

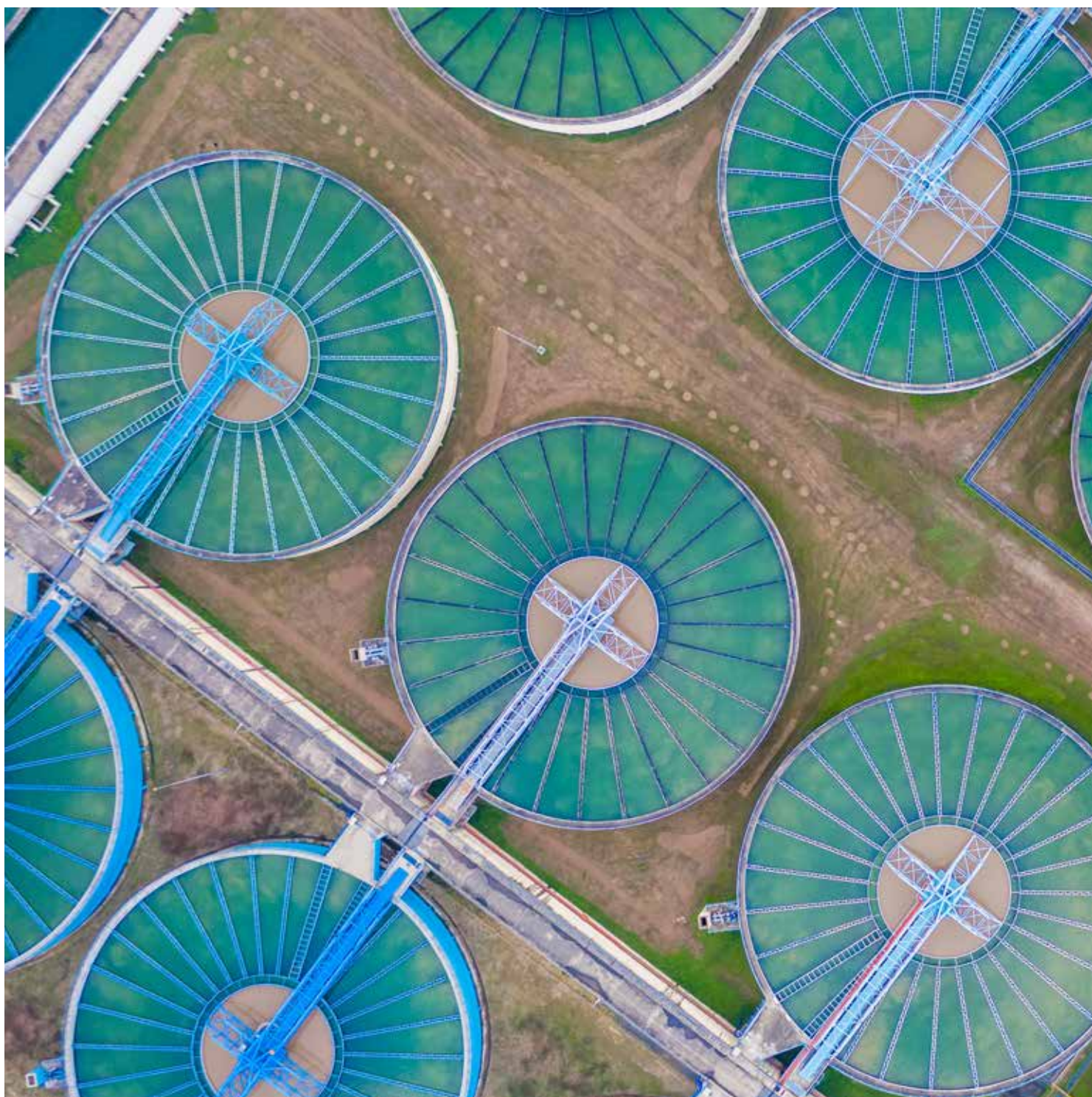
EASY TO DRIVE

SD750 SERIES

VARIABLE SPEED DRIVES



EASY TO DRIVE





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Since 1987, Power Electronics has been producing high-power soft starters and variable speed drives for low and medium voltage AC motor applications, as well as solar inverters for photovoltaic power generation. Today, it also manufactures equipment for the charging of all types of electric vehicles, as a result of the company's commitment to electric mobility. All this experience has enabled Power Electronics to position itself as a leading manufacturer of power electronics thanks to the unique characteristics of its products, its design patents and the fastest delivery time in the market, as well as unique customer service and reference in the sector, Power On Support 24/7.



30 YEARS OF PRODUCT EXCELLENCE



24/7 POWER ON SUPPORT



INTERNATIONAL PRESENCE



FINANCIAL STABILITY AND STRENGTH



INDEPENDENT REPORTS AND CERTIFICATIONS



SUSTAINABLE GROWTH

ENGINEERING & CONSULTING

Energy projects often require customer specific solutions, for this reason our clients also have our Engineering and Consulting department at their disposal, which is comprised of a wide number of highly skilled and experienced engineers that are available to modify our standard product to suit customer demands and ensure our clients get the product they need.

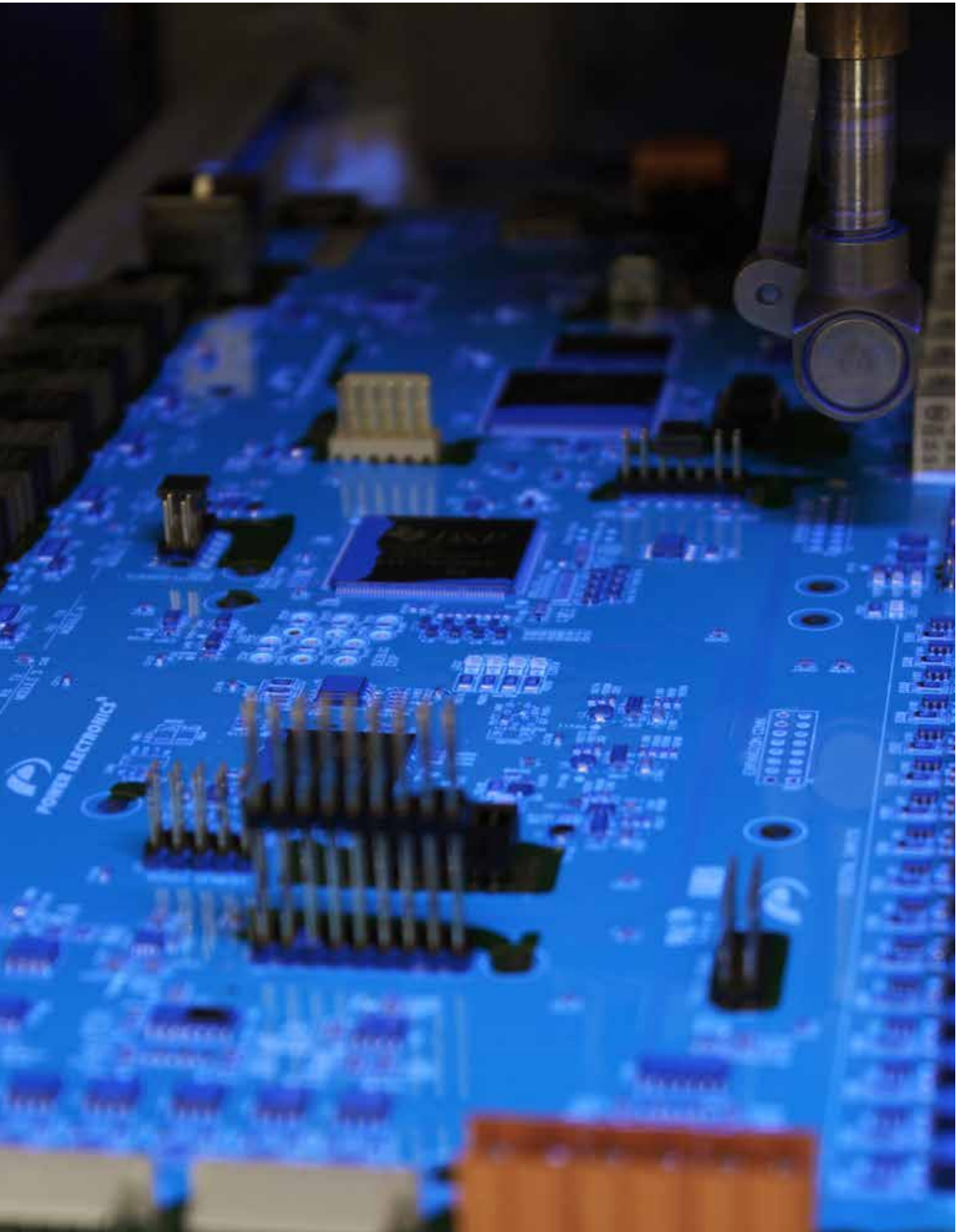
TECHNICAL ADVICE
ENGINEERING
CUSTOMIZED SOLUTIONS
PROJECT MANAGEMENT
COMMISSIONING
24/7 SERVICE

VERTICAL INTEGRATION

Flexibility and specialization play a key role in the manufacture of standard products, but even more so in personalized products. We integrate the mechanics of our equipment into our design and manufacturing. Vertical integration gives us the flexibility to adapt to customer requirements and still provide very short delivery times.

INNOVATION & DESIGN FLEXIBILITY
HIGH QUALITY COMPONENTS
RELIABLE ENGINEERING
FACTORY TESTED
VALUE CHAIN SUPERVISION
IMMEDIATE DELIVERY

*"We design, manufacture and test
the electronic boards of all our products"*







AVAILABILITY



COMMISSIONING



CUSTOMER SUPPORT



ONSITE ASSISTANCE



SPARE PARTS WARRANTY



TRAINING SEMINARS



WARRANTY

POWER ON SUPPORT

Power on Support is the concept of a customer oriented strategy implemented by Power Electronics since its origins more than 30 years ago with 24/7 after sales service available for all our customers and end users without the need for a signed O&M contract.

Customer Oriented Strategy.

WORLDWIDE PRESENCE

From the beginning, customer service and internationalization have been key elements for the development of the company. Thanks to the global expansion in the five continents, today we have presence and provide technical service throughout the world.



HEADQUARTERS



+28

DELEGATIONS

+100

SALES COUNTRIES

+1.000.000

UNITS INSTALLED

+18GW

ANNUAL CAPACITY PRODUCTION





SD750

LOW VOLTAGE VARIABLE SPEED DRIVES



50°C OPERATION WITHOUT POWER DERATING



MODULARITY FROM 100kW TO 2200kW



IP20, IP54 AND MARINE SERIE



BUILT-IN HARMONICS AND RFI FILTERS



CONFORMAL COATING 3C3



HIGHER POWER DENSITY

CONTINUOUS OPERATION
UNDER THE MOST DEMANDING
APPLICATIONS AND
FOR ENERGY EFFICIENCY THE
SD750 ENSURES YOUR
INVESTMENT ON NEW AND
RETROFIT PROJECTS

SD750 series is the core of the family, available from 1.5kW to 2200kW ^[1] and a voltage range from 380VAC to 690VAC. Our IP20 & IP54 ^[2] mechanical designs cover all general industry applications, making it the most flexible and extensive series with a compact design for easy installation, commissioning and maintenance.

The whole series integrates unique features such as low dV/dt, smart mechanical design with a higher power density, the most advanced motor control algorithms and a removable memory unit for easy and smart maintenance.

With a built-in energy efficiency calculator, the SD750 series will help you to monitor, analyse and optimize your processes for energy saving and to contribute to the digital transformation of your industry into a "Smart Industry".

SD750 series has been designed with an intuitive control panel with Wifi connection, allowing the connection to several drives simultaneously, providing a friendly interaction with the customer. Having the latest communication protocols in the market the SD750 series allow a fast communication between drives or Wifi configurations without any additional hardware. The SD750 series incorporates the most advanced and flexible tool, PowerPLC, a Power Electronics desktop tool with a user-friendly interface for programming the built-in SD750 PLC.

[1] Higher power drives than 800kW, consult Power Electronics.

