

Industrial Relays

SH series

General information

Optional units

• Front mounting

Auxiliary contact block

2 or 4-pole

Highly reliable bifurcated contact can be used in low-level circuit of 5V, 3mA.

Operation counter

This counter indicates the number of relay ON-OFF operations to ensure easy maintenance and inspection.

Terminal cover

The relay can easily be fitted with terminal covers for finger safety.

• Top mounting

Coil drive unit

This unit controls ON-OFF operation for industrial relay with output from electronic equipment.

Coil surge suppression unit

This unit absorbs coil surge voltage due to relay ON-OFF operations.

• Side mounting

Auxiliary contact block

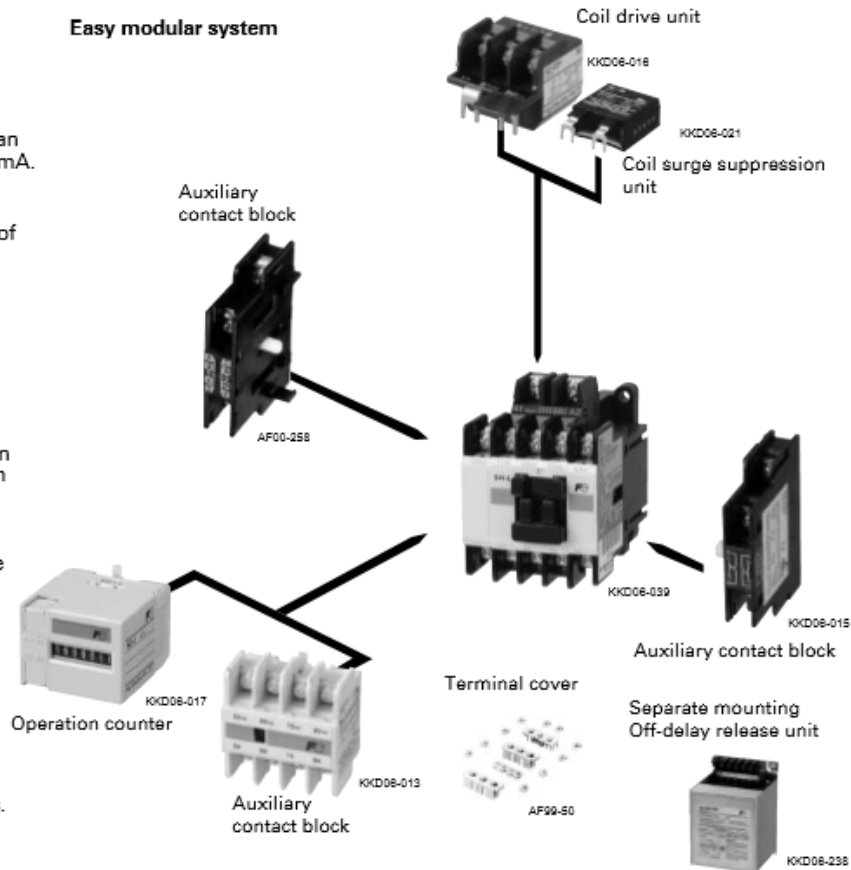
2-pole (1NO+1NC)

• Separate mounting

Off-delay release unit

This industrial relay can be held in closed position even when the instantaneous power failure occurs.

Easy modular system



Description	Type	Ordering code	Description	Type	Ordering code				
Auxiliary contact block	For SH-4, SH-5		Terminal cover	For SH-4, SH-4H	SZ-T1	SZ1T1			
	Front mounting (Bifurcated)			For SH-5, SH-5H	SZ-T2	SZ1T2			
	4NO	SZ-A40		For front mounting contact block					
	3NO+1NC	SZ-A31		4-pole	SZ-T5	SZ1T5			
	2NO+2NC	SZ-A22		2-pole	SZ-T6	SZ1T6			
	2NO	SZ-A20		For side mounting contact block					
	1NO+1NC	SZ-A11		1-pole	SZ-T7	SZ1T7			
	2NC	SZ-A02	Coil drive unit	24V DC Relay contact	SZ-CD1	SZ1CD1			
	1NO+1NC *	SZ-A111		Solid-state contact	SZ-03/CD2-24	SZ103CD224			
	2NO+2NC *	SZ-A222		Coil surge suppression unit	Varistor	24-48V AC/DC	SZ-Z1	SZ1Z1	
	Front mounting (Single button)					100-250V AC/DC	SZ-Z2	SZ1Z2	
	4NO	SZ-A40H				380-440V AC/DC	SZ-Z3	SZ1Z3	
	3NO+1NC	SZ-A31H				24-48V AC/DC with LED	SZ-Z6	SZ1Z6	
	2NO+2NC	SZ-A22H				100-240V AC/DC with LED	SZ-Z7	SZ1Z7	
Side mounting (Bifurcated)		C-R	24-48V AC/DC			SZ-Z4	SZ1Z4		
1NO+1NC	SZ-AS1		100-250V AC/DC			SZ-Z5	SZ1Z5		
Side mounting (Single button)			24-48V AC/DC with LED		SZ-Z8	SZ1Z8			
1NO+1NC	SZ-AS1H		100-240V AC/DC with LED		SZ-Z9	SZ1Z9			
Operation counter	Without alarm contact		SZ-J		SZ1J	Off-delay release unit	100V AC 50/60Hz	SZ-DE100	SZ1DE100
	With alarm contact						110V AC 50/60Hz	SZ-DE110	SZ1DE110
	At 1-million operations		SZ-J1		SZ1J1		200V AC 50/60Hz	SZ-DE200	SZ1DE200
	At 2-million operations	SZ-J2	SZ1J2		220V AC 50/60Hz		SZ-DE220	SZ1DE220	
	At 3-million operations	SZ-J3	SZ1J3		Up to 240V AC available				
	At 4-million operations	SZ-J4	SZ1J4	Live section cover	For SH-4, SH-4H	SZ-JC1	SZ1JC1		
	At 5-million operations	SZ-J5	SZ1J5		For SH-5, SH-5H	SZ-JC2	SZ1JC2		
	At 6-million operations	SZ-J6	SZ1J6						
At 7-million operations	SZ-J7	SZ1J7							
At 8-million operations	SZ-J8	SZ1J8							

