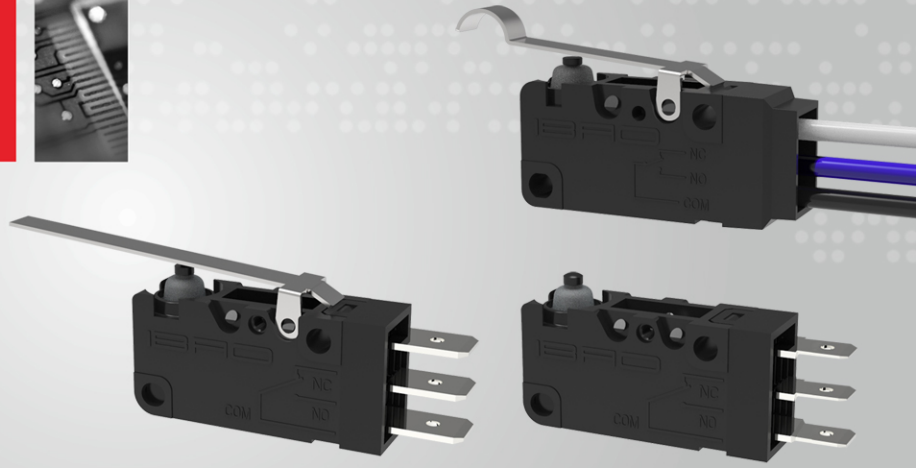


# MAA-R SERIES



## IP67 Waterproof Micro switch

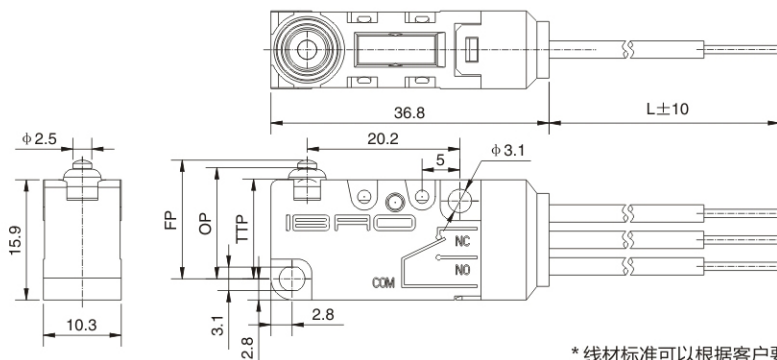
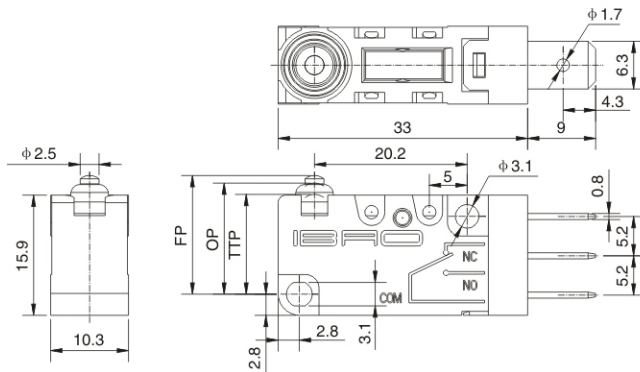
### 特点 FEATURE

- 寿命长、可靠性高 · Long Life and High Reliability
- 配备各种形状的压杆 · Offer Variety Levers
- 接线端子与带线型可选 · Terminal or Wire
- 防水(IP67)设计 · Waterproof(IP67)Design

### 应用 APPLICATION

- 家用电器 · Home Appliance
- 输配电 · Power transmission and distribution
- 自动化设备 · Automatic Equipments
- 汽车电子 · Auto Electronics
- 农业机械 · Agricultural Machinery


