Aotoro®

TR Cylindrical type 圆柱型

INSTRUCTION MANUAL
使用说明书

PROXIMITY SWITCH
接近开关

A 0259672

A2302-01

Ordering information 订购信息

TR□18-5DN2

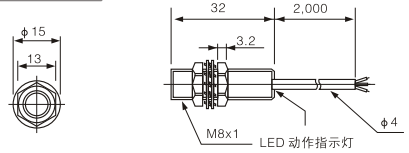
Output 输出构成	N	NPN NO 3-Wire
	N2	NPN NC 3-Wire
	P	PNP NO 3-Wire
	P2	PNP NC 3-Wire
	O	NO 2-Wire 二线
	C	NC 2-Wire 二线
	N3	NPN NO+NC
	P3	PNP NO+NC
Supply 电压	D	DC Type
	A	AC Type
Detecting distance 检测距离	2	2mm
	5	5mm
	8	8mm
	10	10mm
	15	15mm
Serial number 设计序号		Side length 探测头边长(mm)
connection 接线方式		Standard 标准型
	C	Connector 连接器型
Appearance 外型分类	R	Cylindrical 圆柱型
	S	Rectangle 方 型
	P	Flat 平面型
	U	Groove shape 槽 型
Proximity switch 接近开关	T	Inductive 电感式
	C	Capacitive 电容式
	S	HALL 霍尔式

Specification 规格

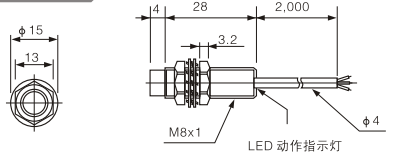
Model 型号	DC三线 3-wire	TR08-1.5DN TR08-1.5DN2 TR08-1.5DP TR08-1.5DP2	**TR08-2DN** **TR08-2DN2** **TR08-2DP** **TR08-2DP2**	TR12-2DN TR12-2DN2 TR12-2DP TR12-2DP2	TR12-4DN TR12-4DN2 TR12-4DP TR12-4DP2	TR18-5DN TR18-5DN2 TR18-5DP TR18-5DP2	TR18-8DN TR18-8DN2 TR18-8DP TR18-8DP2	TR30-10DN TR30-10DN2 TR30-10DP TR30-10DP2	TR30-15DN TR30-15DN2 TR30-15DP TR30-15DP2
	DC二线 2-wire			TR12-2DO TR12-2DC	TR12-4DO TR12-4DC	TR18-5DO TR18-5DC	TR18-8DO TR18-8DC	TR30-10DO TR30-10DC	TR30-15DO TR30-15DC
	AC二线 2-wire			TR12-2AO TR12-2AC	TR12-4AO TR12-4AC	TR18-5AO TR18-5AC	TR18-8AO TR18-8AC	TR30-10AO TR30-10AC	TR30-15AO TR30-15AC
Detecting distance 探测距离		1mm±10%	2mm±10%	2mm±10%	4mm±10%	5mm±10%	8mm±10%	10mm±10%	15mm±10%
Setting distance 设定距离		0 to 0.7mm	0 to 1.4mm	0 to 1.4mm	0 to 2.8mm	0 to 3.5mm	0 to 5.6mm	0 to 7mm	0 to 10.5mm
Standard Detecting target 标准探测体		Iron 8x8x1mm(铁)		Iron 12x12x1mm(铁)		Iron 18x18x1mm(铁)		Iron 30x30x1mm(铁)	
Hysteresis 回差		Max.10% of detecting distance(检测距离的10%以下)							
Power supply 电源电压		DC 3-wire type(三线型): 12-24VDC(5-30VDC) DC 2-wire type(二线型): 12-30VDC AC 2-wire type(二线型): 90-250VAC							
Current consumption 静态电流		DC 3-wire type(三线型): Max.12mA DC 2-wire type(二线型): Max.0.9mA AC 2-wire type(二线型): Max.2.2mA							
Response frequency 频率	DC	800HZ		600HZ	400HZ	300HZ	200HZ	200HZ	100HZ
	AC	20HZ							
Residual voltage 残留电压		DC 3-wire type(三线型): Max.1.5V DC 2-wire type(二线型): Max.6V AC 2-wire type(二线型): Max.10V							
Control output 控制输出		Max.100mA		DC 3-wire type(三线型): Max.200mA DC 2-wire type(二线型): Max.100mA AC 2-wire type(二线型): Max.200mA					
Protection circuit 电路保护		Reverse polarity protection 反极性保护，Surge absorber浪涌保护，Short circuit protection短路保护：M12 M18 M30 DC3-wire type							
Indicator 显示灯		Power supply indicator 电源指示：Green LED，Operating indicator 动作指示：Red LED							
Insulation resistance 绝缘阻抗		Min.50MΩ（500VDC）							
Dielectric strength 耐电压		1500VAC 50/60HZ for 1 minute							
Vibration 抗振动		1 mm amplitude at frequency of 10 to55HZ in each of X，Y，Z directions for 2 hours							
Shock 抗冲击		500m/s^2 (50G) X，Y，Z directions for 3times							
Operating temperature 使用环境温度		-25 to +70℃ (non-freezing condition 不结冰)							
Ambient humidity 使用环境湿度		35 to 95% RH							
Protection 保护结构		IP67 (IEC Specification)							
Material 材料		Case:brass,Detecting surface:ABS 壳体:黄铜,检测面:ABS							

