

Brochure 21/22
Easy to drive

Low Voltage



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PE genetics

CONTENTS

Our products

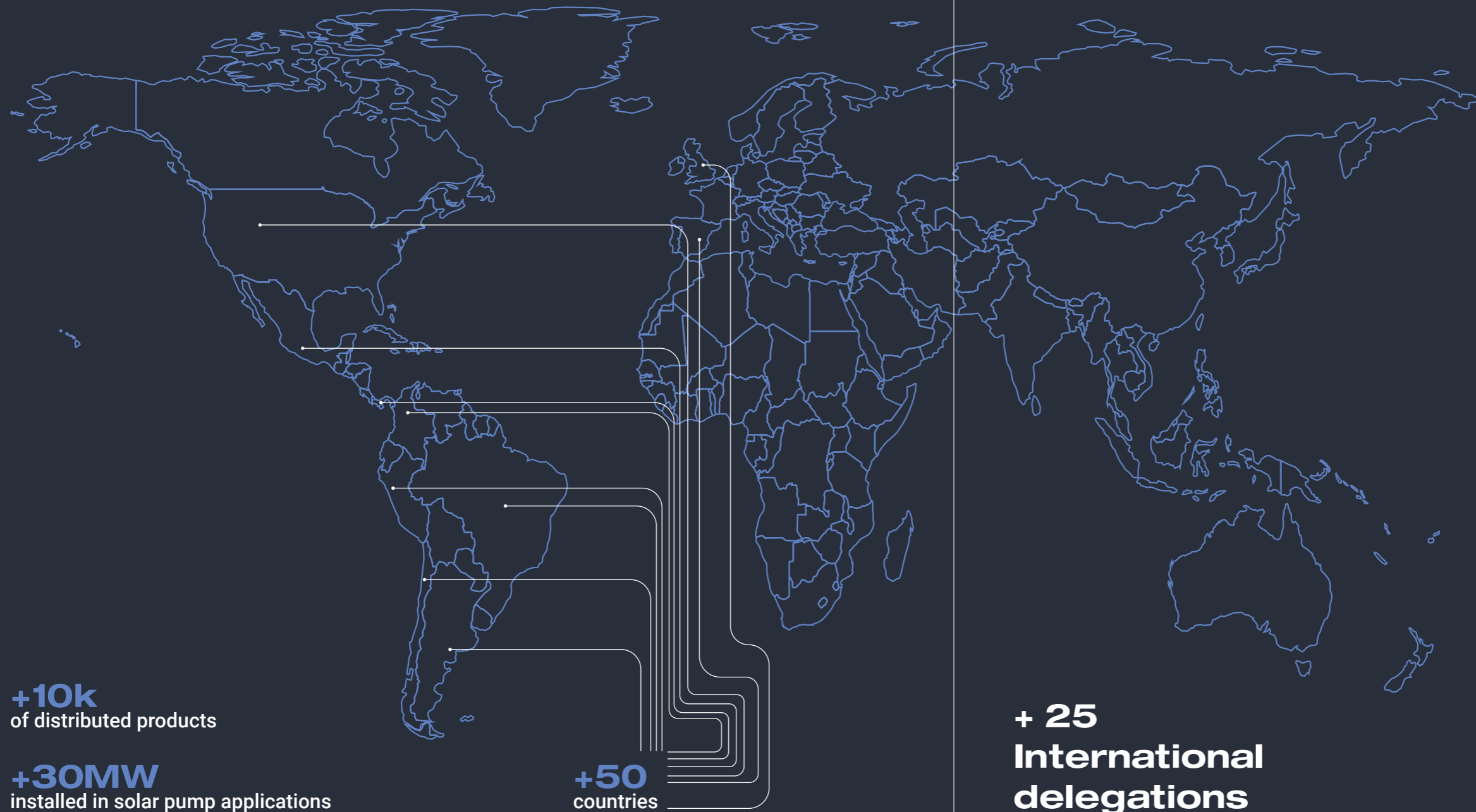
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Our secret

Energy efficiency for every situation

We handle everything in-house: from design and manufacture to testing.



More than

+ 60_{GW}
of installed
AC power
Solar + Storage

+ 30_{GW}
of annual
production
capacity

+ 30
years of
excellence

LOW VOLTAGE

Boost your productivity

and energy efficiency

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SD500

VARIABLE

SPEED

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SD300

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SD150

DRIVES

SD500

Smarter and **more flexible** than ever



With supreme software control, the SD500 saves time and achieves superior results. The unit offers high precision and powerful control, with multiple communication protocols, maximum **efficiency and motor protection.**



230V - 480V



From 0.75kW to 90kW



150% overload capacity at 50°C

1 Modular accessory design

PLC board with a large number of inputs and outputs, STO module, encoder module, Ethernet communication module, CANopen, DeviceNet and Lonworks, I/O expansion module and dynamic braking unit.

2 dV/dt filter *Optional*

Reduces dV/dt to 500-800V/μs to allow the installation of motors at up to 300m without shielded cable. Built-in EMC/RFI and harmonic filters.

3 Removable intuitive display

The SD500 offers the possibility of installing the display up to almost 10 feet (3 meters) away from the drive. Embedded installation of the display in the control cabinet allows the variable-speed drive to be operated safely **from outside.**

4 Safe Shutdown Turnaround Outage (STO) *Optional*

Shut down the motor's power supply without generating torque.

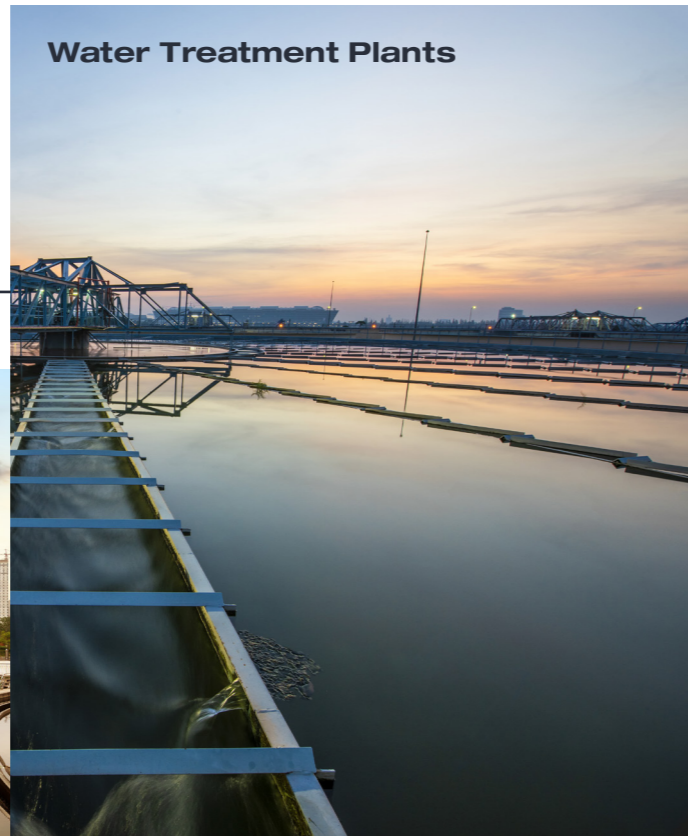
The STO module, along with the installation of a safety relay and an emergency pushbutton, saves control-cabinet space and reduces costs and installation time, while improving system performance and simplifying assembly.

The most advanced 5 features for pump and motor control

SD500 is designed for indoor operation under the harshest environments due to its conformally coated electronics and high operating temperature range.



Sewage Treatment Plants



Water Treatment Plants



Desalination Plants



Pumping Stations

All our modules are conformally coated, protecting the micro components that are vulnerable to dust, moisture, pollution and corrosive gases.

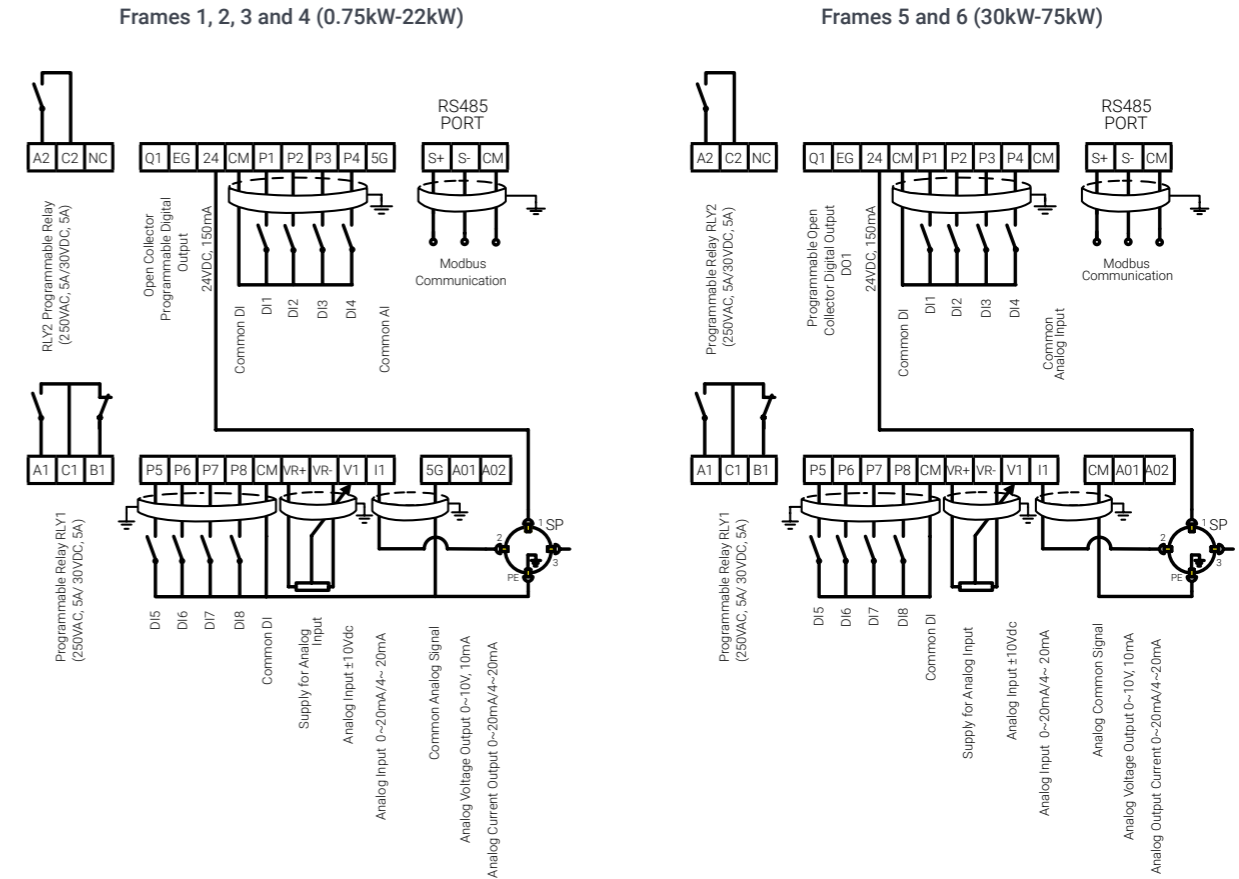


SD500

INPUT	Power range	0,75kW - 90kW		
	Voltage power	200-230Vac (-15% to +10%), 380-480Vac Three phase (-15% to +10%)		
	Input frequency	50~60 Hz ±5%		
	Power factor (cos φ)	>96%		
	Input EMC/RFI Filter	0,75 to 22kW - C2 standard / 30kW or more - C3 standard ^[1]		
	Input rectifier technology	Diode		
	Harmonics filter	DC Reactance		
	Current THDi (%)	<37%		
	OUTPUT	Overload capacity	Constant torque: 150% during 60 sec. at 50°C Variable torque: 110% during 60 sec. at 40°C	
		Output frequency	0 to 400Hz ^[2]	
Resolution of frequency set		Operation with digital signals: 0.01Hz Operation with analogue signals: 0.06Hz (Maximum frequency: 60Hz)		
Modulation frequency		Maximum 15kHz ^[3]		
Control method		V/F Control, Slip compensation, Open Loop Vector Control (sensorless), Closed Loop Vector Control Lineal V/F, Quadratic, defined by the user		
Output cable length		USC 50m ^[4] SC 25m		
Optional dV/dt filter		500-800V/μs - USC 300m, SC 150m		
Dynamic brake		Built-in frames 1 to 4. Optional frames 5 and 6		
ENVIRONMENTAL CONDITIONS		Degree of protection	IP21, Display IP54	
		Operation temperature	Minimum -10°C, Maximum +50°C	
	Storage temperature	Minimum -20°C, Maximum +70°C		
	Relative humidity	<90%, non-condensing		
	Altitude	1000m		
	Power altitude derating (> 1000m)	1% per 100m; maximum 3000m		
	Vibration	5,9m/sec ² (=0,6G)		
	Ventilation	Air forced refrigeration		
	PROTECTIONS	Overvoltage	Low voltage	Overcurrent
		Overcurrent detection	Overtemperature of the inverter	Motor thermal protection
Phase loss protection		Overload protection	Communication error	
Reference Signal Loss		Hardware failure	Cooling fan fault	
Pre-PID failure		Absence of motor trip	External brake failure	
Current Limitation		Overload	Underload	
Encoder failure		Fan failure	Loss of keyboard commands	
Loss of speed commands				
INPUTS /OUTPUTS		Analogue inputs	1 input 0-10Vdc, ±10Vdc / 1 input 4-20mA / 0-20mA	
		Digital inputs	8 configurable inputs	
	PTC connection	Yes. With analogue or digital specific setup for PTC		
	Analogue outputs	1 0-10V output (Max. Output Voltage 10V, Max. Output Current 10mA)		
		1 0-20mA / 4-20mA output (Max. output current 20mA)		
	Relay output	1 Changeover programmable relay (250VAC, 5A; 30VDC, 5A)		
		1 Programmable normally open relay (250VAC, 5A; 30VDC, 5A) 1 Programmable open collector transistor output (24VDC, 50mA)		
	I/O Extension module (optional)	3 digital outputs NO (250Vac/30Vdc, 5A), 3 digital inputs (selection of PNP/NPN, 0~25V), 1 voltage analogue input, 1 current analogue input (0~20mA) Internal Impedance: 249Ω, 1 voltage analogue output (±10V, 10mA, 11 bits resolution), 1 current analogue output (0~20mA, 12 bits resolution)		
		6 digital configurable inputs, 4 realy outputs expandable to 14		
		2 inputs (24Vdc, Max. 10mA), 1 input (24Vdc), Feedback terminals		
Liner driver or open collector, pulse train reference				
5/12/15V Isolated power supply				
COMMUNICATION	Standard Hardware	RS485 port		
	Standard Protocol	Modbus-RTU		
	Optional Hardware	Profibus-DP board, Ethernet board, LonWorks board, DeviceNet/CANopen board		
Optional Protocols	Profibus, Modbus TCP, LonWorks, CANopen, DeviceNet			
	Alphanumeric display	4 Lines of 16 characters. Arrows to adjust parameters. Independent memory		
CONTROL	Removable Connection	RJ45		
	Status leds	LED ON: Power on the control board LED RUN: Power on, the motor is powered by the SD500 LED FAULT: Flashing indicates the equipment is in fault		
Display information	Status, DC Bus voltage, Motor voltage, Motor current, Motor frequency, Motor speed, Motor voltage, Torque, Temperature, Input/output, Signals status, PID reference, Number of pumps			
	REGULATIONS	CE, cTick, UL ^[5] , cUL ^[5]		

SD500

WIRING CONTROLS



Control cables must be shielded and grounded.

