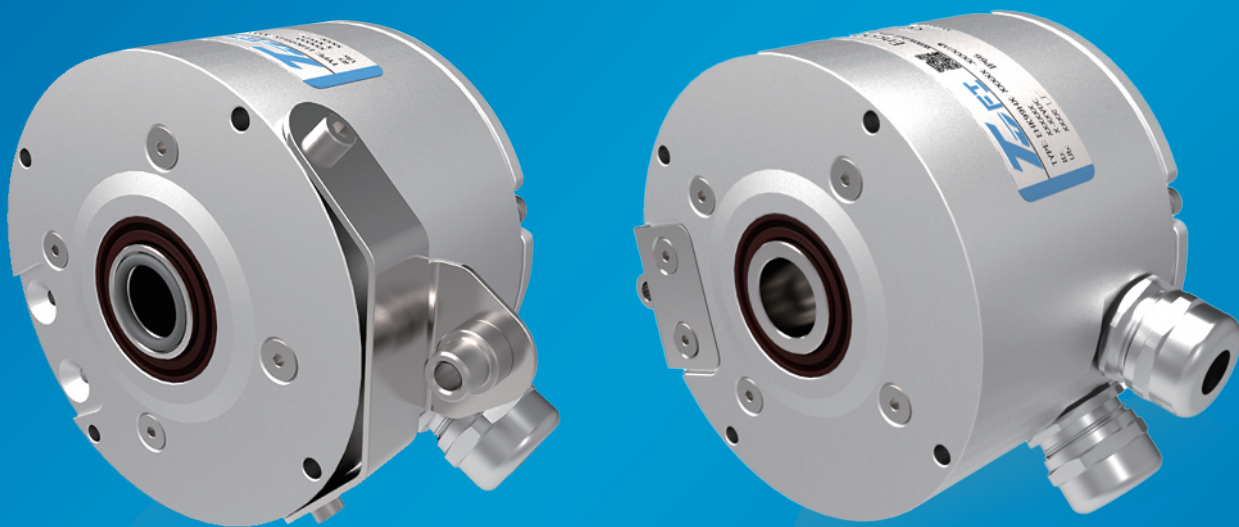


安装操作说明

Installation operation instructions



重载编码器 Heavy-duty encoder EHK99H, EHK9901H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.

目 录 List of contents

1、受伤风险 Risk of bodily injury	3
2、损坏产品的风险 Risk of damage to the product	3
3、产品部件 Parts of the product	4
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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



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 personnel. 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



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



电子产品被接触时的静电放电
By ESD discharges if the electronics
are touched



遭受敲打，撞击或其他物理损坏。
By impacts or knocks or other
physical damage.

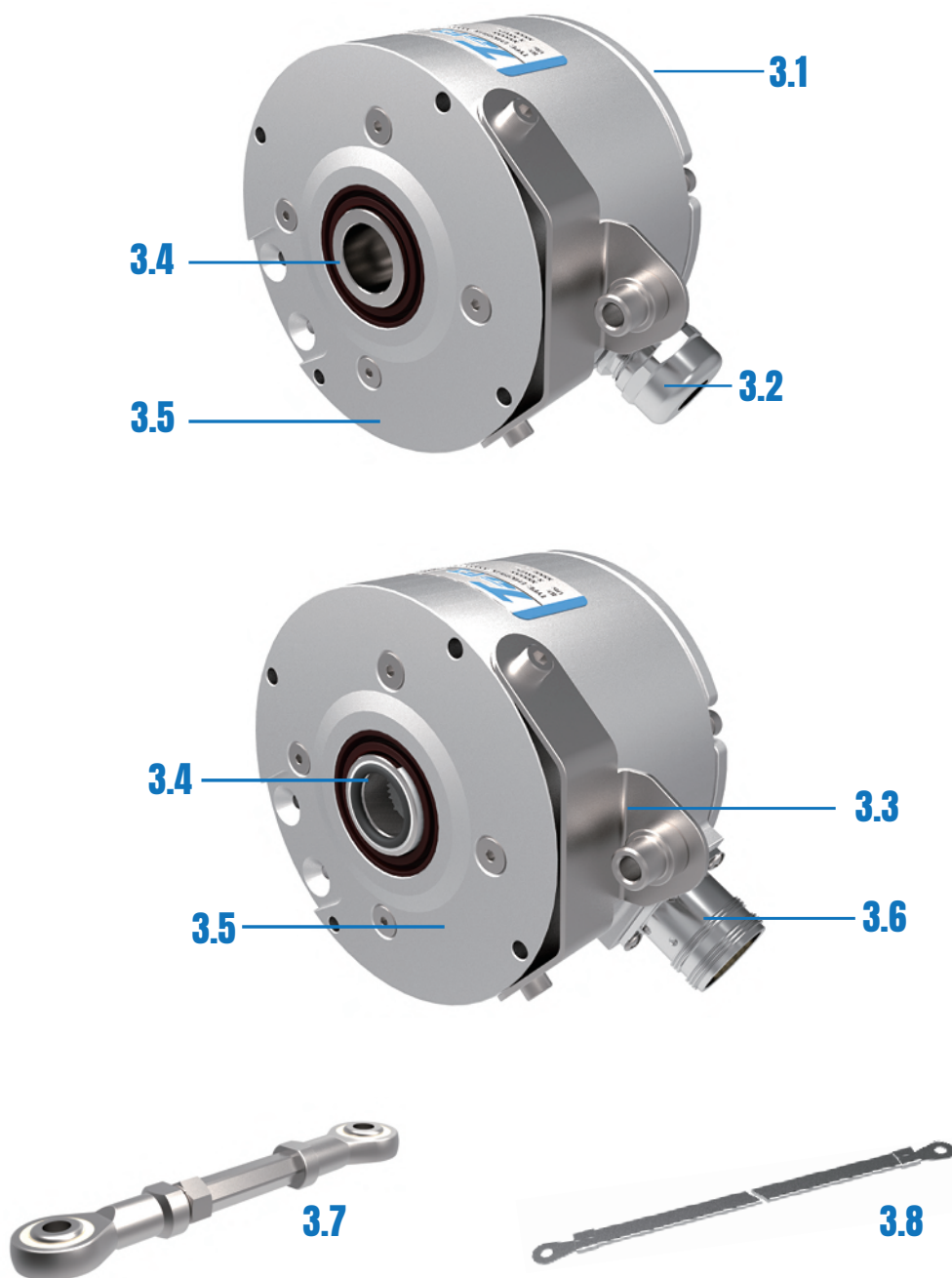


剧烈振动或冲击
If it is exposed to powerful
vibrations or shock



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)