Dimensions 尺寸(unit:mm)

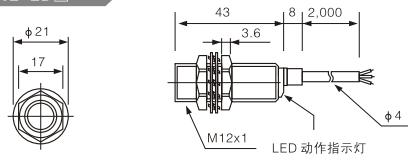
TR08-1.5D□



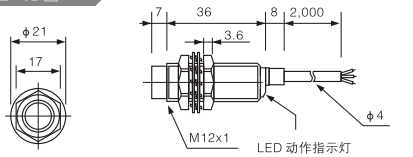
TR08-2D□



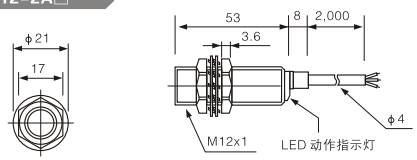
TR12-2D□



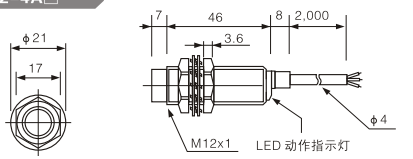
TR12-4D□



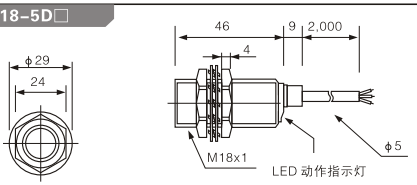
TR12-2A□



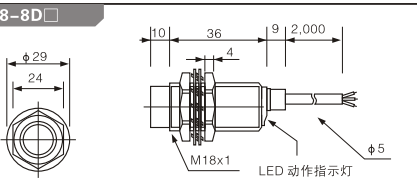
TR12-4A□



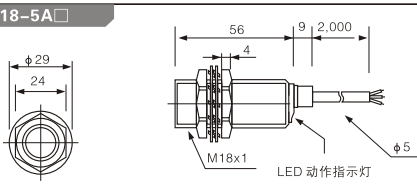
TR18-5D□



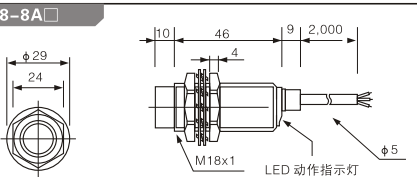
TR18-8D□



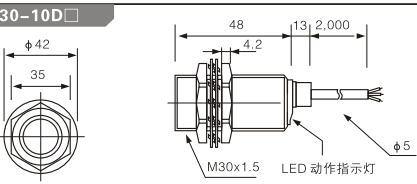
TR18-5A□



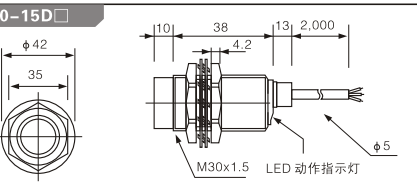
TR18-8A□



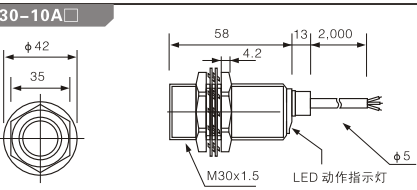
TR30-10D□



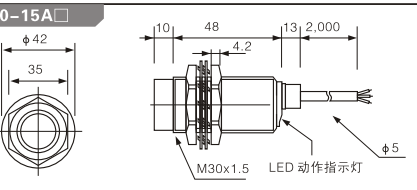
TR30-15D□



TR30-10A□



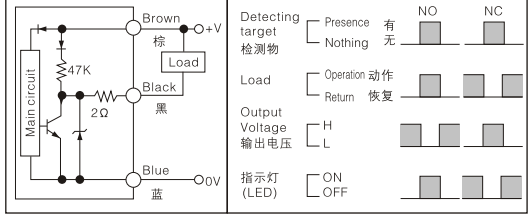
TR30-15A□



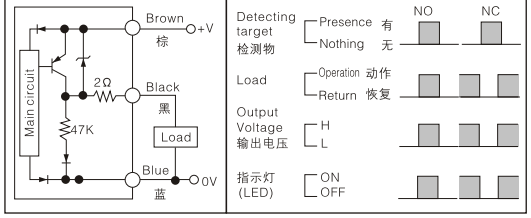
Control output diagram 控制输出图

● **DC 3-wire(三线型)**

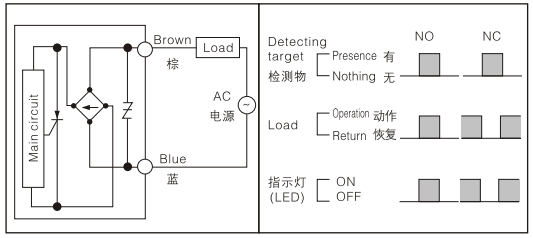
NPN output 集电极输出型



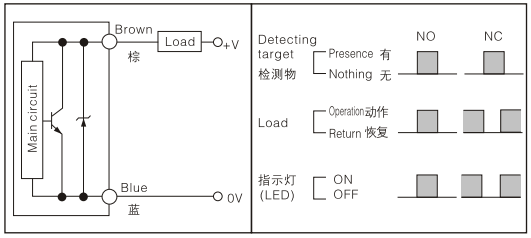
PNP output 集电极输出型



● **AC 2-wire(二线型)**



● **DC 2-wire(二线型)**



Precautions in using the product 使用注意事项

Note 注意

Be sure to follow the safety precautions below for adder safety
以下项目在安全确保方面非常重要,请务必遵守。.

1.Do not use the sensor under the environment with explosive or ignition gas.请不要在具有可燃性、爆炸性气体的环境下使用。

2.Never disassemble, repair nor tamper with the product.
请勿拆卸、修理、改造本产品。

3.Kep the supply voltage within the specified range.
电源电压必须在额定值内。

4.Do not connect the load with big inrush current is over than the maximum rated inrush current.请使用额定值以下的负荷。

Caution for using正确使用方法

1.Do not use the product under the following conditions.
请不要在以下的环境中使用。
(1)In the place where humidity is high and condensation may occur.
湿度高或易结露场所。
(2)In the place where corrosive gas exists.含腐蚀性气体场所。
(3)In the place where vibration or shock is directly transmitted to the product.振动或冲击能直接传送到传感器场所。

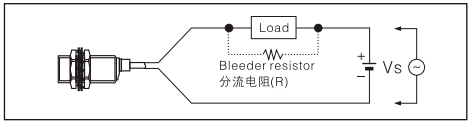
2.Connection and Mounting 连接和安装
(1)Be sure that before making supply the supply voltage is less than the maximum rated supply voltage.
通电前请确认供电电源电压小于最大允许电源电压。
(2)There are some cases where the photoelectric switch cable is unavoidably laid in a tube or duct together with a hightension or power line. This causes an induction, possibly resulting in malfunction or damage. In principal, the cable should be separately laid or shielded.
