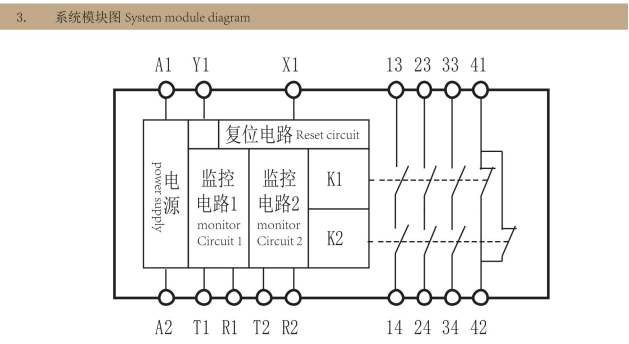
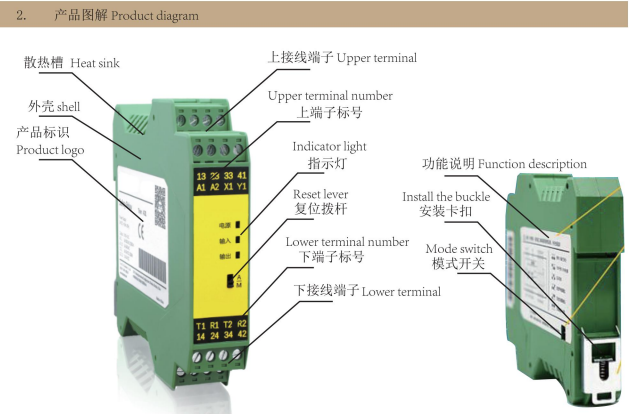


安全继电器使用说明书 Safety relay operation manual

使用说明书 Instructions for use

1. 适用于监控 Suitable for monitoring

急停 / 安全门锁 / 常闭触边 / 常闭开关 / NPN 非接触开关 / NPN 安全光幕
/ 2 线带电阻安全触边(地毯) / 2 线无电阻安全触边(地毯) / 4 线安全触边(地毯) / 双手开关
Emergency stop / Safety door lock / Normally closed contact / Normally closed switch / NPN non-contact switch /
NPN safety light curtain / 2-wire resistive safety contact (carpet) / 2-wire non-resistance safety contact (carpet) /
4-wire safety contact (carpet) / Two-hand switch



4. 端子功能描述 Terminal function description

A1	电源正极 (24VDC) Power supply positive pole	A1、A2 作为电源 A1 and A2 as power supply
A2	电源负极 (0V) Negative power supply	

T1	通道 1 信号输出 Channel 1 signal output	1 型信号源 Type I signal source
R1	通道 1 安全输入 Channel 1 safety input	接受 1 型信号输入, 带短路, 断路检测与通道 2 互检 Accept Type I signal input, with short circuit, open circuit detection and channel 2 mutual inspection
T2	通道 2 信号输出 Channel 2 signal output	1I 型信号源 Type II signal source
R2	通道 2 安全输入 Channel 2 safety input	接受 1I 型信号输入, 带短路, 断路检测与通道 1 互检 Accept input of type II model, with short circuit, circuit breaker detection and channel 1 mutual inspection
X1	复位输入 (可配置手动复位或自动复位) Reset input (can be configured with manual reset or automatic reset)	自动复位: 输入条件满足, 该单元立即激活 手动复位: 输入条件满足, 且复位回路随后手动闭合, 释放后, 单元即激活 Automatic reset: The input condition is met, and the unit is activated immediately Manual reset: The input condition is met, and the reset loop is then manually closed. After release, the unit is activated
Y1	晶体管信号输出 (DC24V) Transistor signal output (DC24V)	输出状态信号指示, 可作为 PLC 信号输入或连接外部指示灯 (指示信号与安全输出同步) Output status signal indicator, can be used as PLC signal input or connected to external indicator light (indication signal synchronized with safety output)
13/14 23/24 33/34	常开瞬时型安全触点 Normally open instantaneous safety contact	该单元可在触点上外接 Tner-TS31 单元, 用以增加输出安全触点数量 This unit can be connected to the Tner-TS31 unit on the contacts to increase the number of output safety contacts
41/42	常闭瞬时型安全触点 Normally closed instantaneous safety contact	可作外接信号灯或控制其他器件 Can be used as external signal light or control other devices

