

from 15A to 90A



## Important warning for safety



Thyristor units are used in power industrial equipment.  
The voltages used in the Thyristor unit can cause severe electrical shock, and could be lethal.  
Don't remove the plastic cover.  
Don't use this unit in aerospace and nuclear application.

### **Electric Shock Hazard (Risque the choqe électrique)**

When thyristor unit has been connected to main supply voltage and is switched off, before to touch it be secure that the unit is isolated and wait at least one minute to allow discharging internal capacitors. Thus be secure that:

- access to thyristor unit is only permitted to specialised personnel;
- the authorised personnel must read this manual before to have access to the unit;
- the access to the unit must be denied to unauthorised personnel.

### **Important warnings(attention)**

Local regulations regarding electrical installation should be rigidly observed.

- Safety regulations must be rigidly observed.
- Don't bend components to maintain insulation distances.
- Protect the unit from high temperature humidity and vibrations.
- Don't touch components to prevent electrostatic discharges on them.
- Verify that all rating are in line with real needs.
- If authorized personnel must measure voltage current etc. on units, take away rings and other jewels from fingers and hands.
- Authorized personnel working on thyristor unit under power supply voltage must work on insulated board. Be secure that board is not connected to earth.

This listing does not represent a complete enumeration of all necessary safety cautions.

### **Protection( protection)**

CD3000 thyristor unit has a polymeric plastic cover to compliance to International specification IP20. To understand if IP20 protection is sufficient should be evaluated the installation place. Open Type Equipment.

### **Earth(terre)**

CD3000 family has isolated heatsink. For safety connect the heatsink to earth to avoid shocks in case that circuit board or thyristor lose insulation. Earth impedance should be correspondent to local earth regulation. Periodically the earth efficiency should be inspected.

### **Electromagnetic compatibility (compatibilité électromagnétique)**

Our thyristor units have an excellent immunity to electromagnetic interferences if all suggestions contained in this manual are respected. In respect to a good Engineering practice, all inductive loads like solenoids contactor coils should have a filter in parallel.

### **Emissions (emission)**

All thyristor switching at high speed generate some radiofrequency disturbance. CD3000 series compliance with EMC rules for CE mark. In many installations near electronic devices have not been noted problems. If radiofrequency devices at low frequency are used near the thyristor unit some precautions should be taken like line Filters and shielded cables for input signal and for load cables

### **Installation**

Before to install the CD3000 unit examine for damages or deficiencies. If any is found, notify the carrier immediately. Check that the product features shown on CD3000 cover corresponds to that ordered.

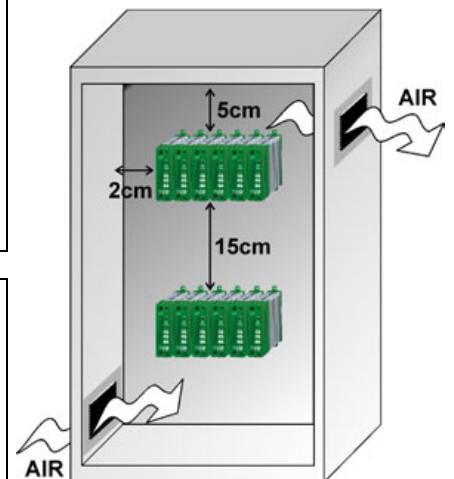
Before to switch on the unit be sure that:

- The load current is equal or less than the max current of the thyristor unit.
- The operating voltage is equal or less than the max voltage of the thyristor unit.
- Verify the Fan Power Supply (only for size S6 and S8).

### **Mounting**

CD3000 unit should be always mounted in vertical position to improve air cooling on heatsink. Maintain minimum distances in vertical and in horizontal as represented. Don't install in proximity of hot elements and near units generating electromagnetic interferences.

When more units are mounted in the same cabinet provide air circulation as represented. Sometimes it is necessary to provide a fan to have better air circulation.



