



CL SERIES

PANEL MOUNT



Features

- Ratings from 5A to 10A @ 24-280 VAC
- Triac Output
- LED Status Indicator
- UL Approved, CE Compliant to EN60950-1
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- AC or DC control
- EMC Compliant to Level 3
- Epoxy free design



PRODUCT SELECTION

Control Voltage	5A	10A
3-32 VDC	CL240D05	CL240D10
90-250 VAC	CL240A05	CL240A10



ORDERING OPTIONS

	CL	240	A	10	K	R	C	H
Series	CL							
Load Voltage		240: 24-280 VAC						
Control Voltage			A: 90-250 VAC D: 3-32 VDC					
Rated Load Current				05: 5 Amps 10: 10 Amps				
Termination					Blank: Screws & clamps K: Installed standoffs with screws for PC Board mounting (IP00 only) (1)			
Switching Type						Blank: Zero Voltage Turn-On R: Instantaneous Turn-On		
Cover							Blank: Not Included (IP00) C: Included (IP20)	
Thermal Pad								Blank: Not Included H: Included

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

Note: Not all part number combinations are available. Contact Crydom Technical support for information on the availability of a specific part number.

OUTPUT SPECIFICATIONS (2)

Description	5 A	10 A
Operating Voltage (47-63Hz) [Vrms]	24-280	24-280
Transient Overvoltage [Vpk] (3)	600	600
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	7	7
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500
Maximum Load Current [Arms] (4)	5	10
Minimum Load Current [mArms]	150	150
Maximum 1 Cycle Surge Current (50/60Hz)[Apk]	84/100	120/126
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.6	1.5
Thermal Resistance Junction to Case [Rjc] [°C/W]	2.3	2.3
Maximum 1/2 Cycle I ² t for Fusing (50/60Hz)[A ² sec]	35/42	72/66
Minimum Power Factor (with Maximum Load)	0.5	0.5
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	3	1.5

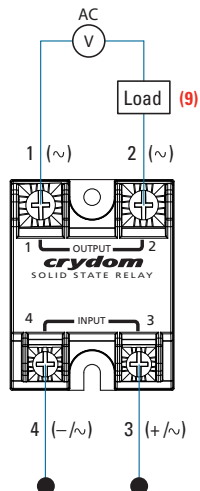
INPUT SPECIFICATIONS (2)

Description	DC Control	AC Control
Control Voltage Range	3-32 VDC (5)	90-250 VAC
Maximum Reverse Voltage	-32 VDC	-
Minimum Turn-On Voltage	3 VDC	90 VAC
Must Turn-Off Voltage	1 VDC	10 VAC
Minimum Input Current (for on-state)	10 mA	6 mA
Maximum Input Current	14 mA	10 mA
Nominal Input Impedance	Current Limited	Current Limited
Maximum Turn-On Time [msec]	1/2 Cycle (6)	20
Maximum Turn-Off Time [msec]	1/2 Cycle	30

GENERAL SPECIFICATIONS (2)

Description	Parameters
Dielectric Strength, Input to Output (50/60Hz)	4000 Vrms
Dielectric Strength, Input/Output to Ground (50/60Hz)	2500 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 ⁹ Ohms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range (7)	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	2.88 oz (81.53 g)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Input Terminal Screw Torque Range (in-lb/Nm)	13-15 / 1.5-1.7
Load Terminal Screw Torque Range (in-lb/Nm)	18-20 / 2-2.2
SSR Mounting Screw Torque Range (in-lb/Nm)	18-20 / 2-2.2
Input/Load Terminal Screw Torque Range (in-lb/Nm) (1)	w/"K" option 8-10 / 0.9-1.13
Input/Output Terminal Screw Thread Size	#6-32 UNC / #8-32 UNC
Humidity per IEC60068-2-78	93% non-condensing
LED Input Status Indicator	Green
MTBF (Mean Time Between Failures) at 40°C ambient temperature (8)	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (8)	7,210,376 hours (823 years)

WIRING DIAGRAM

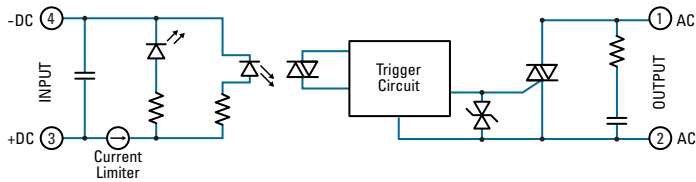


Recommended Wire Sizes		
Terminals	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lbs)[N]
Input	24 AWG (0.2 mm ²) / 0.2 [minimum]	10 [44.5]
	2 x 12 AWG (3.3 mm ²) / 3.3 [maximum]	90 [400]
Output	20 AWG (0.5 mm ²) / 0.518 [minimum]	30 [133]
	2 x 10 AWG (5.3 mm ²) / 5.3 [maximum]	110 [490]
	2 x 8 AWG (8.4 mm ²) / 8.4 [maximum]	90 [400]

