



**POWER ELECTRONICS**<sup>®</sup>

# SD700 SERIES

LOW VOLTAGE  
VARIABLE  
SPEED DRIVE





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# ABOUT US

Since our inauguration in 1987 Power Electronics' strategy of continuous innovation in product development has realized an extensive range of AC variable speed drives and soft starters in low and medium voltage and utility scale solar inverters.

The expertise and know-how gained over more than 30 years in the business is demonstrated in the unique features and patented designs of our products, coupled with the shortest lead-times and unbeatable 24/7 Power On Support has consolidated Power Electronics' position as a global market leader in the AC drive and soft starter business.



**INDUSTRIAL DIVISION**  
VARIABLE SPEED DRIVES  
ELECTRONIC SOFT STARTERS

**SOLAR DIVISION**  
SOLAR INVERTERS  
SOLAR POWER STATIONS




**+45**  
countries

**+30** years

of product  
excellence and  
diversification

Financial stability and strength

 SUSTAINABLE GROWTH



**T**he most complete range of  
variable speed drives and soft starters

**0.4kW - 6000kW**

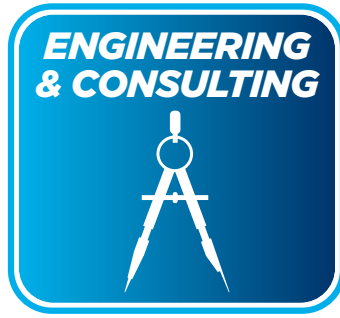
**0.23kV - 13.8kV**



Product and Factory independent  
Reports and Certifications

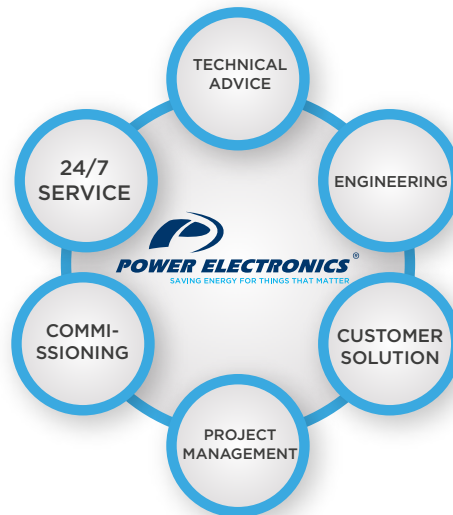
— Engineered for reliability

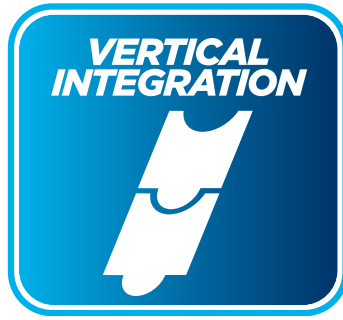
— **3** year warranty:  
Industrial products



## Low voltage experts

LV projects often require customer specific solutions, for this reason our clients also have our Engineering and Consulting department at their disposal, which comprise 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.





## Vertical integration for customer satisfaction

Flexibility and specialization play a key role in standard product manufacturing but even more in customised products. Vertical integration gives us the flexibility to be able to adapt to customer requirements and still provide very short lead times.

RELIABLE ENGINEERING

DESIGN FLEXIBILITY

HIGH QUALITY COMPONENTS

VALUE CHAIN SUPERVISION

FACTORY TESTED

IMMEDIATE DELIVERY





## Power on Support customer oriented strategy

Power on Support is the concept of a customer oriented strategy implemented by Power Electronics since its origins more than 25 years ago with 24/7 after sales service available for all our customers and end users without the need of signing an O&M contract.

ENGINEERING SUPPORT

24/7 CUSTOMER SUPPORT

24/7 ONSITE ASSISTANCE

COMMISSIONING SUPPORT

TRAINING SEMINARS

3 YEAR WARRANTY





ENGINEERING  
AND CONSULTING

COMMISSIONING

**START**

WARRANTY

FOR INDUSTRIAL DIVISION

**3**

YEARS

CUSTOMER SUPPORT

ON SITE  
TECHNICAL SERVICE

TRAINING SEMINARS

SPARE PARTS  
WARRANTY

**POWER  
ON SUPPORT  
24h**



UNITED STATES

UNITED KINGDOM

SPAIN

MEXICO

PANAMA

COLOMBIA

MOROCCO

CHILE

PERU

BRAZIL

SOUTH AFRICA

power-electronics.com

in   



# SD700 SERIES

Power Electronics' SD700 Series is made by 5 low voltage drives ranging from 1,5 kW to 2.200 kW and from 230Vac to 690Vac.



- p. 14** **SD700 SERIES**  
COMMON FEATURES
- p. 34** SD700  
Variable speed drive
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Solar pumping
- p. 60** SD700 KOMPAKT  
Compact solution
- p. 74** SD700FL  
Drive passive filter
- p. 82** SD700FR  
Regenerative Active Front End



**TOTALLY SEALED  
ELECTRONICS IP54  
WITHOUT DUST FILTERS**



**BUILT-IN  
HARMONICS  
AND RFI FILTERS**



**CONFORMAL COATING WITH  
MILITARY AND AEROSPACE  
TECHNOLOGY**



**MODU  
100kW**



**MAXIMUM MOTOR CARE  
AND INSTALLATION COST  
REDUCTION**



**INTEGRATED FUNCTIONAL  
AND ELECTRICAL SAFETY**



**ACCURATE, POWERFUL  
AND FLEXIBLE CONTROL**



**MULTIPLE APPLICATIONS  
AND COMMUNICATION  
SYSTEMS**



**50°C OPERATION  
WITHOUT POWER  
DERATING**



**(FFA) EASY FRONT  
ACCESS TO THE MAIN  
COMPONENTS**

**CLARITY FROM  
/ TO 2200kW**



**BUILT-IN dv/dt FILTER  
500V/μs-800V/μs  
(unscreened cable  
up to 300m)**



**HIGH QUALITY AND  
OVERSIZED COMPONENTS**



**EASY TO USE**



**EASY MAINTENANCE**



**ENERGY SAVING**



## MAXIMUM MOTOR CARE AND INSTALLATION COST REDUCTION

SD700 includes built-in as standard  $dV/dt$  filter that reduces the  $dV/dt$  value to  $500V/\mu s$ - $800V/\mu s$  depending on the drive size and rated voltage, minimizing the voltage peaks at the motor winding. Additionally SD700 has a unique CLAMP electronic system that smartly absorbs high frequency currents caused by the reflection phenomena in long motor cables.



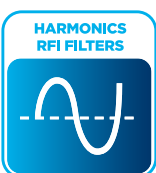
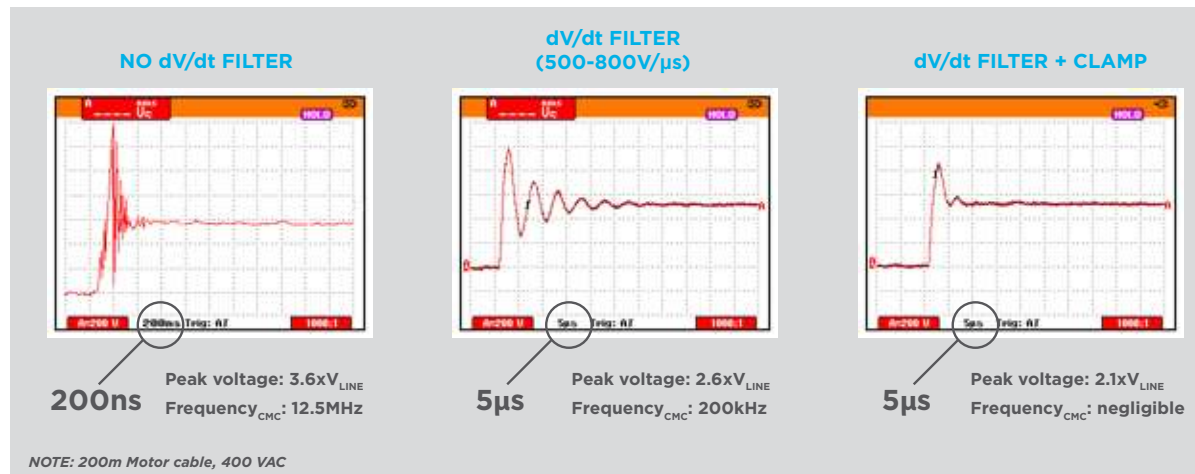
$dV/dt$  FILTERS WITH CLAMP INTEGRATED AS STANDARD



These features reduce the transferred Electromagnetic Energy and the voltage peaks seen by the first turn of the winding. Consequently SD700 low voltage drive portfolio can be installed following Power Electronics recommendations with:

- greater cable distances (150m shielded cable, 300m unshielded cable)
- standard unshielded cable
- non isolated bearings
- no special motor insulation

It is the unique drive in the market focused on the customer's needs such as wiring and motor cost reduction.