[2] Different IP grades, consult Power Electronics.

SD750 MAIN FEATURES



MAXIMUM MOTOR CARE AND
INSTALLATION COST REDUCTION



INNOVATIVE COOLING SYSTEM



FULL FRONTAL ACCESS



COMPATIBLE WITH THE MOST USED
INDUSTRIAL PROTOCOLS



REMOVABLE MEMORY UNIT FOR SMART
MAINTENANCE AND PROBLEM DIAGNOSIS



INTEGRATED FUNCTIONAL AND
ELECTRICAL SAFETY



HIGH QUALITY AND OVERSIZED
CRITICAL COMPONENTS



ADVANCED MOTOR CONTROL



EASY TO DRIVE



DEDICATED SOFTWARE TOOLS AND MACROS



WIFI CONNECTIVITY



CUSTOMIZED SOLUTIONS



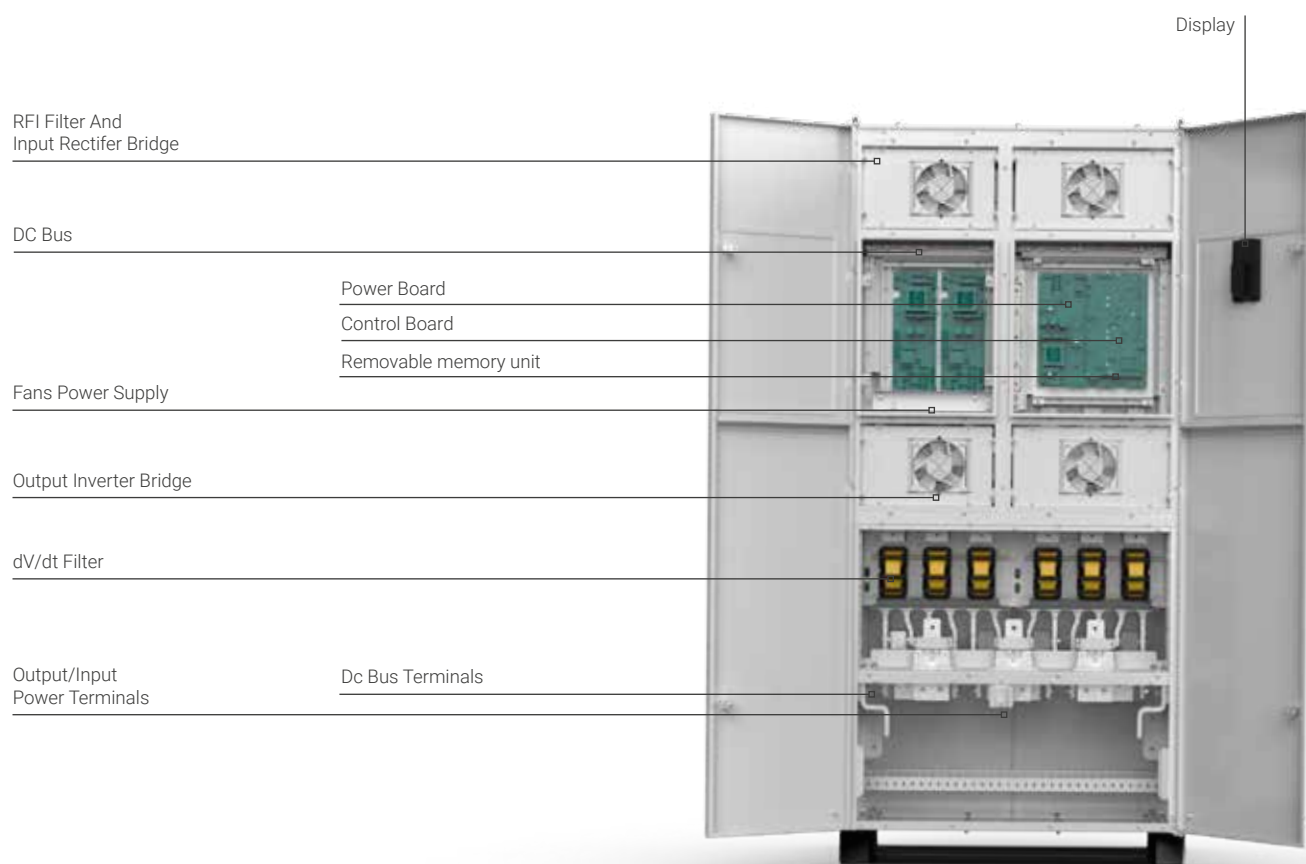
FULL FRONTAL ACCESS

Maintenance and cleaning reduce company yield, therefore SD750 has been designed with the latest engineering good practices to reduce time, spare parts cost and to increase availability. In addition, the frame design provides visual access to the critical components, plus the input and output power terminals, DC bus terminals and user interconnection are accessible.

SD750 is focused on technical servicing and motor care. Hence dV/dt and RFI filters are built-in as standard without additional adjoining cabinets that will increase its size and cost.

A removable memory unit provides easy and smart maintenance and problem diagnosis. The SD750 series has a memory unit which saves user settings, parameter settings, motor data and fault history amongst others. Located on the control unit, the memory unit can easily be removed for maintenance and updating purposes.

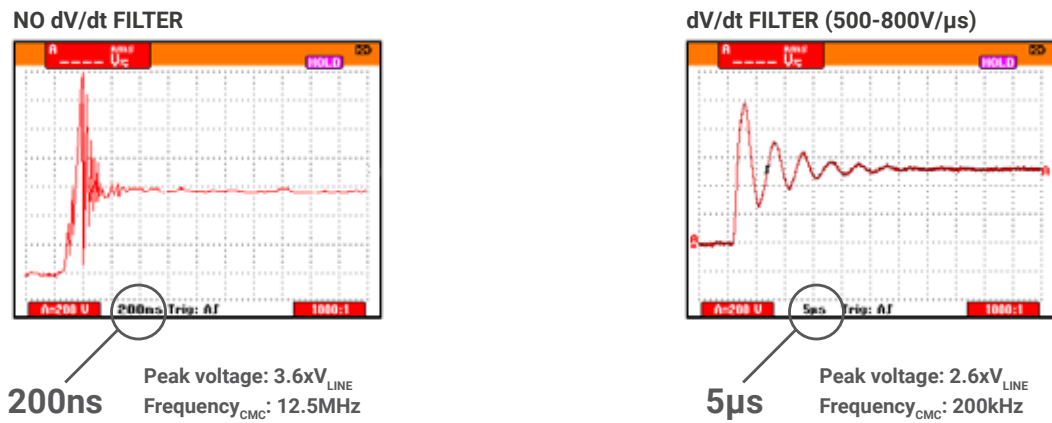
Power Electronics' maintenance service experience in demanding applications results in a sophisticated mechanical design that provides the maximum care and protection for electronics components.



MAXIMUM MOTOR CARE AND INSTALLATION COST REDUCTION

Low dV/dt and RFI filter

SD750 includes built-in as standard dV/dt filter that reduces the dV/dt value to 500-800V/μs depending on the drive size and rated voltage, minimizing the voltage peaks at the motor winding. It is the unique drive in the market focused on the customer's needs such as wiring and motor cost reduction.



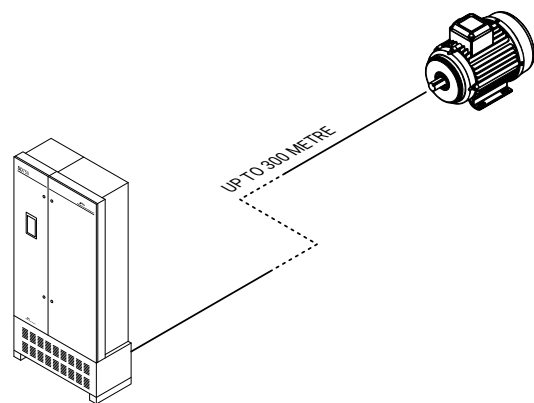
200 m motor cable, 400Vac.

These features reduce the transferred Electromagnetic Energy and the voltage peaks seen by the first turn of the winding. Consequently SD750 low voltage drive can be installed following Power Electronics recommendations with:

- Greater cable distances (150m shielded cable, 300m unshielded cable)
- Standard unshielded cable
- Non insulated bearings
- No special motor insulation

Harmonics filter

High input impedance given by the 3% input chokes protects the drive against any grid anomaly and enhances its THDi performance in weak grids.



QUALITY AND OVERSIZED CRITICAL COMPONENTS TO PROVIDE RELIABILITY

We are aware of continuous operation applications and the cost of process shutdowns that can result in high reduction of company profits. A number of critical components of the SD750 have been oversized to ensure continuous operation under the most adverse situations.

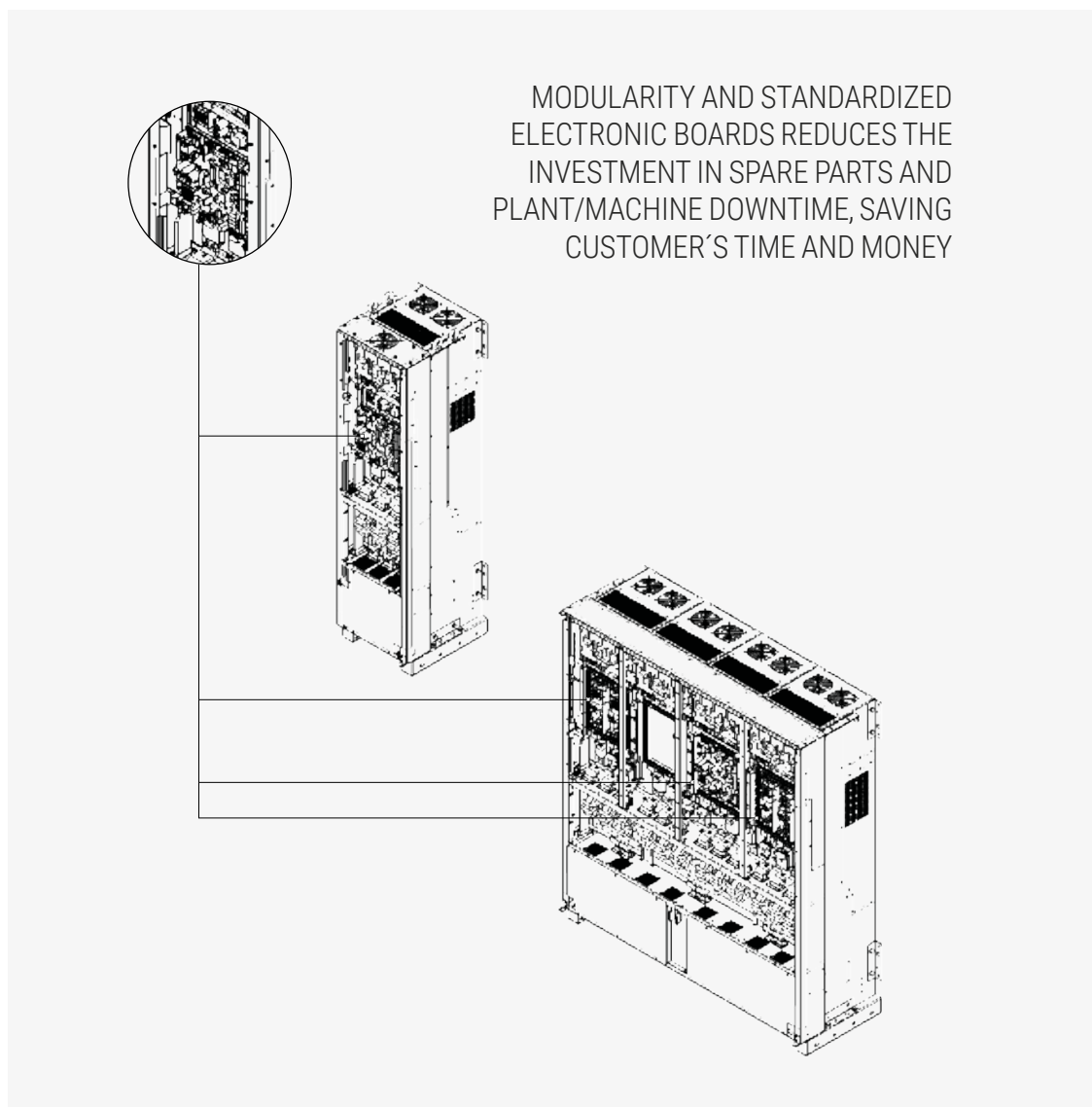
- Oversized and simplified semiconductors increase reliability and reduce investment and maintenance costs.
- Long life high quality electrolytic capacitors and optimized cooling increase DC bus lifetime, consequently allowing an increase of the drive's running hours.

