



Sensata Technologies

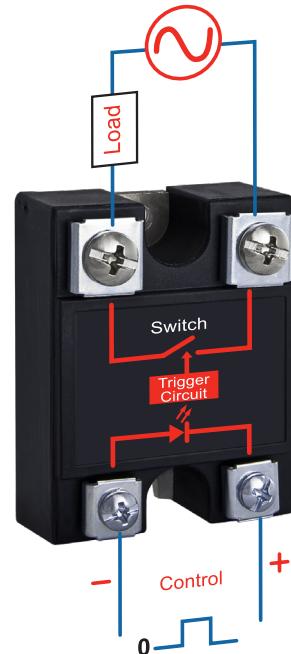
SOLID STATE RELAY SELECTION GUIDE



What is a Solid State Relay / Contactor?



A Solid State Relay or Contactor (SSR or SSC) is an electronic component that switches Power (AC or DC current) to a load circuit and provides electrical isolation between an application's control circuit and load circuit. It is a competitive technology to Electromechanical Relays (EMRs) and other switching technologies such as Mercury Displacement Relays (MDRs). Solid state switching technology can also be combined with EMR technology to produce a switching device with hybrid technology.



Long Life



Ideal for Harsh Environments



Quiet Operation



High Compatibility with Control Systems



Minimum Electrical Noise



Fast Switching



Low Power Consumption



Position Insensitive



Shock & Vibration Resistant



Reduced Weight



Magnetic Noise Immunity



Reduced Energy Cost

Why Use Solid State Switching Technology?



Ratings by Mounting Type*



AC Output

	PANEL	DIN RAIL	PCB	PLUG-IN
Voltage (Volts)	Single Dual 3 Phase	690 660 530	660 600 600	660 280 280
Current (Amps)	Single Dual 3 Phase	150 50 75	65 6 75	40 15 15
				5

DC Output

Voltage (Volts)	1000	250	200	100
Current (Amps)	160	30	20	10

*Sensata's maximum ratings per channel

Solid State Relay Applications

There are literally thousands of individual uses for Solid State Relays. Most can be categorized into the following applications:

Motion Control

Includes conveyor systems, solar trackers, fans, solenoid, valve control, elevators, lifts, hoists, and exercise equipment.



Heating Control

Applications include: professional food equipment, plastic molding/extrusion machinery, HVAC&R and soldering equipment.



Power Control

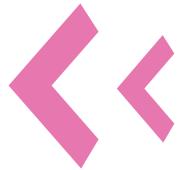
Includes power supplies, transformers, regulators, inverters, converters, UPS systems, etc. as well as any load that is not specifically for heating, lighting or motion control.



Lighting Control

These applications are usually broken down into three categories: theatrical, warehouse and commercial. Many of the products used in this segment are custom designed.





Leading the market through Quality & Innovation

Our leadership in Solid State Switching Technology has allowed us to offer only the highest quality products to our customers. Sensata's expertise is materialized in the widest range of standard solid state relays and contactors, custom designed products, and related products of the highest quality and level of innovation. We are strongly committed to building the best products and provide our customers the highest levels of service and support all over the world.

DIN Rail Mount



SeriesOne DR
Timer



DRMS Series



NOVA22
DR22 series



SOLICON
DRC series



NOVA22
DR67 Series



DRA series

AC Output		Rating [Amps]															
		Solid State Relays															
Series	Description	2	3	4	5	6	8	9	12	18	20	25	30	35	45	60	75
DRA-CN	6 mm	■															
DRA	10/54 mm	■	■	■	■	■		■									
SeriesOne DR	11/18 mm	■	■														
NOVA22 DR22 <small>NEW MODELS!</small>	22.5 mm																
NOVA22 DR45	45 mm																
SeriesOne DR Dual	18 mm				■												
Solid State Relay Timers																	
SeriesOne DR Timers	11 mm					■											
3 Phase Solid State Relays																	
NOVA22 DR67	3 Phase											■	■	■	■	■	
SOLICON DRC3P	3 Phase				■			■									
SOLICON DRC3R	Reversing					■											
DRH	3 Phase IEC OTP							■	■								
Hybrid Motors Starters																	
DRMS	3 Phase Reversing							■									
DC Output		Rating [Amps]															
Series	Description	0.1	3	3.5	5	6	10	12	20	24	30						
DRA-CN	6 mm	■															
DRA	10/54 mm		■														
SeriesOne DR <small>NEW MODELS!</small>	11/18 mm		■														
NOVA22 DR22	22.5 mm											■	■	■	■	■	
Solid State Relay Timers																	
SeriesOne DR Timers	11 mm									■							
Solid State Contactors																	
DRA4D	Reversing SSC									■		■					