CONFIGURATION TABLE

SD5	016		2		2	
SD500 series	Output current ^[1]		Rated Voltage		Protection degree	
SD5	002	2A	2	200-230V	2	IP21
	005	5A	4	380-480V		
				
	150	150A				

NOTES

- [1] For other application categories, an optional external filter will be used. For additional information ask Power Electronics.
- [2] The maximum frequency is 300Hz when selecting the open loop control in the programming parameters.
- [3] The maximum allowable depends directly on the power of the drive. Consult the SD500 Software and Programming manual for additional information.
- [4] Motors with reinforced insulation withstand greater cable lengths. Consult Power Electronics.
- [5] On process.

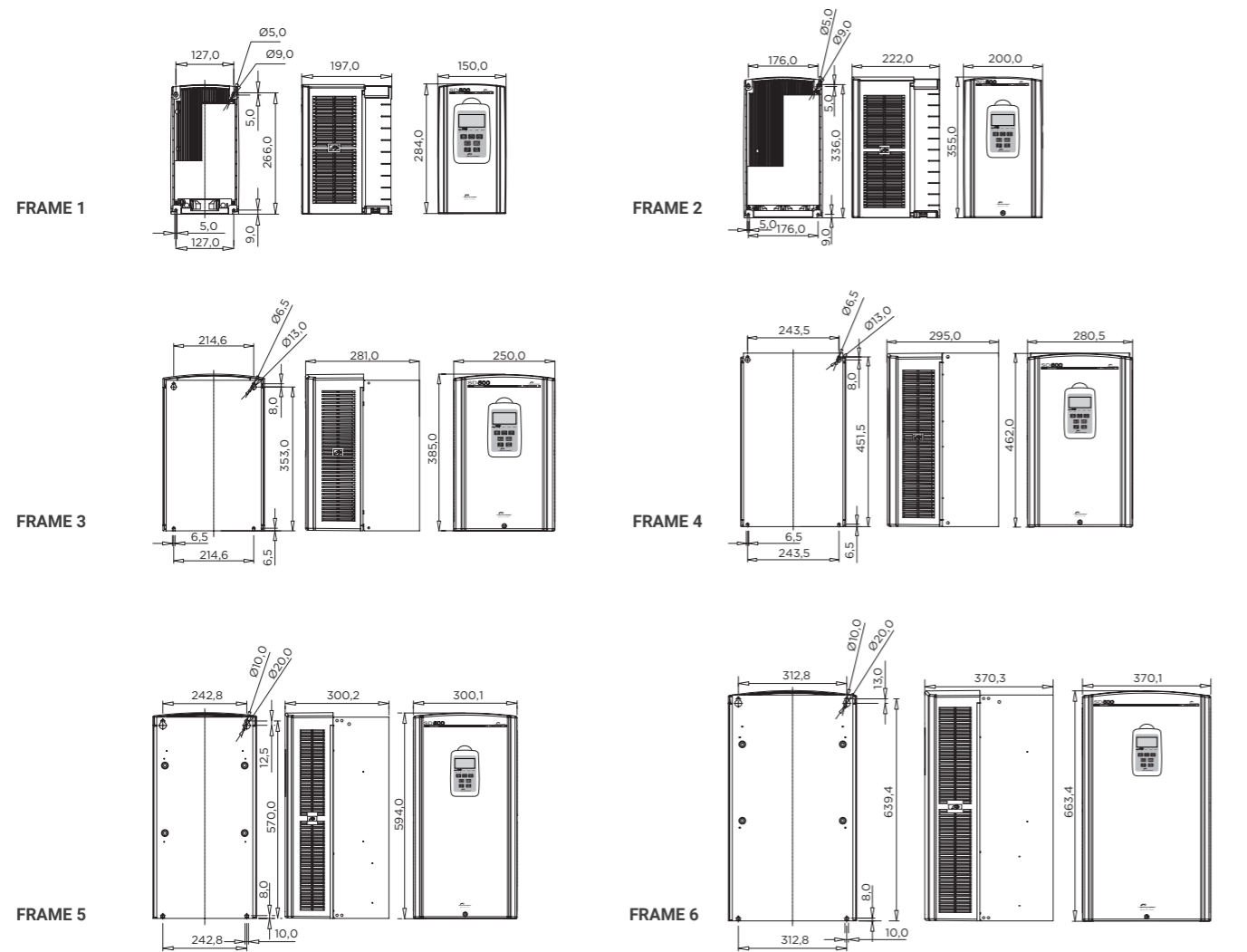
NOTES

- [1] Verify the rated current of the motor nameplate to guarantee the compatibility with the selected drive.

SD500

TECHNICAL CHARACTERISTICS

DIMENSIONS (mm) AND WEIGHTS (kg)



FRAME	1	2	3	4	5	6
WEIGHT	5.5	10	20	30	41	63

SD500

STANDARD RATINGS

200Vac - 230Vac (-15% to +10%)

FRAME	CODE	Operation temperature 50°C HEAVY DUTY			Operation temperature 40°C NORMAL DUTY				
		I(A) Rated	Motor Power 230Vac		150% Overload (60s)	I(A) Rated	Motor Power 230Vac		110% Overload (60s)
			kW	HP			kW	HP	
1	SD5005 2 2	5	0.75	1	7.5	6.8	1.5	2	7.5
	SD5008 2 2	8	1.5	2	12	11	2.2	3	12
	SD5012 2 2	12	2.2	3	18	16	3.7	5	18
	SD5016 2 2	16	3.7	5	24	22	5.5	7.5	24
2	SD5024 2 2	24	5.5	7.5	36	33	7.5	10	36
	SD5030 2 2	32	7.5	10	48	44	11	15	48
3	SD5045 2 2	46	11	15	69	60	15	20	69
	SD5060 2 2	60	15	20	90	74	18.5	25	90
4	SD5075 2 2	74	18.5	25	111	90	22	30	111
	SD5090 2 2	88	22	30	132	120	30	40	132

380Vac - 480Vac (-15% to +10%)

FRAME	CODE	Operation temperature 50°C HEAVY DUTY			Operation temperature 40°C NORMAL DUTY				
		I(A) Rated	Motor Power 400Vac		150% Overload (60s)	I(A) Rated	Motor Power 400Vac		110% Overload (60s)
			kW	HP			kW	HP	
1	SD5002 4 2	2.8	0.75	1	4.4	4	1.5	2	4.4
	SD5004 4 2	4	1.5	2	6	5.4	2.2	3	6
	SD5006 4 2	6	2.2	3	9	8	3.7	5	9
	SD5008 4 2	8.5	3.7	5	13.2	12	5.5	7.5	13.2
2	SD5012 4 2	12	5.5	7.5	18	16	7.5	10	18
	SD5018 4 2	16.5	7.5	10	25	23	11	15	25
3	SD5024 4 2	24	11	15	36	32	15	20	36
	SD5030 4 2	30	15	20	45	40	18.5	25	45
4	SD5039 4 2	39	18.5	25	58	48	22	30	58
	SD5045 4 2	45	22	30	67	61	30	40	67
5	SD5060 4 2	61	30	40	91	78	37	50	91
	SD5075 4 2	75	37	50	112	100	45	60	112
6	SD5090 4 2	91	45	60	136	115	55	75	136
	SD5110 4 2	110	55	75	165	150	75	100	165
	SD5150 4 2	152	75	100	228	180	90	125	228

NOTES

Rated power for standard AC 4 pole motors (1500rpm).
For other configurations contact Power Electronics.
Check the rated current of the motor plate to ensure compatibility
with the chosen frequency converter.

SD500

ACCESSORIES

dV/dt Filters

INPUT	Voltage power	200Vac-480Vac
	dV/dt value	500V/μs - 800V/μs
	Overload capacity	150% 60 sec
	Ventilation power supply	Frames 1 and 2, no ventilation. Frames 3, 4, 5 and 6, 230Vac Max. 18W
ENVIRONMENTAL CONDITIONS	Temperature	-10°C to +50°C
	Degree of protection	IP20
	Class of protection	Class I
	Relative humidity	<90%, non-condensing

230Vac (-15% to +10%)			
FRAME	VSD	dV/dt FILTER	TOTAL HEIGHT (mm)
1	SD500522	SD50F0522	W
	SD500822	SD50F0822	
	SD501222	SD50F1222	
	SD501622	SD50F1622	
2	SD502422	SD50F2422	495
	SD503022	SD50F3022	
3	SD504522	SD50F4522	511
	SD506022	SD50F6022	
4	SD507522	SD50F7522	625
	SD509022	SD50F9022	

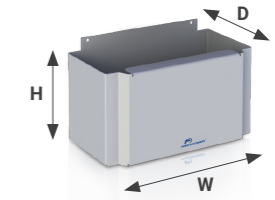
380Vac - 480Vac (-15% to +10%)			
FRAME	VSD	dV/dt FILTER	TOTAL HEIGHT (mm)
1	SD500242	SD50F0024	412
	SD500442	SD50F0044	
	SD500642	SD50F0064	
	SD500842	SD50F0084	
2	SD501242	SD50F0124	495
	SD501842	SD50F0184	
3	SD502442	SD50F0244	511
	SD503042	SD50F0304	
4	SD503942	SD50F0394	625
	SD504542	SD50F0454	
5	SD506042	SD50F0604	819
	SD507542	SD50F0754	
	SD509042	SD50F0904	
6	SD511042	SD50F1104	896.4
	SD515042	SD50F1504	



SD500

Connections Box

FRAME	REFERENCE	FILTER			
		DIMENSIONS			
		W	D	H	Total height (mm)
1	SD5EB1	147	85	132	416
2	SD5EB2	195	100	145	500
3	SD5EB3	250	165	135	520
4	SD5EB4	280	205	135	597
5	SD5EB5	300	205	130	724
6	SD5EB6	370	205	138	801



Dynamic Brake Unit

380-480Vac - FRAMES 5 AND 6		
VSD	DBU	DIMENSIONS (WxDxH mm)
SD506042,SD507542	DBSD4075	123x130x258
SD509042, SD511042	DBSD4145	
SD515042		



Display Extension Kit

CODE	ACCESSORIES DESCRIPTION
SD5RC2	Display extender kit (2 meters)
SD5RC3	Display extender kit (3 meters)

Communications and Control

CODE	ACCESSORIES DESCRIPTION
SD5IO	Extension module Input/Output
SD5EC	Encoder module
SD5PLC	PLC module
SD5ET	Ethernet communication module
SD5DN	DeviceNet communication module

SD5DP	Profibus – DP communication module
SD5CO	CANopen communication module
SD5LW	Lonworks communication module
SD5STO1	STO module. Safe Torque Off frame 1
SD5STO2	STO module. Safe Torque Off frame 2 and 3
SD5STO3	STO module. Safe Torque Off frame 4, 5 and 6



Sto - Safe Torque Off

STO - Safe Torque Off board allows to stop supplying alternating power to the stator stopping the motor by its own inertia.

- 2 inputs (24Vdc, max. 10mA)
- 1 input (24Vdc)
- Feedback terminals
- VIEC/EN G1800-5-2
- Safety level SIL2



Extension module Input/Output

Extension module allows increase standard analogics I/O, multiplying their benefits of multipump applications:

- 3 digital outputs NO (250Vac/30Vdc, 5A)
- 3 digital inputs (selection of PNP/NPN, 0~25V)
- 1 voltage analogue input
- 1 current analogue input (0~20mA) Internal Impedance: 249Ω
- 1 voltage analogue output (±10V, 10mA, 11 bits resolution)
- 1 current analogue output (0~20mA, 12 bits resolution)
- Scan time:
- Digital outputs: 1.5ms minimum
- Analogue output: Minimum 3ms
- Protection: IP20
- Cooling method: Self cooled



Encoder module

Encoder module allows closed loop control for applications that request:

- Closed loop control
- Pulse train reference
- 5/12/15V insulated power supply
- Line driver open collector
- 200kHz Maximum input frequency
- Signal loss detection



PLC module

PLC module allows programming and expansion of digital and analogical inputs and outputs.

