



中国·蓝波
LANBOO

蓝波大电流开关
Pioneer of High-Current Switches
CCC CE RoHS Intertek ISO9001 多项专利

LB16-19F 规格书
带线防水金属按钮

LB22F

带线防水金属按钮



不锈钢外壳,可定制



长寿命LED



不锈钢按键,可定制



防水IP68

型号说明/选型, 写法举例: LB22F-P10Z/ERGB5-24V/S135/M12-4P(L)

对应编号		LB	●	●	—	●	●●	●	/	●	●	●●	/	●	●	/	●	●
		1	2	3		4	5	6		7	8	9		10	11		12	13
1	LB	LANBOO 蓝波代码																
2	安装孔径	22mm																
3	系列号	F-带线防水系列																
4	头部形状	P—平头																
5	开关组合	10—1NO常开触点, 慢动双触点																
6	动作形式	Z—自锁式(保持式), F—自复式(点动式)																
7	发光形状	E—环形、E+DY—环形+小点																
8	发光颜色	R—红色、G—绿色、B—蓝色, 定制: Y—黄色、W—白色																
9	LED电压	5-24V、220V, 定制25-48V、110V, AC/DC通用																
10	外壳材质	S—不锈钢、可定制; N—铜镀铬、A—铝氧化																
11	线长	135mm(可定制其它线长)																
12	接头名称	M12-4P(公端)																
13	(L)	内部代码																

性能参数

开孔直径		对应孔径+0.2mm，例如：LB22F为22.2mm
外观材料	外壳	不锈钢(RoHS), 可定制：铝氧化(RoHS)、铜镀铬
	按键	不锈钢(RoHS), 可定制：铝氧化(RoHS)、铜镀铬
	透光材料	PC(RoHS), V2级阻燃
	螺母	铜镀镍，可定制：不锈钢(RoHS)
	O型圈	硅胶(RoHS)
	触点	银氧化锡AgSn02(RoHS)
	底座	PA66(RoHS), V0级阻燃
	引脚	镀金/银(RoHS)
安装面板厚度		≤12.5mm
拧紧力矩		0.8—1.2N.m
螺纹验证		将螺母锁紧至垫圈明显变形，然后拆下，如此循环5次，无异常
动作行程		总行程：3.6±0.15mm，接通过程：0.95±0.1mm
按压力		9±0.8N
接线形式		引脚式，可选配套插头
耐焊性		≤380℃(25~50W电烙铁), ≤2秒
插片可焊性试验		各引脚分别焊接1mm ² 电线, 80N正向拉力后, 无脱落
与线束的配合试验		150mm线长，≤50mΩ，LED灯通电无闪烁，拉开力：35~60N
引脚反向推力		≥80N无位移, 1min
头部防脱顶牛		≥200N, 1min
工作环境温度		-40℃~+80℃, 非真空状态、不结冰情况下
工作环境湿度		45~90%RH
贮存环境温度		包装完好情况下，-40℃~+55℃
贮存环境湿度		包装完好情况下，45~90%RH
防护等级		防水IP68,防撞IK10(参考GB/T 20138)
约定发热电流		Ith:7A,250VAC
额定电流	电阻性负载	AC-15:110V/220V:3A DC-13:12V/24V:3A
	电感性负载	AC-15:110V/220V:0.5A DC-13:110V:0.5A
接触电阻		≤50mΩ
绝缘电阻		≥1000MΩ
抗电强度(工频耐压)		1500VAC,50HZ,1min
触点最小适用负载		3V AC/DC, 5mA（参考值，取决于环境与负载情况）
耐振性		XYZ三向, 60HZ, 振幅2mm
产品防跌落		头部竖直跌落1米, 3次, 能正常工作
包装跌落		600mm高度连续跌落4次, 产品无损坏
耐冲击性		各部位能承受冲击力10g, 能正常工作
温升试验		按GB/T14048.5标准中8.3.3.3条款
盐雾试验		72h,3个周期，（参考 GB/T 2423.18-2012）
低温试验		-40℃,96h,接触电阻≤200mΩ、按压力变化值≤30%，LED 正常
高温试验		80℃,96h,接触电阻≤200mΩ、按压力变化值≤30%，LED 正常
高低温冲击试验 (含 LED灯加速老化试验)		-40~+85℃,85%RH,40min/循环，50个循环，接触电阻≤200mΩ、按压力变化值≤30%，LED正常
寿命试验	电气	阻性负载: AC220V/3A、DC24V/1A: 2万次（参考GB/T14048.5）
	机械	自锁：30万次，自复：100万次（参考GB/T14048.5）
	极限按压测试	在底部保持5s时间，再松开，4次/min，进行2000次试验
ESD静电		人体模式:2KV, 可定制8KV
LED参数	额定电流	≤24V, ≤20mA; >24V, ≤10mA
	灯珠类型	贴片无极双芯片LED
	降压方式	内置降压电阻
	寿命	≥50000h（参考值）
产品认证		CCC CE RoHS(定制) REACH(定制)
专利号		ZL201930253523.0、ZL201920779873.5
质保		66个月