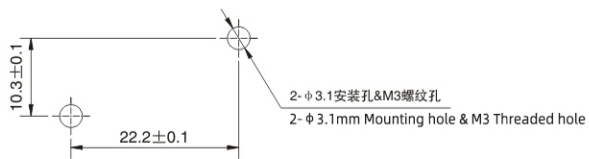
### 外形尺寸图 OUTLINE DRAWING



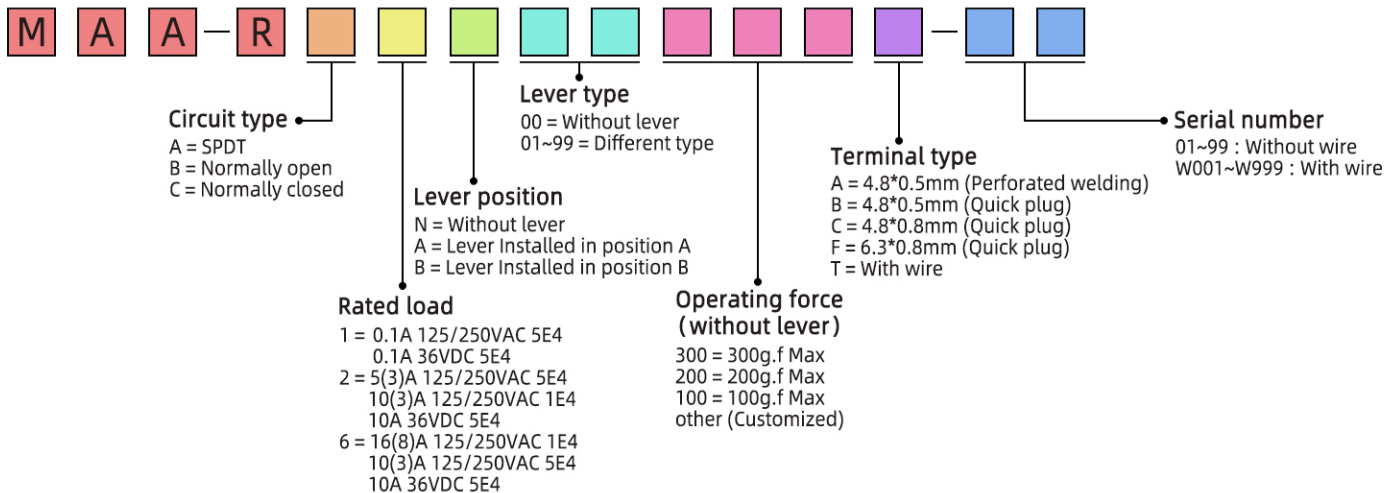
\* 线材标准可以根据客户要求定制

\* Wire standards can be customized according to customer requirements

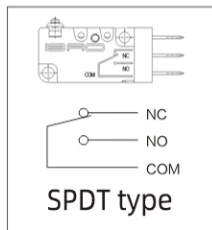
## 特性参数 PARAMETERS

额定负载/Rated Load	16(8)A 125/250VAC 40T125 1E4 $\mu$ 10(3)A 125/250VAC 40T125 1E4&5E4 $\mu$ 5(3)A 125/250VAC 40T125 5E4 $\mu$ 0.1(0.05)A 125/250VAC 40T125 5E4 $\mu$ 1/2HP 125/250VAC 40T125 5E4 $\mu$ 10A 36VDC 5E4 $\mu$		
初始接触电阻/Initial Contact Resistance	100m $\Omega$ Max ( Without wire )	300m $\Omega$ Max ( With wire )	
环境温度/Working Temperature	40T125		
寿命/Service Life	电气/Electrical	10,000 Cycles	50,000 Cycles
	机械/Mechanical	100,000 Cycles	
安装尺寸/HOLE FOR MOUNTING	 <p>2-<math>\phi</math>3.1mm 安装孔 &amp; M3 螺纹孔 2-<math>\phi</math>3.1mm Mounting hole &amp; M3 Threaded hole</p>		

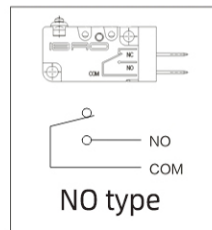
## 订货型号指引 ORDERING INSTRUCTION



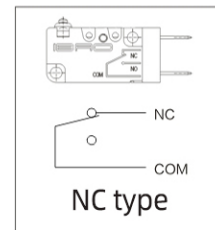
### ● 电路形式 Circuit type



A

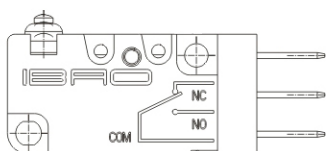


B

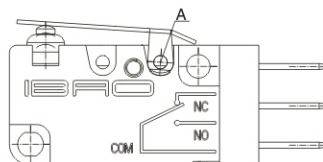


C

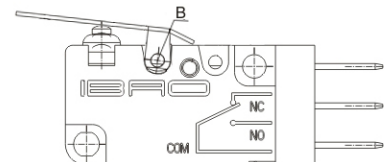
### ● 手柄位置 Lever position



N: no lever installed on the micro switch

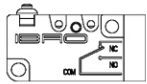
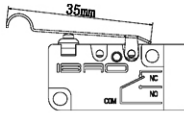
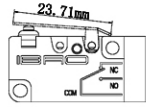
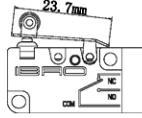
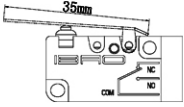
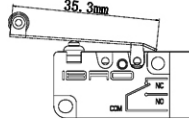
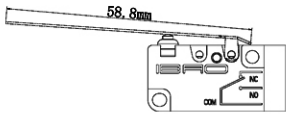
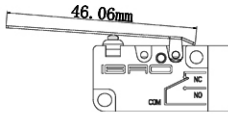


A: lever installed in the position A of micro switch








B: lever installed in the position B of micro switch

## ● 手柄类型 Lever type

00		04	
01		05	
02		06	
03		07	

※ For more lever types, please contact us, We accept paid customization.