3、产品部件 Parts of the product



3.1 接线盒外壳 Terminal cover

3.2 电缆密封接头 Cable gland

3.3 扭矩支架 Torque arm bracket

3.4 空心轴 Hollow shaft

3.5 法兰 Flange

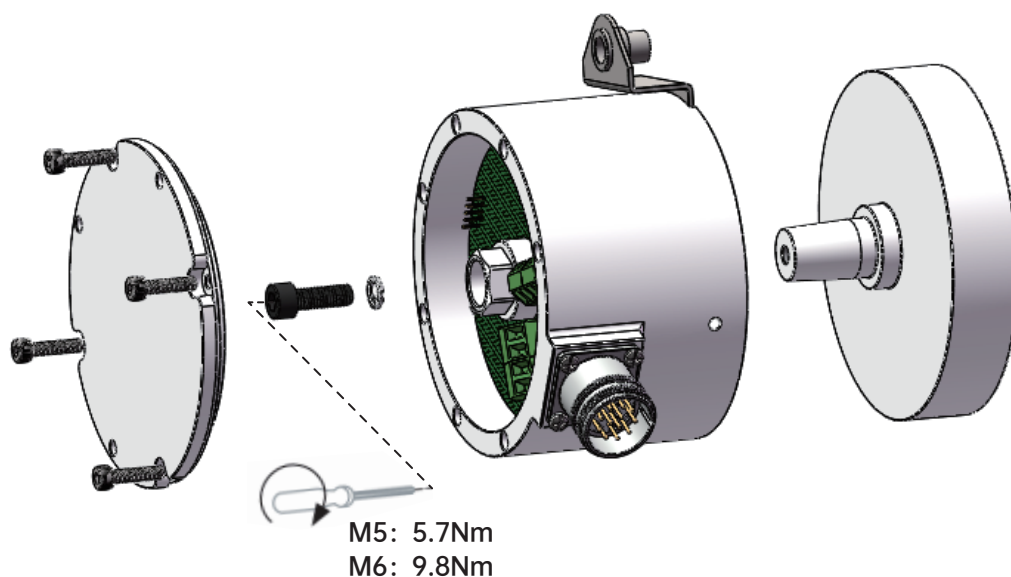
3.6 连接器 Connector

3.7 力矩臂 Torque arm

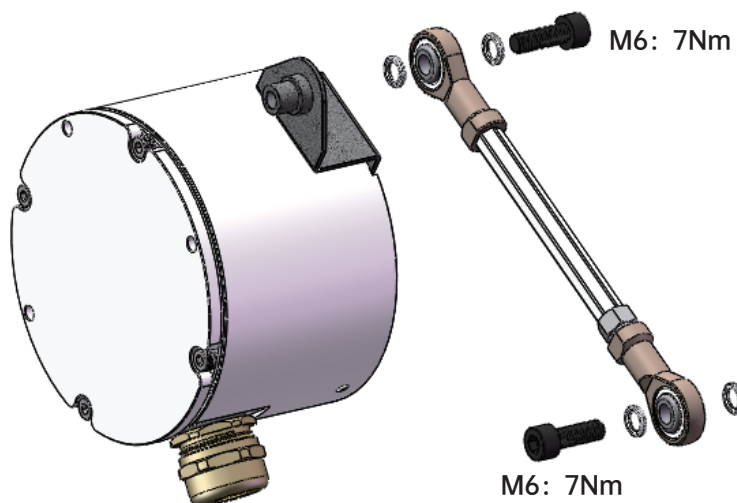
3.8 接地线 Earthing strap (optional)

4、机械安装 Mechanical mounting

安装空心轴示意图
Hollow shaft diagram

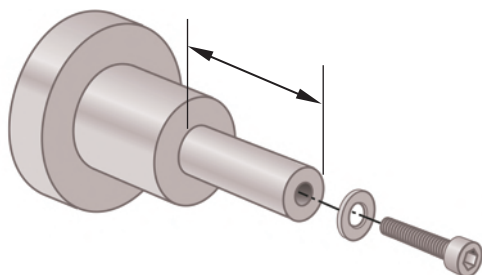


安装力矩臂示意图
Torque arm diagram



机械安装注意事项 Mechanical installation precautions:

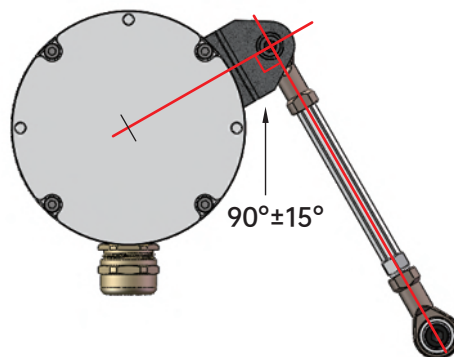
4.1



4.1 检查连接轴的尺寸是否符合编码器数据表中的规格。使用M5或M6螺丝 (ISO 4762) 配合最小9mm螺纹来固定编码器。

Check that the dimensions of the mating shaft match the specifications in the encoder's data sheet. Fix the encoder with an M5 or M6 screw (ISO 4762) with minimum 9 mm thread

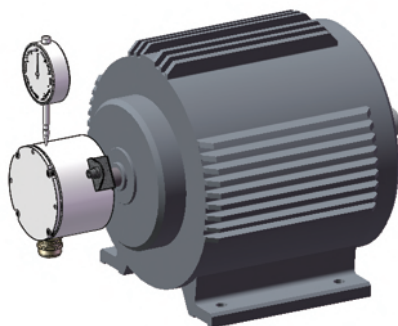
4.2



4.2 使用绝缘力矩臂固定编码器。安装角度必须和托架方向成90度，以确保最佳的测量精度。

Fix the encoder with an insulated torque arm. It must be fitted at 90 degrees angle to the direction of the bracket, for optimum accuracy of measurement.

