



# CD3000S-2PH 2PHASE THYRISTOR UNIT

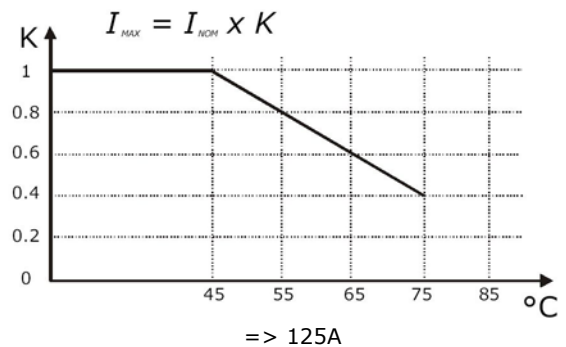
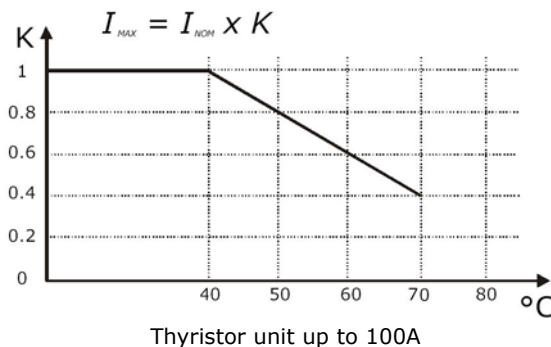


## GENERAL DESCRIPTION

- **CD3000S 2PH TWO LEG SWITCHING THREE WIRE LOADS STAR OR DELTA RESISTIVE LOADS OR INFRARED LAMPS\* UP TO 700A**
- FULLY ISOLATED FROM POWER.
- ZERO CROSSING FIRING AVAILABLE WITH LOGIC INPUT SIGNAL (SSR) OR AS AN OPTION WITH AC 110 VAC OR 230 VAC INPUT UP TO 100A.
- CONSTANT CURRENT DRAIN WITH SSR INPUT.
- ANALOG INPUT 4-20MA OR 0-10V WITH BURST FIRING 4, 8 OR 16 CYCLE AT 50% POWER REQUESTED, IS AVAILABLE AS AN OPTION FROM 45 TO 100A.
- HEATER BREAK ALARM (HB) TO DIAGNOSTIC PARTIAL OR TOTAL LOAD FAILURE AND SHORT CIRCUIT ON THYRISTOR, IS AVAILABLE AS AN OPTION FROM 45A TO 100A.
- SIDE BY SIDE MOUNTING.
- SPECIAL DESIGN FOR HEATSINK WITH HIGH DISSIPATION.
- IP20 PROTECTION\*\*.
- COMPLY WITH EMC.SPECIFICATION  AND 

## TECHNICAL SPECIFICATION

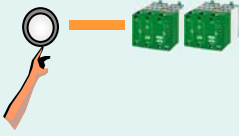

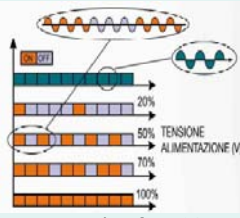
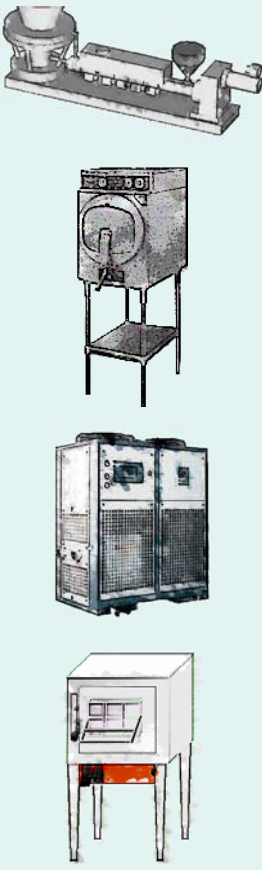
Voltage power supply	24V min., 480V max. and 600V on request.
Input signal	SSR (OFF state <1Vdc, ON = 4÷30 Vdc); Ac Input 110V-230Vac is available up to100A (included); Analog input 4÷20mA and 0÷10V is available from 45 (included) to 110A (included).
Firing	Zero Crossing ZC; Burst Firing 4/8/16 with 4÷20mA or 0÷10V with 12÷24V aux. power supply.
Auxiliary voltage supply	230V (from 200Vac to 260Vac Max) to 460V (from 330V to 500V Max.); 10VA power consumption, request for CD3000S-2PH from 125÷700A (included); 12÷24V are requested with HB option or with analog input option.
Fan voltage supply	230V ±15% standard (110V on request opt. If max volt. Supply => 75A)
Heater break alarm	Discrimination better than 20%. Circuit microprocessor based to diagnose partial or total load failure and short circuit on Thyristor. Latching alarm plus reset. Relay output 1A at 230V Automatic calibration of one or more unit at the same time using a dedicated digital input or using for each unit the calibration button.
Mounting	Din rail mounting up to 100A (included), bulkhead > of 100A (excluded), IP20 protection**.
Operating temperature	0÷40°C up to 100A (included). 0÷45°C from 125÷700A. for higher temperature see the derating curve.



