

# ***crydom***<sup>®</sup>

## **EL Series**



The Global Expert in **Solid State Relay** Technology

A brand of  
**CST**  
CUSTOM SENSORS & TECHNOLOGIES

## ABOUT US

Crydom, a brand of Custom Sensors & Technologies (CST) and **global expert in Solid State Relay Technology**, has a distinguished record of providing high quality, world class Solid State Relay and Control Products for a variety of heating, lighting and motion control applications. Crydom products, coupled with **unparalleled technical support, timely delivery and competitive pricing**, provide Crydom's clients with the innovative products and support necessary to succeed in today's competitive and fast paced global markets.

Crydom's extensive selection of standard off-the-shelf products is constantly being updated and expanded through its continuous improvement and aggressive new product development programs. Utilizing state of the art designs, materials and technology, Crydom offers a wide range of AC and DC output SSRs in industry standard Panel Mount, PCB Mount and DIN Rail packages, all **meeting global safety and standards agency requirements** such as CE, RoHS, UL, IEC, etc.

Bolstered by four decades of Solid State Relay operations experience, Crydom also specializes and encourages **adapted and fully custom-designed SSR products** for nearly any application where unique specifications and optimized performance are critical for success.

Crydom's modern purpose-built **100,000 square foot manufacturing facility** houses all aspects of its ISO certified operation including Design and Development Engineering, Manufacturing Operations and Quality Assurance, Customer Service, Finance, Marketing and General Management, permitting close coordination of all aspects of Crydom's activities. Applications Engineering and Sales support are both performed in the field to provide Crydom's Customers with the unparalleled technical and commercial support.

Following rigid design guidelines and standards, Crydom products have set the bench mark for SSR performance and reliability world wide. In addition to **award winning designs**, Crydom has acquired an impressive list of **patents** related to SSRs and Solid State Controls, while continuing to develop new circuit and technology-related inventions as part of **extensive R&D programs**.

To learn more about Crydom SSR technology and products, or how an alliance with Crydom can contribute to the success of your project, visit **www.crydom.com** or contact your authorized Crydom Distributor or Crydom Customer Service Representative today.

## EL SERIES COMPACT PANEL MOUNTED SSRS

### EL Series AC Output SSRs

Crydom's **EL Series** of Compact Panel Mounted SSRs includes AC output models featuring SCRs rated at 5, 10 or 20 Arms (with heat sinking) in a 40 °C ambient, from 24 to 280 VAC in either random or zero voltage turn on versions. Designed with high surge current ratings and low off state leakage current, the **EL Series** is housed in a compact 21 wide x 35 mm long mini-puck package with polarized quick connect terminals. The **EL Series** AC output models offer 3750 VAC optically isolated logic compatible 5, 12 or 24 VDC input control ratings.

### Flexible Control of DC Load

The **EL Series** DC output models feature low dissipation FETs rated at 5 or 10 amps (with heat sinking) at 40°C, from 3 to 100 VDC. The FET outputs offer low minimum load requirements for high impedance loads, high surge current ratings and low off state leakage. Housed in the same compact 21 x 35 mm package with polarized quick connect terminals, the DC Output **EL Series** SSRs offer 2500 VAC optically isolated logic compatible 5, 12 or 24 VDC input control ratings.

All **EL Series** SSRs are RoHS & China RoHS compliant, CE Certified, UL and cUL recognized, making them ideal for heating, lighting and motion control applications where compact high power Solid State Switching is desirable for Reliability and Long Life.

For more information, technical support or questions about the Crydom **EL Series** Solid State Relays or other Crydom products, contact your nearest Crydom Distributor, Representative or Local Crydom Sales Office, or visit our website at [www.crydom.com](http://www.crydom.com).



