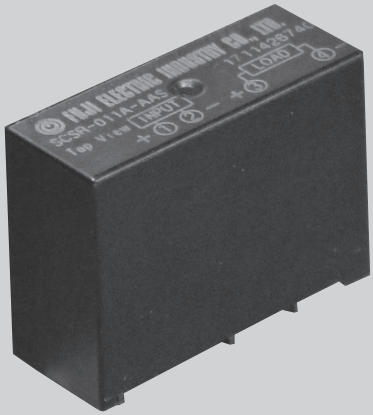
SemiCon Switch

SCSR TYPE

Semiconductor DC relays with excellent noise immunity.



FEATURES

Ensures reliable DC disconnection

Maximum rating (Breaking capacity)
143V DC, 3A (L/R≤5ms)

*Performance during 5A tripping
Operating time: 10 seconds; Rest period: 60 seconds or more

Delivering high reliability and a long service life

Because it is a non-moving type, there is no risk of contact issues such as oxidation, welding, or contamination. In addition, the use of semiconductors eliminates contact degradation.

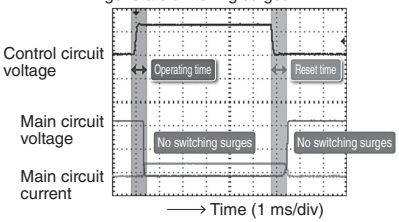
Reference: Power Standard B-402

As a power system protective relay, it offers excellent reliability with strong noise immunity and insulation performance against voltage fluctuations.

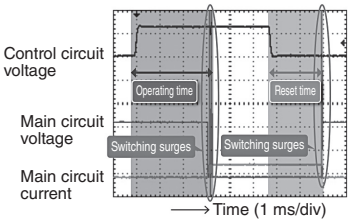
Achieves high-speed, surge-free switching

Compared to mechanical relays, it provides fast response and surge-free switching, reducing noise in surrounding circuitry.

SCSR type — It has a fast response time and does not generate switching surges.



Standard mechanical relay



SPECIFICATIONS (RATING, PERFORMANCE / NORMAL SERVICE CONDITION)

Specification \ Type		SCSR
Main circuit	Maximum load voltage	143V DC
	Maximum allowable load current	20A DC (0.5s or less)
	Off-state leakage current	10μA DC or less
Control circuit	Rated voltage	24V DC
	Rated current	20mA DC
	Voltage fluctuation range	±10%
	Operating voltage	19.2V or less
	Release voltage	2.4V or more
Power-frequency withstand voltage (Between all circuit and ground)		2,000V AC/1min
Set time		3ms or less
Reset time		3ms or less
ON resistance		60mΩ or less
Breaking capacity		143V DC/3A (L/R≤5ms)
		143V DC/0.5A (L/R=100ms)
Overcurrent protection		No functions
Terminal Specifications (Connection Type)		Printed terminal board

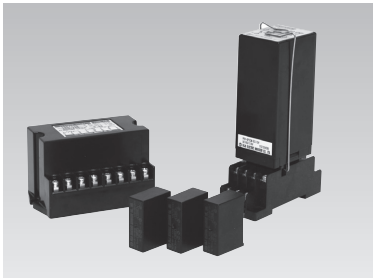
HOW TO ORDER

SCSR - 01 1A - A A S

① ② ③ ④ ⑤ ⑥

No.	Item	Code	Description
①	Basic type	SCSR	—
②	Shape	01	Straight
③	Contact arrangement	1A	1a contact
④	Main circuit rated load	A	100/110V DC, 3A
⑤	Control circuit rated voltage	A	24V DC
⑥	Additional functions	S	With surge protection

EXAMPLE PROPOSAL



We can also provide packaged products, such as multi-circuit configurations, by combining SCSR-type relays. Please contact us for further details.

*Examples of packaged products
PKS type(See page D5)

