

CD3000S

1-2-3PH

- CE and cUL® marked
- From 15 to 100A
- Load Voltage 24V to 600Vac

CD AUTOMATION
POWERED BY INNOVATION



CD3000S 1PH FROM 10A TO 90A



General description

- CD3000S 1PH is a compact low cost family of solid state switches designed to replace contactors
- Single-phase thyristor units up to 90A.
- Applicable for resistive loads and infrared lamp.
- Zero crossing firing available with logic input signal (SSR)
- Constant current drain with SSR input
- Analog input 4→20mA or 0→10V with burst firing 4, 8 or 16 cycle at 50% power demand, is available as an option from 15A to 90A
- Heater break alarm (HB) to diagnostic partial or total load failure and short circuit on thyristor, is available as an option from 15A to 90A
- Side by side mounting
- Special design for heatsink with high dissipation
- IP20 protection
- Comply with EMC specification CE and cUL

Technical Specification

Voltage power supply Input Signal

24V min, 480V Max, 600V on request
SSR (OFF state <1Vdc ON = 4→30 Vdc) is standard up to 90A included.

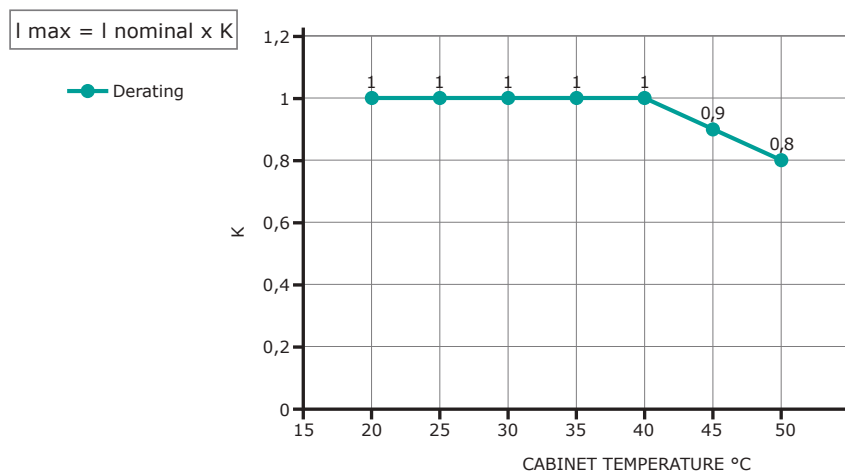
Firing Auxiliary Voltage Supply Fan Voltage Supply Heater Break Alarm

Analog input 4→20mA and 0→10V is available as an option on units from 15A→90A included
Zero crossing ZC; Burst Firing 4/8/16 with 4→20mA or 0→10V with 12→24V aux. power supply
See CD3000-1PH ordering code power consumption 10Va
230V ± 15% standard for unit equal or over 90A (110V is available as an option)
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.

Approvals Mounting Operating Temperature

Comply with EMC; cULus available as an option on basic units
Din rail mounting up to 90A included, bulkhead over 110A, IP20 protection
0→40° up to 90A included (for higher temperature see the derating curve)

Current derating as function of cabinet temperature



OPTIONS FEATURES AND SPECIAL DETAILS

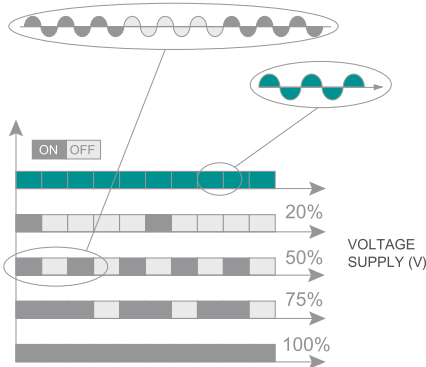
Heater Break Alarm (HB)



Few second to set and calibrate all the units

- Microprocessor based circuit
- Self learning of current set, via external command or push button on front unit
- Load break diagnostic with alarm latch
- Thyristor short circuit diagnostic
- Alarm reset function and possibility to auto reset the alarm if the normal working condition is restored
- Alarm output with free voltage contact
- Available from 15A→90A incl.
- Full insulation between SSR output coming from controller/multi loop and power supply, no common zero in our unit
- Easy and fast substitution/calibrate of the unit (also not expert people can do it easy)

Burst Firing (BF)



- This firing performed in digital mode in our unit gives a lot 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 want at 50% of power demand.
- On CD3000S this value can be 4, 8, 16.

