

Single- and Three-Phase DIN Rail Mount Solid State Relays

SSRDIN Series



- ✓ Ratings Up to 30 A (22.5 mm), 45 A (45 mm), or 25 A 3-Phase
- ✓ LED Input Status Indicator
- ✓ Integral Heat Sink Eliminates the Need for Complex Thermal Calculations
- ✓ DBC Substrate for Superior Thermal Performance
- ✓ Epoxy-Free Design Minimizes Internal Component Stress
- ✓ Standard Ratings Up to 30 A @ 600 Vac
- ✓ No External Transient Protection Required (Internal TVS)
- ✓ IP20 Touch-Safe Housing
- ✓ AC or DC Inputs
- ✓ 4000 Vac Optical Isolation
- ✓ Zero-Voltage Switching
- ✓ Mounts on DIN Rail or Panel

Designed for superior thermal performance in harsh industrial environments, OMEGA's new SSRDIN/SSR3PH relay is the most advanced DIN rail solid state relay in its range. The epoxy-free design eliminates stress on internal components, preventing damage to the encapsulant during load failure. The vertical placement of the direct-bond substrate allows the SCR die to efficiently transfer heat to the heat sink and into ambient air. As a result, these relays can operate at a lower temperature than their competitors, which accounts for the higher I²T and surge-current ratings.



The SSRDIN's internal transient protection is fully repeatable, making MOVs or other external suppressors unnecessary. This feature allows the output to conduct load-current when a transient is detected across the output terminals, rather than forcing load-current through the protection circuit. Thus, no degradation of protection occurs.

These relays are ideal for numerous commercial and industrial applications, including mercury relay replacement, professional food-service equipment (ovens, fryers, dispensing equipment, conveyors, etc.), sterilizers, temperature control systems, plastic extrusion/thermoforming machinery, HVAC and R, kilns, packaging equipment, sorting equipment, wave solder and reflow systems, lighting systems, pump controls, incubators, motor-switching, and UPS systems.

Specifications

Operating Temperature:

-20 to 80°C* (-4 to 176°F)

Storage Temperature:

-40 to 100 °C (-40 to 212°F)

Input-to-Output Isolation: 4000 Vrms

Input/Output-to-Ground Isolation:
4000 Vrms

Input-to-Output Capacitance:
8 pF (typical)

Operating Frequency: 40 to 63 Hz

Housing Material:
UL 940VD (self-extinguishing)

Weight: 600 g (1.3 lb)

* For 108 to 280 Vac input.

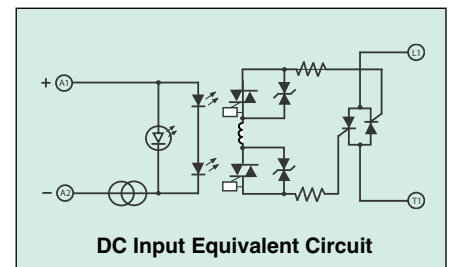
22.5 mm DIN Rail SSR

Output Specifications			
Voltage Range (Vrms)	24 to 240 Vac	48 to 600 Vac	600 Vac
Output Current	10	20	30
Peak Voltage (Vp, t = 1 min)	550	1100	1100
Off-State Leakage μ Arms (@ Max Line Voltage and $T_a = 25^\circ\text{C}$)	100	250	250
Minimum Current (mArms)	100	100	100
Maximum 1-Cycle Surge Current (Ap, $T_a = 25^\circ\text{C}$)	100	495	750
Maximum 1 s Surge Current (Ap, $T_a = 25^\circ\text{C}$)	30	100	150
Forward Voltage Drop (Vp @ I_{max} , $T_a = 25^\circ\text{C}$)	1.5	1.35	1.35
I^2T (60 Hz, 1/2 Cycle)	340	1020	2350
Static Off-State dv/dt (V μ s, $T_a = 25^\circ\text{C}$)	500	500	500
hp Ratings at 120 V	—	1/2	3/4
hp Ratings at 240 V	—	1	2
Output Type	Triac	SCR	SCR
Min/Max Stranded Wire	16/8 AWG	16/8 AWG	16/8 AWG
Min/Max Solid Wire	16/10 AWG	16/10 AWG	16/10 AWG
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	16 mA	5 mA	6 mA
Maximum Input Current	19 mA	6 mA	8 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	24/16 AWG	24/16 AWG	24/16 AWG

* Random SSRs turn on in less than 100 μ s.



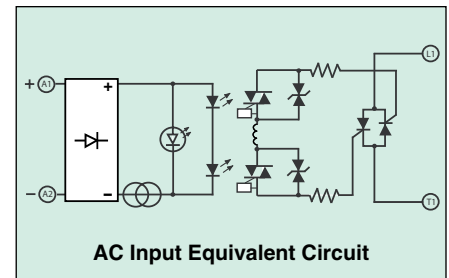
SSRDIN280DC10 shown smaller than actual size.



