

确 认 书

APPROVAL SHEET

TO _____

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Welcome to purchase our products. In order to have a good cooperation, please sign the specification and return to us.

贵公司安装机型：

(USER MODEL.) _____

贵公司零件编号：

(USER SPEC NO.) _____

本公司制品名称：

(MAKER SPEC NO.) _____

电磁感应式多向摇杆

本公司制品编号：

(MAKER MODEL.) _____

GL18

确认日期：

(DRAFT DATE) _____

2022-07-16

摘要：

(NOTE) _____

经 办 Designed	审 核 Check	批 准 Approved

客 户 承 认 APPROVED		

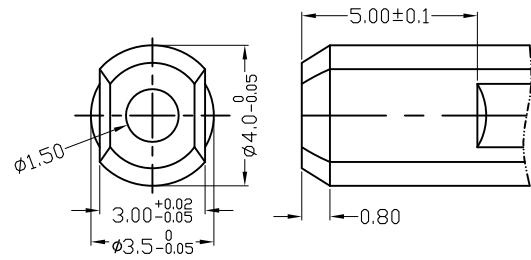
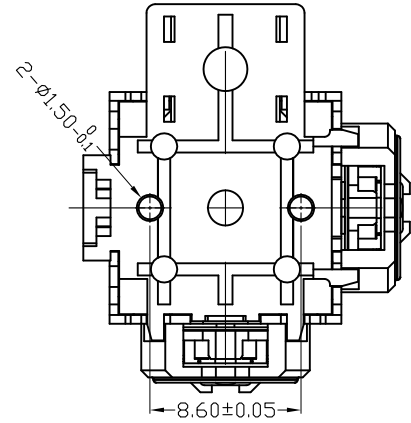
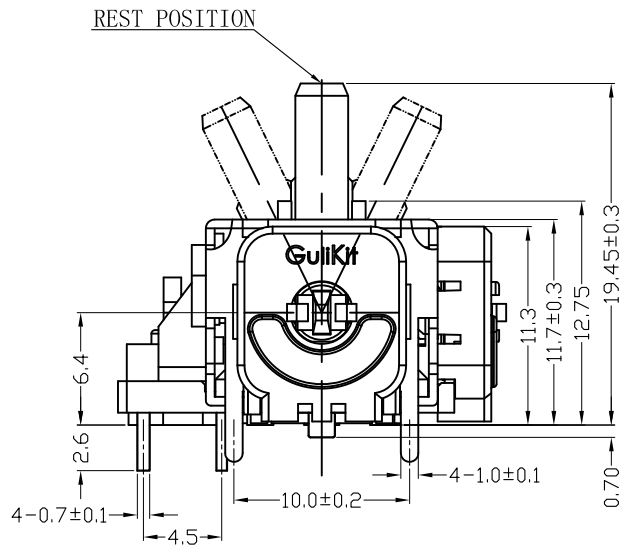
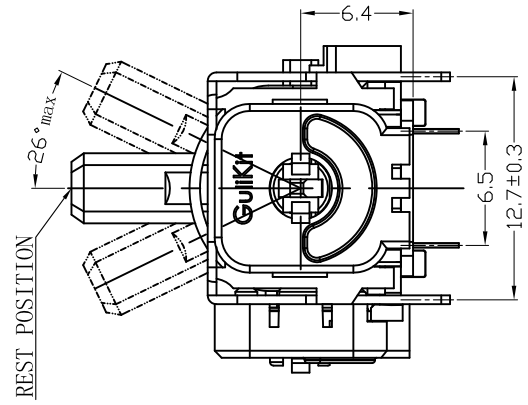
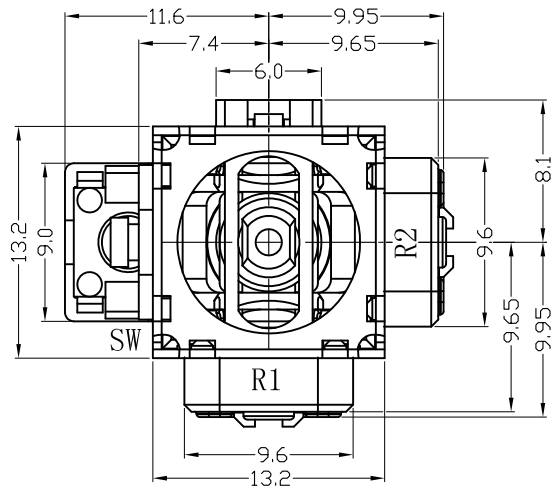
深 圳 市 谷 粒 科 技 有 限 公 司