Analog Input and Burst Firing

- Analog input is available from 15A to 90A with CE mark only
- Burst Firing is selectable with link jumper between BF 4-8-16
- Heater break alarm is available as an option
- Possibility to choose between 4→20mA or 0→10V input
- Must be used for 1PH loads only
- Note: 15→25A version is not available with Analog Input or HB

HB with external current transformer



- Possibility to turn around the wire on the current transformer if the nominal current is smaller compared the ones detectable by current transformer. Es: 3A with a CT of 50A
- Single CT (included on basic price of HB option)
- CT with metallic clips for horizontal DIN rail mounting (opt.)
- CT with plastic for vertical DIN rail mounting (opt.)

CD3000S - 2x10A 240V



- CD3000S 2x10 has been designed to drive two loads with 10A current and 240V max line voltage
- The units provides two isolated independent SSR input circuit
- Zero crossing firing
- Very compact unit with high-density mounting side by side to reduce cabinet dimension and price.
- High efficient heatsink with chimney effect
- Easy accessible control circuit board on front unit

CD3000S 1PH SIZE AND DIMENSIONS



S0 H 120 x W 30 x D 120 - 0,33 kg



S3 H 120 x W 52 x D 120 - 0,55 kg



S7 H 120 x W 117 x D 159 - 1,65 kg

Size and options

Current	Size	Cooling	IP20
2x10A	S0	Natural	Standard
15-25A	S0	Natural	Standard
35-45A	S3	Natural	Standard
60-90A	S7	Natural	Option

Input features and Heater Break

Input Signal	Input Detail	On Condition	Off Condition	Heater Break (Option)
SSR	20mA constant current drain	$\geq 4V$ max 30V	$\leq 1V$	HB is available from 35-90A
4÷20mA	Impedance 100Ω			HB is available from 35-90A
0÷10V	Impedance 100Ω			HB is available from 35-90A

Output features (Power device)

Current A	Voltage Range V	Ripetitive Peak Reverse Voltage		Latching current (mAeff)	Max Peak one cycle (10 msec)	Leckage current (mAeff)	I ² T value for fusig tp=10msec	Frequency range Hz	SCR power loss * I=Inom W for each phase	Isolation voltage Vac
		480V	600V							
2x10A	24÷240V	1200	NA	150	230	15	610	47÷70	24	2500
15A	24÷480V	1200	NA	150	230	15	610	47÷70	18	2500
25A	24÷600V	1200	NA	150	230	15	610	47÷70	30	2500
35A	24÷600V	1200	1600	250	400	15	780	47÷70	42	2500
45A	24÷600V	1200	1600	250	600	15	1800	47÷70	54	2500
60A	24÷600V	1200	1600	450	1000	15	4750	47÷70	72	2500
90A	24÷600V	1200	1600	450	2000	15	19100	47÷70	108	2500

* Power Loss Thyristor + Fuse

Ordering code CD3000S 1PH 10-90A

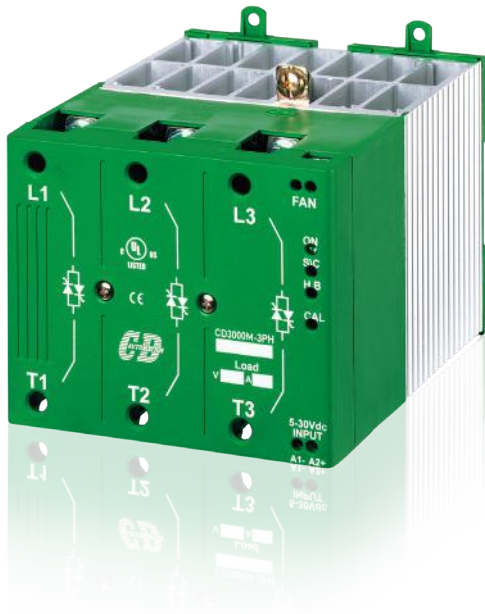
Model	Current (A)	Operating Voltage (V)	Max Load Voltage (V)	Aux Voltage (V)	Input	Firing	Fuses	HB Option	EP Option	Approvals	Manual
CD3000S 1PH / 90A /		400V /	480V /	12:24V /	4-20mA /	BF008 /	EF /	HB /	EP /	- /	EM

