

Forward/Reversing SSR (D6020M)

Distributed by: Nominal Controls Inc.

OUTPUT SPECIFICATIONS (D6020M)

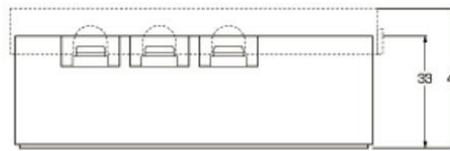
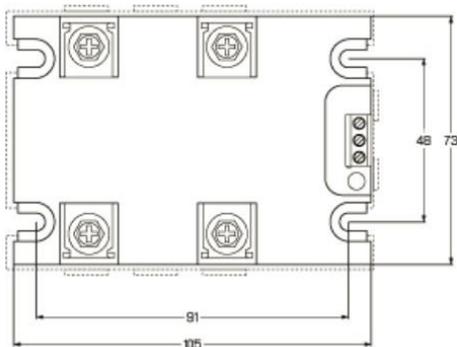
Absolute Maximum Rating	600	VDC
Recommended Operating Voltage	300	VDC
Maximum Off-State Leakage Current @ 75 VDC	0.02	mA
Rated Current	20	Adc
Peak Current (1ms)	40	Adc
Minimum Load Current	0.1	μA
Maximum On-State Voltage Drop	0.81Vdc@10A	

CONTROL SPECIFICATIONS

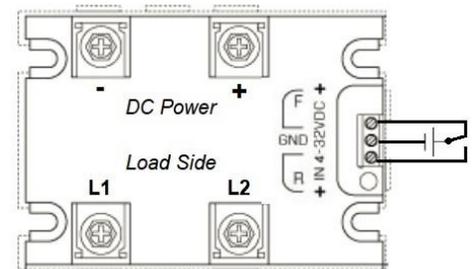
Control Voltage Range	4-32	VDC
Minimum Turn-On Voltage	4	VDC
Drop out Voltage	1	VDC
Maximum Input Current	25	mA
Minimum input current (for on-state)	16	mA
Turn-on time	4	ms
Turn-off time	20	ms
Interlocking Time	100	ms

GENERAL SPECIFICATIONS

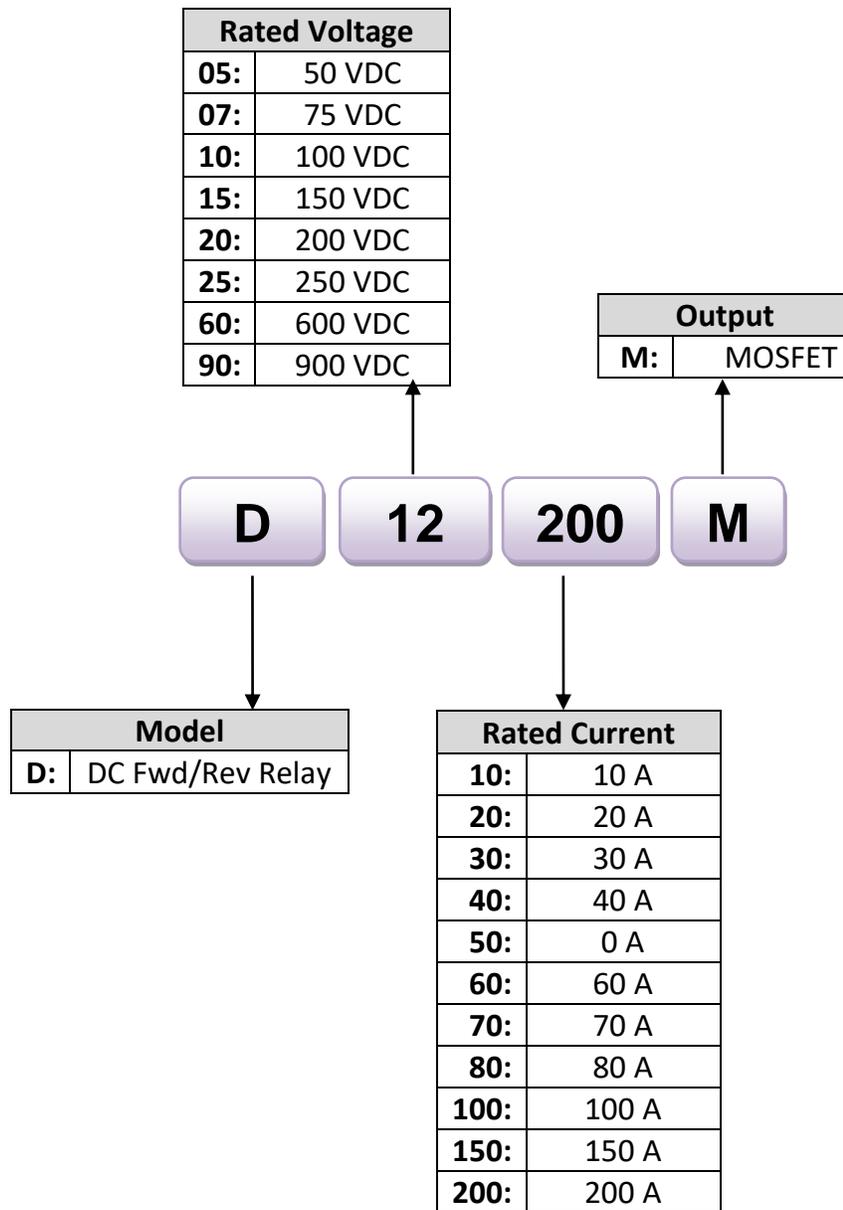
Ambient Temperature Range	-40 to 80	°C
Storage Temperature Range	-40 to 125	°C
Input to output isolation	2500	Vrms
Input/output to ground isolation	2500	Vrms
Input to output capacitance	8	pF
LED indicator	Green (FWD)	Red (REV)
Weight (typical)	380	g



