EL SERIES | DC OUTPUT

PANEL MOUNT SOLID STATE RELAYS

Sensata | Crydom EL Series DC output solid state relays come in a compact, 21 x 35 mm housing and offer ratings up to 20 Amps.
These compact SSRs come with a pre-installed thermal pad, and are C-UL-US and TUV certified and CE compliant.
The EL Series mechanical design includes quick connect terminals and an innovative 90° bent terminals option ideal for applications with limited vertical space.

Features

- Ratings of 5A, 10A and 20A @ 3-100 VDC
- UL Recognized, TUV, CE and RoHS Compliant
- 5, 12 and 24 VDC control input options
- Mosfet Output
- Thermal Pad Included
- Plastic housing with min. 250 CTI rating (PLC2) for demanding applications

Applications

- Battery Management Systems
- Backup Power Supplies
- Valves
- Vending Equipment
- Lighting control
- Medical Equipment

PRODUCT SELECTION

Control Voltage	5A	10A	20A
4-8 VDC	EL100D5-05	EL100D10-05	EL100D20-05
10-14 VDC	EL100D5-12	EL100D10-12	EL100D20-12
21-27 VDC	EL100D5-24	EL100D10-24	EL100D20-24

SPECIFICATIONS

Output [1][3]

Description	5A	10A	20A
Operating Voltage [VDC]	3-100	3-100	3-100
Maximum Load Current [Adc] [2]	5	10	20
Minimum Load Current [mAdc]	20	20	2.5
Maximum Surge Current Non-Repetitive (10ms) [A]	80	100	100
Maximum Off-State Leakage Current @ Rated Voltage [µAdc]	100	100	100
Maximum On-State Resistance @ Rated Current (Rds-on) [Ohm]	0.02	0.02	0.013
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.12	0.25	0.27

Input [1]

Description	EL100Dxx-05	EL100Dxx-12	EL100Dxx-24
Control Voltage Range	4-8 VDC	10-14 VDC	21-27 VDC
Minimum Turn-On Voltage	4 VDC	10 VDC	21 VDC
Must Turn-Off Voltage	1 VDC	1 VDC	1 VDC
Minimum Input Current	12 mA	10 mA	9 mA
Maximum Input Current	27 mA	15.5 mA	14 mA
Nominal Input Impedance [Ohms]	300	940	2k
Maximum Turn-On Time [msec]	1	1	1
Maximum Turn-Off Time [µsec]	300	300	300

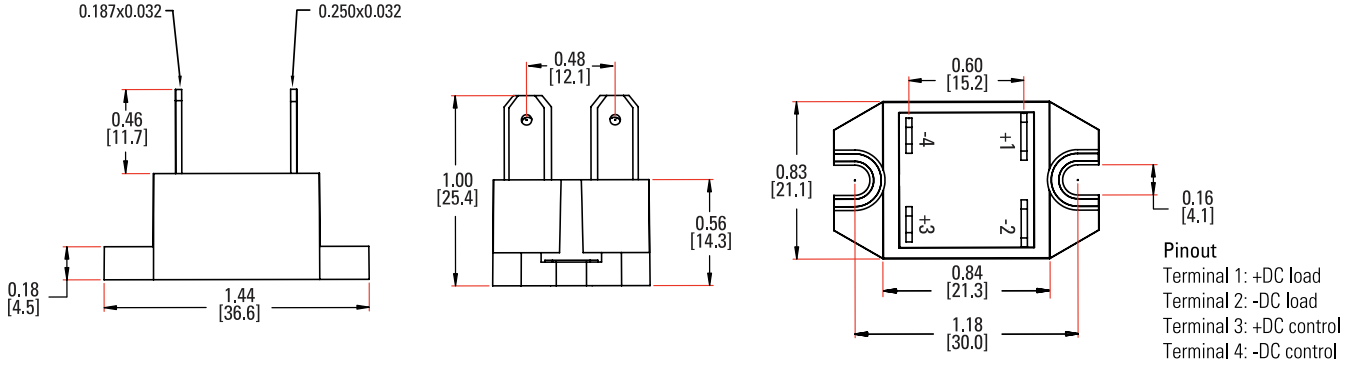
General [1]

Description	Parameters
Dielectric Strength, Input to Output	2500 Vrms
Dielectric Strength, Output to Baseplate	2500 Vrms
Ambient Operating Temperature Range	-30 to 80°C
Ambient Storage Temperature Range	-30 to 125°C
Weight (typical)	0.5 oz (14.4 g)
Terminals	3/16"x 0.032" input, 1/4"x 0.032" output QC
SSR Mounting Screw Torque Range	9.0-10.0 lb-in (1.0-1.13 Nm)
Humidity per IEC60068-2-78	95% non-condensing

