



ATTENTION: To prevent electrical shocks, disconnect power source before servicing.
IMPORTANT: Save these instructions for future use.

General

The safety relay by itself can not provide safety. The safety relay requires proper component application and maintenance. The application must anticipate failures by using system safety risk assessment. This product must be installed and maintained in accordance with the manufacturer's instructions as well as applicable standards.

Mounting

The units must be mounted on a 35 mm DIN rail.

Construction

The relays and expander units have (4) groups of terminals:

- Power Terminals:
(A1-A2) for 110V AC (23061, 23063) or 230V AC (23062, 23064) or (+B1 -B2) for 24V AC/DC
All units have a built-in transformer protected by an electronic fuse.
- Input Terminals:
The E-Stop and Gate interlock operator:
Ch 1 (T11,T12), Ch 2 (X1,X2) (Fig. 1, 3, 4, 5)
Start button: (T31...T34) (Fig. 1, 4, 5)
Two-hand operator (T11...T34) (Fig. 2)
Expander Feedback (T34, T35, S1...S4, J1, J2) (Fig. 4)
- Safety Output Terminals:
Relay: 13-14...53-54
Expander: 13-14...83-84
These are monitored outputs.
These outputs are voltage free.
- Auxiliary Terminals:
Relay: 61-62, 73-74, Expander: 91-92, 101-102

ATTENTION:

Protection of Safety Circuits.

- To avoid contact welding, a fuse must be connected externally. See performance specifications sheet for details.
- ** The auxiliary terminals are NOT monitored and must not be used as safety outputs. These may be used for data and signaling.

Wiring:

Use 0,2-2,5 mm² (24-14 AWG) Cu only, 250V min. insulation rating. Typical screwdriver needed is a flat blade 3 mm (.125 in.) wide. Tighten screws to 0.5-0.8 Nm (5-7 lb.in.).

	S2 Emergency Stop Dual channel EN 60617-7, EN 418	Refer to Guardmaster Catalogue
	S4 Emergency Stop Single channel EN 60617-7, EN 418	Refer to Guardmaster Catalogue
	S1 Reset	Refer to Guardmaster Catalogue
	S3 Gate Interlock EN 1088	Refer to Guardmaster Catalogue
	Positive operation EN 60617-7	Contacts are forced open mechanically
	Force guided contacts EN 60947-5 EN 50205	If N.O. welds all N.C. contacts cannot close
	Mechanically linked EN 60617-2	Contact set travels together

Applications: E-Stop, Gate Interlock, Two Hand Control, Expanders and Auxiliary Relays

E-Stop (Fig. 1)

- Use an E-Stop button conforming to EN 418. It must have (2) Normally Closed (N.C.) contact blocks. The contact blocks must conform to EN 60947-5-1 positive-opening operation. □□□□
- Use a start/reset momentary pushbutton with a single contact block with (2) circuits (1) Normally Open (N.O.) and (1) N.C. If two separate blocks are used, the N.O. must be assembled to the operator first and the N.C. assembled on it, so that if the N.O. welds, the N.C. will be held open and a fault detected (See Fig. 2B).

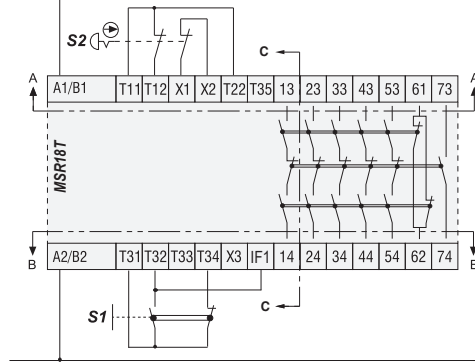


Fig. 1

Two-Hand Control (Fig. 2A)

This device conforms to the requirements of EN574 IIC of less than 0.5 sec. of synchronous actions of two buttons. Use only pushbuttons with two direct-opening contact blocks; each contact block must have a N.O. and N.C. If four separate blocks are used, the N.O. must be assembled to the operator first, and the N.C. assembled onto it, so that if the N.O. welds, the N.C. will be held open and a fault detected (See Fig. 2B). The two-hand buttons and safety relay must be installed in the same enclosure (IP54 minimum). Wires leading from the two-hand buttons to the relay must be separated to prevent undetected shorts between lines.

