

Bulletin 700-SK

- High Response Speed Models
- Input Sensor Module to Allow High Voltage 100…240V AC or 12…24V DC Sensor Interface to Low Voltage (Logic) Device Such as a PC
- Output Module For Typical SSR Applications
- LED Indicator
- Input Modules and Output Modules Can Be Used With the 700-HN121 Socket

Table Of Contents

Product Selection 58
Accessories 58
Specifications 60
Approximate Dimensions 62

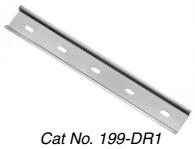
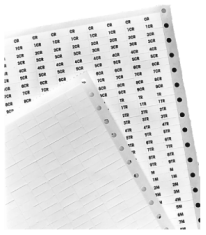
Product Selection

Input/Sensor Module

Input-to-Output Isolation Method	LED Indicator	Response Speed	Logic Level		Rated Input Sensor Voltage	Cat. No.	Factory-stocked item (Single Pack)
			Supply Voltage	Supply Current			
Photocoupler	Yes	10 Hz	4…32V DC	0.1…100 mA	100…240V AC	700-SKICA18	✔
		High-speed (1 kHz)			12…24V DC	700-SKICZ24	✔

Output/SSR Module

Input-to-Output Isolation Method	Zero Cross Function	LED Indicator	Rated Output (Load) Max. Current and Voltage Range	Rated Input Control Voltage	Cat. No.	Factory-stocked item (Single Pack)
Phototriac	Yes	Yes	2 A at 100…240V AC	5…24V DC	700-SKOZ2Z25	✔
	No				700-SKON2Z25	✔
Photocoupler	N/A		2 A at 5…48V DC		700-SKOC2Z25	✔
			1.5 A at 48…200V DC		700-SKOC1Z25	✔

	Description	Pcs./Pkg.	Cat. No.	Factory-stocked Item
 *Cat No. 700-HN121*	**Screw Terminal Socket — Panel or DIN Rail Mounting** Order must be in multiples of ten	10	700-HN121	✔
 *Cat No. 199-DR1*	**DIN Rail Mounting Pack** Standard 35 x 7.5 mm DIN Rail, 1 meter long, 10 rails per package. Order must be for 10 rails or multiples of 10.	10	199-DR1	✔
	**Pre-printed identification tags —** contains 10 sheets of pre-printed and blank tags. Each sheet contains 13 sets of the markings CR…9CR, TR…9TR, M…9M, F, R, 1S, and 117 blank tags. Tags are peel-off with sticky backing for easy placement on relays.	10	700-N40	
	Blank identification tags — contains 10 sheets of blank identification tags for customer specialized printing. Each sheet contains 546 blank tags. Tags are peel-off with sticky backing for easy placement on relays.	10	700-N41	

Input Sensor Module

Input Sensor Ratings					
Cat, No.	**Rated Input Voltage**	**Operating Voltage Range**	**Input Current**	**Pick-up Voltage**	**Drop-out Voltage**
700-SKICZ24	12…24V DC	6.6…32V DC	8 mA max.	6.6V DC max.	3.6V DC min.
700-SKICA18	100…240V AC	60…264V AC	15 mA max.	60V AC max.	20V AC min.

Output Logic Ratings		
Cat. No.	**Logic Level Supply Voltage**	**Logic Level Supply Current Draw**
700-SKICZ24 700-SKICA18	4…32V DC	0.1…100 mA

Characteristics			
Cat. No.		**700-SKICA18**	**700-SKICZ24**
Pick-up time		20 ms max.	0.1 ms max.
Drop-out time		20 ms max.	0.1 ms max.
Response frequency		10 Hz	1 kHz
Output ON voltage drop		1.6 V max.	
Leakage current		5 µA max.	
V_{DRM} V_{CEO} (V)		80 (ref. value)	80 (ref. value)
Output di/dt (A/uS)		—	—
Output dv/dt (V/uS)		—	—
Output I^2t (A^2S)		—	—
Output Tj (°C) Max.		150	150
Insulation resistance		100 MΩ min. between input and output	
Dielectric strength		4,000V AC, 50/60 Hz for 1 min. between input and output	
Vibration resistance (max.)		10…55 Hz, 1.5 mm double amplitude (10 G)	
Shock resistance (max.)		1,000 m/s² (100 G)	
Ambient temperature	Operating Storage	–30…80°C (–22…176°F) with no icing or condensation –30…100°C (–22…212°F) with no icing or condensation	
Standards		UL 508 CSA C22.2 CE, TÜV	
Ambient humidity	Operating	45…85% (No condensation)	
Weight		Approx. 18 g	