传感器导线和动力线或电力线装在同一配管中使用时，会受到干扰，有误动作甚至被损坏。原则上传感器导线必须单独放置或者被屏蔽。
(3)For extending wires, use a cable 0.3mm^2 min. and 100m max. In length. 延长导线必须使用截面积0.3mm^{2}以上、长度100m以下导线。
(4)Do not pull wire strongly.导线请勿用力拉扯。
(5)Excessive force (hitting by hammer, etc.) Should not be put on the photoelectric switch because it may damage its water-resistance characteristic.
安装传感器时，请勿使传感器受剧烈外力（如用锤击打等），这样就有可能破坏传感器耐水保护性能。

3.Power supply电源
When using a commercially available switching regulator ,be sure to ground the FG(Frame Ground) terminals.
使用市场上销售的开关整流器时，请将FG（Frame Ground)端子接地。

4.Power supply reset time电源重新调整时间
The photoelectric switch will begin sensing no later than 100ms after the power is turned on. If the load and the photoelectric switch connected to different power supply ,the photoelectric switch must be always turned on first.
从接通电源到传感器可正常进行检出的时间是100ms后再使用。
负载和传感器接不同电源时，一定要先接通传感器的电源。

5.Turning off the power supply电源关闭
When turning off the power,output pulse may be generated.We recommend turning off the power supply of the load or load line first.
电源关闭时，可能会出现输出脉冲，所以我们建议先关闭负载或负载线的电源

6.AC 2-wire type & DC 2-wire type
交流二线和直流二线型
(1)The load must be connected otherwise internal components may be damaged ,And the load can be connected to other wire.
接线时需将负载串接到其中任意一根连接线,否则传感器会短路爆裂。
(2)In case of the load current is small:Make the residual current is less than return current to connect the bleeder resistor to load parallel.
如果负载电流过小；负载的残余电压会使传感器失灵，请确保残余电压要小于启动电压,可以安装一个与负载并联的分流电阻,如图所示:



$R \leq \frac{Vs}{Io-Ioff}(k\Omega)$ Vs:power supply 电源
P:Bleeder resister,number of W 分流电阻功率
Io:Min.operating current of proximity switch 接近开关的最小动作电流
$P > \frac{Vs^2}{R}(mW)$ Ioff:Return current of load 负载的恢复电流

※ 110VAC 50/60HZ,bleeder resister over 20K,Min.3W
220VAC 50/60HZ,bleeder resister over 39K,Min.5W

乐清市欧迪龙电子自动化有限公司
Yueqing Aotoro Electric Automation CO.,LTD.
ADD：Xiangshan Industrial Zone Liushi Town
Yueqing City Zhejiang China 325604
浙江省乐清市柳市镇象山工业区
TEL:86-577-61758688 **FAX**:86-577-62757002
Http://www.aotoro.com **E-mail**:aotoro@aotoro.com