5. LED 状态指示 LED status indicator

■ 常亮 Always bright ★ ☆ 闪烁 Flashing □ 熄灭 Extinguish				
功能 Function	状态 state	电源 LED Power LED	输入 LED Input LED	输出 LED Output LED
急停/门锁 (双通道) Emergency stop/ door lock (Dual Channel)	输入连接断开/连接异常 Input connection disconnected/ connected abnormality	■	★ ☆	□
	输入单通道异常 Input single channel exception	■	■	★ ☆
	急停按下/门锁开启 Emergency stop press/door lock open	■	★ ☆	□
	输入正确/未复位 The input is correct/not reset	■	■	□
	输入正确/已复位 Enter correctly/reset	■	■	■
	系统故障 System failure	★ ☆	□	□
急停/门锁 (单通道) Emergency stop/ door lock (Single Channel)	输入连接断开/连接异常 Input connection disconnected/ connected abnormality	■	★ ☆	□
	急停按下/门锁开启 Emergency stop press/door lock open	■	★ ☆	□
	输入正确/未复位 The input is correct/not reset	■	■	□
	输入正确/已复位 Enter correctly/reset	■	■	■
	系统故障 System failure	★ ☆	□	□
	NPN/PNP 型光幕/开关 NPN/PNP Type light curtain/ switch	输入连接断开/连接异常 Input connection disconnected/ connected abnormality	■	★ ☆
输入单通道异常 Input single channel exception		■	■	★ ☆
光幕被打断/开关动作 Light curtain is interrupted/switch action		■	★ ☆	□
输入正确/未复位 The input is correct/not reset		■	■	□

双手开关 (仅自动复位有效) Dual hand switch (only effective for automatic reset)	输入正确/已复位 Enter correctly/reset	■	■	■
	系统故障 System failure	★ ☆	□	□
	输入连接断开/连接异常 Input connection disconnected/ connected abnormality	■	★ ☆	□
	双手开关按下 Press the switch with both hands	■	■	■
带电阻 2 线触边/地毯 2-wire resistive edge/carpet	双手开关释放 Release of both hands switches	■	★ ☆	□
	系统故障 System failure	★ ☆	□	□
	输入连接断开/连接异常 Input connection disconnected/ connected abnormality	■	★ ☆	□
	触边/地毯被持续按下 Touch the edge/carpet is continuously pressed	■	■	★ ☆
无电阻 2 线触边/地毯 No resistance 2-wire edge/carpet	触边/地毯连接正确/未复位 Touch edge/carpet connection is correct/not reset	■	■	□
	触边/地毯连接正确/已复位 Touch edge/carpet connection is correct/reset	■	■	■
	系统故障 System failure	★ ☆	□	□
	输入断开(不支持检测) Input disconnected (detection does not support)	■	★ ☆	□
4 线触边/地毯 4-line edge/carpet	输入连接异常 Input connection abnormality	■	■	★ ☆
	触边/地毯被持续按下 Touch the edge/carpet is continuously pressed	■	■	★ ☆
	触边/地毯连接正确/未复位 Touch edge/carpet connection is correct/not reset	■	■	□
	触边/地毯连接正确/已复位 Touch edge/carpet connection is correct/reset	■	■	■
常闭触边/开关 Normally closed edge/switch	系统故障 System failure	★ ☆	□	□
	输入连接断开/连接异常 Input connection disconnected/ connected abnormality	■	★ ☆	□
	触边/开关被持续按下 The edge/switch is continuously pressed	■	★ ☆	□
	触边/开关连接正确/未复位 Edge touching/switch connection correct/not reset	■	■	□
	触边/开关连接正确/已复位 Edge touching/switch connection correct/reset	■	■	■
	系统故障 System failure	★ ☆	□	□

6. 复位按钮操作说明 Reset lever operation instructions

复位按钮 Reset lever	状态 state	说明 describe
	A	可配置成自动复位功能 (须 X1 与电源正极短接) Can be configured with automatic reset function (X1 must be short circuited to the positive pole of the power supply)
	M	只能配置成手动复位功能 (X1 通过复位按钮与电源正极连接, 参照连接图例) Can only be configured for manual reset function (X1 is connected to the positive pole of the power supply through the reset button, refer to the connection legend)

温馨提示

1, 安装前请务必仔细阅读安全继电器使用说明书, 避免因为接错或漏接引起的损坏或功能不良
Please read the safety relay operation manual carefully before installation to avoid damage or malfunction caused by incorrect or missing connections.

2, 安装安全继电器时, 为了您的安全请断电操作。
When installing the safety relay, please power off for your safety.

安全继电器使用说明书 Safety relay operation manual

7. 模式开关操作说明 Operation instructions for mode switch

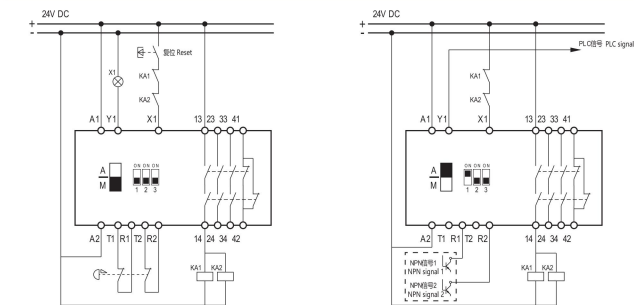
功能 function	拨码状态 Dial status	功能 function	拨码状态 Dial status
急停/门锁（双通道） Emergency stop/door lock (dual channel)		带电阻 2 线触边/地毯 2-wire resistive edge/carpet	
NPN/PNP 型光幕/开关 NPN/PNP Type light curtain/switch		无电阻 2 线触边/地毯 No resistance 2-wire edge/ carpet	
双手开关 Two handed switch		4 线触边/地毯 急停/门锁 (单通道) 常闭触边/开关 Emergency stop/door lock (single channel) Normally closed edge/switch	

8. 防输入抖动功能 Anti input jitter function

如果输入状态的切换过于频繁，超过系统限制，则会自动关闭并锁定安全继电器。
防止出现事故及损坏设备。
If the switching of input states is too frequent and exceeds the system limit, the safety relay will automatically shut down and lock. Prevent accidents and damage to equipment.

