

Description

Legacy Solid-State Relays

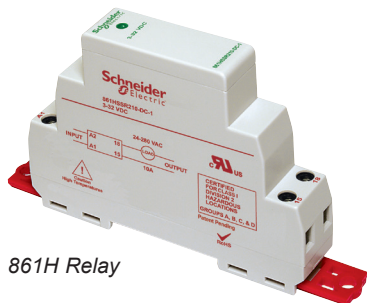
861H

SPST-NO, 8–15 A



CLASS I DIVISION 2

Class I, Division 2 certification for use in hazardous locations.
(Temperature code: T5)



861H Relay

Description

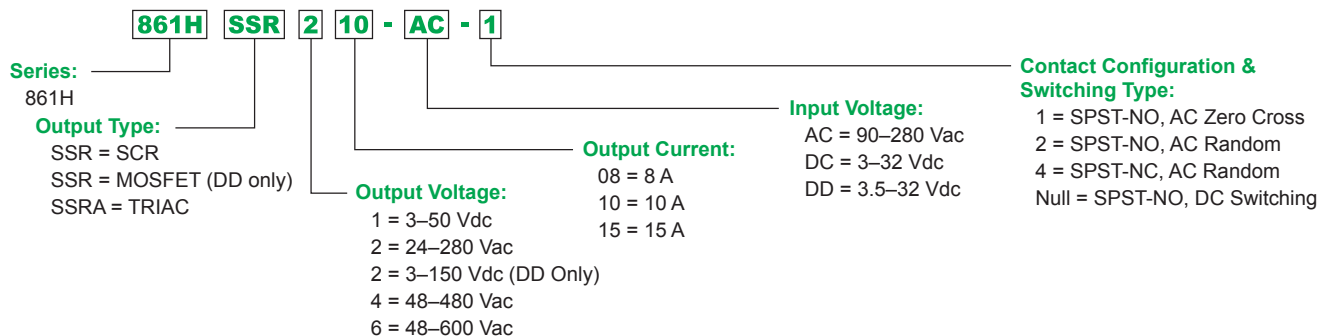
The 861H is a patented solid-state relay, in a slim 17.5 mm design, approved for use in hazardous locations.

Feature	Benefit
Class I, Division 2 certification (1)	UL certified for Class I Division 2 Hazardous Locations per ISA 12.12
Solid-state circuitry	Involves no moving parts, which extends product life, increases reliability, and enables silent operation
Optically coupled circuit	Provides isolation between input and output circuits
Internal snubber	Helps protect the relay's internal circuit from high voltage transients
Internal heat sink	Provides factory-tested thermal management
Finger protected terminals (per IP20)	Help prevent an operator from touching live circuits
DIN and panel mounting	Mounts directly onto a DIN rail or panel, and provides flexibility to accommodate last-minute design changes

(1) See page 29 for more information on Class I, Division 2.

Switching Type	Switching Device (1)	Input Voltage Range	Output Voltage Range	Contact Configuration	Rated Output Current (A)	Standard Part Number
DC Switching	MOSFET	3.5–32 Vdc	3–50 Vdc	SPST-NO	15	861HSSR115-DD
			3–150 Vdc	SPST-NO	8	861HSSR208-DD
AC Random	Triac	3–32 Vdc	24–280 Vac	SPST-NO	8	861HSSRA208-DC-2
			48–480 Vac	SPST-NO	8	861HSSRA208-DC-4
			48–480 Vac	SPST-NO	8	861HSSRA408-DC-2
		90–280 Vac	24–280 Vac	SPST-NO	8	861HSSRA208-AC-2
			48–480 Vac	SPST-NO	8	861HSSRA408-AC-2
			48–480 Vac	SPST-NO	8	861HSSRA408-AC-2
	SCR	3–32 Vdc	24–280 Vac	SPST-NO	10	861HSSR210-DC-2
			48–480 Vac	SPST-NO	10	861HSSR210-DC-4
			48–480 Vac	SPST-NO	10	861HSSR410-DC-2
		90–280 Vac	24–280 Vac	SPST-NO	10	861HSSR610-DC-2
			48–480 Vac	SPST-NO	10	861HSSR210-AC-2
			48–480 Vac	SPST-NO	10	861HSSR410-AC-2
AC Zero Cross	Triac	3–32 Vdc	24–280 Vac	SPST-NO	8	861HSSRA208-DC-1
			48–480 Vac	SPST-NO	8	861HSSRA408-DC-1
		90–280 Vac	24–280 Vac	SPST-NO	8	861HSSRA208-AC-1
			48–480 Vac	SPST-NO	8	861HSSRA408-AC-1
			48–480 Vac	SPST-NO	8	861HSSRA408-AC-1
		SCR	24–280 Vac	SPST-NO	10	861HSSR210-DC-1
			48–480 Vac	SPST-NO	10	861HSSR410-DC-1
			48–480 Vac	SPST-NO	10	861HSSR610-DC-1
		90–280 Vac	24–280 Vac	SPST-NO	10	861HSSR210-AC-1
			48–480 Vac	SPST-NO	10	861HSSR410-AC-1
			48–480 Vac	SPST-NO	10	861HSSR410-AC-1
			48–600 Vac	SPST-NO	10	861HSSR610-AC-1