**TECHNICAL SPECIFICATIONS**

<b>General features</b>		<b>Current</b>	<b>Connector Type</b>	<b>Torque Lb-in (N-m)</b>	<b>Wire Range AWG/kcmill</b>	<b>Wire Terminal</b>																																																											
Stocking temperature:	from -40 to +100 °C	15A, 30A, 45A	M5 Screw	26.6 (3.0)	8	UL Listed (ZMVV) Wire Pin																																																											
Operating temperature:	from -30 to +40°C for higher temp. consult derating curve																																																																
Load isolation:	2500Veff	60A, 75A, 90A	M6 Screw	70.8 (8.0)	1	UL Listed (ZMVV) Fork/Spade Terminal Copper Tube Crimp. Lug																																																											
Cover and Socket material:	PolymericV2	<table border="1"> <thead> <tr> <th rowspan="3">Current</th> <th colspan="3">Supply</th> <th colspan="3">Load</th> </tr> <tr> <th colspan="2">Cable</th> <th rowspan="2">Screw M</th> <th colspan="2">Cable</th> <th rowspan="2">Screw M</th> </tr> <tr> <th>mm<sup>2</sup></th> <th>AWG</th> <th>mm<sup>2</sup></th> <th>AWG</th> </tr> </thead> <tbody> <tr><td>15A (S2)</td><td>4</td><td>12</td><td>M5</td><td>4</td><td>12</td><td>M5</td></tr> <tr><td>30A (S4)</td><td>6</td><td>10</td><td>M5</td><td>6</td><td>10</td><td>M5</td></tr> <tr><td>45A (S6)</td><td>10</td><td>8</td><td>M5</td><td>10</td><td>8</td><td>M5</td></tr> <tr><td>60A (S8)</td><td>16</td><td>6</td><td>M6</td><td>16</td><td>6</td><td>M6</td></tr> <tr><td>75A (S8)</td><td>25</td><td>4</td><td>M6</td><td>25</td><td>4</td><td>M6</td></tr> <tr><td>90A (S8)</td><td>35</td><td>3</td><td>M6</td><td>35</td><td>3</td><td>M6</td></tr> </tbody> </table>					Current	Supply			Load			Cable		Screw M	Cable		Screw M	mm <sup>2</sup>	AWG	mm <sup>2</sup>	AWG	15A (S2)	4	12	M5	4	12	M5	30A (S4)	6	10	M5	6	10	M5	45A (S6)	10	8	M5	10	8	M5	60A (S8)	16	6	M6	16	6	M6	75A (S8)	25	4	M6	25	4	M6	90A (S8)	35	3	M6	35	3	M6
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Heatsink:	Anodized aluminium																																																																
Delay switch ON time:	0.5 period Max																																																																
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Fan voltage: (Size S6 and S8)	230Vac ±15% (110Vac option.)																																																																

<b>Input features</b>		Current	Auxiliary		Earth		
Logic input SSR: (Standard for size 15A)	4 - 30Vdc 30mA Max (ON ≥ 4Vdc OFF < 1Vdc)		Cable		Cable		Screw M
Logic input SSR: (Standard for other sizes)	4 - 30Vdc 12mA Max (ON ≥ 4Vdc OFF < 1Vdc)	mm <sup>2</sup>	AWG	mm <sup>2</sup>	AWG		
Logic input SSR: (low current)	5 - 30Vdc 5mA Max (ON ≥ 5Vdc OFF < 1Vdc)	15A (S2)	0,50	18	4	12	M5
110Vac Input:	110Vac ±15% 20mA Max	30A (S4)	0,50	18	6	10	M5
240Vac Input:	230Vac ±15% 20mA Max	45A (S6)	0,50	18	6	10	M5
		60A (S8)	0,50	18	6	10	M5
		75A (S8)	0,50	18	6	10	M5
		90A (S8)	0,50	18	6	10	M5

Size	Voltage range	Repetitive peak reverse Voltage		Latching current	Max peak one cycle	Leakage current	I <sup>2</sup> T value thyristor	Frequency range	Power loss	Isolation Voltage
(A)	(V)	480V	600V	(mAeff)	(10ms) (A)	(mAeff)	tp=10msec	(Hz)	I=Inom (W)	Vac
15A (S2)	24÷480	1200	1200	150	230	15	610	47÷70	54	2500
30A (S4)	24÷480	1200	1600	250	600	15	1800	47÷70	108	2500
45A (S6)	24÷600	1200	1600	250	600	15	1800	47÷70	162	2500
60A (S8)	24÷600	1200	1600	450	1000	15	4750	47÷70	216	2500
75A (S8)	24÷600	1200	1600	450	1540	15	11300	47÷70	270	2500
90A (S8)	24÷600	1200	1600	450	2000	15	19100	47÷70	324	2500

