MCPC SERIES

PROPORTIONAL CONTROL SOLID STATE RELAYS

Features

- Microcontroller based phase angle control SSR
- Ratings from 25 A to 90 A @ 48-530 VAC
- Low-voltage, current, or potentiometer control
- Output status indicator
- Separate output enable / disable control
- 0-100% Control Range
- For use with a wide range of resistive loads

PRODUCT SELECTION

Control Voltage	25 A	50 A	90 A
40-140 VAC	MCPC1225	MCPC1250	MCPC1290
180-280 VAC	MCPC2425	MCPC2450	MCPC2490
300-530 VAC	MCPC4825	MCPC4850	MCPC4890

SPECIFICATIONS

Output

Description	120 A	240 A	480 A
Operating Voltage (47-63 Hz) [Vrms]	48-140	180-280	300-530
Transient Overvoltage [Vpk]	400	600	1200
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	5	7	12
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/µsec]	200	200	200

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Output

Control Voltage	25 A	50 A	90 A
Maximum Load Current [Arms]	25	50	90
Minimum Load Current [mArms]	150	150	150
Maximum Surge Current (16.6 msec) [Apk]	250	625	1200
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.6	1.6	1.6
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.02	0.63	0.28
Maximum I^2t for Fusing (8.3 msec) [A^2sec]	260	1620	6000

Input [(1)]

Description	DC Control
DC Voltage Supply Range (VDC) [P1]	8-32
Input Current Range [mA] [P1]	28-30
Nominal Input Impedance [Ohm] [P3]	30K
Control Must Operate Voltage "On"[VDC][P3]	5-32
Control Must Release Voltage "Off" [VDC][P3]	0-4
Control Input Current [mA][P3]	0-1.25
PLV Range Option A [VDC][P4] [(3)]	0.8-5
PLV Range Option B [VDC][P4] [(3)]	1-7
PLV Range Option C [VDC][P4] [(3)]	2-10
PLV Range Option D [VDC][P4] [(3)]	4-20
Nominal Input Impedance Option A,B,C [Ohm][P4]	20K
Nominal Input Impedance Option D [Ohm][P4]	220

Output Status functions

Conditions	LED
Initial Logic Supply On	Flash Once
Load Voltage Missing / Load Open (w/control disabled)	Flash Once Intermittenly
Load Voltage Missing / Load Open (w/control enabled)	Flash Twice Intermittently
Analog Input < Threshold	Off
Analog Input < Threshold < Max.	Varying Brightness
Analog Input > Max.	On, Bright

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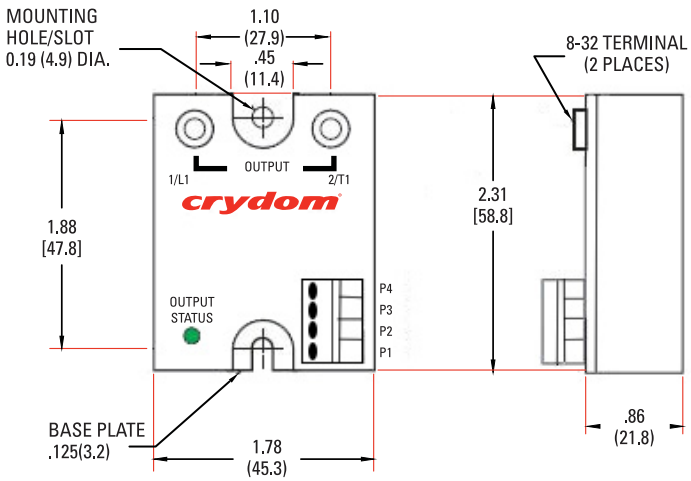
Output Status Functions

Dielectric Strength, Input/Output/Base (50/60 Hz)	4000 VRMS
Minimum Insulation Resistance (@ 500 VDC)	10^9 Ohms
Maximum Capacitance, Input/Output	10 pF
Ambient Operating Temperature Range	-20 to 80°C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	3.0 oz (86.5g)
Encapsulation	Thermally conductive Epoxy
Terminals-Control	Barrier Strip Screw Terminals
Terminals-Power	Screws and Saddle Clamps Furnished, Unmounted
Max. Terminal (Power) Screw Torque:	20 lb-in (8-32 screws, dry without grease)

