



彬炫

乐清彬炫电气有限公司
Yueqing Bxuan Electrical Co., Ltd.

传感器选型手册

Sensor Selection Manual

电容式接近开关传感器
Capacitive proximity switch sensors

乐清彬炫电气有限公司
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乐清彬炫电气有限公司
Yueqing Bxuan Electrical Co., Ltd.

乐清彬炫电气有限公司成立于2017年3月份，是一家集研发，生产，销售为一体的综合性企业，迄今为止已有7年制造经验，公司坐落于浙江省温州市，江西上饶等地拥有着占地面积2千多平方米的工厂，数百名员工。

彬炫电气专注于生产各类型超声波传感器，电感式接近开关，电容式接近开关，光电开关，霍尔接近开关等，产品广泛应用于机械工业的各类机床、各种生产机械设备和自动化流水线，尤其是高科技数控机床、机电一体化设备，同时在印刷、塑胶、石油、轻纺、化工、食品、冶金、烟草、电力、仪器等做自动化检测、计数、测速、信号传送、自动保护及限位和位置检测控制之用，对提供自控系统有巨大作用，深受广大客户的信赖和好评。

公司始终坚持“质量第一、客户至上”的原则。产品已经通过了多项认证，如CE认证，CCC认证，RoHS认证，FCC认证等。公司致力于为客户提供最优质的产品和服务，以满足客户的需求和不同的变化。公司的销售网络遍布多个国家和地区，覆盖了北美/中东/东欧/东亚等市场。公司将不断的提高技术水平和产品质量，开拓新的市场，为客户提供更加全面、优质的服务。

Yueqing Bxuan Electrical Co., Ltd., established in March 2017, is an integrated enterprise combining R&D, production, and sales. With seven years of manufacturing experience, the company is located in Wenzhou, Zhejiang Province, with factories covering over 2,000 square meters in Shangrao, Jiangxi, and other locations, employing hundreds of staff.

Binxuan Electric specializes in producing various types of ultrasonic sensors, inductive proximity switches, capacitive proximity switches, photoelectric switches, Hall proximity switches, and more. These products are widely used in various types of machine tools in the mechanical industry, various production machinery, and automated assembly lines, particularly in high-tech CNC machine tools and mechatronic equipment. They are also utilized in printing, plastics, petroleum, light textile, chemical, food, metallurgy, tobacco, electric power, instrumentation, and other fields for automated detection, counting, speed measurement, signal transmission, automatic protection, and limit and position detection control. These products play a significant role in providing automatic control systems and are well-trusted and highly praised by customers.

The company adheres to the principle of "quality first, customer foremost." Our products have passed multiple certifications, including CE, CCC, RoHS, and FCC. We are committed to providing the highest quality products and services to meet the needs and varied demands of our customers. Our sales network spans multiple countries and regions, covering markets in North America, the Middle East, Eastern Europe, East Asia, and more. The company continually improves technical levels and product quality, explores new markets, and provides more comprehensive and superior services to customers.



电容式接近传感器

Capacitive Proximity Sensor



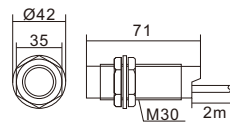
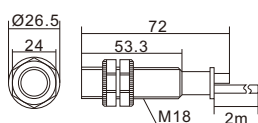
安装方式 Installation type		● 埋入 Flushed	● 非埋入 Non-Flushed	安装方式 Installation type		● 埋入 Flushed	● 非埋入 Non-Flushed
检测距离 Sensing range		8mm±10%	15mm±10%	检测距离 Sensing range		8mm±10%	15mm±10%
输出方式 Output	NPN NO	BCLN8-GS18-N1-J	BCMN-GM30-N1-J	输出方式 Output	AC NO	BCLN8-GS18-A1-J	BCLN15-GM30-A1-J
	NPN NC	BCLN8-GS18-N2-J	BCMN-GM30-N2-J		AC NC	BCLN8-GS18-A2-J	BCLN15-GM30-A2-J
输出方式 Output	PNP NO	BCLN8-GS18-P1-J	BCMN-GM30-P1-J	输出方式 Output			
	PNP NC	BCLN8-GS18-P2-J	BCMN-GM30-P2-J				