Higher power density

With an advanced smart design, we have developed a high-power drive with a smaller compact solution that is able to be integrated in any application. Following our reliability philosophy of oversizing critical components, the SD750 series will provide you a reliable and powerful compact solution for easy installation, commissioning and maintenance.

Modularity from 100kW to 2200kW

Modularity and standardized electronics boards reduces the investment in spare parts and plant/machine downtime, saving customers' time and money.



EASY TO DRIVE

In Power Electronics, we have developed the SD750 focusing on a user-friendly interface that leads into a comfortable workflow. Intuitive screens and buttons enhance user's control and learning.

Display

An intuitive display with Wifi connection for remote access and monitoring. With the optional Wifi module, the interaction with the configuration programs such as **PowerCOMMS** and the mobile application, **SDApp**, will allow you to set up the equipment remotely, connecting to several drives simultaneously, and sharing information with other drives of the room.

Touch screen panel

SD750 has an optional high-resolution removable colour touch screen display, with an easy and intuitive graphical interface to make easy the control and visualization of the equipment. A TFT IPS 4.3" screen allows the user to navigate easily through the menus and to graphically visualize the different magnitudes of the drive and the application. The Wifi communication module allows for simultaneous remote interaction between the customer and multiple drives.

Wifi connectivity

The SD750 series incorporates a built-in Wifi module within the touch screen panel (optionally in the standard display) allowing wireless communication between the user and different devices. With its Wifi connection user will have remote access and monitoring of any equipment.



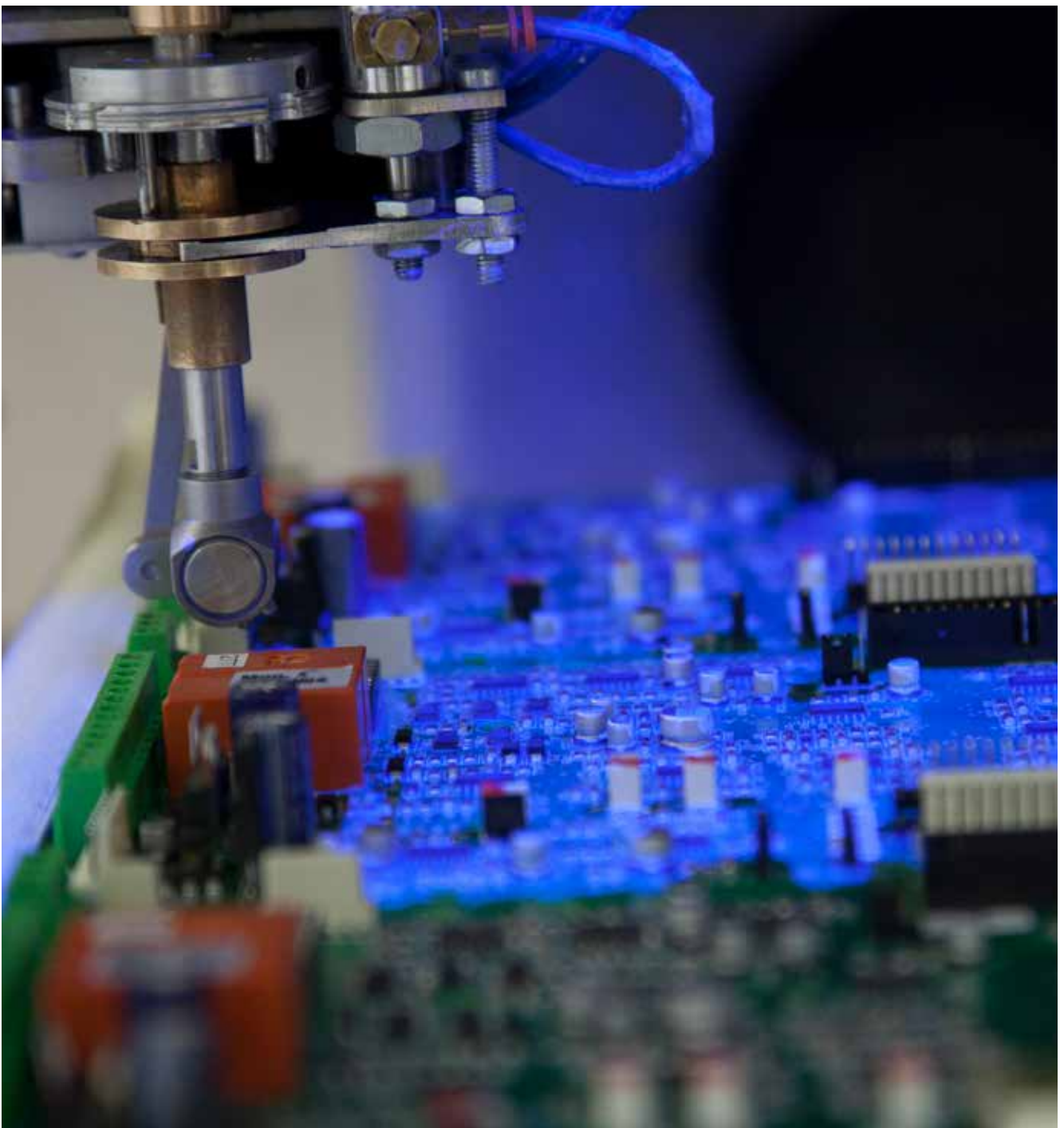
- IP54 door mountable keypad
- Back-lit LCD display
- Status LEDs
- Membrane keypad
- Built-in memory

CONFORMAL COATING 3C3

The demand for robust drives and high reliability continues to increase. A unique mechanical design together with a conformal coating on the printed circuit boards (PCBs), allows the drive to be installed in the most adverse environments. The PCB coating protects the micro lead components that are vulnerable to dust, moisture, pollution (PD3) and corrosive

gasses 3C3 build up, which can produce conductive paths that can result in pins short circuiting.

Power Electronics designs are dedicated to harsh environments thus PCB cards are fully coated with the latest high level military and aerospace technology (IEC61086-1:2004,-3-1).



INNOVATIVE COOLING SYSTEM WITH TOTALLY SEALED ELECTRONICS

Totally sealed electronics with three independent levels that offer maximum protection and efficient cooling features.

SD750 truly offers operation up to 50°C due to oversized heat sinks with a junction temperature below 100°C and no power derating. Moreover, we adapt our products to worldwide operation under the most adverse conditions without supervision. We achieve this due to multiple internal temperature sensors and oversized heatsinks.

LEVEL 1 - Electronics

The electronic components are completely isolated in what is called the "electronics area". The heat exchange of the electronic components is separated from the areas that cool the heat sink and the electric filtering components, making the cooling of these components much more efficient.

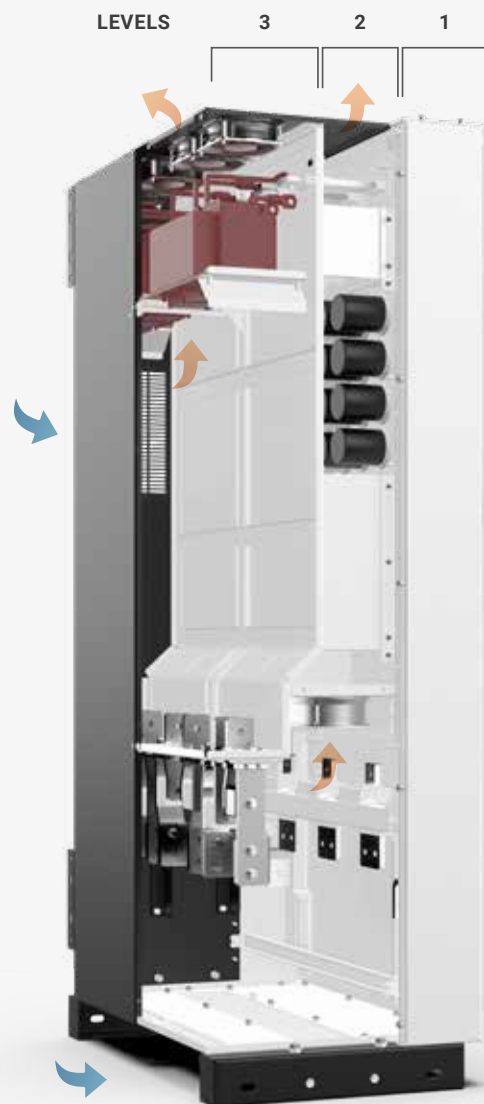
LEVEL 2 - Cooling

SD750 cooling system uses efficient axial fans at low speed which provide three main benefits:

- The internal dust deposition ratio in polluted environments (cement, mining, minerals, metal industry, etc) is significantly decreased at low air speeds, therefore the maintenance frequency is reduced.
- The internal air pressure losses are reduced exponentially, increasing cooling system efficiency.
- The sound levels are reduced in order to favour a comfortable operation.

LEVEL 3 - Input filter

The input filters are enclosed separately, optimizing their cooling capacity, degree of protection and increasing their long life operation.

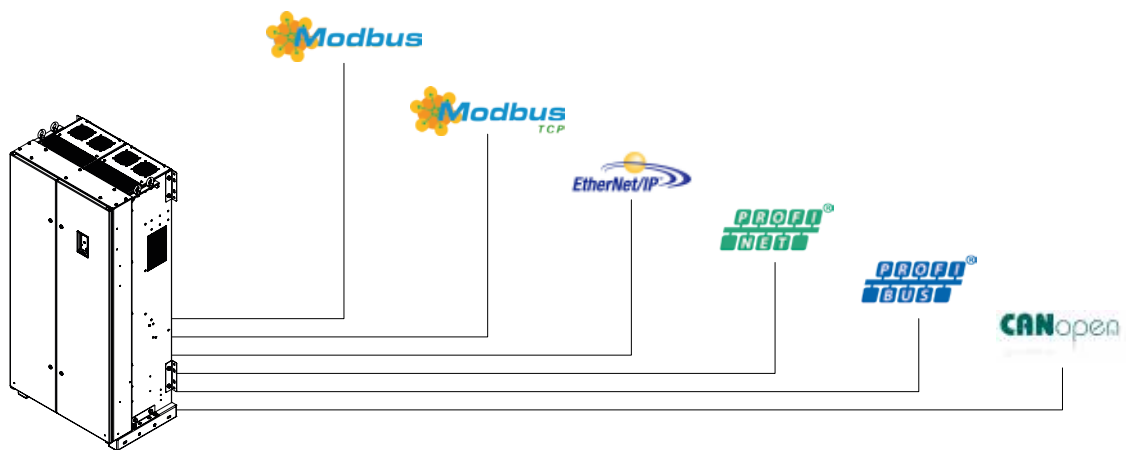




FLEXIBLE CONNECTIVITY TO THE MOST USED INDUSTRIAL PROTOCOLS

SD750 is compatible with the most used industrial protocols in the market. Incorporating Modbus RTU and Modbus TCP protocols as standard and as an option Ethernet/IP, Profibus, ProfiNet and CanOpen.

An external 24VDC power supply integrated in the equipment allows the communications to be kept alive even when the drive power supply is not present.



INTEGRATED FUNCTIONAL AND ELECTRICAL SAFETY

With motor relay features built-in as standard the SD750 hardware offers continuous monitoring of the motor electric values and its temperature (PTC sensor, and PT100). As a result, the highly advanced software provides full motor and drive protection.

