Series 1 120 VAC

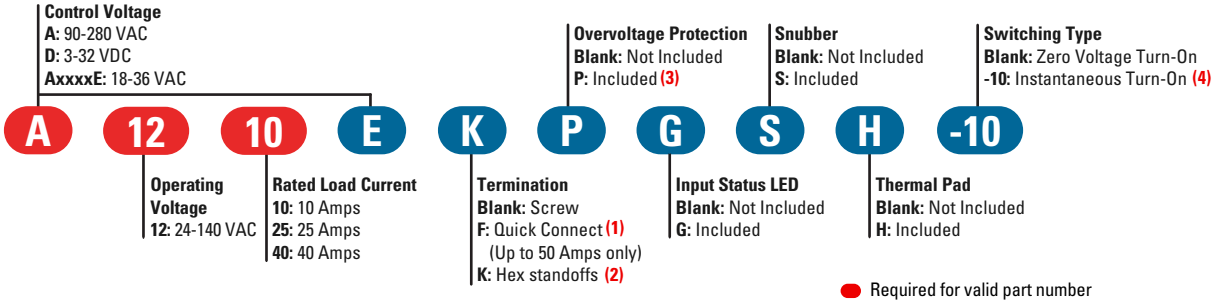
- Ratings from 10A to 40A @ 24-140 VAC
- SCR output for heavy industrial loads
- Zero voltage or instantaneous turn-on outputs
- UL/CSA/VDE Approved, CE Compliant to EN60950-1
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- AC or DC control
- Direct bond copper substrate
- EMC compliant to Level 3
- Direct power lead frame
- Epoxy free design

For **Generation 3** datasheet click here

PRODUCT SELECTION

Control Voltage	10A	25A	40A
3-32 VDC	D1210	D1225	D1240
90-280 VAC	A1210	A1225	A1240
18-36 VAC	A1210E	A1225E	A1240E

AVAILABLE OPTIONS



Required for valid part number
For options only and not required for valid part number
* Not all part number combinations are available. Contact Crydom Technical support for information on the availability of a specific part number.

OUTPUT SPECIFICATIONS (5)

Description	10A	25A	40A
Operating Voltage (47-440Hz) [Vrms] (6)	24-140	24-140	24-140
Transient Overvoltage [Vpk]	600	600	600
Maximum Off-State Leakage Current @ Rated Voltage [mArms] (7)	1	1	1
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/µsec]	500	500	500
Maximum Load Current [Arms] (2)(8)	10	25	40
Minimum Load Current [mArms]	150	150	150
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	115/120	239/250	597/625
Maximum On-State Voltage Drop @ Rated Current [Vrms]	1.15	1.15	1.15
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.03	0.8	0.5
Maximum 1/2 Cycle I^2t for Fusing (50/60Hz) [A^2 sec]	66/60	285/259	1770/1629
Minimum Power Factor (at Maximum Load) (3)	0.5	0.5	0.5

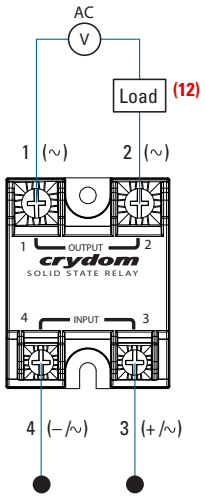
INPUT SPECIFICATIONS (5)

Description	D12xx	A12xx	A12xxE
Control Voltage Range	3-32 VDC	90-280 Vrms	18-36 Vrms
Maximum Reverse Voltage	-32 VDC	-	-
Minimum Turn-On Voltage	3.0 VDC (9)	90 Vrms	18 Vrms
Must Turn-Off Voltage	1.0 VDC	10 Vrms	4 Vrms
Minimum Input Current [mA]	7	5	16
Maximum Input Current [mA]	12	10	20
Nominal Input Impedance [Ohms]		Current Regulated	
Maximum Turn-On Time [msec]	1/2 Cycle (10)	20	20
Maximum Turn-Off Time [msec]	1/2 Cycle	30	30

GENERAL SPECIFICATIONS (5)

Description	Parameters
Dielectric Strength, Input/Output/Base (50/60Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10^9 Ohm
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	2.6 oz (74.9g)
Housing Material	UL 94 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 / 2.0-2.2
SSR Mounting Screw Torque Range (in-lb/Nm)	18-20 / 2.0-2.2
Input/Load Terminal Screw Torque Range (in-lb/Nm) (2)	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	w/"G" option (green)
MTBF (Mean Time Between Failures) at 40°C ambient temperature (11)	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (11)	7,210,376 hours (823 years)