units: mm



Part Number Guide



Important Information

Consult the Manual of Your Operating Load:

For some loads such as brushless DC motor, using a solid state relays to turn on/off the power direct may result in damages to the motor and driver as stated in the manual. Ensure your application is compatible with a solid state relay.

Rated Current and Rated Voltage Selection:

Moderate degrees of tolerances and safety protocols have been incorporated into the design of solid state relays. However, due to improper selection or misuse, irreversible damages to the relay's internal components may still occur. While selecting a SSR, parameters such as inductive reactance, capacitance, inrush current, power grid variables, and other tolerances must be taken into account. A lower SSR current rating may be permitted if the load's start-up current follows a lower and gradual increasing inrush current such as motor soft-start.

Relay rating margins required for some common DC forward and reversing loads:

Fwd/Reversing Load	Rated Voltage:	Rated Current:
BLDC/Brushless DC Motor:	X3	5x
Brushed DC Motor:	X2	5x
Electromagnets:	10x	1x

Over-Current, Over-Voltage:

Most solid state relay failures are the result of over-current and over-voltage. For over-current protection, you may use a quick fuse or air circuit breaker in the control loop.

Over-voltage damage to a solid state relay usually results from counter-electromotive force at turn-off of an inductive load (eg. solenoid or electromagnetic valve). While a TVS overvoltage protection is incorporated in the relay to shunt or absorb sufficient inductive fly back energy of typical applications, you may choose to add a Zener diode across the contact for a more complete protection.

Heat-Sink, Cooling:

Use the following formula to determine the approximate thermal resistance requirement ($^{\circ}\text{C}/\text{W}$) for the heatsink or attached surface:

$$(125^{\circ}\text{C} - T_{\text{Ambient}}^{\circ}\text{C}) / \text{Power Loss} - R_{\text{jc}} \text{ junction to case thermal resistance} - R_{\text{ch}} \text{ case to heatsink thermal resistance}$$

$T_{\text{Ambient}}^{\circ}\text{C}$ = default value 50°C

Power Loss = voltage drop x continuous current

R_{jc} = default value is $0.35^{\circ}\text{C}/\text{W}$ for module style relay, $1.8^{\circ}\text{C}/\text{W}$ for standard size relay

R_{ch} = default value $0.05^{\circ}\text{C}/\text{W}$ (with heat-conducting pad or gels applied)

Important Information

Typically with MOSFET relays, no heatsink is necessary for continuous current under 50A. You may choose to monitor solid state relay and ensure that the base temperature of the relay/module does not exceed 80°C. If relay's operating environment causes concern for overheating, attach heatsinks with built-in fans or apply other cooling to bring the relay's temperature down to below 80°C.

In order to maximize relay heat dissipation through heatsink, ensure that heat pad or heat gel is applied between the relay base and heatsink. Tighten all relay screws to ensure a very close contact between the base of relay and the surface of heatsink.

Storage/Handling:

- The long term storage condition of the relay should be at an ambient temperature of -40 to 80°C with relative humidity of 45 – 85%.
- Do not store or use relay in wet, moisture or corrosive environment.
- Do not drop the relay or subject it to hard impact.
- Do not subject the relay to excess vibrations.
- Do not expose the relay to direct sunlight
- Do not store or use the relay in environments exposed to salt, dusts or metallic dusts.
- Do not store or use the relay in environments exposed to oil, chemical, water or liquid splashes.

Please ensure proper safety procedures, precautions, and handle all electrical components with care to avoid risks of electrical shock!



Do not touch SSR terminals when power supply is ON or immediately after power supply is switched off.



Conduct wiring only when the power supply is OFF or disconnected.



SSR and heatsink may likely be hot and cause burns. Do not touch them until power is off and surfaces are cooled.