

# EVOLUTION DUAL SERIES

## PANEL MOUNT SOLID STATE RELAYS

Sensata | Crydom Evolution Dual family of Panel Mount dual channel AC Solid State Relays is an innovative line which expands upon the classic family of Crydom Dual SSRs, offering an improved mechanical and thermal design along with higher power density. These dual output SSRs are available with ratings of 25 and 50 Amps at 24 to 480 VAC.

Evolution Dual SSRs have two outputs controlled by two independent DC control inputs, and they are available with different options for input connectors and output terminal configurations, offering great wiring flexibility.



### Features

- 25A & 50A Output rating per channel @ 40°C
- 24 to 280 & 48 to 600VAC Operating voltage
- 4-32VDC Control input
- Three input termination options
- Zero turn-on outputs
- Input status LED indicator for each channel
- Available with IP20 "Touch-Safe" Covers
- UL508 Endurance Rating

### Applications

- Industrial ovens
- Plastic injection molding equipment
- Packaging equipment
- Professional cooking equipment
- Lighting control
- HVAC&R



### PRODUCT SELECTION

Control Voltage	240V, 25A	240V, 50A	480V, 25A	480V, 50A
4-32 VDC	CD2425W2U	CD2450W2U	CD4825W2U	CD4850W2U



### SPECIFICATIONS

#### Output <sup>(1)</sup>

Description	Cx2425xxxx	Cx2450xxxx	Cx4825xxxx	Cx4850xxxx
Operating Voltage (47-440Hz) [Vrms] per UL-508	24-280	24-280	48-600	48-600
Nominal Voltage (47-440Hz) [Vrms] per EN 62314	280	280	480	480
Load Current Range [Arms] <sup>(3)</sup>	0.15-25	0.15-50	0.15-25	0.15-50
Transient Overvoltage [Vpk]	600	600	1200	1200
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	1.0	1.0	1.0	1.0
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec] <sup>(2)</sup>	500	500	500	500
Maximum 1 Cycle Surge Current (50/60) [Apk]	275/300	710/750	275/300	710/750
Maximum Surge Current 50Hz (20ms) [Apk]	275	710	275	710
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.3	1.3	1.3	1.3
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.65	0.33	0.65	0.33
Maximum I <sup>2</sup> t for Fusing 50/60Hz (1/2 cycle) [A <sup>2</sup> sec]	380/370	2520/2320	380/370	2520/2320
Minimum Power Factor (with Maximum Load)	0.5	0.5	0.5	0.5

## Input <sup>(1)</sup>

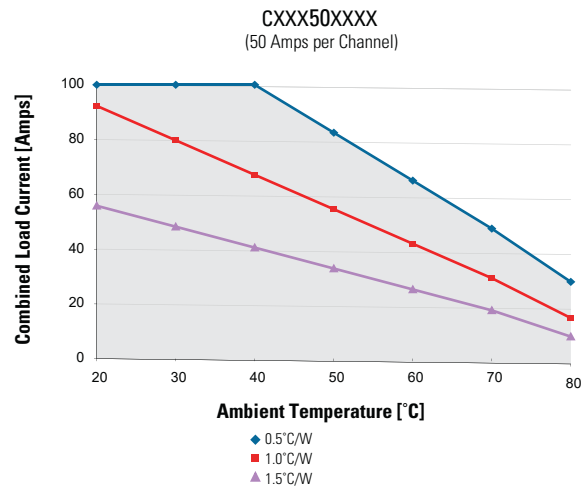
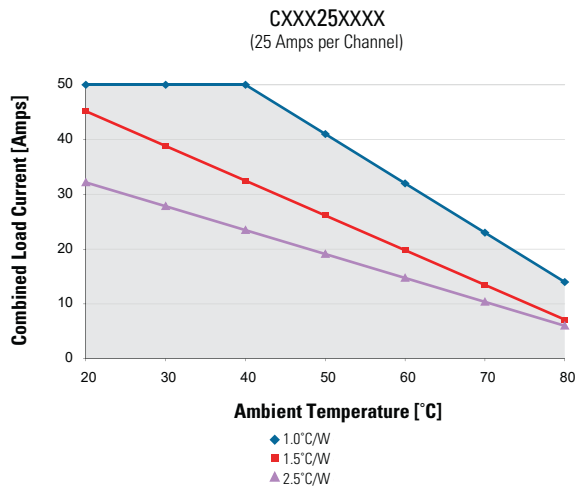
Description	CxxxWxxx
Control Voltage Range	4-32 VDC
Minimum Turn-On Voltage	4 VDC
Minimum Turn-Off Voltage	1.0 VDC
Typical Input Current	10 mA @ 12 VDC
Nominal Input Impedance	See Note <sup>(4)</sup>
Maximum Turn-On Time [msec]	1/2 Cycle
Maximum Turn-Off Time [msec]	1/2 Cycle