Motor protections

Locked rotor protection
 Motor overload (thermal model)
 Underload
 Output current limit
 Phase current imbalance
 Phase voltage imbalance
 Motor over-temperature (PTC signal)
 PT100
 Speed limit
 Torque limit

Drive protections

IGBT's overload
 Input phase loss
 Low input voltage
 High input voltage
 DC Bus voltage limit
 Low DC Bus voltage
 High input frequency
 Low input frequency
 IGBT temperature
 Heat-sink over-temperature
 Power supply fault
 Drive thermal model
 Ground fault
 Software and Hardware fault
 Analogue input signal loss (speed reference loss)

Constant performances

Suitable for environments with a wide temperature operation range. Summer and winter motor performance under any load condition will be the same!

Safe Torque OFF (STO) integrated

Power Electronics drives incorporate this function as standard. Compliance with IEC/EN 61800-5-2 (SIL1 o SIL3). It allows the drive's output to be disabled so that the drive cannot generate torque in the motor. By using this function, cleaning, emergencies or maintenance work on non-electrical parts of the machinery can be performed with high reliability without switching off the input power supply to the drive.

Atex Motors

Drive your Atex motor safely with SD750 series, by using an Atex relay in addition to the STO Safety function. Moreover, SD750 series are built-in as standard with dV/dt filter that reduce the dV/dt and voltage peaks at the motor windings. Therefore, the risk of winding sparks, motor overheating and bearing currents is significantly reduced.



ADVANCED MOTOR CONTROL

ACCURATE, POWERFUL AND FLEXIBLE BUILT-IN MOTOR CONTROL

Power Electronics' success is measured by our customer's satisfaction. The motor control systems developed by Power Electronics have been designed to meet the most demanding features. The SD750 integrates V/f control and two vector controls: Power Motor Control (PMC) and the Advanced Vector Control (AVC) as standard.

For any speed and torque application in closed loop and sensorless.

Giving support to any AC motors:

- Asynchronous motors.
- Permanent magnet synchronous motors.

PERMANENT MAGNET SYNCHRONOUS MOTOR (PMSM)

SD750 series is able to control Permanent Magnet Synchronous Motors, both types IM (inner magnet) and SM (surface magnet) with maximum efficiency, matching the needs of the client in each application.

With a sensorless PMSM for the most demanding and dynamic applications when a quick response under torque changes is required.

A high efficient and stable opened-loop motor control to minimize losses and for fast and easy commissioning.

QUICK AND POWERFUL RESPONSE

PMC and AVC motor controls allow its integration in high starting torque, dynamic or precise applications. The SD750 is suitable for all existing applications.

SD750 series include a quick fly start for all our motor controls, allowing the drive to find the speed of the motor in just **100 ms**.



START AND STOP FULL CONTROL

Thanks to the MBC (Mechanical Brake Control), the Pre-Magnetization and Delay-off IGBT, loading processes will have a smooth start and stop in any applications where it is required.

In case the application needs autotuning, an improved static, dynamic and combined autotuning will improve the performance of the commissioning tasks.

NO AUTOTUNING NEEDED

A fast and reliable commissioning saves time and money. We have invested in new control methods to simplify setting up procedures.

PMC motor control with its factory settings and motor nameplate parameters, ensure perfect performance without enabling the autotuning function during commissioning.

MULTIPLE DRIVE'S SYNCHRONIZATION

PMC-OLTC is the unique multi master-follower motor control that allows the synchronization of multiple drives and motors without encoder. The result is a smooth, powerful and fast response with the least maintenance and supervision.

Every motor will provide the same torque under any circumstance, therefore ageing all the motors homogeneously. Moreover, its reduced starting inrush current peaks allow the reduction of the drive and motor oversizing in demanding conveyors and mills.



DEDICATED SOFTWARE TOOLS AND MACROS

The lessons learned from many customers and working closely with them have allowed Power Electronics to design of the most flexible tools for user customization and process monitoring.

With a wide range of ready-made macros to optimize any application productivity and usability and being customizable to meet the precise application needs of every customer. The SD750 series monitors the real performance information about motor and drive status integrating an accurate power grid analyzer and drive diagnosis.

POWERCOMMS

The PowerCOMMS tool offers real performance information about motor and drive status. A user friendly PC tool for easy startup, maintenance and processes monitoring. This tool will contribute to shorten downtime and minimize operational and maintenance costs.

Executed from a PC or tablet, and communicated with the drives via Ethernet, RS485/RS232 or Wifi, it registers, plots and exports all the drive visualization parameters: energy consumption, regenerated energy, motor voltage, PTC signal, IGBT temperature, motor overload, fault tracking, etc.

PowerCOMMS is not only a monitoring tool, it can also remotely control and configurate multiple drives allowing the operator to speed up the commissioning procedure, saving time and money.

EFFICIENT DRIVE

Energy savings depend on multiple parameters such as the torque and power response of the load, the process and motor sizing, running hours per year, etc. Nevertheless, Power Electronics can tell you the expected savings on your projects.

Efficient Drive is web tool for the calculation of energy savings in installations with hydraulic pumps. With Efficient Drive, user can determine the energy and economic saving using the SD750 drives in different working conditions.



POWERPLC

PowerPLC is the most advanced and flexible Power Electronics desktop tool. It enhances SD750 performance by implementing multiple ready-made and tailor-made functions without additional hardware.

The flexibility and power of PowerPLC allows the SD750 series to be adapted to the most demanding applications. Available ready-made macros include:

Wire winder

Winders work in torque mode, winding wires of different materials.

Multimaster macros

For creating a redundant system up to 5 motors and reducing the working losses due to unexpected stops.

Trituration - Unblocking

A special macro for unblocking jaw crushers, hammer, mills, etc. With an automatic function where the drive unblocks the crusher when it is blocked.

Magnetic stirrer

A macro for stirring the liquid steel in a system of continuous casting.

Pump macro

The most complete macro for pumping application in the world.

Double or triple nameplate

To work with more than one motor with the same drive.



STANDARD CONNECTION INTERFACE AND EXTENSIONS

SD750 series offer a wide range of standard interfaces and extension options. Including input/output extension modules, fieldbus adapter modules, amongst others.

Digital inputs

There are 6 built-in and 5 optional multifunction digital inputs optically isolated and 1 motor PTC input standard built-in. The digital inputs can be programmed all together to get up to 7 different speed or torque references or they can be programmed individually to set commands such as start, stop, reverse, set acceleration and deceleration ramps, speed limit, alternative control, DC braking, pulse flow meter, ...

Output relays

There are 3 built-in and 5 optional digital outputs. Feel free to configure built-in as standard output relays to set alarms (current, speed, torque, power, DC bus voltage, reference, acceleration and deceleration ramps, etc), control external mechanical brakes, control DC braking units, pipe filling...

Analogue inputs and outputs

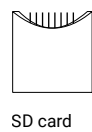
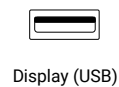
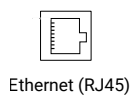
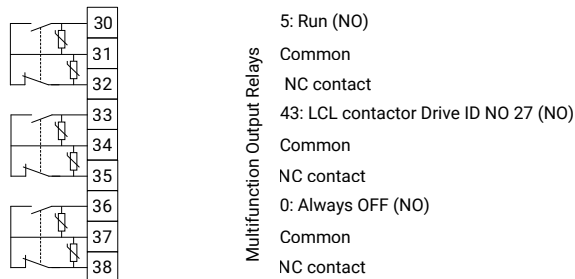
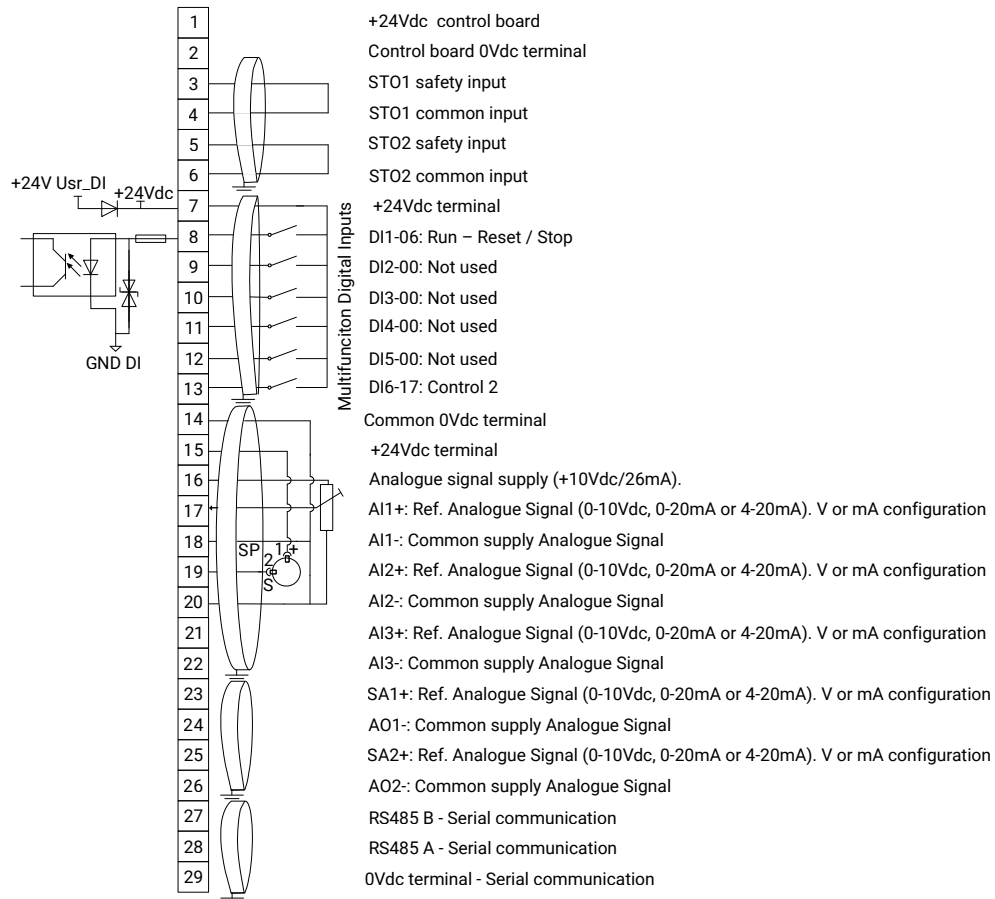
There are 3 built-in and 2 optional analogue programmable inputs, and 2 built-in and 2 optional analogue programmable outputs: 0-10V, -10/+10V, 4-20mA, and PT100. They are optically and galvanically isolated. External sensors or potentiometers are easily programmable as a voltage or current analogue signal in engineering units (% , l/s, m³/s, l/min, m³/min, l/h, m³/h, m/s, m/min, m/h, Bar, kPa, Psi, m, °C, °F, °K, Hz, rpm). Additionally, if the sensor is damaged or with noise coupling problems, the drive is able to filter, detect the failure and stop the application.

Comparators

3 built-in timer comparators standard that are able to compare internal and external variables to modify the drive's performance or provide external information through the output relay. You don't have to use external hardware or sensors to establish safety or operation conditions.

Multiple drives synchronization applications

Fibre optics board is your reliable solution. Fibre optics provide functional reliability and safety. Immune to noise and interferences, long communication distances and high-speed communication rate. Allows multiple drives to be linked together, coordinated and synchronized in real time.



CUSTOMIZED SOLUTIONS

Control and push buttons

Request for special and customized local and remote control suitable for your installation. Emergency push buttons, start and stop selectors and push buttons, local and remote control selector, potentiometers, Pilot-LED status indicator, user terminal strip, DCS report and control, door mounted display, special communication modules, external power supply, power supply redundancy, UPS; standard and ATEX certified PTC....

Output filters and equipment

Isolated systems or with variable frequency supply, and installation with long motor cables or special grid quality, require special equipment such as sinusoidal filters and auto-transformers. Consult Power Electronics for further information.

CUSTOMIZED CONTROL AND PUSH BUTTONS

- Selectors and push buttons
- Customized user terminal strip
- PTC and PT100 relays
- Redundant external Power Supply (UPS)
- ...

