

增量型旋转编码器

增量型 外径 $\phi 40$ 型号: A6B2

INCREMENTAL ROTARY ENCODERS, OUTSIDE DIAM $\phi 40$ MODEL: A6B2

替代型号SUBSTITUTE: E6B2

通用编码器

型号

A6B2

CWZ 6C

Sequence Number

序列号

外径 $\phi 40$

outside diam $\phi 40$

B: PNP开路输出 PNP open collector Output

C: NPN开路输出 Open collector NPN output

E: 电压 (NPN) 输出 Voltage output

Gh: 互补输出 NPN Push Pull output

EH: 电压 (PNP) 输出 PNP Voltage output

1: DC5V

3: DC5~12V

5: DC12~24V

6: DC5~24V

Z: 带复位相输出 + Zero Signal

S: 单相输出 singleness Output "A"

W: 多相输出 A、B90° Phase Difference

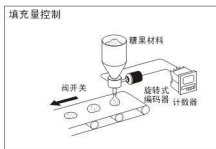
A: 绝对式编码器 Absolute Rotary Encoder

C: 增量式编码器 Incremental Rotary Encoder

■ 特点CHARACTERISTIC

- 对应宽电源电压DC5~24V (开路集电极型)
- 外径 $\phi 40$ 备有到2000P/R的高分辨率。
- 具备使Z相对合简单化的原点位置显示功能。
- 轴负重、径向29.4N, 推力向19.6N, 允许大幅度提升。
- 附有逆接、负荷短路保护电路, 改善了可靠性。
- 也备有线性驱动输出。
最大可延长长度100m为止

■ 应用实例APP-example



General-Purpose Rotary Encoder Withstands Large Shaft Loads

- Wide variety of supply voltages and output forms
- Easy-to-adjust zero index (phase Z) with origin indicating function High resolution models (2000 pulses per revolution) substantially improves measuring accuracy
- Rugged construction: 6 mm (0.24 inch) diameter shaft with radial load ratings of 3 kgf (21.7 ft*lbs) and axial load rating of 2 kgf (14.5 ft*lbs)
- Protected against short-circuit and reversed connections for highly reliable operation Available with Line Driver output



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■ 种类 Ordering Information

◆ 本体 ABSOLUTE ROTARY ENCODERS

电源电压 Supply Voltage	输出状态 Output Configuration	分辨率 (脉冲/旋转) Resolution (p/r)	型号 Model
DC5~24V	NPN开路集电极输出 Open collector NPN output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600	型号A6B2-CWZ6C
		1,000	
DC12~24V	PNP开路集电极输出 Open collector PNP output	100, 200, 360, 500, 600	型号A6B2-CWZ5B
		1,000	
		2,000	
DC5~12V	电压输出 Voltage output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600	型号A6B2-CWZ3E
		1,000	
DC5V	线性驱动输出 Push/Pull output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600	型号A6B2-CWZ1X
		1,000	
		1,200, 1,500, 1,800, 2,000	

注: 订货时, 除型号外, 还一定要指定分辨率。

■ : 表格中为标准分辨率, 不标准的可订货生产。

■ 种类 ACCESSORIES

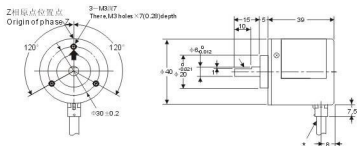
◆ 附件 (零售)

种类 Description	型号 Part number	备注 Remark
耦合器 Shaft coupler	◎ 型号E69-C06B	用于直径 6mm 的轴 Fits to 6 mm (0.24 in) dia. shafts; supplied with each encoder.
	◎ 型号E69-C68B	适用于直径 6mm (0.24 in) 和 8mm (0.32 in) 的轴 Shaft coupler fits one 6 mm (0.24 in) and 8 mm (0.32 in) dia. Shaft
	◎ 型号E69-C10B	适用于直径 10mm 的轴 Fits one 10 mm (0.39 in) dia. Shaft
	◎ 型号E69-C06M	金属型材料, 铝金属 Metal material, aluminum metal
法兰盖 Mounting flange	◎ 型号E69-FBA	—
金属压盖配件 Mounting bracket, set of three	◎ 型号E69-2	同原被用安装配件 附属型号E69-2