额定规格/性能

电源电压 Supply voltage	DC 3Wires 12-24VDC	AC 2Wires 100-240VAC
标准检测物 Standard test substance	铁(Iron)50×50×1mm	铁(Iron) 50×50×1mm
响应频率 Response frequency	50Hz	20Hz
消耗电流 Consumption current	Max. 15mA	漏电流Leakage current : Max. 2.2mA
材质 Material quality	Pa6	黄铜(镀镍) Brass (nickel plated)
防护等级 Protection level	Ip67	
环境温度 Ambient temperature	-25~70°C, 存储时: -30~80°C -25~70 °C, storage: -30~80 °C	
环境湿度 Environmental humidity	35~95%RH, 存储时: 35~95% RH 35~95% RH, during storage: 35~95% RH	
应差距离 Movement differential	最大检测距离的20% 20% of the maximum detection distance	

产品外圈尺寸 Drawing

单位Unit:mm



电容式接近传感器 Capacitive Proximity Sensor

直流3线
DC3Wires



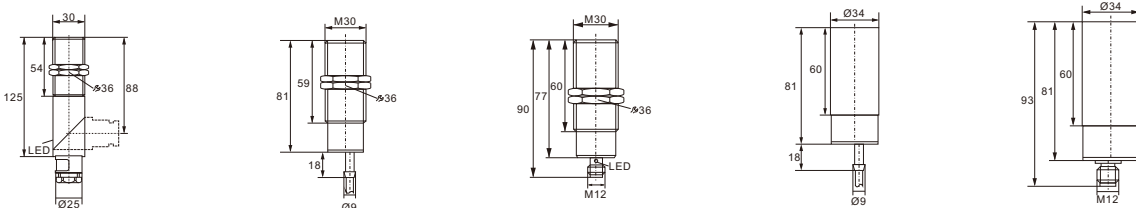
安装方式 Installation type		● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed
检测距离 Sensing range		15mm±10%	15mm±10%	8mm±10%	20mm±10%	20mm±10%
输出方式 Output	NPN NO	BCLS15-GS30-N1-C	BCMN15-GS30-N1-C	BCLT8-GM30-N1-C	BCLN20-GS34-N1-C	BCLT20-GS34-N1-C
	NPN NC	BCLS15-GS30-N2-C	BCMN15-GS30-N2-C	BCLT8-GM30-N2-C	BCLN20-GS34-N2-C	BCLT20-GS34-N2-C
输出方式 Output	PNP NO	BCLS15-GS30-P1-C	BCMN15-GS30-P1-C	BCLT8-GM30-P1-C	BCLN20-GS34-P1-C	BCLT20-GS34-P1-C
	PNP NC	BCLS15-GS30-P2-C	BCMN15-GS30-P2-C	BCLT8-GM30-P2-C	BCLN20-GS34-P2-C	BCLT20-GS34-P2-C

额定规格/性能

电源电压 Supply voltage	10...30 DC					
漏电流 Leakage current	<1.5 (24 V DC)		<18		13; (24 V)	
响应频率 Response frequency	40Hz		10Hz		40Hz	
负载电流 Load current	>5		100		250	
材质 Material quality	PBT; 端盖 End cap: PC	PBT		不锈钢 Stainless steel		PBT
防护等级 Protection level	Ip67					
环境温度 Ambient temperature	-25...70		-25...80		-25...70	
显示 Display	1xLED, 黄色Yellow					
连接方式 Connection method	接线端子 Wiring terminals	电缆Cable: 2m	接插件 Connector: 1xM12	电缆Cable: 2m	接插件 Connector: 1xM12	

产品外形尺寸 Drawing

单位Unit:mm



电容式接近传感器 Capacitive Proximity Sensor

交流2线
AC2Wires



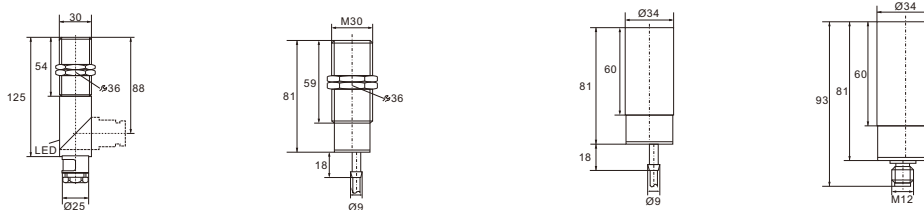
安装方式 Installation type		● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	
检测距离 Sensing range		15mm±10%	15mm±10%	20mm±10%	20mm±10%	
输出方式 Output	AC NO	BCLS15-GS30-A1-C	BCMN15-GS30-A1-C	BCLN20-GS34-A1-C	BCLT20-GS34-A1-C	
	AC NC	BCLS15-GS30-A2-C	BCMN15-GS30-A2-C	BCLN20-GS34-A2-C	BCLT20-GS34-A2-C	
	AC NO+NC	BCLS15-GS30-A12-C	BCMN15-GS30-A12-C	BCLN20-GS34-A12-C	BCLT20-GS34-A12-C	
输出方式 Output						

