

LED and reset lever operation instructions

LED Indicator status

■ Constantly on ★ ☆ Flash □ Extinguished				
Function	LED State	Power	Input	Output
Emergency stop / Interlock	Input connection is disconnected/abnormal	■	★ ☆	□
	Input single channel abnormality	■	■	★ ☆
	Emergency stop pressed / Interlock opened	■	★ ☆	□
	Input correct / not reset	■	■	□
	Input is correct / reset	■	■	■
Light curtain / PNP switch	System failure	★ ☆	□	□
	Input connection is disconnected/abnormal	■	★ ☆	□
	Input single channel abnormality	■	■	★ ☆
	Light curtain is interrupted / switch action	■	★ ☆	□
	Input correct / not reset	■	■	□
Two-hand switch (only automatic reset is valid)	Input is correct / reset	■	■	■
	System failure	★ ☆	□	□
	Input connection is disconnected/abnormal	■	★ ☆	□
	Two-hand switch pressed	■	■	■
	Two-hand switch released	■	★ ☆	□
2-wire resistor Edge / Mat	System failure	★ ☆	□	□
	Input connection is disconnected/abnormal	■	★ ☆	□
	The edge/mat is pressed continuously	■	■	★ ☆
	Edge/mat connection correct / not reset	■	■	□
	Edge/mat connection correct / reset	■	■	■
No resistor 2-wire Edge / Mat	System failure	★ ☆	□	□
	Input connection is disconnected (no detection support)	■	★ ☆	□
	Input connection abnormality	■	■	★ ☆
	The edge / mat is pressed continuously	■	■	★ ☆
	Edge/mat connection correct / not reset	■	★ ☆	□
4-wire Edge / Mat	Edge/mat connection correct / reset	■	■	■
	System failure	★ ☆	□	□
	Input connection is disconnected/abnormal	■	★ ☆	□
	The edge/mat is pressed continuously	■	★ ☆	□
	Edge/mat connection correct / not reset	■	■	□
2-wire edge/mat	Edge/mat connection correct / reset	■	■	■
	System failure	★ ☆	□	□
	Input connection is disconnected/abnormal	■	★ ☆	□

Reset lever operation

Reset lever	state	illustrate
	A	Can be configured as automatic reset function (must be short-circuited with the positive pole of the power supply)
	M	Can only be configured as manual reset function (X1 is connected to the positive pole of the power supply through the reset button, refer to the connection diagram)

Mode switch operation instructions

Function	DIP status	Function	DIP status
Emergency stop / Interlock	□ □ □	2-wire resistor Edge / Mat	□ □ □
Light curtain / PNP switch	□ □ □	No resistor 2-wire Edge / Mat	□ □ □
Two-hand switch	□ □ □	4-wire Edge / Mat	□ □ □

Wiring Example

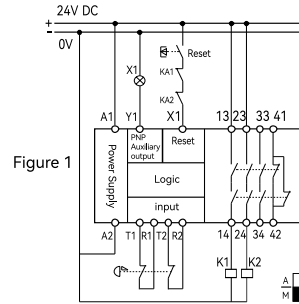


Figure 1

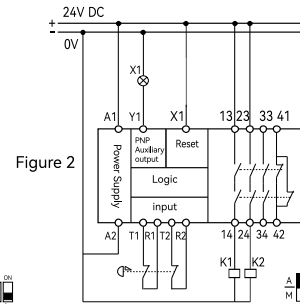


Figure 2

2. Dual-channel emergency stop safety input with automatic reset

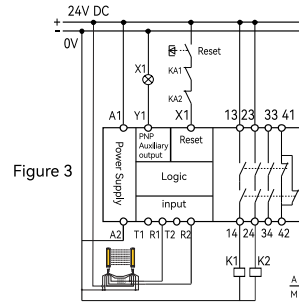


Figure 3

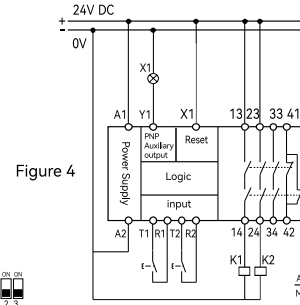


Figure 4

3. Dual-channel light curtain/ PNP switch safety input with manual reset. Automatic reset: Connect X1 to 24V and move the lever to A.