Note: * Overlapping contact

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SH series

Standard type

■ Coil characteristics

Type	Pole	Power consumption		Pick-up voltage (V)		Drop-out voltage (V)		Watt loss (W)	
		Inrush (VA)	Sealed (VA)	200V 50Hz	220V 60Hz	200V 50Hz	220V 60Hz	200V 50Hz	220V 60Hz
SH-4, 4H	4	95	9	105-125	116-136	70-98	80-110	2.7	2.8
SH-4, 4H	8	95	9	105-125	116-136	70-98	80-110	2.7	2.8
SH-5, 5H	5	95	9	105-125	116-136	70-98	80-110	2.7	2.8

Note: Coil rating 200V 50Hz/200-220V 60Hz

■ Operating characteristics

Type	Pole	Contact arrangement	Voltage (V)	Frequency (Hz)	Pick-up time(ms.)		Drop-out time(ms.)	
					NO contact ON	NC contact OFF	NO contact OFF	NC contact ON
SH-4, 4H	4	2NO+2NC	200	50	9-20	5-15	5-15	9-20
SH-4, 4H	8	4NO+4NC	200	50	9-20	5-15	5-15	9-20
SH-5, 5H	5	3NO+2NC	200	50	9-20	5-15	5-15	9-20

Note: Coil rating 200V 50Hz/200-220V 60Hz

■ Performance data (AC-15)

Type	Pole	Making current	Breaking current	Operating cycles per hour	Voltage	Life expectancy(operations)	
						Electrical	Mechanical
SH-4, 4H	4	10 le	1 le	1800	220V/440V	500,000	10 million
SH-4, 4H	8	10 le	1 le	1800	220V/440V	500,000	10 million
SH-5, 5H	5	10 le	1 le	1800	220V/440V	500,000	10 million

Note: le: Rated operational current (A)

■ Combination of industrial relay and auxiliary contact block

The standard type industrial relays can be used according to the combination with the auxiliary contact blocks shown below.

Industrial relay	Bifurcated contacts	Add-on auxiliary contact block						Side mounting	SZ-AS1
		Front mounting							
Type	Contact arrangement	SZ-A40	SZ-A31	SZ-A22	SZ-A20	SZ-A11	SZ-A02	SZ-AS1x2	SZ-AS1
		4NO	3NO+1NC	2NO+2NC	2NO	1NO+1NC	2NC	2NO+2NC	1NO+1NC
SH-4	4NO	8NO	7NO+1NC	6NO+2NC	6NO	5NO+1NC	4NO+2NC	6NO+2NC	5NO+1NC
	3NO+1NC	7NO+1NC	6NO+2NC	5NO+3NC	5NO+1NC	4NO+2NC	3NO+3NC	5NO+3NC	4NO+2NC
	2NO+2NC	6NO+2NC	5NO+3NC	4NO+4NC	4NO+2NC	3NO+3NC	2NO+4NC	4NO+4NC	3NO+3NC
	8NO	-	-	-	-	-	-	-	-
	7NO+1NC	-	-	-	-	-	-	-	-
	6NO+2NC	-	-	-	-	-	-	-	-
	5NO+3NC	-	-	-	-	-	-	-	-
4NO+4NC	-	-	-	-	-	-	-	-	
SH-5	5NO	9NO	8NO+1NC	7NO+2NC	7NO	6NO+1NC	5NO+2NC	7NO+2NC	6NO+1NC
	4NO+1NC	8NO+1NC	7NO+2NC	6NO+3NC	6NO+1NC	5NO+2NC	4NO+3NC	6NO+3NC	5NO+2NC
	3NO+2NC	7NO+2NC	6NO+3NC	5NO+4NC	5NO+2NC	4NO+3NC	3NO+4NC	5NO+4NC	4NO+3NC
	2NO+3NC	6NO+3NC	5NO+4NC	-	4NO+3NC	3NO+4NC	-	-	3NO+4NC
	1NO+4NC	5NO+4NC	-	-	3NO+4NC	-	-	-	-
	5NC	4NO+5NC	-	-	2NO+5NC	-	-	-	-