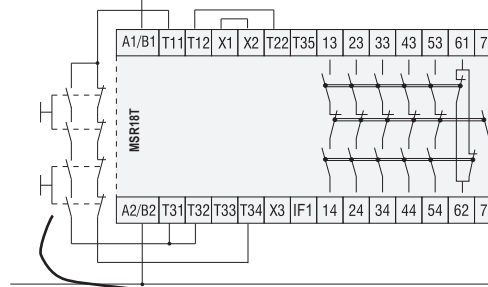


Fig. 2A

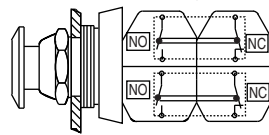


Fig. 2B

Gate Interlock (Fig. 3)

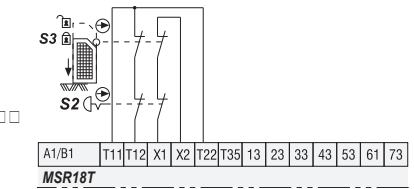


Fig. 3

Attaching an Expander Relay (Fig. 4)

The expander can be used with E-Stop, Gate Interlock and Two-Hand Control.

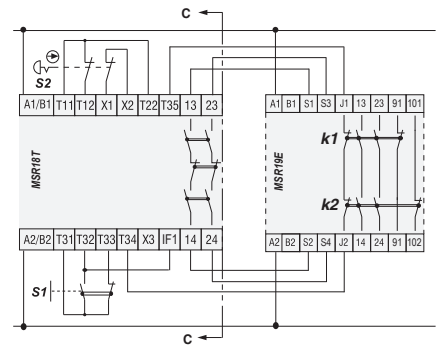


Fig. 4

Attaching Auxiliary Relays (Fig. 5)

The auxiliary relays must be of the "positively-guided/ Direct Drive™" style conforming to EN 50205. The auxiliary relays may be monitored by connecting N.C. contacts in series to the reset circuit.

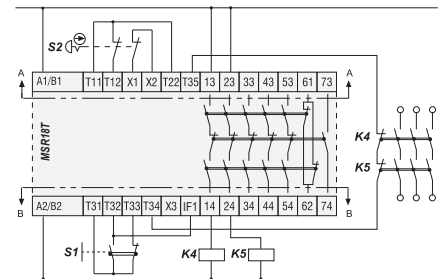


Fig. 5

Maintenance

The relay and its application must be inspected periodically based on environmental and operating conditions. Causes of contamination must be eliminated. Worn and broken assemblies must be replaced. Fasteners must be securely re-tightened. Unit has no customer serviceable parts. Fault conditions must be corrected before restoring power. After maintenance, test the control system under controlled conditions.

LEDs: Run & Fault Conditions (Fig. 1,3,4,5)

CONDITION	STOP RESET						STOP ACTUATED	
	○	●	○	●	○	●	○	●
INPUT SHORT	○	○	○	○	○	○	●	○
POWER	●	●	●	●	●	●	●	●
RUN	○	●	●	●	●	○	○	○
INPUT FAULT	○	○	●	●	○	○	○	○
OUTPUT FAULT	○	○	○	●	●	●	○	○
ACTION	Waiting for start signal.	Proper running conditions.	Proper running conditions but start button may be actuated or welded.	Start button may be in actuated position or welded.	E-Stop contacts may be welded (channel 1) or jumper wire (T11-T22) may be disconnected.	1. Output circuits are welded on the monitoring relay, expander module or auxiliary relays or 2. resettable fuse is open or 3. start N.C. contacts may be open or 4. wire (T11-T22) may be disconnected.	Input short circuit has caused resettable fuse to open.	Waiting for start signal.
ACTION	None	None	Release start button or replace start contacts.	Release start button or replace start contacts.	Replace (channel 1) contact block or secure jumper wire.	1. Replace safety relay, expander (if used), or auxiliary relays (if used) or 2. after clearing short, power must be off 20 sec. to reset fuse or 3. replace start contacts or 4. secure jumper wire.	After clearing short, power must be off 20 sec. to reset fuse.	Reset E-stop or gate before actuating start.