MODEL	
CD 3000S 1PH	
CURRENT (A)	
2x10A	
15A	
25A	
35A	
45A	
60A	
90A	
OPERATING VOLTAGE (V)	
__ _V	From 24V to Max Load Voltage
MAX LOAD VOLTAGE (V)	
240V	
480V (1)	
600V (1)	
AUXILIARY VOLTAGE (V)	
NO /	NO Auxiliary Voltage with NO option
12:24 /	12÷24V with analog input / HB Alarm (2,3)
INPUT	
SSR /	SSR from 4 to 30Vdc
0÷10V /	Analog Input 0÷10V (3,5)
4÷20mA /	Analog Input 4÷20mA (3,5)

FIRING MODE	
ZC /	Zero Crossing with SSR Input
BF004 /	4 cycles on + 4 off with Analog Input
BF008 /	8 cycles on + 8 off with Analog Input
BF016 /	16 cycles on + 16 off with Analog Input
FUSES	
EF /	External Fuse + Fuse Holder (see page 13)
NF /	No fuse
HB OPTION	
- /	No Heater Break Alarm
HB /	Heater Break Alarm (5)
EP OPTION	
- /	Standard
EP /	External IP20 protection for size S7 (60-90A) (4)
APPROVALS	
- /	CE EMC for European Market
UL /	CE EMC + cUL us listed
MANUAL	
NM	None
IM	Italian
EM	English
GM	German
FM	French

- (1) 480V and 600V not available for 2x10A
- (2) Necessary with 0÷10V - 4÷20mA and HB alarm
- (3) Option available from 35 to 90A
- (4) IP20 is standard on all units with exception of S7 size (60-90A). To complain IP20 use EP option
- (5) Not available with UL approval

CD 3000S 2PH FROM 10A TO 90A



General description

- CD3000S 2PH two leg switching three wire load star or delta resistive loads or infrared lamps up to 90A
- Fully isolated from power
- Zero crossing firing available with logic input signal (SSR)
- Constant current drain with SSR input
- Analog input 4→20mA or 0→10V with burst firing 4, 8 or 16 cycle at 50% power demand, is available as an option from 35A to 90A
- Heater break alarm (HB) to diagnostic partial or total load failure and short circuit on thyristor, is available as an option from 35A to 90A
- Side by side mounting
- Special design for heatsink with high dissipation
- IP20 protection
- Comply with EMC specification CE and cUL

Technical Specification

Voltage power supply Input Signal

24V min, 480V Max, 600V on request
SSR (OFF state <1Vdc ON = 4→30 Vdc) is standard up to 90A included.

Firing

Analog input 4→20mA and 0→10V is available from 35A (included) to 90A (included)
Zero crossing ZC; Burst Firing 4/8/16 with 4→20mA or 0→10V with 12→24V aux. power supply

Auxiliary Voltage Supply Fan Voltage Supply Heater Break Alarm

See CD3000-1PH ordering code power consumption 10VA
230V ± 15% standard f(110V on request opt., if current ≥75A)
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.
Automation calibration of one or more unit at the same time using a dedicated digital input or using for each unit the calibration button.

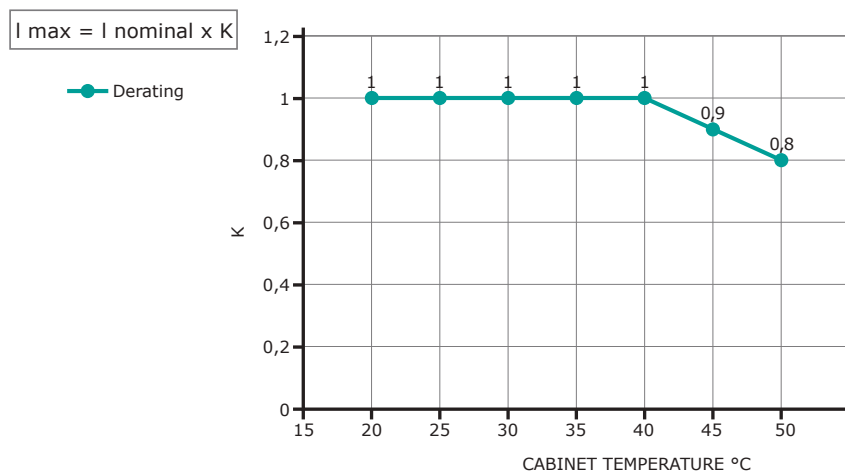
Approvals Mounting

Comply with EMC; cULus available as an option on basic units
Din rail mounting up to 90A included