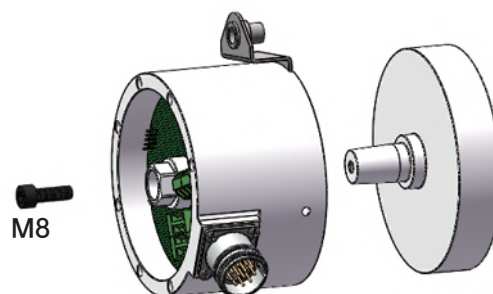
4.3



4.3 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.

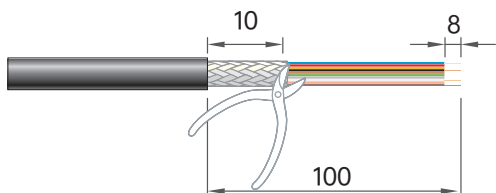
4.4



4.4 如有需要，使用M8螺丝以在更换时拆卸编码器
Dismounting; Use M8 screw, if necessary, to detach the encoder.

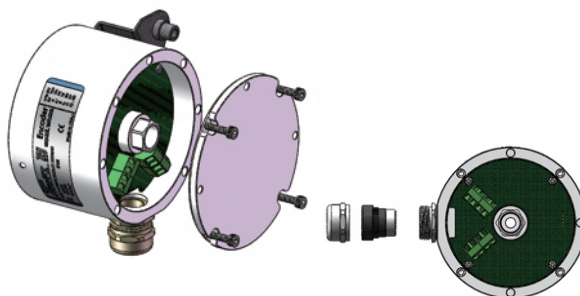
5、电气安装 Electrical mounting

通过下列步骤安装电缆 Fit cable using the following steps:



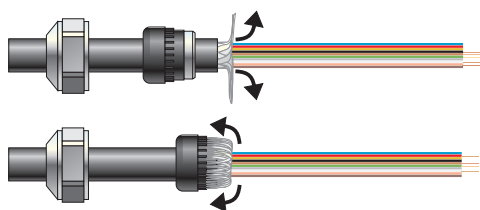
第 1 步: 按照图示尺寸剥开电缆

Step 1: Strip the cable according to the dimensions in the illustration.



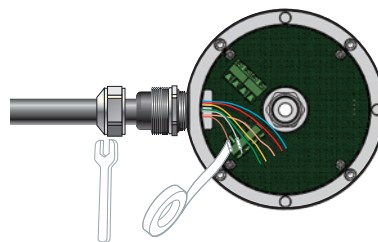
第 2 步: 打开接线盒外壳, 拧下电缆套管。

Step 2: Open the terminal cover and unscrew the cable bushing.



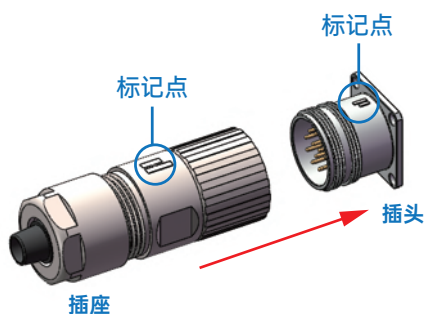
第 3 步: 将电缆屏蔽层向后对折包在环箍上。

Step 3: Fold the cable shield backwards over the shell ring.



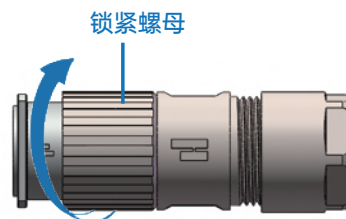
第 4 步: 按照产品标签所示意接线, 并对未使用导线进行绝缘处理。拧紧所有接线盒螺丝 (包括所有未使用的螺丝)。

Step 4: Connect the wires according to the product label. Insulate any wire that is not being used. Tighten all terminal screws (including any unused ones).



第 5 步: 对接插头的安装示意

将插头和插座的标记点对正按图示方向插入
Step 5: Installation illustration for the connection plug: Align the marking points of the plug and the socket, insert them in the direction shown in the diagram.

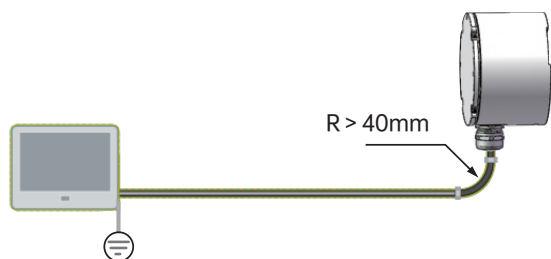


第 6 步: 对接插座锁紧

插座安装后, 将锁紧螺母顺时针方向旋紧并固定在插头上。
Step 6: Locking of the connection plug: After the plug is installed, tighten the locking nut clockwise and fix it on the socket.

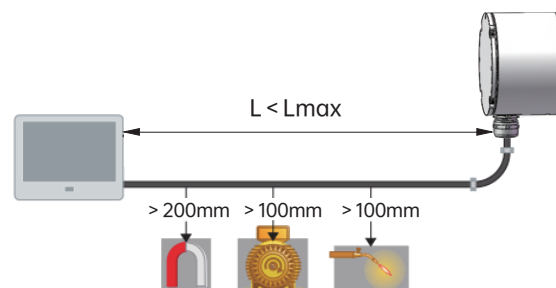
电气安装注意事项 Electrical installation precautions:

5.1



5.1 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.