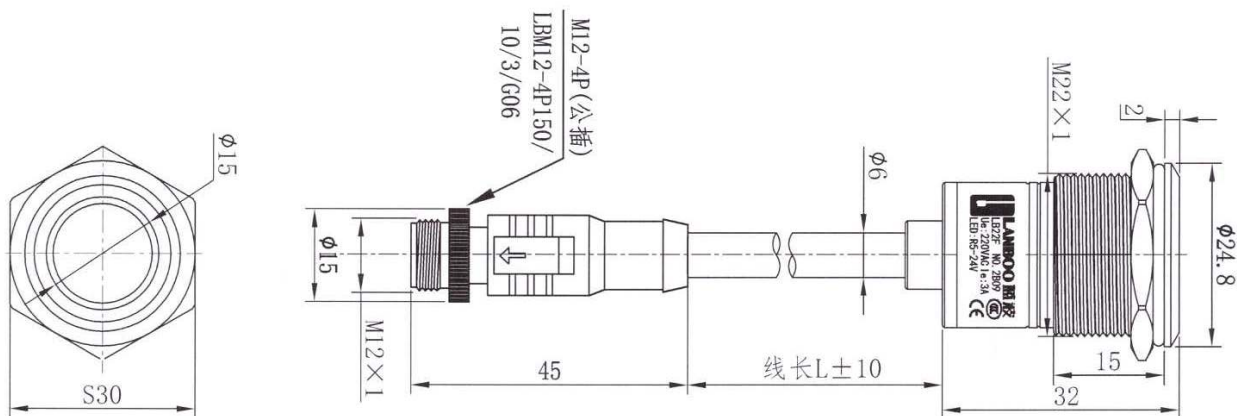
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LB22F specification
Wire waterproof metal button

LB22F

Wire waterproof metal button



Stainless steel shell, customizable



Long life LED



Stainless steel shell, customizable



Waterproof grade IP68

Model Description/Selection, Example:LB22F-P10Z/ERGB5-24V/S135/M12-4P(L)

对应编号		LB	●	●	-	●	●●	●	/	●	●	●●	/	●	●	/	●	●
		1	2	3		4	5	6		7	8	9		10	11		12	13
1	LB	LANBOO																
2	Installation aperture	22mm																
3	Series No.	F-Waterproof series with wires																
4	Head shape	P-flat head,																
5	Switch combination	10—1NO																
6	Action form	Z-self-locking (holding type), F-self resetting (inching type)																
7	Luminous shape	E-ring, E+DY - ring+spot																
8	Luminous color	R-red, G-green, B-blue, customized: Y-yellow, W-white																
9	LED Voltage	5-24V、220V, Customized 25-48V, 110V, AC/DC universal																
10	Shell material	S-stainless steel, customizable; N-Copper chrome plating, A-Aluminum oxidation																
11	Line length	135mm (customizable for other line lengths)																
12	Connector	M12-4P (Common interpolation)																
13	(L)	Internal code																