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

BUILT-IN FILTERS ELIMINATE HIDDEN COSTS  
THAT REDUCE YOUR RETROFIT INVESTMENTS

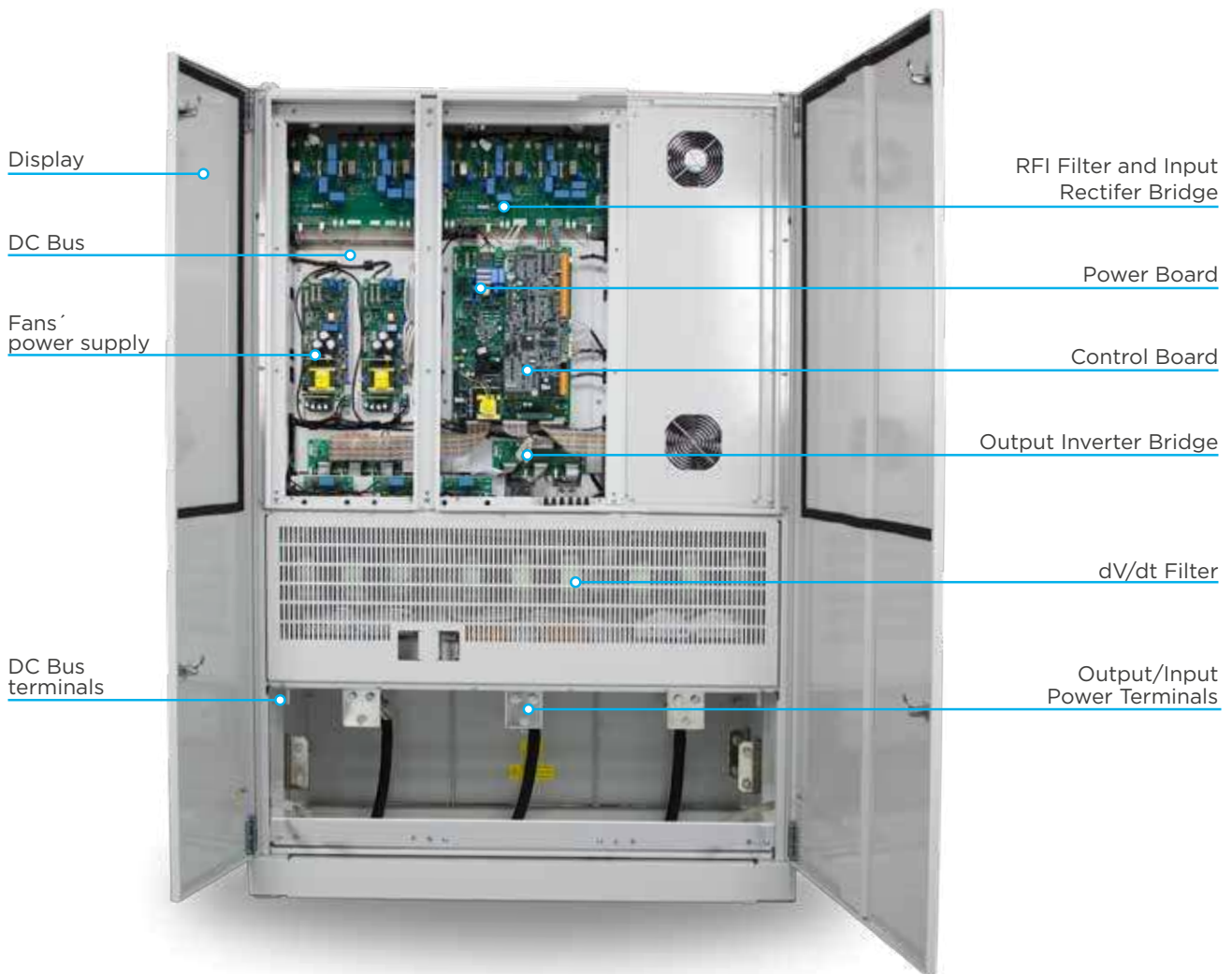


## FULL FRONTAL ACCESS

Maintenance and cleaning reduce company yield, therefore SD700 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, and the input and output power terminals, DC bus terminals and user interconnection are accessible.

SD700 are 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.

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



SMART MECHANICAL DESIGN  
TO REDUCE MAINTENANCE AND  
INCREASE DRIVE LIFETIME



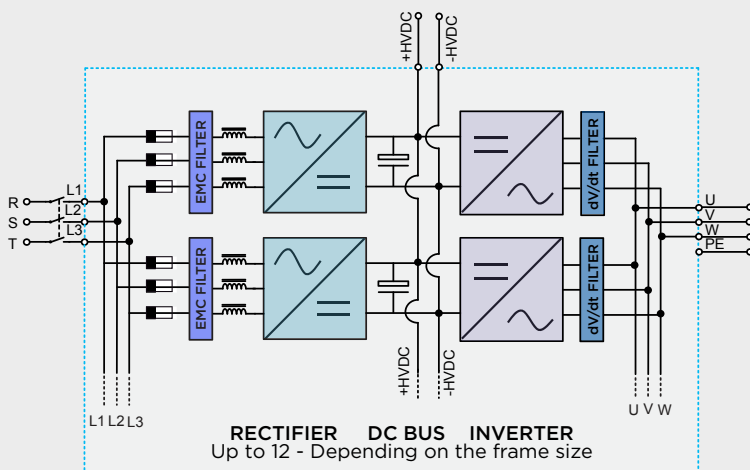
## QUALITY AND OVERSIZED CRITICAL COMPONENTS TO PROVIDE RELIABILITY

We are aware of continuous operation applications and the cost of process shutdown that could cause a high reduction of income for your company. A selection of critical components of the SD700 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.