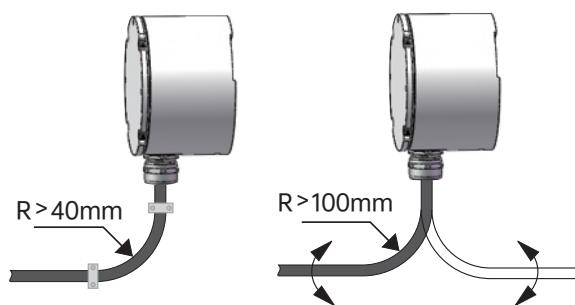
5.2



5.2 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。

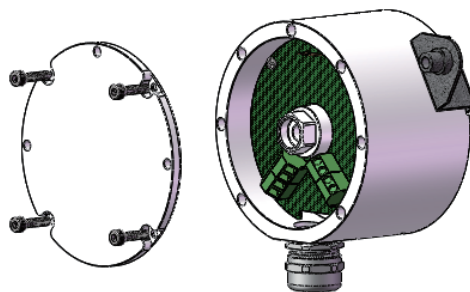
Keep potential sources of disturbance at the recommended distance from the cable. Make sure that the length of the cable does not exceed the value specified in the picture.

5.3



5.3 电缆排布半径，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.

5.4



5.4 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.

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。

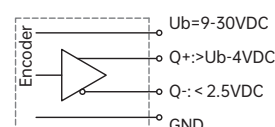
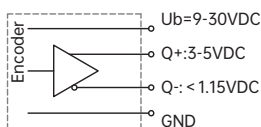
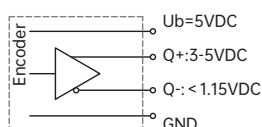


7、规格参数 Specification parameter

7.1 机械参数 Mechanical parameter

轴径 Shaft diameter	空心轴 Hollow shaft $\Phi 12$ 、 $\Phi 16$ mm、锥轴 Axis of cone 17 (1:10)
防护等级 Protection	IP66
每分钟最大转速 Speed	6000RPM
最大轴负荷 Shaft loading	轴向 Axial ≤ 500 N, 径向 Radial ≤ 1200 N
冲击 Shock resistance	IEC 60068-2-27, ≤ 400 g, 3ms
振动 Vibration resistance	IEC 60068-2-6, ≤ 20 g, 55-2000Hz
轴承寿命 Bearing life	10^9 转 turns
转动惯量 Rotor moment of inertia	$\approx 55 \times 10^{-6} \text{ kgm}^2$
启动力矩 Starting torque	≤ 6 N.cm
主轴材料 Shaft material	不锈钢 Stainless steel
主体材料 Main materials	铝合金 Aluminium alloy
外壳材料 Housing material	铝合金 Aluminium alloy
工作温度 Working temperature	-40°C...+85°C
贮存温度 Storage temperature	-40°C...+85°C
重量 Weight	≈ 1.5 kg

7.2 电气参数 Electrical parameter



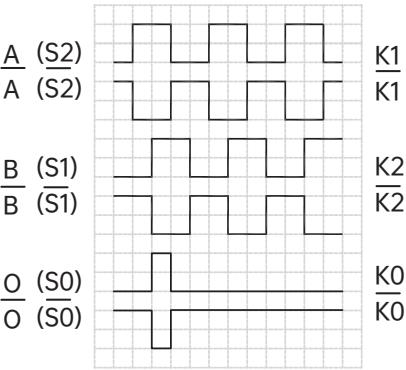
输出电路 Output circuit	TTL	RS422	HCTTL
分度 Pulse rate	Max.2048P/R	Max.2048P/R	Max.2048P/R
电源 Supply voltage	5VDC	9-30VDC	9-30VDC
输出信号高电平 Signal level high	3-5V	3-5V	>+Ub-4V
输出信号低电平 Signal level low	<1.15V	<1.15V	<2.5V
无负载时消耗电流 Power consumption(no load)	Max.80mA	Max.80mA	Max.125mA
最大负载电流 Permissible load/channel	± 50 mA	± 300 mA	± 300 mA
最高输出频率 Pulse frequency	200KHz	200KHz	200KHz
最长电缆长度 The longest cable length	100kHz时50m	100kHz时350m	100kHz时350m
上升/下降时间 Rise/ Fall time Tr	Max.1 μ s	Max.1 μ s	Max.1 μ s
接口保护 Short circuit proof outputs	浪涌保护、反极性保护、短接保护、静电保护 Surge protection, reverse polarity protection, short-circuit protection, electrostatic protection		

7.3 端子配置 Terminal assignment

信号 Signal		+Ub	0V	A	A	B	B	O	O	Shell
色标 Colour		棕 BN	白 WH	绿 GN	粉 PK	黄 YE	蓝 BU	灰 GY	红 RD	屏蔽 Shield
接线端子 Connection terminal		1	2	7	8	5	6	3	4	
型号: 9223 插头, M23, 12针 顺时针 Model: 9223 Plug, M23, 12-pin, CW		12	10	5	6	8	1	3	4	PH ¹⁾
型号: 9223-2 插头, M23, 12针 逆时针 Model: 9223-2 Plug, M23, 12-pin, CCW		12	10	5	6	8	1	3	4	PH ¹⁾