## General

Description	Parameters
Dielectric Strength, Input/Output to Base (50/60Hz)	4000 Vrms
Dielectric Strength, Input/Output/Base (50/60Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 <sup>9</sup> Ohm
Maximum Capacitance, Input/Output	10 pF
Ambient Operating Temperature Range	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	3.0 oz (86.5 g)
Terminals	Screw Type Output: 8-32
Max. Torque	Output: 20 in lb (2.2Nm)
Max. Wire Size	Output: 2 x AWG 8 (3.8mm)



## THERMAL DERATE INFORMATION

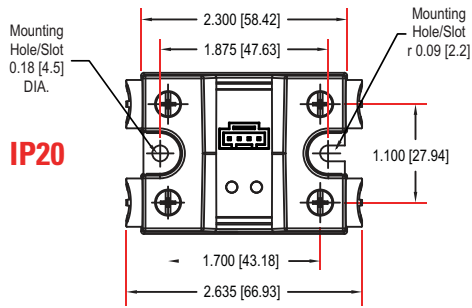




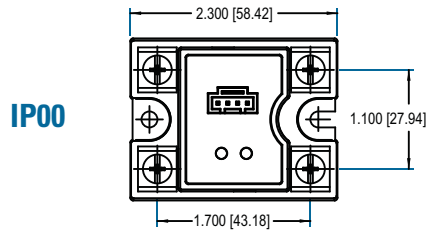
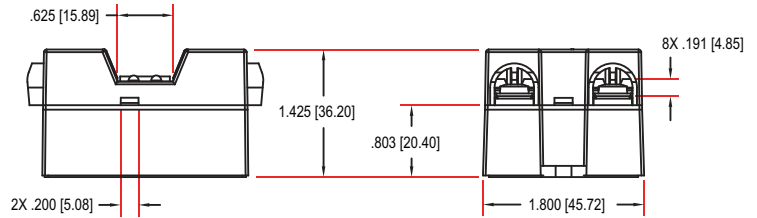
# MECHANICAL SPECIFICATIONS

Tolerances:  $\pm 0.02$  in / 0.5 mm

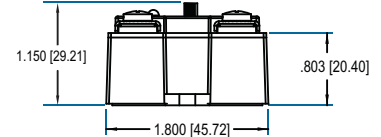
All dimensions are in millimeters [inches]



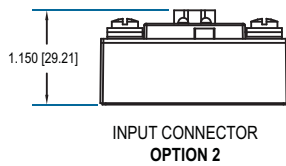
**IP20**



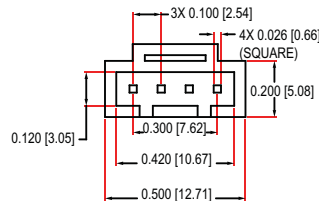
**IP00**



## MECHANICAL DIMENSIONS (shown without IP20 cover)



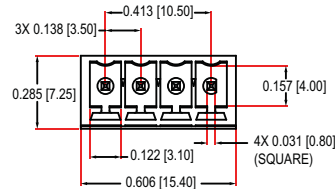
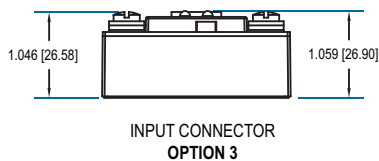
## INPUT CONNECTOR DIMENSIONS