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





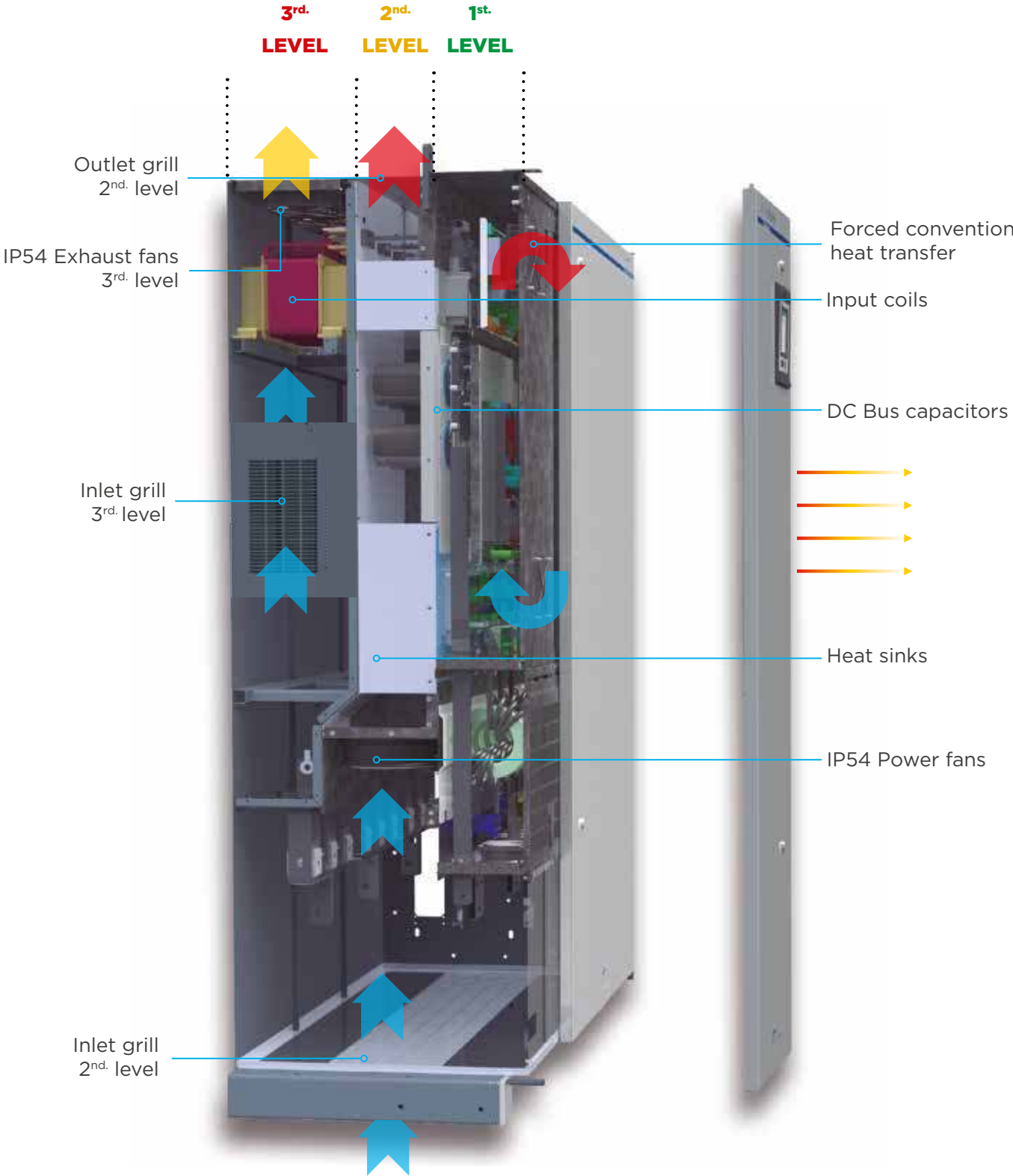
## EASY TO DRIVE

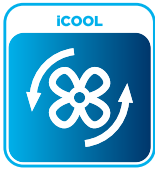
In Power Electronics, we have developed the SD700 focusing on a user-friendly interface that leads into a comfortable workflow. Intuitive screens and buttons enhance user's control and learning.





# IP54, TOTALLY SEALED ELECTRONICS WITH NO DUST FILTERS, BY DEFAULT IN EVERY SINGLE SD700 UNIT





## THREE INDEPENDENT LEVELS OFFER MAXIMUM PROTECTION AND EFFICIENT COOLING FEATURES



### 1<sup>st</sup> LEVEL: ELECTRONICS

SD700 IP54 versions have totally sealed electronics. The internal heat generated is evacuated through forced convection without dust filters. Where market drives are equipped with dust filter, polluted air may cause those devices to trip on overheating. The SD700 Series is immune to this issue thanks to its unique filterless design and oversized components.



### 2<sup>nd</sup> LEVEL: COOLING

SD700 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.

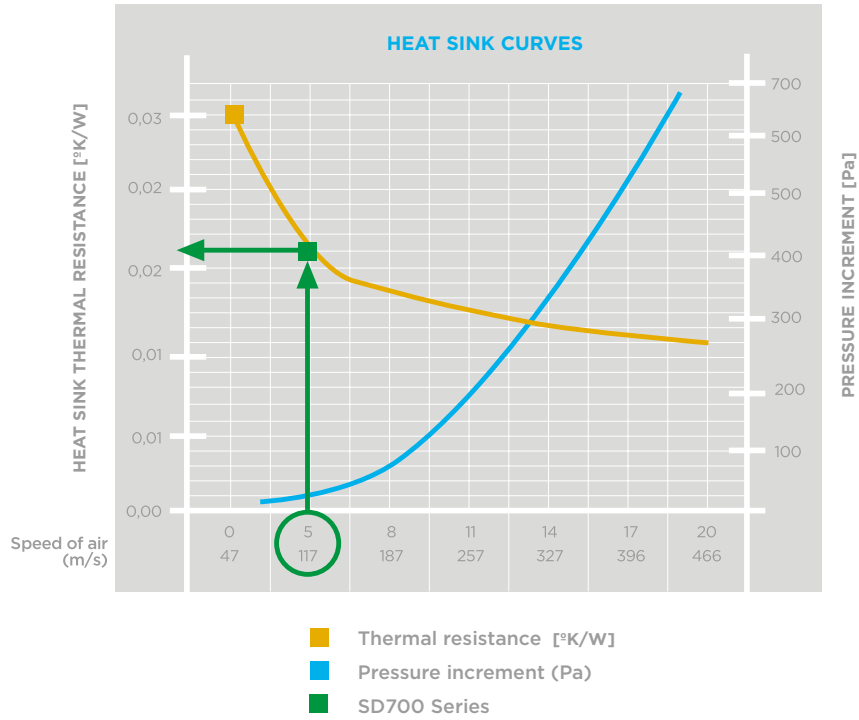


### 3<sup>rd</sup> LEVEL: INPUT FILTER

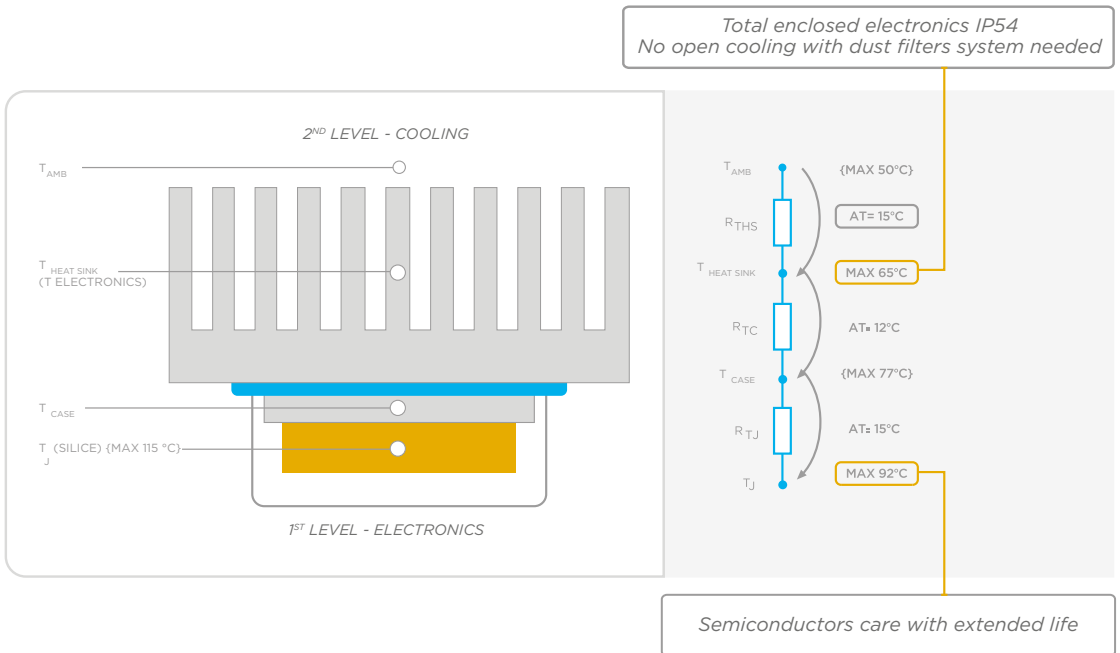
The input filters are enclosed separately, optimizing their cooling capacity, degree of protection and increasing their long life operation.