Control circuit conversion to 100V DC

Fault detection

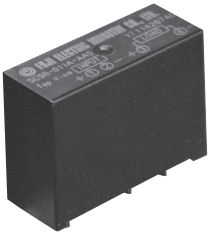
strong noise immunity

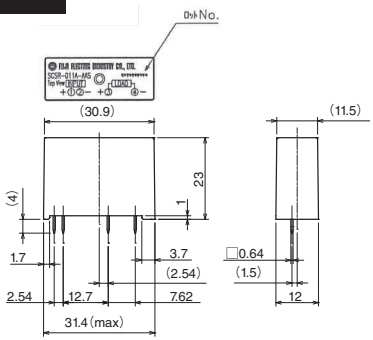
SemiCon Switch

SCSR TYPE

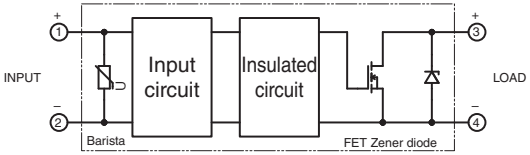
STANDARD PRODUCTS

SCSR SemiCon Switch

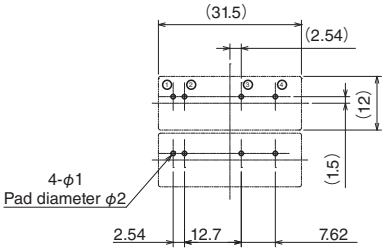




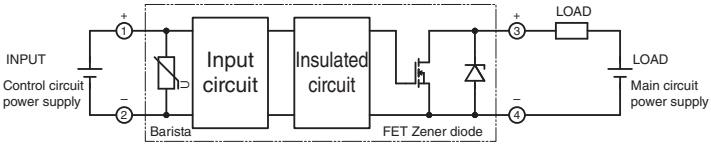
CIRCUIT DRAWING



MOUNTING HOLE SIZE, PCB MANUFACTURING DRAWING

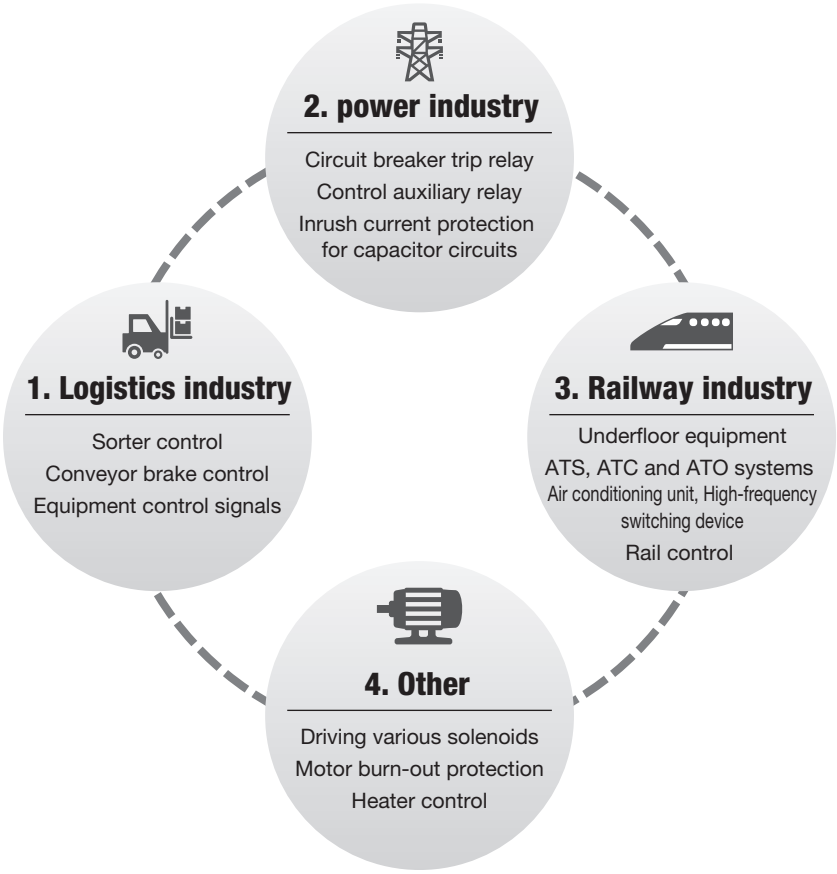


TECHNICAL DATA



INTRODUCTION

Fields of application of the SCSR-Type SemiCon Switch



It is ideal for applications that require frequent switching and high reliability.

SemiCon Switch

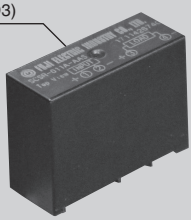
PKS TYPE

Long-life switching device using power semiconductors.

- **Achieves fast response, long service life, and high reliability.**
- **Plug-in design for easy replacement.**
- **Compact package incorporating four contacts.**

PKS-014A-AAS
(Package type)

SCSR type
(Built into the PKS type)
Surface-mount type
(See page D1 to D3)



FEATURES

DC control

Reliable switching is achieved using semiconductor devices.

SCSR Type: 143V DC, 20A
(For 20A breaking capacity: 0.5 seconds on, 60 seconds or more off)

*For inductive loads: 143V DC, 0.5A, L/R = 100ms

Additionally, since the control voltage is 24V DC, it can be controlled by a PLC.

High-performance

The operating and release times are significantly faster than those of mechanical relays, achieving rapid response performance.

Durability

It is not affected by vibration or shock, and it does not malfunction due to contact chattering or bouncing. The semiconductor elements are sealed in the case to improve environmental resistance. The structure is also designed to withstand surrounding conditions such as gas atmospheres.

