

直流无刷无齿槽电机规格书
SLOTLESS BRUSHLESS DC MOTOR SPECIFICATIONS

受 控 文 件

鸣志电器(太仓)有限公司

ECU16036H24-S117+MA16-12B+PG16M-0044

规格 Specifications		Values	Tolerance	Unit
1. 电机参数 Motor parameters				
1.1	轴承类型 Bearings type of motor	Ball bearing		
1.2	电机极数 Number of poles	2		
1.3	相数 Number of phases	3		
1.4	绝缘等级 Insulation class	F (155°C)		
1.5	相间电阻 Terminal resistance phase to phase	6.3	±8%	Ω
1.6	相间电感 Terminal inductance phase to phase	410	Typical	μH
1.7	速度常数 Speed constant	620	±10%	rpm/V
1.8	转矩常数 Torque constant	15.4	Typical	mNm/A
1.9	速度/转矩斜率 Speed/torque gradient	254	Typical	rpm/mNm

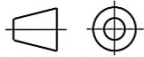
2. 齿轮箱参数 Gearhead data				
2.1	齿轮箱类型 Type of gearhead	Planetary gearhead		
2.2	轴承类型 Bearings type of gearhead	Ball bearing		
2.3	名义减速比 Nominal reduction ratio	43.56	Nominal	X:1
2.4	精确减速比 Absolute reduction ratio	4356/100		
2.5	级数 Number of stages	2		
2.6	平均空载回差 Average backlash no load	1.2	Typical	°
2.7	旋转方向 Rotation direction(input/output)	=		
2.8	轴向间隙 Axial play	0~0.1		mm
2.9	径向间隙 Radial play[mm from flange]	≤0.1[5]		mm
2.10	最大轴向负载 Max. axial load(dynamic)	20		N
2.11	最大径向负载 Max. radial load[mm from flange]	50[5]		N
2.12	最大允许安装力 Max. force for press fits	40		N

规格 Specifications		Values	Tolerance	Unit
3. 整机常规特性 Overall General Data				
3.1	额定电压 Nominal voltage	24		V dc
3.2	空载转速 No load speed	349	±10%	rpm
3.3	空载电流 No load current	91.4	±50%	mA
3.4	额定转矩 Rated torque	280.96	Typical	mNm
3.5	额定电流 Rated current	0.475	±10%	A
3.6	额定转速 Rated speed	283.5	±10%	rpm
3.7	最大效率 Maximun efficiency	68.8	Typical	%
3.8	堵转转矩 Stall torque	2.198	Typical	Nm
3.9	堵转电流 Stall current	3.81	Typical	A
3.10	重量 Weight	80	±5%	g
3.11	使用温度范围 Ambient temperature	-40~+85		°C

4. 其他 Others				
4.1				
4.2				
4.3				
4.4				

备注 Notes:
· 所有参数均在20°C给定。大部分参数随温度变化。
All parameters are given at 20°C. Most of parameters will vary with temperature.
· 当电机固定在导热支架上时, 热阻通常可降低50%。
The thermal resistance can be typically decreased of 50% when motor is fixed on a thermally conductive support.
· 电机电气安全标准符合<GB/T 21418中6.6介电性能>的要求。
The electrical safety standard of the motor shall meet the requirements of <GB/T21418 6.6 Dielectric properties>.

Unit:mm
第一角画法
First angle method
未注线性与角度尺寸公差
Tolerances for linear and angular dimensions
without individual tolerance indications
GB/T 1804-m eqv ISO 2768-1:m
未注形状与位置尺寸公差
Geometrical tolerance for features without
individual tolerance indications
GB/T 1184-K eqv ISO 2768-2:K