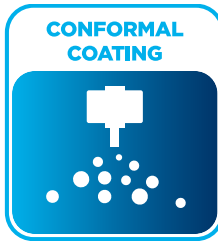


The chart shows the influence of air speed in pressure losses and heat sink thermal resistance.



SD700 truly offers operation up to  $50^{\circ}\text{C}$  due to oversized heat sinks with a junction temperature below  $100^{\circ}\text{C}$  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.





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), allow 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 PCBs cards are fully coated with the latest high military and aerospace technology (IEC61086-1:2004,-3-1).

## CONFORMAL COATING ON ALL ELECTRONIC BOARDS (IEC61086-1:2004,-3-1)





## ACCURATE, POWERFUL AND FLEXIBLE 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 SD700 integrates the V/f control and two vector controls: the Power Motor Control (PMC) and the Advanced Vector Control (AVC) as standard.





## QUICK AND POWERFUL RESPONSE

PMC and AVC allow its integration in high starting torque, dynamic or precise applications. The SD700 is suitable for all existing applications.

## NO AUTO TUNING NEED

PMC factory settings and motor nameplate parameters ensure perfect performance without enabling the auto tuning function during commissioning. We have invested in new control methods to simplify settings. A fast and reliable commissioning saves time and money.

## CONSTANT PERFORMANCES

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

## START AND STOP FULL CONTROL

Thanks to the MBC (Mechanical Brake Control), the Pre-Magnetization and Delay off IGBT, the loaded process will have a smooth start and stop.

## MULTIPLE DRIVE'S SYNCHRONIZATION

PMC-OLTC is the unique master-slave 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 in-rush current peaks allow the reduction of the drive and motor oversizing in demanding conveyors and mills.

## ADDITIONAL FUNCTIONALITIES

Thermal motor protection, motor overload prediction, motor stall, fly start, automatic restart, etc... complete the wide control features.





## INTEGRATED FUNCTIONAL AND ELECTRICAL SAFETY

Motor relay features built in as standard. SD700 hardware offers continuously monitoring of the motor electric values and its temperature (PTC sensor). As a result, the highly advanced software provides full motor and drive protection.

### Motor protections

Locked rotor, Motor overload (thermal model), Underload, Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PTC 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 Torque Off (STO)

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 SD700 series, using an Atex relay in addition to the STO Safety function. Moreover SD700 series are built in as standard with dV/dt filter and a unique CLAMP system 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.



HIGHLY ADVANCED  
HARDWARE AND SOFTWARE  
PROVIDE FULL MOTOR AND  
DRIVE PROTECTION





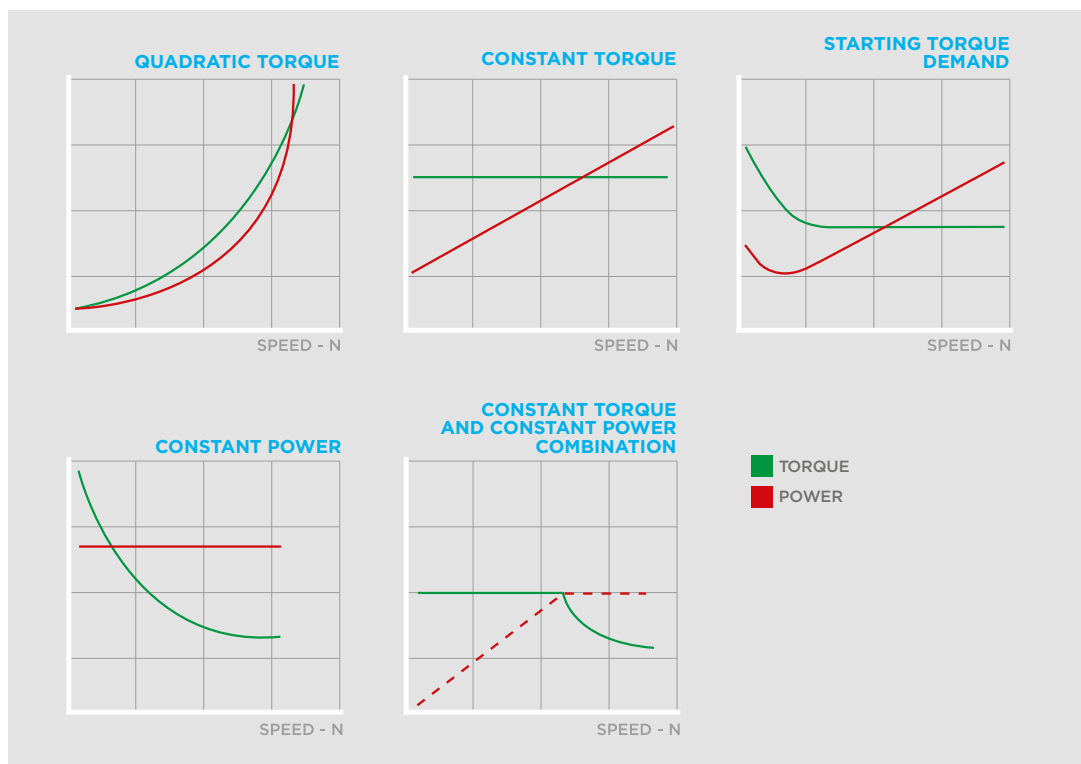
## ENERGY SAVINGS

Traditional flow system controls devices such as valve control, bypass, slide valve, mechanical brake, etc. Losses in the overall system change the load's demand curve.

But variable speed drives modify the motor's performance curve to adapt the process production to the required value. The drive varies the motor input frequency which causes a motor speed variation. In other words the power demanded by the motor is significantly reduced, saving energy and increasing durability and performance.

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 new and retrofit projects.

Depending on the type of load, the energy savings provided by the drive will vary significantly. The following charts describe the most common load types, their application, and the relationship between the torque or the demanded power with the shaft speed.



### QUADRATIC TORQUE

- Most common load type typical in air and water movement applications.
- Fans, centrifugal pumps.
- $T \propto N^2$ ,  $P \propto N^3$

### CONSTANT TORQUE

- Typical when the system is constantly working with fixed volumes.
- Screw compressors, feeders and conveyors.
- $T = \text{constant}$ ,  $P \propto N$

### STARTING TORQUE DEMAND

- Same as above but with high torque at low speed. The starting overload establishes the drive selection.
- Extruders, screw pumps, Mills.
- $T = \text{constant}$ ,  $P \propto N$

### CONSTANT POWER

- When material is being rolled and the diameter changes during rolling.
- Paper reel, cable drum.
- $T \propto N^{1/2}$ ,  $P = \text{constant}$

### CONSTANT TORQUE AND CONSTANT POWER COMBINATION

- Special case that depends on the system dimensioning.
- Paper reel and rolls, cable drum.
- $T = \text{constant}$ ,  $P \propto N$  &  $T \propto N^{1/2}$ ,  $P = \text{constant}$

### OTHERS

- Torque depending on load typical in cranes
- Torque depending on motor angle.
- Etc..

## Quadratic torque applications

The highest savings are experienced in quadratic torque applications such as fans and centrifugal pumps. In these cases the demanded power is proportional to the cubic of speed following the affinity laws.

