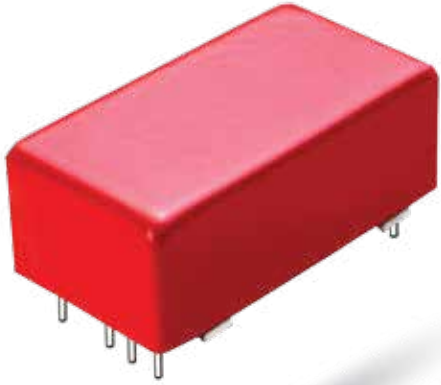


# 3600 SERIES/LOW THERMAL EMF REED RELAYS



## 3600 Series Low Thermal EMF Reed Relays

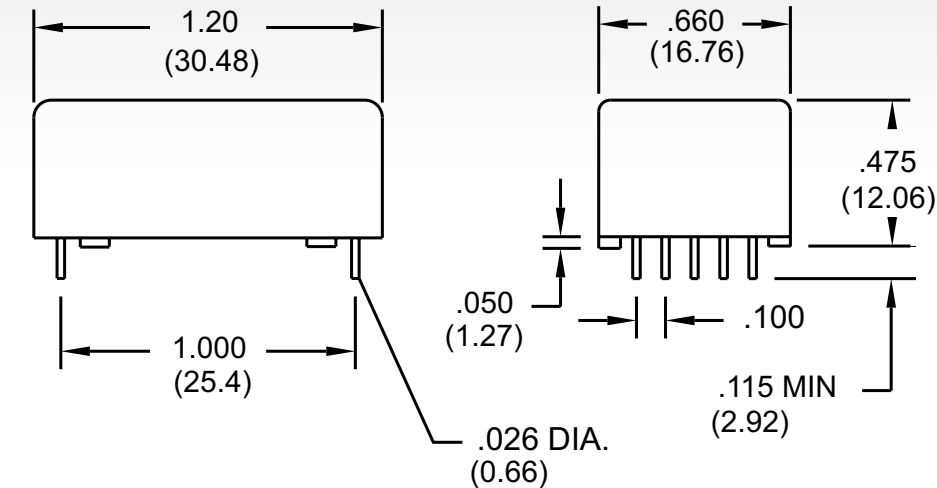
The 3600 Series is ideally suited to the needs of Instrumentation, Data Acquisition, and Process Control. The specification tables allow you to select the appropriate relay for your particular application. Recommended for use in Scanners, Multiplexers and Digital or Analog Multipoint Recorders. If your requirements differ from the selection options, please consult Coto's Factory to discuss a custom reed relay.

## 3600 Series Features

- ▶ Low Thermal EMF: < 5  $\mu\text{V}$  through < 0.5  $\mu\text{V}$  with 50 nV stability
- ▶ Patented Low Thermal Design. U.S. Patent #4,084,142
- ▶ Low power coils to ensure low thermal EMF
- ▶ High Insulation Resistance -  $10^{12}\Omega$
- ▶ Control/Signal isolation of 1500 VDC
- ▶ High speed switching compared to electromechanical relays
- ▶ High reliability, hermetically sealed contacts
- ▶ Various Form A contacts. High Dielectric Strength
- ▶ Epoxy coated steel shell provides magnetic shielding
- ▶ Electrostatic shield standard for reducing capacitive coupling
- ▶ RoHS compliant

## DIMENSIONS

*in Inches (Millimeters)*



**Bottom View**

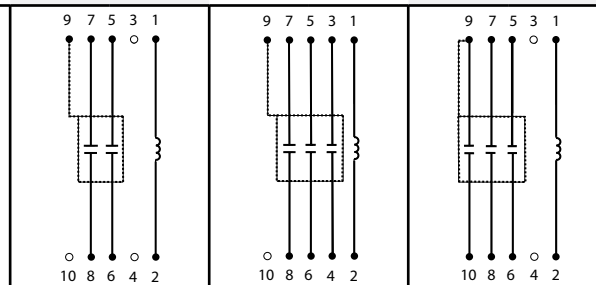
## Ordering Information

| Part Number  | XXXX-XX-X2                | Thermal EMF Rating   |
|--------------|---------------------------|--|
| Model Number | 3602 3650 3660            | See available ratings in specification table.  |
| Coil Voltage | 05=5 volts<br>12=12 volts | 9=<5 $\mu\text{V}$<br>8=<3 $\mu\text{V}$<br>7=<1 $\mu\text{V}$<br>5=<0.5 $\mu\text{V}$ |