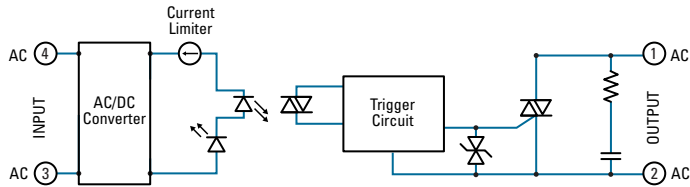


EQUIVALENT CIRCUIT BLOCK DIAGRAMS

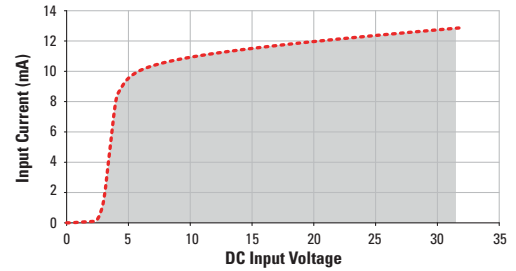
CL Series DC Control



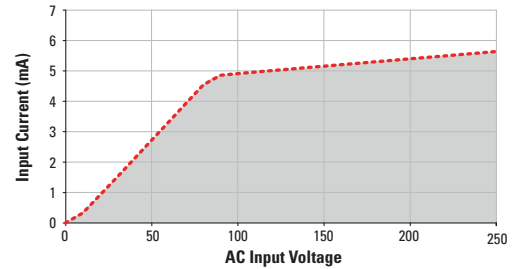
CL Series AC Control



Standard Regulated "DC" Inputs



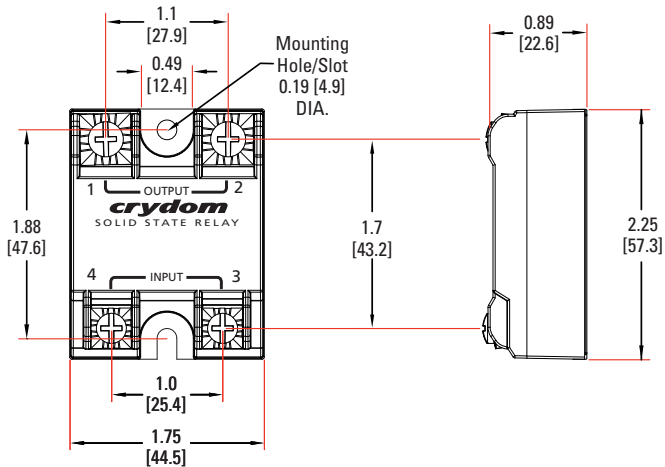
Standard Regulated "AC" Inputs



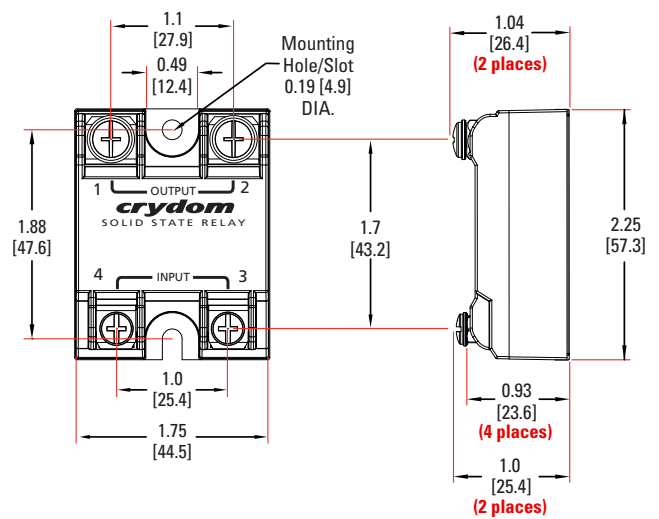
MECHANICAL SPECIFICATIONS ⁽²⁾

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

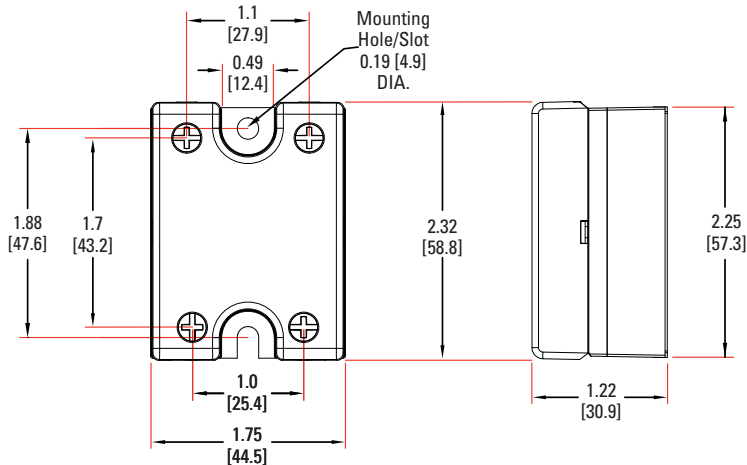
Screw Termination



Hex Standoff Termination ("K" Option)⁽¹⁾

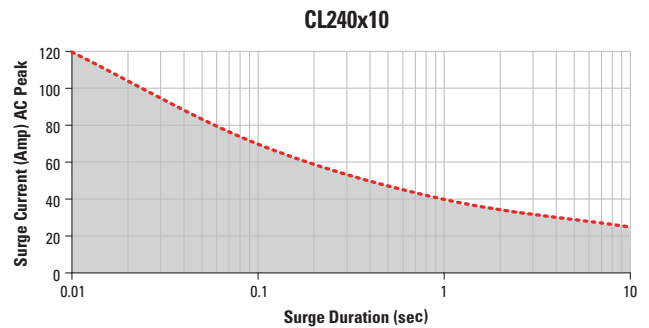
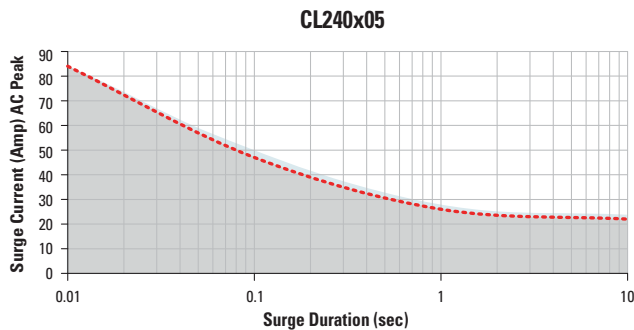


Screw Termination, IP20



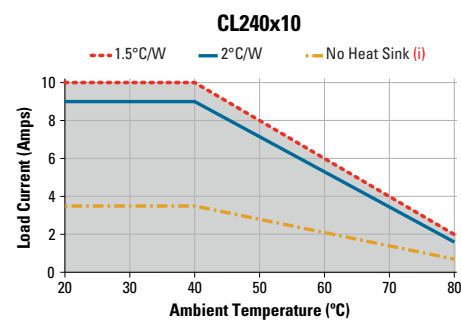
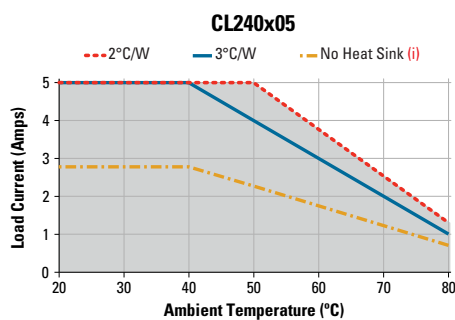
SURGE CURRENT INFORMATION

--- Single Pulse (10)



THERMAL DERATE INFORMATION

(i) SSR metal base plate acting as heat sink, it must be exposed to free ambient air.

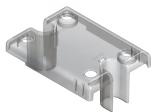


ACCESSORIES

Protective Cover & Hardware Kits

Protective Cover

Part number: KS101



Clear plastic cover compatible with all new S1 designs. Safety covers provide added protection from electric shock when installing or checking equipment.

Hardware Kit

Part number: HK4



Bag with 2 square brass accessories and 2 screw 8-32 x 5/8 for output. Used to mount TRM1 lug terminals.

Recommended Accessories

Cover	Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Lug Terminal	Thermal Pad
KS101	HK1 HK4	HS501DR	— 5.0	TRM1	HSP-1
		HS301 / HS301DR	3.0	TRM6	HSP-2
		HS251	2.5		