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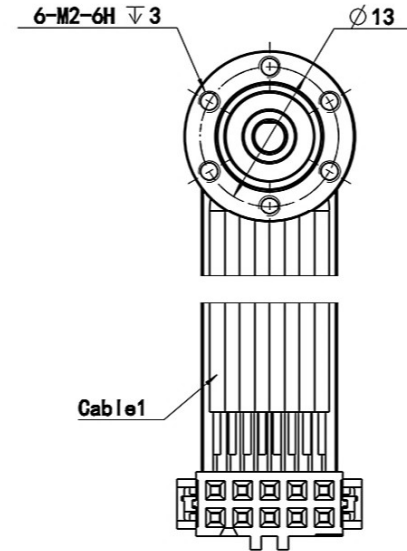
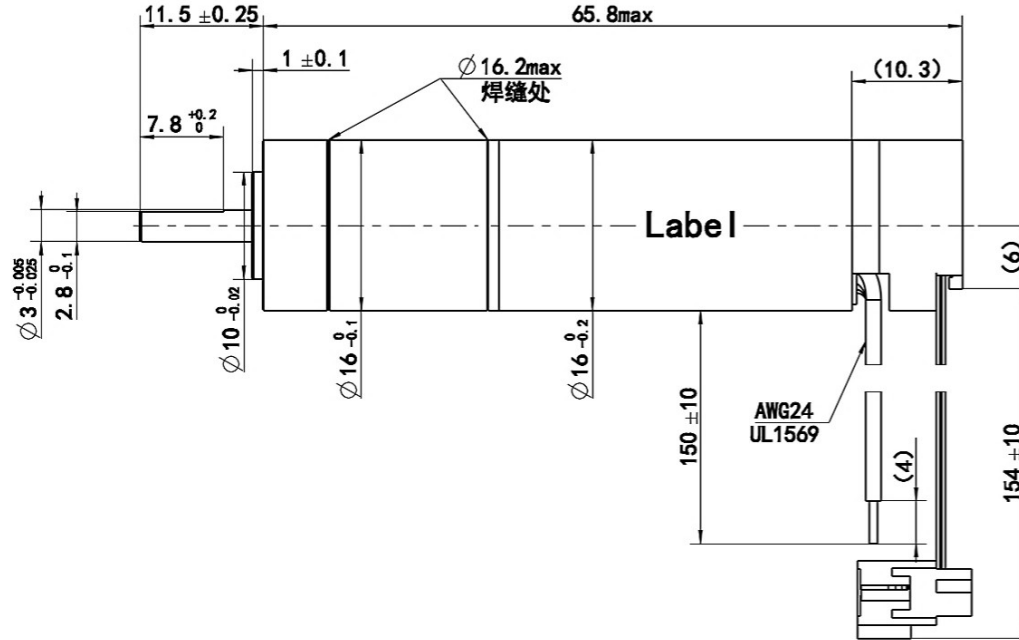
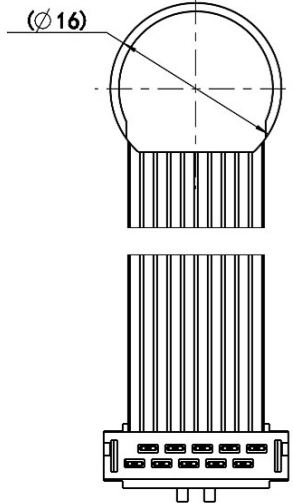
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A0	原始版本 Original revision	2023.12.22	UNLESS OTHERWISE SPECIFIED	NAMES	SIGNATURE	DATE	Drawing No: 4611180002313	Rev. A0	SCALE: 1:1	Sheet 1 of 3
REV.	版本记录 REVISION RECORD	DATE								

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Connection of Motor

Pin No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V _{hall} 3...24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/gray

铭牌 Label Detail

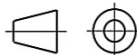


备注/Note:
1. 铭牌用激光标刻在电机机壳表面, 目视水平居中;
The label is laser engraved on the motor housing in middle.
2. 二维码为含整机型号、生产工单号和序列号。
The QR code includes motor model No., work order and serial No.

线束相对于前盖安装孔角度偏差: $\leq \pm 30^\circ$
Alignment of cable relative to front mounting holes: $\leq \pm 30^\circ$

Unit:mm

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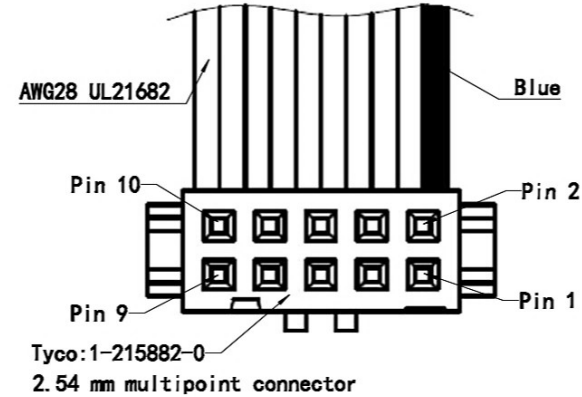
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编码器信息 Encoder Informations

编码器参数 Encoder Parameter

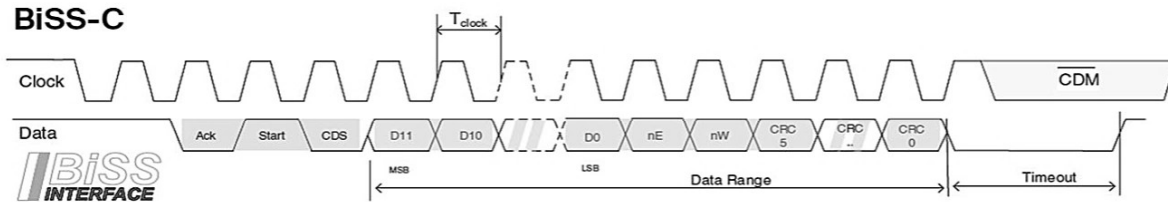
1	工作原理类型 Working principle	Magnetic
2	信号记录类别 Signal record type	Single-turn absolute
3	每圈步数 Steps per turn	4096
4	单圈分辨率 Single-turn resolution	12 Bit
5	时钟频率 Clock rate	0.05-10 MHz
6	超时时间 Time out	20 μ s
7	信号通讯协议 Signal protocol	BiSS-C
8	信号编码类别 Output code	Binary



Connection of Encoder

Pin No.	信号/Signal
1	Data
2	VCC 4.5V-5.5V
3	GND
4	CLK
5	Do not connect (A)
6	Do not connect (A)
7	Do not connect (B)
8	Do not connect (B)
9	Do not connect (I)
10	Do not connect (I)

通讯帧结构 Communication frame structure



备注 Notes:

- 连接器引脚5~10不可施加电压，否则会损坏编码器；
The encoder will be damaged if applying voltage to pins 5~10 of the connector.
- 不允许以编码器线束着力来提起电机。
It is not allowed to lift the motor with the encoder cable.

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