注: ¹⁾ PH=屏蔽线接插座外壳
Note: ¹⁾ PH= connected to housing

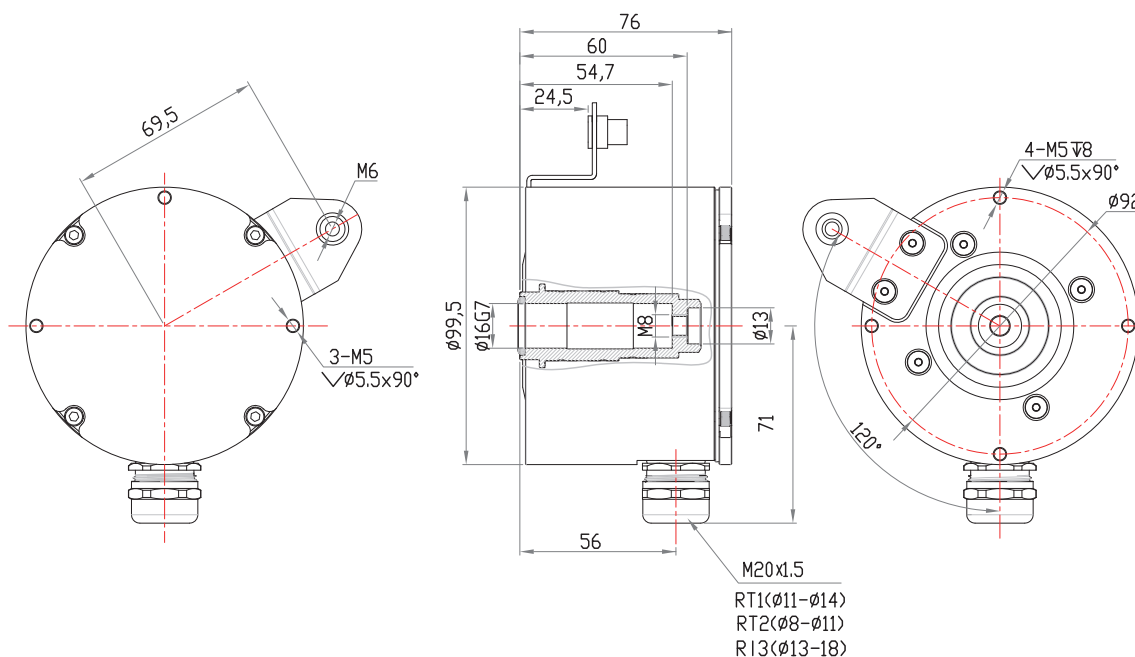
信号输出 Signal output



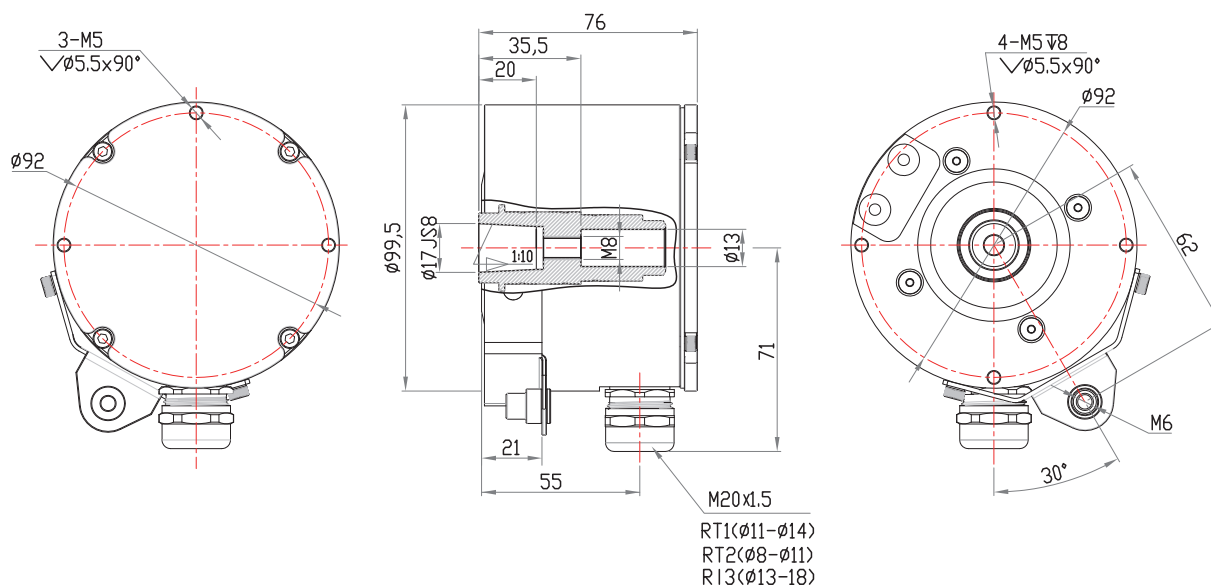
从轴端方向看，电机顺时针旋转输出波形图，A超前B
注: O路信号与A、B路信号相位关系不作规定。