Operating Temperature

0→40° up to 90A included (for higher temperature see the derating curve)

Current derating as function of cabinet temperature



OPTIONS FEATURES AND SPECIAL DETAILS

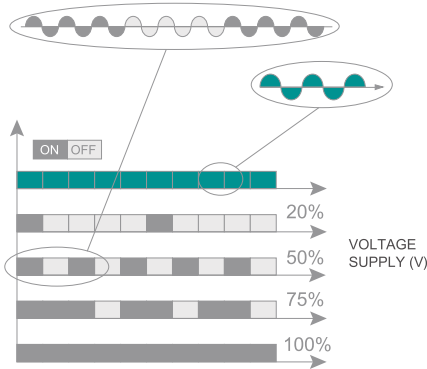
Heater Break Alarm (HB)



Few second to set and calibrate all the units

- Microprocessor based circuit
- Self learning of current set, via external command or push button on front unit
- Load break diagnostic with alarm latch
- Partial load failure detection of each leg
- Thyristor short circuit diagnostic
- Alarm reset function and possibility to auto reset the alarm if the normal working condition is restored
- Alarm output with free voltage contact
- Available from 35A÷90A incl.
- Full insulation between SSR output coming from controller/multi loop and power supply, no common zero in our unit
- Easy and fast substitution/calibrate of the unit (also not expert people can do it easy)
- Available also with analogic input from 35A÷90A incl.

Burst Firing (BF)



This firing performed in digital mode in our unit gives a lot 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 want at 50% of power demand. On CD3000S this value can be 4, 8, 16. To have a better resolution use REVEX series, where the BF value can be implemented from 1 to 255 complete cycles doing the firing less or more fast.

Analog Input and Burst Firing

- Analog input is available from 35A to 100A with CE mark only
- Burst Firing is selectable with link jumper between BF 4-8-16
- Heater break alarm is available as an option
- Possibility to choose between 4÷20mA or 0÷10V input

HB with external current transformer



- Possibility to turn around the wire on the current transformer if the nominal current is smaller compared the ones detectable by current transformer. Es: 3A with a CT of 50A
- Two CT (included on basic price of HB option)
- CT with metallic clips for horizontal DIN rail mounting (opt.)
- CT with plastic for vertical DIN rail mounting (opt.)

APPLICATION AND FOCUS ON

- Chiller application
- Furnaces
- Dryers
- Infrared lamps and curing units
- Autoclaves
- Extrusion lines
- Climatic chambers

CD3000S 2PH SIZE AND DIMENSIONS



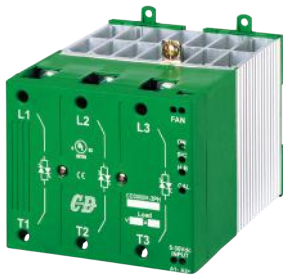
S0 H 120 x W 30 x D 120 - 0,33 kg



S1 H 120 x W 60 x D 120 - 0,70 kg



S4 H 120 x W 117 x D 123 - 1,15 kg



S7 H 120 x W 117 x D 159 - 1,65 kg



S8 H 138 x W 117 x D 159 - 2,10 kg

Size and options

Current	Size	Cooling	IP20
10A	S0	Natural	Standard
15-25A	S1	Natural	Standard
35A	S4	Natural	Standard
45A	S7	Natural	Option
75-90A	S8	+ Fan	Option

Input features and Heater Break

Input Signal	Input Detail	On Condition	Off Condition	Heater Break (Option)
SSR	20mA constant current drain	$\geq 4V$ max 30V	$\leq 1V$	HB is available from 35-90A
4 \rightarrow 20mA	Impedance 100 Ω			HB is available from 35-90A
0 \rightarrow 10V	Impedance 100 Ω			HB is available from 35-90A

12 \rightarrow 24Vac-dc Auxiliary power supply is requested with 4 \rightarrow 20mA or 0 \rightarrow 10V input or opz. HB

Output features (Power device)