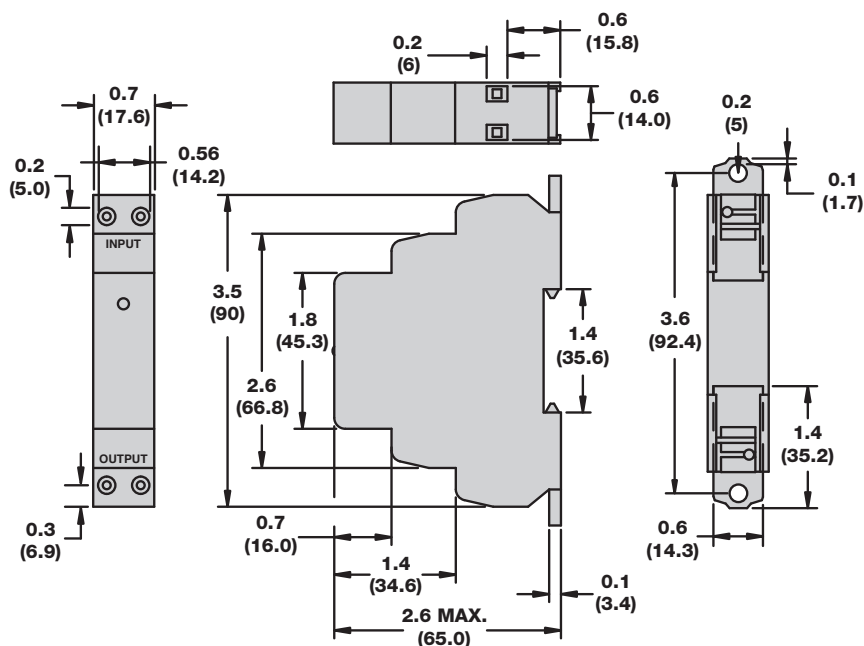
Part Number Explanation



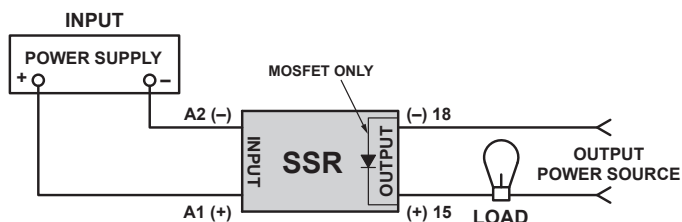
Specifications (UL 508)

