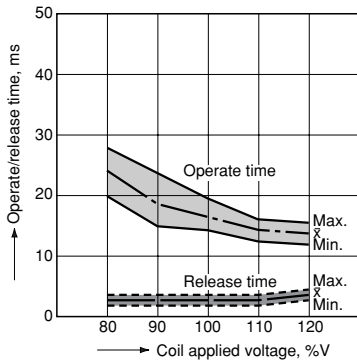


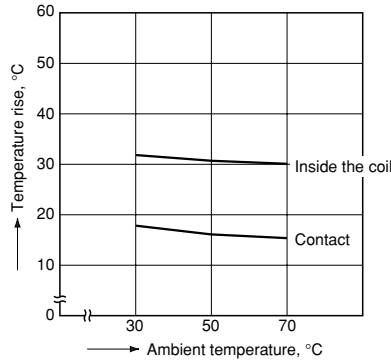
REFERENCE DATA

1. Operate/release time



2. Coil temperature rise

Coil applied voltage: 120%V
Contact switching current: 6A



SAFETY STRUCTURE OF SF RELAYS

This SF relay design ensures that subsequent operations shut down and can automatically return to a safe state when the SF relay suffers overloading and other circuit abnormalities

(unforeseen externally caused circuit or device breakdowns, end of life incidents, and noise, surge, and environmental influences) owing to contact welding, spring fusion or, in the worst-case

scenario, relay breakdown (coil rupture, faulty operation, faulty return, and fatigue and breakage of the operating spring and return spring), and even in the event of end of life.

	Structure	Operation
1. Forced operation method (2a2b, 3a1b, types)	<p>The two contacts "a" and "b" are coupled with the same card. The operation of each contact is regulated by the movement of the other contact.</p>	<p>Even when one contact is welded closed, the other maintains a gap of greater than 0.5 mm .020 inch.</p> <p>In the diagram on the left, the lower contact "b" have welded but the upper contact "a" maintain at a gap of greater than 0.5 mm .020 inch. Subsequent contact movement is suspended and the weld can be detected</p>
2. Separate chamber method (2a2b, 3a1b, types)	<p>In independent chambers, the contacts "a" and "b" are kept apart by a body/card separator or by the card itself.</p>	<p>Prevents shorting and fusing of springs and spring failure owing to short-circuit current.</p> <p>As shown on the diagram on the left, even if the operating springs numbered 1 and 2 there is no shorting between "a" and "b" contacts.</p>
3. 2a2b contact 3a1b contact	<p>Structure with independent COM contact of (2a2b), (3a1b), contacts.</p>	<p>Independent COM enables differing pole circuit configurations. This makes it possible to design various kinds of control circuits and safety circuits.</p>

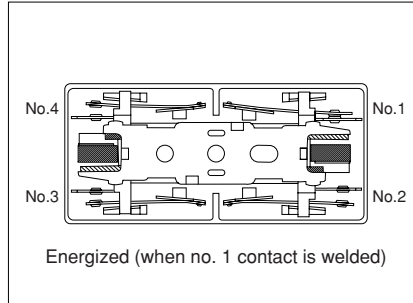
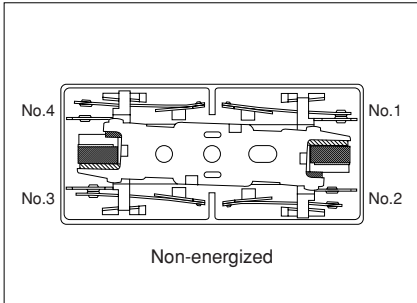
THE OPERATION OF SF RELAYS (when contacts are welded)

SF relays work to maintain a normal operating state even when overloading or short-circuit currents occur. It is also easy to include weld detection and safety circuits in the design to ensure safety even if contacts weld.

1) 2a2b Type

Form "b" Contact Weld

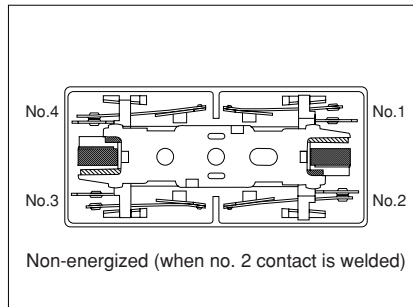
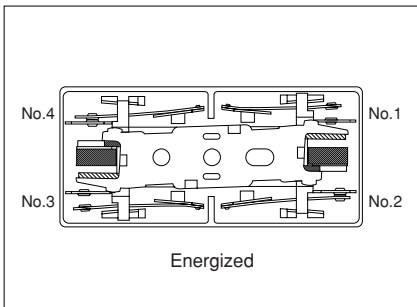
If the form "b" contacts (No. 1 or 3) weld, the armature becomes non-operational and the contact gap of the two form "a" contacts is maintained at greater than 0.5 mm .020 inch. Reliable isolation is thus ensured.



If the No. 1 contact welds.
A gap of greater than 0.5 mm .020 inch is maintained at each of the two form "a" contacts (No. 2 and 4).

Form "a" Contact Weld

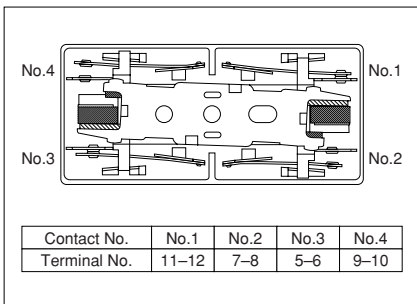
If the form "a" contacts (No. 2 or 4) weld, the armature becomes non-operational and the gap between the two form "b" contacts is maintained at greater than 0.5 mm .020 inch. Reliable isolation is thus ensured.



If the No. 2 contact welds.
Each of the two form "b" contacts (No. 1 and 3) maintains a gap of greater than 0.5 mm .020 inch.

Contact Operation Table

The table below shows the state of the other contacts when the current through the welded form "a" contact is 0 V and the rated voltage is applied through the form "b" contact.



Contact No.	State of other contacts			
	1	2	3	4
Welded terminal No.	1	>0.5		>0.5
	2	>0.5	>0.5	
	3		>0.5	>0.5
	4	>0.5	>0.5	

>0.5: contact gap is kept at min. 0.5 mm .020 inch
Empty cells: either closed or open

Note: Contact gaps are shown at the initial state.
If the contacts change state owing to loading/breaking it is necessary to check the actual loading.