

MUJIE 慕杰®

YOUR AUTOMATION, YOUR MUJIE!

格雷码/二进制输出，可抵抗剧烈振动冲击，可在任意位置设置新的原点

单圈绝对二进制输出MJ50系列
Single turn absolute binary output MJQ series

Gray code / binary output, can resist violent vibration and shock, and can set a new origin at any position



► 型号说明 Model Explanation

MJ	50	S	8	-G	-C-	S	8	BZ	5	C	2	□
基本型号 Model M:常规增量型 Incremental encoder M□: 特殊型号定义 Special definition	主体外径OD 50:Φ50mm	轴型 Shaft type: 实心轴 Solid shaft	轴直径: 8:Φ8mm	码制: G:格雷码 Gray code B:自然二 进制码 Natural 2 Hexadecimal code C:BCD码	输出方式 Output configuration C:NPN集电极 开路输出 F:PNP集电极 开路输出	S:顺时针方向角 度值增加 Clockwise direction Angle Value increases N:逆时针方向角 度值增加 Counterclockwise Angle Value increases	脉冲式分辨率 Resolution 02:2=4 C1=24 03:2=8 C2=48 04:2=16 C3=180 05:2=32 C4=360 06:2=64 C5=720 07:2=128 08:2=256 09:2=512 10:2=1024	输出相 Output signal BZ:ABZ三相	电压 Supply voltage 10-30VDC	出线方式 Outlet way F:侧出线防水 Side outlet waterproof	线缆长度 Cable 2: 2m	客户定制 Customized informat

注:方向是指面向轴的方向看过去。涂红色为常规型号。例如: MJD50S8-GCS8BZ10-30F2

Note: the direction refers to the direction facing the axis. The conventional model is painted in red. For example: mjd50s8-gcs8bz10-30f2

► 技术规格 Specification

电气参数 Electric parameter	
工作电压 working voltage	10-30VDC ±5%
容许纹波 Allowable ripple	P-P:5% 以下 following
消耗电流 Current consumption	< 40mA (无负载时) (no load)
保护回路 Protection circuit	电源反接保护 Power reverse connection protection
圈数 Number of turns	单圈 Single lap
输出码制 Output code system	格雷码、自然二进制、BCD码 Gray code, natural binary, BCD code
格雷码自然二进制 Gray code Natural binary	03:2=8 04:2 ⁴ =16 05:2 ² =32 06:2 ² =64 07:2 ² =128 08:2 ² =256 09:2 ² =512 10:2 ² =1024 C1=24 C2=48 C3=180 C4=360 C5=720
BCD码 BCD code	03:2=8 04:2 ² =16 05:2 ² =32 06:2 ² =64 07:2 ² =128 08:2 ² =256 09:2 ² =512 10:2 ² =1024 C1=24 C2=48 C3=180 C4=360 C5=720
输出形式 Output form	NPN集电极开路输出 NPN open collector output PNP集电极开路输出 PNP collector open circuit output
负载电流 load current	≤30mA 建议电流值 ≤ 30mA (recommended current value) ≤30mA 建议电流值 ≤ 30mA (recommended current value)
残留电流 Residual current	1VDC以下 Below 1vdc 0.5VDC以下 Below 0.5vdc
反逻辑 Negative logic	低电平有效 Low level effective 高电平有效 High level active
刷新频率 refresh frequency	≤20KHZ
重复精度 Repeatability	± 1Bit
接线方法 Wiring method	详看末页 See the following page for details
连接方式 Connection mode:	导线引出型/侧面出线 Lead out type, side lead out
电缆 Cable	多芯耐油屏蔽线 Multi-core oil resistant shielded wire

机械参数 Mechanical parameters	50S8	50H8
外壳 Shell	Aluminium alloy 铝合金Φ50mm	Aluminium alloy 铝合金Φ50mm
本体 nounenon	Aluminium alloy 铝合金Φ50mm	Aluminium alloy 铝合金Φ50mm
轴 Axis	不锈钢 Stainless steel	黄铜 Brass
防水接头 Waterproof joint	黄铜镀镍 Nickel plating on brass	黄铜镀镍 Nickel plating on brass
安装附件 Installation accessories	联轴器 coupling	弹性支架 Elastic support
起动转矩 Starting torque	≤0.004N·m ²	≤0.004N·m ²
惯性力矩 Moment of inertia	≤40g·cm ²	≤40g·cm ²
轴负载 Axle load	径向 Radial 50N 轴向 Axial 30N	40N 20N
允许转速 Allowable speed	3,000r/min以上	3,000r/min以上
重量 Weight	约215g	约220g