额定规格/性能

电源电压 Supply voltage	90...250 AC				
漏电流 Leakage current	2.5 (250 V AC)				
响应频率 Response frequency	25Hz				
负载电流 Load current	>5				
材质 Material quality	PBT; 端盖 End cap: PC	PBT			
防护等级 Protection level	Ip67				
环境温度 Ambient temperature	-25...70				
显示 Display	1xLED, 黄色Yellow				
连接方式 Connection method	接线端子 Wiring terminals	电缆Cable: 2m		接插件 Connector: 1xM12	

产品外形尺寸 Drawing

单位Unit:mm



电容式接近传感器 Capacitive Proximity Sensor

直流2线
DC2Wires



安装方式 Installation type	● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	● 埋入 Flushed	
检测距离 Sensing range	15mm±10%	15mm±10%	8mm±10%	20mm±10%	20mm±10%	
输出方式 Output	DC NO	BCLS15-GS30-D1-C	BCMN15-GS30-D1-C	BCLT8-GM30-D1-C	BCLN20-GS34-N1-C	BCLT20-GS34-D1-C
	DC NC	BCLS15-GS30-D2-C	BCMN15-GS30-D2-C	BCLT8-GM30-D2-C	BCLN20-GS34-N2-C	BCLT20-GS34-D2-C
输出方式 Output						

额定规格/性能

电源电压 Supply voltage	10...30 DC				
漏电流 Leakage current	< 1.5 (24 V DC)		< 18	13; (24 V)	
响应频率 Response frequency	40Hz		10Hz	40Hz	
负载电流 Load current	> 5		100	250	
材质 Material quality	PBT; 端盖 End cap: PC	PBT	不锈钢 Stainless steel	PBT	
防护等级 Protection level	Ip67				
环境温度 Ambient temperature	-25...70		-25...80	-25...70	
显示 Display	1xLED, 黄色Yellow				
连接方式 Connection method	接线端子 Wiring terminals	电缆Cable: 2m	接插件 Connector: 1xM12	电缆Cable: 2m	接插件 Connector: 1xM12

产品外形尺寸 Drawing	单位Unit:mm				

电容式接近传感器
Capacitive Proximity Sensor

电容式接近传感器

Capacitive Proximity Sensor



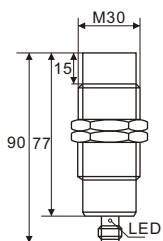
安装方式 Installation type	● 非埋入 Non-Flushed		安装方式 Installation type	● 非埋入 Non-Flushed	
检测距离 Sensing range	15mm±10%		检测距离 Sensing range	15mm±10%	
输出方式 Output	NPN NO	BCMNM-GM30-N1-C	输出方式 Output	DC NO	BCMNM15-GM30-D1-C
	NPN NC	BCMNM-GM30-N2-C		DC NC	BCMNM15-GM30-D2-C
输出方式 Output	PNP NO	BCMNM-GM30-P1-C	输出方式 Output		
	PNP NC	BCMNM-GM30-P2-C			

额定规格/性能

电源电压 Supply voltage	10...30 DC
漏电流 Leakage current	<18
响应频率 Response frequency	10Hz
负载电流 Load current	100
材质 Material quality	不锈钢Stainless steel
防护等级 Protection level	Ip67
环境温度 Ambient temperature	-25...80
显示 Display	1xLED, 黄色Yellow
连接方式 Connection method	接插件Connector: 1xM12