## EL Series AC Output Pluggable SSRs

- Compact 21 mm wide mini-puck panel mount package
- Ratings of 5A, 10A & 20A @ 24 to 280 VAC
- 5, 12 & 24 VDC control options available
- Quick connect input & output terminals for easy wiring
- SCR Output
- Zero-Voltage Turn-On (resistive loads) or Random Turn-On (inductive loads) output
- UL & cUL Recognized, CE & RoHS Compliant

Output Specifications (A)	5 A	10 A	20 A
Operating Voltage Range (47-63 Hz) [Vrms]		24-280	
Transient Overvoltage [Vpk]		600	
Maximum Off-State Leakage Current @ Maximum Operating Voltage [mA <sub>rms</sub> ]		0.1	
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec] (B)		500	
Minimum Load Current [mA <sub>rms</sub> ] (C)	150	150	250
1 Cycle Surge Current (50/60 Hz) [A <sub>pk</sub> ]	115 / 120	145 / 150	240 / 250
Maximum I <sub>t</sub> for Fusing (50/60 Hz, 1/2 cycle) [A <sup>2</sup> sec]	65 / 60	100 / 95	285 / 260
Maximum On-State Voltage Drop @ Rated Current [Vpk]		1.3	
Minimum Power Factor (with Maximum Load)		0.5	
Thermal Resistance Junction to Case (R <sub>jc</sub> ) [°C/W]	6	4	2
UL 508 Resistive Load @ Rated Voltage [A] (C)	5	10	20

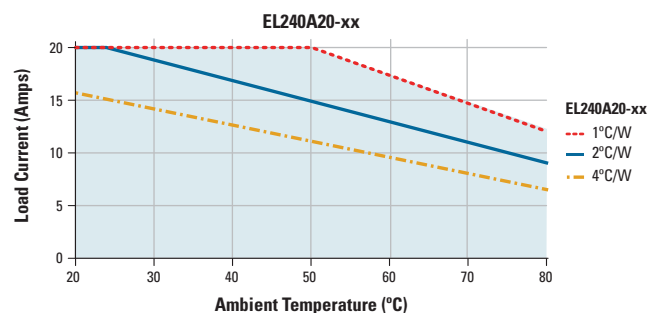
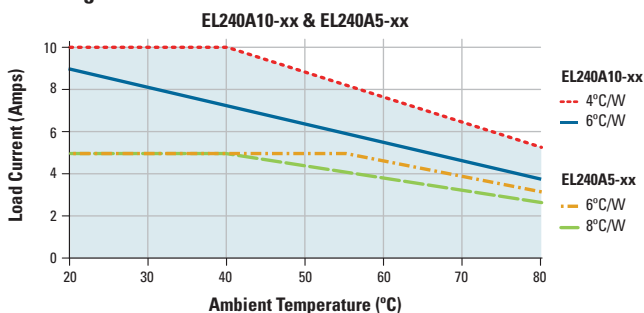
Input Specifications (A)	EL240Axx-05	EL240Axx-12	EL240Axx-24
Nominal Control Voltage [VDC]	5	12	24
Control Voltage Range [VDC]	4-8	10-14	21-27
Minimum Turn-On Voltage [VDC]	4	10	21
Minimum Turn-Off Voltage [VDC]		1	
Typical Input Current @ Nominal Control Voltage [mA]	8.5	9.2	5.9
Nominal Input Impedance [Ω]	470	1.2 K	3.9 K
Maximum Turn-On Time [msec] (D)		1/2 Cycle	
Maximum Turn-Off Time [msec] (D)		1/2 Cycle	

General Specifications (A)	Parameters
Dielectric Strength, Input to Output (50/60 Hz) [Vrms]	3750
Dielectric Strength, Output to Baseplate (50/60 Hz) [Vrms]	2500
Maximum Capacitance, Input to Output [pF]	8
Ambient Operating Temperature Range [°C]	-30 to 80
Ambient Storage Temperature Range [°C]	-30 to 125
Weight (typical) [oz] (gr)	0.5 (14.4)
Terminal type / size [in] (mm)	Quick Connect / 0.187 (4.75) input, 0.25 (6.35) output

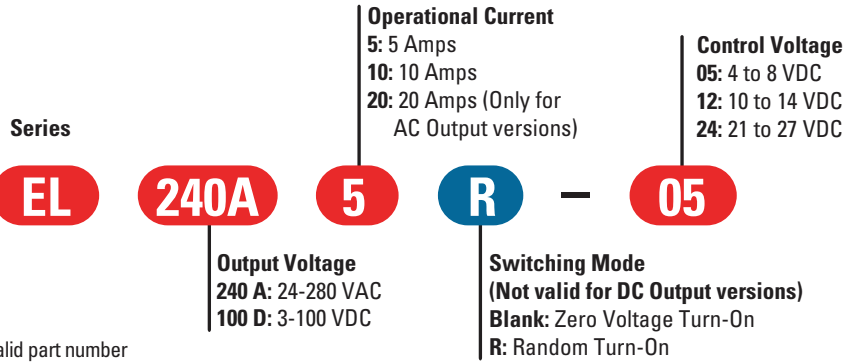
### General Notes

- (A) All parameters at 25°C unless otherwise specified.  
 (B) Off-State dv/dt test method per EIA/NARM standard RS-443.  
 (C) Heat sink required, see derating curves.  
 (D) Turn-On time for Random Turn-On versions is 0.02 msec.  
 (E) 100% Duty Cycle.