■ 外形尺寸 Dimensions (单位 Unit: mm)

◆ 本体

型号 model: A6B2



* 型号A6B2-CWZ6C/5083E:
PVC绝缘圆形导线 $\phi 5$, 5芯
(导体截面积: 0.2mm², 绝缘体直径:
 $\phi 1.0$ mm)标准长度500mm
型号A6B2-CWZ1X:
PVC绝缘圆形导线 $\phi 5$, 5芯
(导体截面积: 0.2mm², 绝缘体直径:
 $\phi 1.0$ mm)标准长度500mm

PVC shielded cable,
0.5 * (1.64 ft) standard
length

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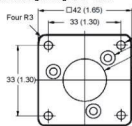
替代型号SUBSTITUTE: E6B2

通用编码器

■ 安装尺寸 Installation Dimensions (单位Unit: mm)

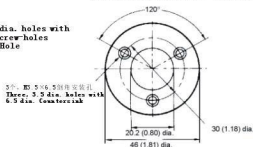
型号model A6B2

法兰盘型号: E69-FBA
Mounting Flange E69-FBA



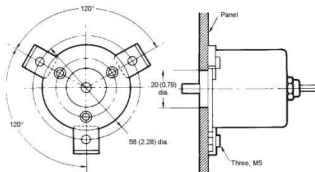
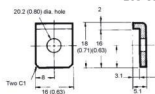
4个, $\phi 3.3$ mm孔 Four 3.3 dia. Holes
3个, 3.5×6.5 倒角安装孔 Three 3.5 dia. holes with 6.5 dia. Screw holes
 $\phi 20.2$ 出口安装孔 20.2 (0.80) dia. Hole

Dimensions with Encoder



3个, $\phi 5.5$ 定位安装孔
Three 5.5 dia. holes with 6.5 dia. Counter sink

安装压脚型号 (Mounting Bracket):
E69-FBA-02



■ 安装接线 Installation

◆ 如电压输出型编码器与计数器的接方 INPUT TO MORE THAN ONE COUNTER FROM ENCODER WITH VOLTAGE OUTPUT

型号 A6B2

每具A6B2型编码器可连接计数器的数量按下公式计算

Use the following formula to obtain the number of counters to be connected to a single A6B2:

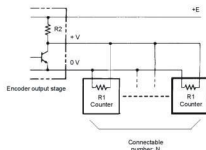
$$\text{计数器数量 Number of counters (N)} = \frac{R1 (E-V)}{V \times R2}$$