环境参数 Environmental parameters	
环境温度范围 Ambient temperature range	工作时: -20~+85°C(无结冰) No ice 保存时: -20~+80°C(无结冰) No ice
环境湿度范围 Ambient humidity range	工作时: 35-95%RH 工作时: 35-85%RH(无结露) No condensation
绝缘电阻 Insulation resistance	100MΩ以上 (DC500V) 导线与外壳之间 Between conductor and shell
耐电压 Withstand voltage	AC500V 50/60Hz 1min 导线与外壳之间 Between conductor and shell
耐冲击 Impact resistance	1,000m/S ² X, Y, Z轴方向 各3次 1000m / s x, y, Z axis direction 3 times each
耐振动 Vibration resistance	10~100Hz 上下振幅 2mm X, Y, Z方向各振动2小时 10 ~ 100Hz, up and down amplitude 2mm, vibration in X, y and Z directions for 2h
防护等级 Protection level:	Ip54 可完全防水防油 Completely waterproof and oil proof

编码器/磁栅尺
Encoder/Magnetic Scale

位移/倾角/计数器
Displacement/Inclination/Counter

接近/加速度/温度
Proximity/Acceleration/Temperature

光电/超声波/区域
Photoelectric/Ultrasonic/Area

压力/称重
Pressure / load cell

联轴器/附件
Couplings/Accessories

▶ 原点设置方法 The origin set method

- 1、编码器转到相应位置，黑色线接到电源正极（棕色线）2秒后,当前位置设置为新的原点。The encoder turns to the corresponding position. After the black wire is connected to the positive electrode (brown wire) of the power supply for 2 seconds, the current position is set as the new origin.
- 2、重置原点后，黑色线转接到蓝色线上，不要悬空，否则可能受到干扰误动作再重置原点。After resetting the origin, the black line shall be transferred to the blue line, and it shall not be suspended in the air, otherwise it may be disturbed and misoperated, and then reset the origin.
- 3、需要重新设置新的原点，重复第一步操作。You need to reset the new origin and repeat the first step.

注：原点设置操作后，编码器的数据默认为0。Note: after the origin setting operation, the data of the encoder is 0 by default.

▶ 电气接线表 Electrical wiring table

格雷码 自然二进制码 接线方法 Gray code natural binary code wiring method

		C3	C4	C5	C1	C2	02	03	04	05	06	07	08	09	10	
格雷码Gray code		180	360	720	24	48	4	8	16	32	64	128	256	512	1024	
自然二进制码Natural binary code		等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	
数 据 输 出 线 number data transport Out Line	绿/黑 Green / Black	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	
	灰/黑 Grey /Black	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	
	红/黑 Red / Black	N. C.	N. C.	2 ⁰	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	2 ⁰
	黄/黑 Yellow / Black	N. C.	2 ⁰	2 ¹	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	2 ⁰	2 ¹
	橙/黑 Orange / Blac	2 ⁰	2 ¹	2 ²	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	2 ⁰	2 ¹	2 ²	
	白/黑 White / Black	2 ¹	2 ²	2 ³	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	N. C.	2 ⁰	2 ¹	2 ²	2 ³	
	绿色 Green	2 ²	2 ³	2 ⁴	N. C.	2 ⁰	N. C.	N. C.	N. C.	N. C.	2 ⁰	2 ¹	2 ²	2 ³	2 ⁴	
	灰色 Grey	2 ³	2 ⁴	2 ⁵	2 ⁰	2 ¹	N. C.	N. C.	N. C.	2 ⁰	2 ¹	2 ²	2 ³	2 ⁴	2 ⁵	
	红色 Red	2 ⁴	2 ⁵	2 ⁶	2 ¹	2 ²	N. C.	N. C.	2 ⁰	2 ¹	2 ²	2 ³	2 ⁴	2 ⁵	2 ⁶	
	黄色 Yellow	2 ⁵	2 ⁶	2 ⁷	2 ²	2 ³	N. C.	2 ⁰	2 ¹	2 ²	2 ³	2 ⁴	2 ⁵	2 ⁶	2 ⁷	
	橙色 Orange	2 ⁶	2 ⁷	2 ⁸	2 ³	2 ⁴	2 ⁰	2 ¹	2 ²	2 ³	2 ⁴	2 ⁵	2 ⁶	2 ⁷	2 ⁸	
	白色 White	2 ⁷	2 ⁸	2 ⁹	2 ⁴	2 ⁵	2 ¹	2 ²	2 ³	2 ⁴	2 ⁵	2 ⁶	2 ⁷	2 ⁸	2 ⁹	
电源线 Power cord	棕色 Brown	10-30V														
GND	蓝色 Blue	0V														
零点设置 Zero setting	黑色 Black	零点设置（不设置零点是接到0V蓝色线上，不要悬空）Zero point setting (if the zero point is not set, it is connected to the 0V blue line and should not be suspended)														
屏蔽线 Shielding wire	黑色粗线 Black thick line	GND														

