20×10×12

c UL us E158859 R50044268

## 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

**M4 12 H** _ _

1 2 3 4 5

1 Part number：M4
2 Coil rated voltage：DC:3:3V；5:5V；6:6V；9:9V；12:12V；18:18V；24:24V；48:48V
3 Enclosure：H: Sealed Type
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 | Min. Switching load：0.01mA/10mV（Reference Value） |
| Max. Switching Voltage | | 220VDC 250VAC | Max. Switching Current:2A |
| Contact Resistance or Voltage drop | | ⩽50mΩ | Item 4.12 of IEC 61810-7 |
| Operational Life | Electrical | 1A/24VDC：$5\times10^5$（Ag Ni：$1\times10^5$）<br>0.5A/120VAC：$2\times10^5$ | Item 4.30 of IEC 61810-7 |
| | Mechanical | $10^8$ | 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.

## Coil Parameter

| 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. 4.5 | Approx. 1.5 |
| 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. 4.5 | Approx. 1.5 |
| 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 | Approx. 4.5 | Approx. 1.5 |
| 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

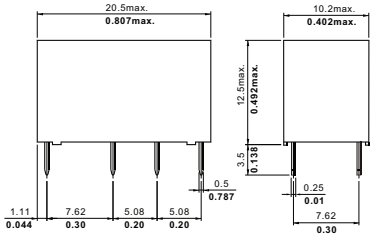
| | | |
|---|---|---|
| Electrostatic capacitance | | |
| Between open Contacts | Approx.0.7pF | Item 4.41 of IEC 61810-7 |
| Between coil & Contacts | Approx.1.0pF | Item 4.41 of IEC 61810-7 |
| Between Contact Poles | Approx.0.9pF | Item 4.41 of IEC 61810-7 |
| Insulation Resistance | 1000MΩ min (at 500VDC) | Item 7 of IEC 60255-5 |
| Dielectric Strength | | |
| Between open Contacts<br>Between coil & Contacts<br>Between Contact Poles | 1000VAC 1min<br>1000VAC 1min<br>1000VAC 1min | Item 6 of IEC 60255-5<br>Item 6 of IEC 60255-5<br>Item 6 of IEC 60255-5 |
| Surge Withstand Voltage | | |
| Between open Contacts<br>Between coil & Contacts<br>Between Contact Poles | 1500V<br>1500V<br>1500V | FCC 68<br>FCC 68<br>FCC 68 |
| Shock resistance | Functional:100m/s² 11ms;<br>Survival:1000 m/s² 6ms | IEC 68-2-27 Test Ea |
| Vibration resistance | 10Hz~55Hz Double amplitude<br>Functional:1.5mm Survival:5mm | IEC 68-2-6 Test Fc |
| Terminals strength | 5N | IEC 68-2-21 Test Ua1 |
| Solderability | 235℃±2℃ 3s±0.5s | IEC 68-2-20 Test Ta method 1 |
| Temperature Range | -40℃~90℃(-40° F~194° F)<br>(-40℃~80℃ for 0.3W,0.45W Coil) | |
| Mass | Approx. 4.5g | |

## Safety approvals

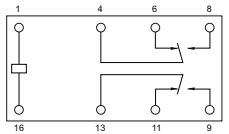
| Safety approval | UL&CUR | TÜV |
|---|---|---|
| Load | 1A/24VDC 0.5A/120VAC | 1A/24VDC、0.5A/120VAC |

## Dimensions

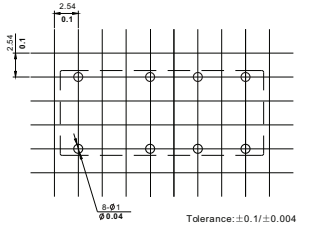
mm/inch




Dimensions



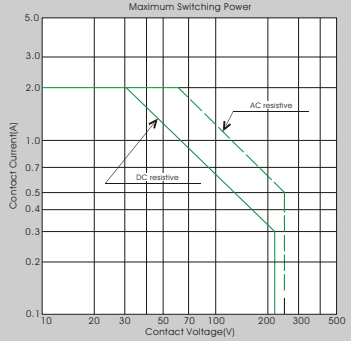

Wiring diagram
(Bottom view)



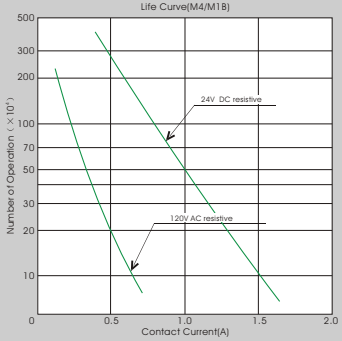

Mounting (Bottom view)

NOTES 1).Dimensions are in millimeters.
2).Inch equivalents are given for general information only.