E: 编码器供应电源电压 Voltage supplied to Rotary Encoder

V: 计数器需求最小电压 Minimum input voltage of the counter

R2: 编码器输出内阻 Output resistance of the Rotary Encoder

R1: 计数器负载电阻 Input resistance of the Rotary Encoder



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■ 额定/性能SPECIFICATIONS

项目 ITEM	型号 MODEL	型号A6B2-CW25C	型号A6B2-CW25B	型号A6B2-CW23E	型号A6B2-CW21X
电源电压 Powersupplyvoltage		DC5V-5%~24V+15% 脉冲(p-p)5%以下	DC12V-10%~24V+15% 脉冲(p-p)5%以下	DC5V-5%~12V+10% 脉冲(p-p)5%以下	DC5V+5% 脉冲(p-p)5%以下
消耗电流 Currentconsumption		80mA以下	1.00mA以下		180mA以下
分辨率(脉冲/旋转) Resolution(See Note 1)		10, 20, 30, 40, 50, 60, 100, 200, 300, 400, 500, 600, 1,000, 1,200, 1,500, 1,800, 2,000	100, 200, 360, 500, 600, 1,000, 2,000	10, 20, 30, 40, 60, 60, 100, 200, 300, 360, 400, 500, 600, 1,000, 1,200, 1,500, 1,800, 2,000	
输出相 Output phases		A, B, Z相		A, \bar{A} , B, \bar{B} , Z, \bar{Z} 相	
输出相位差 Phase difference of output		A, B相的相位差 $\pm 90^\circ$ (IAT-1.0T)			
输出状态 Output form		NPN开路输出 Open collector/NPN output	PNP开路输出 Open collector PNP output	电压输出 Voltage output	线性驱动输出*2 Line driver output
输出容量 Output capacity		外部电路: DC30V以下 In Voltage: DC30V max 同步电流: 35mA以下 In-sink: 35 mA max 残留电压: 0.4V以下 Residual voltage: 0.4 V max (输出电流) 35mA时 (In-sink: 35mA)	同步电流: 35mA以下 In-sink: 35 mA max 残留电压: 0.4V以下 Residual voltage: 0.4 V max (输出电流) 35mA时 (In-sink: 35mA)	输出电阻: 2k Ω Output resistance: 2 k Ω 输出电流: 35mA以下 Sink current: 35 mA max 残留电压: 0.4V以下 Residual voltage: 0.4 V max (输出电流) 35mA时 (输出电流) 35mA时	AM26LS31相当品 输出电流: I _H : I _L =20mA High level I _H : I _L =20mA 输出电压 V _O =2.5V以上, 1min Low level V _O =0.5V以下 max
最高应答频率 Maximum response frequency		100kHz	50kHz	100kHz	
输出上升、下降时间 Output rise and fall times		1ms以下 (负载电阻1k Ω , 导线长: 2m)	1ms以下 (导线长: 2m 负载电阻: 10k Ω)		1ms以下 (导线长: 2m I _O =20mA, I _S =20mA)

机械性能 参数 Mechanical Spec

启动转矩 Startion Torque	0.95mN·m以下	
惯性力矩Moment of Inertia	1 $\times 10^{-6}$ kg·m ² 以下(脉冲/旋转以下), 3 $\times 10^{-7}$ kg·m ² 以下	
允许许力 Shaft loading	径向Radial	29.4N
	推力Thrust	19.6N
允许安装精度 Mounting Tolerance	轴周误差 Backlash: 0.03mm TIR Max; 正向误差 Axial: 0.2mm Max; 角度误差 Shaft Runout: 0.1 $^\circ$ Max	
轴最大负荷 Allowable Shaft Load	径向Radial: 5N, 轴向 Axial: 3N	
允许最高转速Maximum Rotating Speed	6,000rpm/min	
环境温度范围 Operating Temp Range	工作时: -10~+70 $^\circ$ C、保存时: -25~85 $^\circ$ C(不结露)	
环境湿度Humidity	工作时、保存时: 35~85%RH(不结露)	
绝缘电阻 Insulation resistance	100M Ω 以上(DC500V)的充电器整体与外界间	
漏电压	AC 500V/ 50.60kHz 1min无充电器整体与外界间	
振动(耐久)Vibration resistance	10~500Hz上下一步激励2mm或150mr/s ² ; X、Y、Z各方向1次/1min 3次	
冲击(耐久)Shock resistance	1,000m/s ² ; X、Y、Z各方向3次	
保护结构 Degree of protection	IEC规格 IP50	
连接方式 Connection	导线引出型(标准导线长Cable length: 500mm)	
质量 Weight	约100g	
附件 Accessories	联轴器, 六角扳手, 使用说明书	

*1. 额定电压时, 约有9A的冲击电流。(持续时间: 约0.3ms)

*2. 所谓线性驱动电路就是根据RS-422A的数据发送回路, 可通过双股绞合导线进行长距离传输。(内含AM26LS31相当品)

*3. 电气的最高响应转速(0/min)= $\frac{\text{分辨率}}{\text{最高响应频率}} \times 60$

因此, 旋转超过最高响应转速时无法对电信号进行跟踪。

Note:

● The maximum electrical response revolution is determined by the resolution and maximum response frequency as follows:

● Maximum electrical response frequency (rpm) = Maximum response frequency \div resolution $\times 60$

● This means that the A6B2 encoder will not operate electrically if its shaft speed exceeds the maximum electrical response revolution.