MECHANICAL SPECIFICATIONS

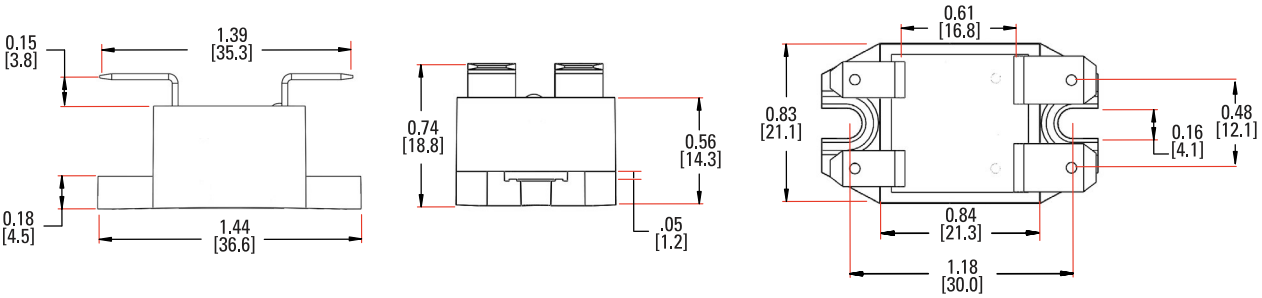
Tolerances: ±0.02 in / 0.5 mm
All dimensions are in: inches [millimeters]

Standard Quick Connect terminals

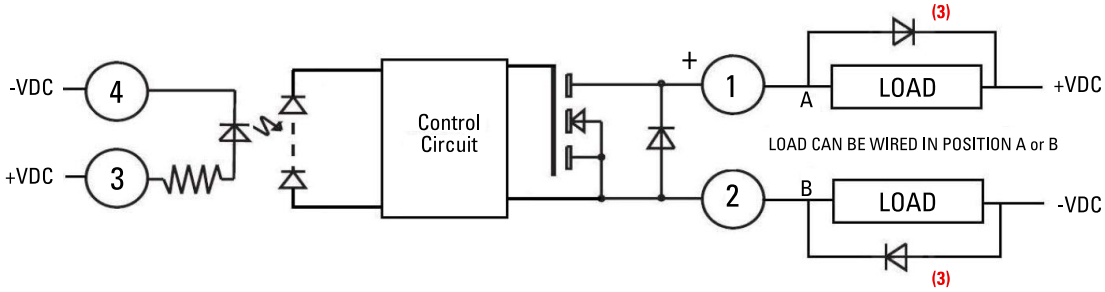


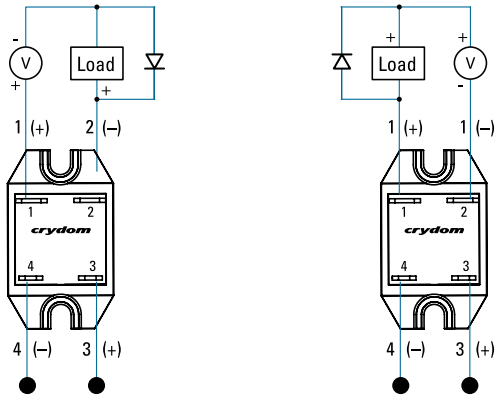
Pinout
Terminal 1: +DC load
Terminal 2: -DC load
Terminal 3: +DC control
Terminal 4: -DC control