Current A	Voltage Range V	Ripetitive Peak Reverse Voltage		Latching current (mAeff)	Max Peak one cycle (10 msec)	Leckage current (mAeff)	I ² T value for fusig tp=10msec	Frequency range Hz	SCR power loss * I=Inom W for each phase	Isolation voltage Vac
		480V	600V							
10A	24 \rightarrow 480V	1200	NA	150	230	15	610	47 \rightarrow 70	36	2500
15A	24 \rightarrow 480V	1200	NA	150	230	15	610	47 \rightarrow 70	36	2500
25A	24 \rightarrow 600V	1200	NA	150	230	15	610	47 \rightarrow 70	60	2500
35A	24 \rightarrow 600V	1200	1600	250	600	15	1800	47 \rightarrow 70	88	2500
45A	24 \rightarrow 600V	1200	1600	250	1000	15	4750	47 \rightarrow 70	108	2500
75A	24 \rightarrow 600V	1200	1600	450	1350	15	8830	47 \rightarrow 70	180	2500
90A	24 \rightarrow 600V	1200	1600	450	2000	15	19100	47 \rightarrow 70	240	2500

* Power Loss Thyristor + Fuse

Ordering code CD3000S 2PH 10-90A

Model	Current (A)	Operating Voltage (V)	Max Load Voltage (V)	Aux Voltage (V)	Input	Firing	Fuses	HB Option	EP Option	Approvals	Manual
CD3000S 2PH / 75A /	400V /	480V /	12:24V /	4-20mA /	BF008 /	EF /	HB /	EP /	- /	EM	

MODEL
CD 3000S 2PH

CURRENT (A)
10A
15A
25A
35A
45A
75A
90A

OPERATING VOLTAGE (V)
__ _V From 24V to Max Load Voltage

MAX LOAD VOLTAGE (V)
480V
600V

AUXILIARY VOLTAGE (V)
NO / NO Auxiliary Voltage with NO option
12:24 / 12+24V with analog input or HB Alarm (2,3)

INPUT
SSR / SSR from 4 to 30Vdc
0+10V / Analog Input 0+10V (3,5)
4+20mA / Analog Input 4+20mA (3,5)

FIRING MODE
ZC / Zero Crossing with SSR Input
BF004 / 4 cycles on + 4 off with Analog Input
BF008 / 8 cycles on + 8 off with Analog Input
BF016 / 16 cycles on + 16 off with Analog Input

FUSES & OPTIONS
EF / External Fuse + fuse Holder (see page 13)
NF / No fuse

HB OPTION
- / No Heater Break Alarm
HB / Heater Break Alarm (5)

FAN
- / No Fan (unit <75A) - Fan 230V (Unit ≥75A)
110VFAN/ Fan 110V (≥75A)

EP OPTION
- / Standard
EP / External IP20 protection for size S7 and S8 (45-75-90A) (4)

APPROVALS
- / CE EMC for European Market
UL / CE EMC + cUL us listed

MANUAL
NM / None
IM / Italian
EM / English
GM / German
FM / French

- (1) For 10A 600V cUL us not available
- (2) Necessary with 0+10V - 4+20mA or HB alarm
- (3) Option available from 35 to 90A
- (4) IP20 is standard on all units with exception of S7 and S8 size (45-75-90A). To complain IP20 use EP option
- (5) Not available with UL approval

CD 3000S 3PH FROM 15A TO 90A



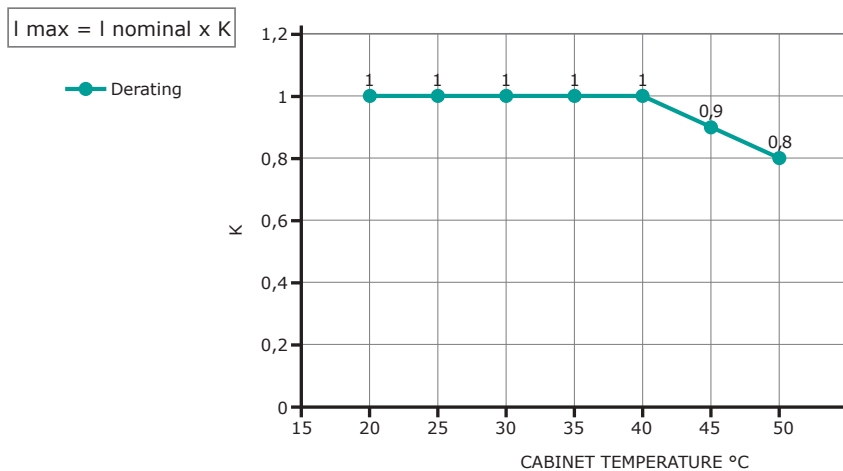
General description

- CD3000S 3PH is a three leg switching three wire resistive load
- Up to 90A
- Fully isolated from power
- Applicable for resistive loads
- Zero crossing firing
- Logic input signal SSR
- Constant current drain
- Side by side packaging
- Special design for heatsink with high dissipation
- IP20 protection
- Comply with EMC specification