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■输出段回路图OUTPUT CIRCUIT DIAGRAMS

型号/输出回路 MODEL/OUTPUT	输出方式 Output wave	连接 Wire color code												
型号A6B2-CWZ6C 	NPN开路集电极输出/Open Collector Output/型号A6B2-CWZ6C PNP开路集电极输出/Open Collector Output/型号A6B2-CWZ5B 旋转方向: CW Direction of rotation: CW (从缺方向观察为右转) Clockwise as viewed from the shaft 晶体管输出 Transistor output 	Wire Color Code IEC colors are shown. <table border="1"> <thead> <tr> <th>线色Wire color</th> <th>端子名Signal</th> </tr> </thead> <tbody> <tr> <td>褐色Brown</td> <td>电源(+Vcc)</td> </tr> <tr> <td>黑色Black</td> <td>输出A相</td> </tr> <tr> <td>白色White</td> <td>输出B相</td> </tr> <tr> <td>粉红色Orange</td> <td>输出Z相</td> </tr> <tr> <td>蓝色Blue</td> <td>0V(COMMON)</td> </tr> </tbody> </table>	线色Wire color	端子名Signal	褐色Brown	电源(+Vcc)	黑色Black	输出A相	白色White	输出B相	粉红色Orange	输出Z相	蓝色Blue	0V(COMMON)
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型号A6B2-CWZ3E 	电压输出/型号A6B2-CWZ3E Voltage Output /A6B2-CWZ3E 旋转方向: CW Direction of rotation: CW (从缺方向观察为右转) Clockwise as viewed from the shaft 晶体管输出 Transistor output 	Wire Color Code IEC colors are shown. <table border="1"> <thead> <tr> <th>线色Wire color</th> <th>端子名Signal</th> </tr> </thead> <tbody> <tr> <td>褐色Brown</td> <td>电源(+Vcc)</td> </tr> <tr> <td>黑色Black</td> <td>输出A相</td> </tr> <tr> <td>白色White</td> <td>输出B相</td> </tr> <tr> <td>粉红色Orange</td> <td>输出Z相</td> </tr> <tr> <td>蓝色Blue</td> <td>0V(COMMON)</td> </tr> </tbody> </table>	线色Wire color	端子名Signal	褐色Brown	电源(+Vcc)	黑色Black	输出A相	白色White	输出B相	粉红色Orange	输出Z相	蓝色Blue	0V(COMMON)
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型号A6B2-CWZ1X 	线压驱动输出/型号A6B2-CWZ1X Line Driver Output /E6B2-CWZ1X 旋转方向: CW Direction of rotation: CW (从缺方向观察为右转) Clockwise as viewed from the shaft 晶体管输出 Transistor output 	Wire Color Code IEC colors are shown. <table border="1"> <thead> <tr> <th>线色Wire color</th> <th>端子名Signal</th> </tr> </thead> <tbody> <tr> <td>褐色Brown</td> <td>电源(+Vcc)</td> </tr> <tr> <td>黑色Black</td> <td>输出A相</td> </tr> <tr> <td>白色White</td> <td>输出B相</td> </tr> <tr> <td>粉红色Orange</td> <td>输出Z相</td> </tr> <tr> <td>蓝色Blue</td> <td>0V(COMMON)</td> </tr> </tbody> </table>	线色Wire color	端子名Signal	褐色Brown	电源(+Vcc)	黑色Black	输出A相	白色White	输出B相	粉红色Orange	输出Z相	蓝色Blue	0V(COMMON)
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注1. 屏蔽线的外壳(屏蔽)不能与内部以及外壳连接。
 2. A相、B相、Z相都为同一回路。
 3. 通常GND要接到0V,或者大地上。

Note:

The line driver output circuit is an RS-422A data transmission circuit consisting of two balanced output lines. The relationship between the two output lines is in an equal status. This means that if the level of the signal on a line is H, the level of the signal on the other line is L. The noise-resistant line driver output circuit assures high-speed data transmission.

注: 所合适的线接受的内阻
 AM26LS32相当品。