RI-01B Series Dry Reed Switch



RI-01B Series

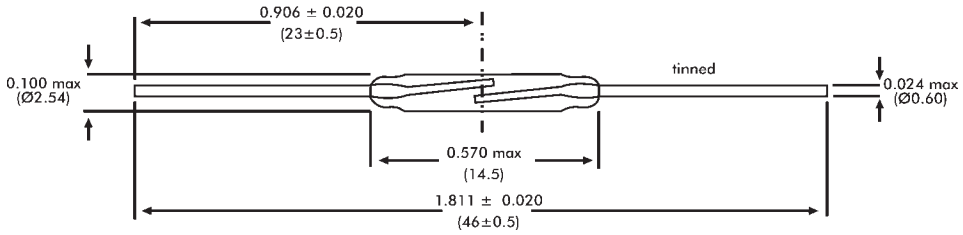
Micro dry-reed switch hermetically sealed in a gas-filled envelope. Single-pole, single-throw (SPST) type, having normally open contacts, and containing two magnetically actuated reeds.

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-01B Series Features

- Ideal for general purpose reed relays and sensors
- Contact layers: ruthenium on gold
- Superior glass-to-metal seal and blade alignment



Dimensions in inches (mm)

General data for all models RI-01B

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, refer to "*Application Notes*" in the *Reed Switch 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-01B series.

No load conditions (operating frequency: 100Hz)

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

End of life criteria:
Contact resistance > 1Ω after 2 ms
Release time > 2 ms (latching or contact sticking).

Loaded conditions (resistive load: 12 V; 4 mA; (15 mA peak); operating frequency: 170 Hz)

Life expectancy: min. 10^6 operations.

End of life criteria:
Contact resistance > 2Ω after 4 ms
Release time > 0.7 ms (latching or contact sticking).
Switching different loads involves different life expectancy and reliability data. Further information is available on request.

Mechanical Data

Contact arrangement is normally open; lead finish is tinned; net mass is approximately 190 mg; and can be mounted in any position.

Shock

The switches are tested in accordance with "IEC 68-2-27", test Ea (peak acceleration 150 G, half

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Model Number			RI-01BAAA	RI-01BAA	RI-01BA
Parameters	**Test Conditions**	**Units**			
Operating Characteristics					
Operate Range		AT	6-16	14-23	18-32
Release Range		AT	3-15.5	4-21	5-27
Operate Time - including bounce (typ.)		ms	0.1(20AT)	0.25(29AT)	0.25(40AT)
Bounce Time (typ.)		ms	0.05(20AT)	0.15(29AT)	0.15(40AT)
Release Time (max)		μs	70(20AT)	30(29AT)	30(40AT)
Resonant Frequency (typ.)		Hz	5500	5500	5500
Electrical Characteristics					
Switched Power (max)		W	5	10	10
Switched Voltage DC (max)		V	160	200	200
Switched Voltage AC, RMS value (max)		V	110	140	140
Switched Current DC (max)		mA	250	500	500
Switched Current AC, RMS value (max)		mA	250	500	500
Carry Current DC (max)		A	1	1.5	2.5
Breakdown Voltage (min)		V	200	250	300
Contact Resistance* (initial max)	(energization)	m Ω	100 (20 AT)	100 (25 AT)	100 (30AT)
Contact Resistance* (initial typ.)	(energization)	m Ω	80 (20 AT)	80 (25 AT)	80 (30 AT)
Contact Capacitance (max)	without test coil	pF	0.3	0.3	0.25
Insulation Resistance (min)	RH ≤ 45%	M Ω	10^6	10^6	10^6

** The Contact Resistance is measured using the Kelvin Method next to the glass body.*

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 accordance with "IEC 68-2-21", test Ua_1 (load 40 N).

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.