### Derating Curves (E)



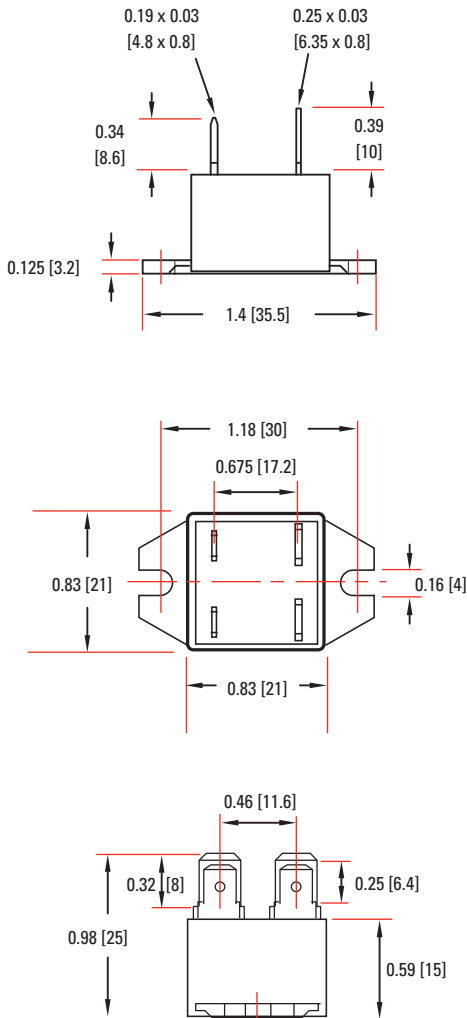
## Part Number Nomenclature



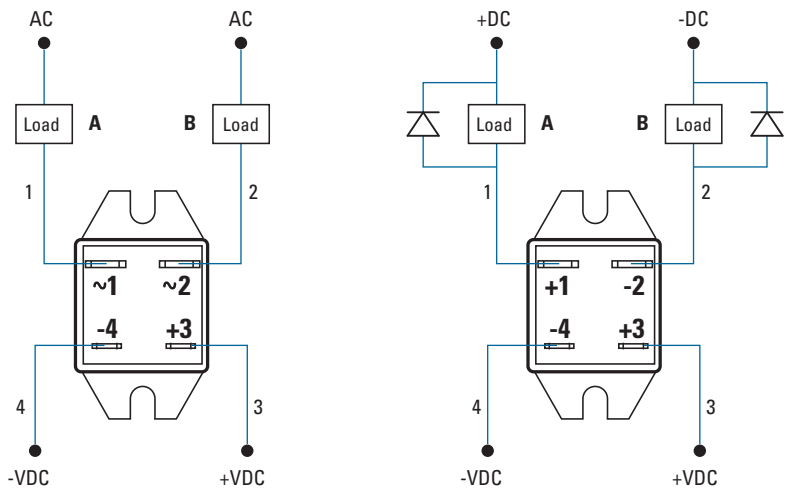
- Required for valid part number
- For options only and not required for valid part number

## Mechanical Dimensions

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



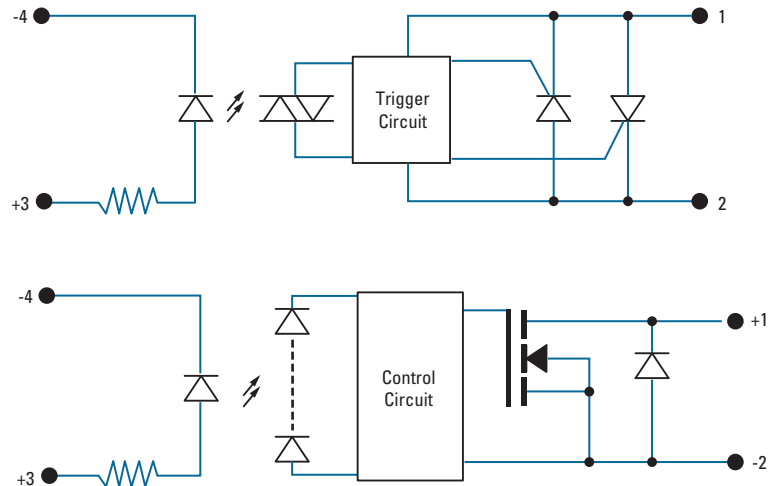
## Wiring Diagram (F,G)