7.4 机械图 Dimensions

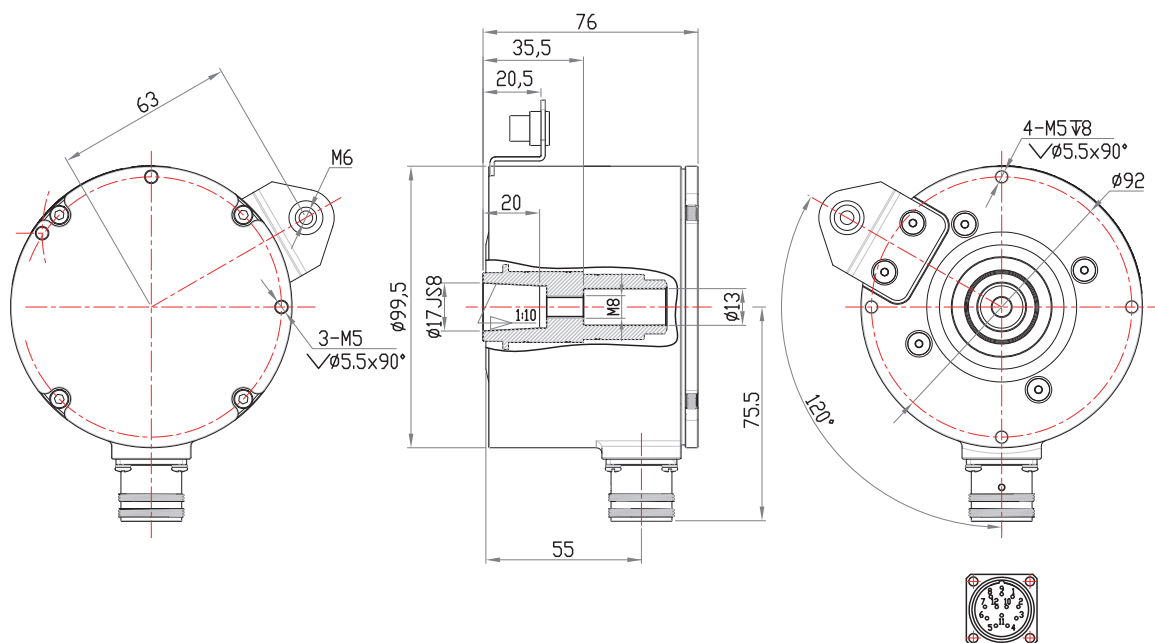
EHK99H16+8166A



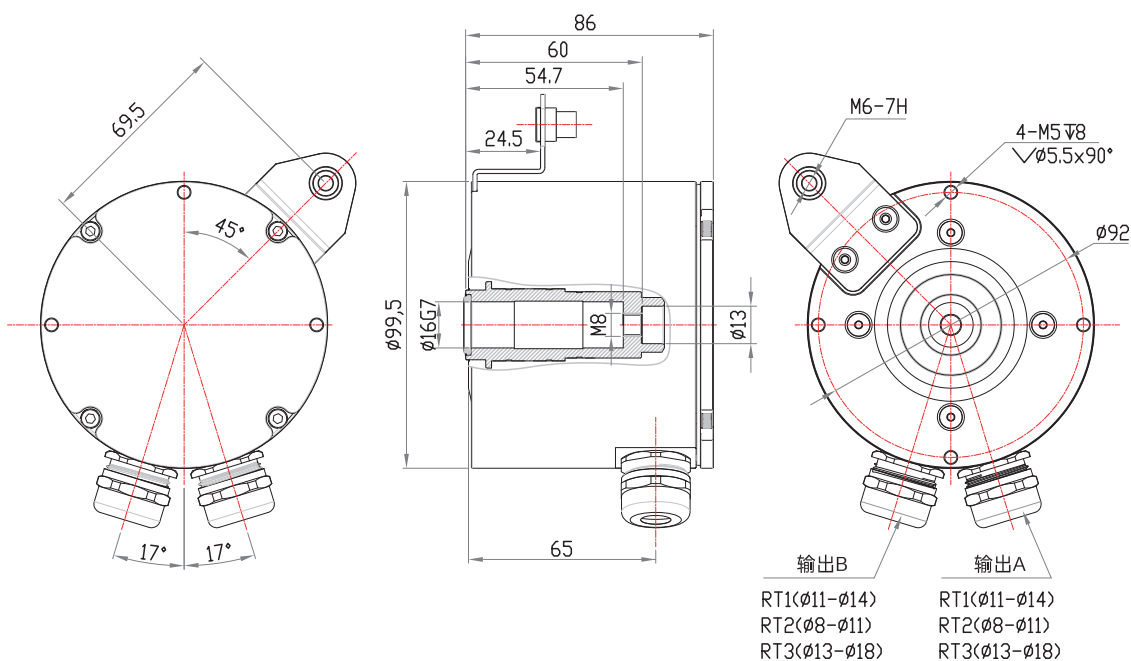
EHK99HZ17+8166B



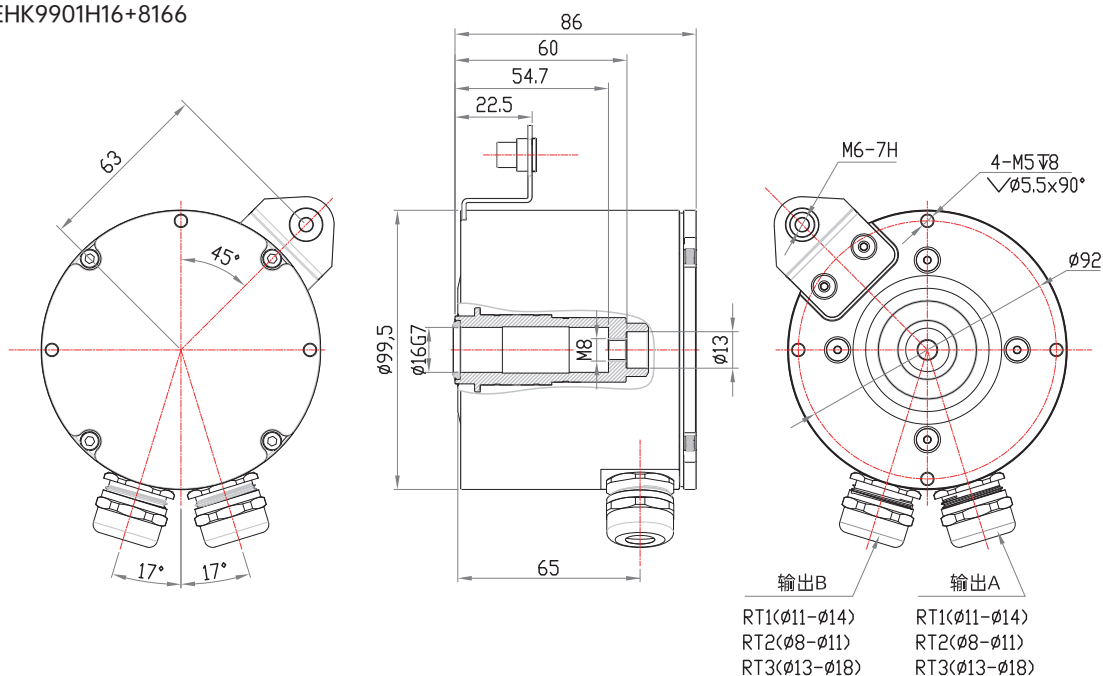
EHK99HZ17+9223+8166



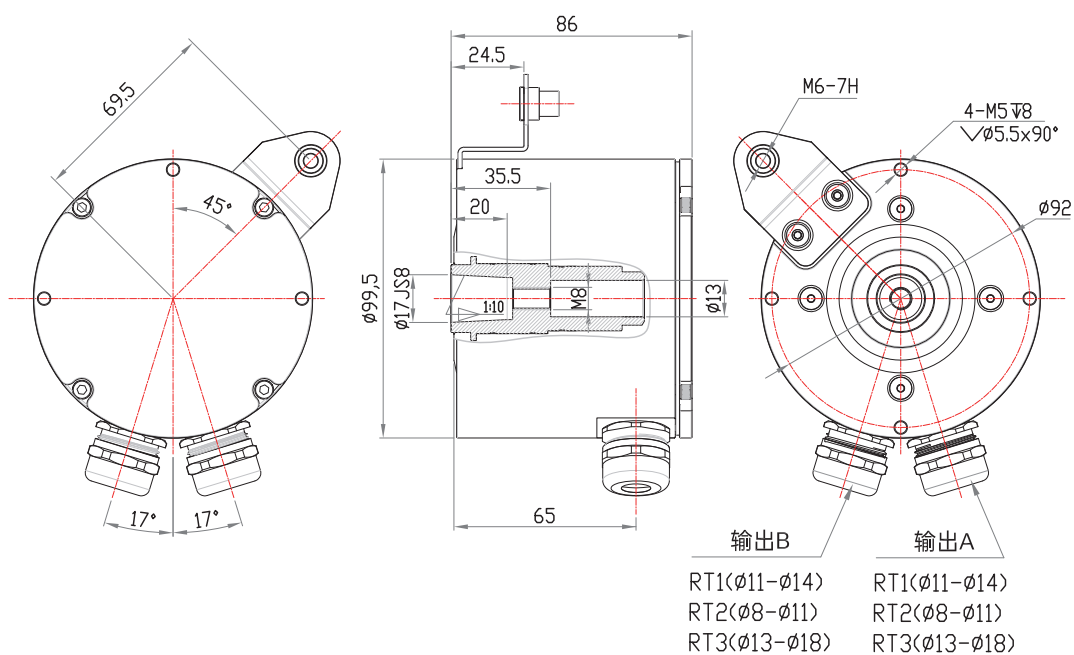
EHK9901H16+8166A



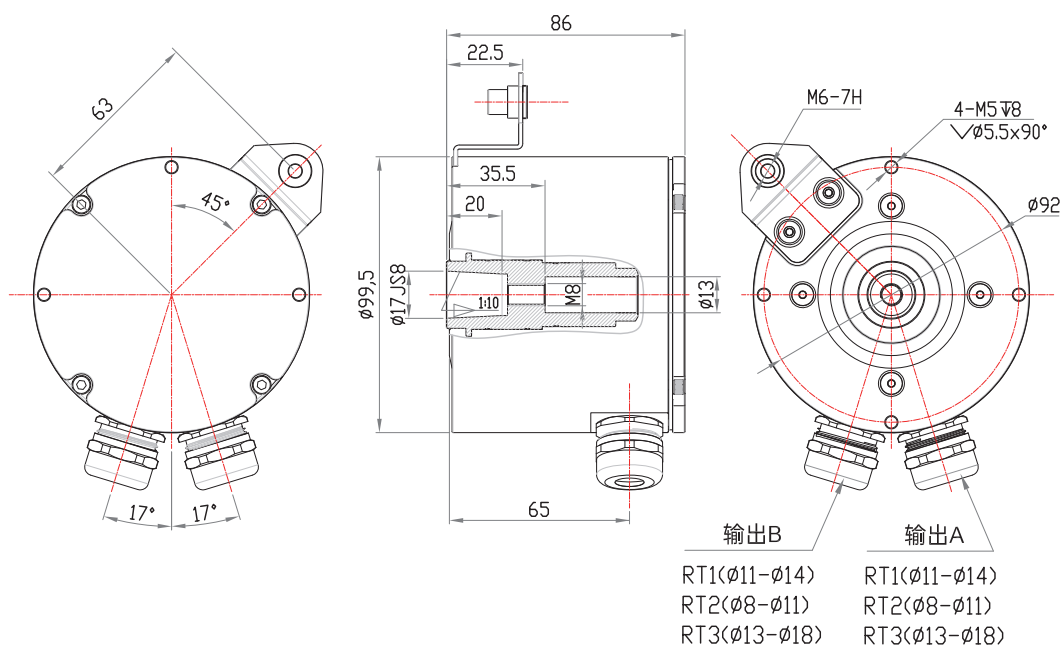
EHK9901H16+8166



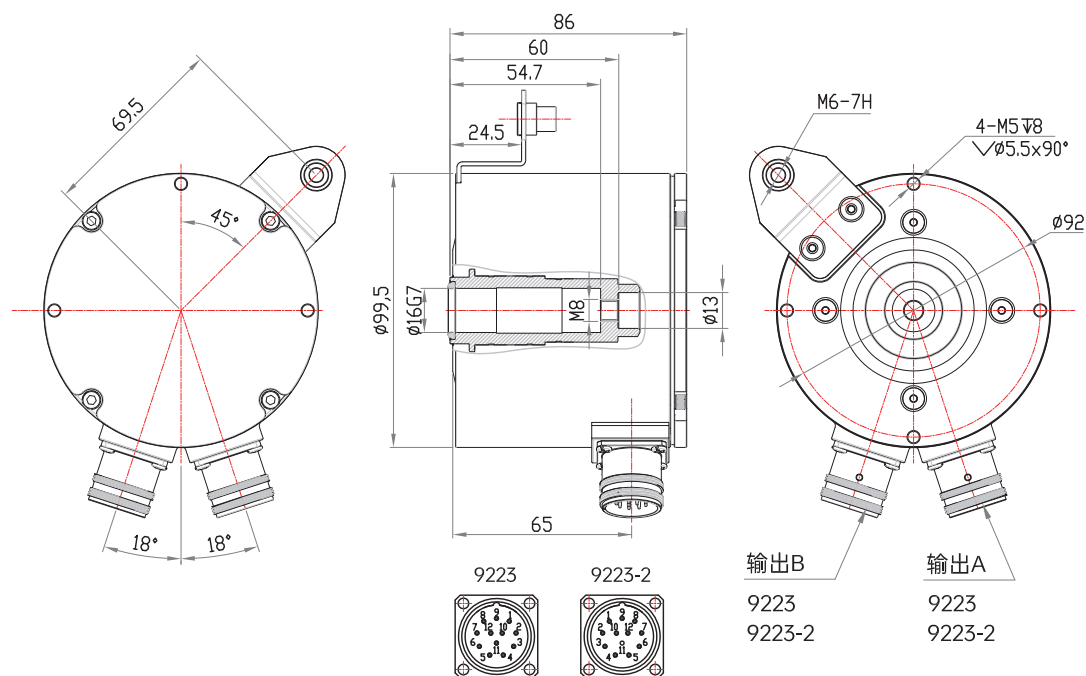
EHK9901HZ17+8166A



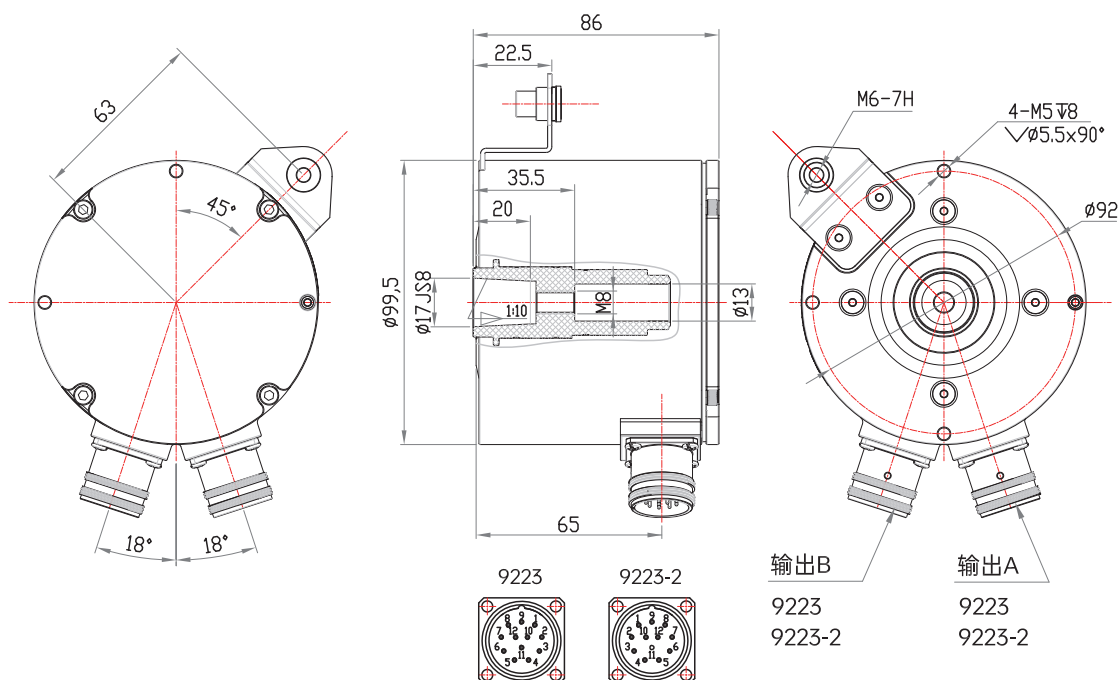
