self-Test Diagnostics
- Extended Probe Lengths to 120 in. (3048 mm)



### BENEFITS:

- No Mechanical Moving Parts
- Externally Visible Status LED
- Maintenance Free
- No Calibration
- Set It and Forget It

### APPLICATIONS:

- Overfill Protection
- High and Low Level Alarm
- Oil Tank Farms
- Fine Chemicals

RS80 Shown with Standard Stainless Steel Probe Finish

### SPECIFICATIONS

#### Mechanical

Housing Type	Single Compartment Powder Coated Aluminum with Glass Viewing Cover
Electronics Temperature	-40°F to 158°F (-40°C to 70°C)
Specific Gravity	Adjustable High or Low Specific Gravity Setpoint
Viscosity	Up to 20,000 cP
Process Temperature	-40°F to 350°F (-40°C to 177°C)
Process Pressure	0 to 2000psig (138 bar)
Process Connection	3/4" NPT (standard)
Probe Length	3-3/8" (86mm) Standard to 120" (3048mm)



#### Approvals

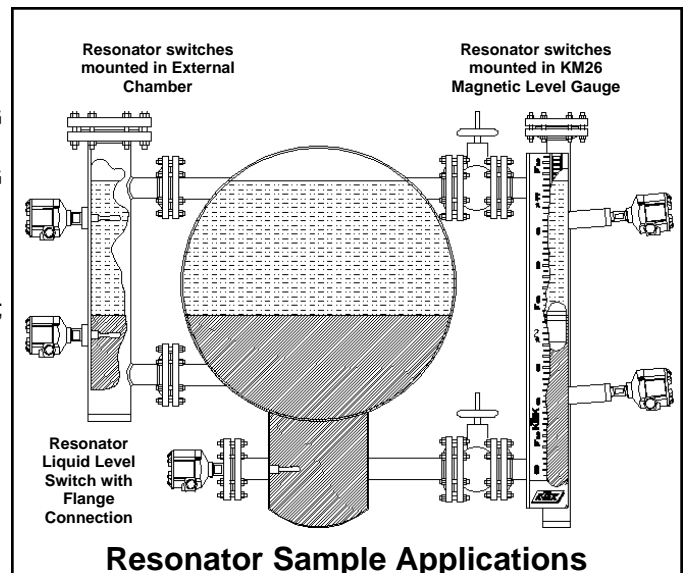
Factory Mutual System	XP CL1, Div1&2 ABCD, CLII, III EFG
Canadian Standards Association	XP CL1, Div1&2 ABCD, CLII, III EFG

#### Electrical

Input Power	85-250 VAC, 50-60Hz 12-36 VDC
Relay Contact Rating	1 x DPDT Resistive: 8 Amp @ 250 VAC; 8 Amp @ 30 VDC Inductive: 1/2HP @ 240 VAC, 1/4HP @ 120 VAC

Repeatability	0.1" (2.6mm)
Static Protection	Peak Surge Current: 800 Amps; Clamp Voltage: 75 Volts