**S2**

120mm

92mm

**S4**

120mm

117mm

**S6**

138mm

117mm

**S8**

138mm

117mm

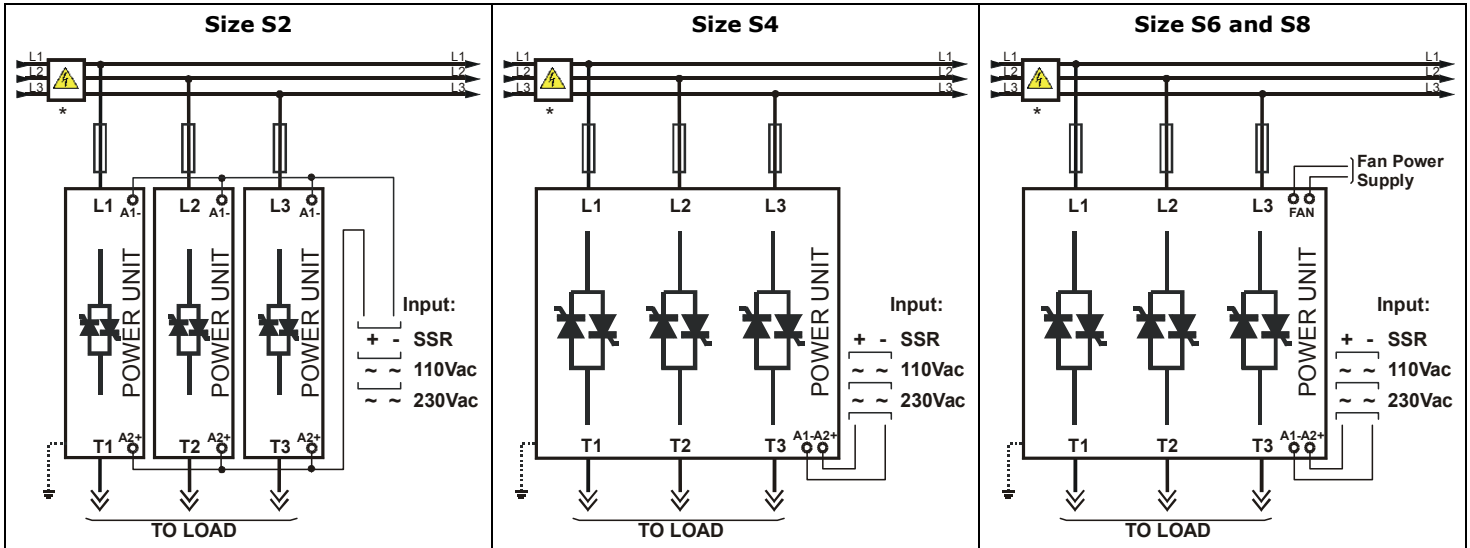
120 mm

123 mm

123 mm

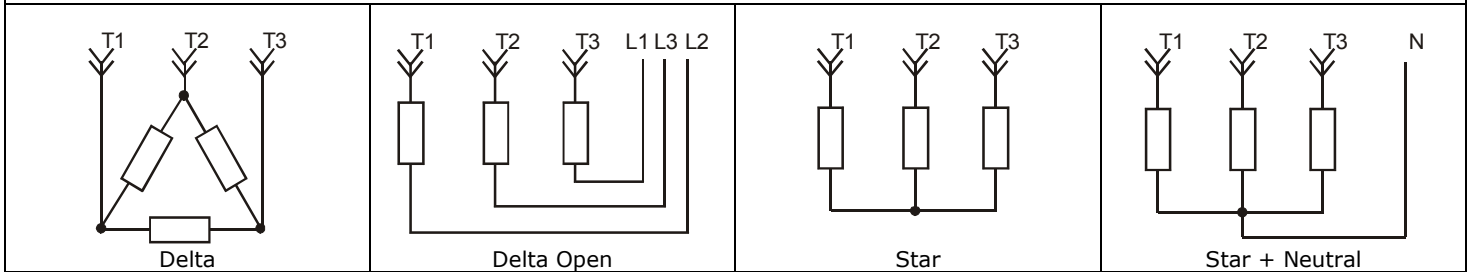
159 mm

**DIAGRAM OF CONTROL CONNECTION**



\* The user installation must be protecting by electromagnetic circuit breaker or by fuse isolator.