Output SSR Module

Control/Input Ratings					
Cat. No.	**Rated Control Voltage**	**Operating Control Voltage Range**	**Impedance❶**	**Pick-up Voltage**	**Drop-out Voltage**
700-SKOZ2Z25	5…24V DC	4…32V DC	15 mA max. at 25°C (77°F)	4V DC max.	1V DC min.
700-SKON2Z25					
700-SKOC2Z25			8 mA max.		
700-SKOC1Z25					

Load/Output Ratings					
Cat. No.	**Rated Load Voltage**	**Load Voltage Range**	**Continuous Load Current (Resistive)**		**Max. Inrush Current❷**
—	—	—	**Min.**	**Max.❸**	—
700-SKOZ2Z25	100…240V AC	75…264V AC	0.05 A	2 A	30 A (@50/60 Hz, 1 cycle)
700-SKON2Z25					
700-SKOC2Z25	5…48V DC	4…60V DC	0.01 A	2 A	8 A (10 ms)
700-SKOC1Z25	48…200V DC	40…200V DC	0.01 A	1.5 A	8 A (10 ms)

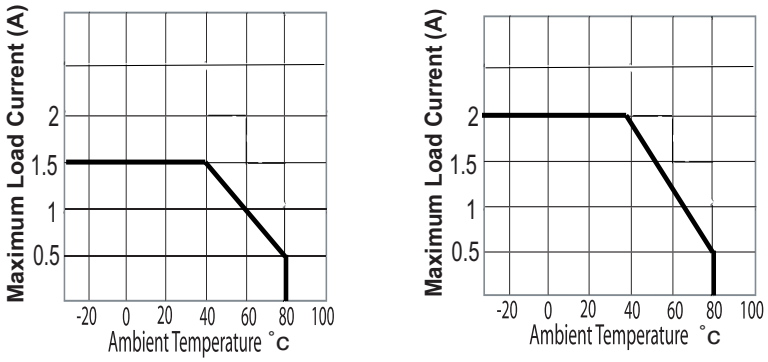
❶ With a constant current input system. SSR impedance varies with a change in input voltage.
❷ If the SSR operation is continuous ON/OFF, this value should be reduced by 50%. Refer to the “Inrush Current Resistivity” graphs on page 61 for more details.
❸ Refer to "Load Current Versus Ambient Temperature Characteristics" graphs on page 61 for additional details.

