



20.0×9.8×12.0

M4

UL E158859 R50044268  
Patent No.: 02265923.4

| Features  |  |
|---|--|
| • DIL Pitch Terminals .High Sensitivity.  |  |
| • Conforms to FCC Part 68 1.5kV Surge and Dielectric 1000VAC.   |  |
| • Fully sealed (immersion cleaning).  |  |
| • High Reliability bifurcated Contact.  |  |
| • Application for Telecommunication Equipment,Office Equipment,Security Alarm Systems,Measuring instruments, Medical Monitoring Equipment,Audio Visual Equipment,Flight Simulator,Sensor Control. |  |

| Ordering Information   |  |
|--|--|
| <b>M4 12 H A W</b>   |  |
| 1 Part number: M4  | 3 Enclosure: H: Sealed Type                      |
| 2 Coil rated voltage: DC:3:3V; 5:5V; 6:6V; 9:9V;<br>12:12V; 18:18V; 24:24V; 48:48V | 4 Nominal coil power: Nil:0.15W; A:0.2W; M:0.45W |
|  | 5 Contact material: Nil: AgPd; W: AgNi           |

| Contact Data                       |  |
|------------------------------------|--|
| Contact Arrangement                | 2C (DPDT(B-M)) (Bifurcated Crossbar)   |
| Contact Material                   | AgPd( Gold clad) AgNi(Gold clad)   |
| Contact Rating (resistive)         | 1A/24VDC; 0.5A/120VAC  |
| Max. Switching Power               | 60W 125VA<br>Min. Switching load: 0.01mA/10mV (Reference Value)  |
| Max. Switching Voltage             | 220VDC 250VAC<br>Max. Switching Current:2A   |
| Contact Resistance or Voltage drop | <50mΩ<br>Item 4.12 of IEC 61810-7  |
| Operational Life                   | Electrical<br>1A/24VDC: 5×10 <sup>5</sup> (Ag Ni : 1×10 <sup>5</sup> )<br>0.5A/120VAC: 2×10 <sup>5</sup><br>Item 4.30 of IEC 61810-7 |
|                                    | Mechanical<br>10 <sup>8</sup><br>Item 4.30 of IEC 61810-7  |

**CAUTION:**  
Relays previously tested or used above 10mA resistive at 6VDC maximum or peak AC open circuit are not recommended for subsequent use in low level applications.

| Dash numbers | Coil voltage VDC |       | Coil resistance Ω ±10% | Pick up voltage VDC(max) (70% or 66%of rated voltage ) | Release voltage VDC(min) (5% or 10% of rated voltage) | Coil power W | Operate Time ms | Release Time ms |
|--------------|------------------|-------|------------------------|--|---|--------------|-----------------|-----------------|
|              | Rated            | Max.  |                        |  |   |              |                 |                 |
| M4-003       | 3                | 7.5   | 60                     | 2.1  | 0.15  | 0.15         | Approx. 5       | Approx. 3       |
| M4-005       | 5                | 12.5  | 167                    | 3.5  | 0.25  | 0.15         |                 |                 |
| M4-006       | 6                | 15.0  | 240                    | 4.2  | 0.3   | 0.15         |                 |                 |
| M4-009       | 9                | 22.5  | 540                    | 6.3  | 0.45  | 0.15         |                 |                 |
| M4-012       | 12               | 30.0  | 960                    | 8.4  | 0.6   | 0.15         |                 |                 |
| M4-018       | 18               | 40.0  | 1620                   | 12.6   | 0.9   | 0.20         |                 |                 |
| M4-024       | 24               | 52.9  | 2880                   | 16.8   | 1.2   | 0.20         |                 |                 |
| M4-048       | 48               | 84.9  | 7680                   | 33.6   | 2.4   | 0.30         |                 |                 |
| M4-003A      | 3                | 6.5   | 45                     | 2.1  | 0.3   | 0.2          | Approx. 5       | Approx. 3       |
| M4-005A      | 5                | 10.8  | 125                    | 3.5  | 0.5   | 0.2          |                 |                 |
| M4-006A      | 6                | 13.0  | 180                    | 4.2  | 0.6   | 0.2          |                 |                 |
| M4-009A      | 9                | 19.5  | 405                    | 6.3  | 0.9   | 0.2          |                 |                 |
| M4-012A      | 12               | 26.5  | 720                    | 8.4  | 1.2   | 0.2          |                 |                 |
| M4-024A      | 24               | 52.9  | 2880                   | 16.8   | 2.4   | 0.2          |                 |                 |
| M4-048A      | 48               | 103.9 | 11520                  | 33.6   | 4.8   | 0.2          |                 |                 |
| M4-005M      | 5                | 7.7   | 56                     | 3.3  | 0.5   | 0.45         |                 |                 |
| M4-006M      | 6                | 9.2   | 80                     | 4.0  | 0.6   | 0.45         |                 |                 |
| M4-009M      | 9                | 13.7  | 180                    | 6.0  | 0.9   | 0.45         |                 |                 |
| M4-012M      | 12               | 18.3  | 320                    | 8.0  | 1.2   | 0.45         |                 |                 |
| M4-018M      | 18               | 27.5  | 720                    | 12.0   | 1.8   | 0.45         |                 |                 |
| M4-024M      | 24               | 36.7  | 1280                   | 15.9   | 2.4   | 0.45         |                 |                 |
| M4-048M      | 48               | 72.5  | 5000                   | 33.0   | 4.8   | 0.45         |                 |                 |