## ● 端子类型 Terminal type

A	 187焊线端子 T=0.5mm	F	 250快插端子 T=0.8mm
B	 187快插端子 T=0.5mm	T	 线束端子 T=0.8mm With wire
C	 187快插端子 T=0.8mm	other	For more terminal types, please contact us, We accept paid customization.

## ⚙️ 开关参数规格 SWITCH SPECIFICATION

### ● 一般特性 General

适用范围 Application Area:

该规格书指微动开关的一般使用范围 This specification refers to the general use of micro switch

使用温度范围 Operation Temperature rating : 参见产品图纸 See the outline drawing

相对湿度 Operation Relative Humidity : ≤96%RH,+40°C

实验条件 Test conditions:

环境湿度 Ambient Temperature : 5~35°C

相对湿度 Relative Humidity: 45~85%

大气压力 Air Pressure: 86~106Kpa(860~1060mbar)

操作频率 Operation frequency:

带电气负载: 15次/分最大 15 operations/minute max(electrical)

机械操作: 100次/分最大 100 operations/minute max(mechanical)

### ● 外观结构及尺寸 Appearance, Configuration and Dimensions

外观: 产品外观良好, 无锈蚀、裂纹和镀层缺陷

Appearance: Product appearance and no rust, crack and coating defects

结构尺寸 Structur and Dimension: 参见产品图纸 See the outline drawing

标识 Sign: 参见产品图纸 See the outline drawing

通过的安规认证 Safety Certification: RoHS,REACH,UL

产品防护等级 Degree of protection: IP67(Except terminal)

● 电气性能 Electrical characteristic

No.	项目 (Item)	标准 (Standard)	检测方法 (Test Method)
1	接触电阻 Contact Resistance	100mΩ Max(不含线) Without wire 300mΩ Max(含线) With wire	在1A 5VDC的条件下, 采用电压降法测量 Measured by a voltage drop method at 1A 5VDC 检测开关前, 请按动按键3次后检测接触电阻 before test contact resistance, please press the button 3 times
2	绝缘电阻 Insulation Resistance	100MΩ Min	在载流端子与外壳及非载流金属件之间, 在相互绝缘的所有端子之间加500V直流电, 持续时间1分钟 Apply 500 VDC for 1 min between terminals together and ground(at FP and TTP); Apply 500 VDC for 1 min between mutual insulation terminals(at FP and TTP); 每个回路单独检测. Every circuit will be measured separately.
3	抗电强度 The electric strength	无击穿现象发生 NO breaking insulation	在相互绝缘的所有端子之间加载1000VAC (50-60Hz, 漏电 电流10mA), 或端子与外壳及非载流金属件之间加载 1500VAC (50-60Hz, 漏电电流10mA), 持续时间60s 1000VAC (50~60Hz, leakage current 10mA) is applied between non-connected terminals, or 1500V (50~60Hz, leakage current 10mA) between terminals and ground or non-loaded metal parts, last for 60s. 每个回路单独检测. Every circuit will be measured separately.

● 机械性能 Mechanical characteristic

No.	项目 (Item)	标准 (Standard)	实验方法 (Test Method)
1	可焊性 Weldability	超过90%的浸锡面积被焊料所覆盖 More than 90% of the immersion tin area covered by the solder	据IEC60068-2-20:2008, 试样在下述条件下进行试验: Specimens tested under the following conditions: (1)、焊料: H63A Solder:H63A (2)、助焊剂: 松香助焊剂, 质量百分比为25%松香, 75% 甲醇的无色透明溶液。 Flux: Rosin Flux, having a nominal composition of 25% solids by mass of water white rosin in methyl alcohol solution. (3)、焊接温度: 235±5°C Soldering Temperature: 235±5°C 焊接时间: 3±0.5s Immersing Time: 3±0.5s 焊剂浸渍时间: 室温下浸渍5-10s Flux immersing time: Shall be 5-10s in normal room temperature. (4)、浸渍深度: 接线端应浸到离开关根部1.6mm处 Terminal should be impregnated to leave off the roots of 1.6 mm
2	耐焊接热 Welding heat resistant	实验后: After test: -无外观及功能损坏 No appearance and function damage -电气性能应符合要求 Electrical properties shall comply with the requirements	焊接温度与时间 Soldering Temperature and time: 自动焊接: 260±5°Cs, 5±1s Automatic welding: 260±5°Cs, 5±1s 手工焊接: 350±10°Cs, 3±1s Manual Soldering: 350±10°Cs, 3±1s 浸渍深度: 接线端应浸到离开关根部1.6mm处 Terminal should be impregnated to leave off the roots of 1.6 mm