**Load Type**



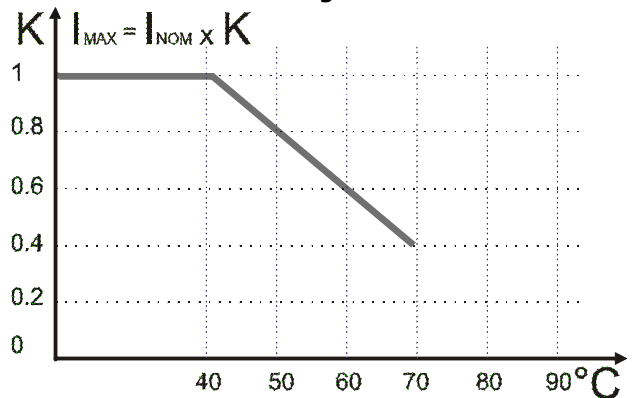
**Wiring instructions**

CD3000S unit has isolated heatsink. For safety connect the heatsink to hearth using its terminal with hearth symbol. CD3000S can be susceptible to airborne interferences from near equipment or from interferences on main supply, so a number of precautions must be taken.

- Contactors coils and chokes must have in parallel a RC filter and must be supplied with a different voltage line.
- All input/output signals must use screened bifilar wires.
- Signal input and output must not route in same cable try and must not be parallel.
- Local regulations regarding electrical installation should be rigidly observed

Use copper cables and wires rated for use at 75 °C only.  
Use wire terminal UL Listed (ZMVV)

**Derating curve**

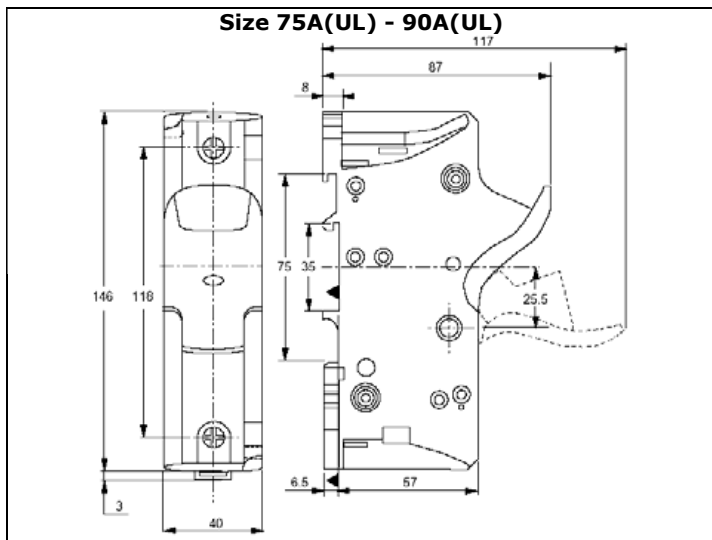
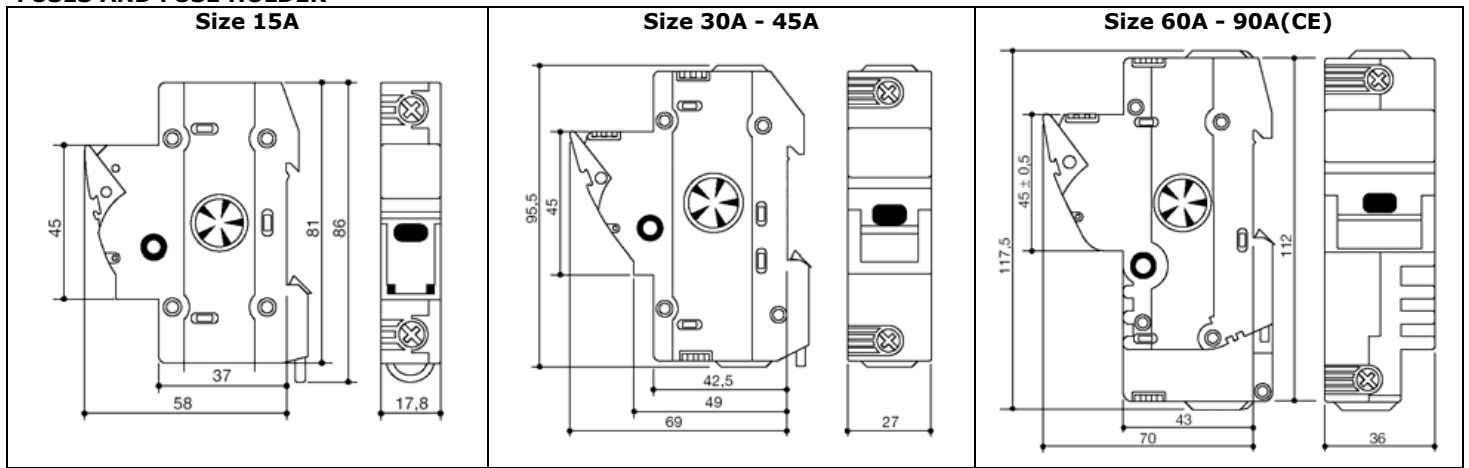