Panel Mount

AC Output

Series	Description	Rating [Amps]													
		5	10	12	15	18	20	25	40	50	75	90	95	110	125
Series 1	Signature family, 530 VAC														
HA/HD	530 VAC														
H1	1200 / 1600 V blocking, 690 VAC														
CW	Heavy Duty SSR, 660 VAC														
LN	Low Noise SSR, 530 VAC														
CL	Low Current SSR, 280 VAC														
NOVA22 PM22	22.5mm SSR, 600 VAC														
EL	Mini-Puck SSR, 280 VAC														
EZ	Low Profile SSR, 660 VAC														
HAC	High Current SSR														

Control Solid State Relays

MCBC	Burst Fire Controller / SSR														
MCPG	Phase Angle Controller / SSR														
PCV	Proportional (Phase Angle) Ctrl														
NOVA22 PMP	Multi-function Proportional Ctrl														
RPC	Resistive Input Proportional Ctrl														
SMR-6	Current Monitoring & Diagnostics														

Dual Solid State Relays

Evolution Duals	Screw Termination, 3 Connector options														
Series 1 Duals	Quick Connect & Pin Termination														

3 Phase Solid State Relays

NOVA22 PM67	3-Phase 67mm, 600 VAC														
53TP	3 Phase, 530 VAC, IP00 & IP20														
53RV	Reversing, 530 VAC, IP20														

DC Output

Series	Description	Rating [Amps]												
		3	5	7	10	12	20	25	40	60	80	100	120	160
DC60	Economical, 1 - 60 VDC													
D06D	Low Voltage MOSFET Output, 1 - 60 VDC													
PowerPlus DC	Enhanced Switching, 1 - 500 VDC													
Series 1-DC	Low Impedance MOSFET, 1 - 500 VDC													
EL <small>NEW MODELS!</small>	Mini-Puck SSR, 1 - 100 VDC													
SSC	High Voltage IGBT Output, 1 - 1000 VDC													
LVD	Low Voltage Disconnect													

Solid State Contactors

DP	Reversing SSC, IP00														
HDC	High Current, 1 - 200 VDC														

NOVA22
PM22 series



PCB Mount



ASO series



CX series



PF series

AC Output

Rating [Amps]

Solid State Relays

Series	Description	1	1.5	2	3	4	5	25	40
ASO	Mini SIP SSR with ratings up to 2 Amps @ 12 - 280 VAC	■		■					
MP	SIP SSR with ratings up to 4 Amps @ 24 - 280			■	■				
CX	SIP SSR with ratings up to 5 Amps @ 48 - 660 VAC				■		■		
MCX	SIP SSR with ratings up to 5 Amps @ 48 - 660 VAC					■			
LR	SIP SSR with ratings up to 40 Amps @ 48 - 530 VAC						■	■	
PF	SIP SSR with ratings up to 25 Amps @ 48 - 660 VAC						■	■	
DPA	DIP SSR with ratings up to 1 Amps @ 20 - 280 VAC	■							
SDV	DIP SSR with ratings up to 1.5 Amps @ 12 - 280 VAC		■						

DC Output

Rating [Amps]

Solid State Relays

Series	Description	3	5	6	10	20
DMO	Mini SIP SSR with ratings up to 3 Amps @ 60 VDC	■				
CMX	SIP SSR with ratings up to 20 Amps @ 60 VDC or 10 Amps @ 100 VDC	■	■	■	■	■
MP	SIP SSR with ratings up to 3 Amps @ 60 VDC	■				

Plug-In Mount



CN series



ED series



ED10CS series

AC Output

Rating [Amps]

Rating [Amps]

Solid State Relays

Series	Description	2	3	5
CN	Slim SSR with ratings up to 2 Amps @ 24 - 280 VAC	■		
ED	SSR in industry standard EMR package with ratings up to 5 Amps @ 24 - 280 VAC		■	■

DC Output

Rating [Amps]

Rating [Amps]

Solid State Relays

Series	Description	0.1	3.5	5	6	10
CN	Slim SSR with ratings up to 6 Amps @ 1 - 100 VDC	■	■	■		
ED <small>NEW MODELS!</small>	SSR in industry standard EMR package with ratings up to 10 Amps @ 1 - 100 VDC		■	■	■	■