1、假如用户拿到的商品是分辨率1024,但只想用512分辨率,则按以下方式接线,剪掉【红/黑线2】不用,以此类推,用户只想用256分辨率,则剪掉【红/黑线2】【黄/黑线2】不用,其它线一样接法。

1. If the product obtained by the user has a resolution of 1024, but only wants to use 512 resolution, then connect the line in the following way and cut off [red / black line 2] no, and so on. If the user only wants to use 256 resolution, then cut off [red / black line 2] [yellow / black wire 2] no, other wires are connected in the same way.

	1024	512	256
红/黑 Red / Black	2 ⁰	N. C.	N. C.
黄/黑 Yellow / Black	2 ¹	2 ⁰	N. C.
橙/黑 Orange / Black	2 ²	2 ¹	2 ⁰
白/黑 White / Black	2 ³	2 ²	2 ¹
绿色 Green	2 ⁴	2 ³	2 ²
灰色 Grey	2 ⁵	2 ⁴	2 ³
红色 Red	2 ⁶	2 ⁵	2 ⁴
黄色 Yellow	2 ⁷	2 ⁶	2 ⁵
橙色 Orange	2 ⁸	2 ⁷	2 ⁶
白色 White	2 ⁹	2 ⁸	2 ⁷

1024 线的定义 Definition of lines

512 线的定义 Definition of lines

256 线的定义 Definition of lines

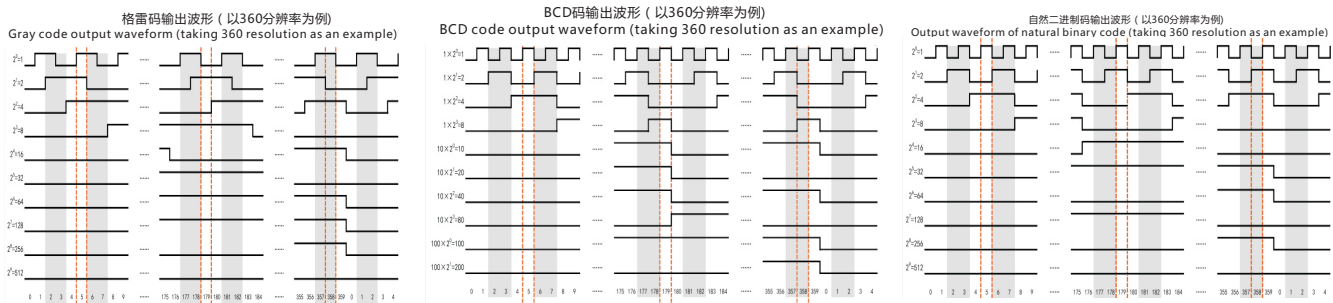
电源线 power cord	棕色 Brown	10-30V	
GND	蓝色 Blue	0V	
零点设置 Zero setting	黑色 Black	零点设置（不设置零点是接到0V蓝色线上，不要悬空）Zero point setting (if the zero point is not set, it is connected to the 0V blue line and should not be suspended)	
屏蔽线 Shielding wire	黑色粗线 Black thick line	地线	