**Order Code**

CD3000S-3PH						
<b>Current</b>	<b>Operating Voltage</b>	<b>MAX Volt</b>	<b>Aux</b>	<b>Input</b>	<b>Firing</b>	<b>Options</b>
15A	Write	480Vac	NO	SSR	ZC	110v Fan Fan at 110Vac
30A	Operating	600Vac		110Vac		EP External Protection IP20 for size S7 and S8
45A	Voltage			230Vac		EF External fuses and fuse holders
60A	<=					NF No fuses
75A	MAX Volt					UL UL Certification
90A						

<sup>1</sup> Only for size from 45A to 90A

**FUSES AND FUSE HOLDER**



**WARNING**

CD3000S unit must be protected against short circuit by High speed fuses.  
The fuses must be with proper I<sup>2</sup>t lower than the thyristor one.  
The warranty of thyristor is null if no proper fuses are used.

*High speed fuses are only used for the thyristor protection and can not be used to protect the installation.*

**WARRANTY CONDITION**

CD Automation gives a 12 months warranty to its products. The warranty is limited to repairing and parts substitution in our factory and does exclude products not properly used and fuses. Warranty does not include products with serial numbers deleted. The faulty product should be shipped to CD Automation at customer's cost and our Service will evaluate if product is under warranty terms. Substituted parts remain of CD Automation property.

**Fuses and Fuse Code for UL**

Size	Bussmann Div Cooper (UK) Ltd (200 kARMS Symmetrical A.I.C.)				Ferraz Shawmut SA (200 kARMS Symmetrical A.I.C.)				Qty
	Fuse CODE	Current (ARMS)	I <sup>2</sup> T (A <sup>2</sup> sec)	Vac	Fuse CODE	Current (ARMS)	I <sup>2</sup> T (A <sup>2</sup> sec)	Vac	
15A	FWC 16A10F	16	150	600	660 Grb 10-16	16	145	660	3
30A	FWP 40A14F	40	750	700	CP URC 14x51/40	40	700	660	3
45A	FWP 50A14F	50	1800	700	CP URC 14x51/50	50	1500	660	3
60A	FWP 80A22F	80	6600	700	CP URD 22x58/80	80	3800	660	3
75A	-	-	-	-	CP URQ 27x60/100	100	3210	660	3
90A	-	-	-	-	CP URQ 27x60/125	125	6970	660	3

**Fuses and Fuse Code for CE**

Size	Fuse and Fuse holder CODE	Fuse CODE	Current (ARMS)	I <sup>2</sup> T (max) (A <sup>2</sup> sec.)
15A	FFH1038/16A	FU1038/16A	16	150
30A	FFH1451/40A	FU1451/40A	40	1650
45A	FFH1451/50A	FU1451/50A	50	2000
60A	FFH2258/80A	FU2258/80A	80	6550
75A	FFH2258/100A	FU2258/100A	100	13500
90A	FFH2258/125A	FU2258/125A	125	14000



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