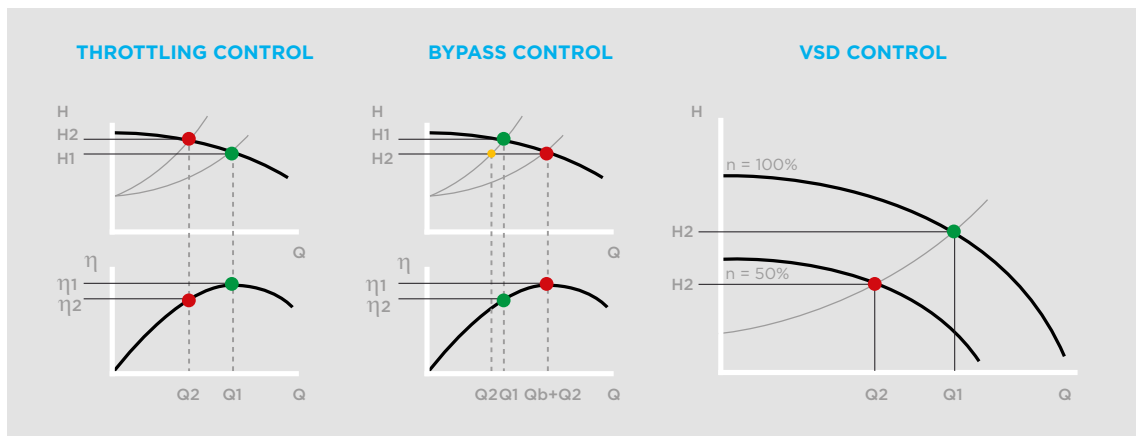
$$\frac{Q_1}{Q_2} = \frac{n_1}{n_2} \quad \frac{H_1}{H_2} = \left(\frac{n_1}{n_2}\right)^2 \quad \frac{P_1}{P_2} = \left(\frac{n_1}{n_2}\right)^3$$

Q1,Q2: fluid flow at operating points 1 and 2  
 H1, H2: Head at operating points 1 and 2  
 P1, P2: Power demand at operating points 1 and 2  
 n1, n2: Motor speed at operating points 1 and 2



There are several different methods to meet flow requirements. The most extensively used flow control methods for pumps are throttling, bypassing, on-off control and VSD control. Throttling and bypassing control modify the performance curve of the pipeline, adding further losses to the hydraulic system, to meet the flow requirements.

The following charts show examples which illustrate different hydraulic behaviours with a throttling control, a bypass control and a variable speed flow control.



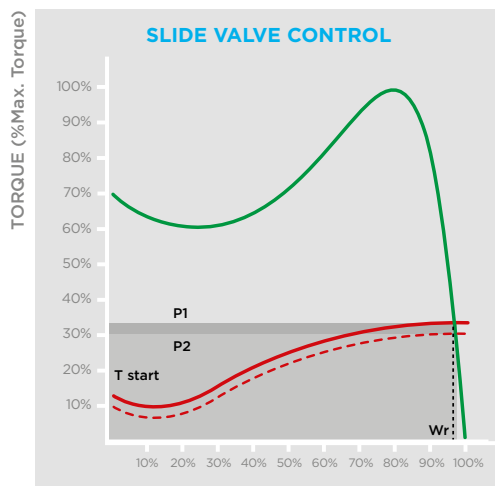
As shown in the graphs, the throttling control and bypass control modify hydraulic losses to obtain a different operation point with the desired flow.

Typically they reduce the power absorbed by the motor but if the pump's hydraulic efficiency is reduced at low speed, it could be insignificant. On the contrary, the variable speed drives modify the performance curve of the pump, providing high savings and better hydraulic response.

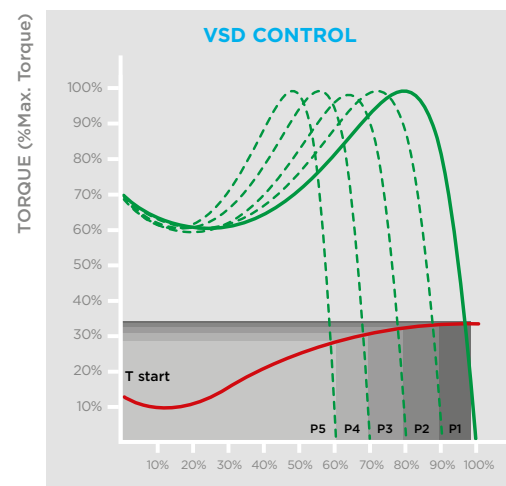


### Constant torque applications

In case of constant torque applications such as compressors or conveyors, the demanded power is proportional to the speed. To illustrate that, we can focus on the example of a screw compressor regulated with a slide valve control or with a variable speed drive control.



- T compressor 100%
- T motor
- ▨ T compressor 60%



- T compressor 100%
- T motor



## DEDICATED SOFTWARE TOOLS AND MACROS

Real performance information about motor and drive status. The SD700 integrates an accurate power grid analyzer and drive diagnosis.

### PowerCOMMS

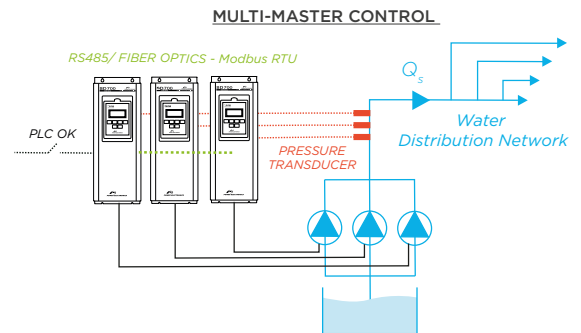
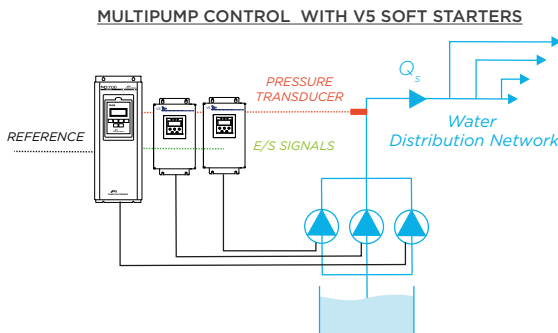
The PowerCOMMS tool offers real performance information about motor and drive status. The SD700 integrates an accurate power grid analyzer and drive's diagnosis. This tool executed from a PC, and communicated with the drives through Ethernet or RS485/RS232, registers, plots and exports all the drive visualization parameters: energy consumption, regenerated energy, motor voltage, PTC signal, IGBT temperature, motor overload, etc.

Operator monitors both drive and motor. In addition PowerComms can also remotely control and monitor multiple drives. User-friendly and flexible tool to copy and save SD700 parameters remotely, PowerComms allows operator to speed up the commissioning procedure, saving time and money.

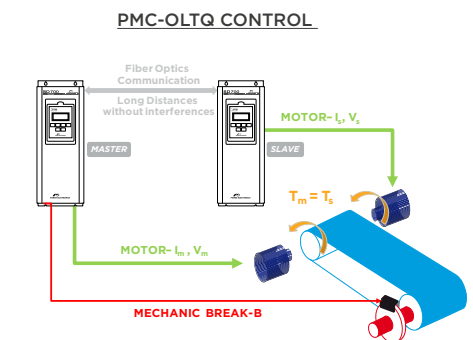
### PowerPLC

The PowerPLC tool will enhance SD700 performance implementing multiple functions without additional hardware. Available macros are:

- Accurate direct and reverse action of the PID control regulation of pressure, flow, level.
- Sleep and wake up functionality for extra energy saving depending on pressure and flow.
- Water Hammer control to prevent catastrophic breakdowns.
- Direct programming in engineering units (l/s, m<sup>3</sup>/s, %, °C, ...).
- Operation in manual or automatic mode is up to you.
- Several Pump alternation modes for homogeneous ageing.
- Visualization of working time per pump and number of starts.
- Under-pressure and Over-pressure compensation.
- Head or pressure compensation depending on flow rate.
- Pipe fill function.
- Out of service Motor monitoring.
- Pulse measurement of the flow.
- Pump safety protections: cavitation with reset activation time, minimum pressure detection, over-pressure control, zero-flow detection...

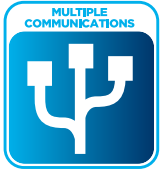


- Precise and high starting torque features dedicated to loaded lifting systems.
- PMC-OLTQ (Power Motor Control-Open Loop Torque Control) over fibre optics communications provides unique master-slave performance in the most demanding applications, and guaranties a perfect torque distribution.
- Fast commissioning and invariable control response due to motor or belt parameters variation.
- Thanks to the MBC (Mechanical Brake Control), the Pre-Magnetization and Delay off IGBT, the loaded process will have a smooth start and stop.
- PMC factory settings and motor nameplate parameters ensure perfect performance without enabling the auto tuning function during commissioning.