### Note:

- \* If you are going to use Infrared lamp with short wave, we recommend contacting our sales/technical department to well size the unit and to choose the correct options (please communicate the type and model used or the peak of the current value).
- \*\* Verify if it is standard or optional looking the size chose (page 3 and 4).

# OPTION'S FEATURES

HEATER BREAK ALARM (HB)		AC INPUT 110 - 230 V	
<p>ON FRONT CABINET</p>  <p>= FEW MINUTES TO SET AND CALIBRATE ALL THE UNITS</p>	<ul style="list-style-type: none"> <li>Microprocessor based</li> <li>Self learning of current set, via external command or push button on front unit</li> <li>Load brake diagnostic with alarm latch.</li> <li>Partial load failure detection of each leg.</li> <li>Thyristor short circuit diagnostic.</li> <li>Alarm reset function and possibility to auto reset the alarm if the normal working condition is restored.</li> <li>Alarm output with freed voltage contact.</li> <li>Available from 45÷110 A(incl.).</li> <li>Full insulation between SSR output coming from controller/multi loop and power supply, no common zero in our unit.</li> <li>Easy and fast substitution /calibration of the unit (also not expert people can do it easy).</li> <li>Available also with analogic input from 45÷100A(incl.).</li> </ul>	<ul style="list-style-type: none"> <li>These two kinds of input are designed to substitute electromechanical contactor in already existing cabinet without to modify the temperature controller output. Are ideal for revamping.</li> <li>Zero Crossing firing( ZC ).</li> <li>cUL us approval and CE mark.</li> </ul>	<p><b>ANALOG INPUT AND BURST FIRING</b></p> <ul style="list-style-type: none"> <li>Analog Input is available from 45÷100 A with CE mark only. .</li> <li>Burst Firing is selectable with link jumper between BF04 - 08 - 16.</li> <li>Heater break alarm is available as an option.</li> <li>Analog input options offer the same precision of CD3000M series.</li> <li>Possibility to chose between 4÷20mA or 0÷10V input via link jumper.</li> </ul>
<p><b>HB WITH EXTERNAL CURRENT TRANSFORMER</b></p>  <p>2xOFF</p>	<ul style="list-style-type: none"> <li>Possibility to turn around the wire on the current transformer if the nominal current is smaller compared the ones detectable by current transformer. Es: 3 A with a CT of 50 A</li> <li>Two CT (included on basic price of HB option).</li> <li>CT with metallic clips for horizontal DIN rail mounting (opt).</li> <li>CT with plastic for vertical DIN rail mounting (opt.)</li> </ul>	 <p>Example of BF 03</p>	<p><b>BURST FIRING</b></p> <p>This firing performed in digital mode in our unit gives a lot of advantage because switch thyristor faster than normal ZC and at the same time without EMC interferences. Analog input is necessary for BF and can be decided how many complete cycles We wont at 50% of power demand. On CD3000S 2PH this value can be 04, 08 or 16. To have a better resolution you must choose CD3000M 2PH series, where the BF value can be implemented from 3 to 255 complete cycles doing the firing less or more fast. When BF is 1 the firing name becomes Single Cycle, this firing is available on CD3000E and Multidrive 2PH Family.</p>
<p><b>APPLICATION AND FOCUS ON:</b></p>		<p><b>OTHER PERFORMANCES WITH OTHER SERIES</b></p>	
	<ul style="list-style-type: none"> <li>Chiller application.</li> <li>Infra red lamp. and IR curing units</li> <li>Autoclaves.</li> <li>Furnaces.</li> <li>Extrusion line.</li> <li>Dryers</li> <li>Climatic chambers</li> </ul>		<p><u>The CD3000M - 2PH series</u></p> <ul style="list-style-type: none"> <li>Internal power supply;</li> <li>BF higher resolution;</li> <li>RS485 Modbus std; Profibus DP opt;</li> <li>CD-KP Keypad 48x96 on front cabinet to display V-I-P, with local/remote facilities, retransmission of one of the following parameters V,I P;</li> <li>PowerScaling; Software configurability.</li> </ul> <p><u>The CD3000E 2PH Series</u></p> <ul style="list-style-type: none"> <li>Same CD3000M 2PH Features.</li> <li>Universal input signal with automatic zero/span calibration.</li> <li>BF Higher resolution, Single Cycle.</li> <li>Delayed Triggering Firing for transformer Soft Start Function.</li> <li>Power feedback or voltage compensation.</li> <li>2xDigital Inp. and 4xDigital Out. available plus 1xAnalog Out. and 2xAnalog Input..</li> </ul> <p><u>The Multidrive 2PH Series</u></p> <ul style="list-style-type: none"> <li>Same CD3000E 2PH features</li> <li>Frontal Keypad std. For config and diagnostic.</li> <li>Many process allarm feature available.</li> <li>Transformer insulation on the gate instead of optoisolator.</li> <li>Retransmission of Feed Back, Current 1,2, and 3.</li> <li>6xDigital Inp. and 3xRelay out. available plus 4xAnalog Out. and 3xAnalog Input.</li> <li>Up to 2600</li> </ul>

