

# Series HA, Series HD

12-90Amp • 480 Vac • AC Output

- **Zero Voltage and Random Turn-On Switching**
- **Panel Mount**
- **1200V Transient Capability**
- **Integrated Overvoltage Protection by Automatic Self Turn-On (Suffix P)**
- **110 & 125A Models Available**

Featuring state-of-the-art Surface Mount Technology, these SPST-NO relays deliver proven reliability in the most demanding applications. Output consists of an SCR AC switch and is available in zero-cross, random turn-on (phase controllable) and versions with either AC or DC input (coil) control. Manufactured in Crydom's ISO 9001 Certified facility for optimum product performance and reliability.

## CRYDOM

Control over power

| MODEL NUMBERS | AC CONTROL | HA4812 | HA4825 | HA4850 | HA4875 | HA4890 |
|---------------|------------|--------|--------|--------|--------|--------|
|               | DC CONTROL | HD4812 | HD4825 | HD4850 | HD4875 | HD4890 |

### OUTPUT SPECIFICATIONS ①

|   |  |        |        |        |        |
|---|--|--------|--------|--------|--------|
| Operating Voltage (47-63 Hz) [Vrms]                                   | 48-530                                     | 48-530 | 48-530 | 48-530 | 48-530 |
| Max. Load Current ③ [Arms]  | 12   | 25     | 50     | 75     | 90     |
| Min. Load Current, [mArms]  | 40   | 40     | 40     | 40     | 40     |
| Transient Overvoltage [Vpk]   | 1200                                       | 1200   | 1200   | 1200   | 1200   |
| Max. Surge Current, (16.6ms) [Apk]                                    | 140  | 250    | 625    | 1000   | 1200   |
| Max. On-State Voltage Drop @ Rated Current [Vpk]                      | 1.7  | 1.7    | 1.7    | 1.7    | 1.7    |
| Thermal Resistance Junction to Case (R <sub>θJC</sub> ) [°C/W]        | 1.48                                       | 1.02   | 0.63   | 0.31   | 0.28   |
| Maximum I <sup>2</sup> t for Fusing, (8.3 msec.) [A <sup>2</sup> sec] | 81   | 260    | 1620   | 4150   | 6000   |
| Max. Off-State Leakage Current @ Rated Voltage [mArms]                | 10   | 10     | 10     | 10     | 10     |
| Min. Off-State dv/dt @ Max. Rated Voltage [V/μsec] ②                  | 500  | 500    | 500    | 500    | 500    |
| Max. Turn-On Time ⑤   | 1/2 Cycle (DC Input), 10.0 msec (AC Input) |        |        |        |        |
| Max. Turn-Off Time  | 1/2 Cycle (DC Input), 40.0 msec (AC Input) |        |        |        |        |
| Power Factor (Min.) with Max. Load                                    | 0.5  | 0.5    | 0.5    | 0.5    | 0.5    |

### INPUT SPECIFICATIONS ①

|                         | DC CONTROL<br>(D PREFIX) | AC CONTROL<br>(A PREFIX) ④     | AC CONTROL<br>(E SUFFIX) |
|-------------------------|--------------------------|--------------------------------|--------------------------|
| Control Voltage Range   | 3-32 Vdc                 | 90-280 Vrms (60Hz)             | 18-36 Vrms               |
| Max. Reverse Voltage    | -32 Vdc                  | —                              | —                        |
| Max. Turn-On Voltage    | 3.0 Vdc                  | 90 Vrms                        | 18 Vrms                  |
| Min. Turn-Off Voltage   | 1.0 Vdc                  | 10 Vrms                        | 4.0 Vrms                 |
| Nominal Input Impedance | See Note ⑥               | 60K Ohms                       | 9.0K Ohms                |
| Typical Input Current   | 2.0 mA ⑥                 | 2mA @ 120 Vrms, 4mA @ 240 Vrms | 3mA @ 24 Vrms            |

### GENERAL NOTES

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- ① All parameters at 25°C unless otherwise specified.
- ② Off-State dv/dt test method per EIA/NARM standard RS-443, paragraph 13.11.1
- ③ Heat sinking required, for derating curves see page 2.
- ④ 24 Vac Input option, E suffix.
- ⑤ Turn-on time for random turn-on versions is 0.02 msec (DC Control Models).
- ⑥ Input circuitry incorporates active current limiter.

For recommended applications and more information contact:

USA: Sales Support (877) 502-5500 Tech Support (877) 702-7700 FAX (619) 710-8540

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# Series HA, Series HD

12-90Amp • 480 V ac • AC Output

## GENERAL SPECIFICATIONS

|  |                           |                     |
|--|---------------------------|---------------------|
| Dielectric Strength                    | 50/60Hz Input/Output/Base | 4000 Vrms           |
| Insulation Resistance (Min.) @ 500 Vdc |                           | 10 <sup>9</sup> Ohm |
| Max. Capacitance Input/Output          |                           | 8 pF                |
| Ambient Operating Temperature Range    |                           | -40 to 80°C         |
| Ambient Storage Temperature Range      |                           | -40 to 125°C        |

## MECHANICAL SPECIFICATIONS

|                   |   |
|-------------------|---|
| Weight: (typical) | 3.0 oz. (86.5g)                               |
| Encapsulation:    | Thermally Conductive Epoxy                    |
| Terminals:        | Screws and Saddle Clamps Furnished, Unmounted |