AC Pinout	
Terminal 1:	AC Load
Terminal 2:	AC Load
Terminal 3:	DC Control (+)
Terminal 4:	DC Control (-)

DC Pinout	
Terminal 1:	DC Load (+)
Terminal 2:	DC Load (-)
Terminal 3:	DC Control (+)
Terminal 4:	DC Control (-)

## Block Diagram



(F) For AC loads, the AC line can be wired to either terminal 1 or terminal 2. For DC loads, the proper polarity must be observed for the power supply and load with terminal 3 being positive with respect to terminal 4.

(G) DC inductive loads must be diode suppressed.



## EL Series DC Output Pluggable SSRs

- Compact 21 mm wide mini-puck panel mount package
- Ratings of 5A & 10A @ 3 to 100 VDC
- 5, 12 & 24 VDC control options available
- Quick connect input & output terminals for easy wiring
- MOSFET Output
- UL & cUL Recognized, CE & RoHS Compliant



### Output Specifications (A,G)

	5 A	10 A
Operating Voltage Range [VDC]		3-100
Minimum Load Current [mA]		150
Transient Overvoltage [Vpk]		600
Maximum Surge Current Non-Repetitive (10ms) [A]	115 / 120	145 / 150
Maximum I <sup>2</sup> t for Fusing (50/60 Hz, 1/2 cycle) [A <sup>2</sup> sec]	65 / 60	100 / 95
Maximum Off-State Leakage Current @ Rated Voltage [μADC]		100
Maximum On-State Resistance @ Rated Current (Rds-on) [Ohm]	0.04	0.01
Maximum On-State Voltage Drop @ Rated Current [V]	0.2	0.1
UL 508 Resistive Load @ Rated Voltage [A] (C)	5	10

### Input Specifications (A)

	EL100Dxx-05	EL100Dxx-12	EL100Dxx-24
Nominal Control Voltage [VDC]	5	12	24
Control Voltage Range [VDC]	4-8	10-14	21-27
Minimum Turn-On Voltage	4	10	21
Minimum Turn-Off Voltage	0.5	1	2
Typical Input Current @ Nominal Control Voltage [mA]	13.3	11.7	11.5
Nominal Input Impedance [Ohm]	300	940	2 K
Maximum Turn-On Time [msec]		1	
Maximum Turn-Off Time [μsec]		300	

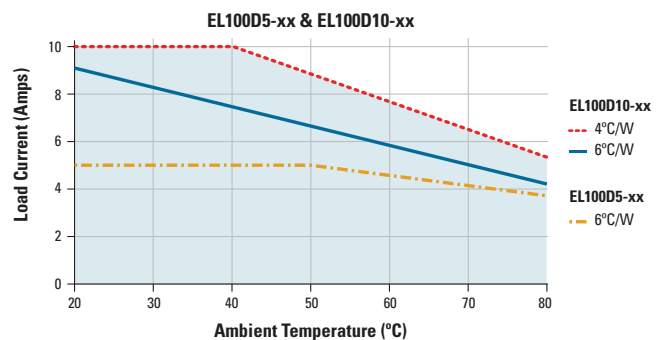
### General Specifications (A)

	Parameters
Dielectric Strength, Input/Output/Base (50/60 Hz) [Vrms]	2500
Ambient Operating Temperature Range [°C]	-30 to 80
Ambient Storage Temperature Range [°C]	-30 to 125
Weight (typical) [oz] (gr)	0.5 (14.4)
Terminal type / size [in] (mm)	Quick Connect / 0.187 (4.75) input, 0.25 (6.35) output

### General Notes

- (A) All parameters at 25°C unless otherwise specified.
- (C) Heat sink required, see derating curves.
- (E) 100% Duty Cycle.
- (G) Inductive loads must be diode suppressed.

### Derating Curves (E)



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