- Operation method:
 - Stored program cyclic operation
 - Role of Task Interruption
- Method of I/O control:
 - Number of instructions: Basic: 29; Rev: 223
 - Processor time: Basic instruction: 0.4µs/operation
 - Program memory capacity: 2K
 - 6 digital inputs
 - 4 relay outputs
 - Operating modes: RUN, STOP, PAUSE
- Self-diagnosis Functions: Watchdog timer, memory error detection, I/O error detection
- Recovery of memory after shutdown
- PID Control
- RS485 Communication: MODBUS protocol support
- External interrupts: 6
- Input filter: 0 ~ 1000ms
- RTC (Real Time Clock): year / month / day / hour / minute / second using KGLWIN
- Operating system KGL WIN

Communication modules

Ethernet, Devicenet, Profibus, CANopen and Lonworks communication modules allow the user to easily integrate the SD500 in multiple networks.

Ethernet IP / Modbus-TCP communication module

- Transmission Speed: 10Mbps, 100Mbps
- Transmission Method: Baseband
- Maximum distance between nodes: 100m
- Maximum number of nodes: Hub Connection
- Auto negotiation
- Maximum frame size: 1500 bytes
- Access Method to communications area: CSMA / CD
- Checking Method for error frames: CRC32
- Recommended Channel Connection: 3 channels



Devicenet communication module

- Power supply:
 - Powered from the drive
 - External power supply: 11~25VDC, 60mA
- Network topology: Free, Bus
- Transmission speed: 125kbps, 250kbps, 500kbps
- Maximum number of nodes: 64 (including the master)
- Supported media type: Explicit Peer to Peer Messaging
- Faulted Node Recovery (Off-Line), Master / Scanner, Polling
- Terminating resistor: 120Ω 1/4W Lead Type



Profibus communication module

- Auto baud rate
- Sync mode
- Freeze mode
- Modular station
- Device Type: Profibus DP Slave
- Maximum input length: 8 words
- Maximum output length: 8 words
- Maximum data length: 16 words
- Transmission speeds: 9.6K, 19.2K, 93.75K, 187.5K, 500K, 1.5M, 3M, 6M, 12M
- Maximum number of modules: 2



CANopen communication module

- Power supply: Supplied from the inverter
- Network Topology: Bus
- Baud rate: 20kbps, 50kbps, 100kbps, 125kbps, 250kbps, 500kbps, 800kbps, 1Mbps
- Maximum number of nodes: 64 (including the master)
- Supported media type: PDO, SDO, Sync, NMT
- Terminating resistor: 120Ω 1/2W Lead Type
- PDO available: PDO1 (CiA 402 Drive control and Motion device profile)
- Maximum Transmission Distance: 2500m (20kbps) - 500m (125kbps)



Lonworks communication module

- 78kbps communication speed
- Free/bus topology
- Resistance built-in per topology
- Max. 2700m (8858ft) connection distance (bus topology)

SD300

For harsh environments.

Protected against fire dust and high pressure water jets.



The SD300 is a **high-performance variable-speed drive** designed for general use. It excels in demanding high-load applications that require high starting torque and accurate control.



IP20 & IP66



230V - 480V



From 0.4kW to 90kW



150% overload capacity at 50°C

1 Energy saving

Reduces motor power consumption under light load conditions.

- Ideal for variable torque applications.
- Power consumption reduction depending on motor load.
- Reduction of motor losses.
- Automatic and manual adjustment.

3 Internal PLC

PLC functions to simplify your external control requirements.

- Simple and powerful functionality.
- Logic operations.
- Arithmetic operations.
- Comparators.
- Scan rate selection.
- Sequential execution.

Pump control

Smooth and easy control for pumps in simple applications.

- Process PID controller.
- Pre-PID functionality.
- Sleep mode.
- Second PID adjustment.
- Engineering units.

Sensorless Vector Control

Exceptional performance for asynchronous and synchronous motors.

- Control of asynchronous and synchronous (PMSM) motors.
- Smooth and dynamic control of the motor.
- 200% torque at 0,5Hz.
- Static auto-tuning.
- Fast response to transient load torque changes.
- Improved motor regeneration control.
- Dynamic motor flux control.

5 Multiple fieldbus options

The SD300 integrates the most powerful and widely used fieldbus communication protocols used in automation and industry today.

The multiple fieldbus options add another dimension to the versatility of the drive and allow the full potential of the SD300 to be realised as a key component in the automation and control network (Profibus, Profinet, Ethercat, Ethernet I/P, Modbus TCP).

6 For every need

Suitable with all standard machine and process control needs as pumps, fans, conveyors, compressors, food & beverage, materials handling, packaging, wood processing, plastics, automatic doors or any general purpose machinery.

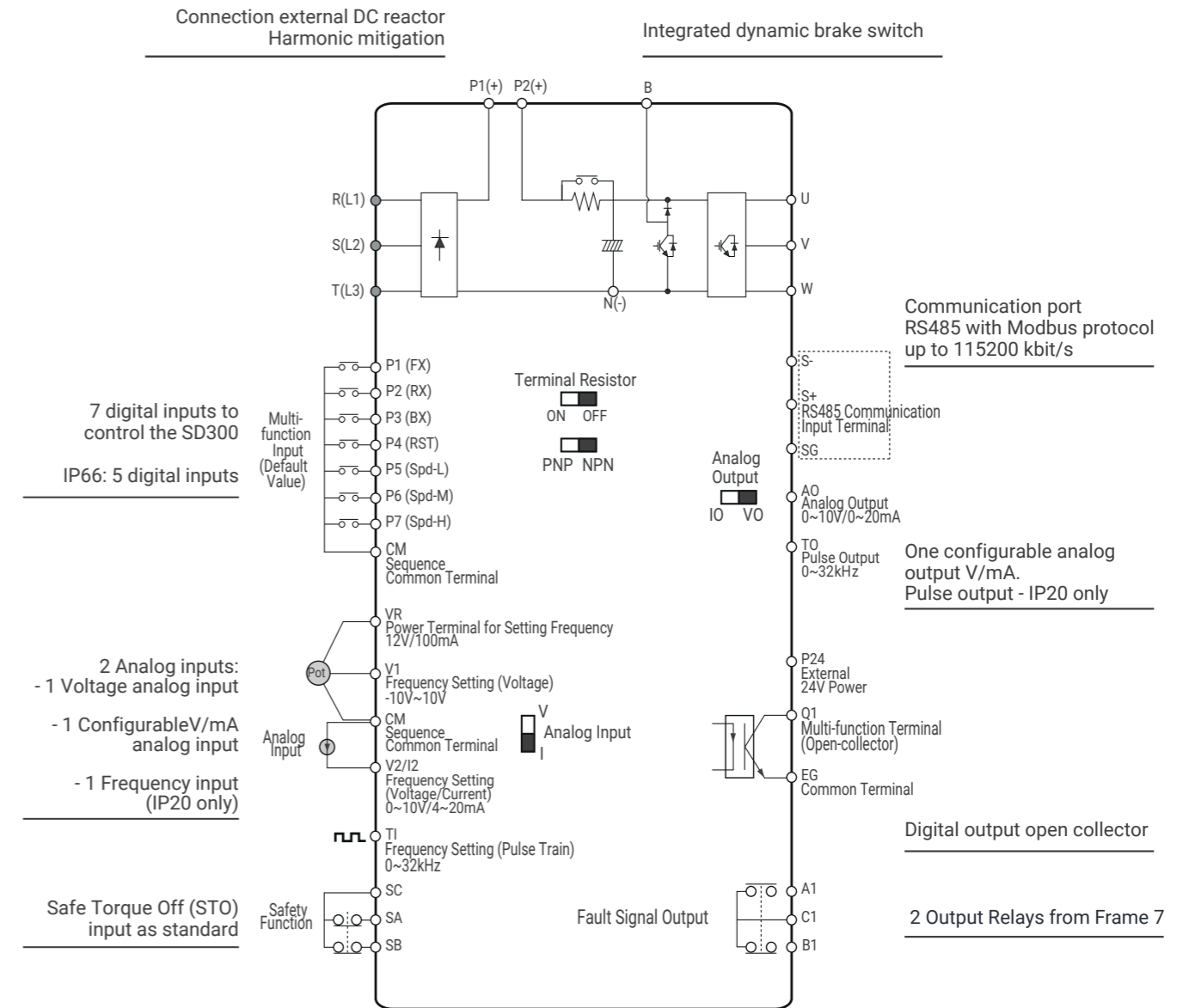


SD300

INPUT	Power ranges	0.4kW - 2.2kW 230V - Single Phase 0.4kW - 22kW 230V - 3-Phase 0.4kW - 90kW 400V - 3-Phase	
	Voltage range	230V: 200-240V Single Phase/3-Phase (-15%/+10%) 400V: 380-480V 3-Phase (-15%/+10%)	
	EMC Filter	C2: 240Vac C3: 240Vac-400Vac	
OUTPUT	Control method	V/f, Slip compensation, Sensorless vector, PMSM VC [1]	
	Frequency setting resolution	Digital command: 0.01Hz / Analog command: 0.06Hz (maximum frequency: 60Hz)	
	Frequency accuracy	1% of the maximum output frequency	
	V/F pattern	Linear, Quadratic, User V/F	
OPERATION	Overload capacity	150% for 60 sec. (Heavy duty) 120% for 60 sec. (Normal duty) [2] 200% for 3 sec. (Heavy duty)	
	Output frequency	0-400Hz (Sensorless: 0-120Hz)	
	Torque boost	Manual/Automatic torque boost	
	Operation mode	Keypad / Terminal / Communication option selectable	
	Frequency setting	Analog : -10~10V, 0~10V, 4~20mA / Digital : Keypad, Pulse train input	
	Operation function	PID control, 3-wire operation, Frequency limit, Second function, Anti-forward and reverse direction rotation, Speed search, Power braking, Leakage reduction, Up-down operation, DC braking, Frequency jump, Slip compensation, Automatic restart, Automatic tuning, Energy buffering, Flux braking, Fire Mode	
	Multi-function Terminal	NPN (Sink) / PNP (Source) selectable	
	Input	Function: Forward run, Reverse run, Reset, External trip, Emergency stop, Jog operation, Multi-step frequency-high, middle, low, Multi-step acceleration/ deceleration-high, middle, low, DC braking at stop, 2 nd motor select, Frequency up/down, 3-wire operation, Change into normal operation during PID operation, Change into main body operation during option operation, Analog command frequency fixing, Acceleration/deceleration stop etc. Selectable	
	Analog input	V1: -10~10V, selectable V2: 0~10V/I2 4~20mA	
	Pulse train	0~32kHz, Low level: 0~2.5V, High level: 3.5~12V	
Output	Open collector terminal	Fault output and drive operation status output less than DC 24V 50mA	
	Multi-function relay	(N.O., N.C.) less than AC 250V 1A, less than DC 30V 1A	
	Analog output	Selectable 0~12Vdc/0~24mA Frequency, Output current, Output voltage, DC bus voltage etc. selectable	
	Pulse train	Maximum 32kHz, 10~12V	
PROTECTIVE FUNCTION	Trip	Over current trip, External signal trip, ARM short circuit current trip, Over heat trip, Ground trip, Motor over heat trip, I/O board link trip, No motor trip, Parameter writing trip, Emergency stop trip, Command loss trip, External memory error, CPU watchdog trip, Motor normal load trip, Over voltage trip, Temperature sensor trip, Drive over heat, Option trip, Output imaging trip, Drive overload trip, Fan trip, Pre-PID operation failure, External break trip, Low voltage trip during operation, Low voltage trip, Safety A(B) trip, Analog input error, Motor overload trip	
	Alarm	Command loss trip alarm, overload alarm, normal load alarm, drive overload alarm, fan operation alarm, resistance braking rate alarm, number of corrections on rotor tuning error	
	Momentary power loss	HD below 15ms (ND below 8ms): Continuous operation (To be within rated input voltage, rated output) HD above 15ms (ND above 8ms): Automatic restart operation enable	
ENVIRONMENT	Cooling type	Forced fan cooling structure	
	Protection degree	IP20/UL Open (Default), UL Enclosed Type 1 (Option), IP66/NEMA 4X (Option)	
	Ambient temperature	IP20: HD: -10~50°C(14~122°F) ND: -10~40°C(14~104°F) [However, recommended to use load below 80% when using at 50°C under light load] IP66: HD: -10~40°C(14~104°F)	
	Storage temperature	-20~65°C (-4~149°F)	
	Humidity	Relative humidity below 90% RH (non condensing)	
	Altitude, vibration	Below 1000m, below 9.8m/sec ² (1G)	
	Location	No corrosive gas, flammable gas, oil mist and dust etc. indoors (Pollution Degree 3 Env.)	
	Pressure	70~106 kPa	
	REGULATIONS	Global certification	CE, UL, cUL, RoHS
	PCB	3C2 Conformal coating	

SD300

INPUT / OUTPUT TERMINATIONS

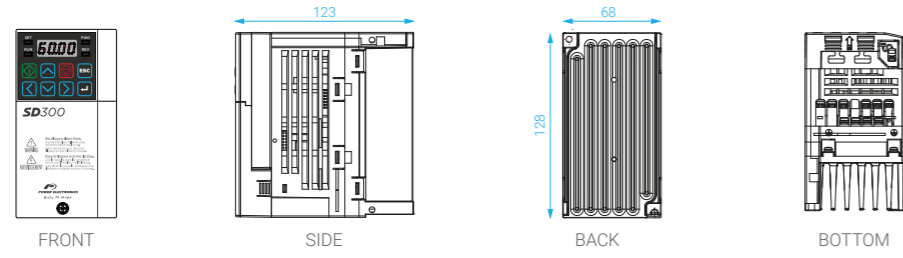


[1] Please consult Power Electronics before the installation with these kind of motors.
[2] Only available with IP20 protection degree.