产品外圈尺寸 Drawing

单位Unit:mm



电容式接近传感器 Capacitive Proximity Sensor



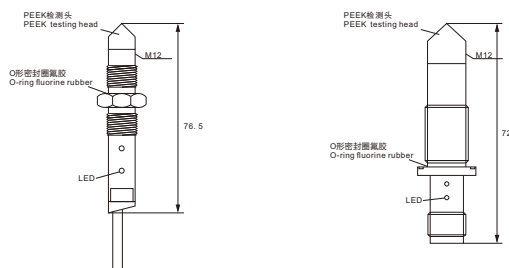
检测距离 Sensing range		● 接触式 Contact type	● 接触式 Contact type			
输出方式 Output	NPN NO+NC	BC1N12	BC2N12			
输出方式 Output	PNP NO+NC	BC1P12	BC2P12			

额定规格/性能

电源电压 Supply voltage	10-30VDC
工作功率 Working power	<0.5w
响应频率 Response frequency	50Hz
最大输出电流 Maximum output current	100mA
材质 Material quality	不锈钢/PEEK Stainless steel
防护等级 Protection level	Ip67
环境温度 Ambient temperature	-25...80
显示 Display	红色：电源指示 绿色：输出指示 Red: Power indicator Green: Output indicator
连接方式 Connection method	直出线Straight out line

产品外形尺寸 Drawing

单位Unit:mm



产品选型

Product selection

XRUN50 通用型微波料位开关

Universal microwave level switch

技术特点 Technical characteristics

- **应用性广**
Wide applicability 固体、液体及浆料
Solid, liquid, and slurry
- **可靠性**
Reliability 不受泡沫的影响
Not affected by foam
- **抗粘附**
Anti adhesion 可有效检测粘附性导电浆料
Can effectively detect adhesive conductive paste
- **结构紧凑**
Compact structure 适合狭小空间安装
Suitable for installation in narrow spaces
- **接液材质**
Liquid receiving material 适合卫生及工业应用
Suitable for hygiene and industrial applications
- PEEK 及不锈钢**
PEEK and stainless steel
- **使用方便**
Easy to use 可使用手持式通信器设定报警点及查看过程变量值
Can use handheld communicators to set alarm points and view process variable values
- **工作温度范围**
Working temperature range 标准型115℃散热型150℃
Standard type 115℃ Heat dissipation type 150℃



技术参数 Technical parameter

性能指标 Performance index

测量原理: Measurement principle	扫频 Sweep frequency
测量回差 Measurement deviation	±1mm
介质特性 Medium characteristics	DC>1.5
响应时间 Response time	0.2s
阻尼时间 Damping time	0~5s(可设定Settable)
重复性 Repeatability	±1mm

过程条件 Process conditions

过程温度 Process temperature (标准过程连接) (Standard Process Connection)	-40~115℃
过程压力 Process pressure (标准过程连接) (Standard Process Connection)	-0.1~10MPa
其他连接 Other connections 过程条件 Process conditions	参见操作条件表 Refer to the operating conditions table

外壳 Shell

尺寸: Side	参见尺寸图 Refer to dimension diagram
材质: Material quality	不锈钢 Stainless steel

电气连接 Electrical connections

连接方式 Connection method	4x0.5mm ² 电缆出线 4x0.5mm ² cable outlet M12 4芯连接器 M12 4-core connector
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供电 Power supply

电压范围 Voltage range	12~30VDC
启动时间 Start time	< 1s
供电电流 Power supply current (无负载) (No load)	8mA (典型值Typical value) 40mA (最大值Max)
反极性保护 Reverse polarity protection	有 Have

介电强度 Dielectric strength	500VAC
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过程连接类型 Process Connection Type

种类 Type	参见尺寸图 Refer to dimension diagram
安装位置: Installation location	顶部, 底部, 侧面 Top, bottom, side
接液材质 Liquid receiving material	PEEK 304或316L PEEK 304 or 316L
接液表面粗糙度 Surface roughness of liquid contact	Ra < 0.8μm

环境条件 Environment condition

防护等级 Protection level	Ip67
湿度 Humidity	<98%RH, 有凝结 <98% RH, with condensation
环境温度 Ambient temperature	电缆引出型: -25~70°C Cable outlet type: -25~70°C M12连接器型: -40~85°C M12 connector type: -40~85°C
存储温度 Storage temperature	电缆引出型: -25~70°C Cable outlet type: -25~70°C M12连接器型: -40~85°C M12 connector type: -40~85°C

