



Type SH04
MINI POWER RELAY



Type SH4
CONTROL RELAY
Up to 4 Contacts



Type SH8
CONTROL RELAY
Up to 8 Contacts

POSITIVE GUIDED CONTROL RELAYS
for safety applications

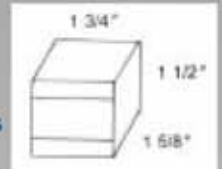
Rating: 16 Amp
600 Volt
AC or DC Coils

Pole Combinations

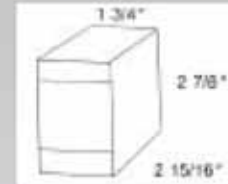
- 4 Pole N.O.
- 3 Pole N.O., 1 N.C.
- 2 Pole N.O., 2 N.C.
- 1 Pole N.O., 3 N.C.

Connection Options

- Pressure Wire Terminals
- Spade (Plug-On)
- Pin Terminal (for PC's)



CONTROL RELAY
Type SH4
Compact Design



Rating: 20 Amp
600 Volt
10,000,000 Operations

- 4 to 10 Poles
- AC or DC Operation
- Extreme Long Life
- Protected Coil / Contacts
- Rail Mounting

Field Flexible

- Add on Poles
- Add on Timer Kit
- Add on Latch Kit

POSITIVE GUIDED CONTROL RELAYS

4 Pole, 16 Amp
4, 8 and 10 Pole, 20 Amp

Internationally Accepted



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POSITIVE GUIDED TYPE SH RELAYS & TYPE LS CONTACTORS FOR SAFETY CIRCUITS

Certified as Positive Guided AEG Relays and Contactors
1. Independent Test Lab Certified Per IEC 947-5-1
2. 100% Quality Tested Per IEC 947-5-1



Positive Guided for Safety

Purpose - Critical Circuits

IEC Standard 947-5-1 was developed to provide industrials much greater reliance of positive accurate relay signals. While relays and contactors that meet this standard can be used universally, the main applications are *safety circuits* and important *automation machinery* sequencing circuits.

Description

Positive-guided control relays and contactors

The control structure of a safety control system employs control relays and/or contactors to establish the intended functions of the machine. They must function in such a way, that the safety requirements can be met. To achieve this, contacts in these devices control each other mutually. This is only possible, if the position relations of the contacts always remain the same. The most important relation is between the NO and NC contacts. **They must never be closed simultaneously, even if the NO contacts should be welded closed.**

This feature is not normally available in standard relays. The positive-guided relays and contactors should be designed with a one-piece movable contact carrier, thus guaranteeing the same relative position for all the contacts. In the new state, contacts of the opposite function have at least a contact distance of 0.5mm between the opening of a NO contact and the closing of a NC contact (or vice versa). During the mechanical/ electrical life, this distance increases slightly, thus maintaining the safety characteristic.

This character of the positive-guided relay per IEC947-5 Standard for Control Relays is a special requirement for this type of device.

Safety and Reliability in Auxiliary Interlocks

Auxiliary interlocks signal action taken or required in machinery. If these signals are not constantly reliable, serious problems can result to man and machinery. Major manufacturers, then, demand the most reliable designs available in the industry.

Fulfilling safety requirements does not come free. One important means for achieving the necessary safety level is by using redundant devices. This use of additional equipment, increases not only the cost of the device, but also reduces the reliability of the control system. It is therefore essential to use very reliable devices in order to insure a reliable operation of the machinery. Otherwise one trades safety for poor performance.

POSITIVE GUIDANCE

With a one piece contact carrier, both auxiliary and main poles are assured to operate as a unit. This assures guaranteed positive guidance operation and true feedback signals to processors.

One piece construction applies to all type SH relays (SH4, 8, 10) and Type LS contactors. (LS4, 7, 17, 27, 37, to 25HP)



AUXILIARY CONTACTS RELIABLE OPERATION



Each pole has 2 movable contacts

The design of each pole in the auxiliary contact system has both parallel movable contacts and 300 micron radius serrated stationary contacts, further assuring contact reliability even with 24 volt DC low power circuits.



SH04

AC & DC OPERATED

MINI RELAYS - POSITIVE GUIDED DESIGN

FOR SAFETY CIRCUITS (See page AEG 67)

Type SH04 Mini relays are applied for auxiliary wiring and remote control schemes. Taking as little as 1.2W to pick up, the 24 Volt DC Minirelay SH04 and Minicontactor LS07 are ideal for operation of most electronic control systems as an interface relay.

Mini relay SH04 is certified as a Positive Guided Design per IEC 947-5 and independent Test Laboratory Certified per IEC 947-5.

With Pressure Wire Screws Terminals				
	CONTACTS		AC OPERATED LIST	DC OPERATED LIST
	NO	NC		
SH04.22-★	2	2	\$34	\$44
SH04.31-★	3	1	34	44
SH04.40-★	4	0	34	44
SH04.13-★	1	3	34	44

With Flat Plug (Spade) Connectors				
	CONTACTS		AC OPERATED LIST	DC OPERATED LIST
	NO	NC		
SH04F.22-★	2	2	\$34	\$44
SH04F.31-★	3	1	34	44
SH04F.40-★	4	0	34	44
SH04F.13-★	1	3	34	44

With Terminal Wire Pin Connectors (IX 0.6mm for soldering to p.c.'s)				
	CONTACTS		AC OPERATED LIST	DC OPERATED LIST
	NO	NC		
SH04L.22-★	2	2	\$34	\$44
SH04L.31-★	3	1	34	44
SH04L.40-★	4	0	34	44
SH04L.13-★	1	3	34	44

DIMENSIONS

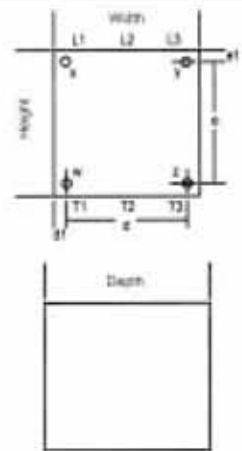
OVERALL DIMENSIONS (inches approximate)

Dimensions	SH04	SH4	SH8
Height	1.54	3.07	3.07
Width	1.77	1.77	1.77
Depth	1.65	2.90	3.94
Depth*		3.62	

MOUNTING DIMENSIONS (inches approximate)

Holes	y.z	w.y	w.y
d	1.4	1.38	1.38
d1	0.2	0.3	0.3
e		2.36	2.36
e1		0.3	0.3

*Depth with top deck auxiliary set



Technical Data Type SH04

Rated insulation voltage 600V	16 Amp continuous
Mechanical life endurance	For AC operation: 4 million operation cycles For DC operation: 10 million operation cycles
AC 1 duty resistive	Admissible operation frequency: 50 operations/hour Contact life expectation under full load and rated operational current: 150,000 ops (16 Amp)
AC 11 duty heavy pilot duty 10 Amp	Rated make/break capacity up to 200 V 60 Amp Allowed frequency of operations at full load and uninterrupted duty: 6500 ops/h
DC 11 duty standard duty	Max. back-up fuse: 16 A slow
Coil ratings	For AC operation (working range 0.8 to 1.1V): Pick-up/sealing 16VA/4.9VA 14W/2.2W pf 0.88/0.45 For DC operation (working range 0.8 to 1.2V): Pick-up/sealing 2.4W (for 24V: 1.2W; for operating range 0.8 to 1.7V)
Switching times for 1.0V	For AC operation closing delay 9 to 30 millisecs opening delay 5 to 25 millisecs For DC operation closing delay 10 to 35 millisecs opening delay 2 to 8 millisecs