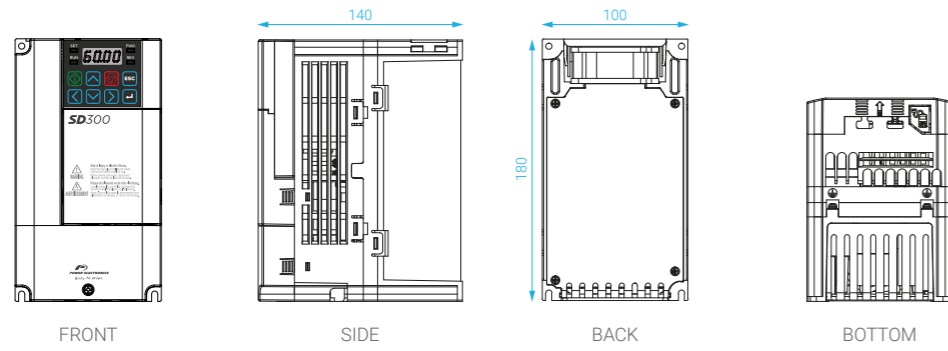
SD300

FRAMES - IP20

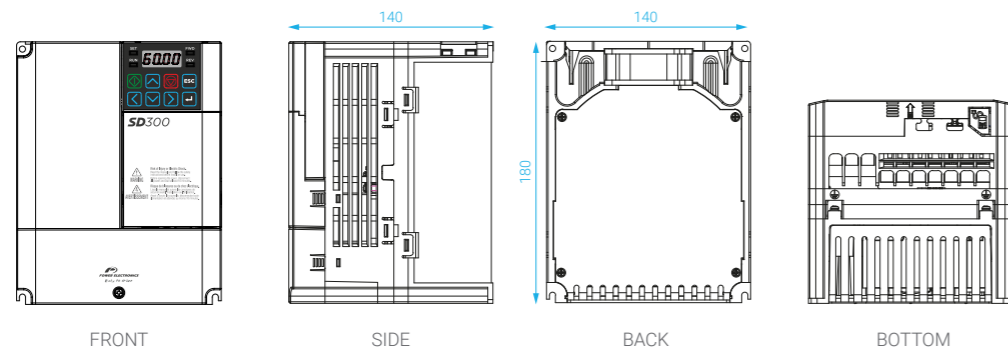
Frame 1F



Frame 2F



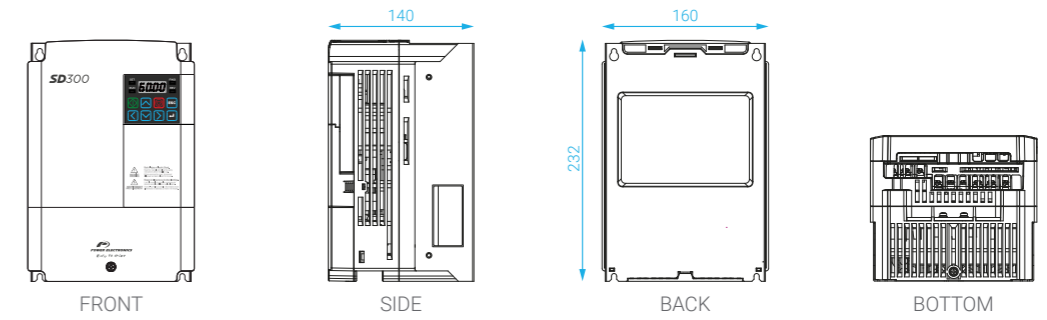
Frame 3F



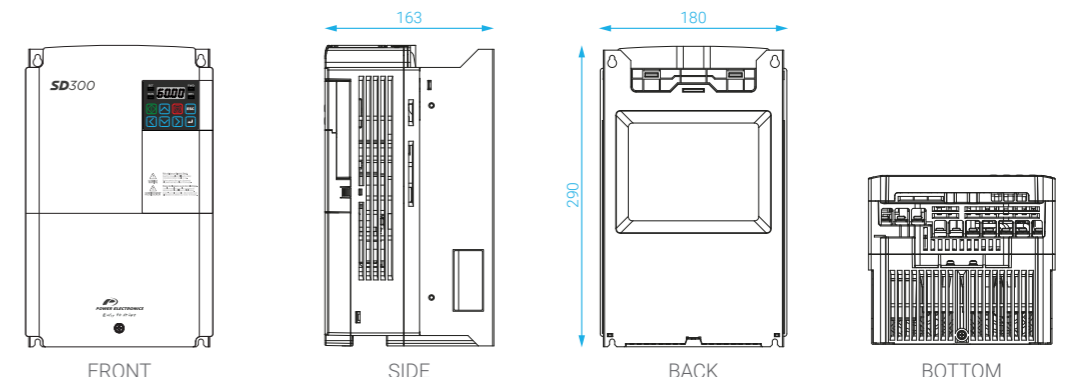
SD300

FRAMES - IP20

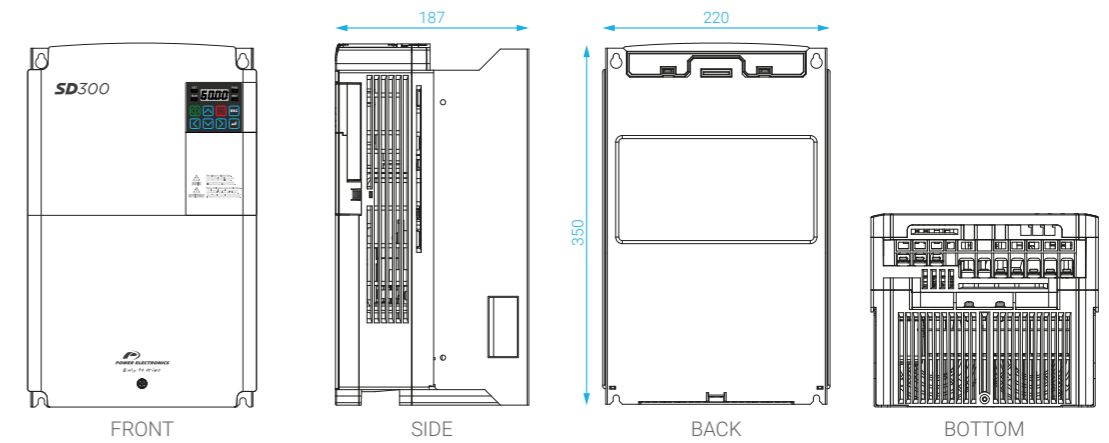
Frame 4



Frame 5



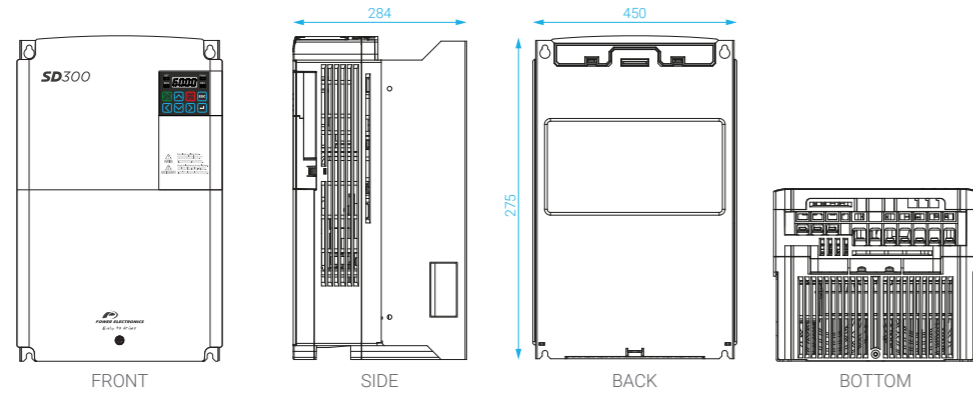
Frame 6



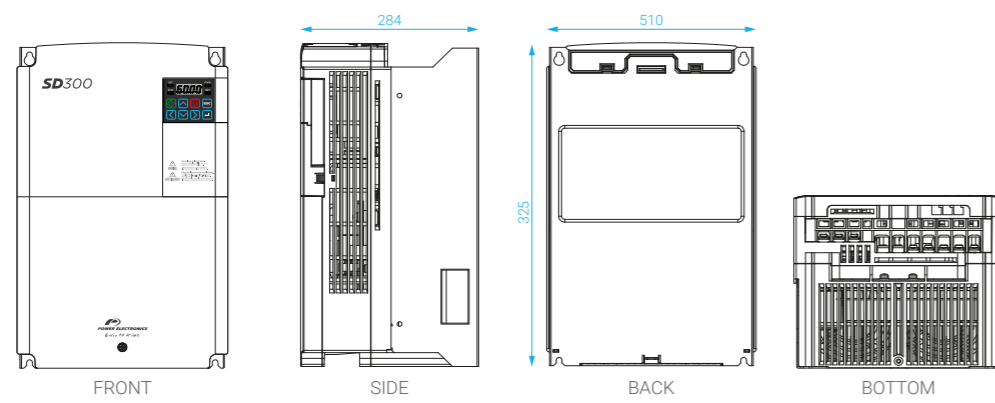
SD300

FRAMES - IP20

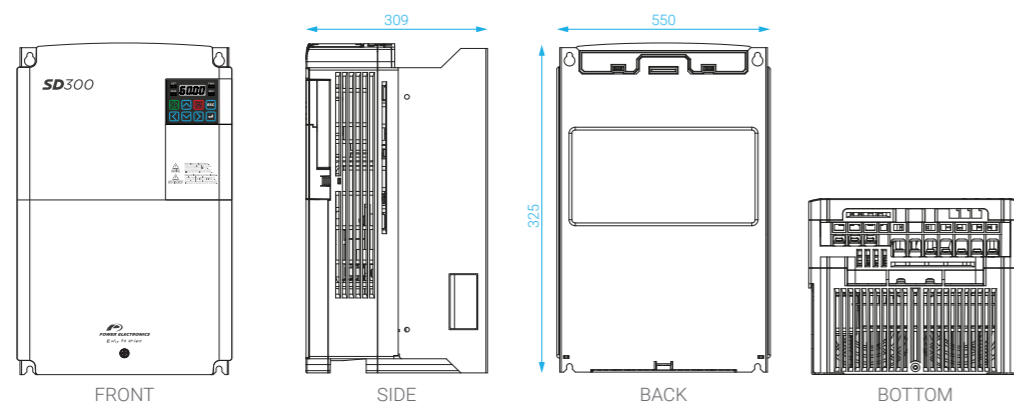
Frame 7



Frame 8



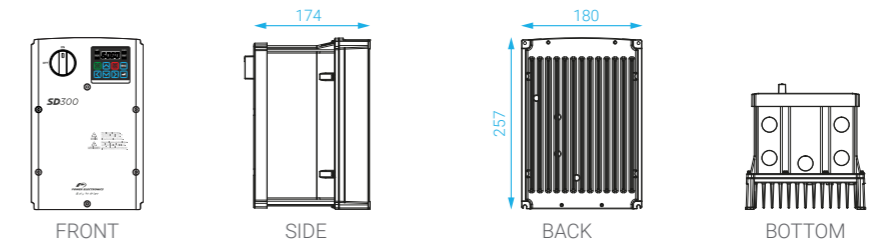
Frame 9



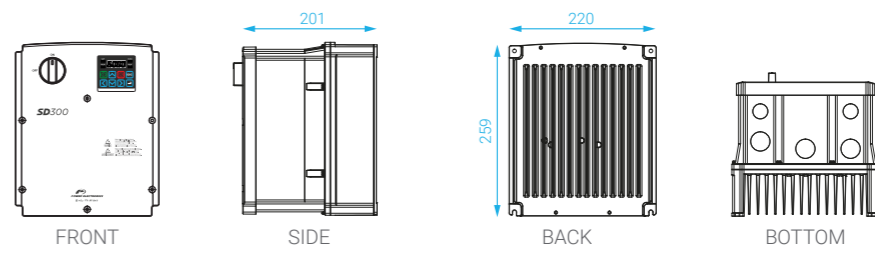
SD300

FRAMES - IP66 / NEMA 4X

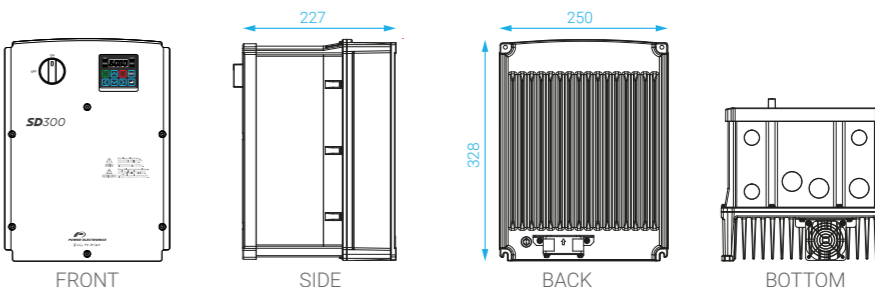
Frame 11



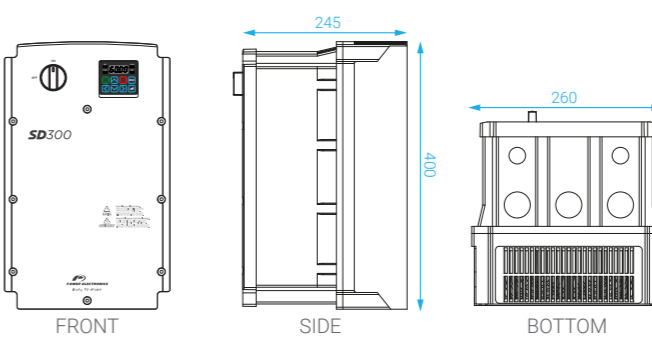
Frame 21



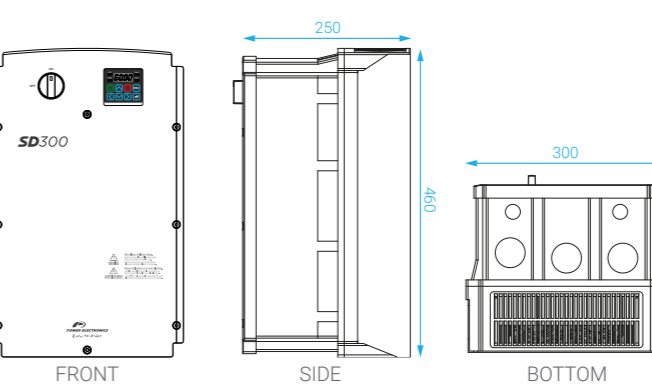
Frame 31



Frame 41



Frame 51



CONFIGURATION TABLE & STANDARD RATINGS

SD3	058		04		20		--		--	
SD300 SERIES	Current normal duty*		Voltage		Degree of protection		EMC Filter		Isolator	
SD3	002	2A	1	230Vac Single Phase	2	IP20	F	Extended	-	Standard
	...		2	230Vac Three Phase	6	IP66	-	Standard	N	Not Included
	069	69A	4	400Vac Three Phase						

*Heavy duty for IP66 models.

