CD3000S

1-2-3PH

- CE and cUL® marked
- From 10 to 90A
- Load Voltage 24V to 600Vac

CD AUTOMATION

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CD3000S Catalog 2021

CD3000S 1PH FROM 10A TO 90A

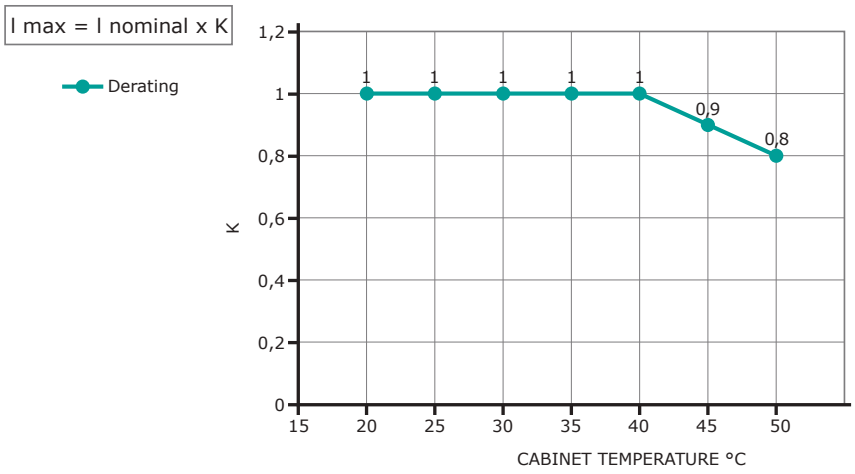
General description

- CD3000S 1PH is a compact low cost family of solid state switches designd 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 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	24V min, 480V Max, 600V on request
Input Signal	SSR (OFF state <1Vdc ON = 4÷30 Vdc) is standard up to 90A included.
	Analog input 4÷20mA and 0÷10V is available as an option on units from 35A÷90A 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	See CD3000-1PH ordering code power consumption 10Va
Fan Voltage Supply	220V ± 15% standard for unit equal or over 90A (110V is available as an option)
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.
Approvals	Comply with EMC; cULus available as an option on basic units
Mounting	Din rail mounting
Operating Temperature	0÷40° up to 90A included (for higher temperature see the derating curve)

Current derating as function of cabinet temperature



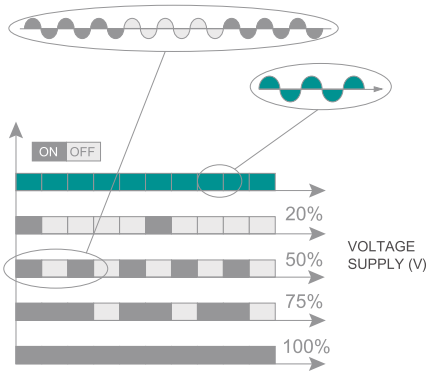
OPTIONS FEATURES AND SPECIAL DETAILS

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
- 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)

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 insulated 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	≥4V max 30V	≤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^2T 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	1200	150	230	15	610	47÷70	20	2500
15A	24÷480V	1200	1200	150	230	15	610	47÷70	18	2500
25A	24÷480V	1200	1200	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

Order code CD3000S 1PH 10-90A

	1	2	3	4	5	6		7	8	9	10	11	12	13	14	15	16
CD3000S 1PH	**D**	**S**	**1**	_	_	_	**-**	_	_	_	_	_	_	_	_	_	_

CURRENT (A)	**4**	**5**	**6**	
description	Code			Note
2x10A	2	X	X	
15A	0	1	5	
25A	0	2	5	
35A	0	3	5	
45A	0	4	5	
60A	0	6	0	
90A	0	9	0	

MAX LOAD VOLTAGE (V)	**7**	
description	Code	Note
240V	2	
480V	4	**1**
600V	6	**1**

AUXILIARY VOLTAGE (V)	**8**	
description	Code	Note
NO Auxiliary Voltage supply	0	
12÷24V with analog input / HB Alarm	4	**2,3**

INPUT	**9**	
description	Code	Note
SSR from 4 to 30Vdc	S	
Analog Input 0÷10V	A	**3,5**
Analog Input 4÷20mA	V	**3,5**

FIRING	**10**	
description	Code	Note
Zero Crossing with SSR Input	Z	
4 cycles on + 4 off with Analog Input	4	
8 cycles on + 8 off with Analog Input	8	
16 cycles on + 16 off with Analog Input	6	