Technical Specification

Voltage power supply	24V min, 480V Max, 600V on request
Input Signal	SSR (OFF state <1Vdc ON = 4+30 Vdc) firing.
Firing	Zero crossing ZC
Auxiliary Voltage Supply	10Va power consumption
Fan Voltage Supply	230V ± 15%
Approvals	Comply with EMC; cULus available as an option
Mounting	Din rail mounting up to 90A
Operating Temperature	0+40° up to 90A included (for higher temperature see the derating curve)

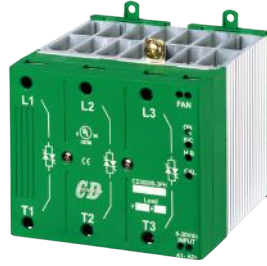
Current derating as function of cabinet temperature



CD3000S 3PH SIZE AND DIMENSIONS



S2 H 120 x W 92 x D 120 - 1,05 kg



S4 H 120 x W 117 x D 123 - 1,15 kg



S6 H 138 x W 117 x D 123 - 1,80 kg



S8 H 138 x W 117 x D 159 - 2,10 kg

Size and options

Current	Size	Cooling	IP20
15A	S2	Natural	Standard
30A	S4	Natural	Standard
45A	S6	+ Fan	Standard
60A	S8	+ Fan	Option
75A	S8	+ Fan	Option
90A	S8	+ Fan	Option

Input features

Input Signal	Input Detail	On Condition	Off Condition
SSR	20mA MAX	≥4V max 30V	≤1V

For 230V select (200V to 260V); for 460V select (330V to 500V)

Output features (Power device)

Current A	Voltage Range V	Ripetitive Peak Reverse Voltage		Latching current (mAeff)	Max Peak one cycle (10 msec)	Leckage current (mAeff)	I ² T value for fusig tp=10msec	Frequency range Hz	SCR power loss * I=Inom W for each phase	Isolation voltage Vac
		480V	600V							
15A	24÷480V	1200	NA	150	230	15	610	47÷70	54	2500
30A	24÷600V	1200	1600	250	600	15	1800	47÷70	108	2500
45A	24÷600V	1200	1600	250	600	15	1800	47÷70	162	2500
60A	24÷600V	1200	1600	450	1000	15	4750	47÷70	216	2500
75A	24÷600V	1200	1600	450	1540	15	11300	47÷70	270	2500
90A	24÷600V	1200	1600	450	2000	15	19100	47÷70	324	2500

* Power Loss Thyristor + Fuse

Ordering code CD3000S 3PH 15-90A

Model	Current (A)	Operating Voltage (V)	Max Load Voltage (V)	Aux Voltage (V)	Input	Firing	Fuses	Fan	EP Option	Approvals	Manual
CD3000S 3PH / 90A /	400V /	480V /	NO /	SSR /	ZC /	EF /	- /	EP /	UL /	EM	

MODEL
CD 3000S 3PH

CURRENT (A)
15A
30A
45A
60A
75A
90A

OPERATING VOLTAGE (V)
__ _V From 24V to Max Load Voltage

MAX LOAD VOLTAGE (V)
480V
600V

AUXILIARY VOLTAGE (V)
NO / NO Auxiliary Voltage with NO option

INPUT
SSR / SSR

FIRING MODE
ZC / Zero Crossing

FUSES
EF / External Fuse + fuse Holder (see page 13)
NF / No fuse

FAN
- / No Fan (unit <45A) - Fan 230V (Unit ≥45A)
110VFAN / Fan 110V (≥45A)

EP OPTION
- / Standard
EP / External IP20 protection for size S8 (45-90A) (1)

APPROVALS
- / CE EMC for European Market
UL / CE EMC + cUL us listed

MANUAL
NM / None
IM / Italian
EM / English
GM / German
FM / French

(1) IP20 is standard on all units with exception of S8 size (45-90A).
To complain IP20 use EP option

DIN-RAIL MOUNT SEMICONDUCTOR FUSES

Protection for your CD 1-2-3 PH Solid State power controllers

For efficient protection of your CD300S 1-2-3PH solid state power controller, use semiconductor fuses to ensure a long life.