PERFECT TORQUE DISTRIBUTION WITHOUT ENCODER

Please contact your nearest Power Electronics representative if your application needs special macro to be evaluated.

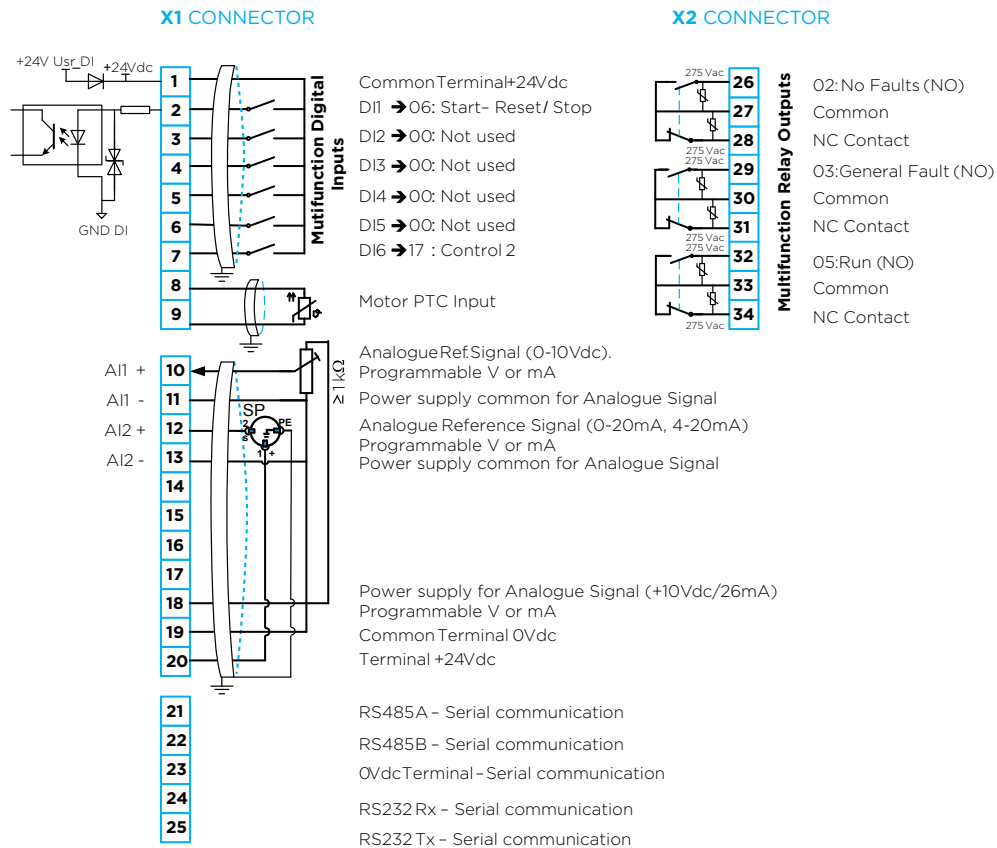


## MULTIPLE COMMUNICATIONS SYSTEMS COMPATIBLE

SD700 is compatible with multiple industrial protocols. It integrates as standard Modbus RTU protocol over RS232, RS485 and USB hardware. Optionally Profibus -DP, DeviceNet, CAN Open, Ethernet Modbus TCP, Ethernet IP and N2 Metasys protocols are available.

## 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.



## Digital inputs and outputs

There are 6 built-in and 4 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, ...

## Analogue inputs

There are 2 built-in and 1 optional analogue inputs and outputs. 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, m<sup>3</sup>/s, l/min, m<sup>3</sup>/min, l/h, m<sup>3</sup>/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.

## 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,...

## 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.



# Configuration table

ITEM NUMBER CONFIGURATION  
NORMAL DUTY - HEAVY DUTY

# SD700 SERIES

## Configuration Table

SD700 Series	Model		Output Current <sup>[1]</sup>		Input Voltage <sup>[2]</sup>		Degree of Protection <sup>[3]</sup>		Pulses number <sup>[4]</sup>		Cabinet Plinths <sup>[5]</sup>		EMC Filter		Floating Earth		Input Frequency	
			0050	50A	2	230Vca	0	IP00	-	6 Pulses	-	Standard	-	Second Environment	-	Without floating earth	-	50Hz
	K	SD700 Kompakt	0100	100A	5	380-500Vca	2	IP20	12	12 Pulses	20	Total Height 2000mm	F	First Environment <sup>[6]</sup>	T	Floating earth	6	60Hz <sup>[7]</sup>
	FL	SD700FL Low Harmonics Notch Filter	...	...	7	525Vca	5	IP54	18	18 Pulses	22	Total Height 2200mm	M	Optional IT filter				
	FR	SD700FR Regenerative	2500	2500A	6	690Vca			24	24 Pulses								
	SP	SD700SP Solar Pumping																

### NOTES

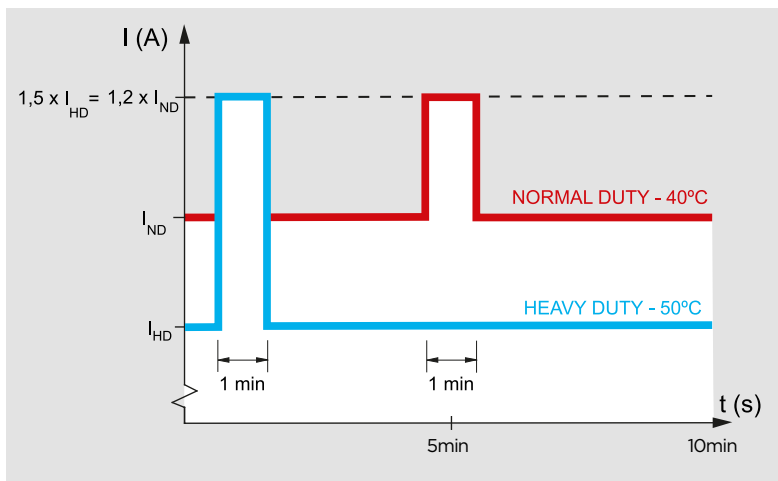
[1] Verify the rated current of the motor nameplate to guarantee the compatibility with the selected drive.  
 [2] SD700FR not available for 230Vac and 500Vac. SD700FL not available for 230Vac and 525Vac.  
 [3] IP00 only available for SD700 Kompakt Series.  
 [4] SD700 Kompakt not available in 18 and 24 pulses. SD700FL available in 6 pulses. SD700FR do not apply.

[5] SD700 frame 4 available with standard height and with 1712mm total height.  
 [6] Floating earth drive not available with first environment filter.  
 [7] Consult availability.

