

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

ECU22048H24-S115+P22-S17B+PG22M-0004

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	0.94	±8%		Ω
1.6 相间电感 Terminal inductance phase to phase	104	Typical		μH
1.7 速度常数 Speed constant	770	±10%		rpm/V
1.8 转矩常数 Torque constant	12.4	Typical		mNm/A
1.9 速度/转矩斜率 Speed/torque gradient	58	Typical		rpm/mNm

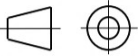
2. 齿轮箱参数 Gearhead data				
2.1 齿轮箱类型 Type of gearhead	Planetary gearhead			
2.2 轴承类型 Bearings type of gearhead	Ball bearing			
2.3 名义减速比 Nominal reduction ratio	3.95	Nominal		X:1
2.4 精确减速比 Absolute reduction ratio	75/19			
2.5 级数 Number of stages	1			
2.6 平均空载回差 Average backlash no load	0.85	Typical		°
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[10]			mm
2.10 最大轴向负载 Max. axial load(dynamic)	40			N
2.11 最大径向负载 Max. radial load[mm from flange]	60[10]			N
2.12 最大允许安装力 Max. force for press fits	100			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	15			V dc
3.2 空载转速 No load speed	3040	±10%		rpm
3.3 空载电流 No load current	285	±50%		mA
3.4 额定转矩 Rated torque	0.079	Typical		Nm
3.5 额定电流 Rated current	1.67	±10%		A
3.6 额定转速 Rated speed	2271	±10%		rpm
3.7 最大效率 Maximun efficiency	76.4	Typical		%
3.8 堵转转矩 Stall torque	0.72	Typical		Nm
3.9 堵转电流 Stall current	15.96	Typical		A
3.10 重量 Weight	192	±5%		g
3.11 使用温度范围 Ambient temperature	-40~+100			°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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工艺 Process Review

审核 Check

设计 Design

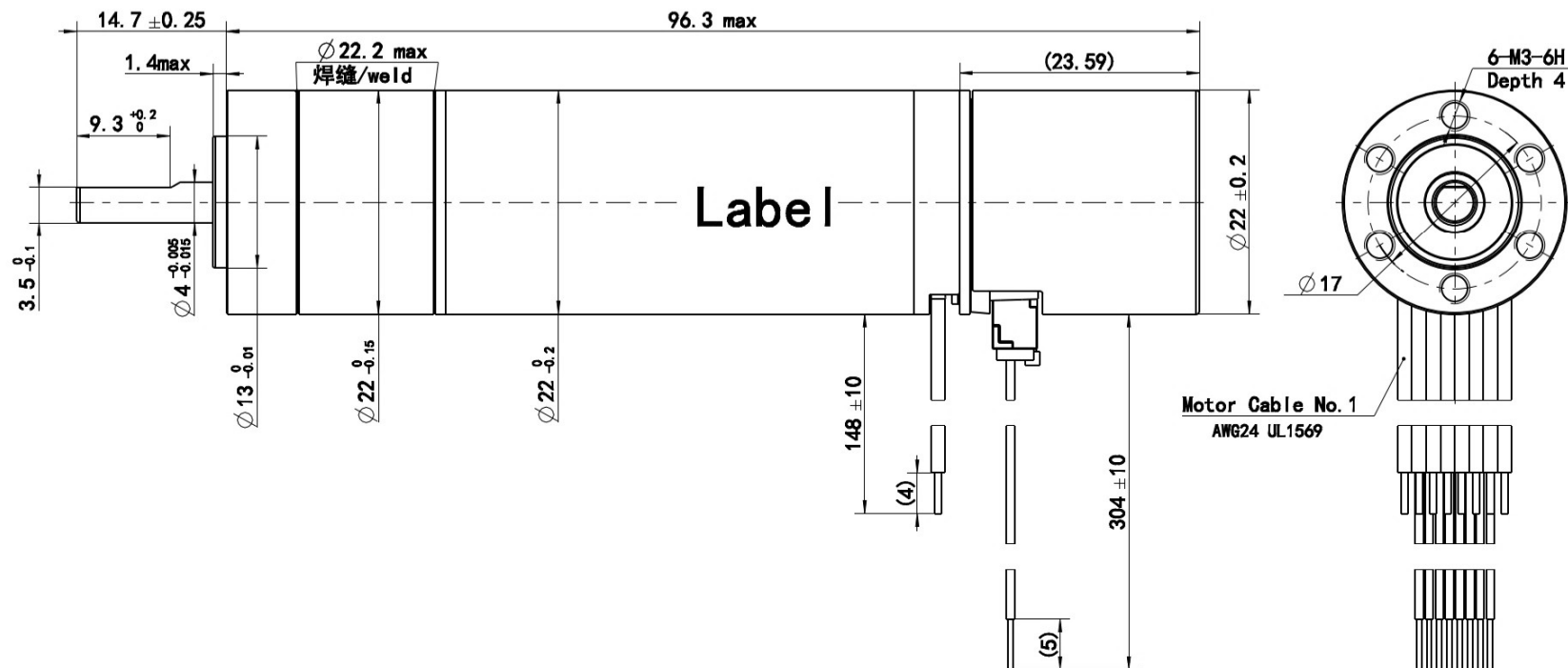
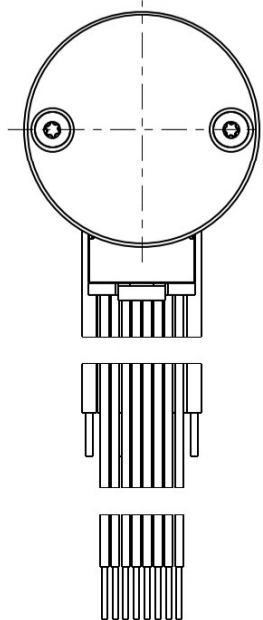
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REV.	版本记录 REVISION RECORD	DATE	UNLESS OTHERWISE SPECIFIED	NAMES	SIGNATURE	DATE	Drawing No: 4611180000644	Rev. A1	SCALE: 1:1	Sheet 1 of 3
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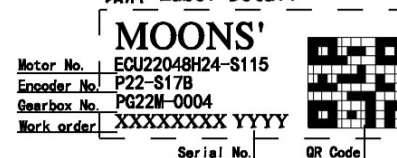
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Connection of Motor