CONTROL MODE	**11**	
description	Code	Note
Open loop	0	

FUSES & OPTION	**12**	
description	Code	Note
No Fuse / No Option	0	
No Fuse / HB Option	1	**3,5**
External Fuse & Fuse Holder / No Option	F	
External Fuse & Fuse Holder / HB Option	2	**3,5**

FAN VOLTAGE	**13**	
description	Code	Note
No Fan	0	

APPROVALS	**14**	
description	Code	Note
CE EMC for European Market	0	
CE EMC + cUL us listed	L	

MANUAL	**15**	
description	Code	Note
None	0	
Italian	1	
English	2	
German	3	
French	4	

IP PROTECTION	**16**	
description	Code	Note
Standard IP20 (all unit excluded 60A and 90A)	0	
External IP20 protection for size S7 (60-90A)	P	**4**

(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 "P" option at digit 16
(5) HB not available with UL approval

CD 3000S 2PH FROM 10A TO 90A

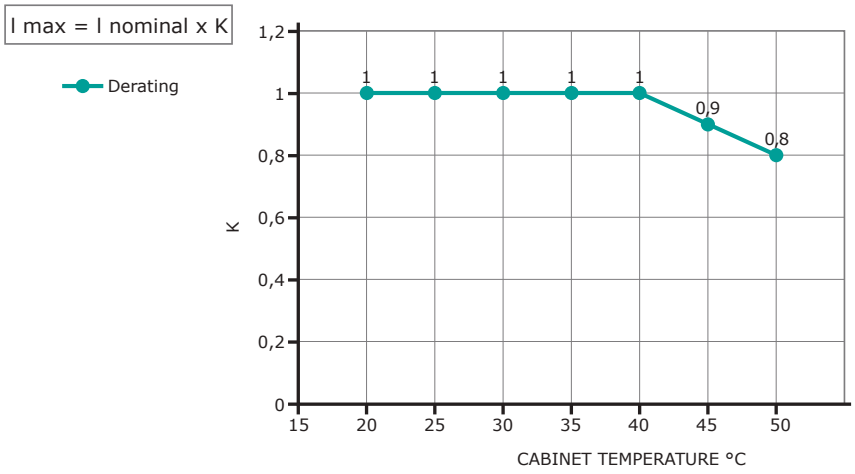
General description

- 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 45A to 90A
- Heater break alarm (HB) to diagnostic partial or total load failure and short circuit on thyristor, is available as an option from 45A 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	24V min, 480V Max, 600V on request
Input Signal	SSR (OFF state <1Vdc ON = 4÷30 Vdc) is standard up to 90A included
	Analog input 4÷20mA and 0÷10V is available from 45A (included) to 90A (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	See CD3000-1PH ordering code power consumption 10Va
Fan Voltage Supply	220V ± 15% standard f (110V on request optional, if current ≥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
	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	Comply with EMC; cULus available as an option on basic units
Mounting	Din rail mounting
Operating Temperature	0÷40° up to 90A included (for higher temperature see the derating curve)

Current derating as function of cabinet temperature



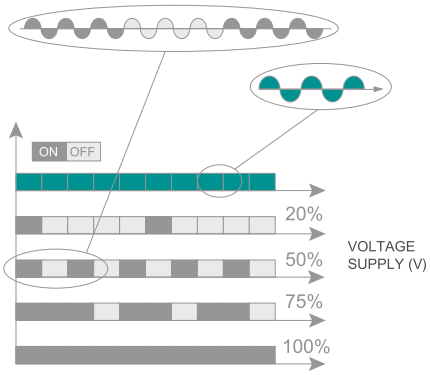
OPTIONS FEATURES AND SPECIAL DETAILS

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 45A÷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 45A÷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 45A 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

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

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	≥4V max 30V	≤1V	HB is available from 45-90A
4÷20mA	Impedance 100Ω			HB is available from 45-90A
0÷10V	Impedance 100Ω			HB is available from 45-90A

12÷24Vac-dc Auxiliary power supply is requested with 4÷20mA or 0÷10V input or HB option

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^2T value for fusig tp=10msec	Frequency range Hz	SCR power loss * I=Inom W for each phase	Isolation voltage Vac
		480V	600V							
10A	24÷480V	1200	1200	150	230	15	610	47÷70	20	2500
15A	24÷480V	1200	1200	150	230	15	610	47÷70	36	2500
25A	24÷480V	1200	1200	150	230	15	610	47÷70	60	2500
35A	24÷600V	1200	1600	250	600	15	1800	47÷70	88	2500
45A	24÷600V	1200	1600	450	1000	15	4750	47÷70	108	2500
75A	24÷600V	1200	1600	450	1350	15	8830	47÷70	180	2500
90A	24÷600V	1200	1600	450	2000	15	19100	47÷70	240	2500