**THYRISTOR UNIT CD3000S 2PH**

Model Max current	CE only				CE cUL us			
	Max. Voltage Supply		Fuse & Fuse holder	HB Analog	Max. Voltage Supply		Fuse & Fuse holder	HB Analog
	480V	600V	(1 off)	Input	480V	600V	(1 off)	Input
10	A	A	EF/NF	NA	A	A	EF/NF	NA
15	A	A	EF/NF	NA	A	A	EF/NF	NA
25	A	A	EF/NF	NA	A	A	EF/NF	NA
35	A	A	EF/NF	NA	A	A	EF/NF	NA
45	A	A	EF/NF	A	A	A	EF/NF	NA
75	A	A	EF/NF	A	A	A	EF/NF	NA
100	A	A	EF/NF	A	A	A	EF/NF	NA
125	A	A	IF	NA	A	A	IF	NA
150	A	A	IF	NA	A	A	IF	NA
200	A	A	IF	NA	A	A	IF	NA
275	A	A	IF	NA	A	A	IF	NA
400	A	A	IF	NA	A	A	IF	NA
450	A	A	IF	NA	A	A	IF	NA
500	A	A	IF	NA	A	A	IF	NA
600	A	A	IF	NA	A	A	IF	NA
700	A	A	IF	NA	A	A	IF	NA

	Code	Description	Charge
Operating voltage supply	xxxV	Specify the operating voltage (Should be below the max supply voltage)	NC
	None	No auxiliary voltage supply up to 110A incl. and without option where is a specific request.	NC
Auxiliary voltage supply	12÷24V ac dc	Necessary with 0÷10V and 4÷20mA input or with HB Option	NC
	230V	It's necessary to specify the auxiliary supply voltage on units > 100A	NC
	460V		NC
	600V		NC
Input / Firing / Options	SSR / ZC / -	From 4 to 30 Vdc, Zero Crossing; up to 700A (3)	NC
	SSR / ZC / HB	From 4 to 30 Vdc, Zero Crossing, Heater Break; option available from 45A ÷100A (1)	C
	110V ac / ZC / -	ac input / Zero Crossing; option available from 15A ÷100A (3)	C
	230V ac / ZC / -	ac input / Zero Crossing; option available from 15A ÷100A (3)	C
	4÷20 mA / BF(..) / -	Analog input 4÷20mA / Burst Firing 4, 8 or 16 selectable with link jumper; option available from 45A ÷100A (1)(2)	C
	0÷10V / BF(..) / -	Analog input 0÷10V / Burst Firing 4, 8 or 16 selectable with link jumper; option available from 45A ÷100A (1)(2)	C
Other Options	4÷20mA / BF(..) / HB	Analog input 4÷20mA; Burst Firing 4, 8 or 16; Heater Break Alarm; option available from 45A ÷100A (1)(2)	C
	0÷10V / BF(..) / HB	Analog input 0÷10V; Burst Firing 4, 8 or 16; Heater Break Alarm; option available from 45A ÷100A (1)(2)	C
	NF	No Fuse. This option is available up to 100A included (4)	NC
	EF	External Fuse + Fuse Holder up to 100A included	C
	IF	Internal fuses are standard > 100A	NC
	110v Fan	Fan at 110v is an option that is possible starting from 75A included.	C
UL	If you need cUL us approval specify it in the code	C	
IP	IP20 is standard on all sizes with exception of 45-75-100A where need a terminal protection to comply with IP20	C	

**IF = Internal Fuses; EF = 3OFF External Fuses + Fuse holders; NF = No Fuses; NC = No Charge €\$; C = Charge €\$; NA = Not Available; A = Available**

(1) Available with CE mark only, to have cULus see CD3000M 2PH series - (4) We recommend the use of fuses, that are necessary to protect the unit.

(2) Default value is 8 cycles at 50% power demand if you need 4 or 16 specify inside code bracket ex: 4-20mA/BF(8)

(3) This option can be supplied with cUL us Listed

Note: HB option includes the price of 2 external current transformers without metallic clips or plastic Din rail module options.