4. Two-hand switch safety input, automatic reset, dual-channel time difference 0.5s

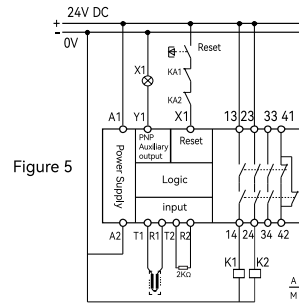


Figure 5

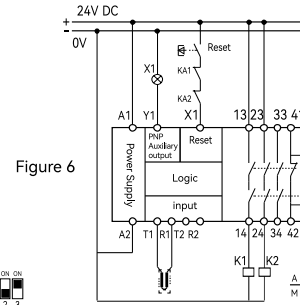


Figure 6

5. Dual-channel 2-wire edge/ carpet (with resistor) safety input with manual reset, T2 and R2 connected to 2KΩ. Automatic reset: X1 connected to 24V and the lever is moved to A.

6. 2-wire edge/ carpet (no resistor) safety input with manual reset. Automatic reset: Connect X1 to 24V and move the lever to A.

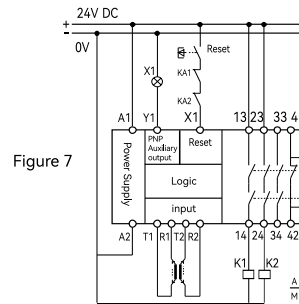


Figure 7

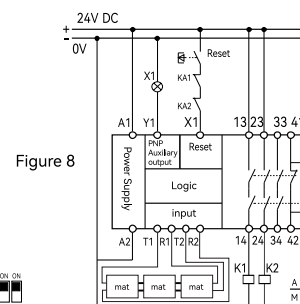


Figure 8

7. Dual-channel 4-wire edge/ carpet safety input with manual reset and automatic reset: X1 connected to 24V and the lever is turned to A.

8. This diagram is suitable for the four-wire connection of multiple carpets, and is also suitable for multiple touch edges with manual reset. Automatic reset: Connect X1 to 24V and move the lever to A.

Safety relays Ter-A User Manual



Performance Level: PLE
Safety Level: Cat. 4

EN 60947-1:2007/A2:2014
EN 60947-5-1:2004/A1:2009
EN ISO 13849-1: 2015
EN 62061:2005+A2:2015

Please read this instruction manual carefully before using the product and keep it properly.

Notice

- Please verify that the model and specifications on the product packaging and label are consistent with the order contract. Please carefully read this instruction manual before installing and using the safety relay. If you have any questions, please contact DADISICK.
- The safety relay should be installed in a control cabinet with a minimum IP54 protection rating.
- The instrument is powered by a 24V AC/DC power supply. Do not use a 220V AC power supply.
- Unauthorized disassembly or installation of the instrument is strictly prohibited to prevent instrument failure or malfunction.

Features

- Complies with up to PLe standards of ISO 13849-1 and SIL3 standards of IEC 62061;
- Proven dual-channel safety monitoring circuit design;
- Versatile configuration DIP switches for compatibility with a variety of safety sensors;
- Input and output LED indicators;
- Automatic/manual reset lever for quick system configuration;
- 22.5mm width for reduced installation space;
- Optional screw terminals or spring terminals for wider compatibility;
- PLC signal output.

Product application range

Suitable for monitoring

Emergency stop button	Safety light curtain	Safety edge
Safety switch	Safety scanner	Safety mat
Safety door lock	Safety sensor	Two-hand switch

Forced safety output 3NO / 1NC

Forced safety output

Injection molding machines, CNC machine tools, presses/hydraulic presses, glass machinery, filling machinery, packaging machinery, sorting machinery, woodworking machinery, papermaking machinery, intelligent forklifts, AGVs, robots, elevators, wind power, SIS systems, etc.



Technical Parameters

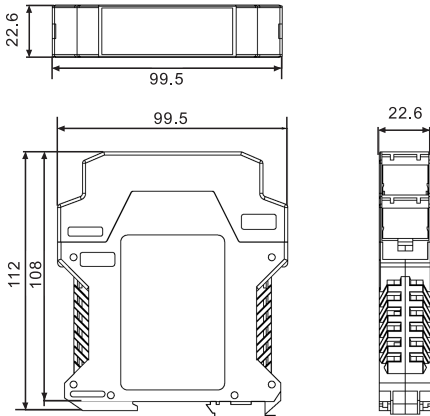
Power Supply	
Power Supply	24V DC
Voltage Tolerance	+10%/-20%
Power Consumption	2.9W
Output	
Relay safety output	3NO+1NC
	<500mA 24VDC
Relay contact capacity	
AC -1	6A/250VAC/1500VA
AC-15	4A/240VAC
DC-1	6A/24VDC/150W
DC-13	4A/24VDC
Maximum switching capacity	12A (distributed on all safety output contacts)
Contact resistance	<100mΩ
Minimum load	10mA/5V
Contact material	AgSnO2 + 0.2μmAu
General parameters	
Output fuse (external)	5A gL/gG
Release response time	<30ms (from input to output)
Input component end-of-line detection resistor (edge / mat)	1kΩ ~ 10kΩ