输出信号 Output signal

输出类型 Other connections	NPN	PNP
输出逻辑 (NPN, PNP式) Output logic (NPN, PNP type)	<ul style="list-style-type: none"> ●NO (常开Normally open) ●NC (常闭Normally closed) 	
输出压降 (典型值) Output voltage drop (typical value)	PNP: 1.5+0.5V, Rload=10k NPN: 1.5+0.5V, Rload=10k	
输出电流 Output current	20mA (最大值MAX)	
泄漏电流 Leakage current	< 100uA	
输出短路保护 Output short-circuit protection	有 Have	

缺省出厂设定 Default factory settings

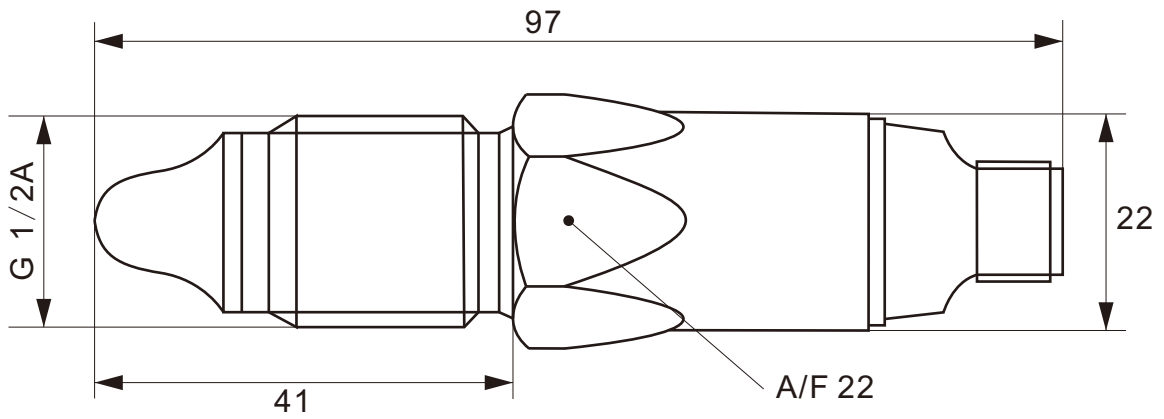
阻尼时间 Damping time	0s
报警点参数 A11 Alarm point parameter A11	250 (低介电常数介质) 250 (Low dielectric constant medium) 550 (水基介质) 550 (Water based medium) 720 (导电浆液) 720 (Conductive slurry) P1000≥AL1 时输出报警 Output alarm when P1000 ≥ AL1
测量值 PV Measurement value PV	0~1000, 校准后: 100: 探头在空气中 900: 探头在自来水中 0-1000, after calibration: 100: Probe in air 900: Probe in tap water
报警回差 Alarm return difference	25
保护功能 Protection function	被解锁前, 参数不能修改 Before being unlocked, parameters cannot be modified

认证情况 Certification status

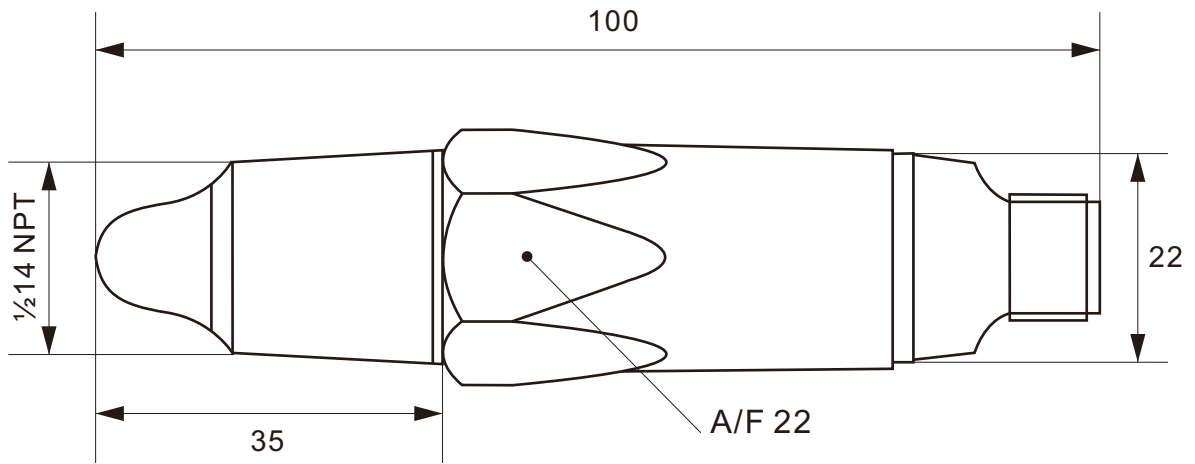
EMI辐射 EMI radiation	GB/T 24338.4-2009
EMC抗扰性 EMC immunity	GB/T 24338.4-2009
防爆认证 Explosion proof certification	Ex ia IIC T5 Ga Ex ta IIIC T100 °C
卫生认证 Health certification	FDA, AAA