## SUGGESTED MATING CONNECTORS/PLUGS

**Crimp Housing, Positive Latch**  
Molex 050579404

Accepts wires: AWG #24, 0.2 mm<sup>2</sup>



### Vertical Plug, Top Wire entry

Molex 039500-0004  
Phoenix 1840382  
Dinkle EC350V-04P

### Vertical Plug, Rear Wire entry

Molex 39503-2004  
Phoenix 1862878  
Dinkle EC350RL-04P

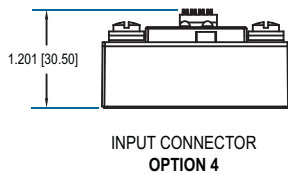
### Vertical Plug, Front Wire entry

Molex 39503-3004  
Phoenix 1863178  
Dinkle EC350R-04P

### Vertical Spring Cage Plug, top Wire E

Phoenix 1939934  
Dinkle 0221-2004

All 4 options accept wires: AWG #16 to 24

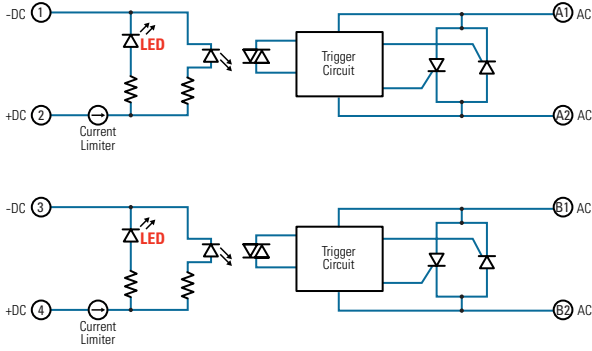


N/A

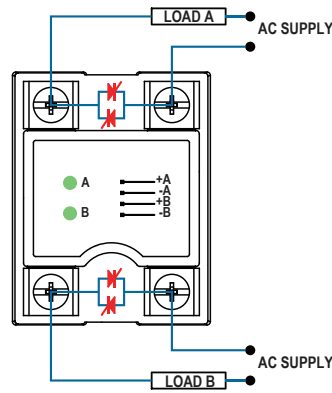
Accepts wires: AWG #16 to 24



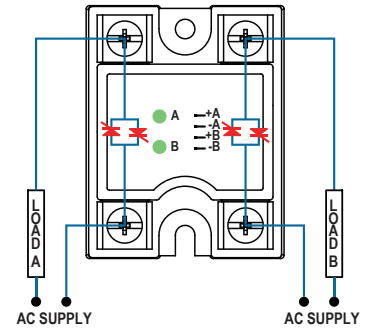
## WIRING DIAGRAM



**SSR Output Configuration**  
"U" Option Top-Bottom  
Line/Load Connections



**Contactor Output Configuration**  
"V" Option Left-Right  
Line/Load Connections



## ORDERING OPTIONS

Example : CD2425W2VH

	C	D	24	25	W	2	V	H
<b>Series</b>								
<b>C</b>								
<b>Cover</b>								
<b>C:</b> Included <b>D:</b> Not Included								
<b>Operating Voltage</b>								
<b>24:</b> 24-280 VAC <b>48:</b> 48-600 VAC								
<b>Rated Load Current</b>								
<b>25:</b> 25 Amps <b>50:</b> 50 Amps								
<b>Control Voltage</b>								
<b>W:</b> 4-32 VDC								
<b>Input Connector</b>								
<b>2:</b> Key Locking Connector <b>3:</b> 4 Pin Connector accepting Screw Terminals <b>4:</b> 4 Pin Spring Terminal								
<b>Output Terminal Orientation</b>								
<b>U:</b> A channel top, B channel bottom <b>V:</b> A channel on left, B channel on right								
<b>Thermal Pad</b>								
<b>Blank:</b> Not Included <b>H:</b> Included								





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



## GENERAL NOTES

- (1) All parameters at 25°C and per section unless otherwise specified.
- (2) Off-state dv/dt test method per EIA/NARM standard RS-443, paragraph 13.11.1
- (3) Heat sinking required, see derating curves.
- (4) Input circuit incorporates active current limitation

**TABLE 2. Recommended Accessories**

 Hardware Kit			 Lug Terminal	 Thermal Pad
	Heat Sink Part No	Thermal Resistance [°C/W]		
HK1	HS501DR	5.0	TRM1	HSP-1
HK4	HS301 / HS301DR	3.0	TRM6	HSP-2
	HS251	2.5		
	HS202 / HS202DR	2.0		
	HS201 / HS201DR	2.0		
	HS172	1.7		
	HS151 / HS151DR	1.5		
	HS122	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 & CERTIFICATIONS

Designed in accordance with the requirements of IEC 62314



## 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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