45 mm DIN Rail SSR

Output Specifications			
Voltage Range (Vrms)	48 to 600 Vac	48 to 600 Vac	
Output Current	35	45	
Peak Voltage (Vp, t = 1 min)	1100	1100	
Off-State Leakage μ Arms (@ 480 V and $T_a = 25^\circ\text{C}$)	250	250	
Minimum Current (mArms)	100	100	
Maximum 1-Cycle Surge Current (Ap, $T_a = 25^\circ\text{C}$)	770	800	
Maximum 1 s Surge Current (Ap, $T_a = 25^\circ\text{C}$)	150	160	
Forward Voltage Drop (Vp @ I_{max} , $T_a = 25^\circ\text{C}$)	1.35	1.35	
I^2T (60 Hz, 1/2 Cycle)	2500	2600	
Static Off-State dv/dt (V μ s, $T_a = 25^\circ\text{C}$)	500	500	
hp Ratings at 240 V	2	3	
hp Ratings at 480 V	3	4	
Output Type	SCR	SCR	
Min/Max Stranded Wire	16/8 AWG	16/8 AWG	
Min/Max Solid Wire	16/10 AWG	16/10 AWG	
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	16 mA	5 mA	6 mA
Maximum Input Current	19 mA	6 mA	8 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	24/16 AWG	24/16 AWG	24/16 AWG

* Random SSRs turn on in less than 100 μ s.

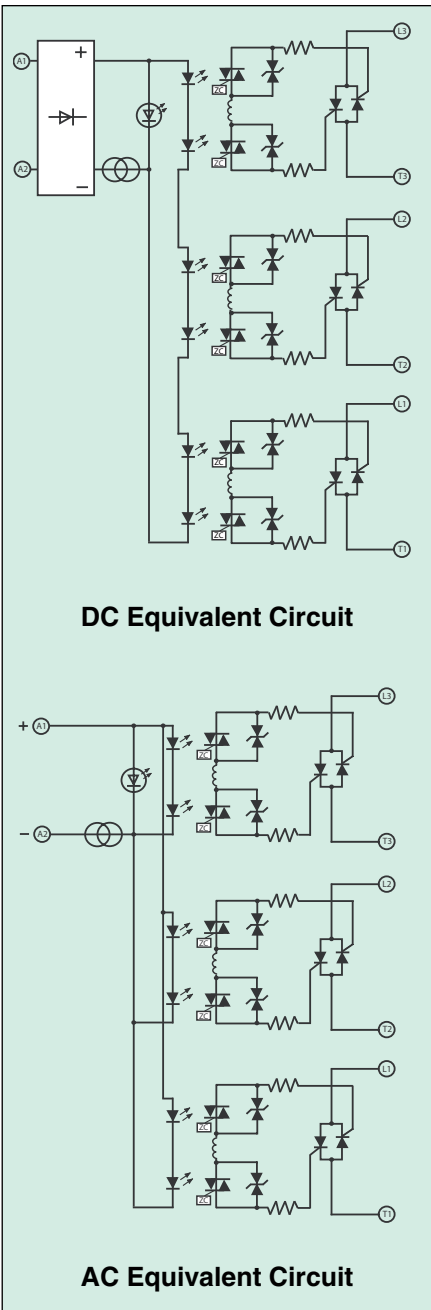


SSRDIN600DC35 shown smaller than actual size.

90 mm 3-Phase DIN Rail SSR

Output Specifications			
Voltage Range (Vrms)	48 to 600 Vac		
Output Current	25		
Peak Voltage (Vp , t = 1 min)	1100		
Off-State Leakage μ Arms (@ Max Line Voltage and $T_a = 25^\circ\text{C}$)	250		
Minimum Current (mArms)	100		
Maximum 1-Cycle Surge Current ($A_p, T_a = 25^\circ\text{C}$)	500		
Maximum 1 s Surge Current ($A_p, T_a = 25^\circ\text{C}$)	100		
Forward Voltage Drop ($V_p @ I_{max}, T_a = 25^\circ\text{C}$)	1.35		
I^2T (60 Hz, $\frac{1}{2}$ Cycle)	1040		
Static Off-State dv/dt V μ s, $T_a = 25^\circ\text{C}$)	500		
hp Ratings at 480 V	3		
Output Type	SCR		
Min/Max Stranded Wire	16/8 AWG		
Min/Max Solid Wire	16/10 AWG		
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	50 mA	15 mA	19 mA
Maximum Input Current	62 mA	19 mA	24 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	12/16 AWG		

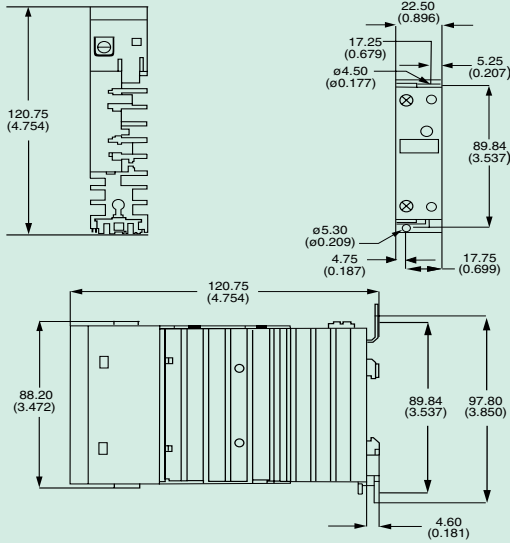
* Random SSRs turn on in less than 100 μ s.