Code example: Model	Current	Op.Volt	Max Volt.	Aux.Volt.	Input / Firing / Options	Other Opt.1	Other Opt.2	Other Opt.
CD3000S-2PH	45A	400V	480V	24V	SSR / ZC / HB	110V Fan	NF	.....
CD3000S-2PH	75A	380V	480V	None	SSR / ZC / -	UL	IP	EF
CD3000S-2PH	25A	380V	480V	None	4÷20mA / BF08 / HB	EF	...	.....
CD3000S-2PH	400A	400V	480V	460V	SSR / ZC / -	UL	IF	

## SIZES



	L	H	P
S0	30	120	120
S1	60	120	120
S4	117	120	123

	L	H	P
S7	117	120	159
S8	117	138	159
S9	116	316	187

	L	H	P
S10C	116	350	220
S14	262	520	270

## SIZE, APPROVAL AND OPTION

Current	Input: SSR/110 Vac/ 230 Vac. Opt. HB not included			
	Size	Cooling	Approval	IP20
10A	S0	Natural	Ce	Std
15÷25A	S1	Natural	Ce cUL us	Std
35A	S4	Natural	Ce cUL us	Std
45A	S7	Natural	Ce cUL us	Opt
75÷100A	S8	+ Fan	Ce cUL us	Opt
125÷150A	S9	+ Fan	Ce cUL us	Std
200A	S10C	+ Fan	Ce cUL us	Std
275-400-450- 500-600-700A	S14	+ Fan	Ce cUL us	Std

Std=Standard, Opt=option

Current	Input: SSR with HB option; analog input 4÷20mA or 0÷10V with or without HB;			
	Size	Cooling	Approval	IP20
45A	S7	Natural	Ce	Opt
75÷100A	S8	+ Fan	Ce	Opt

Other size, characteristics and approval are available on the following series CD3000M 2PH, CD3000E-2PH and Multidrive-2PH

Opt=option

## INPUT FEATURES AND HEATER BREAK

Input Signal	Input Detail	ON condition	Off condition	Heater Break (Option)
SSR	20 mA constant current drain.	≥4V-max 30V	≤1V	HB is available from 45 to 100A.
4÷20mA	Impedance 100Ω			HB is available from 45 to 100A.
0÷10V	Impedance 15KΩ			HB is available from 45 to 100A.
110 Vac	Range 110Vac ±15% up to 20 mA	>90	≤50	HB isn't available.
230 Vac	Range 230Vac ±15% up to 20 mA	>200	≤100	HB isn't available.

Auxiliary Power Supply from 125A to 700A is requested  
230V (Range 200V to 260V Max) or 460V (Range 330V to 500V Max)

12-24 Vac-dc Auxiliary Power Supply is  
Requested with 4÷20mA or 0÷10V Input or  
opz.HB

## OUTPUT FEATURES

Current	Voltage Range (V)	Ripetitive peak Reverse Voltage (480V)	(600V)	Latching Current (mAeff)	Max peak One cycle (10msec.) (A)	Leakage Current (mAeff)	I2T Value For fusing tp=10msec.	Frequency range (Hz)	Power loss I=Inom (W)	Insolation Voltage Vac
10A	24÷480 V	1200	NA	150	230	15	610	47÷70	36	2500
15A	24÷480 V	1200	NA	150	230	15	610	47÷70	36	2500
25A	24÷480 V	1200	NA	150	230	15	610	47÷70	60	2500
35A	24÷600 V	1200	1600	250	600	15	1800	47÷70	88	2500
45A	24÷600 V	1200	1600	450	1000	15	4750	47÷70	108	2500
75A	24÷600 V	1200	1600	450	1350	15	8830	47÷70	180	2500
100A	24÷600 V	1200	1600	450	2000	15	19100	47÷70	240	2500
125A	24÷600 V	1200	1600	450	2000	15	19100	47÷70	255	2500
150A	24÷600 V	1200	1600	300	5250	15	128000	47÷70	268	2500
200A	24÷600 V	1200	1600	300	5250	15	128000	47÷70	380	2500
275A	24÷600 V	1200	1600	300	4800	15	108000	47÷70	623	2500
400A	24÷600 V	1200	1600	200	7800	15	300000	47÷70	875	2500
450A	24÷600 V	1200	1600	200	7800	15	300000	47÷70	1021	2500
500A	24÷600 V	1200	1600	200	8000	15	306000	47÷70	1061	2500
600A	24÷600 V	1200	1600	1000	17800	15	1027000	47÷70	1178	2500
700A	24÷600 V	1200	1600	1000	17800	15	1027000	47÷70	1425	2500

Note: for more deep information about derating curve, fuseholder dimensions and wiring see our web site: [www.cdautomation.com](http://www.cdautomation.com)