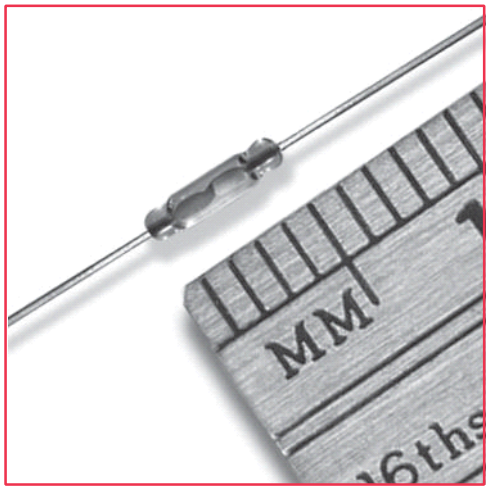
Sensor---RI-80 Series



RI-80 Series

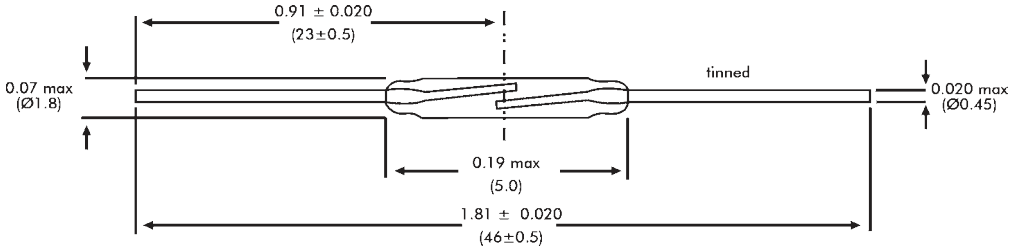
Ultra-micro dry-reed switch hermetically sealed in a gas-filled glass envelope. Single-pole, single-throw (SPST) type, having normally open contacts, and containing two magnetically actuated reeds.

The switch is of the double-ended type and may be actuated by an electromagnet, a permanent magnet or a combination of both.

The device is intended for use in sensors, relays, pulse counters or similar devices.

RI-80 Series Features

- Ideal for ATE switching, proximity sensors & medical applications
- World's smallest high quality reed switch
- Contact layers: gold, sputtered ruthenium
- Superior glass-to-metal seal and blade alignment



Dimensions in inches (mm)

General data for all models RI-80

AT-Customization / Preformed Leads

Besides the standard models, customized products can also be supplied offering the following options:

- Operate and release ranges to customer specification
- Cropped and/or preformed leads

Coils

All characteristics are measured using the Philips Standard Coil. For definitions of the Philips Standard Coil, see *Reed Technical & Application Information* Section of this catalog.

Life expectancy and reliability

The life expectancy data given below are valid for a coil energized at 1.25 times the published maximum operate value for each type in the RI-80 series.

No-load conditions (operating frequency: 100 Hz)

Life expectancy: min. 10^8 operations with a failure rate of less than 2×10^{-9} with a confidence level of 90%.

End of life criteria:

- Contact resistance > 1Ω after 2 ms
- Release time > 2ms (latching or contact sticking).

Loaded conditions (Resistive load: 5V; 100 mA; operating frequency: 170 Hz)

Life expectancy: min. 10^7 operations with a failure rate of less than 10^{-8} with a confidence level of 90%.

End of life criteria:

- Contact resistance > 2Ω after 4 ms
- Release time > .7 ms (latching or contact sticking)

Switching different loads involves different life expect- ancy and reliability data. Further information available upon request.

Mechanical Data

Contact arrangement is normally open; lead finish is tinned; net mass is approximately 65mg; and can be mounted in any position.

Sensor---RI-80 Series

Model Number			RI-80
Parameters	**Test Conditions**	**Units**	
Operating Characteristics			
Operate Rangs		AT	5-15
Release Range		AT	2-13
Operate Time-including bounce (typ.)	(energization)	ms	0.35(20AT)
Bounce Time (typ)	(energization)	ms	0.1(20AT)
Release Time (mas)	(energization)	us	20(20AT)
Resonant Frequency (typ.)		Hz	21300
Electrical Characteristics			
Switch Power (max)		W	5
Switch Voltage DC (max)		V	175
Switch Voltage AC ,RMS value (max)		V	140
Switch Current DC (max)		mA	350
Switch Current AC, RMS value (max)		mA	250
Carry Current DC (max)		A	0.5
Breakdown Voltage (min)		V	230
Contact Resistance (initial max)	(energization)	mΩ	160(20AT)
Contact Resistance (intial typ.)	(energization)	mΩ	140(20AT)
Contact Capacitance (max)	without test coil	pF	0.45
Insulation Resistance (min)	RH≤45%	MΩ	10^6

** 200V for switches with AT-on value > 10AT.*

Shock
The switches are tested in accordance with "*IEC 68-2-27*", test Ea (peak acceleration 150 G, half sinewave; duration 11 ms). Such a shock will not cause an open switch (no magnetic field present) to close nor a switch kept closed by an 80 AT coil to open.

Vibration
The switches are tested in accordance with "IEC 68-2-6", test Fc (acceleration 10G; below cross- over frequency 57 to 62 Hz; amplitude 0.75 mm; frequency range 10 to 2000 Hz, duration 90 minutes.) Such a vibration will not cause an open switch (no magnetic field present) to close, nor a switch kept closed by an 80 AT coil to open.

Mechanical Strength
The robustness of the terminations is tested in accor- dance with "IEC 68-2-21", test Ua1 (load 10N).

Operating and Storage Temperature
Operating ambient temperature; min: -55°C; max: +125°C.

Storage temperature; min: -55°C; max: +125°C.

Note: Temperature excursions up to 150°C may be permissible. For more information contact your nearest Coto Technology sales office.

Soldering
The switch can withstand soldering heat in accordance with "IEC 68-2-20", test Tb, method 1B: solder bath at 350 ±10°C for 3.5 ±0.5 s. Solderability is tested in accordance with "IEC 68-2-20" test Ta, method 3: solder globule temperature 235°C; ageing 1b: 4 hours steam.

Welding
The leads can be welded.

Mounting
The leads should not be bent closer than 1 mm to the glass-to-metal seals. Stress on the seals should be avoided. Care must be taken to prevent stray magnetic fields from influencing the operating and measuring conditions.