

安装操作说明

Installation operation instructions



增量式编码器 Incremental encoder ECK58B系列 series

本安装说明全面涵盖以上系列:

请注意,图示可能与实际产品的型号、材料、颜色和接头类型上发生差异。

This installation guide covers all of the above series:

Please note that the illustration may differ from the actual product model, material, color, and connector type.

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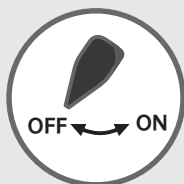
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1、受伤风险 Risk of bodily injury

安装前注意事项 Important before mounting begins:



人身伤害危险
Risk of bodily injury



关闭电源
Switch off the power.



确保机器处于停机状态。
本产品安装在旋转部件上，在运动状态下操作可能导致人身伤害。

Make sure the machine is at a standstill. The product is to be mounted on a rotating part that can cause bodily injury when in motion.

2、损坏产品的风险 Risk of damage to the product

本产品为精密测量仪器，应由有经验的人员小心操作。
以下警告适用于，产品在超出技术规范极限值情况下使用。

The product is a precision measuring instrument. It should be handled with care, by experienced person-nel.
The warnings below apply in the event of effects outside the limit values stated in the product's data sheet.



产品损坏风险 Risk of damage to the product



极限温度下

If it is exposed to extreme temperatures



轴上作用力过大

If the shaft is exposed to high mechanical forces



短路或供电电压过高

By short-circuits or an excessively high supply voltage



剧烈振动或冲击

If it is exposed to powerful vibrations or shock



遭受敲打，撞击或其他物理损坏

By impacts or knocks or other physical damage



电子产品被接触时的静电放电

By ESD discharges if the electronics are touched



潮湿或化学液体腐蚀（不要竖直安装电缆）

By moisture or chemical fluids (do not install cable pointing upwards)



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Instructions in these mounting instructions apply to products from ECK58B series Incremental encoder, not for the system as a whole.
If products are used in a way for which they are not intended, this is at the user's own risk. Subject to change without notice.

3、产品部件 Parts of the product

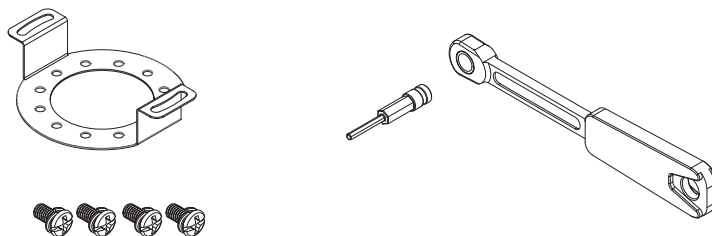


3.1 光电编码器 Optical Encoder

3.2 锁紧环 Clamping Ring

3.3 安装支架 Mounting Bracket

安装所需物品（不含在供货范围内）：
Installation Requirements (not supplied)



安装支架、支架固定螺钉M3*8
Mounting Bracket, Fixing Screw M3*8

扭力扳手、批头 H2.5
Torque Wrenc, Hex Bit H2.5h

4、机械安装 Mechanical mounting

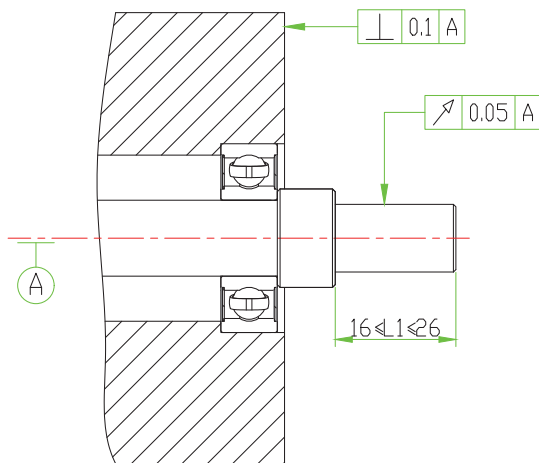
4.1 核对尺寸及检查

核对编码器孔径与轴径是否匹配，检查轴的长度、公差等是否符合要求。

清洁驱动轴、安装面和，确保无油污、铁屑、毛刺。

Verify that the encoder bore matches the shaft diameter, and confirm shaft length and tolerances.