CUSTOMIZED INPUT AND OUTPUT WIRING

- Top and bottom connections
- Size and number of conductors
- EMC requirements



Disconnection and Protection

Built-in solutions or adjoining cabinets can be delivered with: general line fuses, on-load disconnecter with and without fuses, earthing switch, mechanical interlocks, end-of-strokes, automatic circuit breakers, ground fault monitoring protection or isolation monitoring for IT grids.

Cabinet features

Power Electronics offers the complete integration of our drives in special cabinets: degree of protection (IP20, IP42 and IP54), cooling, motor and VSD heating resistors control by temperature and humidity, interior lighting, power connections and busbars, special EMC cabinet design, structural and transport design, high altitude requirements, RAL and special painting requirements.....

All are part of the wide variety of equipment that Power Electronics offers to fulfil your specific project requirements.

DOCUMENTATION

- Dimensions and electrics drawings
- ITP reports
- FAT - Factory Acceptance Test
- ...

DISCONNECTION AND PROTECTION

- Fuses
- On-load disconnectors
- Circuit breakers
- ...

CABINET FEATURES

- Transport and elevation plinths
- Painting requirements
- Special cooling system (altitude, humidity, dust...)
- Structural design and test
- ...



TECHNICAL CHARACTERISTICS

INPUT	Power range ^[1]	1,5 kW - 2200 kW	
	Voltage range	380 - 480 Vac ($\pm 10\%$) 525 - 690 Vac (-5/+10%)	
	Input frequency	50 Hz / 60 Hz ($\pm 6\%$)	
	Input rectifier technology	Diode-Diode F1-F2 / Thyristor-Diode F3-F11	
	Displacement power factor (DPF = $\cos \Phi$)	≥ 0.98	
	Power factor (PF= $I_r / I_{rms} \cdot \cos \Phi$)	≥ 0.91	
	Momentary power loss	> 2 seconds (depending on the load inertia)	
	EMC input filter	Second environment (Industrial): (C3 Standard) First environment (Domestic): C2 (Optional). C1 consult with Power Electronics IT filter optional	
	Harmonics filter	Choke coils 3% impedance	
	Current THD (%)	< 40%	
	Regenerative	No	
	OUTPUT	Output frequency ^[2]	0... 599 Hz
		Overload capacity	Constant torque / heavy duty: 150% during 60 seconds at 50°C Variable torque / normal duty: 120% during 60 seconds at 40°C
Efficiency (at full load)		$\geq 98\%$ V / Hz	
Control method		Vector control Open loop: PMC speed / torque control, AVC: speed / torque control Close loop (Encoder): PMC speed / torque control, AVC: speed / torque control PMSM I/f & Sensorless	
Carrier frequency		4 to 8 kHz - PEWave	
Output dV/dt filter		500 - 800 V/ μ s ^[3]	
Output cable length ^[4]		USC 300 m - SC 150 m	
Dynamic brake		External B150 Dynamic Brake - (Frames 1 and 2 integrated)	
ENVIRONMENTAL CONDITIONS		Operation ambient temperature	Minimum: -20°C Maximum: +50°C (Heavy duty) Minimum: -20°C Maximum: +40°C (Normal duty)
		Storage temperature	Minimum: -40°C Maximum: +70°C
	Altitude	1000 m	
	Power altitude derating	>1000m, 1% P _n (kW) per 100m; 4000m maximum (for higher altitude consult with PE)	
	Ambient humidity	<95%, non-condensing	
	Degree of protection	IP20 ^[5] , IP54, Marine series adapted (IP44/IP54, under request)	
	Vibration	Amplitude: ± 1 mm (2 Hz-13.2 Hz), ± 0.075 mm (13.2 Hz-57 Hz) Acceleration: 6.86 m/s ² (13.2 Hz-57 Hz), 9.8 m/s ² (57 Hz-150 Hz)	
	Heating resistors	Optional	
PROTECTIONS	Motor protections	Rotor locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PT100 signal), Speed limit, Torque limit	
	Drive protections	IGBT's overload, Input phase loss, Low input voltage, High input voltage, DC Bus voltage limit, Low DC Bus voltage, High input frequency, Low input frequency, IGBT temperature, Heat-sink over-temperature, Power supply fault, Drive thermal model, Ground fault, Software and Hardware fault, Analogue input signal loss (speed reference loss), Safe stop/Emergency Stop	
INPUTS/ OUTPUTS	Digital inputs	6 programmable, Active high (24 Vdc), Isolated power supply	
	Digital outputs	3 programmable changeover relays (250 Vac, 8 A or 30 Vdc, 8 A)	
	Analogue input	3 programmable differential inputs: 0-20 mA, 4-20 mA, 0-10 Vdc and ± 10 Vdc. PT100. (Optically isolated).	
	Analogue outputs	2 isolated programmable outputs: 0-20 mA, 4-20 mA, 0-10 Vdc and ± 10 Vdc	
	Encoder inputs (optional)	2 differential encoders input. Voltages inputs from 5 to 24Vdc	
	User power supply	+24 Vdc user power supply (Max. 180 mA) regulated and short-circuit protected +10 Vdc user power supply (Max. 2 potentiometers R=1 k Ω) regulated and short-circuit protected	
	I/O Extension board (optional)	Digital I/O board: 5 Digital inputs: Programmable inputs and active high (24Vdc). Optically isolated 5 Digital outputs: programmable multi-function relays Analogue I/O board: 2 Analogue input: Programmable and differential input 2 Analogue output: Programmable outputs in voltage/current	
	External power supply (optional)	24 V External power supply integrated	
	SD card	Port for an external SD Card. Data Logging, events registration	

COMMUNICATIONS	Standard hardware	USB port RS485 port Ethernet
	Optional hardware	Optical fibre Communication boards
	Standard protocol	Modbus-RTU Ethernet (Modbus TCP)
	Optional protocol	Profibus-DP Ethernet IP CANopen ProfiNet
CONTROL PANEL	Type	Removable
	Length	3 meters (optional)
	Connection	USB
	Visualization leds	LED RUN: Motor receiving power supply LED FAULT: Flashing displays that a fault has occurred
	LCD display	LCD screen Keypad with 8 keys to control and configure the drive, start and stop/reset Independent memory Wifi communication module (optional)
	Display information	Average current and 3-phase motor current Average voltage and 3-phase motor voltage Average input voltage and 3-phase input voltage 3-phase input and output frequency DC Bus Voltage
	Others	Drive status Speed, Torque, Power, Power factor of motor Register of total and partial drive running time with reset function. (hours) Register of total and partial drive energy consumption with reset function (kWh) Relay status Digital inputs / PTC status Output comparator status Analogue inputs and sensor values Analogue output value Motor overload and equipment status Drive and rectifier temperature Fault history (last 6 faults) Real time clock Perpetual calendar
REGULATIONS	Certifications	CE, cTick, UL, cUL, Marine certifications (under request)
	Electromagnetic compatibility	EMC Directive (2004/108/CE) IEC/EN 61800-3
	Design and construction	LVD Directive (2006/95/CE) IEC/EN 61800-2 General requirements IEC/EN 61800-5-1 Safety IEC/EN 60146-1-1 Semiconductor converters IEC60068-2-6 - Vibration
	Functional safety	IEC/EN 61800-5-2 Safety Stop (STO)

[1] Other configuration, consult Power Electronics.

[2] For operation frequencies higher than 100 Hz, consult Power Electronics.

[3] Valid for frames 3 to 11 depending on the SD750 rated power.
For frames 1 and 2 it is available optional filter.

[4] SC: Shielded cable, USC: Unshielded Cable. Follow Power Electronics installation recommendations.
For greater cable lengths, consult Power Electronics.

[5] Available for 380–480Vac up to frame 4.

CONFIGURATION TABLE

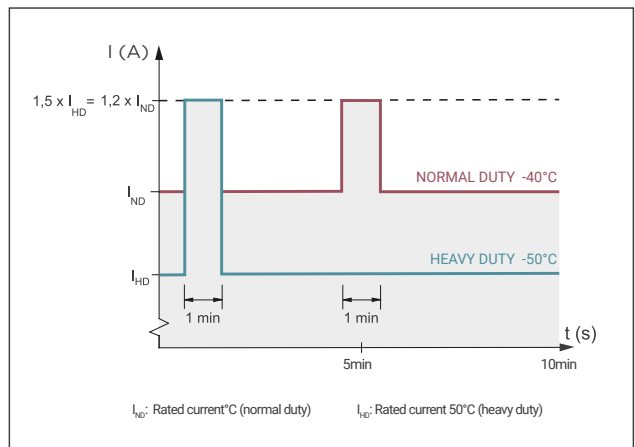
SD750 SERIES	ND OUTPUT CURRENT		A INPUT VOLTAGE		B DEGREE OF PROTECTION		C CABINET PLINTHS		D GROUNDING CONNECTION		E > 4000 METER (above sea level)	
SD75	0003	3 A	5	380-480 Vac	2	IP20	00	Standard	S	TT/TN	-	Not needed
	6	525-690 Vac	5	IP54	20	Total height 2000mm	T	IT	A	Needed
	3100	3100 A					22	Total height 2200mm				

OVERLOAD CAPACITY

Select the working conditions of your application: Normal duty or Heavy duty.

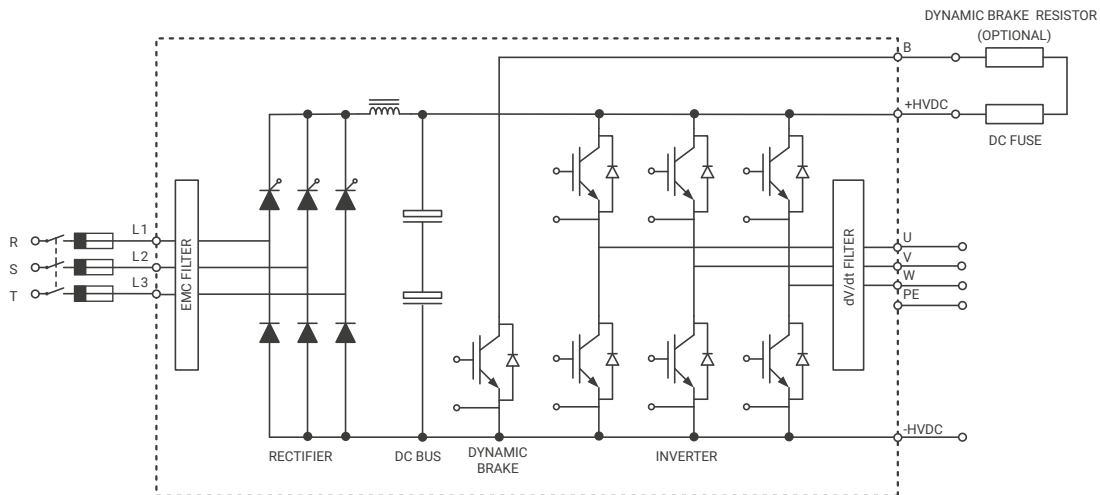
A Heavy duty service for a drive implies the overload capacity will be 1.5 times the rated motor current for one minute, while a Normal Duty service limits the overload capacity up to 1.2 times the rated current for one minute.

Ensure you do not exceed the drive's overload, the rated output current and the maximum ambient temperature, otherwise the drive could suffer from overheating problems.