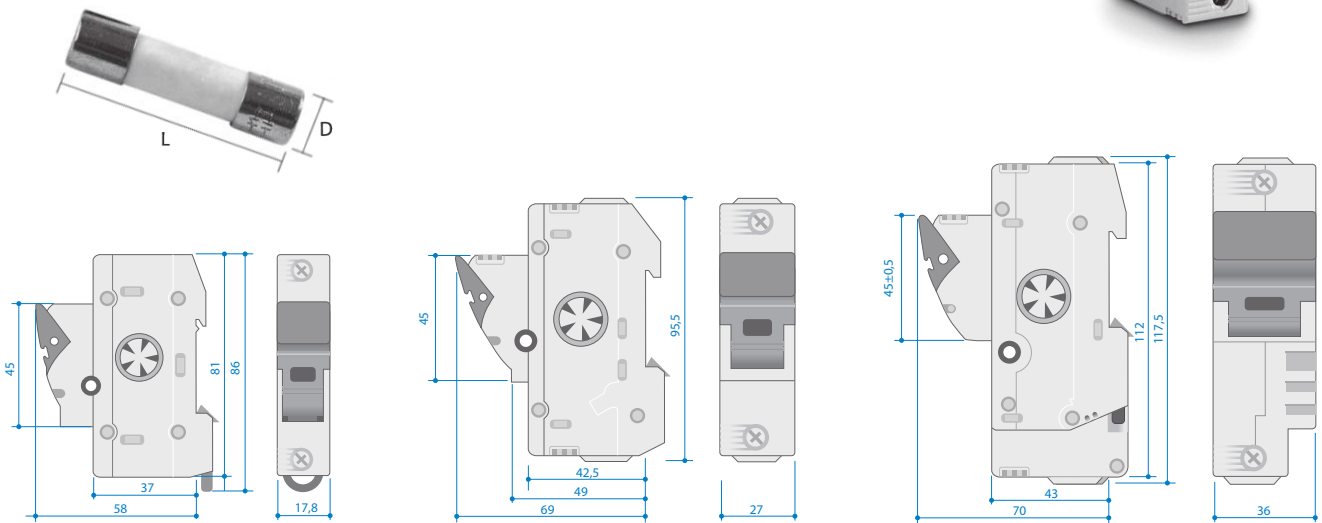
To safeguard your Power Controllers CD Automation offers Fuse and Fuse holders correctly sized to protect the thyristors.

All Fuses should be rated at 25% more than Power Controller rating.

The semiconductor I_t should be 30% less than Power Controller I_t.

Semiconductor Fuses are classified for UL as additional protection for semiconductor.

They are not approved for branch circuit protection.



CE version	FUSE					FUSE HOLDER	THYRISTOR UNIT TYPE		
	Amp Rating	I _t t (A2 Sec)	Code	Diameter	Length	Code	1PH	2PH	3PH
	32	600	FU1038/32A	10,3	38	FFH1038/32A	10-15-25A	10-15-25A	15A
	50	2000	FU1451/50A	14	51	FFH1451/50A	35-45A	35-45A	30-45A
	80	6550	FU2258/80A	22	58	FFH2258/80A	60A		60A
	100	13500	FU2258/100A	22	58	FFH2258/100A		75A	75A
125	14000	FU2258/125A	22	58	FFH2258/125A	90A	90A	90A	

cUL Version	FUSE					FUSE HOLDER	THYRISTOR UNIT TYPE		
	Amp Rating	I _t t (A2 Sec)	Code	Diameter	Length	Code	1PH	2PH	3PH
	32	600	FWC32A10F	10,3	38	FFH1038/32A	10-15-25A	10-15-25A	15A
	50	1800	FWP50A14F	14	51	FFH1451/50A	35-45A	35-45A	30-45A
	80	6600	FWP80A22F	22	58	FFH2258/100A	60A		60A
100	6970	CPURQ27x60/125	22	58	FFH2258/125A	90A	75-90A	75-90A	



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