Part Number		861HSSR••••DD	861HSSRA••••DC••	861HSSR••••DC••	861HSSRA••••AC••	861SSR••••AC••
Input Characteristics						
Input Voltage Range		3.5–32 Vdc	3–32 Vdc		90–280 Vac	
Must Release Voltage		1 Vdc			10 Vac	
Nominal Input Impedance		Current regulator			16–25 kΩ	
Typical Input Current at 5 Vdc		12 mA		16 mA (12 mA for 861HSSR210-DC-4)	12 mA	
Reverse Polarity Protection		Yes			N/A	
Output Characteristics						
Switching Device		MOSFET	Triac	SCR	Triac	SCR
Switching Type		DC Switching	AC Zero Cross; AC Random			
Contact Configuration		SPST-NO	SPST-NO, SPST-NC			
Output Voltage Range		3–50 Vdc; 3–150 Vdc	24–480 Vac; 48–480 Vac; 48–600 Vac			
Maximum Rate of Rise Off-State Voltage (dv/dt)		N/A	250 V/us	500 V/us, 350 V/us (861HSSR410, 861HSSR610-DC-1), 200 V/us (861HSSR210- DC-4, 861HSSR610-DC-2)	250 V/us	500 V/us, 350 V/us (861HSSR410), 250 V/us (861HSSR610)
Current Ratings	Load rating	8 A (rms), 15 A (rms)	8 A (rms)	10 A (rms)	8 A (rms)	10 A (rms)
	Incandescent lamp rating	N/A	5 A (rms)	8 A (rms)	5 A (rms)	8 A (rms)
	Motor load rating	N/A	3 A (rms)	4.5 A (rms)	3 A (rms)	4.5 A (rms)
Minimum Load Current– Maintain On		20 mA	150 mA	50 mA	150 mA	50 mA
Non-Repetitive Surge Current (1 cycle)		861HSSR115-DD: 35 A; 861HSSR208-DD: 50 A	200 A	500 A	200 A	500 A
Maximum RMS Overload Current (1 s)		861HSSR115-DD: 17 A; 861HSSR208-DD: 24 A	24 A			
Maximum Off-State Leakage Current		0.25 mA	10 mA (rms)			
Typical On-State Voltage Drop		N/A	1.25 Vac (rms)			
Maximum On-State Voltage Drop		0.5 Vdc	1.6 Vac (rms)			
Maximum On-State Resistance		40 mΩ	N/A			
Maximum Turn-On Time		5 ms	8.3 ms			
Maximum Turn-Off Time		5 ms	8.3 ms			
Maximum I² T for Fusing		N/A	250 A²sec	1250 A²sec (861HSSR210); 850 A²sec (861HSSR410); 600 A²sec (861HSSR610)	250 A²sec	1250 A²sec (861HSSR210); 850 A²sec (861HSSR410); 600 A²sec (861HSSR610)
General Characteristics						
Electrical Life		N/A for solid-state relays				
Thermal Resistance (Junction–Case)		861HSSR115-DD: 0.5 °C/W; 861HSSR208-DD: 1.4 °C/W	2.00 °C/W	0.66 °C/W	2.00 °C/W	0.66 °C/W
Internal Heat Sink		4.0 °C/W				
Dielectric Strength	Input–Output	2500 V (rms)	4000 V (rms)			
	Terminals–Chassis	2500 V (rms)				
Operating Temperature Range		–30 to +80 °C (derating applies)				
Storage Temperature Range		–40 to +100 °C				
Weight		127.1 g (4.1 oz)				
Input Indication		Green LED				
Terminal Wire Capacity (Input and Output)		14 AWG (2.5 mm²) maximum				
Terminal Screw Torque		7.1 lb-in (0.8 N•m) maximum				
Safety Cover		IP20				
Agency Approvals		UL certified for Class I, Division 2 Hazardous Locations; per ISA 12.12.1, cURus (File: E317746 CCN: NQMJ2, NQMJ8), CSA (File: 40787 Class: 3211 04); CE: RoHS				

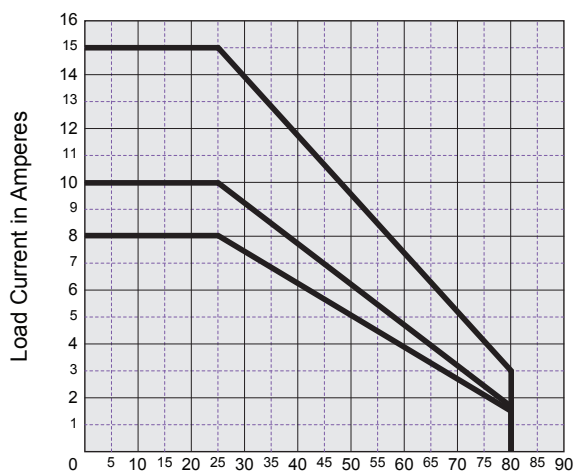
Dimensions: in. (mm)



Wiring Diagram



Derating Curves



Note: A minimum spacing of 17.5 mm (0.7 in.) is required between adjacent 861 relays in order to achieve the maximum ratings.