Clean the drive shaft and mounting surface to remove oil, chips, and burrs.



注意：

1、客户端轴深入编码器长度建议 $16 \leq L_1 \leq 26$ mm

Customer shaft insertion length (L_1) into the encoder: 16–26 mm recommended.

2、客户端轴伸部位的径向跳动 ≤ 0.05 mm，轴向跳动 ≤ 0.10 mm

Radial runout of shaft extension: ≤ 0.05 mm; axial runout: ≤ 0.10 mm.



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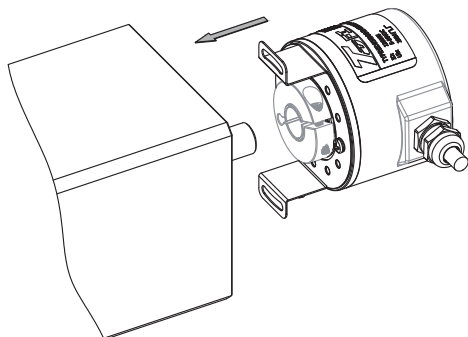
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4.2 套入编码器 Inserting the Encoder

安装前使锁紧环处于松弛状态，沿轴线方向将编码器平稳推至预设安装位置。

Before installation, make sure the clamping ring is loose. Slide the encoder smoothly along the shaft axis to the preset position.



注意 Note:

1、操作过程中严禁使用工具敲打或施加过大轴向力，以防损坏内部精密部件。

Do not strike with tools or apply excessive axial force during operation, to prevent damage to internal precision components.

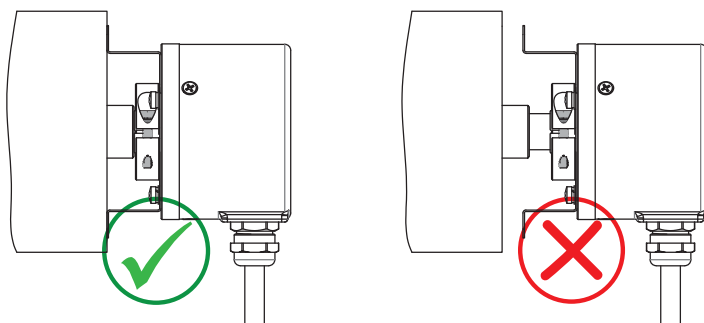
2、编码器安装前锁紧锁紧环，会使主轴变形而产生编码器主轴断裂隐患

Tightening the locking ring before encoder installation may cause spindle deformation, which creates a risk of encoder spindle fracture.

4.3 检查安装位置 Checking Mounting Position

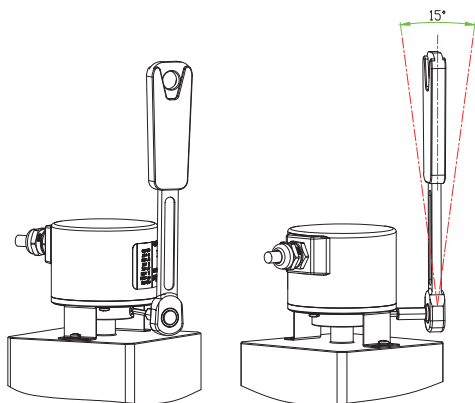
目视检测安装位置，确认安装支架与电机无间隙。间隙过大容易出现编码器旋转抖动，甚至出现主轴断裂现象。

Visually check that there is no gap between the mounting bracket and the motor. Excessive gap may cause encoder vibration or even shaft breakage.



4.4 使用扭力扳手锁紧固定螺钉

Tightening the Clamping Ring Screws

**注意 Note:****1、螺刀批头要插入到扳手柄部**

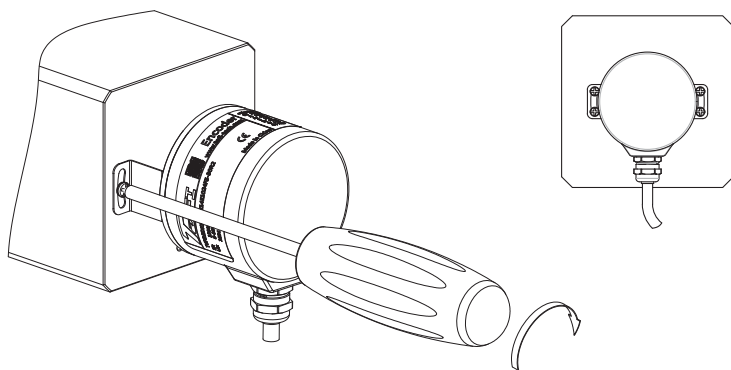
Insert the screwdriver bit fully to the base of the wrench.