### Codification examples:

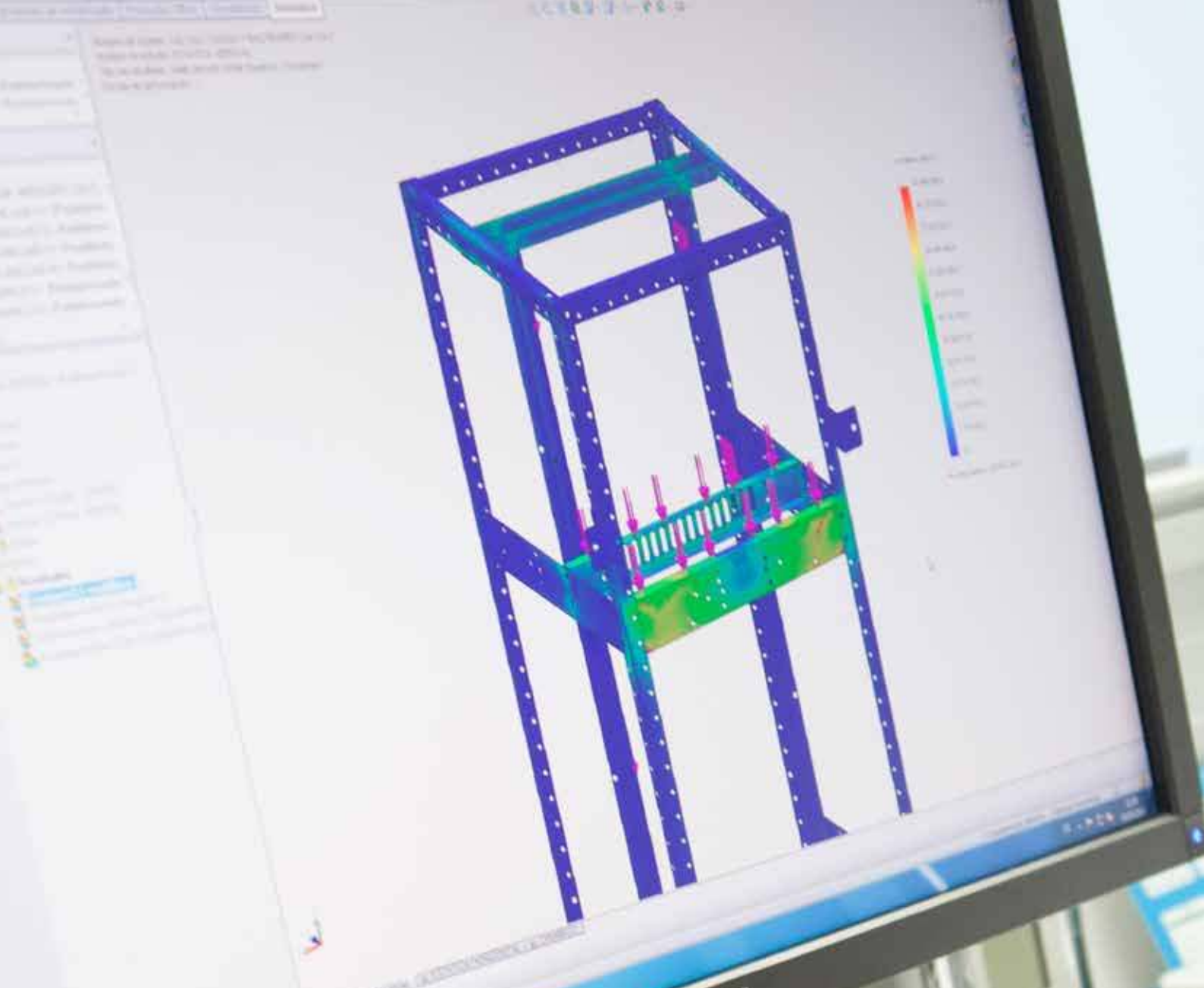
SD71800 6 2 12 SD700, 1800A, 690Vac, Degree of protection IP20, 12 pulses, Second Environment, 50 Hz.  
 SD71800 6 2 12 F SD700, 1800A, 690Vac, Degree of protection IP20, 12 pulses, First environment 1, 50 Hz.  
 SD7K0370 5 2 SD700Kompakt, 370A, 400Vac, Degree of protection IP20, 6 pulses, Second Environment, 50 Hz.  
 SD7FR0460 5 5 SD700FR Regenerative, 480Vac, IP54, Second Environment, 50 Hz.  
 SD7FL0370 5 2 20 SD700FL Low harmonics, 400Vac, IP20, 6 pulses, Second Environment, 50Hz, 2000mm total height.

## SD700 OVERLOAD



Ensure that the drive's overload, rated output current and maximum ambient temperature are not overpassed otherwise the drive could suffer from overheating.

$I_{ND}$ : Rated current 40°C (Normal Duty)  
 $I_{HD}$ : Rated current 50°C (Heavy Duty)



# Customised solutions

Power Electronics' engineering department offers a wide variety of tailor made solution to comply with your specific requirements. Factory tested solutions that provide flexibility and reliability.



### Customised input and output wiring:

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

### Disconnection and Protection:

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



### Customised control and push buttons:

- Selectors and pushbuttons
- Customised user terminal strip
- PTC and PT100 relays
- Redundant external Power Supply (UPS)
- ...

### Documentation:

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

### Cabinet features:

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



## DISCONNECTION AND PROTECTION

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



## CUSTOMISED CONTROL AND PUSH BUTTONS

Request for special and customised 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, especial communication modules, external power supply, power supply redundancy, UPS; standard and ATEX certified PTC and PT100 relay...



TAILOR MADE SOLUTIONS  
CAME OUT FROM OUR  
INDUSTRIAL EXPERTISE AND  
OUR CUSTOMER ORIENTED  
PHILOSOPHY POWER ON  
SUPPORT



## 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 fulfill your specific project requirements.

## 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.



# SD700

VARIABLE SPEED DRIVES



## **SD700**

SD700 SERIES is the core of the family, available from 1.5kW to 2200kW<sup>[1]</sup>, a voltage range from 230VAC to 690VAC and available 6, 12, 18 and 24 pulses. IP20 and IP54 mechanical designs cover all general industry applications, making it the most flexible and extensive series.

The whole series integrates unique features such as low dV/dt, smart mechanical design and accurate control. It is divided in 11 frame sizes to cover the whole power range. SD700 has been certified by Germanischer Lloyd.

[1] Higher power drives, consult Power Electronics.

CONTINUOUS OPERATION  
UNDER THE MOST DEMANDING  
APPLICATIONS ENSURES YOUR  
INVESTMENT ON NEW AND  
RETROFIT PROJECTS

- IP54 WITHOUT DUST FILTERS
- 50°C OPERATION WITHOUT POWER DERATING
- (FFA) FULL FRONTAL ACCESS
- BUILT-IN HARMONICS AND RFI FILTERS
- BUILT-IN DV/DT FILTER 500V/μS-800V/μS (UNSHIELDED CABLE UP TO 300M)
- MODULARITY
- CONFORMALLY COATED ELECTRONICS WITH MILITAR AND AEROSPACE TECHNOLOGY

