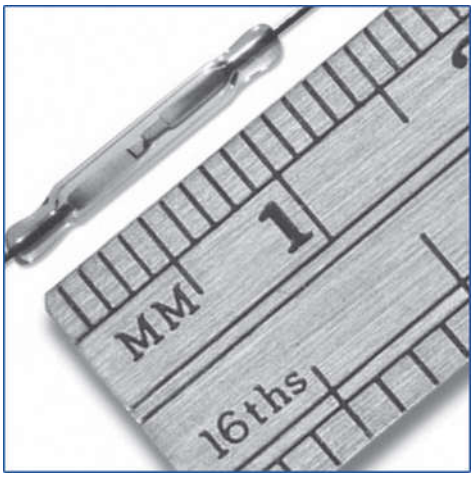
COMUS Group

COMUS formerly COTO TECHNOLOGY

RI-27 Series Dry Reed Switch



RI-27 Series

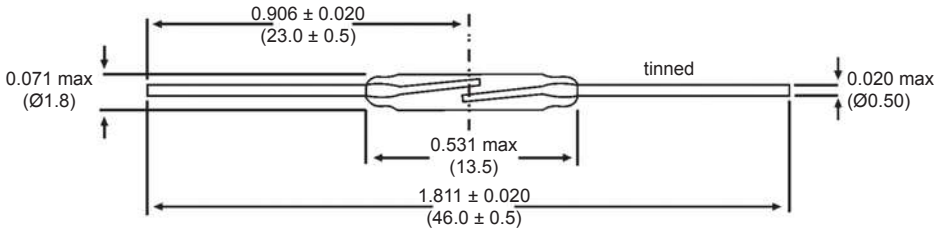
Pico dry-reed switch hermetically sealed in a gas-filled glass envelope. Single-pole, single-throw (SPST) type, having normally open contacts, and containing two magnetically actuated reeds.

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 relays, sensors, pulse counters or similar devices.

RI-27 Series Features

- Ideal for ATE switching
- Contact layers: gold, sputtered ruthenium
- Superior glass-to-metal seal and blade alignment
- Excellent life expectancy and reliability
- RoHS Compliant

Dimensions for RI-27 Series



All Dimension in inches (mm) nominal

General data for all models RI-27

AT-Customization / Performed 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 performed 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-27 series.

No load conditions (operating frequency: 100Hz)

Life expectancy: min. 10^9 operations with a failure rate of less than 2×10^{-10} 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: 5 V; 100 mA; operating frequency: 125 Hz)

RI-27AAA
Life expectancy: min. 2×10^7 operations with a failure rate of less than 10^{-8} with a confidence level of 90%.
End of life criteria:
Contact resistance > 1Ω after 2.5 ms
Release time > 1 ms (latching or contact sticking).

RI-27AA; RI-27A
Life expectancy: min. 5×10^7 operations with a failure rate of less than 0.5×10^{-8} with a confidence level of 90%.
End of life criteria:
Contact resistance > 1Ω after 2.5 ms
Release time > 1 ms (latching or contact sticking).

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

RI-27AAA Not applicable.
RI-27AA; RI-27A

RI-27 Series Dry Reed Switch

Technical Specifications

Parameters	Test Conditions	Units	RI-27AAA	RI-27AA	RI-27A
Operating Characteristics					
Operate Range		AT	10-19	16-25	20-34
Release Range		AT	4-16	5-18	7-19.5
Operate Time - including Bounce (typ.)		ms	0.25	0.25	0.25
Bounce Time (typ.)		ms	0.05	0.05	0.05
Release Time (max)		µs	30	30	30
Resonant Frequency (typ.)		Hz	6700	6700	6700
Electrical Characteristics					
Switched Power (max)		W	10	10	10
Switched Voltage DC (max)		V	180	200	200
Switched Voltage AC, RMS value (max)		V	130	140	140
Switched Current DC (max)		mA	500	500	500
Switched Current AC, RMS value (max)		mA	500	500	500
Carry Current DC (max)		A	1.5	1.75	1.75
Breakdown Voltage (min)		V	180	240	280
Contact Resistance (initial max.)		mΩ	115	115	115
Contact Resistance (initial typ.)		mΩ	90	90	90
Contact Capacitance (max)	without test coil	pF	0.3	0.3	0.25
Insulation Resistance (min)	RH ≤ 45%	MΩ	10^6	10^6	10^6

Life expectancy: min. 45 x 10^6 operations (tested up to 50 x 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 100mg; 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 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 Ua1 (load 10 N).

Operating and Storage Temperature
Operating ambient temperature; min: -55°C; max: +125°C. Storage temperature; min: -55°; max: +125°C. Note: Temperature excursions up to 150°C may be permissible. For more information contact your nearest Comus Group 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.