230VAC SINGLE PHASE

230VAC SINGLE PHASE - IP20															
Power ND (kW)	Current ND (A)	Power HD (kW)	Current HD (A)	EMC STANDARD					EMC EXTENDED						
				MODEL	WEI-GHT (kg)	DIMENSIONS (mm)			FRAME	MODEL	WEIGHT (kg)	DIMENSIONS (mm)			FRAME
						W	H	D				W	H	D	
0,75	3.1	0,4	2.5	SD300312	0.88	68	128	128	2N	SD300312F ^[1]	1.1	68	180	130	1F
1,5	6.0	0,75	5.0	SD300612	1.3	100	128	130	3N	SD300612F ^[1]	1.8	100	180	140	2F
2,2	9.6	1,5	8.0	SD300912	1.5	100	128	145	4N	SD300912F ^[1]					
3,7	12.0	2,2	11.0	SD301212	2.2	140	128	145	5N	SD301212F ^[1]	2.2	140	180	140	3F

[1] Class 2

230VAC THREE PHASE

230VAC THREE PHASE - IP20										
Power ND (kW)	Current ND (A)	Power HD (kW)	Current HD (A)	MODEL	WEIGHT (kg)	DIMENSIONS (mm)			FRAME	
						W	H	D		
0,75	3.1	0,4	2.5	SD300322	0.86	68	128	123	1F	
1,5	6.0	0,75	5.0	SD300622	0.86	68	128	128	2F	
2,2	9.6	1,5	8.0	SD300922	1.5	100	128	130	3F	
4	12	2,2	11	SD301222	1.5	100	128	145	4	
5,5	18	4	17	SD301822	2.3	140	128	145	5	
7,5	30	5,5	24	SD303022	3.3	160	232	140	4	
11	40	7,5	32	SD304022						
15	56	11	46	SD305622	4.6	180	290	163	5	
22	69	15	60	SD306922	5.5	220	350	187	6	

400VAC THREE PHASE

400VAC THREE PHASE - IP20 - EMC EXTENDED									
Power ND (kW)	Current ND (A)	Power HD (kW)	Current HD (A)	MODEL	WEIGHT (kg)	DIMENSIONS (mm)			FRAME
						W	H	D	
0,75	2.0	0,4	1.3	SD300242F ^[2]	1.1	68	180	130	1F
1,5	3.1	0,75	2.4	SD300342F ^[2]	1.2				
2,2	5.1	1,5	4.0	SD300542F ^[2]	1.8	100	180	140	2F
4	10	2,2	8	SD300742F ^[2]					
5,5	10	4	9	SD301042F ^[2]	2.9	140	180	140	3F
7,5	16	5,5	12	SD301642F ^[2]	3.4	160	232	140	4
11	23	7,5	16	SD302342F ^[2]					
15	30	11	24	SD303042F ^[2]	4.8	180	290	163	5
18,5	38	15	30	SD303842F ^[2]					
22	44	18,5	39	SD304442F ^[2]	7.5	220	350	187	6
30	58	22	45	SD305842F ^[2]					
37	75	30	61	SD307542F ^[2]	26	450	275	284	7
45	91	37	75	SD309042F ^[2]	35	510	325	309	8
55	107	45	91	SD310542F ^[2]					
75	142	55	110	SD314042F ^[2]	43	550	325	309	9
90	169	75	152	SD317042F ^[2]					

[2] Class 3

400VAC THREE PHASE - IP66 (only Heavy Duty)							
Power HD (kW)	Current HD (A)	EMC EXTENDED		DIMENSIONS (mm)			FRAME
		MODEL	WEIGHT (kg)	W	H	D	
0,4	1.3	SD300146F ^[2]	3.7	180	257	174	1I
0,75	2.4	SD300246F ^[2]	3.7				
1,5	4.0	SD300446F ^[2]	5.3				
2,2	5.5	SD300646F ^[2]	5.5	220	259	201	2I
4	9.0	SD300946F ^[2]	5.6				
5,5	12	SD301246F ^[2]	8.8	250	328	227	3I
7,5	16	SD301646F ^[2]	8.9				
11	24	SD302446F ^[2]	9.6	260	400	245	4I
15	30	SD303046F ^[2]	9.8				
18,5	39	SD303946F ^[2]	12.4	300	460	250	5I
22	45	SD304546F ^[2]	12.4				

[2] Class 3

ACCESSORIES



Multiple fieldbus options easy to install and use

- Profinet
- Modbus TCP
- CANopen
- Profibus-DP
- EtherCAT
- Ethernet IP

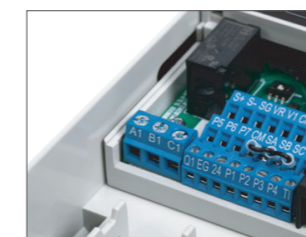


Conduit kit

UI Open type and Enclosed type 1 certification:
 · UI Open Type is offered as default.
 · UI Enclosed Type1 needs conduit kit (option) installation.

Flange Type

The heat sink can be mounted outside the panel in case of space limitations.



I/O Expansion card option

- 2 Relay outputs
- 3 Digital inputs
- 2 Analog Inputs
- 1 Analog Output

ACCESSORIES REFERENCES

REFERENCE	DESCRIPTION		
SD3CO	CANopen communication module	SD3EBF4	Conduit module frame 4 for NEMA1 compliant
SD3PB	Profibus communication module	SD3EBF5	Conduit module frame 5 for NEMA1 compliant
SD3ETH	Ethernet I/P - Modbus TCP communication module	SD3EBF6	Conduit module frame 6 for NEMA1 compliant
SD3ETC	EtherCAT communications module	SD3FLGF1	Flange module frame 1N and 2N
SD3PN	Profinet communications module	SD3FLGF2	Flange module frame 3N and 4N
SD3IO	Expansion module I/O	SD3FLGF3	Flange module frame 5N
SD3EBF1	Conduit module frame 1N and 2N for NEMA1 compliant	SD3FLGIP6F1	Flange module frame 1F
SD3EBF2	Conduit module frame 3N and 4N for NEMA1 compliant	SD3FLGIP6F2	Flange module frame 2F
SD3EBF3	Conduit module frame 5N for NEMA1 compliant	SD3FLGIP6F3	Flange module frame 3F
SD3EBIP6F1	Conduit module frame 1F for NEMA1 compliant	SD3FLGF4	Flange module frame 4
SD3EBIP6F2	Conduit module frame 2F for NEMA1 compliant	SD3FLGF5	Flange module frame 5
SD3EBIP6F3	Conduit module frame 3F for NEMA1 compliant	SD3FLGF6	Flange module frame 6
		SD3CF2	Remote display-keypad option

SD150

The smallest of the family.

Suitable for low power applications.



Perfect for reduced spaces

Due to its simple operation and compact size is perfect for reduced spaces allowing the integration of multiple units in the same cubicle.



200V - 230V



From 0.4kW to 2.2kW



Drive three-phase motors with single-phase supply

1 Compact and competitive

Compact and competitive equipment for multiple applications.

2 Easy installation

Two holes allow the user to screw the unit to a panel mounted in your cabinet. The rear cooling fans can be easily removed from the bottom, a book type design allows the user to install drives side by side saving space, and the front connections reduce wiring complexity.

3 Multiple I/O

Featured with 1 analogue input, 5 digital inputs, 1 analogue output, 1 digital output and 1 output relay that can be easily programmed to be connected to pressure transducers, level sensors, flow meters, PLCs or external controllers.

The digital signals can be easily shifted from NPN to PNP mode with a selector.

Modbus RTU integrated.

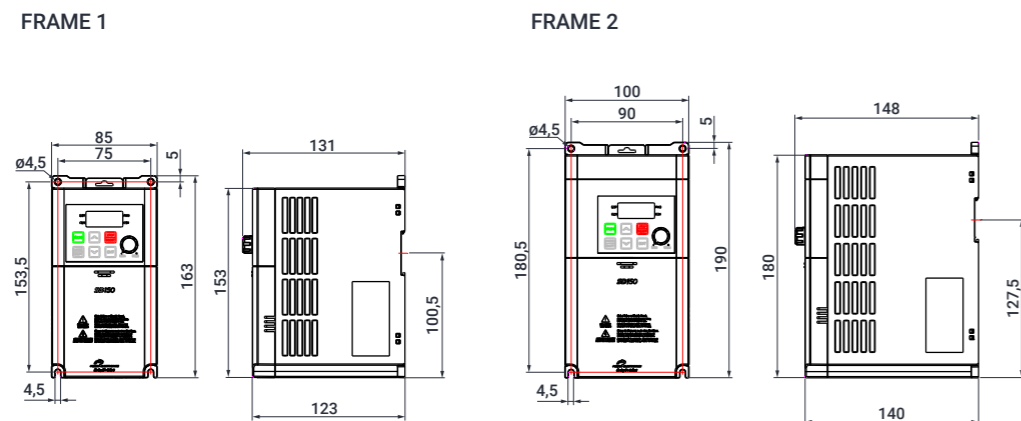
4 Single Phase Applications

Its features cover a wide range of applications in motion drives and HVAC. Treadmills, automatic gates, irrigation pumps, clean water pumps, ornamental fountains and others are a small sample of what you can do with this small and competitive drive.

SD150

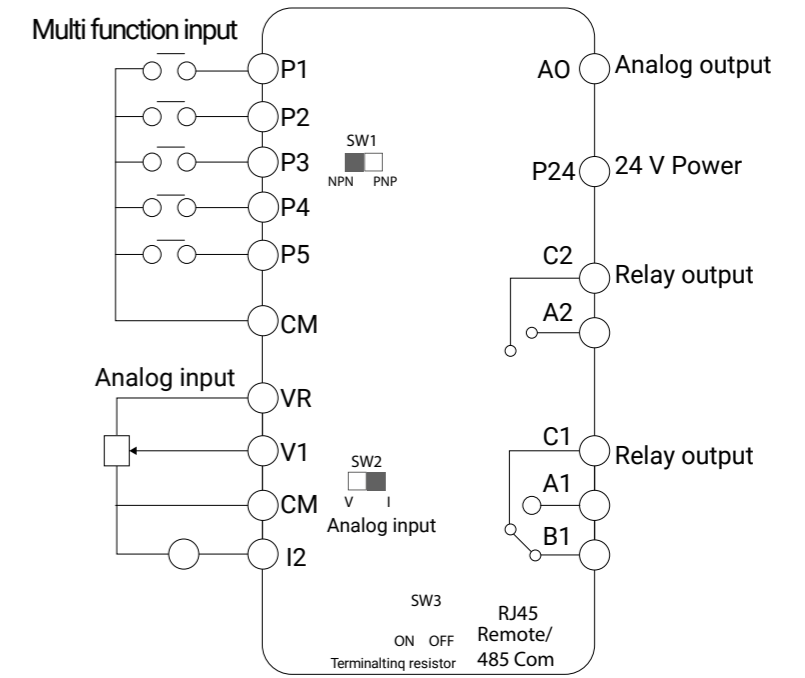
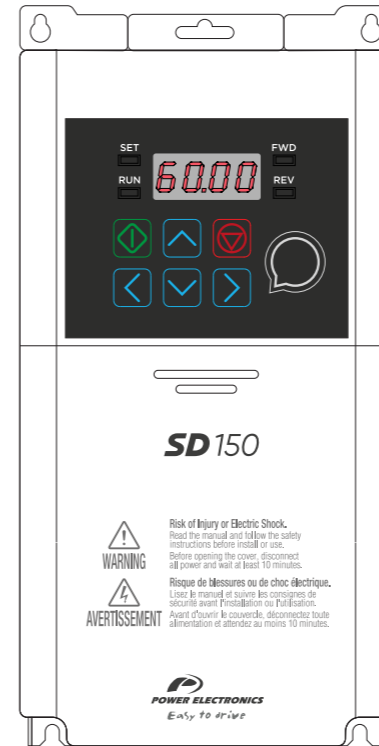
INPUT	Power range	0,4kW - 2,2kW	
	Voltage power	200 to 230Vac (±10%) Monophase	
	Input frequency	50~60Hz (±5%)	
	Input power factor	> 0.98% (over fundamental frequency)	
	Input EMC filter	Class 2 (Integrated)	
	OUTPUT	Motor output voltage	200Vac - 230Vac, Three phase
Overload capacity		150% during 60 sec. 200% during 30 sec.	
Frequency ratings		0 to ±400Hz	
Efficiency (full load)		>98%	
Modulation method		Vector space modulation	
Modulation frequency		Maximum 15kHz	
Output cable length		USC 50m, SC 25m ^[1]	
Control method		V/Hz control	
Operation method		PID Control. Potentiometer and 3 wires control	
ENVIRONMENTAL CONDITIONS		Degree of protection	IP20
		Operation temperature	-10°C to +50°C
	Storage temperature	-20°C to +65°C	
	Relative humidity	<90%, non-condensing	
	Altitude	1000m	
	Power altitude derating (> 1000m)	(>1000m)-1% per 100m; maximum 3000m	
PROTECTIONS	Vibration	Max. 5.9m/sec ² (= 0.6G)	
	Drive trip	Over-voltage, Under-voltage, Over-current, Ground fault current detection, Over-temperature of inverter and motor, Output phase open, Overload, Communication error, Loss of frequency command, Hardware fault	
ALARMS	Alarm condition	Stall prevention, Overload	
	Inputs/Outputs	Analogue inputs: 1 input 0-10Vdc / 0-20mA Digital inputs: 5 configurable inputs Analogue outputs: 1 output 0-10Vdc Digital outputs: 2 multifunction relay 2A 30Vdc, 0.5A 125Vac	
COMMUNICATIONS	Protocol (Integrated)	Modbus-RTU, RS485	
REGULATIONS		CE, cTick, UL ^[2] , cUL ^[2]	

DIMENSIONS (mm)



SD150

INPUT AND OUTPUT WIRING



STANDARD RATINGS AND WEIGHTS

200Vac - 230Vac (±10%)					
Frame	Code	Power (kW)	Current (A)	Voltage Supply (V)	Weight (Kg)
1	SD1503F	0.4	2,4	230 II	1.45
	SD1505F	0.75	4,2	230 II	1.45
2	SD1508F	1.5	7,5	230 II	3.30
	SD1512F	2.2	10	230 II	3.30

[1] For more detailed specifications, consult with Power Electronics.
[2] On process.