* Power Loss Thyristor + Fuse

Order code CD3000S 2PH 10-90A

	1	2	3	4	5	6		7	8	9	10	11	12	13	14	15	16
CD3000S 2PH	D	S	2	_	_	_	-	_	_	_	_	_	_	_	_	_	_

CURRENT (A)	4	5	6	
description	Code			Note
10A	0	1	0	1
15A	0	1	5	
25A	0	2	5	
35A	0	3	5	
45A	0	4	5	
75A	0	7	5	
90A	0	9	0	

MAX LOAD VOLTAGE (V)	7	
description	Code	Note
480V	4	
600V	6	

AUXILIARY VOLTAGE (V)	8	
description	Code	Note
NO Auxiliary Voltage supply	0	
12÷24V with analog input / HB Alarm	4	2,3

INPUT	9	
description	Code	Note
SSR from 4 to 30Vdc	S	
Analog Input 0÷10V	A	3,5
Analog Input 4÷20mA	V	3,5

FIRING	10	
description	Code	Note
Zero Crossing with SSR Input	Z	
4 cycles on + 4 off with Analog Input	4	
8 cycles on + 8 off with Analog Input	8	
16 cycles on + 16 off with Analog Input	6	

CONTROL MODE	11	
description	Code	Note
Open loop	0	

FUSES & OPTION	12	
description	Code	Note
No Fuse / No Option	0	
No Fuse / HB Option for SSR input	1	3,5
No Fuse / HB Option for analog input	1	3,5
External Fuse & Fuse Holder / No Option	F	
External Fuse & Fuse Holder / HB Option for SSR input	2	3,5
External Fuse & Fuse Holder / HB Option for analog input	2	3,5

FAN VOLTAGE	13	
description	Code	Note
No Fan for unit <75A	0	
Fan 110V Option - for 75A and 90A units	1	
Fan 220V Standard - for 75A and 90A units	2	

APPROVALS	14	
description	Code	Note
CE EMC for European Market	0	
CE EMC + cUL us listed	L	

MANUAL	15	
description	Code	Note
None	0	
Italian	1	
English	2	
German	3	
French	4	

IP PROTECTION	16	
description	Code	Note
Standard IP20 (all unit excluded 45A, 75A, 90A)	0	
External IP20 protection for size S7/S8 (45A, 75A, 90A)	P	

(1) For 10A 600V cUL us not available
(2) Necessary with 0÷10V - 4÷20mA or HB alarm
(3) Option available from 45 to 90A
(4) IP20 is standard on all units with exception of S7 and S8 size (45-75-90A). To complain IP20 use "P" option at digit 16
(5) HB not available with cUL us approval

CD 3000S 3PH FROM 15A TO 90A

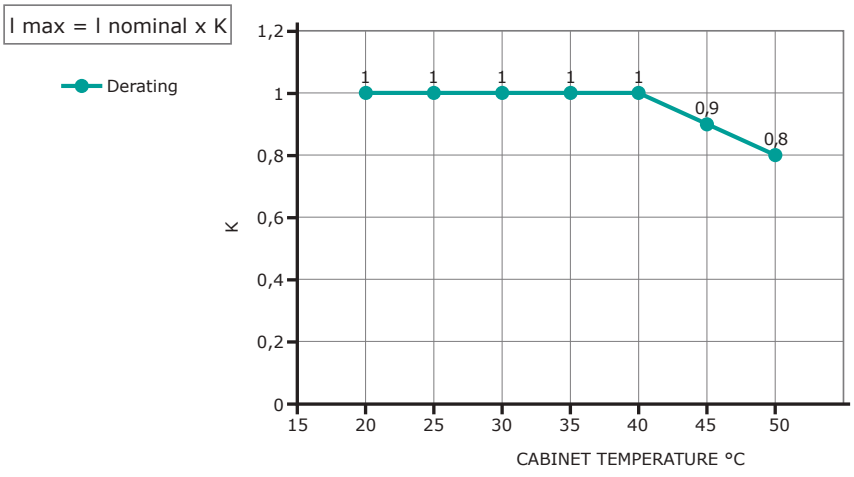
General description

- 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	220V ± 15%
Approvals	Comply with EMC; cULus available as an option
Mounting	Din rail mounting
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^2T 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	1200	150	230	15	610	47÷70	54	2500
30A	24÷480V	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