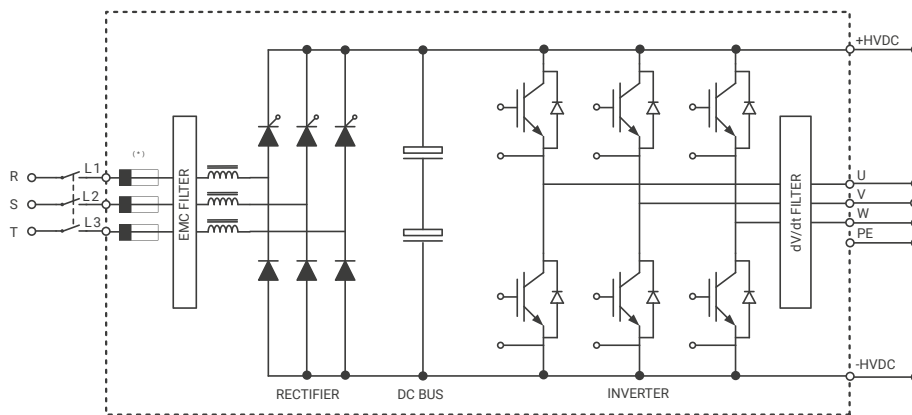


FUNCTIONAL DIAGRAMS

FRAMES 1 AND 2

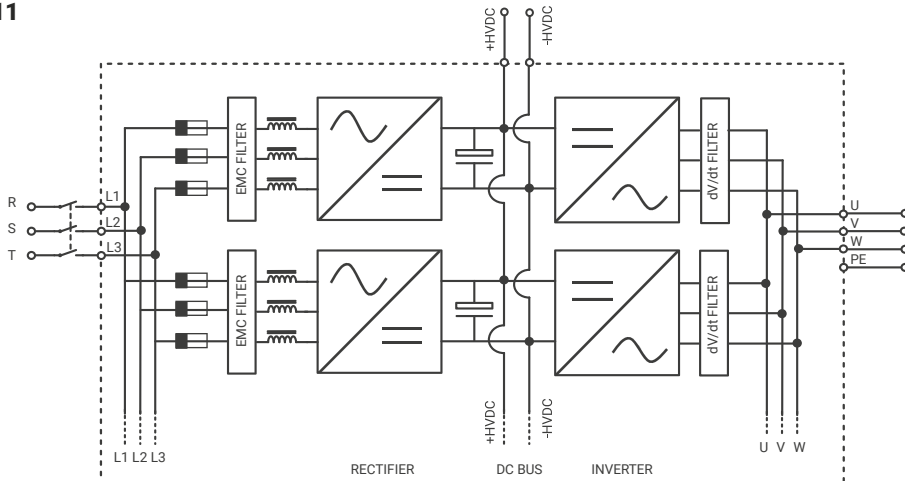


FRAMES 3, 4 AND 5



(*): Fuses not integrated for frames 3 and 4.

FRAMES 6 TO 11



Up to 12 - Depending on the frame size

STANDARD RATINGS

POWER RANGE AT 400VAC

FRAME	CODE	Operation temperature 40°C NORMAL DUTY			Operation temperature 50°C HEAVY DUTY			OVERLOAD
		Motor power (kW)	Motor power (hp)	I(A) Rated	Motor power (kW)	Motor power (hp)	I(A) Rated	
1	SD750006 5BDEF	2.2	3	6	1.5	2	3	6
	SD750008 5BDEF	4	5	8	2.2	3	6	9
	SD750011 5BDEF	5.5	7,5	11	4	5	9	14
	SD750015 5BDEF	7.5	10	15	5.5	7,5	12	18
	SD750024 5BDEF	11	15	24	7.5	10	18	27
	SD750030 5BDEF	15	20	30	11	15	24	36
	SD750040 5BDEF	18.5	25	40	15	20	32	48
2	SD750048 5BDEF	22	30	48	18.5	25	38	57
	SD750060 5BDEF	30	40	60	22	30	48	72
	SD750075 5BDEF	37	50	75	30	40	60	90
3	SD750095 5BDEF	45	60	95	37	50	75	113
	SD750110 5BDEF	55	75	110	45	60	90	135
	SD750145 5BDEF	75	100	145	55	75	115	173
	SD750180 5BDEF	90	125	180	75	100	150	225
4	SD750200 5BDEF	110	150	200	90	125	170	255
	SD750260 5BDEF	132	200	260	110	150	210	315
5	SD750320 5BDEF	160	250	320	132	200	250	375
	SD750400 5BDEF	220	300	400	160	250	330	495
6	SD750450 5BDEF	250	350	450	220	300	370	555
	SD750570 5BDEF	315	400	570	250	350	460	690
	SD750700 5BDEF	400	550	700	315	450	580	870
7	SD750800 5BDEF	450	650	800	355	500	650	975
	SD750900 5BDEF	500	700	900	400	550	720	1080
	SD751050 5BDEF	560	800	1050	450	700	840	1260
8	SD751140 5BDEF	630	900	1140	500	750	925	1388
	SD751400 5BDEF	800	1000	1400	630	900	1150	1725
9 ^[1]	SD751550 5BDEF	900	1250	1550	710	1000	1260	1890
	SD751800 5BDEF	1000	1400	1800	800	1150	1440	2160
	SD751950 5BDEF	1100	1500	1950	900	1250	1580	2370
10 ^[1]	SD752250 5BDEF	1200	1750	2250	1000	1450	1800	2700
	SD752750 5BDEF	1500	2200	2750	1200	1750	2200	3300
11 ^[1]	SD753100 5BDEF	1750	2450	3100	1400	2000	2500	3750

[1] Consult availability with Power Electronics.

POWER RANGE AT 440VAC

FRAME	CODE	Operation temperature 40°C NORMAL DUTY			Operation temperature 50°C HEAVY DUTY			OVERLOAD
		Motor power (kW)	Motor power (hp)	I(A) Rated	Motor power (kW)	Motor power (hp)	I(A) Rated	
1	SD750006 5BDEF	2.2	3	5	1.5	2	3	6
	SD750008 5BDEF	4	5	7	2.2	3	5	8
	SD750011 5BDEF	5.5	7,5	10	4	5	8	13
	SD750015 5BDEF	7.5	10	14	5.5	7,5	11	16
	SD750024 5BDEF	11	15	22	7.5	10	16	25
	SD750030 5BDEF	15	20	27	11	15	22	33
2	SD750040 5BDEF	18.5	25	36	15	20	29	44
	SD750048 5BDEF	22	30	44	18.5	25	35	52
	SD750060 5BDEF	30	40	55	22	30	44	65
3	SD750075 5BDEF	37	50	68	30	40	55	82
	SD750095 5BDEF	45	60	86	37	50	68	103
	SD750110 5BDEF	55	75	100	45	60	82	123
	SD750145 5BDEF	75	100	132	55	75	105	157
4	SD750180 5BDEF	90	125	164	75	100	136	205
	SD750200 5BDEF	110	150	182	90	125	155	232
	SD750260 5BDEF	132	200	236	110	150	191	286
5	SD750320 5BDEF	160	250	291	132	200	227	341
	SD750400 5BDEF	220	300	364	160	250	300	450
6	SD750450 5BDEF	250	350	409	220	300	336	505
	SD750570 5BDEF	315	400	518	250	350	418	627
	SD750700 5BDEF	400	550	636	315	450	527	791
7	SD750800 5BDEF	450	650	727	355	500	591	886
	SD750900 5BDEF	500	700	818	400	550	655	982
	SD751050 5BDEF	560	800	955	450	700	764	1145
8	SD751140 5BDEF	630	900	1036	500	750	841	1262
	SD751400 5BDEF	800	1000	1273	630	900	1045	1568
9 ^[1]	SD751550 5BDEF	900	1250	1409	710	1000	1145	1718
	SD751800 5BDEF	1000	1400	1636	800	1150	1309	1964
	SD751950 5BDEF	1100	1500	1773	900	1250	1436	2155
10 ^[1]	SD752250 5BDEF	1200	1750	2045	1000	1450	1636	2455
	SD752750 5BDEF	1500	2200	2500	1200	1750	2000	3000
11 ^[1]	SD753100 5BDEF	1750	2450	2818	1400	2000	2273	3409

[1] Consult availability with Power Electronics.

STANDARD RATINGS

POWER RANGE AT 480VAC

FRAME	CODE	Operation temperature 40°C NORMAL DUTY			Operation temperature 50°C HEAVY DUTY			OVERLOAD
		Motor power (kW)	Motor power (hp)	I(A) Rated	Motor power (kW)	Motor power (hp)	I(A) Rated	
1	SD750006 5BDEF	2.2	3	5	1.5	2	3	6
	SD750008 5BDEF	4	5	7	2.2	3	5	8
	SD750011 5BDEF	5.5	7,5	9	4	5	8	12
	SD750015 5BDEF	7.5	10	13	5.5	7,5	10	15
	SD750024 5BDEF	11	15	20	7.5	10	15	23
	SD750030 5BDEF	15	20	25	11	15	20	30
	SD750040 5BDEF	18.5	25	33	15	20	27	40
2	SD750048 5BDEF	22	30	40	18.5	25	32	48
	SD750060 5BDEF	30	40	50	22	30	40	60
	SD750075 5BDEF	37	50	63	30	40	50	75
3	SD750095 5BDEF	45	60	79	37	50	63	94
	SD750110 5BDEF	55	75	92	45	60	75	113
	SD750145 5BDEF	75	100	121	55	75	96	144
	SD750180 5BDEF	90	125	150	75	100	125	188
4	SD750200 5BDEF	110	150	167	90	125	142	213
	SD750260 5BDEF	132	200	217	110	150	175	263
5	SD750320 5BDEF	160	250	267	132	200	208	313
	SD750400 5BDEF	220	300	333	160	250	275	413
6	SD750450 5BDEF	250	350	375	220	300	308	463
	SD750570 5BDEF	315	400	475	250	350	383	575
	SD750700 5BDEF	400	550	583	315	450	483	725
7	SD750800 5BDEF	450	650	667	355	500	542	813
	SD750900 5BDEF	500	700	750	400	550	600	900
	SD751050 5BDEF	560	800	875	450	700	700	1050
8	SD751140 5BDEF	630	900	950	500	750	771	1157
	SD751400 5BDEF	800	1000	1167	630	900	958	1438
9 ^[1]	SD751550 5BDEF	900	1250	1292	710	1000	1050	1575
	SD751800 5BDEF	1000	1400	1500	800	1150	1200	1800
	SD751950 5BDEF	1100	1500	1625	900	1250	1317	1975
10 ^[1]	SD752250 5BDEF	1200	1750	1875	1000	1450	1500	2250
	SD752750 5BDEF	1500	2200	2292	1200	1750	1833	2750
11 ^[1]	SD753100 5BDEF	1750	2450	2583	1400	2000	2083	3125

[1] Consult availability with Power Electronics.

POWER RANGE AT 525VAC

FRAME	CODE	Operation temperature 40°C NORMAL DUTY			Operation temperature 50°C HEAVY DUTY			OVERLOAD
		Motor power (kW)	Motor power (hp)	I(A) Rated	Motor power (kW)	Motor power (hp)	I(A) Rated	
4 [1]	SD750200 6BDEF	110	150	167	90	125	142	213
	SD750260 6BDEF	132	200	217	110	150	175	263
5	SD750160 6BDEF	110	150	160	90	125	130	195
	SD750180 6BDEF	132	180	180	110	150	150	225
	SD750210 6BDEF	150	200	210	132	180	170	255
6	SD750250 6BDEF	185	250	250	150	200	210	315
	SD750310 6BDEF	220	300	310	185	250	260	390
	SD750400 6BDEF	280	400	400	220	300	320	480
7	SD750480 6BDEF	355	450	480	280	400	385	578
	SD750570 6BDEF	400	550	570	355	450	460	690
8	SD750680 6BDEF	500	650	680	400	550	550	825
	SD750825 6BDEF	560	800	825	500	650	660	990
9 [1]	SD750930 6BDEF	630	900	930	560	800	750	1125
	SD751050 6BDEF	710	1000	1050	630	900	840	1260
	SD751200 6BDEF	900	1200	1200	710	1000	950	1425
10 [1]	SD751400 6BDEF	1000	1400	1400	900	1200	1140	1710
	SD751550 6BDEF	1100	1500	1550	1000	1400	1270	1905
	SD751750 6BDEF	1250	1700	1750	1100	1500	1420	2130
11 [1]	SD751850 6BDEF	1400	1800	1850	1250	1700	1500	2250
	SD752200 6BDEF	1600	2100	2200	1400	1800	1800	2700
	SD752500 6BDEF	1800	2400	2500	1600	2100	2000	3000

[1] Consult availability with Power Electronics.