Cable 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/violet
8	Hall 3	灰/grey

铭牌 Label Detail



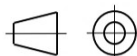
备注/Note:
1. 铭牌用激光标刻在电机机壳表面, 目视水平居中;
The label is laser engraved on the motor housing in middle.
2. 二维码为含整机型号、生产工单号和序列号。
The QR code includes motor model No., work order and serial No.

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

第一角画法

First angle method



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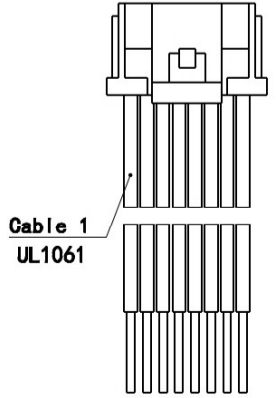
编码器信息 Encoder Informations

编码器参数 Encoder Parameter

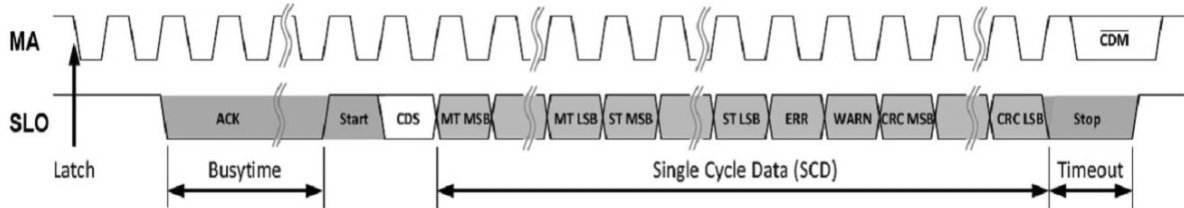
1	工作原理类型 Working principle	Magnetic
2	信号记录类别 Signal record type	Absolute Multiturn
3	每圈步数 Steps per turn	131072
4	单圈分辨率 Single-turn resolution	17 Bits
5	圈数 Number of revolutions	16 Bits (65536)
6	时钟频率 Clock rate	0.08-10 MHz
7	超时时间 Time out	18 μ s
8	接口最小周期时间 Min Interface Cycle Time	50 μ s
9	信号通讯协议 Signal protocol	BiSS C
10	信号编码类别 Output code	Binary

Connection of Encoder (30 AWG)

Cable No.	信号/Signal	颜色/Color
1	GND	蓝/Blue
2	Preset(default 0 position value)	橙/Orange
3	Config(UART)	黑/Black
4	Data + (SLO+)	绿/Green
5	Data - (SLO-)	黄/Yellow
6	CLOCK - (MA-)	白/White
7	CLOCK + (MA+)	棕/Brown
8	VCC(4.5 Vdc - 5.5 Vdc)	红/Red



通讯帧结构 Communication frame structure



备注 Notes:

- 编码器线缆无连接器;
The cable of encoder without connector.
- 连接线"Preset"在不使用时需要保持绝缘;
Cable "Preset" should be insulated when not in use.
- 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.

• Preset

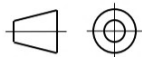
- "预设"引脚用于对应系统机械位置来调节编码器位置值;
The preset function can be used to adapt the encoder position to the mechanical alignment of the system.
- 通过执行"预设", 编码器的单圈和多圈位置被设置为所需的预设值;
By performing a preset, the actual position value of the encoder (both, singleturn and multiturn) is set to the desired preset value.
- "预设"可通过硬件和软件触发。
The preset can be triggered via hardware or software.

• Config

- "配置"引脚用于串行数据通信, 可在组装后对编码器进行校准和测试。
The config pin is used for serial data communication. Via this interface an optional re-calibration and WIEGAND pulse testing of the kit encoder can be conducted after motor installation.

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A0 原始版本 Original revision

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