Accessories



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Product	Description
Sockets	DIN Rail mountable socket for 1 (DRS1) & 4 (DRS4) PCB mount relays
	DIN Rail mountable sockets for CN Series SSRs (DRSCN05, DRSCN24, DRSCN30)
	DIN Rail mountable socket for ED Series SSRs, finger safe IP10 (DRSED Ⓐ)
	PCB mountable socket for ED Series SSRs (PCBSED)
Covers	Clear plastic covers for Gen 3 (KS100 & KS100-SMR), Gen 4 (KS101) Ⓑ & 3 Phase SSRs (KS300)
	Hockey (HSP-2) Ⓒ & large (HSP-5) puck SSRs with adhesive on one side
	For hockey (HSP-1) & large (HSP-3) puck SSRs, non adhesive
	For half-puck PM22 Series SSRs (HSP-7)
Lug Terminals	For 67mm PM67 Series SSRs (HSP-8)
	Copper wire lugs for AWG 6 to 0 (TRM1), AWG 14 to 6 (TRM6) and AWG 4 to 3/0 (TRM3/0) wire sizes
ID Marker Strips	Copper wire lugs for Gen 4 screw terminals & NOVA22 elevator screw SSRs, for AWG 6 to 0 wire size (TRM0) Ⓓ
	Plastic strips (CNLB, 10 pack) unprinted Ⓔ
Input Connectors	Plastic strips (CNLN, 10 pack) printed from 1 to 10 & (CNL2, 10 pack) printed from 11 to 20
	Plug-in input connector for contactor configuration NOVA22 SSRs, screw (CP201) & spring cage (CP202) Ⓕ terminals
Filters	EMI noise suppression filter for SSR in AC single phase (1F25), 3 Phase (3F20) & 3 Phase with neutral (3F20-4) Ⓖ systems



NOVA22 DRML1

Series	Description
DRML1	Load Monitoring module for use with DR22 Solid State Relays (Contactor configuration)

Heat Sinks & Other Accessories



Product	Description
Hardware kits	Mounting screws 8-32 x 3/8 in (HK1, 2 per bag), M4 x 9mm (HKM1, 2 per bag)
	1 Ground screw 10-32 x 3/8 in & 2 bracket screws 6-32 x 1/4 in (HK2)
	Mounting screws 8-32 x 3/8 in for PM22 Series SSRs, Hex Socket Cap (HK8)
DIN Rail Bracket	DIN Rail bracket and 2 screws 6-32 x 1/4 in (DRK1)

The use of heat sinks allows the solid state relay to operate properly by dissipating the heat into the surrounding ambient air, this suitable operating temperature maintains a reliable performance for a very long time.

Sensata | Crydom heat sinks are available for mounting onto a panel or, depending on the model, into a standard 35mm DIN rail. Custom heat sinks and SSR/heat sink assemblies are also available upon request.

Thermal Resistance [°C/W]	Part no.		Relay Capacity				Complementary Accessories
	Panel Mount	DIN Rail Mount	Half Puck 22.5 mm	Hockey Puck 45 mm	Medium Puck 67mm	Large Puck 74 mm	
5.0	-	HS501DR					HKM1
3.0	HS301	HS301DR					HK1, HK2, DRK1
2.5	-	HS259DR					HK8
2.5	HS251	-					HK1
2.0	HS202	HS202DR					HK1, HK2, DRK1
2.0	HS201	HS201DR					HK1, HK2, DRK1
1.7	HS172	-					HK1, HK2
1.5	HS151	HS151DR					HK1, HK2, DRK1
1.2	HS122	HS122DR					HK1, HK2, DRK1
1.0	HS103	HS103DR					HK1
1.0	HS101	-					HKM1
0.7	HS073	-					HK1
0.7	HS072	-					HK1
0.5	HS053	-					HK1
0.36	HS033	-					HK1
0.25	HS023	-					HK1

** All heat sinks include the necessary hardware to mount the relay(s) onto the heat sink. The number of hardware kits (HK1 or HKM1) included depends upon the number and type of SSRs possible to install on each heat sink.

A team of experts working for you

Custom Solutions

We have a team of highly experienced engineers dedicated to design custom products to meet specific application requirements. A wide variety of modifications that can be applied, from a simple SSR/heat sink to a totally customized solution.

International Standards

Sensata | Crydom products are manufactured and/or approved according to a wide range of international safety standards and comply with the latest legal environmental directives. For specific information visit our website or contact Sensata Tech Support.



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About us

Sensata Technologies is a global industrial technology company striving to create a cleaner, more efficient, electrified and connected world. Through its broad portfolio of sensors, electrical protection components and sensor-rich solutions which create valuable business insights, Sensata helps its customers address increasingly complex engineering and operating performance requirements.

With more than 21,000 employees and global operations in 13 countries, Sensata serves customers in the automotive, heavy vehicle & off-road, industrial, and aerospace markets.