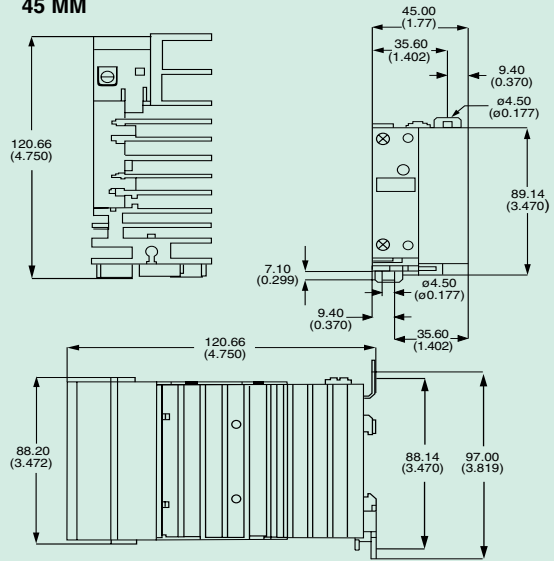
AC/DC Control Specifications

Model Number	Current A	Output Voltage	Input Voltage	Output Type	Size: mm (inch)
SSRDIN280AC10	10	24 to 280 Vac	90 to 140 Vac	Triac	22.5 (0.9)
SSRDIN280DC10	10	24 to 280 Vac	4 to 32 Vdc	Triac	22.5 (0.9)
SSRDIN600AC20	20	48 to 600 Vac	90 to 140 Vac	SCR	22.5 (0.9)
SSRDIN600DC20	20	48 to 600 Vac	4 to 32 Vdc	SCR	22.5 (0.9)
SSRDIN600AC30	30	48 to 600 Vac	90 to 140 Vac	SCR	22.5 (0.9)
SSRDIN600DC30	30	48 to 600 Vac	4 to 32 Vdc	SCR	22.5 (0.9)
SSRDIN600AC35	35	48 to 600 Vac	90 to 140 Vac	SCR	45.0 (1.8)
SSRDIN600DC35	35	48 to 600 Vac	4 to 32 Vdc	SCR	45.0 (1.8)
SSRDIN600AC45	45	48 to 600 Vac	90 to 140 Vac	SCR	45.0 (1.8)
SSRDIN600DC45	45	48 to 600 Vac	4 to 32 Vdc	SCR	45.0 (1.8)
SSR3PH600AC25	25	48 to 600 Vac	90 to 140 Vac	SCR	90.0 (3.6)
SSR3PH600DC25	25	48 to 600 Vac	4 to 32 Vdc	SCR	90.0 (3.6)

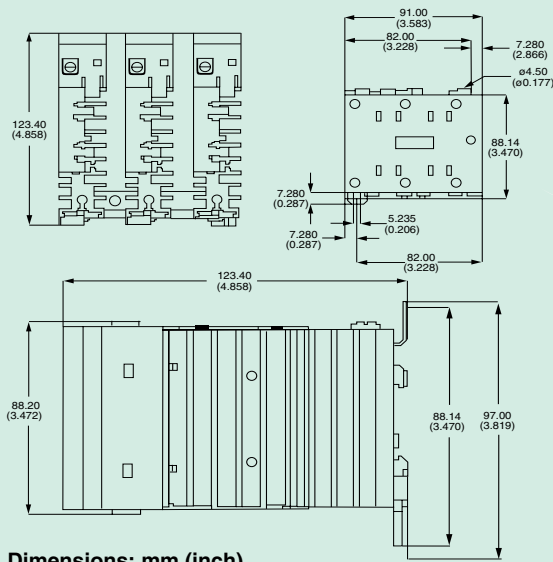
25 MM



45 MM



90 MM



SSRDIN and SSRPH Series solid state relays, shown smaller than actual size.



Dimensions: mm (inch)

To Order

Model Number	Description	Nominal Rating (A)
SSRDIN280DC10	DC control signal, 24 to 280 Vac line	10
SSRDIN600DC20	DC control signal, 48 to 600 Vac line	20
SSRDIN600DC30	DC control signal, 48 to 600 Vac line	30
SSRDIN280AC10	AC control signal, 24 to 280 Vac line	10
SSRDIN600AC20	AC control signal, 48 to 600 Vac line	20
SSRDIN600AC30	AC control signal, 48 to 600 Vac line	30
SSRDIN600DC35	DC control signal, 48 to 600 Vac line	35
SSRDIN600DC45	DC control signal, 48 to 600 Vac line	45
SSRDIN600AC35	AC control signal, 48 to 600 Vac line	35
SSRDIN600AC45	AC control signal, 48 to 600 Vac line	45
SSR3PH600DC25	DC control signal, 48 to 600 Vac line, 3 phase	25
SSR3PH600AC25	AC control signal, 48 to 600 Vac line, 3 phase	25

Comes with operator's manual.

Ordering Example: SSR3PH600DC25, DC input, 25 A, 3-phase relay.