## ● 寿命试验 Life test

	项目 (Item)	标准 (Standard)	实验方法 (Test Method)
1	机械寿命 Mechanical life	实验后: After test: -绝缘电阻: 10MΩ Min Insulation Resistance: 10MΩ Min -抗电强度应符合电气性能第3条的要求 -The electric strength should accord with the requirement of electrical characteristic NO. 3	1、在不带负载的条件下, 以50~100次/分钟的操作频率在寿命试验设备上连续转换500,000次 Under the condition of without load, at the operating frequency of 50 ~ 100 cycles/min continuous transformation on life test equipment 500,000 cycles 2、操作行程为驱动元件下压的到2/30T位(不得出现过压现象) Operating stroke to 2/30T position(may not appear overpressure phenomenon)
2	负载寿命 Load life	-操作力变化在±30%以内 -Operating force error should be within ±30% -开关外观及结构应无损坏 -Switch appearance and structure should have no damage	1、按UL61058标准进行相应次数的负载寿命试验(额定负载参见产品图纸) According to the standard UL61058 by the corresponding number of load life test (see drawing) for the rated load 2、按IEC61058标准进行相应次数的负载寿命试验(额定负载参见产品图纸) According to the standard IEC61058 by the corresponding number of load life test (see drawing) for the rated load

## ● 耐候实验 Environmental test

	项目 (Item)	标准 (Standard)	实验方法 (Test Method)
1	低温 Cold Proof	实验后: After test:	据IEC60068-2-1:2007, 试件在-40±3℃的温控箱内保持96小时, 然后在正常温度和湿度下恢复1小时, 并在此后1小时内对试品进行测量, 水滴应消失 According to IEC60068-2-1:2007, Specimen in - 40 ± 3 °C temperature control box to keep 96 hours, then recover under normal temperature and humidity for 1 hour, and after 1 hour to try to measure, water droplets should disappear
2	高温 Hot Proof	-绝缘电阻: 50MΩ Min Insulation Resistance: 50MΩ Min -抗电强度应符合电气性能第3条的要求 -The electric strength should accord with the requirement of electrical characteristic NO. 3 -操作力误差应在±20%之内 Operating force error should be within ±20%	据IEC60068-2-2:2007, 试件在85±3℃的温控箱内保持96小时, 然后在正常温度和湿度下恢复1小时, 并在此后1小时内对试品进行测量, 水滴应消失 According to IEC60068-2-2:2007, Specimen in 85 ± 3 °C temperature control box to keep 96 hours, and then the recovery in the normal temperature and humidity for 1 hour, and after 1 hour to try to measure, water droplets should disappear
3	恒定湿热 Resistance to Humidity	-开关外观及结构应无损坏 -Switch appearance and structure should have no damage	据IEC60068-2-3: 2007, 试件在40±3℃, 90~95%RH的温控箱内保持96小时, 然后在正常温度和湿度下恢复1小时, 并在此后1小时内对试品进行测量, 水滴应消失 试件按下述实验条件试验5次, 然后在正常温度和湿度下恢复1小时, 并在此后1小时内对试品进行测量, 水滴应消失 According to IEC60068-2-3:2007, Specimen in 40 ± 3 °C and 90 ~ 95% RH temperature control box to keep 96 hours, and then the recovery in the normal temperature and humidity for 1 hour, and after 1 hour to try to measure, water droplets should disappear

## ● 开关的储存 The storage of switch

1. 请避开产生污染气体、有机气体的区域(如燃气、取暖器附近)以及灰尘、潮湿等环境。 Please avoid areas that produce polluted gases, organic gases (such as gas, near heaters), dusty, humid environments, etc.
2. 保存温度湿度: 温度5~35℃, 湿度≤80%RH Temperature & Humidity: Temp 5 ~ 35 °C and Hum 80% RH Max.
3. 开关储存期为6个月, 超过6个月需重新检查。 The storage period is 6 months, re-inspected over 6 months.