STANDARD RATINGS

POWER RANGE AT 600VAC

FRAME	CODE	Operation temperature 40°C NORMAL DUTY			Operation temperature 50°C HEAVY DUTY			OVERLOAD
		Motor power (kW)	Motor power (hp)	I(A) Rated	Motor power (kW)	Motor power (hp)	I(A) Rated	
4 ^[1]	SD750200 5BDEF	110	150	167	90	125	142	213
	SD750260 5BDEF	132	200	217	110	150	175	263
5	SD750160 6BDEF	132	180	160	110	150	130	195
	SD750180 6BDEF	150	200	180	132	180	150	225
	SD750210 6BDEF	180	250	210	150	200	170	255
6	SD750250 6BDEF	220	300	250	180	250	210	315
	SD750310 6BDEF	250	350	310	220	300	260	390
	SD750400 6BDEF	355	450	400	250	350	320	480
7	SD750480 6BDEF	400	550	480	355	450	385	578
	SD750570 6BDEF	500	650	570	400	550	460	690
8	SD750680 6BDEF	560	800	680	500	650	550	825
	SD750825 6BDEF	710	950	825	560	800	660	990
9 ^[1]	SD750930 6BDEF	800	1100	930	710	950	750	1125
	SD751050 6BDEF	900	1250	1050	800	1100	840	1260
	SD751200 6BDEF	1000	1400	1200	900	1250	950	1425
10 ^[1]	SD751400 6BDEF	1200	1600	1400	1000	1400	1140	1710
	SD751550 6BDEF	1300	1700	1550	1200	1600	1270	1905
	SD751750 6BDEF	1500	2000	1750	1300	1700	1420	2130
11 ^[1]	SD751850 6BDEF	1600	2200	1850	1500	2000	1500	2250
	SD752200 6BDEF	1900	2500	2200	1600	2200	1800	2700
	SD752500 6BDEF	2200	2900	2500	1900	2500	2000	3000

[1] Consult availability with Power Electronics.

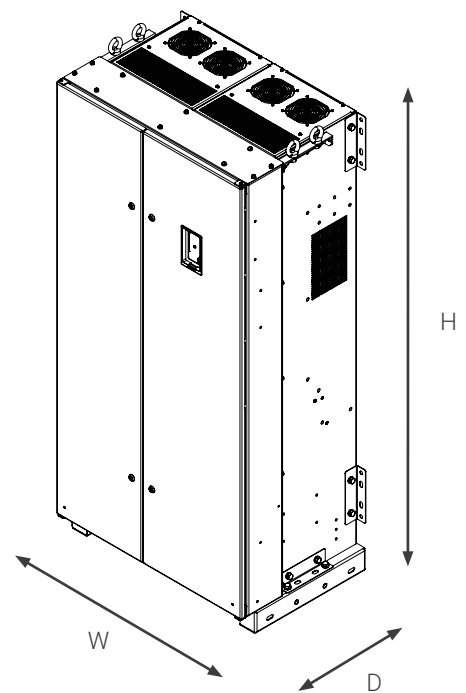
POWER RANGE AT 690VAC

FRAME	CODE	Operation temperature 40°C NORMAL DUTY			Operation temperature 50°C HEAVY DUTY			OVERLOAD
		Motor power (kW)	Motor power (hp)	I(A) Rated	Motor power (kW)	Motor power (hp)	I(A) Rated	
4 [1]	SD750200 6BDEF	110	150	167	90	125	142	213
	SD750260 6BDEF	132	200	217	110	150	175	263
5	SD750160 6BDEF	132	200	160	110	150	130	195
	SD750180 6BDEF	160	250	180	132	200	150	225
	SD750210 6BDEF	200	300	210	160	250	170	255
6	SD750250 6BDEF	250	350	250	200	300	210	315
	SD750310 6BDEF	315	400	310	250	350	260	390
	SD750400 6BDEF	355	450	400	315	400	320	480
7	SD750480 6BDEF	450	600	480	355	450	385	578
	SD750570 6BDEF	560	700	570	450	600	460	690
8	SD750680 6BDEF	630	900	680	560	700	550	825
	SD750825 6BDEF	800	1000	825	630	900	660	990
9 [1]	SD750930 6BDEF	900	1200	930	800	1000	750	1125
	SD751050 6BDEF	1000	1400	1050	900	1200	840	1260
	SD751200 6BDEF	1200	1600	1200	1000	1400	950	1425
10 [1]	SD751400 6BDEF	1400	1800	1400	1200	1600	1140	1710
	SD751550 6BDEF	1500	2000	1550	1400	1800	1270	1905
	SD751750 6BDEF	1700	2200	1750	1500	2000	1420	2130
11 [1]	SD751850 6BDEF	1800	2400	1850	1700	2200	1500	2250
	SD752200 6BDEF	2100	2750	2200	1800	2400	1800	2700
	SD752500 6BDEF	2200	3000	2500	2100	2750	2000	3000

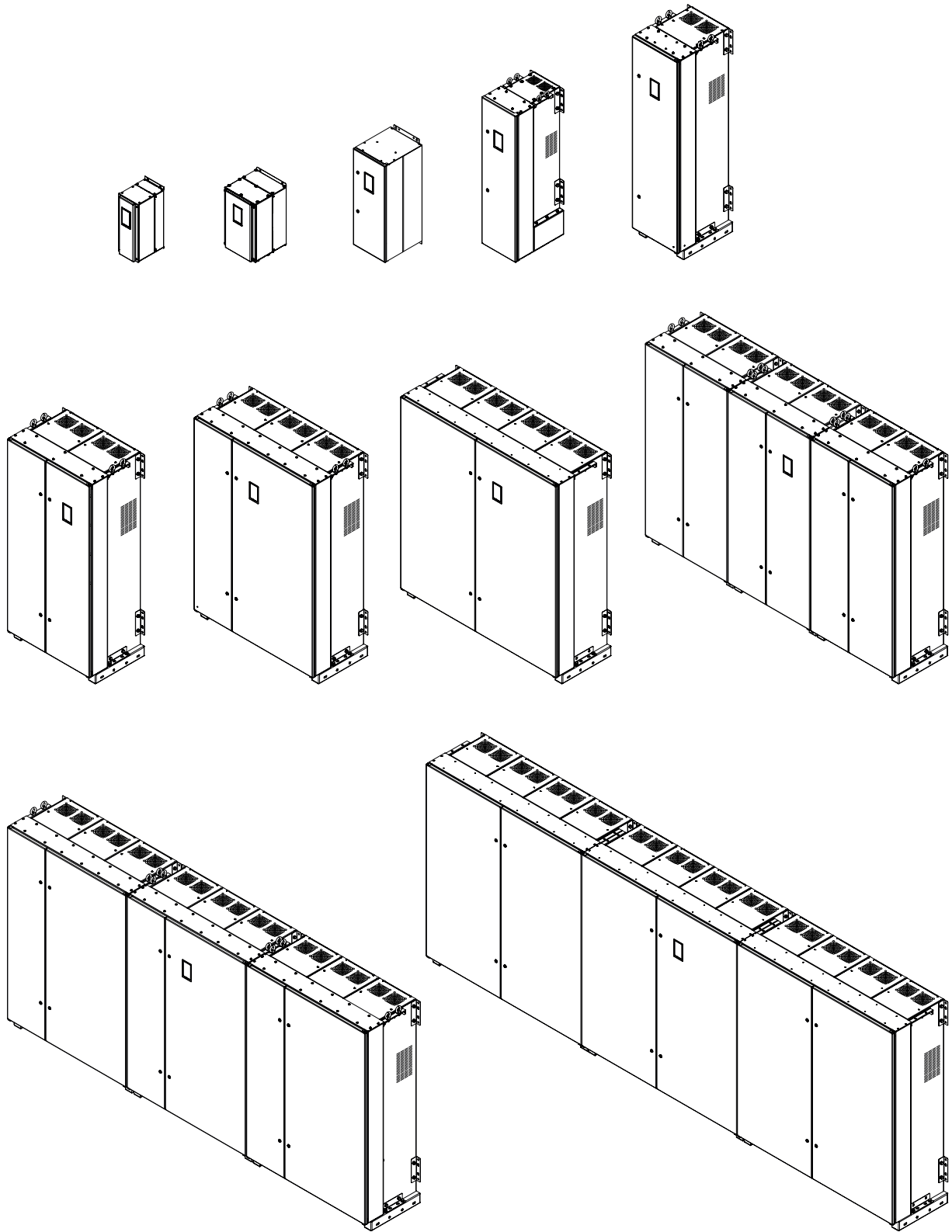
[1] Consult availability with Power Electronics.

DIMENSIONS AND WEIGHTS

FRAME	W	D	H	WEIGHT (kg)
1	190	273	507	15
2	296	323	510	26
3	301	358	854	67.5
4	320	466	1249	94
5	431	529	1716	200
6	780	529	1715	335
7	1132	529	1715	479
8	1482	529	1715	585
9	2352	529	1715	1005
10	3402	529	1712	1437
11	4452	529	1712	1755

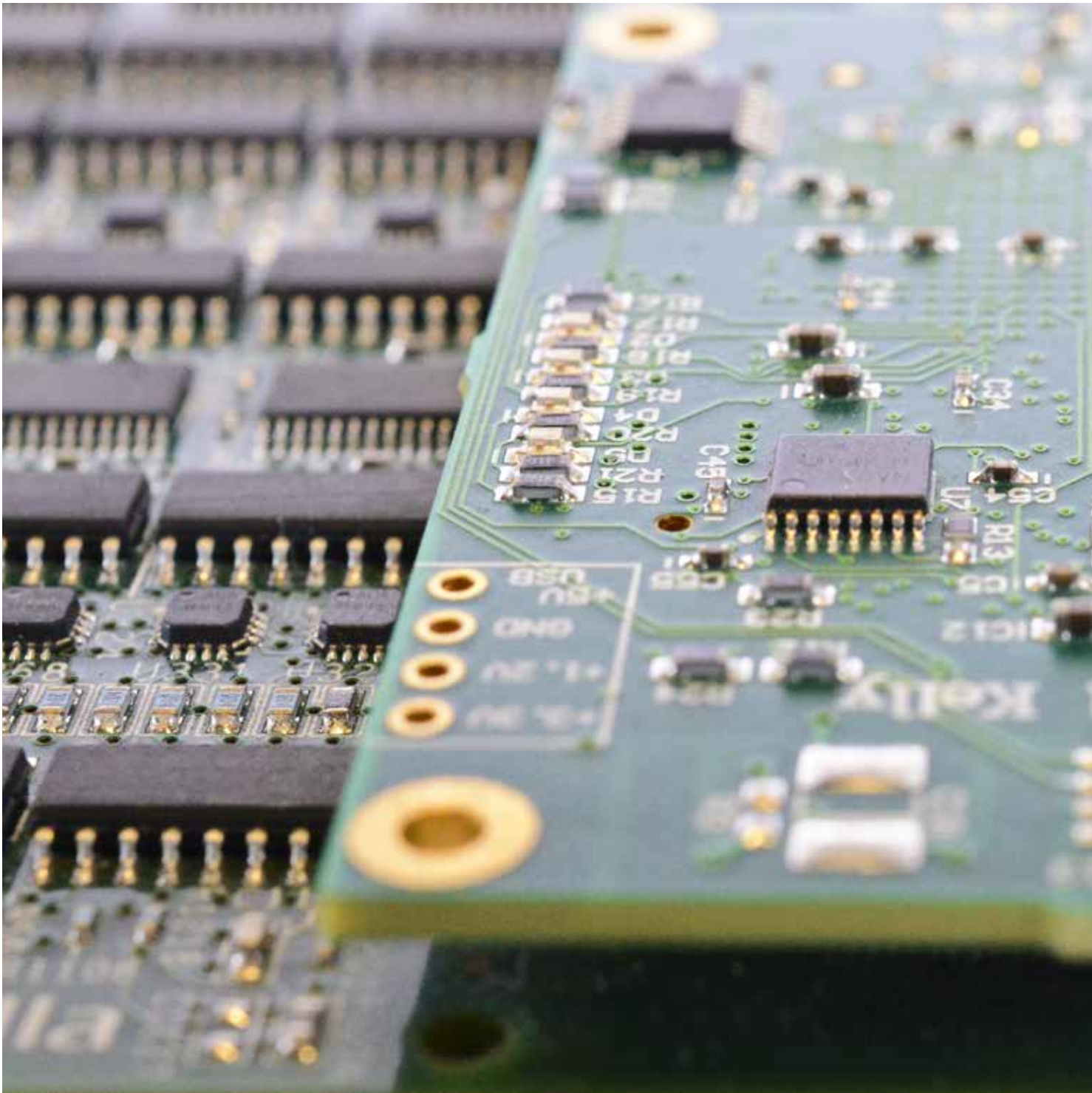


FRAMES 1 TO 11



ACCESSORIES

SD750 through its accessories fulfils the most extended requirements of the industrial sector. SD750 series offers a wide variety of communication protocols, dedicated boards, filters, interface accessories, etc... that enhances family features.