Output Module, Continued

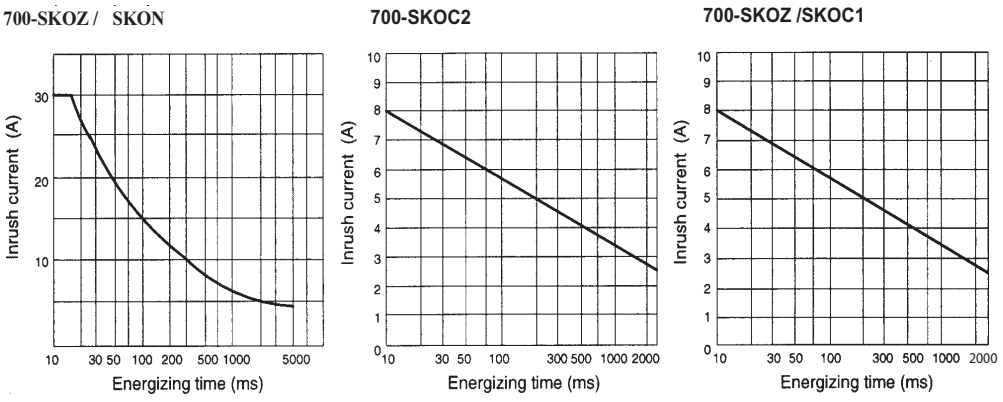
Characteristics					
Cat. No.		700-SKOZ2Z25	700-SKON2Z25	700-SKOC2Z25	700-SKOC1Z25
Load Switching Method/Device		Triac		Transistor	
Pick-up time		1/2 of load power source cycle + 1 ms max.		1 ms max.	
Drop-out time		1/2 of load power source cycle + 1 ms max.		2 ms max.	
Response frequency		20 Hz		100 kHz	
Output ON voltage drop		1.6 V max.			2.5V max.
Leakage current		1.5 mA max.		1 mA max.	
V_{DRM} V_{CEO} (V)		600 (ref.value)	600 (ref.value)	80 (ref.value)	400 (ref.value)
Output di/dt (A/uS)		30	30	—	—
Output dv/dt (V/uS)		300	300	—	—
Output I^2t (A^2S)		10.4	10.4	—	—
Output Tj (°C) Max.		125	125	150	150
Insulation resistance		100 MΩ min. between input and output			
Dielectric strength		4,000V AC, 50/60 Hz for 1 min. between input and output			
Vibration resistance (max.)		10…55 Hz, 1.5 mm double amplitude (10 G)			
Shock resistance (max.)		1,000 m/s² (100 G)			
Ambient temperature	Operating	–30…80°C (–22…176°F) with no icing or condensation			
	Storage	–30…100°C (–22…212°F) with no icing or condensation			
Standards		UL 508 CSA C22.2, CE TÜV			
Ambient humidity	Operating	45…85% (no condensation)			
Weight		Approx. 18 g			

Load Current vs. Ambient Temperature Characteristics

For 2 A Versions



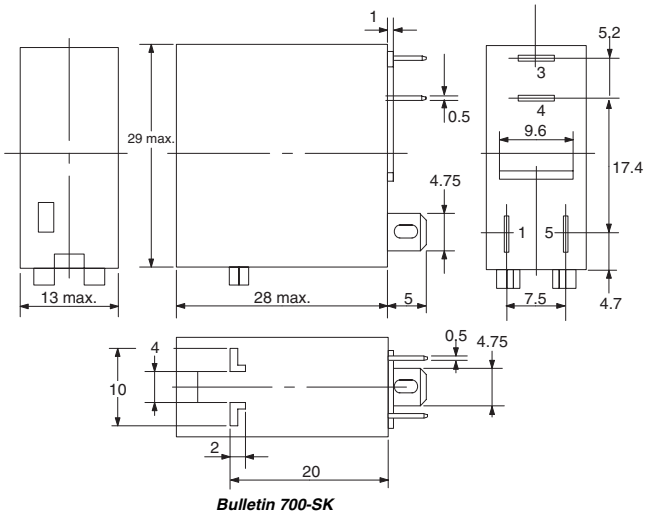
Inrush Current Resistivity❶



❶ Inrush current resistivity is the ability of an SSR to withstand a large surge current for a short period of time. Surges are considered non-repetitive (max. repeatability once every 2…5 seconds). Keep the inrush current to half the rated value if it occurs repetitively. Exceeding the non-repetitive inrush current will damage the SSR.

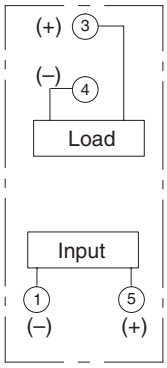
Approximate Dimensions

All units are in millimeters unless otherwise indicated. Dimensions are not to be used for manufacturing purposes.
Note: The input module (700-SKI) and output module (700-SKO) are compatible with the 700-HN121 socket.



Bulletin 700-SK

Terminal Arrangement/ Internal Connections (Bottom View)



Application Considerations of Bulletin 700-SK

Connection

For DC load switching, Bulletin 700-SK SSR will operate properly if the load is connected to either the positive or negative SSR load terminal. The load can be connected to either positive or negative output terminals of the SSR.

Protective Element (to extend SSR life)

Since the SSR does not incorporate a surge absorption component, be sure to connect a surge absorption component when using the SSR to control an inductive load.

For additional details applying solid-state relays, refer to pub. number 700-AT001A-EN-E, "Solid-State Relay Application Guide." Document available at www.theautomationbookstore.com.