SHENZHEN GULI TECH CO.,LTD

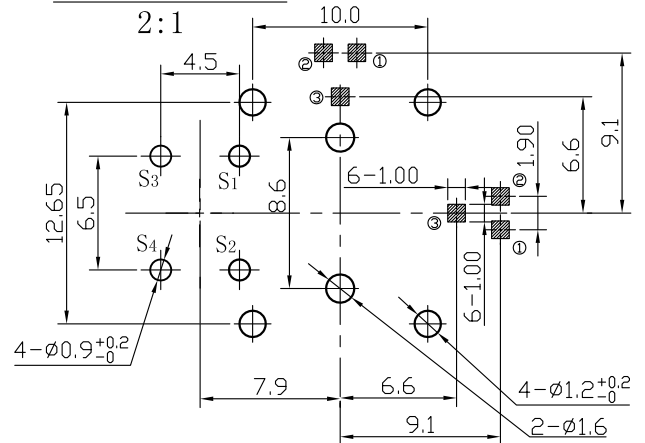
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轴心部尺寸详图



1脚: VDD 2脚: VOUT 3脚: GND
P. C. B MOUNTING HOLE DETAIL

注意: 1. 基板板厚=1.2
RECOMMENDATORY THICKNESS OF P. W. B. IS 1.2mm
2. VR端子厚 $t=0.3\text{mm}$
POT. TERMINAL THICKNESS
SW 端子板厚 $t=0.3\text{mm}$
SWITCH TERMINAL THICKNESS
外壳厚度 $t=0.5\text{mm}$
FPAME THICKNESS

VERSION	深圳市谷粒科技有限公司 SHEN ZHEN GULI TECH CO., LTD		MODEL: GL18		DRAW	SCALE
			DRAWING NO: KY-3-JH13-01			3:1
ISSU.	DATE	REVISION	Design	TOL. UNLESS OTHERWISE SPEC.		UNIT
00	2021.10.21	初始发行		BASIC DIMENSIONS	TOL.	mm
01	2022.07.16	型号更新		$L \leq 10$	± 0.3	
02				$10 < L$	± 0.5	第 1 页
03				$100 \leq L$	± 0.8	
04				ANGLE	$\pm 5^\circ$	

深圳市谷粒科技有限公司

SHEN ZHEN GULI TECH CO., LTD

GL18系列规格书

GL18 SERIES SPECIFICATION

适用机型：GL18系列

1. General 一般事项

1-1 Scope 适用范围

This specification is applicable to electromagnetic joystick used in electronic equipment. .

本规格书适用于电子设备使用之电磁摇杆。

1-2 Standard atmospheric conditions 标准大气状态

Unless otherwise specified, the standard range of atmospheric conditions for making measurements

and tests is as follows:

除另有规定外，量测应在以下大气条件下进行：

Ambient temperature : 15°C ~ 35°C

温度

Relative humidity : 25% ~ 85%

相对湿度

Air pressure : 86 KPa~ 106 KPa

气压

If there is any doubt about the results, measurements should be made within the following limits:

如有任何疑虑时，量测应在以下条件下进行：

Ambient temperature : 20°C ± 1°C

温度

Relative humidity : 63% ~ 67%

相对湿度

Air pressure : 86 KPa~ 106 KPa

气压

1-3 Operating temperature range : -10°C ~ +70°C

适用温度范围

1-4 Storage temperature range : -30°C ~+80°C

保存温度范围

2. Construction 构造

2-1 Dimension 尺寸 : Refer to attached drawing 参见成品图

3.Mechanical characteristics 机械性能			
NO. 序 号	ITEM 项 目	CONDITIONS 条 件	SPECIFICATION 规 格
1	Figure of lever operation 摇杆动作形式	/	Circular operating 圆形式
2	Operation angle of lever 摇杆使用有效角度	Add a fit force on the lever top to push it to max. angle of each direction when lever is released and reset position. 当摇杆处于自由复归位置时, 在摇杆顶部施加一定力将摇杆推向任意方向最大角度。	26° max 最大 26°
3	Operating force of lever 摇杆作用力	Test position is at more than 10 degrees deflection of lever. 摇杆偏斜 10 度以上之位置测定。	12±10mN·m(120±40 gf)
4	Accuracy of reset position of lever 摇杆复归精度	Measure the angle between the lever and the axial center line after the lever pushed to the direction of X-X(Y-Y) and resets. 摇杆推向 X-X(Y-Y) 方向自由复归后测量摇杆与垂直中心线的角度。	±3°
5	Knob strength 扭曲强度	Apply force on the lever perpendicular to the lever' s rotation direction. 旋转于摇杆的力作用于摇杆上	More than 0.3N·m(3Kgf.cm) 3 seconds min 大于 0.3N·m(3Kgf.cm)，至少 3 秒钟
6	The stopper strength of the lever 摇杆止动强度	Apply side force on the lever perpendicular to the lever' s axial direction. 垂直于摇杆的力作用于摇杆上。	More than 30N (3Kgf) 3 seconds min 大于 30N (3Kgf)，至少 3 秒钟
7	Pull strength of lever 摇杆拉拔强度	Apply specified push force on the lever downward. 作用于摇杆上，沿摇杆方向向下。	More than 50N(5Kgf)3 seconds min 大于 50N (5Kgf)，至少 3 秒钟
8	Push Strength of lever 摇杆推强度	Apply side force on the lever perpendicular to the lever' s axial direction. 垂直于摇杆的力作用于摇杆上。	More than 98N (10kgf)3 seconds min 大于 98N (10Kgf)，至少 3 秒钟

4. Electrical characteristics 电气特性			
NO. 序号	ITEM 项 目	CONDITIONS 条件	SPECIFICATION 规格
1	Voltage Divider Error 分压误差值	<p>The partial pressure error value is the magnetic induction strength value after the free reset of the rocker and the magnetic induction strength value at the limit position of the rocker. Place the magnetic field strength tester under the magnet, and the partial pressure error value is tested in the free state of the rocker and in the x-x and Y-Y directions</p> <p>分压误差值是摇杆自由复归后磁感应强度值以及摇杆极限位置的磁感应强度值，将磁场强度测试机放在在磁铁下面，分压误差值在摇杆自由状态和运作于X-X和Y-Y方向到底测试</p>	<p>Free state: 30GS±20</p> <p>X direction 26° : More than 420GS</p> <p>-X direction 26° :More than 420GS</p> <p>Y direction 26° :More than 420GS</p> <p>-Y direction 26° :More than 420GS</p> <p>自由状态: 30GS±20</p> <p>X方向 26° :大于420GS</p> <p>-X方向 26° : 大于420GS</p> <p>Y方向 26° : 大于420GS</p> <p>-Y方向 26° : 大于420GS</p>
5. Endurance characteristics 耐久性能			
NO. 序号	ITEM 项 目	CONDITIONS 条件	SPECIFICATION 规格
1	Resistance to soldering heat 焊锡耐热性	<p>Manual Soldering: Less than 350℃ and quicker than 3 seconds.</p> <p>手焊: 350℃以下，3 秒以内。</p>	<p>Without damage and lever deformation, Without the looseness and failing function of witch.</p> <p>无不良性能产生, 无松动及开关性能损坏,</p>
2	Dry heat 耐热性	<p>Temperature: 80±2℃</p> <p>Time: 96 hours</p> <p>The controller shall be subjected to standard atmospheric conditions for 2 hours , after which measurement shall be made.</p> <p>在温度 80±2℃恒温槽中放置 96 小时，取出后在正常状态下放置 2 小时后测试。</p>	<p>Without damage and lever deformation, Without the looseness and failing function of witch.</p> <p>无不良性能产生, 无松动及开关性能损坏,</p>