操作条件 Operating conditions

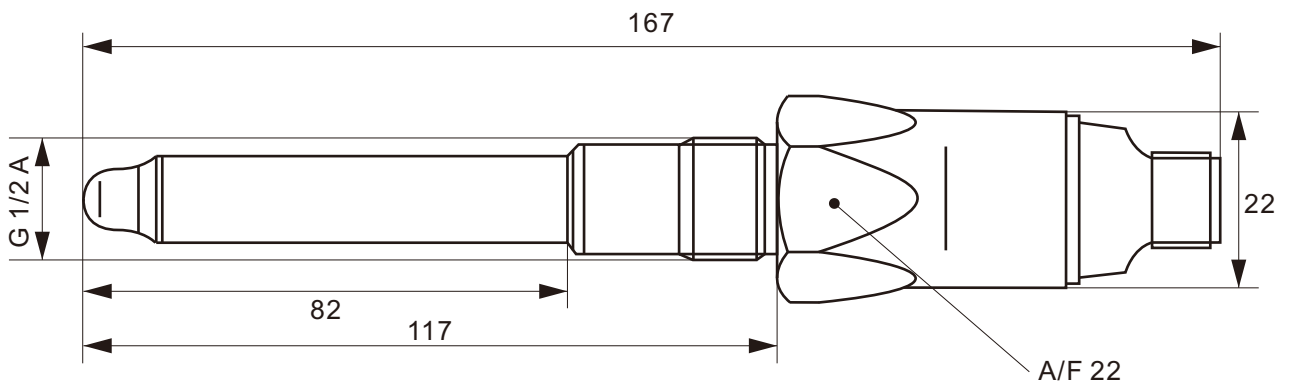
过程连接 Process Connection	ID	工作温度(长期)环境 温度<50°C Working temperature (long-term) Environmental temperature<50°C	工作压力(长期) working pressure (Long term)	最高工作温度(1小 时)环境温度<50°C Maximum operating temperature (1 hour) When the ambient temperature is<50°C	工作压力(1小时, 最 高温度) Work pressure (1 hour, maximumHigh tempe- rature)
G1/2螺纹标准型 G1/2thread standard type	0	-40~115°C	-0.1~10MPa	135°C	-0.1~10MPa
G1/2螺纹反向安装 G1/2thread reverse installation	1	-40~115°C	-0.1~10MPa	135°C	-0.1~10MPa
G1/2螺纹带散热颈 G1/2threaded with heat dissipation neck	2	-40~150°C	-0.1~10MPa	135°C	-0.1~10MPa



G 1/2 A ISO 228-1 BSC (BCID:G07)



1/2-14 NPT (BCID:N02)



G 1/2 A 卫生型, 82 mm长 (BCID:A03)

尺寸图 Dimensional drawing

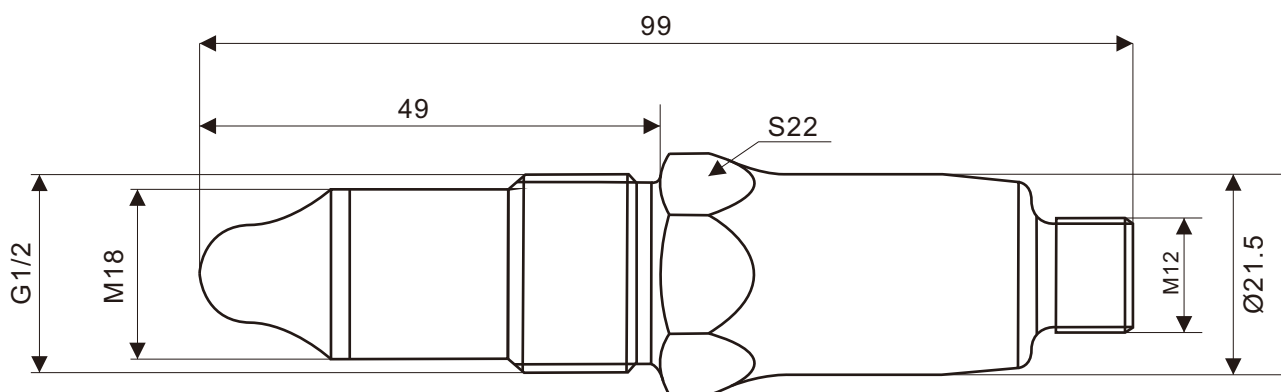


Fig.1 标准型(ID=0)