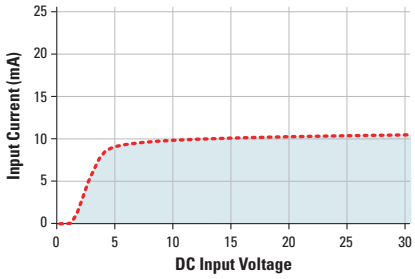
WIRING DIAGRAM



Recommended Wire Sizes

Terminals	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Input	24 AWG (0.2 mm²) / 0.2 [minimum]	10 [44.5]
	2 x 12 AWG (3.3 mm²) / 3.3 [maximum]	90 [400]
Output	20 AWG (0.5 mm²) / 0.518 [minimum]	30 [133]
	2 x 10 AWG (5.3 mm²) / 5.3	110 [490]
	2 x 8 AWG (8.4 mm²) / 8.4 [maximum]	90 [400]

Input Current vs Input Voltage
Standard Regulated DC Input



EQUIVALENT CIRCUIT BLOCK DIAGRAMS

Diagram: Series 1 AC control

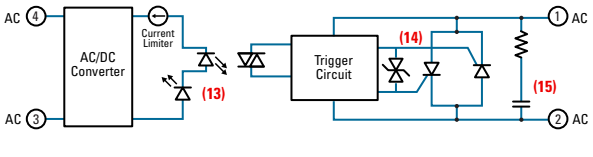
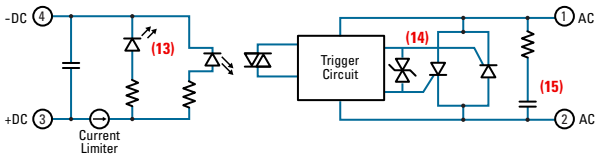


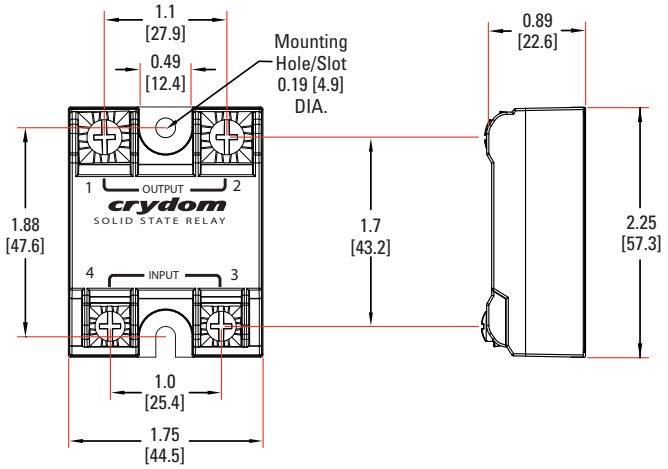
Diagram: Series 1 DC control



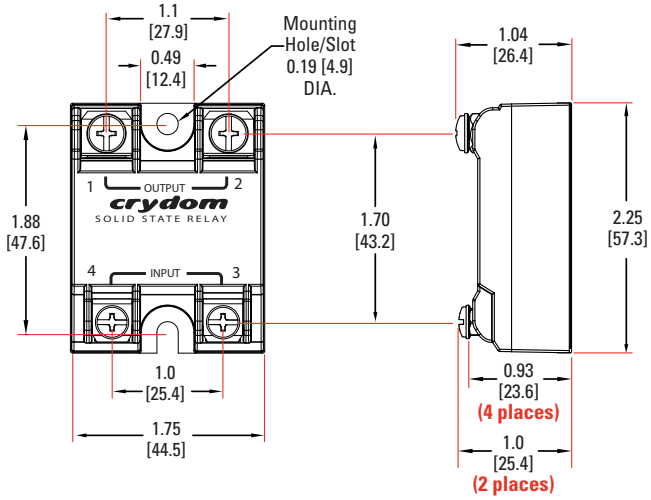
MECHANICAL SPECIFICATIONS (5)