General parameters	
Electrical life	80000 times
Pollution level	2
Operating temperature	-25°C ~ 85°C
Operating humidity	35%~85% (no ice or condensation)
Impact withstand voltage	2.5kV
Protection level	Housing IP30, terminals IP20, recommended installation in cabinet or housing IP54.
Storage temperature	-40°C ~ 105°C
Casing material	Flame retardant PA66
Mounting method	Standard 35mm DIN rail/spring clip
Dimensions	112mm×99.5mm×22.6mm
Weight	172g
Connection parameters	
Available cross-sections for rigid conductors	0.5~2.5mm ²
Available cross-sections for flexible conductors	0.5~2.5mm ²
Minimum conductor cross-section	AWG 24
Maximum conductor cross-section	AWG 12
Stripping length	8mm
Minimum tightening torque	0.5 Nm
Maximum tightening torque	0.6 Nm

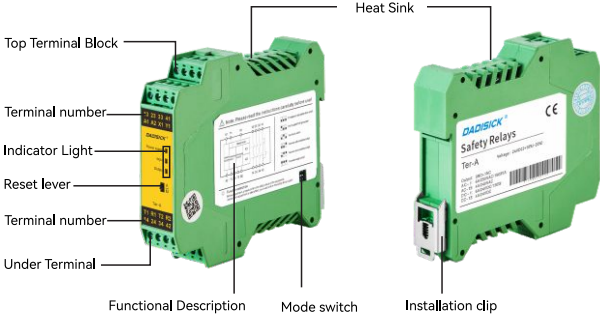
Security Certification

Performance level: PLe	Comply standards: ENISO 13849
Security Category: Cat.4	Comply standards: ENISO 13849
Task Time: 20 years	Comply standards: ENISO 13849
Diagnostic coverage: 99%	Comply standards: EN62061:2005+A2:2015
Safety Integrity Level: SIL3	Comply standards: EN62061:2005+A2:2015
Dangerous failure rate: 2.10E-09	Comply standards: EN62061:2005+A2:2015

Product size



Product Description



Safety forced-off relay outputs

Three normally open momentary safety contacts (3NO)
One normally closed momentary safety contact (1NC)

LED indicator light

Power Indicator
Input Status Indicator
Output Status Indicator

Safety Features

Automatic reset switch

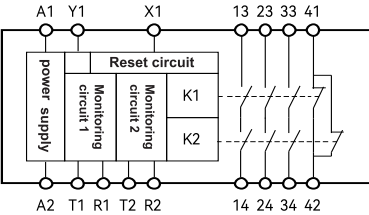
Configurable automatic/manual reset switch

Multi-function configuration dip switch

Can be configured for emergency stop, light curtain, door lock, edge contact, carpet, two-hand switch, and other functions.

The redundant circuit has a self-monitoring function. In the event of a component failure, the safety function is still effective. In each open-close cycle, the safety contacts are automatically tested to see if they are opened and closed correctly.

System module diagram



Terminal block function description

A1	Positive power supply (24VDC)	A1.A2 as power supply
A2	Power negative pole (0V)	
T1	Channel 1 signal output	With square wave type I signal source
R1	Channel 1 safety input	Receive type I signal input, with open circuit, short circuit detection and channel 1 mutual detection.
T2	Channel 2 signal output	With square wave type II signal source.
R2	Channel 2 safety input	Receive type II signal input, with open circuit, short circuit detection and channel 1 mutual detection.
X1	Reset input (configurable manual reset or automatic reset)	Automatic reset: the input condition is met, the unit is activated immediately. Manual reset: the input conditions are met, and the reset circuit is then manually closed. After release, the unit is activated.
Y1	Transistor signal output.	Output status signal indication, PLC signal input or link to external indicator light last night.
13/14 23/24 33/34	Normally open momentary safety contacts	The unit can be connected to the external Tner-TS31 unit to increase the number of contacts.
41/42	Normally closed instantaneous safety contacts.	Can be used as an external signal lamp or control other devices.