Page. 40 – 45 **V2**

ELECTRONIC SOFT STARTERS

Page. 46 – 53 **V5**

V2

Robust, easy and compatible with multiple applications



With coated electronics, the V2 is resistant in harsh environments



230V - 400V



From 2.2kW to 37kW



Operation up to 50°

1 Complete frontal access

A cabinet-type metal casing simplifies installation and provides easy access to the control and power terminals, electronic components, and bypass contactors. Complete frontal access allow for compact installation inside or outside the cabinet.

Dynamic torque control 2

It optimizes startup and shutdown sequences by attenuating the peaks of intensity and mechanical stresses to which applications are subjected.

3 Reliability

Thirty years of evolution and experience in field of the V2 series, along with our technical service, guarantee the absolute reliability of this equipment.

4 Built-in bypass

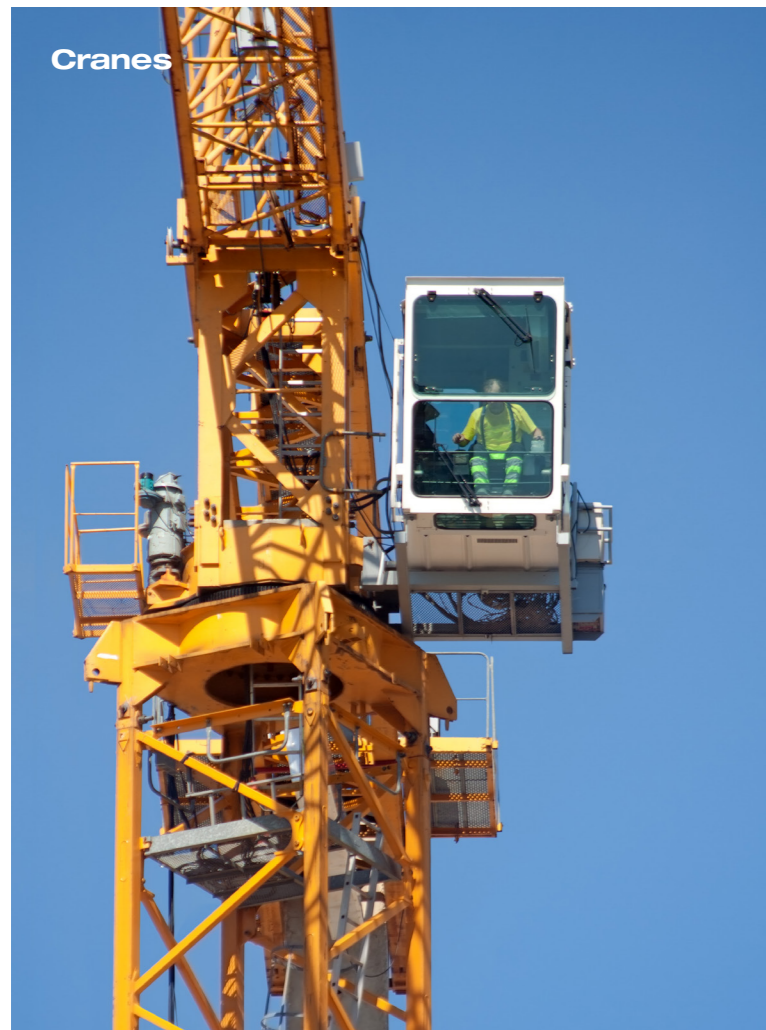
The integrated bypass provides a functioning performance, in a compact format and with fast, simple and convenient connection of the equipment.

All protection measures and functions remain in force while the bypass is active.

For every need **6**

The V2 with its soft start reduces mechanical stress to a minimum and extends the life of your facility.

The IP54 protection and coated boards is suitable for more aggressive environments. These are some examples of applications that can benefit from the use of this equipment:



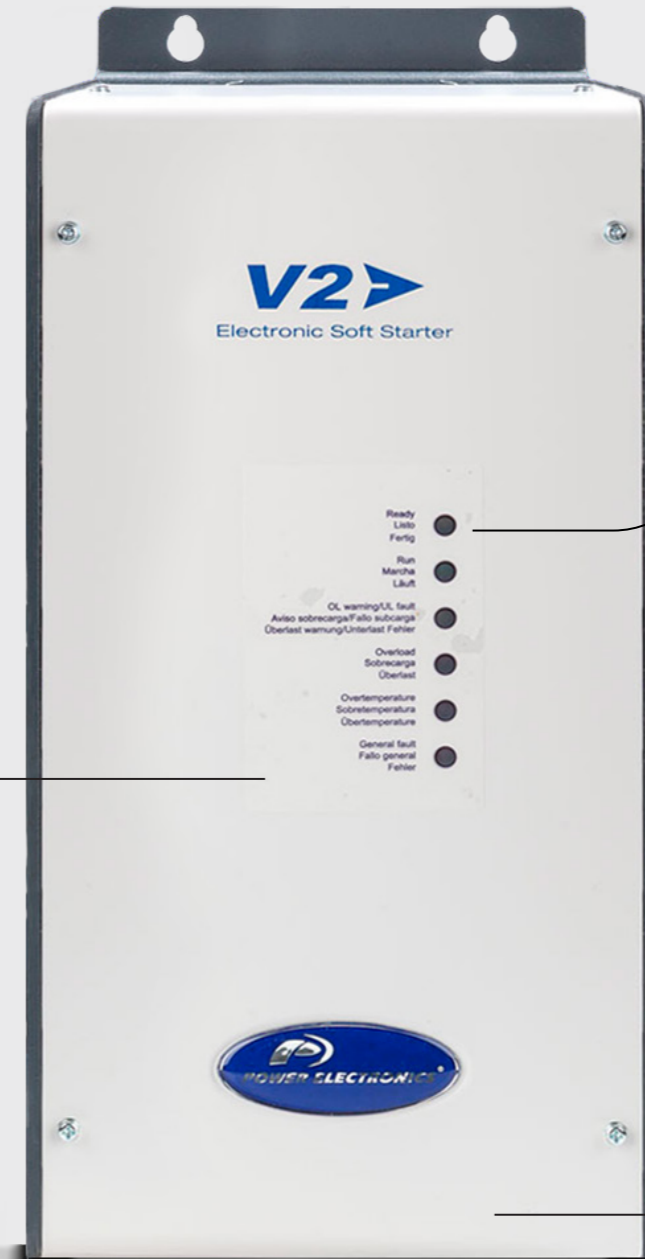
Cranes



Pumps

Coated electronic components

Maximum start up torque



V2
Electronic Soft Starter

- Ready
Listo
Fertig
- Run
Marcha
Lauf
- OL warning / U.I. fault
Aviso sobrecarga / Fallo sobrecarga
Überlast warning / Unterlast Fehler
- Overload
Sobrecarga
Überlast
- Overtemperature
Sobretemperatura
Übertemperatur
- General fault
Fallo general
Fehler

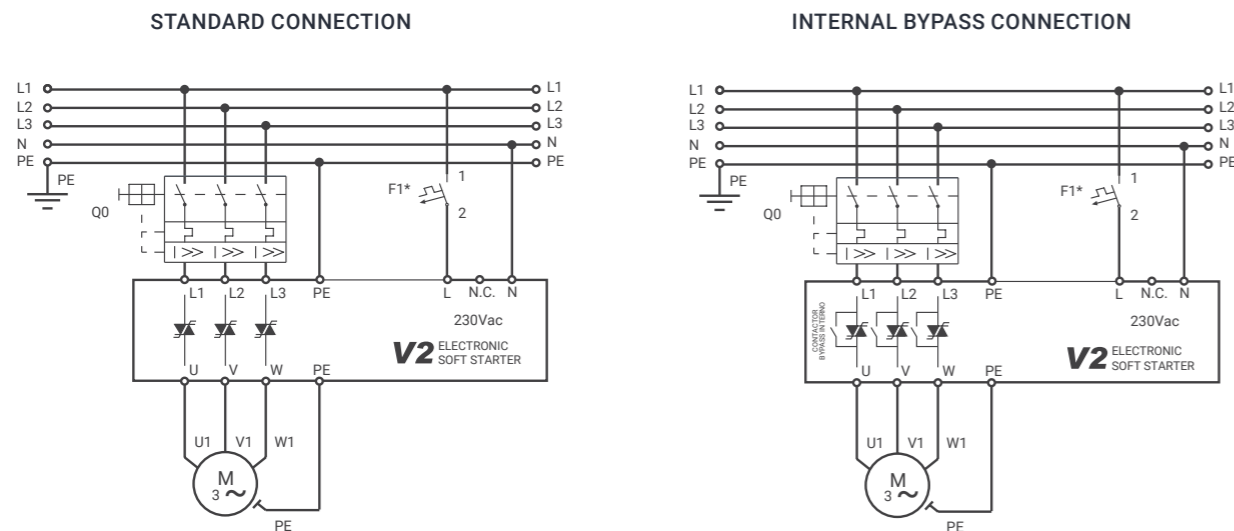
Internal Bypass

V2

INPUT	Input voltage	(3 phase) 230-400V (±10%)
	Current range	9A to 75A
	Frequency	47 to 62 Hz
	Control voltage	230V ±10%, others under demand
OUTPUT	Output voltage	0 to 100% of input voltage
	Efficiency (at full load)	>99%
ENVIRONMENTAL CONDITIONS	Ambient temperature	Operation: 0°C to +40°C for IP00 Operation: 0°C to +50°C for IP54
	Storage temperature	0°C to +70°C
	Humidity	95% at 40°C non condensing
	Altitude derating	>1000m, 1% each 100m; maximum 3000m
	Protection degree	IP00; IP54
	Cooling	Natural
MOTOR PROTECTIONS	Input phase loss	Starting current limit
	Rotor locked	Motor overload (thermal model)
	Underload	Phases imbalance
SOFT STARTER PROTECTIONS	General fault	V2 overtemperature
ADJUSTMENTS	Initial torque 30 to 99%	Acceleration ramp 0 to 15 sec.
	Deceleration ramp 0 to 45 sec.	Overload 0.8 to 1.2 In
	Overload curve 1 to 10	Underload 0.2 to 0.6 In
	Underload curve 1 to 10	Current limit 1 to 5 In
AUXILIARY CONTACTS	2 change over relays 5A, 230Vac	Fault relay
	Instantaneous relay	
LED'S INDICATIONS	LED 1 Ready	
	LED 2 Start	
	LED 3 Overload warning / Underload fault	
	LED 4 Overload	
	LED 5 Overtemperature	
	LED 6 General fault	
REGULATIONS	CE, UL ^[1] , cUL ^[1] , cTick	

[1] On process.

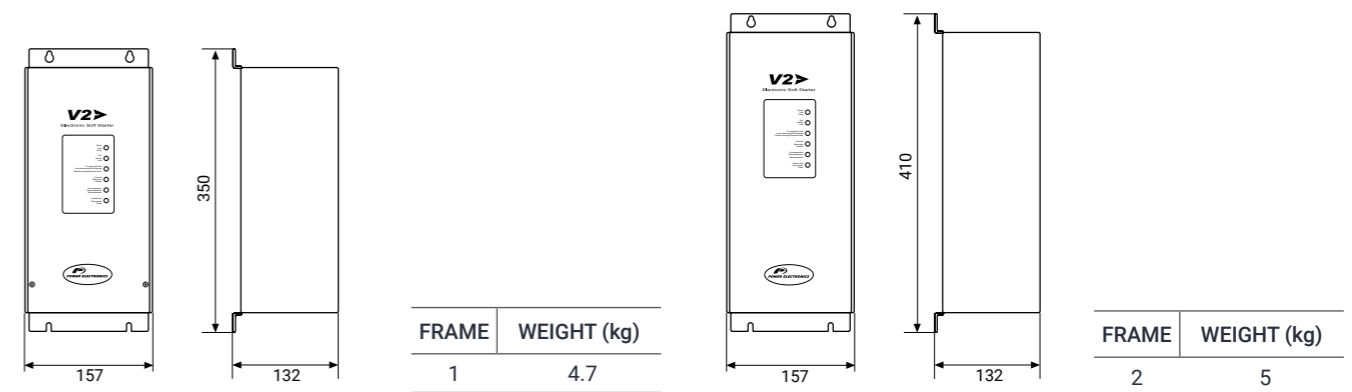
POWER WIRING CONFIGURATION



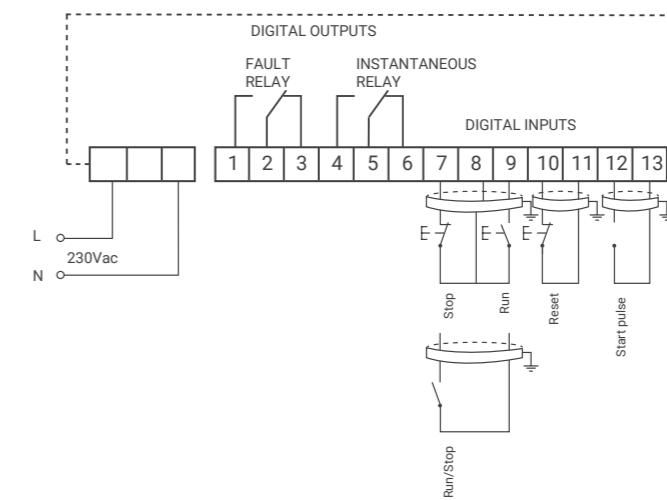
V2

FRAME	CODE	RATED I(A)	POWER MOTOR (kW) at 230V	POWER MOTOR (kW) at 400V	PROTECTION DEGREE
1	V2009	9	2.2	4	IP00
	V2017	17	4	7.5	IP00
	V2030	30	9	15	IP00
	V2045	45	15	22	IP00
	V2060 ^[1]	60	18.5	30	IP00
	V2075 ^[1]	75	22	37	IP00
	V2009B	9	2.2	4	IP54
	V2017B	17	4	7.5	IP54
	V2030B	30	9	15	IP54
	V2045B	45	15	22	IP54
2	V2060B	60	18.5	30	IP54
	V2075B	75	22	37	IP54

V2 - DIMENSIONS (mm) AND WEIGHTS



V2 - CONTROL WIRING CONFIGURATION



NOTES

[1] Includes an integrated Bypass function. The motor protection is operating all the time.