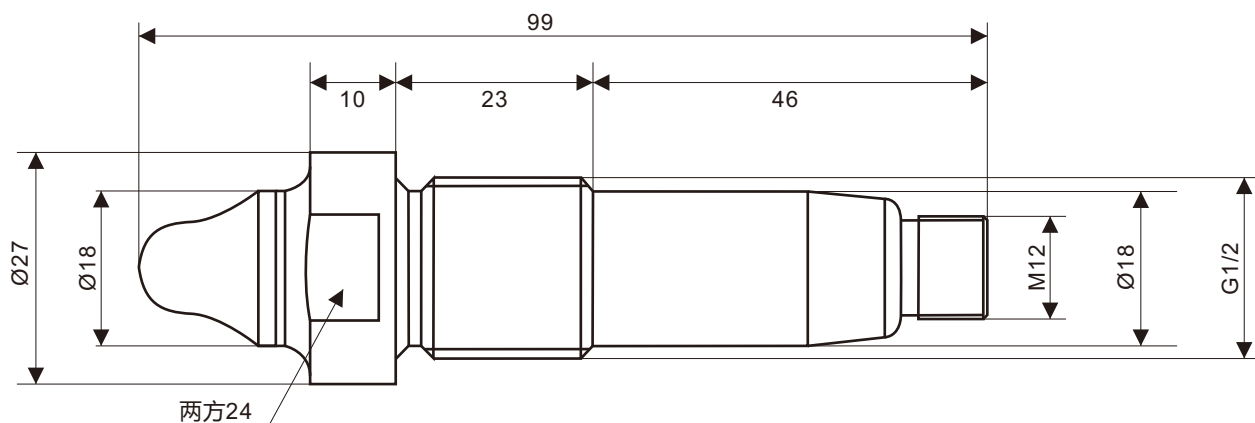
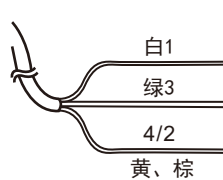
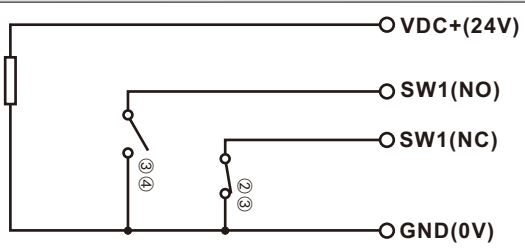
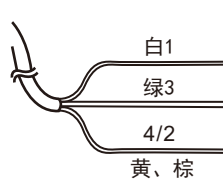
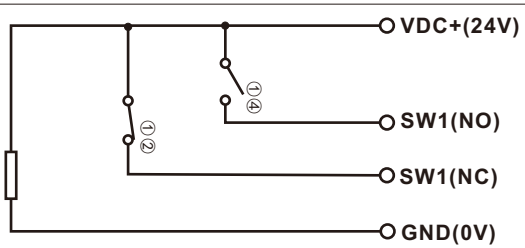
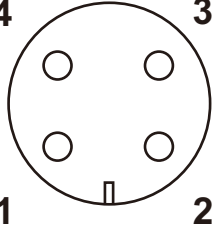
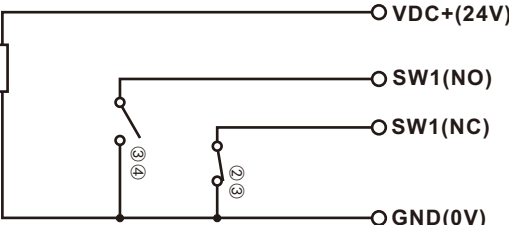