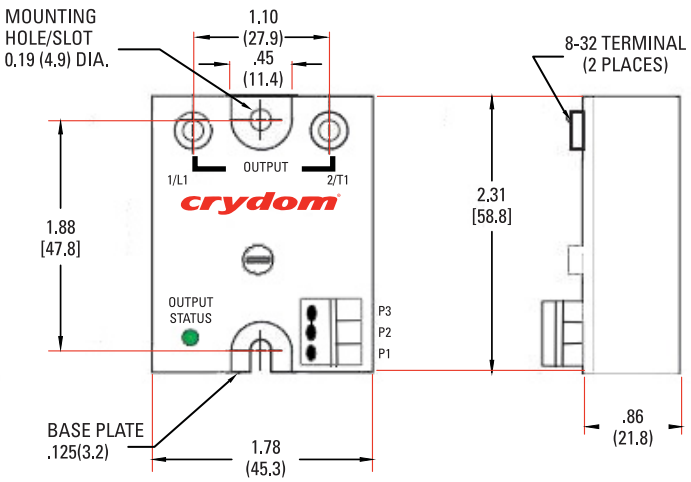
MECHANICAL SPECIFICATIONS

Tolerances: ±0.02 in / 0.5 mm
All dimensions are in inches [millimeters]

Analog Input OPTIONS: A, B, C, D

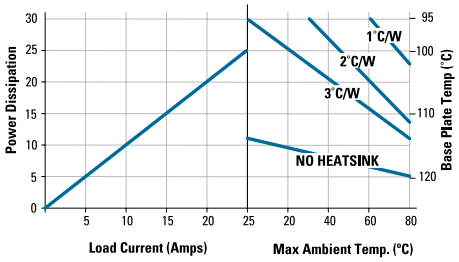


Analog Input OPTIONS: E (Internal Potentiometer)

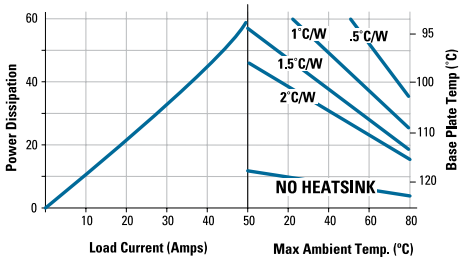


THERMAL DERATE INFORMATION

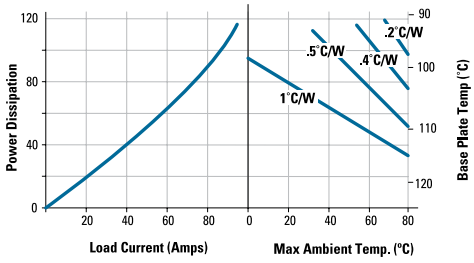
25A



50A



90A



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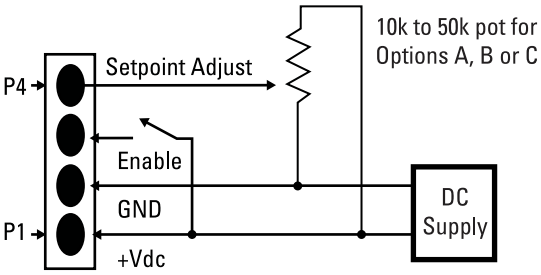
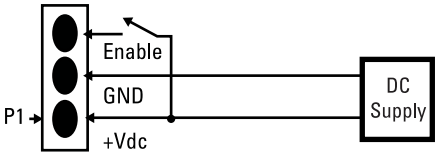
WIRING DIAGRAMS