Selectable Fail-safe	High or Low
Cable Entry	2 x 3/4" NPT



Resonator Sample Applications

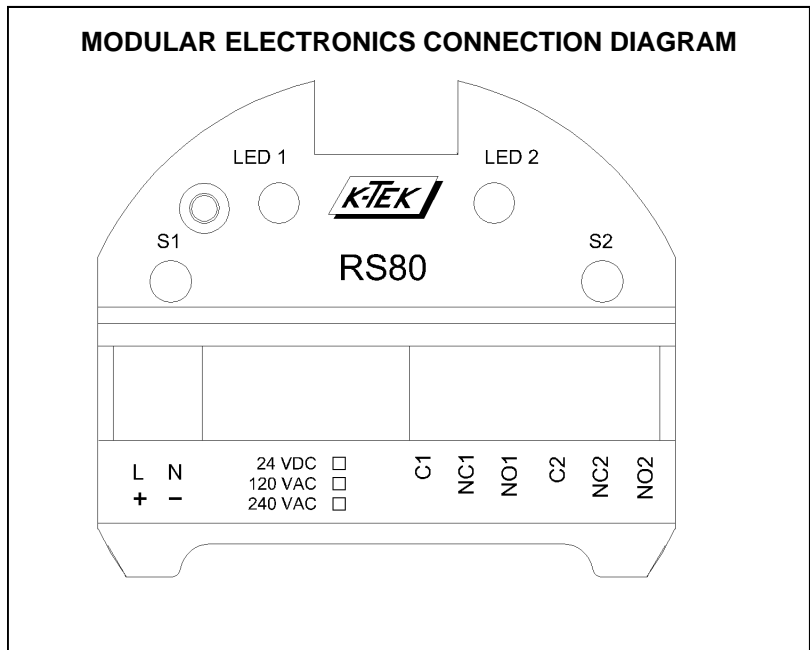
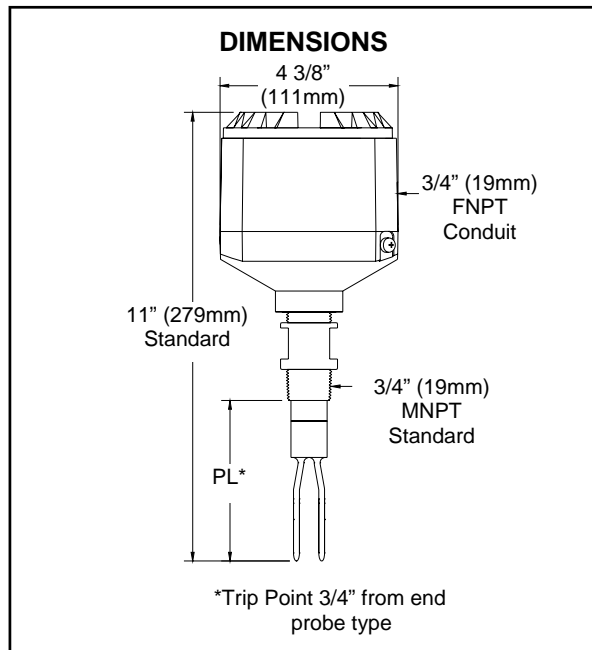
**ORDERING INFORMATION**

**RS80 / a / b / c / d / e / f / g / PL:**

- /a Housing**
  - A1** Single Compartment Aluminum Housing
  - A1W** Single Compartment Aluminum Housing with Glass Viewing Cover
- /b Process Connection**
  - P7** 3/4" MNPT (Standard)
- /c Sensor Material**
  - S6** 316L SS (Standard)
- /d Probe Finish**
  - X** Standard Finish
- /e Power**
  - 1** 18-36 VDC
  - 2** 100-136 VAC
  - 3** 200-245 VAC
  - 4** Universal Power (12-36 VDC, 85-250 VAC)
- /f Options**
  - X** None
  - MM** M20 Conduit Connection Brass (CSA Only)
- /g Approvals**
  - X** No Approvals
  - FMX** Factory Mutual Standards (FM) Explosion Proof
  - CSX** Canadian Standards Association (CSA) Explosion Proof
- /PL Probe Length**
  - 3-3/8" (86mm) Standard, Specify extended lengths in 1.0 in (25.4 mm) increments up to 120 in. (3048 mm)

**PRINCIPLE OF OPERATION**

The Resonator utilizes a piezoelectric driven tuning fork that exhibits a large change in resonant frequency when immersed in any liquid. A "smart" microprocessor-based electronic unit keeps the sensor in a resonant state as it changes from dry to wet or wet to dry. The resonant frequency is continuously monitored for changes created by a wet or dry sensor and an alarm is provided via a relay. An important feature of the Resonator is that its resonant frequency is not significantly affected by coating on the fork until the space between the forks is bridged. The Resonator's ability to identify true liquid level in viscous, coating or aerated liquid is unparalleled. The self-test option checks for fault conditions such as crystal damage and excessive product build up on the sensor. Applications include redundant high/low liquid level without concern for parameters such as specific gravity, dielectric constant or mounting position of the sensor.



**Note: See RS85 Data Sheet (RS85-0202-1) for optional process connections, coatings and materials of construction for more difficult applications.**