Industrial relay	Single contact	Add-on auxiliary contact block		
		Front mounting		
Type	Contact arrangement	SZ-A40H	SZ-A31H	SZ-A22H
		4NO	3NO+1NC	2NO+2NC
SH-4H	4NO	8NO	7NO+1NC	6NO+2NC
	3NO+1NC	-	-	-
	2NO+2NC	-	5NO+3NC	4NO+4NC
SH-5H	5NO	9NO	8NO+1NC	7NO+2NC
	4NO+1NC	-	-	-
	3NO+2NC	-	6NO+3NC	5NO+4NC
	2NO+3NC	-	-	-
	1NO+4NC	-	-	-
5NC	4NO+5NC	-	-	-

Notes:

- Both front mounting and side mounting auxiliary contact blocks cannot be mounted on a relay at a time.
- Any auxiliary contact blocks cannot be mounted on 8-pole type SH-4 and SH-4H relays.
- Side mounting contact blocks (SZ-AS1), with bifurcated contacts, can be mounted on SH-4H and SH-5H.

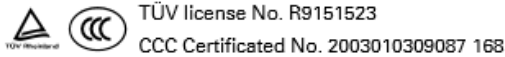
■ Ordering information

Specify the following:

1. Ordering code

Industrial Relays
SH series
TÜV and CCC approved

TÜV and CCC approved



■ **Types and ratings**

● **AC operated, bifurcated contact**

Type	Ordering code *2	Contact	Pole	Rated thermal current (A)	Make and break capacity AC (A)	Rated operational current (A)					
						AC Voltage (V)	Ind. AC-15	Res. AC-12	DC Voltage (V)	Ind. *1 DC-13	Res. DC-12
SH-4	SH04AA-■□	Bifurcated contact	4 8	10	60 30 15 12	110	6	10	24	3	5
						220	3	8	48	1.5	3
						440	1.5	5	110	0.55	2.5
						550	1.2	5	220	0.27	1
SH-5	SH05AA-■□	Bifurcated contact	5	10	60 30 15 12	110	6	10	24	3	5
						220	3	8	48	1.5	3
						440	1.5	5	110	0.55	2.5
						550	1.2	5	220	0.27	1

Notes: *1 Time constant is less than 70ms.

*2 Enter the coil voltage code in the ■ mark.

Enter the contact arrangement code in the □ mark.

• 8-pole type SH-4(H) is a combination of 4-pole type SH-4(H) and add-on auxiliary contact block SZ-A□(H).

● **DC operated**

Type	Ordering code *2	Pole	Rated thermal current (A)	Make and break capacity AC (A)	Rated operational current (A)					
					AC Voltage (V)	Ind. AC-15	Res. AC-12	DC Voltage (V)	Ind. *1 DC-13	Res. DC-14
SH-4/G	SH04AG-■□	4 8	10	60 30 15 12	110	6	10	24	3	5
					220	3	8	48	1.5	3
					440	1.5	5	110	0.55	2.5
					550	1.2	5	220	0.27	1
SH-5/G	SH05AG-■□	5	10	60 30 15 12	110	6	10	24	3	5
					220	3	8	48	1.5	3
					440	1.5	5	110	0.55	2.5
					550	1.2	5	220	0.27	1

Notes: *1 Time constant is less than 70ms.

*2 Enter the coil voltage code in the ■ mark.

Enter the contact arrangement code in the □ mark.

CCC approved

● **AC operated, single contact**

Type	Certificate No.
SH-4H SH-5H	2003010309087168

● **With extra pick-up operating coil**

Type	Certificate No.
SH-4/U SH-5/U	2003010309087168

■ **Ordering information**

Specify the following:

- Ordering code
- CCC approved

● **Auxiliary contact blocks/optional**

Description	Type	Applicable type	Certificate No.
Front mounting, bifurcated	SZ-A40	SH-4, SH-5	Certified according to an applicable industrial type
	SZ-A31		
	SZ-A22		
	SZ-A20		
	SZ-A11		
Front mounting, single button	SZ-A40H	SH-4, SH-5	
	SZ-A31H SZ-A22H		
Side mounting, bifurcated	SZ-AS1	SH-4, SH-5	
Side mounting, single button	SZ-AS1H	SH-4, SH-5	