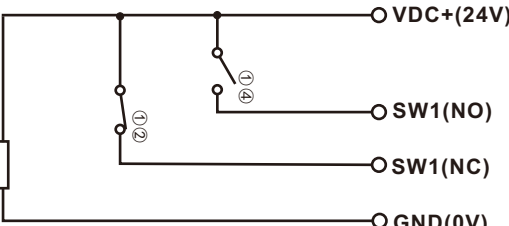


Fig.2 反向安装型(ID=1)

等效电路(电缆出线型) Equivalent circuit (Cable routing)

输出类型 Type of output	电气连接 Electrical connections	等效电路图 Equivalent circuit diagram	功能(线色或线号) Function (Line color or wire number)								
NPN			<table border="1"> <tr><td>VDC+</td><td>白White1</td></tr> <tr><td>SW1(NO)</td><td>黄Yellow4</td></tr> <tr><td>SW1(NC)</td><td>棕Brown2</td></tr> <tr><td>GND(0V)</td><td>绿Green3</td></tr> </table>	VDC+	白White1	SW1(NO)	黄Yellow4	SW1(NC)	棕Brown2	GND(0V)	绿Green3
VDC+	白White1										
SW1(NO)	黄Yellow4										
SW1(NC)	棕Brown2										
GND(0V)	绿Green3										
PNP			<table border="1"> <tr><td>VDC+</td><td>白White1</td></tr> <tr><td>SW1(NO)</td><td>黄Yellow4</td></tr> <tr><td>SW1(NC)</td><td>棕Brown2</td></tr> <tr><td>GND(0V)</td><td>绿Green3</td></tr> </table>	VDC+	白White1	SW1(NO)	黄Yellow4	SW1(NC)	棕Brown2	GND(0V)	绿Green3
VDC+	白White1										
SW1(NO)	黄Yellow4										
SW1(NC)	棕Brown2										
GND(0V)	绿Green3										

等效电路(M12 连接器) Equivalent circuit (M12 connector)

输出类型 Type of output	电气连接 Electrical connections	等效电路图 Equivalent circuit diagram	功能(M12端子编号) Function (M12 terminal number)								
NPN			<table border="1"> <tr><td>VDC+</td><td>1</td></tr> <tr><td>SW1(NO)</td><td>4</td></tr> <tr><td>SW1(NC)</td><td>2</td></tr> <tr><td>GND(0V)</td><td>3</td></tr> </table>	VDC+	1	SW1(NO)	4	SW1(NC)	2	GND(0V)	3
VDC+	1										
SW1(NO)	4										
SW1(NC)	2										
GND(0V)	3										
PNP			<table border="1"> <tr><td>VDC+</td><td>1</td></tr> <tr><td>SW1(NO)</td><td>4</td></tr> <tr><td>SW1(NC)</td><td>2</td></tr> <tr><td>GND(0V)</td><td>3</td></tr> </table>	VDC+	1	SW1(NO)	4	SW1(NC)	2	GND(0V)	3
VDC+	1										
SW1(NO)	4										
SW1(NC)	2										
GND(0V)	3										



订货信息 Ordering Information

订货代码 Ordering code	XR50	-X	-0	-XX	-X	-X	-X	-X	-X	-X
产品代号: Product code:	Xr50									
输出类型: Output type:										
NPN		N								
PNP		P								
继电器(外部模块) Relay (External Module)		R								
工作模式: Working mode:										
单路报警 Single channel alarm			0							
外壳材质 Shell material										
304				04						
316L				6L						
电气连接: Electrical connections:										
4芯电缆 4-core cable						W				
4针 M12 连接器 4-pin M12 connector						M				
探头及过程连接: Probe and process connection:										
G1/2 螺纹 G1/2 thread							3			
G1/2 螺纹+反向安装 G1/2 thread+reverse installation							2			
G1/2 螺纹+散热脖颈 G1/2 thread+heat dissipation neck							1			
用户特定 User specific							0			
密封垫圈: Sealing gasket										
无 Nothing								4		
FKM								3		
EPDM								2		
NBR								1		
用户特定 User specific								0		
防爆认证: Explosion proof certification										
无 Nothing									3	
Ex ia llC T5 Ga									2	
Ex ta llC T100°C									1	
用户特定 User specific									0	
卫生认证: Health certification										
无 Nothing										3
FDA										2
3A										1
其他 Other										0
出厂设置: Factory settings										
低介电常数介质设定 Low dielectric constant medium setting										3
水基介质设定 Water based medium setting										2
导电浆液设定 Conductive slurry setting										1
用户特定 User specific										0