		HS201 / HS201DR	2.0		
		HS202 / HS202DR	2.0		
		HS172	1.7		
		HS151 / HS151DR	1.5		
		HS122 / HS122DR	1.2		
		HS103 / HS103DR	1.0		
		HS101	1.0		
		HS073	0.7		
		HS072	0.7		
		HS053	0.5		
		HS033	0.36		
		HS023	0.25		

AGENCY APPROVALS AND CERTIFICATIONS

EN60950-1: Meets the requirements of sections 1.5: 1.7: 2.9: 2.10.5.3: 4.2: 4.5: 4.7:

IEC 61000-4-2 Electrostatic Discharge Level 3

IEC 61000-4-4 Electrically Fast Transients Level 3

IEC 61000-4-5 Electrical Surges Level 3



GENERAL NOTES

- (1) Option "K" is designed and tested for use with printed circuit boards or ring/fork terminals having a thickness between 0.031 and 0.093 inches (0.79 to 2.36 mm).
- (2) All parameters at 25°C unless otherwise specified.
- (3) Output will self trigger between 450-600Vpk, not suitable for capacitive loads.
- (4) Heat sinking required, see derating curves.
- (5) Increase minimum voltage by 1V for operations from -20 to -40°C.
- (6) Turn-on time for instantaneous turn-on versions is 0.1 msec.
- (7) AC models operating range is -20 to 80 °C.
- (8) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
- (9) Load can be wired to either SSR output terminal 1 or 2.
- (10) For single surge pulse $T_c=25^\circ\text{C}$; $T_j=125^\circ\text{C}$. For AC Output SSRs, AC Rms value of surge current equals the peak value divided by $\sqrt{2}$ (1.414).

For additional information or specific questions, contact Crydom Technical Support.

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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