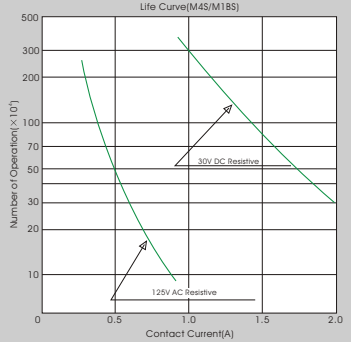
Maximum Switching Power



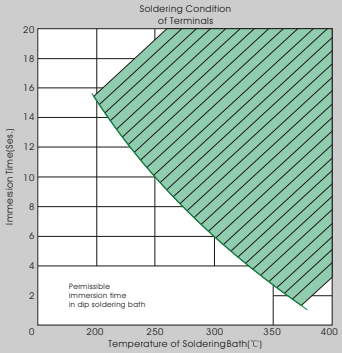

Life Curve(M4/M1B)



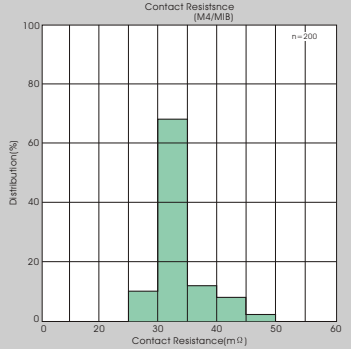

Life Curve(M4S/M1BS)



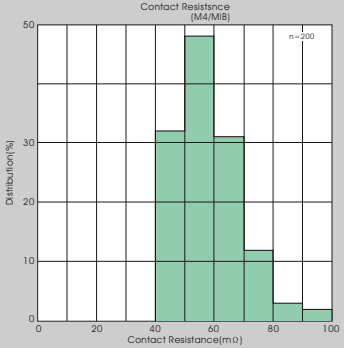

Soldering Condition of Terminals



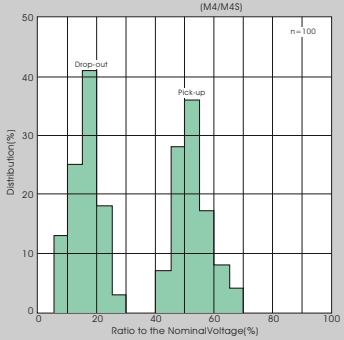

Contact Resistsnce (M4/M1B)



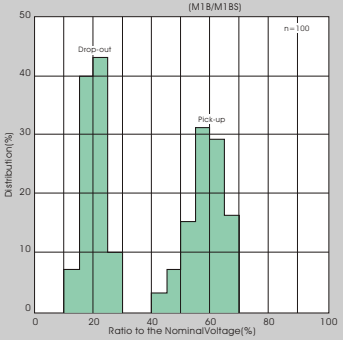

Contact Resistsnce (M4/M1B)



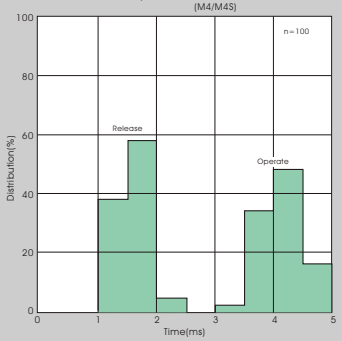

Pick-up/Drop-out Voltage (M4/M4S)



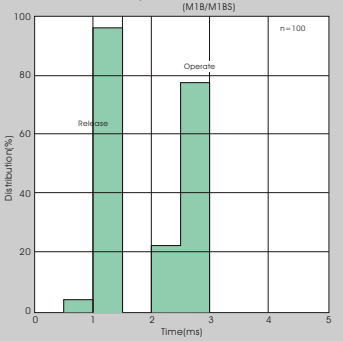

Pick-up/Drop-out Voltage (M1B/M1BS)



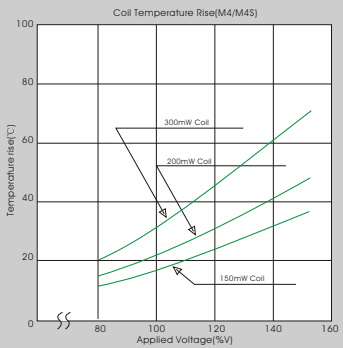

Operate/Release Time (M4/M4S)




Operate/Release Time (M1B/M1BS)




Coil Temperature Rise(M4/M4S)




Coil Temperature Rise(M1B/M1BS)