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| MODEL NUMBER   |  |                        | 3602   | 3650 <sup>3</sup>  | 3660 <sup>2</sup>  |
|--|--|------------------------|--|--|--|
| Parameters   | Test Conditions  | Units                  | 2 Form A   | 3 Form A   | 3 Form A   |
| Thermal EMF Options  | Measured after<br>5 minutes at nominal<br>coil voltage<br>(Refer to Reed Relay<br>Technical Section for details) | $\mu\text{V}$          | Individual<br><5 $\mu\text{V}$<br><3 $\mu\text{V}$<br><1 $\mu\text{V}$<br><0.5 $\mu\text{V}$ | Differential<br><5 $\mu\text{V}$<br><3 $\mu\text{V}$<br><1 $\mu\text{V}$<br><0.5 $\mu\text{V}$ | Differential<br><5 $\mu\text{V}$<br><3 $\mu\text{V}$<br><1 $\mu\text{V}$<br><0.5 $\mu\text{V}$ |
| <b>COIL SPECS.</b>   |  |                        |  |  |  |
| Nom. Coil Voltage  |  | VDC                    | 5 12   | 5 12   | 5 12   |
| Coil Resistance  | +/- 10%, 25° C   | $\Omega$               | 350 2000   | 350 2000   | 350 2000   |
| Operate Voltage  | Must Operate by  | VDC - Max.             | 3.8 9.0  | 3.8 9.0  | 3.8 9.0  |
| Release Voltage  | Must Release by  | VDC - Min.             | 0.4 1.0  | 0.4 1.0  | 0.4 1.0  |
| <b>CONTACT RATINGS</b>   |  |                        |  |  |  |
| Switching Voltage  | Max DC/Peak AC Resist.   | Volts                  | 150  | 150  | 150  |
| Switching Current  | Max DC/Peak AC Resist.   | Amps                   | 0.25   | 0.25   | 0.25   |
| Carry Current  | Max DC/Peak AC Resist.   | Amps                   | 1.5  | 1.5  | 1.5  |
| Contact Rating   | Max DC/Peak AC Resist.   | Watts                  | 5  | 5  | 5  |
| Life Expectancy-Typical <sup>1</sup>                               | Signal Level 1.0V, 10mA  | x 10 <sup>6</sup> Ops. | 500  | 500  | 500  |
| Static Contact Resistance (max. init.)                             | 50mV, 10mA   | $\Omega$               | 0.100  | 0.100  | 0.100  |
| Dynamic Contact Resistance (max. init.)                            | 0.5V, 50mA<br>at 100 Hz, 1.5 msec  | $\Omega$               | 0.200  | 0.200  | 0.200  |
| <b>RELAY SPECIFICATIONS</b>  |  |                        |  |  |  |
| Insulation Resistance (minimum)                                    | Between all Isolated Pins<br>at 100V, 25°C, 40% RH   | $\Omega$               | 10 <sup>12</sup>   | 10 <sup>12</sup>   | 10 <sup>12</sup>   |
| Capacitance - Typical<br>Across Open Contacts<br>Contact to Shield | Shield Floating  | pF                     | 1.2  | 1.2  | 1.2  |
|  | Shield Guarding  | pF                     | 0.2  | 0.2  | 0.2  |
|  | Contacts Open  | pF                     | 2.5  | 2.5  | 2.5  |
|  | Shield & Coil Tied Common  | pF                     | 2.5  | 2.5  | 2.5  |
| Dielectric Strength<br>(minimum)                                   | Between Contacts   | VDC/peak AC            | 250  | 250  | 250  |
|  | Contacts to Shield   | VDC/peak AC            | 1000   | 1000   | 1000   |
|  | Contacts/Shield to Coil  | VDC/peak AC            | 1500   | 1500   | 1500   |
| Operate Time - including<br>bounce - Typical                       | At Nominal Coil Voltage,<br>30 Hz Square Wave  | msec.                  | 0.75   | 0.75   | 0.75   |
| Release Time - Typical   |  | msec.                  | 0.1  | 0.1  | 0.1  |

Top View:  
Grid = .1"x.1" (2.54mm x 2.54mm)



### Notes:

- <sup>1</sup> Consult factory for life expectancy at other switching loads.
- <sup>2</sup> Model 3660: Reed switch between pins #9 & #10 is not low thermal and is tied in common with the electrostatic shield.
- <sup>3</sup> Model 3650: Reed switch between pins #3 & #4 is not low thermal and is not tied in common with the electrostatic shield. Pin numbers for reference only.

### Environmental Ratings:

Storage Temp: -35°C to +100°C; Operating Temp: -20°C to +85°C; Solder Temp: 270°C max; 10 sec. max  
All electrical parameters measured at 25°C unless otherwise specified.  
Vibration: 20 G's to 2000 Hz; Shock: 50 G's

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