

Model 548 Solid State DC Load Switch

Description

The model 548 DC Load Switch is a solid-state device intended to connect a DC supply voltage to traffic signal loads. The unit has three independent channels that provide a high-side switching function to the load. The Control Inputs (A, B, C) and Control Supply are isolated from the Output Supply voltage but may be connected together if required (28Vdc maximum). Each output circuit is protected from over-current and short circuit faults. Output circuits are also protected from transient over-voltage by a clamp circuit.

Specifications

Output Supply working voltage (pin #12)	48.0 Vdc
Output Supply voltage maximum (pin #12).....	53.0 Vdc
Output Supply voltage minimum (pin #12).....	10.0 Vdc
Output Load current maximum.....	10 Adc
Output Load current minimum.....	1 mAdc
Output Load Surge current maximum (10 ms duration, incandescent load)	40 Adc
Output Clamp voltage	55 Vdc
Output Clamp dissipation (1 ms duration).....	1500 watts
Short Circuit duration	Continuous
Output Off-state Leakage current.....	700 uA maximum
Output Off-state Leakage current (Output Supply = 48 Vdc).....	500 uA typical
Control Supply and A, B, C Input voltage maximum	28 Vdc
Input A, B, C Threshold.....	Control Supply voltage - 8 Vdc
Input A, B, C input current (Control Supply = 28 Vdc).....	25 mA maximum
Input to Output isolation	2000 Vdc minimum
Operating Temperature (still air)	-34°C to +75°C
Dimensions (length)	8.025 inches
(height)	4.170 inches
(Width).....	1.475 inches

Pin Assignments

<u>Pin #</u>	<u>Function</u>	<u>Pin #</u>	<u>Function</u>
1	Not Connected	7	C Output
2	Earth Ground	8	B Input
3	A Output	9	Control Supply
4	Not Used	10	C Input
5	B Output	11	Output Ground (Ground must be connected)
6	A Input	12	Output Supply

Connector

The model 548 DC Load Switch uses the same plug as a current NEMA / Type 170 load switch and mates with the Beau-Vernitron type socket S-5412 or Cinch-Jones socket S-2412SB or equivalent. The Output Supply has been assigned to pin #12 which is a "no connection" pin on an AC Load Switch (AC Line pin #1 is not used).

Output Current Limit

Total current into the Output Supply pin (pin #12) is internally limited to approximately 5 Amps total (selectable as 1, 5 or 10 Amps), such that each output is over-current and short circuit protected. When the maximum total output current level into pin #12 is exceeded, all output switches are turned off. The switch remains off for approximately 650 ms and then automatically attempts to restart. If the fault is still present, this cycle repeats until the fault is removed, thus protecting the output switch. During a short circuit fault condition, currents exceeding 75 to 100 amps may flow through the switch for approximately 1 ms. The magnitude of this short circuit fault current is dependent on the source impedance of the output supply and associated wiring.

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