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

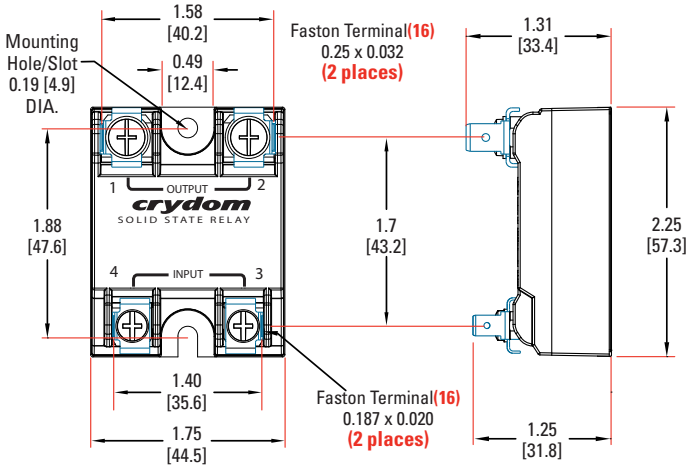
Screw Termination



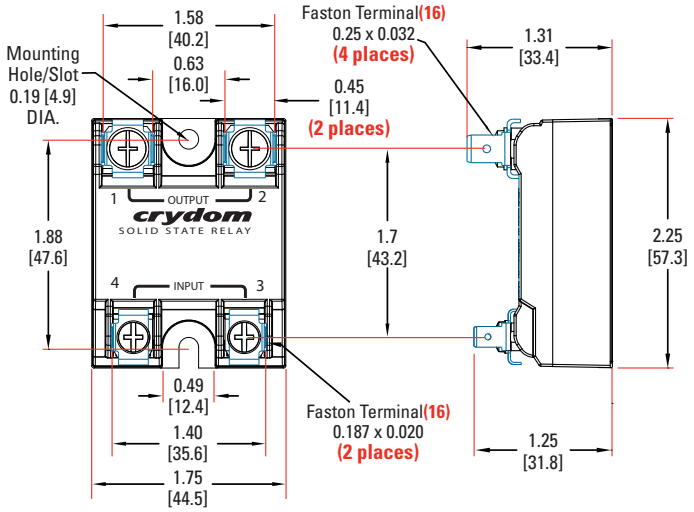
Hex Standoff Termination ("K" Option) (2)



Quick Connect Termination ("F" Option) - Up to 25 Amp (1)



Quick Connect Termination ("F" Option) - Up to 50 Amp (1)

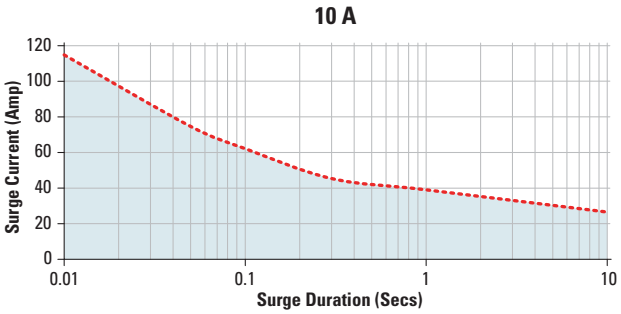


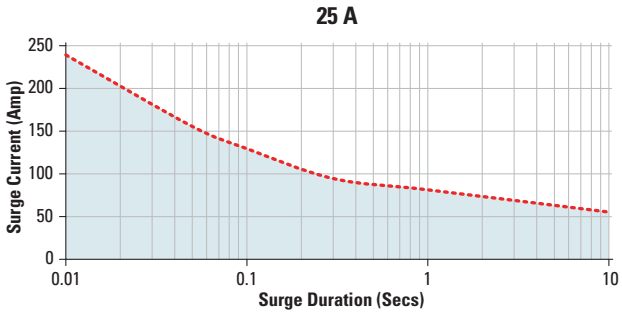
GENERAL NOTES

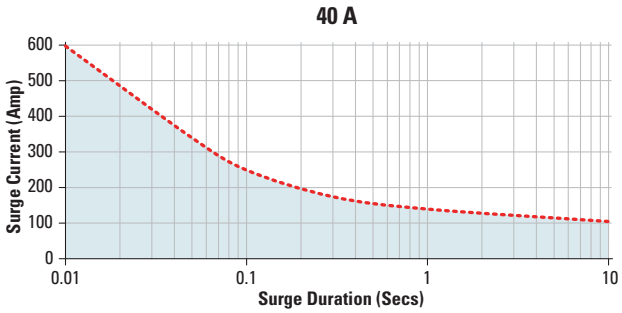
(1) Single pair (up to 25A) Double pair* (up to 50A). *Caution: User must connect both pairs.
(2) Option "K" is designed and tested for use with printed circuit boards or ring/fork terminals having a thickness between 0.031 and 0.093 inches (0.79 to 2.36 mm), and loads rated up to 50 Amps. For higher load currents, the "K" standoff temperature must not exceed 105°C. For additional application assistance please contact Crydom Technical Support.
(3) Output will self trigger between 450-600Vpk, Min. power factor 0.7 or higher, not suitable for capacitive loads.
(4) Instantaneous turn-on version is not recomended for capacitive loads. Use zero turn-on only.
(5) All parameters at 25°C unless otherwise specified.
(6) For "S" option, operating voltage frequency is 47-63Hz.
(7) For parts with option "S" maximum leakage current is 10mA.
(8) Heat sinking required, see derating curves.
(9) Increase minimum voltage by 1V for operations from -20 to -40°C.
(10) Turn-on time for instantaneous turn-on versions is 0.02 msec (DC control Models).
(11) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
(12) Load can be wired to either SSR output terminal 1 or 2.
(13) Elective Input Status LED, "G" option
(14) Elective Overvoltage Protection, "P" option.
(15) Elective Internal Snubber, "S" option.
(16) Mechanical dimensions vary from G3 models.

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

SURGE CURRENT INFORMATION







Non repetitive peak surge current at Tj initial 40°C.

THERMAL DERATE INFORMATION