## AVAILABLE OPTIONS

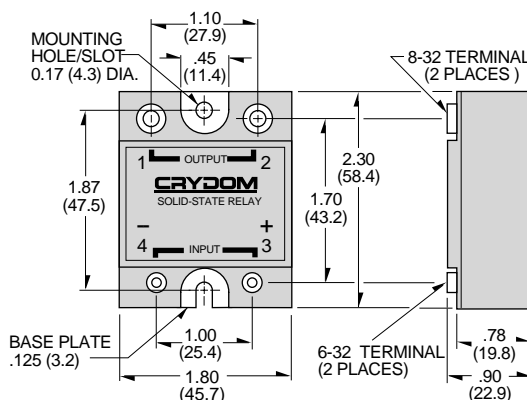
- E** 24 VAC Input (18-36 Vac)  
Example: **HA4825E**
- F** Faston Terminals (Up to 50 Amp Models)  
Example: **HD4850F**
- G** Input Status LED.  
Agencies Approval Pending  
Example: **HD4850G**  
**Note:** Control Voltage Range 4.5-32 Vdc  
for DC Control Models.
- P** Internal Overvoltage Protection.  
Relay Will Self Trigger Between  
900-1200 Vpk. Not Suitable For  
Capacitive Loads.  
Agencies Approval Pending.  
Example: **HD4825P**
- 10** Random Turn-On (AC & DC Control)  
Phase Controllable (DC Control)  
Example: **HD4890-10**

**Ordering System:** Combination of the suffixes should be made in the following order:

**EFPG-10.**

Example: **HA4850EFPG-10**

**Crydom Heat Sinks** offer excellent thermal management and are perfectly matched to the load current ratings of Crydom panel mount relays. Request Crydom's Heat Sink specification sheet for all the details.

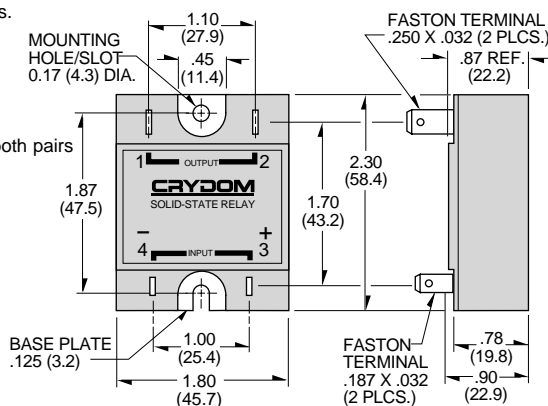


### Screw Torque Requirements:

6-32 Screws - 10 in. lbs.,  
8-32 and 10-32 Screws - 20in. lbs.  
(Screws dry without grease.)

### Fastons:

Single pair (up to 25A)  
Double pair\* (up to 50A).  
\*Caution: User must connect to both pairs



All dimensions are in inches (millimeters)

## APPROVALS

UL E116949  
CSA LR81689  
VDE 10143 UG



FastFax Document No. 158  
SERIES HA/HD.  
REV. 031802

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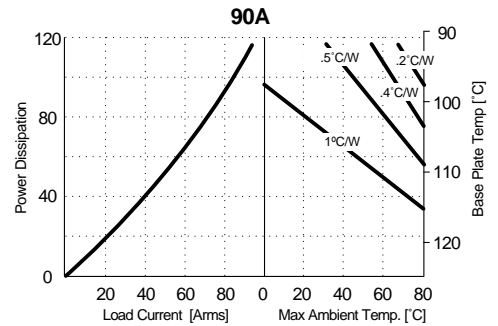
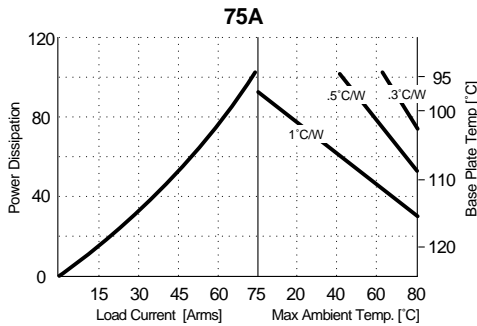
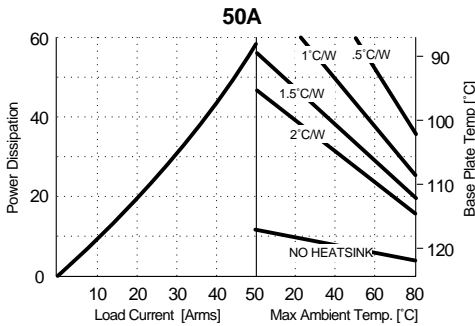
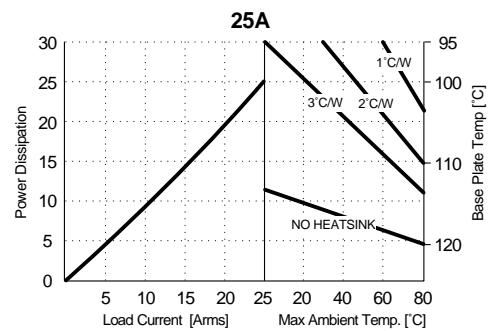
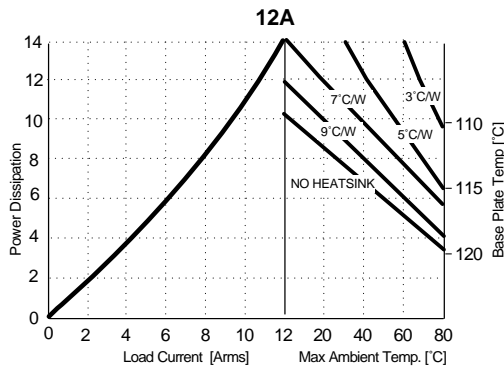
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## CURRENT DERATING CURVES



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