V5

Powerest intensity during motor startup and shutdown



230V - 1000V



From 2kW to 1500kW



Operation up to 50°

The V5 is manufactured to the highest standards of quality and mechanical robustness, and is supplied with hardware and software designed for continuous operation with the even most demanding of applications.

1 Complete frontal access

A cabinet-type metal casing simplifies installation and provides easy access to the control and power terminals, electronic components, and bypass contactors. Complete frontal access allow for compact installation inside or outside the cabinet.

Dynamic torque control 2

It optimizes startup and shutdown sequences by attenuating the peaks of intensity and mechanical stresses to which applications are subjected.

3 Reliability

Thirty years of evolution and experience in field of the V2 series, along with our technical service, guarantee the absolute reliability of this equipment.

Built-in or external bypass 4

The user can opt for the conventional model, which permits the external installation of a bypass contactor controlled by the starter or our V5 model with integrated bypass.

Flexible control **5**

The equipment can be programmed via a local display keypad or a PC (PowerCOMMS program).

Supplied with RS232/RS485 communication as standard: Compatible with various communication protocols (Modbus, Profibus-DP, DeviceNet, etc.).

6 Monitoring

VRS, VST, VTR, IR, IS, IT, Cos phi, power (kW), frequency (Hz) and energy kW/h. Maximum protection for the motor and its applications.

For every need **7**

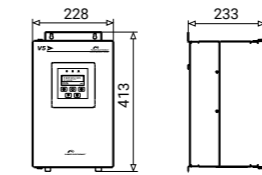
The design of V5 is optimal for waste water treatment plant (WWTP), drinking water treatment stations, desalination plants, watering stations, tunnels and mines extractions, etc.



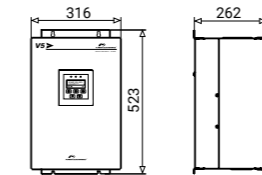
V5

INPUT	Input voltage	(3 phase) 230-500V (-20% to +10%) (3 phase) 690V (-20% to +10%) (3 phase) 1000V (-20% to +10%)	
	Current range	9A to 1500A	
	Supply frequency	47 to 62 Hz	
	Control voltage	230V ±10%, others under demand	
	OUTPUT	Connection	3 wires
	Output voltage	0 to 100% Supply voltage	
	Efficiency (at full load)	>99%	
ENVIRONMENTAL CONDITIONS	Ambient temperature	Minimum: 0°C / Maximum: +50°C	
	Storage temperature	-10°C to +70°C	
	Ambient humidity	< 95%, non-condensing	
	Altitude losses	>1000m, 1% each 100m; 3000m max.	
	Protection degree	IP20	
	Degree of pollution	Degree of pollution 3	
MOTOR PROTECTIONS	Input phase missing		
	Low input voltage		
	High input current		
	Starting current limit		
	Rotor locked		
	Underload		
	Motor overtemperature (PTC, normal status 150R-2K7)		
	Number of start / hour		
	Motor overload (thermal mode)		
	Phase unbalance		
	Shearpin current		
	SOFT STARTER PROTECTIONS	Thyristor fault	V5 overtemperature
	ADJUSTMENTS	Torque pulse	
Initial torque			
Initial torque time			
Current limit: 1 to 5 I _n			
Acceleration time			
Deceleration time / Freewheel stop			
Slow speed (1/7 fundamental frequency)			
Number of starts/hour allowed			
Water hammer surge control stop			
Overload: 0.8 to 1.2 I _n , Overload slope: 0 to 10			
DC braking			
Dual setting			
Torque control			
For additional information consult the technical manual			
INPUT AND OUTPUT SIGNALS		2 analogue inputs, 0-20mA or 4-20mA, 0-10V	5 configurable digital inputs
		1 PTC input	3 changeover output relays (10A 250Vac non inductive)
		1 analogue output 0-20 mA or 4-20mA	
COMMUNICATIONS	Physical level RS232/RS485		
	Modbus RTU Protocol		
	Optional Protocol: Profibus-DP, DeviceNet, CANopen, Modbus TCP-IP		
CONTROL	Local via keypad		
	Communications (Modbus RTU, RS232/RS485)		
	Remote via digital input		
LED'S INDICATIONS	LED1 Green, voltage present on control board		
	LED2 Orange, Blinking: Motor accelerating / decelerating - On: Motor running		
	LED3 Red, fault present		
REGULATIONS	CE, UL ^[1] , cUL ^[1] , cTick		

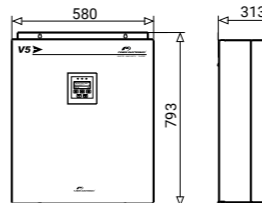
DIMENSIONS



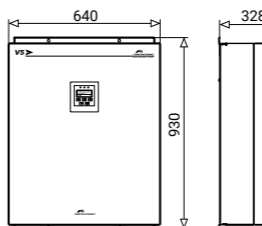
FRAME	WEIGHT (kg) Standard V5	WEIGHT (kg) Bypass V5
1	10	12



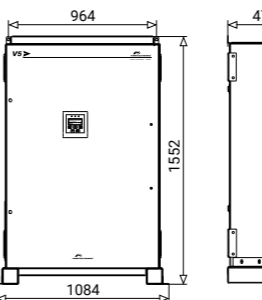
FRAME	WEIGHT (kg) Standard V5	WEIGHT (kg) Bypass V5
2	20	22



FRAME	WEIGHT (kg) Standard V5	WEIGHT (kg) Bypass V5
3	50	57



FRAME	WEIGHT (kg) Standard V5	WEIGHT (kg) Bypass V5
4	80	90



FRAME	WEIGHT (kg) Standard V5
5	310

ACCESSORIES

CODE	ACCESSORIES DESCRIPTION
I001	Profipower Communication module
I004	PowerNET Communication module
P0015 ^{[1][2]}	Bypass Kit V50060-V50090
P054-005A ^{[1][2]}	Bypass Kit V50110-V50250
L051 ^[1]	Bypass terminal 9-17A
L057 ^[1]	Bypass terminal 30-45A

CODE	ACCESSORIES DESCRIPTION
V01	Display kit 2m extender with casing
V02	Display kit 1m extender with casing
V09	Display kit 3m extender with casing
V16	Display kit 5m extender with casing
MFV50275	DC braking module 275A

Standard ratings

STANDARD V5 SOFT STARTER

230V to 500V (-20% to +10%)						
FRAME	CODE	Rated I(A)	Power motor until (kW)			
			230V	400V	440V	500V
1	V50009	9	2	4	5	5.5
	V50017	17	5	7	9	11
	V50030	30	9	15	18.5	18
	V50045	45	14	22	25	30
	V50060	60	18	30	35	40
	V50075	75	22	37	45	50
2	V50090	90	25	45	55	65
	V50110	110	35	55	65	80
	V50145	145	45	75	90	100
	V50170	170	50	90	110	115
	V50210	210	65	110	120	150
	V50250	250	75	132	160	180
3	V50275	275	85	150	170	200
	V50330	330	100	185	200	220
	V50370	370	115	200	220	257
	V50460	460	145	250	270	315
	V50580	580	185	315	375	415
	V50650	650	200	355	425	460
4	V50800	800	250	450	500	560
	V50900	900	280	500	560	630
	V51000	1000	322	560	616	700
	V51200	1250	400	710	800	900
5	V51500	1500	500	800	900	1100

The values of the tables are valid for 4-pole AC motors. For current values which are not in accordance with the values in these tables, please contact Power Electronics.

690V (-20% to +10%)			
FRAME	CODE	Rated I(A)	Power motor until (kW)
			690V
1	V50009.6	9	7.5
	V50017.6	17	15
	V50030.6	30	30
	V50045.6	45	45
	V50060.6	60	60
	V50075.6	75	75
2	V50090.6	90	90
	V50110.6	110	110
	V50145.6	145	140
	V50170.6	170	160
	V50210.6	210	200
	V50250.6	250	230
3	V50275.6	275	250
	V50330.6	330	315
	V50370.6	370	355
	V50460.6	460	450
	V50580.6	580	560
	V50650.6	650	630
4	V50800.6	800	800
	V50900.6	900	900
	V51000.6	1000	960
	V51200.6	1250	1250
5	V51500.6	1500	1500

For higher power ratings, contact Power Electronics customer support. Classification of soft starters according to UNE-EN60947-4-2. 10 starts per hour, 50% duty cycle, 50°C and altitude<1000m.

V5 SOFT STARTER WITH BUILT IN BYPASS

400Vac (-20% to +10%)							
FRAME	CODE	Starting current 3.0xIn		Starting current 4.0xIn		Starting current 4.5xIn	
		Max. Rated I(A)	Motor power (kW) at 400Vac	Max. Rated I(A)	Motor power (kW) at 400Vac	Max. Rated I(A)	Motor power (kW) at 400Vac
1	V50009B	14	7.5	10	5.5	9	4
	V50017B	26	15	19	11	17	7.5
	V50030B	45	22	34	18.5	30	15
	V50045B	68	37	51	30	45	22
	V50060B	90	45	68	37	60	30
	V50075B	113	55	85	45	75	37
2	V50090B	135	75	101	55	90	45
	V50110B	165	90	140	75	110	55
	V50145B	218	110	164	90	145	75
	V50170B	255	150	192	110	170	90
	V50210B	315	185	237	132	210	110
	V50250B	375	200	281	150	250	132
3	V50275B	412	220	310	185	275	150
	V50330B	495	280	370	200	330	185
	V50370B	555	315	416	220	370	200
	V50460B	690	400	518	280	460	250
	V50580B	870	450	650	355	580	315
	V50650B	975	500	731	400	650	355
4	V50800B	1200	630	900	500	800	450

V5 SOFT STARTER WITH BUILT IN BYPASS

500Vac (-20% to +10%)							
FRAME	CODE	Starting current 3.0xIn		Starting current 4.0xIn		Starting current 4.5xIn	
		Max. Rated I(A)	Motor power (kW) at 500Vac	Max. Rated I(A)	Motor power (kW) at 500Vac	Max. Rated I(A)	Motor power (kW) at 500Vac
1	V50009B	14	11	10	7.5	9	5.5
	V50017B	26	18.5	19	15	17	11
	V50030B	45	30	34	22	30	18.5
	V50045B	68	45	51	37	45	30
	V50060B	90	55	68	45	60	37
	V50075B	113	75	85	75	55	45
2	V50090B	135	90	101	75	90	55
	V50110B	165	110	140	90	110	75
	V50145B	218	150	164	110	145	90
	V50170B	255	185	192	132	170	110
	V50210B	315	220	237	185	210	150
	V50250B	375	250	281	200	250	185
3	V50275B	412	280	310	220	275	200
	V50330B	495	355	370	250	330	220
	V50370B	555	400	416	280	370	250
	V50460B	690	500	518	355	460	315
	V50580B	870	560	650	450	580	400
	V50650B	975	630	731	500	650	450
4	V50800B	1200	710	900	630	800	560

Rated power and current at 400Vac, 500Vac and 690Vac (-20% to +10%) for motors at 1500rpm. The values of the tables are valid for 4-pole AC motors. For current values which are not in accordance with the values in these tables,

please contact Power Electronics. For higher power ratings, contact to Power Electronics customer support. Classification of soft starters according to UNE-EN60947-4-2. 10 starts per hour, 50% duty cycle, 50°C and altitude<1000m.

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FQA

POWER

QUALITY

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FQP

FQA + FQP

Designed to cancel out harmonics



The active harmonic filter FQA injects reactive power and current in the form of harmonics designed to improve the power factor ($\cos \varphi$), cancel harmonic distortion (THDi), helping to stabilize the network voltage of the electrical distribution system.

The FQP Freemaq harmonic filter is installed at the entrance of the drive and is designed for both drives SD750 range of Power Electronics as other commercial inverters.