Order code CD3000S 3PH 15-90A

	1	2	3	4	5	6		7	8	9	10	11	12	13	14	15	16
CD3000S 3PH	**D**	**S**	**3**	_	_	_	**-**	_	_	_	_	_	_	_	_	_	_

CURRENT (A)	**4**	**5**	**6**	
description	Code			Note
15A	0	1	5	
30A	0	3	0	
45A	0	4	5	
60A	0	6	0	
75A	0	7	5	
90A	0	9	0	

MAX LOAD VOLTAGE (V)	**7**	
description	Code	Note
480V	4	
600V	6	

AUXILIARY VOLTAGE (V)	**8**	
description	Code	Note
NO Auxiliary Voltage supply	0	

INPUT	**9**	
description	Code	Note
SSR	S	

FIRING	**10**	
description	Code	Note
Zero Crossing	Z	

CONTROL MODE	**11**	
description	Code	Note
Open loop	0	

FUSES & OPTION	**12**	
description	Code	Note
No Fuse	0	
External Fuse & Fuse Holder	F	

FAN VOLTAGE	**13**	
description	Code	Note
No Fan for unit <45A	0	
Fan 110V Option - for 45A to 90A units	1	
Fan 220V Standard - for 45A to 90A units	2	

APPROVALS	**14**	
description	Code	Note
CE EMC for European Market	0	
CE EMC + cUL us listed	L	

MANUAL	**15**	
description	Code	Note
None	0	
Italian	1	
English	2	
German	3	
French	4	

IP PROTECTION	**16**	
description	Code	Note
Standard IP20 (all unit excluded 45A to 90A)	0	
External IP20 protection for size S8 (45A to 90A)	P	**1**

(1) IP20 is standard on all units with exception of S8 size (45-90A).
To complain IP20 use "P" option at digit 16

DIN-RAIL MOUNT SEMICONDUCTOR FUSES

Protection for your CD3000S 1-2-3 PH Solid State power controllers

For efficient protection of your CD3000S 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.

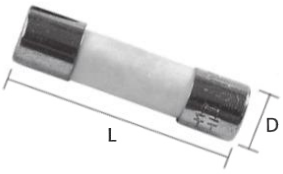
All Fuses should be rated at 25% more than Power Controller rating.

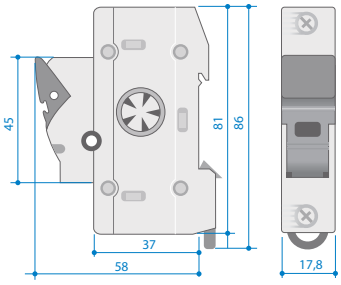
The semiconductor I^2T should be 30% less than Power Controller I^2T.

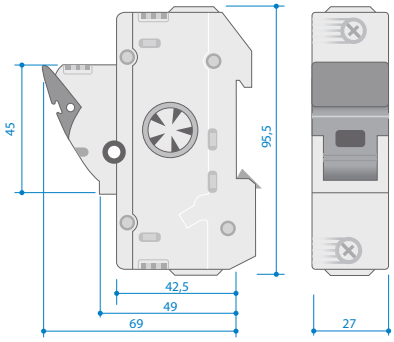
Semiconductor Fuses are classified for UL as additional protection for semiconductor.

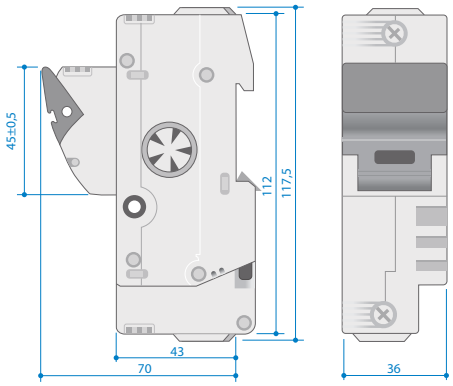
They are not approved for branch circuit protection.

For the characteristics and codes of the fuses refer to the product manuals









Italy
CD Automation Srl
Via Picasso, 34/36
20025 Legnano MI
Italy
T +39 0331 577479
F +39 0331 579479
sales@cdautomation.com
www.cdautomation.com

United Kingdom
CD Automation UK Ltd
Unit 9 Harvington Business Park
Brampton Road, Eastbourne
East Sussex, BN22 9BN
England
T +44 1323 811100
info@cdautomation.co.uk
www.cdautomation.co.uk

India
M/s Toshcon CD Automation Pvt. Ltd.
H1 - 75 Gegal Industrial Area
Ajmer - 305023 (Raj.)
India
T +91 145 2791112
T +91 145 6450601/2/3
sales.cd@toshcon.com
www.cdautomation.in