The performance parameters

Opening diameter		Corresponding aperture+0.2mm, for example: LB22F is 22.2mm
Appearance materials	Shell	Stainless steel (RoHS), customizable: aluminum oxidation (RoHS)
	Key	Stainless steel (RoHS), customizable: aluminum oxidation (RoHS)
	Transparent materials	PC(RoHS), V2 level flame retardant
	Nut	Copper nickel plated, customizable: stainless steel (RoHS)
	O-ring	Silicone(RoHS)
	Contact	Silver Tin Oxide AgSn02(RoHS)
	Base	PA66(RoHS), V0 level flame retardant
Pin		Gold-plated/silver plated(RoHS)
Installation panel thickness		≤12.5mm
Tightening torque		0.8—1.2N.m
Thread verification		Lock the nut until the washer is visibly deformed, then remove it and repeat this process 5 times without any abnormalities
Action itinerary		Total travel: 3.6±0.15mm, connecting travel: 0.95±0.1mm
According to pressure		9±0.8N
Wiring form		Pin type, optional matching plug
Soldering resistance		≤ 380 °C (25-50W soldering iron), ≤ 2 seconds
Solderability test for inserts		Weld 1mm on each pin separately ² After a positive tension of 80N on the wire, there is no detachment, and each pin is soldered 1mm separately ² After a positive tension of 80N, there is no detachment of the wire
Compatibility test with wiring harness		150mm line length, ≤ 50m Ω, LED light powered on without flickering, pulling force: 35-60N
Pin reverse thrust		≥80N without displacement, 1min
Head anti detachment top cow		≥200N, 1min
Ambient Temperature		-40°C~+80°C, in non vacuum and non icing conditions
Working ambient humidity		45~90%RH
Storage environment temperature		Under intact packaging, -40°C~+55°C
Storage environment humidity		Under intact packaging, 45~90%RH
Protection grade		Waterproof IP68, anti-collision IK10 (refer to GB/T 20138)
Conventional thermal current		Ith:7A,250VAC
Rated current	Resistance load	AC-15:110V/220V:3A DC-13:12V/24V:3A
	Inductance load	AC-15:110V/220V:0.5A DC-13:110V:0.5A
Contact resistance		≤50MΩ
Insulation resistance		≥1000MΩ
Dielectric strength (power frequency withstand voltage)		1500VAC,50HZ,1min
Minimum applicable load of contacts		3V AC/DC, 5mA (Reference value, depending on environment and load conditions)
Resistance to vibration		XYZ three way, 60Hz, amplitude 2mm
Product drop prevention		Head vertical drop of 1 meter, 3 times, able to work normally
Packaging drop		4 consecutive drops from a height of 600mm, with no damage to the product
Impact resistance		Each part can withstand an impact force of 10g and work normally
Temperature rise test		According to clause 8.3.3.3 of GB/T14048.5 standard
Salt spray test		72 hours, 3 cycles, (refer to GB/T 2423.18-2012)
Low Temperature		-40 °C, 96h, contact resistance ≤ 200m Ω, pressure change value ≤ 30%, LED normal
High Temperature Test		80 °C, 96h, contact resistance ≤ 200m Ω, pressure change value ≤ 30%, LED normal
High and low temperature impact test (including LED lamp accelerated aging test)		-40~+85 °C, 85% RH, 40min/cycle, 50 cycles, contact resistance ≤ 200m Ω, pressure change value ≤ 30%, LED normal
Life test	Electrical	Resistive load: AC220V/3A、DC24V/1A: 20000 times (refer to GB/T14048.5)
	Machinery	Self locking: 300000 times, self recovery: 1 million times (refer to GB/T14048.5)
	Extreme press test	Keep at the bottom for 5 seconds, then release again, 4 times/min, and conduct 2000 tests
ESD static electricity		Human mode: 2KV, customizable for 8KV
LED parameters	Rated current	≤24V, ≤20mA; >24V, ≤10mA
	LED type	SMT bipolar dual chip LED, dual color
	Pressure reduction method	Built in step-down resistor
life		≥50000h (reference value)
Product Certification		CCC CE RoHS(customized) REACH(customized)
Patent number		ZL201930253523.0、ZL201920779873.5
Quality Assurance		66 Months