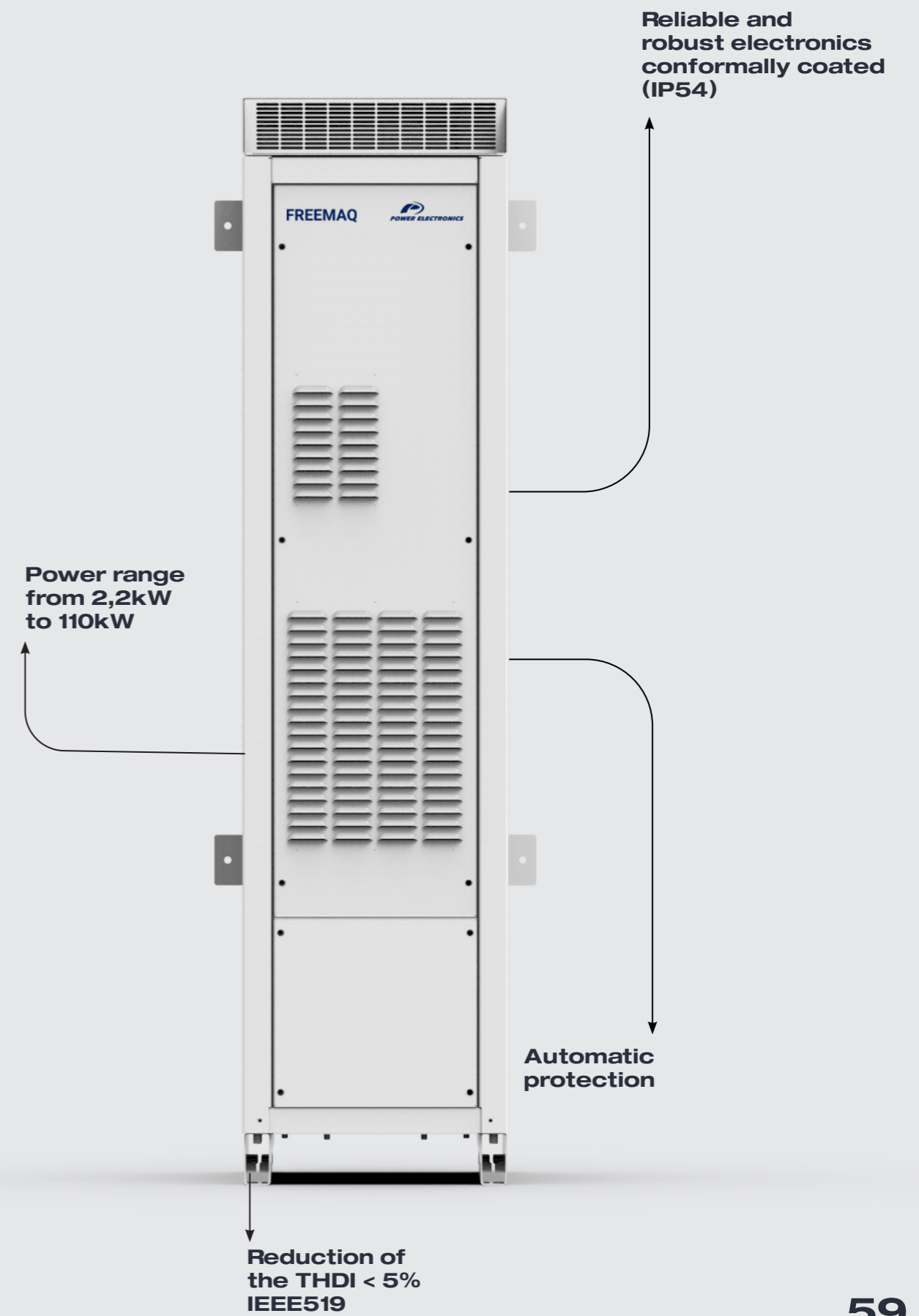
With a more compact and efficient design, Freemaq FQP provides a higher degree harmonics filtering through more stable tuning that provides values THDi below 5% in compliance with IEEE519.

Its construction is based on the installation of one or more filter modules in parallel will be controlled and protected at all times by the drive. A range that would fit the most demanding applications.



FQA

FQP



FQA

STANDARD RATINGS 400 V _{AC}							
FRAME	REFERENCE	Total RMS Current Limit (A) (400V)		Max. Individual Harmonic Compensation (A)			
		Total RMS Current (A) 40°C	Total RMS Current (A) 50°C	I5 (80%)	I7 (50%)	I11(30%)	I13 (15%)
		5	FQA0100 5X	100	90	80	50
	FQA0150 5X	150	135	120	75	45	23
	FQA0200 5X	200	180	160	100	60	30
6	FQA0250 5X	150	225	200	125	75	38
	FQA0315 5X	315	284	252	158	95	47
	FQA0400 5X	400	360	320	200	120	60
7	FQA00450 5X	450	405	360	225	135	68
	FQA0500 5X	500	450	400	250	150	75
	FQA0600 5X	600	540	480	300	180	90
8	FQA0700 5X	700	630	560	350	210	105
	FQA0800 5X	800	720	640	400	240	120

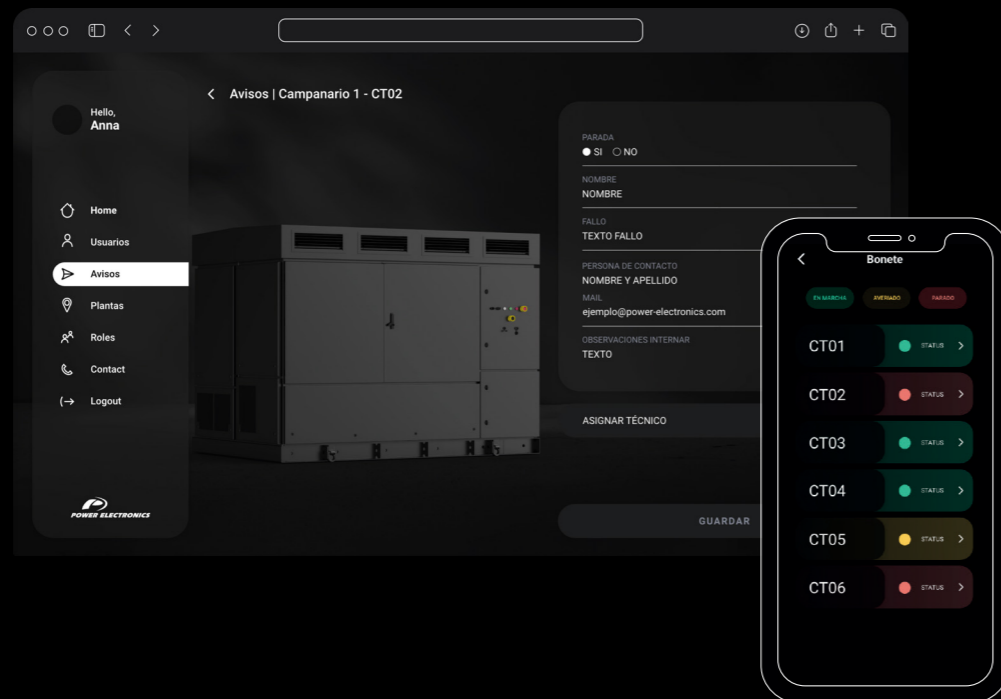
STANDARD RATINGS 480 V _{AC} a 525 V _{AC}							
FRAME	REFERENCE	Total RMS Current Limit (A) (400V)		Max. Individual Harmonic Compensation (A)			
		Total RMS Current (A) 40°C	Total RMS Current (A) 50°C	I5 (80%)	I7 (50%)	I11(30%)	I13 (15%)
		5	FQA0100 7X	100	90	80	50
	FQA0165 7X	165	149	132	83	50	25
	FQA0200 7X	200	180	160	100	60	30
6	FQA0250 7X	250	225	200	125	75	38
	FQA0330 7X	330	297	264	165	99	50
	FQA0400 7X	400	360	320	200	120	60
7	FQA0450 7X	450	405	360	225	135	68
	FQA0495 7X	495	446	396	248	149	74
8	FQA0600 7X	600	540	480	300	180	90
	FQA0660 7X	660	594	528	330	198	99

FQP

400 Vac					
CODE	POWER kW	HEIGHT mm (H)	WIDTH mm (W)	DEPTH mm (D)	WEIGHT (kg)
FQP0006 5	2,2				
FQP0009 5	4				
FQP0012 5	5,5	508	207	279	50
FQP0018 5	7,5				
FQP0024 5	11				
FQP0032 5	15				
FQP0038 5	18,5	851	500	394	75
FQP0048 5	22				
FQP0060 5	30				
FQP0075 5	37	990	500	395	110
FQP0090 5	45				
FQP0115 5	55				
FQP0150 5	75	1207	608	440	180
FQP0170 5	90				
FQP0210 5	110				

POWER SUPPORT

BY POWER ELECTRONICS

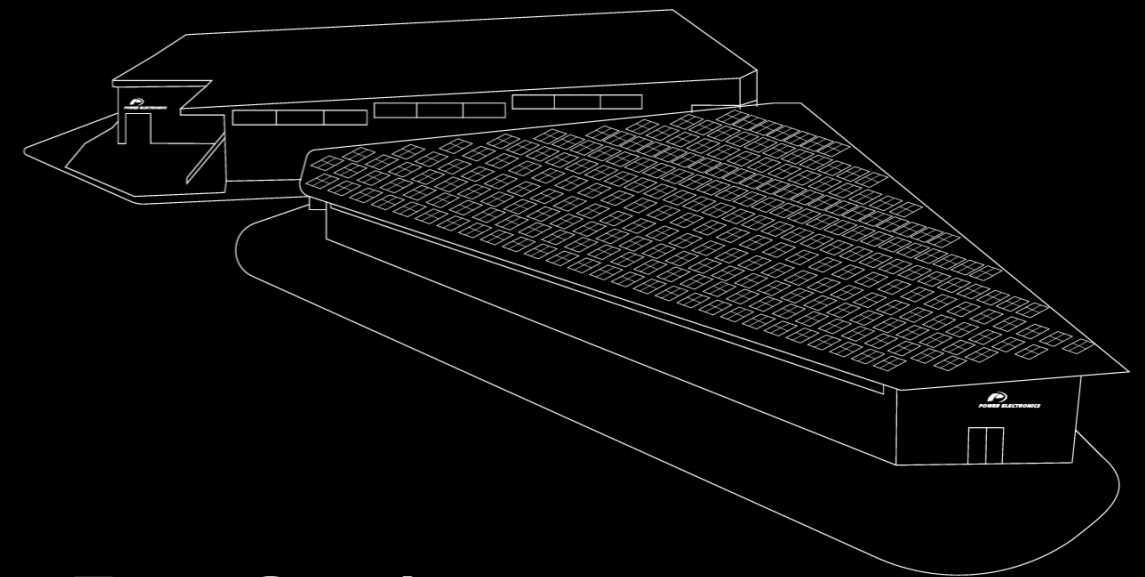
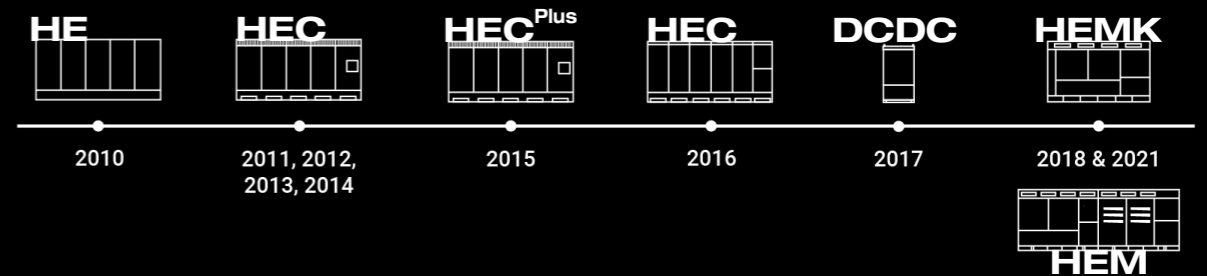


Our secret

The key of our success for more than **30 years**, our **24/7 after sales service**, **Power On Support**.

We take care of the legacy generations

Each new generation of inverters involves adapting the manufacturing lines to optimize the production of these new devices. Power Electronics has a facility optimized for the production of limited units from previous generations, where we manufacture current subcomponents adapted to equipment that is no longer in production, but which allows for an extended life.



Long Term Service

We repair subcomponents or even manufacture equivalent units in our **Dedicated Service Factory** located near our **Production Plant**.

Power Electronics has experience in repowering old photovoltaic plants, where we supply state-of-the-art equipment adapting its electrical characteristics to be compatible with the existing configuration, while providing all the advantages of the latest generation inverters.

Vertical Integration

throughout the entire process

We complement your spare parts strategy with our own thanks to our *Dedicated Service Factory* warehouse, informing you when any of them is going to be discontinued so you can plan accordingly.

↓ ↓ ↓
We are here to help you



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Before commissioning

- Technical applications & design requirement review
- Dedicated Project Management Support
- Hands on functional & safety product training

During commissioning

- Dedicated commissioning teams
- Rigorous execution on through site operation

After commissioning

- Support 24/7, 365 days a year
- Full warranty coverage with options for extension and full preventative maintenance packages
- Advanced offerings for remote monitoring, detailed performance reporting, and interactive portals for tracking metrics direct with the PE Service Org

You have the control

WARRANTY

Power Electronics (the Seller) warrants that their Products are free of faults and defects for a period of 3 years, valid from the date of delivery to the Buyer. It shall be understood that a product is free of faults and defects when its condition and performance is in compliance with its specification.

The warranty shall not extend to any Products whose defects are due to (i) careless or improper use, (ii) failure to observe the Seller's instructions regarding the transport, installation, functioning, maintenance and the storage of the Products, (iii) repairs or modifications made by the Buyer or third party without prior written authorization of the Seller, (iv) negligence during the implementation of authorized repairs or modifications, (v) if serial numbers are modified or illegible, (vi) anomalies caused by, or connected to, the elements coupled directly by the Buyer or by the final customer, (vii) accidents or events that place the Product outside its storage and operational specification, (viii) continued use of the Products after identification of a fault or defect.

The warranty excludes components that must be replaced periodically such as Fuses + DC switch, lamps & air filters or consumable materials subject to normal wear and tear.

The warranty excludes external parts that are not manufactured by the Seller under the brand of Power Electronics.

The Seller undertakes to replace or to repair, himself, at their discretion, any Product or its part that demonstrates a fault or defect, which is in conformance with the aforementioned terms of the warranty. Reasonable costs associated with the disassembly/ assembly, transport and customs of equipment will also be undertaken by the Seller except in cases of approved intervention by the Buyer and/or their representative where cost allocation has been previously agreed.



Power Electronics reserves the right to modify whole or part of the content of this brochure at any time and without prior notice. May 2021.

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