90° bent Quick Connect terminals



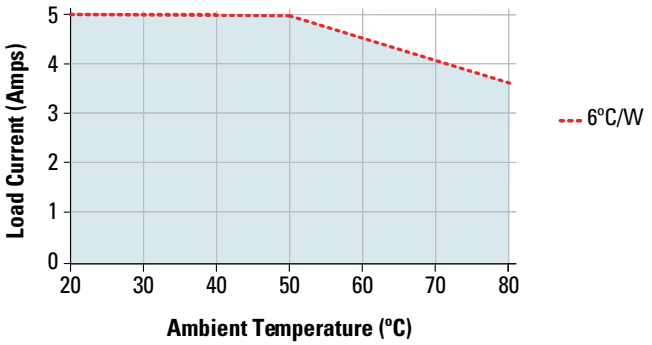
EQUIVALENT CIRCUIT BLOCK DIAGRAM / WIRING DIAGRAMS



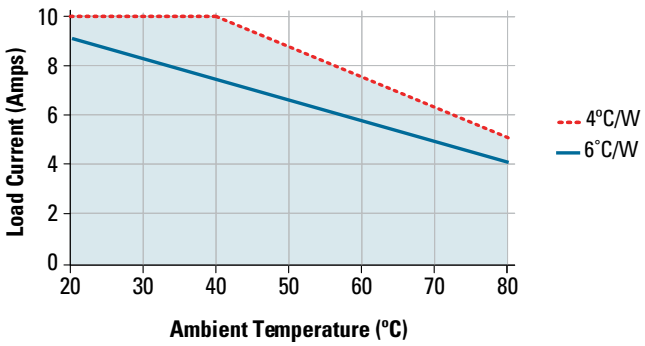


THERMAL DERATE INFORMATION

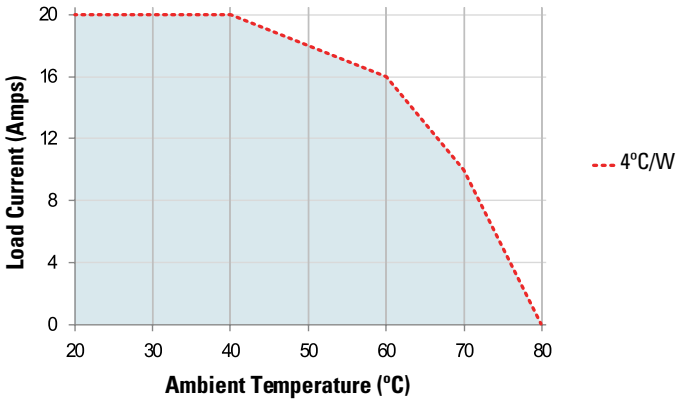
EL100D5-xx



EL100D10-xx



EL100D20-xx



MOUNTING INSTRUCTIONS

Choose one of the two mounting options and follow the instructions

Mounting on Heat Sinks

- Select adequate heat sink. (Please refer to thermal derating curves for the specific model)
- Be sure that thermal pad is pre-installed before installing over the heat sink.
- EL mounting slots have a diameter of 0.16 in (4.0 mm). Two screws are needed (not included) to mount the EL onto heat sink (See fig. 1). recommended screw size is 8-32 (UNC standard) or M4 (metric).
- Before applying full torque tighten down both screws until they contact the baseplate. Then, tighten them to 9.0-10.0 lb-in (1.0-1.13 Nm).
- For optimal thermal performance heat sink fins should be oriented vertically to promote natural convection airflow

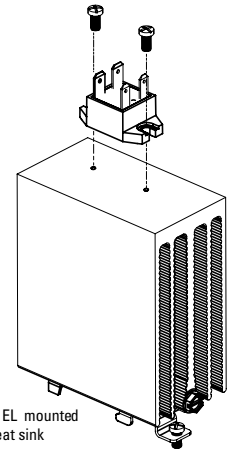


fig. 1 EL mounted on heat sink

Mounting on Panels

- Locate the panel section on which the EL will be mounted. Panel mount surface must provide adequate heat sinking capability, uncoated, clean, flat (0.004 in/in recommended) and preferably aluminum.
- Be sure that thermal pad is pre-installed before install over the heatsink.
- EL mounting slots have a diameter of 0.16 in (4.0 mm). Two screws are needed (not included) to mount the EL onto panel. Choose screw length considering the mounting surface hole depth and that the SSR flange thickness is 0.125 in (3.2 mm).
- Before applying full torque tighten down both screws until they contact the baseplate. Then, tighten them to 10 lb-in (1.13 Nm).

Transient Protection

- An inductive load will produce harmful transient voltage when it is turned off. The more perfect the switch, the larger the transient voltages. The MOSFET output is so nearly ideal switch that the transient voltages produced by seemingly "non-inductive" loads can cause damage if not suppressed. Diodes should be fast recovery type with PIV rated greater than supply voltage. [3]

GENERAL NOTES

(1) All parameters at 25°C unless otherwise specified.
(2) When mounted to the proper size heat sink (see derating curves)
(3) Inductive loads should be diode suppressed to prevent damage to the relay

ORDERING OPTIONS

Example : EL100D10-05N

EL 100D 10 - 05 N

Series

EL

Output Voltage

100D: 3-100 VDC

Rated Load Current

5: 5 Amps
10: 10 Amps
20: 20 Amps

Control Voltage

05: 4-8 VDC
12: 10-14 VDC
24: 21-27 VDC

Termination

Blank: Standard Quick Connect
N: 90° bent Quick Connect (10 and 20 Amps models only)

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

AGENCY APPROVALS & CERTIFICATIONS

c UL us E116950 (5 and 10 Amps only) CE RoHS TUV (5 and 10 Amps only)

Certification in accordance with:
United States Standard for Industrial Control Equipment - UL 508 and
Canadian Standard Association for Industrial Control Equipment – C22.2 No. 14.

TUV SUD according to IEC 60335-1.

Vibration and Shock Resistance:
IEC 61373 : Category 1, Class B.

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.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA

CONTACT US

Americas
+1 (877) 502 5500 – Option 2
sales.crydom@sensata.com
Europe, Middle East & Africa
+44 (1202) 416170
ssr-info.eu@sensata.com
Asia Pacific
sales.isasia@list.sensata.com
China +86 (21) 2306 1500
Japan +81 (45) 277 7117
Korea +82 (31) 601 2004
India +91 (80) 67920890
Rest of Asia +886 (2) 27602006 ext 2808

Rev:05/28/2021 ECN 21137 FDE-07-01 Rev. B

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Sensata:

EL100D20-05 EL100D20-05N EL100D20-12 EL100D20-12N EL100D20-24 EL100D20-24N