SPECIFICATIONS (RATING, PERFORMANCE)

Applicable standard : IEC 60947-5-1 (2009)

Item	Description
Guaranteed operating temperature range	-20°C to +60°C
Storing temperature	-40°C to +80°C
Relative humidity	Daily average humidity: 85% (at 45°C)
Altitude	2,000m or less
Pollution degree	3

Item		Description
Line side	Maximum load voltage	143V DC
	Maximum allowable load current	3A DC (L/R≤5ms)
	Leakage current when circuit open	10μA DC or less
Control Circuit	Rated voltage	24V DC
	Rated current (1 circuit)	20mA DC or less
	Voltage fluctuation range	±10%
	Operation voltage	19.2V or less
	reset voltage	2.4V or less
Other	Applicable sockets	PYF14T (Manufactured by OMRON Corporation)

(Ambient operating temperature Ta=25°C)

Item		Description	Note
Set time		3ms or less	—
Reset time		3ms or less	—
Switching frequency (for resistive loads)		100Hz or less	—
Main circuit		143V DC 3A (L/R≤5ms) 143V DC 0.5A (L/R=100ms)	—
On-resistance (at 3A)		100mΩ or less	—
Rated insulation voltage (Ui)		160V	IEC60947-5-1 4.3.1.2
Rated impulse withstand voltage		2.5kV	IEC60947-5-1 4.3.1.3
Insulated resistance	Between poles	10MΩ or more	IEC60947-5-1 H8.1 JEC-2500 6.3.7
	Between all circuit and ground		
Applicable crimp terminal	Between poles	2,000V AC/1min	IEC60947-5-1 H8.1 JEC-2500 6.3.7
	Between all circuit and ground		
impulse withstand voltage	Between poles	±4.5kV	IEC60947-5-1 H8.1 JEC-2500 6.3.7
	Between all circuit and ground		

HOW TO ORDER

PKS - 01 4A - A A S

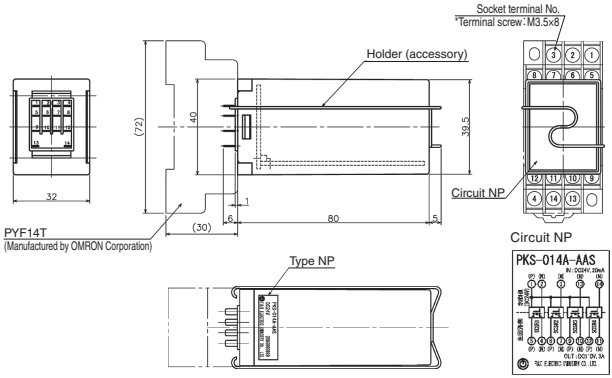
① ② ③ ④ ⑤ ⑥

No.	Item	Code	Description	Note
①	Basic type	PKS	Semiconductor DC switch unite	SemiCon Switch
②	Device structure	01	Straight	SCSR-011A-AAS
③	No. of contacts	4A	4a contact	——
④	Main circuit rated load	A	100/110V DC, 3A	——
⑤	Control circuit rated voltage	A	24V DC	——
⑥	Additional Features	S	With surge protection	——

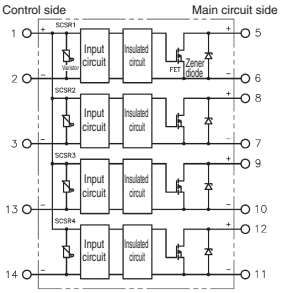
SemiCon Switch

PKS TYPE

OUTLINE



■Circuit Diagram



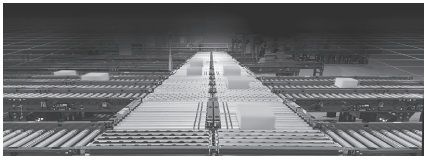
CASE STUDIES

Adopted as a control relay for DC solenoids, with proven track record

[Use case]

Used to drive DC solenoids in logistics conveyor sorting systems. Due to the high operating frequency of DC solenoids, mechanical relays require frequent replacement. A semiconductor DC relay significantly extends service life.

[Conceptual diagram]



[Benefits of semiconductor switches]

Long service life: No contact wear or mechanical failure, ensuring long service life. Ideal for high-frequency operation.

[Benefits of PKS type]

Noise immunity: Clears noise immunity tests applied to power substations, achieving robust noise resistance. (Compliant with power standard: B-402)

Compact design: A compact package that helps reduce installation space.(Contact configuration: 4a)

Easy replacement: Plug-in design allows for easy replacement.
*Compatible socket: Equivalent to PYF14T (Manufactured by OMRON Corporation)

Circuit indication: The product includes a circuit diagram, reducing wiring errors.