**2、力的方向应与扳手成直角
(上下左右公差在15度以内)**The force direction shall be perpendicular to the wrench. (Allowable tolerance of $\pm 15^\circ$ in up-down and left-right directions)**3、扳手力矩为 $0.7 \pm 0.1 \text{ Nm}$** Wrench torque: $0.7 \pm 0.1 \text{ Nm}$ **4、保证编码器与电机主轴无移动**

Ensure no relative movement between the encoder and motor spindle.

4.5 固定编码器 Securing the Encoder按图示方向用M3*8十字盘头螺钉将安装支架固定在电机上, 紧固力矩为力矩为 $1 \pm 0.1 \text{ N.m}$

Secure the mounting bracket to the motor with M3×8 cross-recessed pan head screws as shown.

Tightening torque: $1 \pm 0.1 \text{ N} \cdot \text{m}$.

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**机械安装注意事项** Mechanical installation precautions:

检查连接轴的尺寸是否符合编码器数据表中的规格。

Check that the dimensions of the mating shaft match the specifications in the encoder's data sheet

通过完整组件的慢速旋转来检查编码器的径向偏移。偏移不应超过0.1mm，否则将缩短编码器的使用寿命或影响系统的精度。

Check the encoder's radial runout with slow rotation of complete assembly. The runout should not exceed 0.1 mm, as this may shorten the encoder's service life or influence the system accuracy

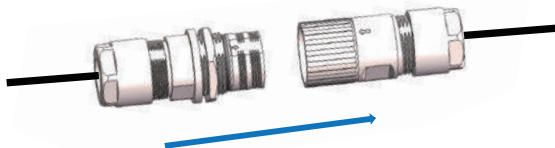
保持传动轴和编码器轴的清洁，远离任何润滑油和油渍。

Keep the drive shaft and encoder shaft clean, away from any lubricating oil and oil stains.

轴承在任何情况下不允许加入润滑油。

Bearings are not allowed to add lubricating oil under any circumstances.

5、电气安装 Electrical mounting

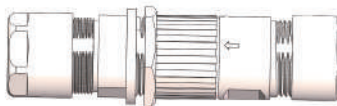


5.1 对接插头的安装示意

Installation illustration for the connection plug.

将插头和插座的标记点对正按图示方向插入

Align the marking points of the plug and the socket, insert them in the direction shown in the diagram:



5.2 对接插头锁紧

Locking of the connection plug

插头安装后，将锁紧螺母顺时针方向旋紧并固定在插座上。

After the plug is installed, tighten the locking nut clockwise and fix it on the socket



电气安装注意事项 Electrical installation precautions:

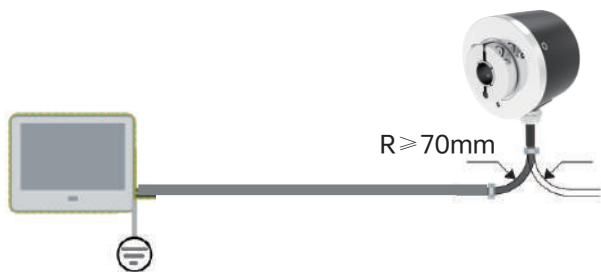


电缆出线应避免同潮湿或化学液体腐蚀方向

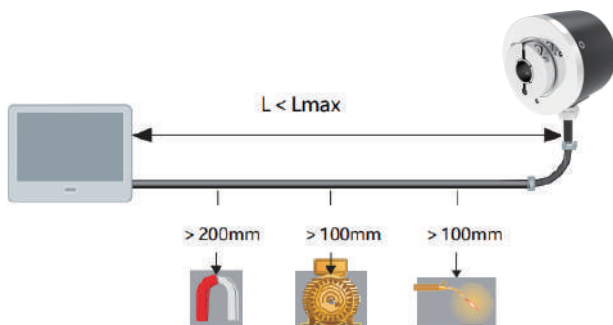
The cable outlet should avoid the direction of moisture or chemical liquid corrosion



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使用屏蔽双绞线电缆。屏蔽电缆必须连接到底座两端，并单点接地。
Use a shielded twisted-pair cable. The shielding must be connected to the chassis at both ends and be earthed at one point.