3	Cold 耐寒性	<p>Temperature: $-30 \pm 2^{\circ}\text{C}$ Time: 96 hours Surface moisture shall be removed, and then the controller shall be subjected to standard atmospheric conditions for 2 hours, after which measurement shall be made. 在温度 $-30 \pm 2^{\circ}\text{C}$ 恒温槽中放置 96 小时, 表面水份摄取后在正常状态下放置 2 小时后测试。</p>	<p>Without damage and lever deformation, Without the looseness and failing function of witch. 无不良性能产生, 无松动及开关性能损坏,</p>
4	Damp heat 耐湿性	<p>Temperature: $60 \pm 2^{\circ}\text{C}$ Humidity: 90~95%RH Time: 96 hours Surface moisture shall be removed. And then the controller shall be subjected to standard atmospheric conditions for 2 hours, after which measurement shall be made. 在温度 $60 \pm 2^{\circ}\text{C}$ 90~95%RH 恒温槽中放置 96 小时, 表面水份摄取后在正常状态下放置 2 小时后测试。</p>	<p>Without damage and lever deformation, Without the looseness and failing function of witch. 无不良性能产生, 无松动及开关性能损坏,</p>
5	Temperature cycling test 温度循环测试	<p>Low temperature : $-20 \pm 3^{\circ}\text{C}$ 30 minutes High temperature: $+60 \pm 3^{\circ}\text{C}$ 30 minutes Number of cycles: 5 Surface moisture shall be removed, and then the controller shall be subjected to standard atmospheric conditions for 2 hours , after which measurement shall be made. 在低温为 $-20 \pm 3^{\circ}\text{C}$ 恒温槽放置 30 分钟, 高温 $60 \pm 3^{\circ}\text{C}$ 放置 30 分钟, 测试 5 次, 表面水份摄取后在正常状态下放置 2 小时后测试。</p>	<p>Without damage and lever deformation, Without the looseness and failing function of witch. 无不良性能产生, 无松动及开关性能损坏,</p>
6	Free falling 自由落下试验	<p>Height: 75cm. Number of falls: 3 times 从高度为 75 厘米落下测试 3 次后。</p>	<p>Without damage and lever deformation, Without the looseness and failing function of witch. 无不良性能产生, 无松动及开关性能损坏,</p>

7	Number of cycles 耐久寿命	Mechanical life should be tested 5,000,000 cycles at the the speed of one cycle per second without electrical load when joystick rotate 360° at 26° position. 无负载状态下以 1 个来回/秒速度将摇杆推至26.0° 位置进行360° 旋转测试, 寿命 5,000,000圈。	without mechanical malfunction 机械性能无异常
	Switch number of cycles 开关寿命	Under electrical load DC5V/5mA, compress 7.4N (750gf) force to the lever which is released and reset to vertical position. Switch life should be tested more than 100,000 cycles at the the speed of 2 to 3 cycles per second. 负载状态下 (DC5V/5mA), 在摇杆自由复归后的垂直方向施加 7.4N (750gf) 的按压力, 以 2-3 次/秒的速度对开关进行测试, 寿命 100,000 次以上。	Contact resistance 200mΩ Max, No mechanical malfunction. Be satisfied with 6.1 and 6.2 接触阻抗最大 200mΩ, 机械方面能动作 (符合第 6.1 条和第 6.2 条)。

6. Switch characteristics (FOR WITH-SWITCH TYPE)

开关规格 (适用于带开关机种)

NO. 序 号	ITEM 项 目	CONDITIONS 条 件	SPECIFICATION 规 格
1	Operating force 作动力	Apply side force perpendicular to the lever' s axial direction on the lever until the lever stops, measure the max force value. 将一个轴向力施加于摇杆上直到其不动为止, 量取施力期间之最大值。	7.4±3N (750±300 gf)

2	Travel 移动量	Put the switch lever upward, apply 2 times of the static operating force over the lever' s axial direction of the lever, measure the variance of the switch stroke. 将开关操作部位(摇杆)置于静止位置,并在操作柄中央施加两倍于作动力之静负荷测量柄被压到不动时之移动距离。	0.4mm +0.5/-0.3mm
3	Maximum Ratings 最大定格电压	Within 70°C 70°C以内。	12 V DC 50 mA
4	Contact resistance 接触阻抗	Apply 2 times of the operating force of the static load on the vertical direction of the lever, measure the resistance by using the Contact Resistance Tester with 1KHZ, 20mV, 5~50mA of current. 将两倍于作动力之静负荷加于操作柄之中央以(1KHZ, 20mV, 5~50mA)微电流接触阻抗计测定。	Less than 100 mΩ 低于 100 mΩ
5	Insulation resistance 绝缘阻抗	A voltage of DC100V is applied between terminals. 以 DC100V 之电压加于端子间测定。	More than 100 MΩ 100 MΩ 以上
6	Withstand voltage 耐电压	A voltage of AC 250V/2mA (50~60HZ) shall be applied for 1min between terminals. 以 AC250V/2mA (50~60HZ)电压施加于端子间 1 分钟。	Without breakdown. 无绝缘破坏之现象。
Approved 核 准		Check 审 查	Design dept. 经 办 者