**CAUTION:**  
1.The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.  
2.Pickup and release voltage are for test purposes only and are not to be used as design criteria.  
3.Unless otherwise stated, the rated coil voltage specified in coil parameter table shall be used for all tests and its application to the relay.

| Characteristics           |  |                             |
|---------------------------|--|-----------------------------|
| Electrostatic capacitance |  |                             |
| Between open Contacts     | Approx.0.7pF   | Item 4.41 of IEC 61810-7    |
| Between coil & Contacts   | Approx.1.0pF   | Item 4.41 of IEC 61810-7    |
| Between Contact Poles     | Approx.0.9pF   | Item 4.41 of IEC 61810-7    |
| Insulation Resistance     | 1000MΩ min (at 500VDC)   | Item 7 of IEC 61810-5       |
| Dielectric Strength       |  |                             |
| Between open Contacts     | 1000VAC 1min   | Item 6 of IEC 61810-5       |
| Between coil & Contacts   | 1000VAC 1min   | Item 6 of IEC 61810-5       |
| Between Contact Poles     | 1000VAC 1min   | Item 6 of IEC 61810-5       |
| Surge Withstand Voltage   |  |                             |
| Between open Contacts     | 1500V  | FCC68                       |
| Between coil & Contacts   | 1500V  | FCC68                       |
| Between Contact Poles     | 1500V  | FCC68                       |
| Shock resistance          | Functional:100m/s <sup>2</sup> 11ms;<br>Survival:1000 m/s <sup>2</sup> 6ms | IEC68-2-27 Test Ea          |
| Vibration resistance      | 10~55Hz Double amplitude<br>Functional:1.5mm Survival:5mm                  | IEC68-2-6 Test Fc           |
| Terminals strength        | 5N   | IEC68-2-21 Test Ua1         |
| Solderability             | 235℃ ± 2℃ 3 ± 0.5s   | IEC68-2-20 Test Ta method 1 |
| Temperature Range         | -40~90℃ (-40~194 ° F)<br>(-40~80℃ for 0.3W Coil)                           |                             |
| Mass                      | 4.5g   |                             |

| Safety approvals |                      |                      |
|------------------|----------------------|----------------------|
| Safety approval  | UL&CUR               | TUV                  |
| Load             | 1A/24VDC 0.5A/120VAC | 1A/24VDC、0.5A/120VAC |

**Dimensions** mm/inch

The technical drawings include:  
 1. A side view of the relay with dimensions: 20max. (0.787max.), 9.8max. (0.386max.), 12max. (0.472max.), 3.5, 0.136, 0.5, 0.787, 0.25, 0.01, 7.62, 0.30, 1.11, 0.044, 7.62, 0.30, 5.08, 0.20, 5.08, 0.20.  
 2. A wiring diagram (Bottom view) showing terminals 1, 4, 6, 8, 16, 13, 11, 9.  
 3. A mounting diagram (Bottom view) showing a grid with dimensions: 2.54, 0.1, 8-∅0.8, 0.031, and a tolerance of ±0.1±0.004.  
 4. A label 'Dimensions' centered below the side view drawing.  
 5. A label 'Wiring diagram (Bottom view)' centered below the wiring diagram.  
 6. A label 'Mounting (Bottom view)' centered below the mounting diagram.  
 7. Notes: 1).Dimensions are in millimeters. 2).Inch equivalents are given for general information only.