BCD码 接线方法 BCD code wiring method

			C3	C4	C5	C1	C2	O2	O3	O4	O5	O6	O7	O8
BCD码			180	360	720	24	48	8	16	32	64	128	256	512
			等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	等分	等分
数 剧 输 出 线 number drama transport Out Line	2°	白色 White	2°	2°	2°	2°	2°	2°	2°	2°	2°	2°	2°	2°
	2 ¹	橙色 Orange	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹	2 ¹
	2 ²	黄色 Yellow	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²	2 ²
	2 ³	红色 Red	2 ³	2 ³	2 ³	2 ³	2 ³	N.C.	2 ³	2 ³	2 ³	2 ³	2 ³	2 ³
	10X2°	灰色 Grey	10X	10X	10X	10X	10X	N.C.	10X	10X	10X	10X	10X	10X
	10X2 ¹	绿色 Green	10X	10X	10X	10X	10X	N.C.	N.C.	10X	10X	10X	10X	10X
	10X2 ²	白/黑 White / Black	10X	10X	10X	N.C.	10X	N.C.	N.C.	N.C.	10X	10X	10X	10X
	10X2 ³	橙/黑 Orange / Black	10X	10X	10X	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	10X	10X	10X
	100X2°	黄/黑 Yellow / Black	100	100	100	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	100	100	100
	100X2 ¹	红/黑 Red / Black	N.C.	100	100	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	100	100
100X2 ²	灰/黑 Grey / Black	N.C.	N.C.	100	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	100	
电源线 Power cord	棕色 Brown	10-30V												
GND	蓝色 Blue	0V												
零点设置 Zero setting	黑色 Black	零点设置 (不设置零点是接到0V蓝色线上, 不要悬空) Zero point setting (if the zero point is not set, it is connected to the 0V blue line and should not be suspended)												
屏蔽线 Shielding wire	黑色粗线 Black thick line	GND												

1. N.C.表示为连接或者没有这根线, 未使用的配线必须做绝缘处理, 避免铜丝外露。
1. N.C. It refers to connection or absence of this wire. Unused wiring must be insulated to avoid copper wire exposure.
2. 编码器屏蔽线必须良好接地。2. The encoder shield wire must be well grounded.
3. 输出电路低7路, 高5路采用两个专用IC, 务必避免输出端短路。3. Two special ICs are used for the low 7-way and high 5-way output circuits to avoid short circuit at the output end.
4. 为防止接收串扰信号, 不设置零点时要将零点设置线(黑色线)接收0V或者接地。4. To prevent the reception of crosstalk signals, the zero point setting line (black line) should be received at 0V or grounded when the zero point is not set.
5. 接线时尽可能棕色电源线最后接。5. When wiring, try to connect the brown power cord last.

► 输出时序图 Output sequence diagram

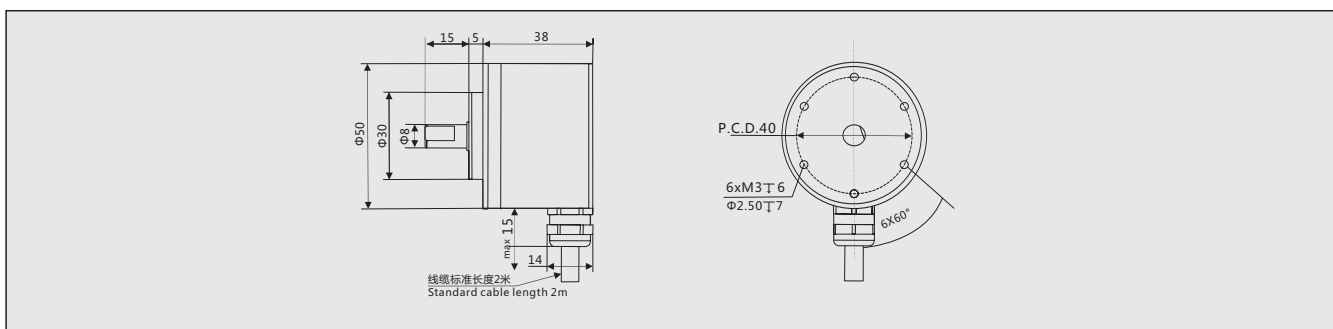


注: $T_s=360/\text{分辨率}$ resolution $T_s=1 \pm 15^\circ$ (360分辨率) resolution
 以上为正逻辑输出波形, 负逻辑波形与上图波形相反
 The above is the positive logic output waveform, and the negative logic waveform is opposite to the waveform above

► 控制输出连接图 Control the output connection diagram



► 安装尺寸图 Mounting Dimensions (单位Unit:mm)



编码器/磁栅尺
Encoder/Magnetic Scale

位移/倾角/计数器
Displacement/Inclination/Counter

接近加速度/温度
Proximity/Acceleration/Temperature

光电/超声波/区域
Photoelectric/Ultrasonic/Area

压力/称重
Pressure / load cell

联轴器/附件
Couplings/Accessories