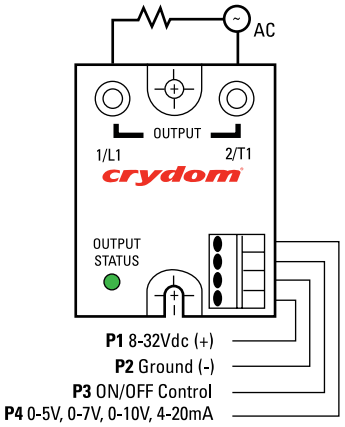
(for options A, B, or C using an external potentiometer)

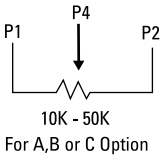


Wiring for Option E



Electrical Connections





Conditions	LED
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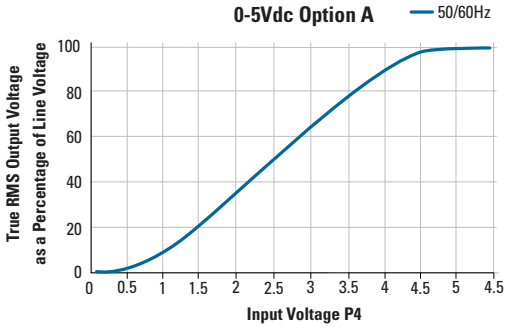
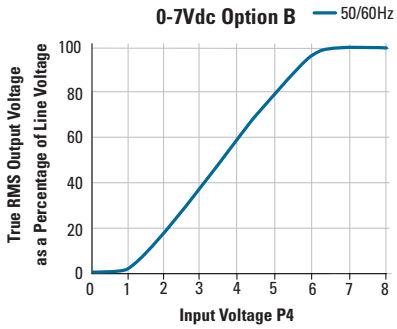
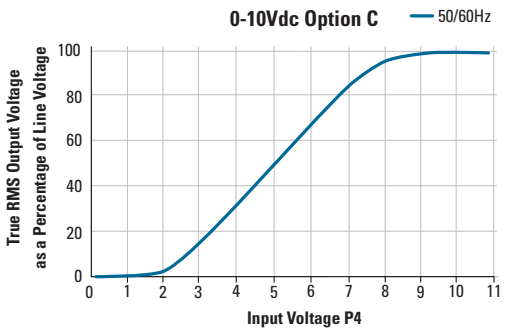
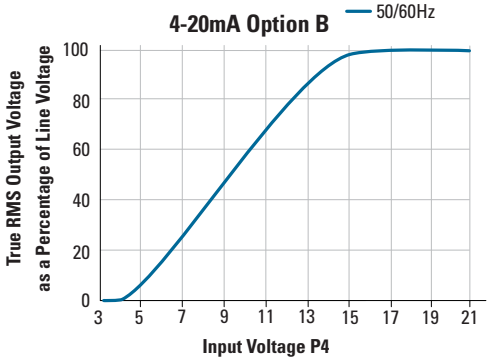
Analog Input < Threshold	Off
Analog Input < Threshold < max	Varying Brightness
Analog Input > max	On, Bright

OUTPUT VS ANALOG INPUT SIGNAL CURVES









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ORDERING OPTIONS

Example : MCPC2425C

MC	PC	24	25	C

Series

MC

Product Type

PC: Proportional Controller

Operating Voltage

12: 48-140 Vrms
24: 180-280 Vrms
48: 300-530 Vrms

Rated Load Current

25: 25 Amps
50: 50 Amps
90: 90 Amps

Analog Control Signal

A: 0-5 VDC
B: 0-7 VDC
C: 0-10 VDC
D: 4-20 mA
E: Internal Potentiometer

— Required for valid part number
☐ For options only and not required for valid part number

NOTE: Not all combinations are available.
Consult factory for information on the availability of a specific part number.

GENERAL NOTES

(1) All parameters at 25°C unless otherwise specified.
(2) Voltages are reference to GND (Ground = 0 VDC) P2
(3) PLVI voltage can go up to max. supply voltage without damage

AGENCY APPROVALS & CERTIFICATIONS

c UL us E116949 CE RoHS

WARNINGS

RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE
- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

Failure to follow these instructions can result in serious injury, or equipment damage.

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH
- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

Failure to follow these instructions will result in death or serious injury.

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