请将潜在干扰源放置在离电缆建议的距离外，确保电缆长度不超过图示中的规定值。
Keep potential sources of disturbance at the recommended distance from the cable. Make sure that the length of the cable does not exceed the value specified in the picture.



电缆布排半径，确保电缆弯曲半径超过允许的最小值。
Ensure that the cable's bending radius exceeds the permitted minimum value.

**电气安装注意事项** Electrical installation precautions:

将所有导线视为带电线路，必须对所有未使用的导线做绝缘处理。

Treat all wires as live. Any wires not in use must be insulated.

更换坏的编码器时，请勿将新旧编码器部件相互结合。

Do not combine old encoder parts with new ones, when replacing a worn out encoder.

如果产品有接地带，必须确保良好接地。

If the product comes with an earthing strap,

使用时，请不要超过额定电压范围，如施加额定电压以上的电压时，会引起仪器故障和烧毁

Do not use the product in excess of the rated voltage. Applying voltages beyond the rated voltage range may cause the product to break or burn.

高压线和动力线并行走线时，会因感应而发生误动作或故障，所以请分开走线。

Avoid wiring the product's cables parallel to power lines or high-voltage lines. Doing so may cause the product to malfunction due to induction or may cause the damage the product.

使用电源如发生浪涌，请在电源间接上浪涌吸收器，为了避免干扰，请尽量在短距离之内连线。

If surge occurs in the power supply. Connect a surge absorber between the power supply terminals to absorb the surge. minimize the wiring length to prevent the product from being affected by noise, etc.

在接通电源或切断电源时，容易发生错误脉冲，所以请在接通电源1秒后，及切断电源1秒前使用。

Since improper pulses may occur when the power is turned on or off, use the devices connected to this product at least 1.0 seconds before or after the power is turned on or off.

请严格按照编码器接线表中规定的颜色接线，需注意电源线极性，以避免引起仪器烧损。

Be careful when wiring, such as being careful with the polarities of the power supply. Incorrect wiring may break or burn the product

编码器的信号电缆线不能用力拉拔或弯折。

Encoder cables do not apply an excessive being pulling or bending.

请不要拆卸、修理、改造本产品。

Never disassemble, repair nor tamper with the product



6、证书 Certificate

产品的符合性声明、证书和最新操作指南请浏览www.tofi-tech.com，可搜索产品型号查看具体产品详情。

For the conformity declaration, certificates and the latest operation guidelines of the product, please visit www.tofi-tech.com. You can search by product model to view the detailed information of the specific product.

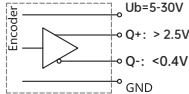
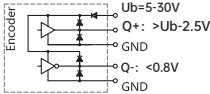
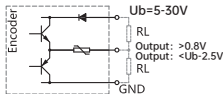


7、规格参数 Specification parameter

7.1 机械参数 Mechanical parameter

轴 径 Shaft diameter	盲孔轴 Blind hollow shaft $\Phi 10$ 、 $\Phi 12$ 、14mm
防护等级 Protection	IP66
每分钟最大转速 Speed	6000RPM
最大轴负荷 Shaft loading	40N 轴向 axial , 80N 径向 radial
冲击 Shock resistance	100g, 6ms
振动 Vibration resistance	10g, 10...2000HZ
轴承寿命 Bearing life	10^9 转 turns
启动力矩 Starting torque	<0.01N.m
主体材料 Main materials	铝合金 Aluminum alloy
主轴材料 Shaft materials	不锈钢 Stainless steel
外壳材料 Housing material	铁壳+黑色喷涂 Iron housing, black coated
工作温度 Working temperature	-40℃...+85℃
贮存温度 Storage temperature	-40℃...+85℃
重量 Weight	≈260g (不含线缆)