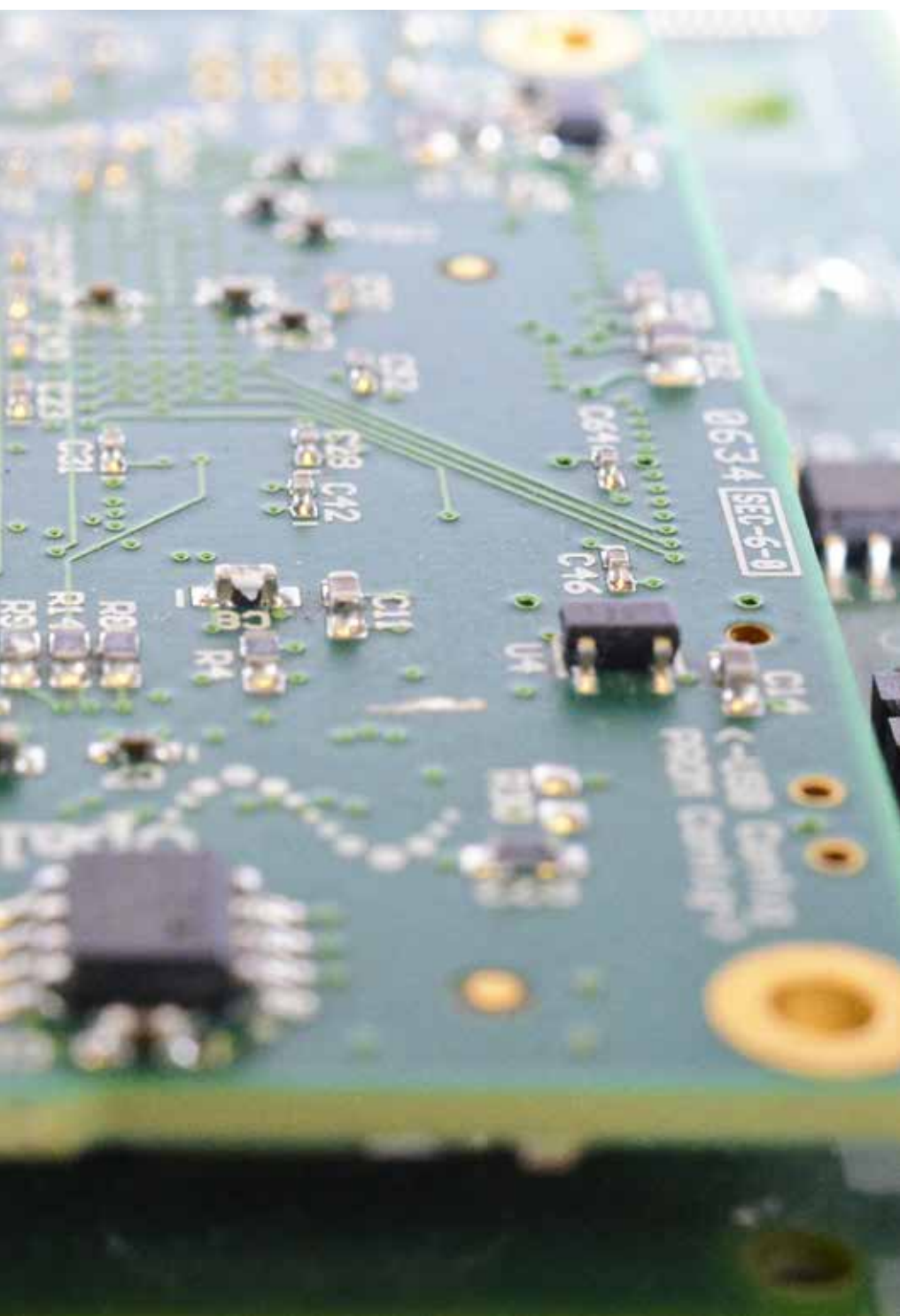


COMMUNICATIONS ACCESSORIES

EXTENSION BOARDS

MECHANICAL ACCESSORIES

OTHER ACCESSORIES



ACCESSORIES DESCRIPTION

CODE	DESCRIPTION
SD75ET	Ethernet/IP communication board
SD75PN	Profinet communication board
SD75PB	Profibus communication board
SD75CO	CANopen communication board
SD75EC	Encoder board It allows to have 1 Differential Encoders (TTL or HTL) working from 5 to 24Vdc
SD75DIO	Digital input/outputs expansion boards It allows to increase the number of inputs and outputs of the unit. It includes: <ul style="list-style-type: none"> • 5 Digital Inputs optically isolated and configurable • 5 Digital Outputs (Relays)
SD75AIO	Analogue inputs/outputs expansion boards It allows to increase the number of inputs and outputs of the unit. It includes: <ul style="list-style-type: none"> • 2 Configurable analogue inputs • 2 Configurable analogue outputs
SD75FO	Fibre optics board. It allows to communicate several drives in master-slave configuration
SD75PT	Card for 8 thermal sensors type PT100
B150	Dynamic brake
SD75DE3	Display extender kit 3 meters
SD75TD	Touch display 4.3"

COMMUNICATION ACCESSORIES

SD750 series is compatible with the most commonly used communication protocols (Profibus, Profinet, Ethernet/IP, CANopen...), thanks to its optional boards.

Fibre optics board

It connects and synchronizes all required drives through fibre optics. Power Motor Control can be utilised with the master and multiple followers all sharing identical torque or following the same speed reference. The fibre optics allows long communication distance without interference.

EXTENSION BOARDS

I/O EXPANDER BOARD

Optionally, the SD750 has two input and output expansion boards available, which allow the converter to be integrated in any type of installation:

Digital expansion boards:

- 5 digital inputs
- 5 digital outputs

Analogue expansion boards:

- 2 analogue inputs (0-10V, 4-20mA)
- 2 analogue outputs

ENCODER BOARD

The encoder board improves the speed regulation thanks to the closed loop control. They are optically isolated and have the possibility to be powered by 5Vdc or 24Vdc.

PT100 INPUT EXPANDER

The PT100 board provides extra protection to the motor, guaranteeing the correct operation of the motor and the application. It allows connecting up to 8 PT100 sensors in the equipment, permitting the monitoring of different temperature sensors installed in the motor, or even for temperature process control.

MECHANICAL ACCESSORIES

IP20 Connection boxes

SD750 frames 1 to 3 have extension boxes permitting larger cables to be terminated.

FRAME	CODE	DIMENSIONS		
		W	D	H
1	SD75EB1	189	122	161
2	SD75EB2	295	122	161
3	SD75EB3	300	151	168



SD750 Frame 4 to 11 plinths

SD750 frames 5 and up are stand-alone drives. They can be equipped with optional plinths to attain 2000mm or 2200mm total height. A stand-alone plinth for frame 4 attaining total height of 1712mm is also available.

FRAME	CODE	DIMENSIONS			Total drive height (mm)
		W	D	H	
4	SD75PL0417	320	464	438.5	1712
5	SD75PL0520	431	413.5	529	2000
	SD75PL0522	431	613.5	529	2200
6	SD75PL0620	786	413.5	529	2000
	SD75PL0622	786	613.5	529	2200
7	SD75PL0720	1132	413.5	529	2000
	SD75PL0722	1132	613.5	529	2200
8	SD75PL0820	1482	413.5	529	2000
	SD75PL0822	1482	613.5	529	2200
9	SD75PL0920	3 x SD75PL0620			2000
	SD75PL0922	3 x SD75PL0622			2200
10	SD75PL1020	3 x SD75PL0720			2000
	SD75PL1022	3 x SD75PL0722			2200
11	SD75PL1120	3 x SD75PL0820			2000
	SD75PL1122	3 x SD75PL0822			2200



OTHER ACCESSORIES

Dynamic brake B150

The Dynamic brake controls the regenerated energy for SD750 series. B150 dynamic brake activates an IGBT to discharge the DC bus through external resistors when the DC voltage surpasses a pre-set value. This activation signal could also be delivered by the drive acquiring an optional Master-Slave mode braking board.

REFERENCE	VOLTAGE	Current (A)		Minimum Resistance Rating (Ω)	Dimensions (mm)			Weight (kg)
		Maximum	Continuous		W	D	H	
B150	380Vac, 500Vac	300A	150A	2.4 Ω	177	221	352	7
B150.6	690Vac	200A	100A	5.75 Ω				



Special filters

Special output and input filters are available such as sinusoidal output filter or First Environment, C2 category input filter. For further information consult Power Electronics.

Safety

SD750 can include safety accessories such as PT100, emergency off and emergency stop pushbuttons.



Painting

SD750 can include special cabinet painting. Customized solutions available.

INDUSTRIES



WATER
MINING & CEMENT
METAL & PAPER
HOISTING

OIL & GAS
POWER GENERATION
MARINE
ORIGINAL EQUIPMENT MANUFACTURERS



WATER

Water distribution networks
Pumping stations
Irrigation networks
Desalination plants
Municipal treatment and recycling
Industrial treatment and recycling
Thermo solar plants
Solar pumping



METAL & PAPER

Rolling systems
Printing and stamping machines
Compressors
Plastic injection machines
Conveyors
Mills
Mixers



OIL & GAS

Extraction plants
Refineries
Treatment plants
Storage and distribution plants
Chemical industries



MARINE

Cold ironing
Bow thrusters
Winches
Compressors
Cranes



MINING & CEMENT

Flotation and decanters
Washing and filtration
Mine pumping water well
Pre-heating and cooling fans
Residual gas exhausting
Storage and charging loads
Water distribution
Mixers



HOISTING

Cranes
Elevators
Conveyor belts



POWER GENERATION

Power generation plants (Gas, coal and biomass)
CSP plants
Hydraulic plants



OEM

Integration complex machines





WARRANTY

Power Electronics (the Seller) warrants that their INDUSTRIAL 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, 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 Mby the Buyer and/or their representative where cost allocation has been previously agreed.

In case of fault or defect, the Buyer shall notify the Seller in writing by using the

following contact email: quality@power-electronics.com, of the presence of any fault or defect within 15 days of the fault or defect event. The serial number of the defective product plus a brief description of the fault must be included in the email. Failure to notify the Seller of fault or defect within this time period may result in the warranty becoming invalid. In the event of replacement of defective Product or part thereof, the property of the Product or part shall be transferred to the Seller.

The Seller shall bear no liability for damages to property or third persons, even as manufacturer of the Products, other than that expressly provided by virtue of applicable mandatory law provisions.

In any case, the Seller shall not be liable for indirect or consequential damages of whatsoever nature as, by way of example, production losses or unearned profits. The Seller shall, at their discretion, forfeit all warranty rights of the Buyer if the total sum of the contract and payment has not been reached in accordance with the agreed conditions of the contract.

No other warranties, express or implied, are made with respect to the Products including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. In any case, the Buyer's right to damages shall be limited to a maximum amount equal to no more than the price obtained by the Seller of the faulty or defective Products.

These conditions shall apply to any repaired or replacement products. Notwithstanding the above, the replacement of a Product does not imply an extension of the term of warranty outside that of the original term.

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June 2020