输入状态快速切换 Quick switching of input status		安全动作 Safe action	系统指示 System Instructions
监视时长 Monitoring duration	监视次数 Number of monitoring times	安全锁定继电器 Safety lock relay	系统故障（电源 LED 闪烁） System failure (power LED flashes)
5 秒 5 seconds	5 次 5 times		

9. 连接图例 Connect legend



- 双通道急停安全输入，带手动复位，指示灯输出
Dual-channel emergency stop safety input, with manual reset, indicator light output
- 双路 NPN/PNP 型光幕/开关安全输入，带自动复位，PLC 信号输出
Dual NPN/PNP type light curtain/switch safety input, with automatic reset, PLC signal output
- 双手开关安全输入，自动复位，双通道时差 0.5s
Safety input of two-hand switch, automatic reset, dual-channel time difference of 0.5s
- 2 线触边/地毯（带电阻）安全输入，带手动复位
2-wire edge contact/carpet (with resistor) safety input with manual reset

- 2 线触边/地毯（无电阻）安全输入，带手动复位
2-wire edge contact/carpet (no resistance) safety input with manual reset
- 双通道 4 线触边/地毯安全输入，带手动复位
Dual channel 4-wire edge contact/carpet safety input with manual reset
- 单通道急停门锁安全输入，带手动复位
Single-channel emergency stop door lock safety input with manual reset
- 常闭触边/地毯安全输入，带自动复位
Normally closed contact edge/carpet safety input with automatic reset

10. 技术参数 Technical parameters

电源 power supply	
供电电源 Power supply	24V DC
电压容差 Voltage tolerance	+10%/-20%
功耗 Power consumption	2.9W
输出 Output	
继电器安全输出 Relay safety output	3NO+1NC
晶体管信号输出 Transistor signal output	<500mA 24VDC
继电器触点容量 Relay contact capacity	
AC-1	6A/250VAC/1500VA
AC-15	4A/240VAC
DC-1	6A/24VDC/150W
DC-13	4A/24VDC
最大切换容量 Maximum switching capacity	12A (分配在所有安全输出触点上) (Assigned on all safety output contacts)
接触电阻 Contact resistance	<100mΩ
最小负载 Minimum load	10mA/5V
触点材质 Contact material	AgSnO2 + 0.24mAu
常规参数 General parameters	
输出熔断器（外接）Output fuse (external)	5A gL/gG
释放响应时间 Release response time	<30ms (从输入到输出) (From input to output)

输入部件尾端检知电阻（触边/地毯） Resistance detection at the end of the input component (touch edge/carpet)	1kΩ~10kΩ
电气寿命 Electrical life	80000 次
污染等级 Pollution level	2
工作温度 Operating temperature	-25℃~65℃
工作湿度 Working humidity	35%~85%（未结冰或凝露）(Unfreezing or condensation)
冲击耐受电压 Shock withstand voltage	2.5kV
防护等级 Protection level	外壳 IP30, 端子 IP20, 推荐安装于柜体或壳体 IP54 Case IP30, terminal IP20, recommended to be installed in cabinet or housing IP54
存储温度 Storage temperature	-40℃~105℃
外壳材质 Housing material	阻燃 PA66 Flame retardant PA66
安装方式 Installation method	标准 35mm DIN 导轨/弹簧卡扣 Standard 35mm DIN rail/spring buckle
尺寸 size	114.5mm×100.5mm×22.5mm
重量 weight	172g

连接参数 Connection parameters	
刚性导线可用横截面范围 Available cross-section range of rigid conductors	0.5~2.5mm ²
柔性导线可用横截面范围 Available cross-section range of flexible conductors	0.5~2.5mm ²
最小导线横截面 Minimum wire cross-section	AWG 24
最大导线横截面 Maximum wire cross-section	AWG 12
剥线长度 Stripping length	8mm
最小紧固扭矩 Minimum tightening torque	0.5 Nm
最大紧固扭矩 Maximum tightening torque	0.6 Nm

标准应用 Standard Application	
符合 conform to	EN 60947-1:2007/A2:2014
	EN 60947-5-1:2004/A1:2009
	EN ISO 13849-1:2015
	EN 62061:2005+A2:2015

11. 安装方式 Installation method

- 安装：采用弹簧卡扣结构，快速安装。
Installation: Use spring snap-on structure for quick installation.
- 拆卸：使用一字螺丝刀下拉卡扣，轻松拆卸
Disassembly: Use a flat-line screwdriver to remove easily
- 替换：可拆卸式端子，方便维修更换。
Replacement: Removable terminals for easy maintenance and replacement.

12. 产品自销售之日起，保修 1 年 The product is warranty for 1 year from the date of sale

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