7.2 电气参数 Electrical parameter

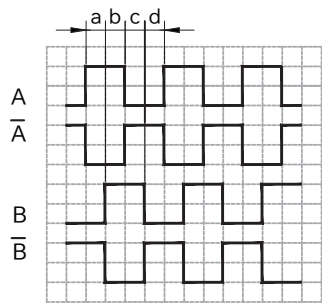


输出电路 Output circuit	推挽 Push-Pull	推挽差分 Differential Push-Pull	TTL
分 度 Pulse rate	Max.1200PPR	Max.1200PPR	Max.1200PPR
电源 Supply voltage	5-30V	5-30V	5-30V
空载电流 Power consumption (no load)	≤ 80mA	≤ 80mA	≤ 80mA
最大负载电流 Signal level high	±30 mA	±30 mA	±20 mA
最高输出频率 Pulse frequency	100KHz	100KHz	100KHz
信号高电平 Signal level high	Min.Ub-2.5V	Min.Ub-2.5V	Min.2.5V
信号低电平 Signal level low	Max.0.8V	Max.0.8V	Max.0.4V
最长电缆长度 Tr Rise/ Fall time Tr	100kHz时50m	100kHz时250m	100kHz时100m
上升/下降时间 Cable length max	Max.1μs	Max.1μs	Max.1μs
接口保护 Interface protection	浪涌保护、反极性保护、短接保护、静电保护 Surge, Reverse Polarity, Short-Circuit, ESD		

7.3 端子配置 Terminal assignment

信号 Signal		OV	+Ub	A	A-	B	B-	
色标 Colour		白 WH	棕 BN	绿 GN	粉 PK	黄 YE	蓝 BU	屏蔽 Shield

信号输出 Signal output

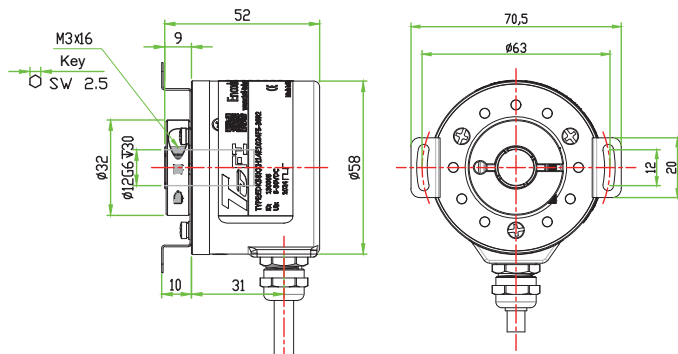


从锁紧环方向看，顺时针旋转输出的波形图

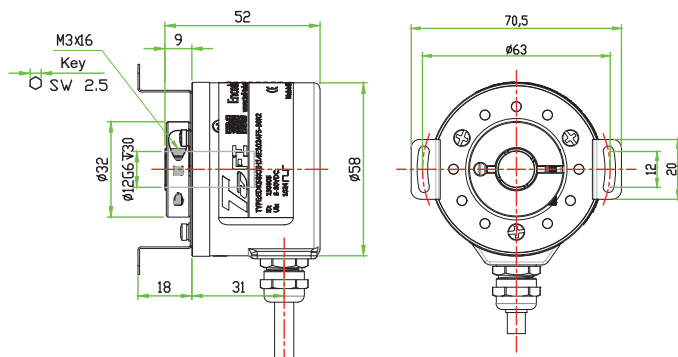
$a, b, c, d = T/4 \pm T/8$

7.4 机械图 Dimensions

ECK58B+8133



ECK58B+8133B



8、附件 Accessories

双翼弹性支架 Mounting Bracket
型号 Model: 8133

双翼弹性支架 Mounting Bracket
型号 Model: 8133-B

双翼弹性支架 Mounting Bracket
型号 Model: 8133-D



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- 安装操作手册 Installation and operating manuals
- 通讯手册(软件手册) Software manuals
- CAD(2D) / STEP(3D)
- 证书 Certificates



维护 Maintenance

ECK58B系列增量式编码器免维护，如损坏，则无维修选项。

The ECK58B series Incremental encoder are maintenance-free, with no repair options if damaged.



废弃处理 Disposal

必须根据当地有效的现行废弃物废弃处理规定，安全环保地废弃处理无法再使用的设备。

Equipment that is no longer usable must be disposed of safely and environmentally in accordance with local waste disposal regulations currently in force.



编码器
传感器

托菲传感技术（上海）股份有限公司

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