EHK9901HZ17+8166



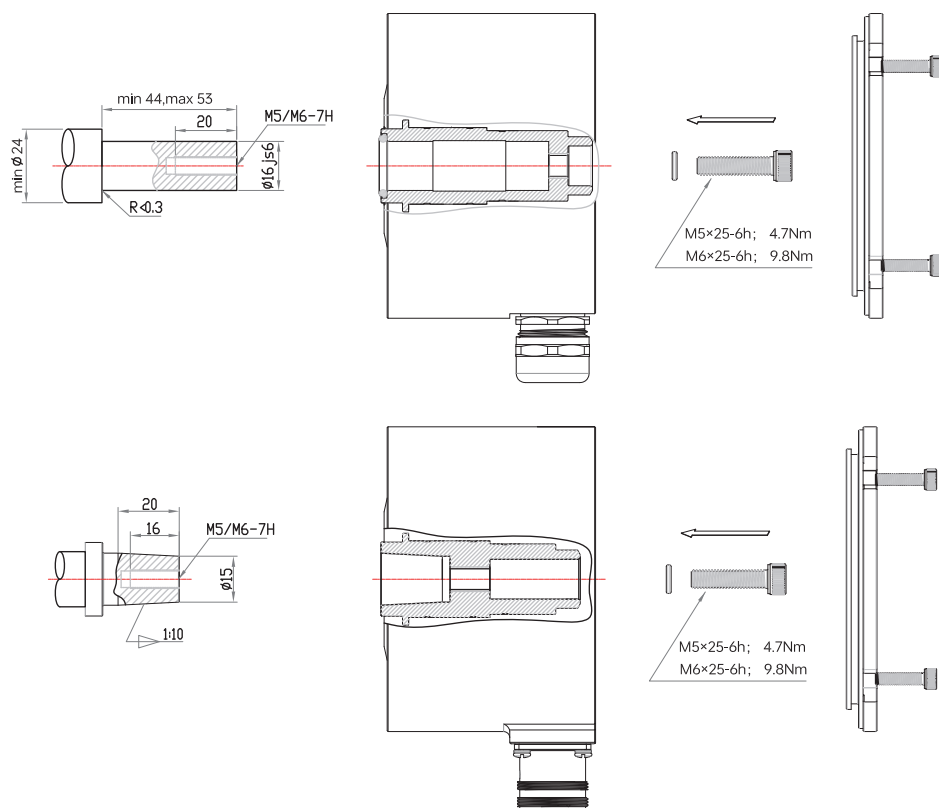
EHK9901H16+9223+8166A



EHK9901HZ17+9223+8166



EHK99H (客户端)



8、附件 Accessories

	绝缘力矩臂 型号（常规）：8561A 6/L=X		力矩臂 型号（常规）：8561 6/L=X		
	安装支架 型号（常规）：8166		安装支架 型号（常规）：8166A		安装支架 型号（常规）：8166B
	接插件和电缆 型号：9223B/X-2022.006 A头：插座，M23，12针，顺时针，直头 B头：裸线端，×米电缆，PVC，带屏蔽线 $1\times 2\times 0.5\text{mm}^2+3\times 2\times 0.25\text{mm}^2$ ， $\varnothing 9.7\pm 0.2\text{mm}$				

更多产品信息

了解更多产品信息，请访问 www.tofi-tech.com

根据产品的不同，提供以下信息：

- 选型资料(数据表)
- 安装操作手册
- 通讯手册（软件手册）
- CAD（DWG(2D)、STEP（3D）
- 证书



维护 Maintenance

EHK99H / EHK9901H系列重载编码器免维护，如损坏，则无维修选项。

The EHK99H / EHK9901H series Heavy-duty 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

TOFI Sensing Technology (Shanghai) Co.,Ltd

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E-mail: tofi@tofi-tech.com

Internet: www.tofi-tech.com