## **SD700 SERIES**

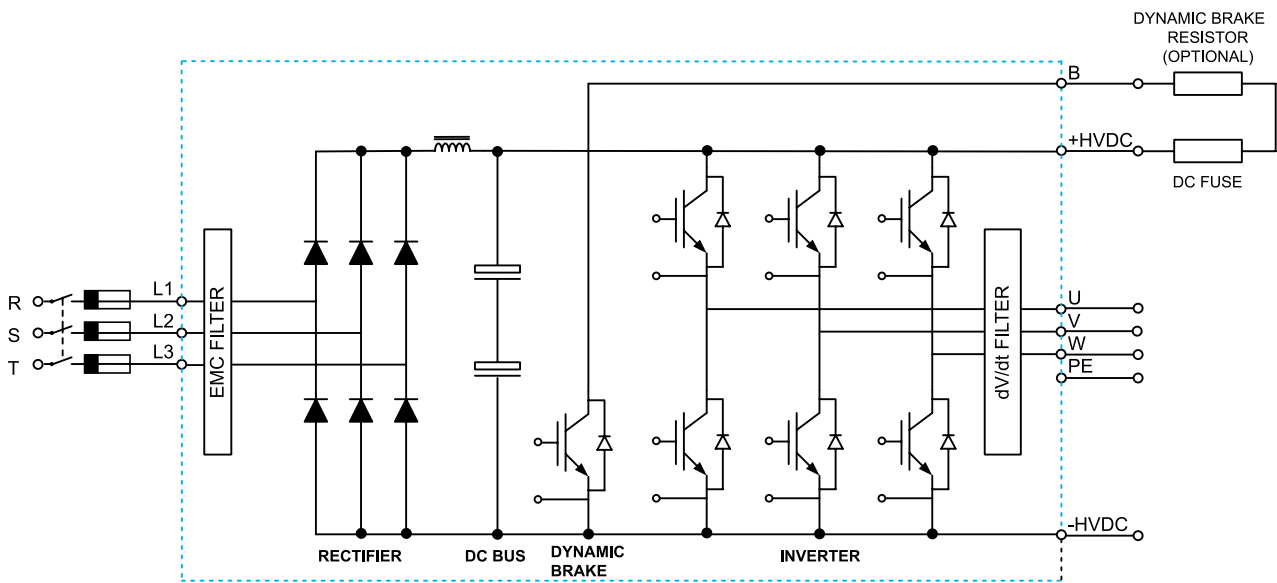
# Standard features

- Extensive power range. Fully on site tested hardware ensures a perfect performance for small and MW motors. SD700 offers quality for all motor range.
- Built-in dV/dt filter 500V/ $\mu$ s-800V/ $\mu$ s allows its installation with up to 300m unipolar cable following Power Electronics recommendations.
- 50°C operation without derating.
- Wide voltage range (230Vac, 380Vac-500Vac, 525Vac and 690Vac). Suitable for weak electrical grids and places with variable voltage range operations. The drive keeps running!
- IP20 & IP54 Electronics enclosure – wherever the drive is installed we ensure a long life electronics operation.
- 6/12/18/24 Multipulse system selects the best drive that fits with your THDi requirements.
- Input chokes built-in as standard. Grid anomalies are filtered by efficient input chokes (3% impedance) reducing the THDi and protecting the drive in weak grids.
- EMC input filter as standard. EMC filter reduces the electric perturbation generated in the inverter and rectifier bridges achieving compliance with C3 according to IEC/EN61800-3.
- Internal and external braking units. When the drive absorbs the regenerated energy during braking cycles, the B150 accessory or the integrated dynamic brake will dissipate it.
- Ultra fast fuses. Frames 5 on integrate built-in as standard fast fuses which protect against unexpected overcurrents.
- GL certification. Germanischer Lloyd has certified SD700 assuring your investment in marine projects.

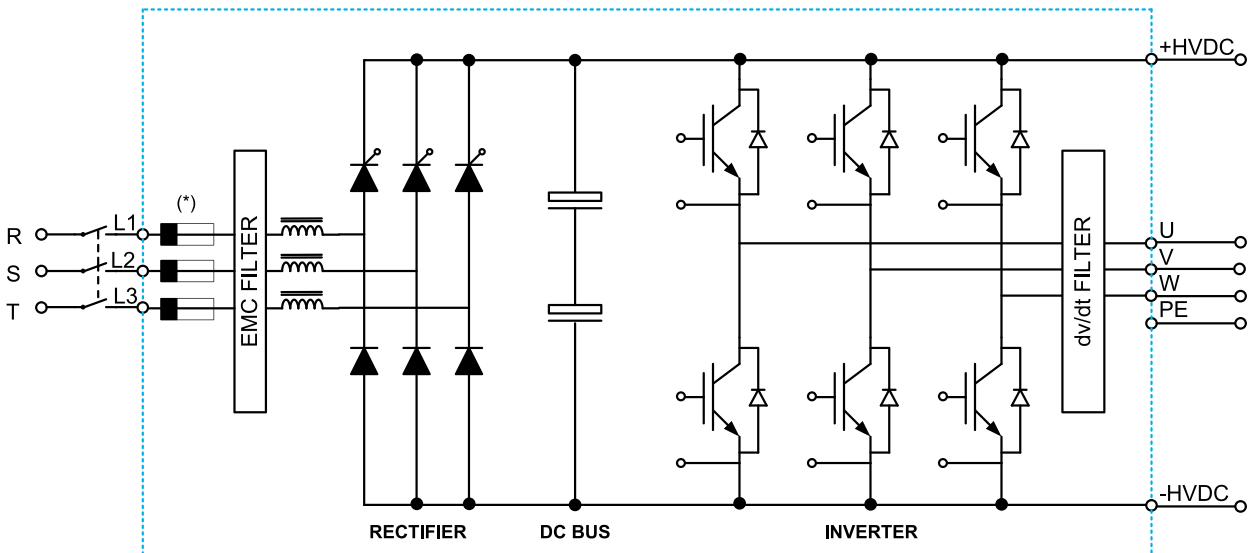
# SD700 SERIES

## Functional Diagram

### FRAMES 1 & 2



### FRAMES 3, 4 & 5

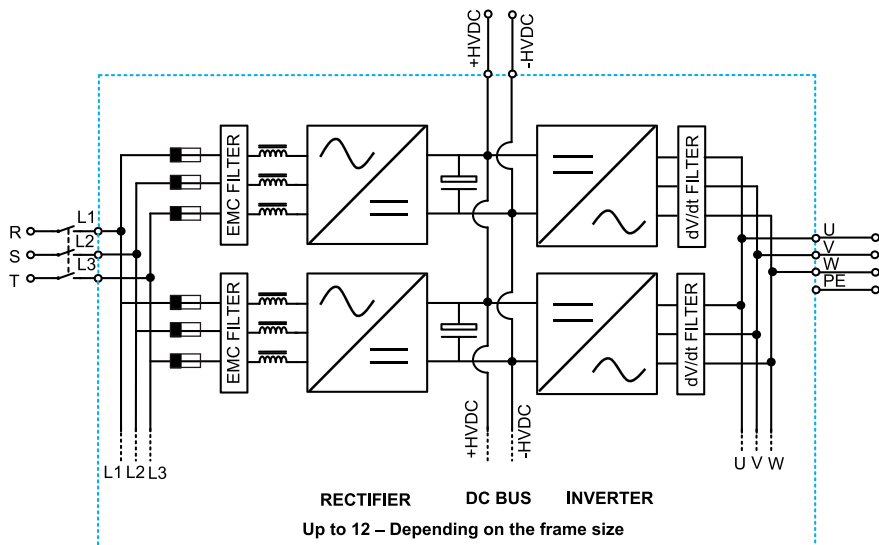


(\*): Fuses not integrated for frames 3 and 4.

# SD700 SERIES

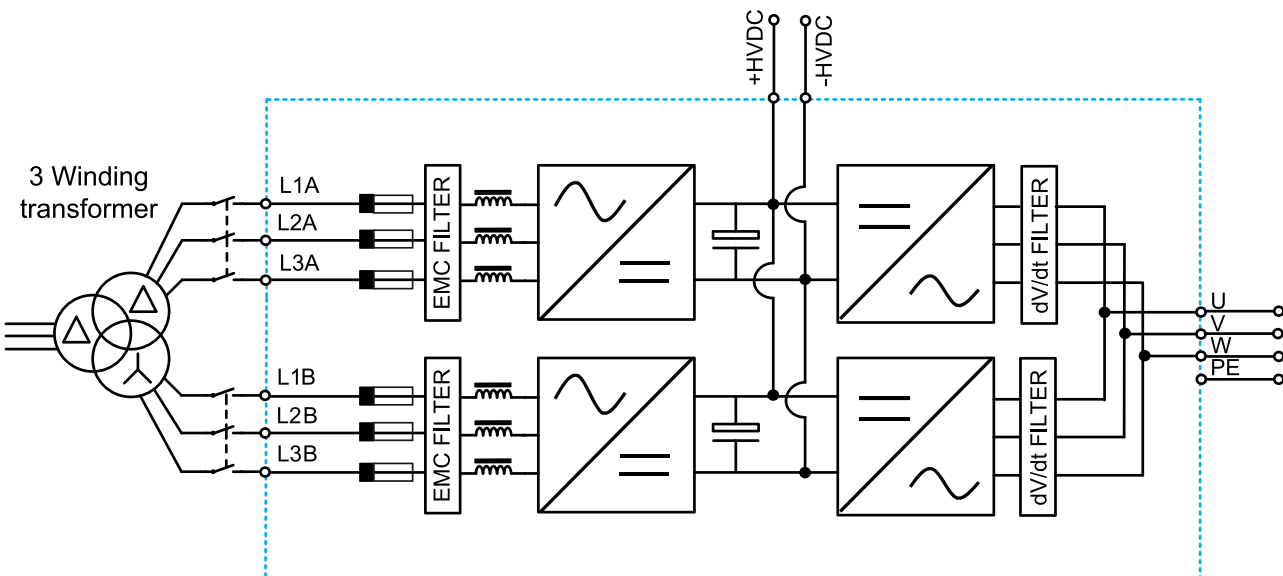
## Functional Diagram

FRAMES 6 to 11



SD70DTP0009AI

12 PULSES



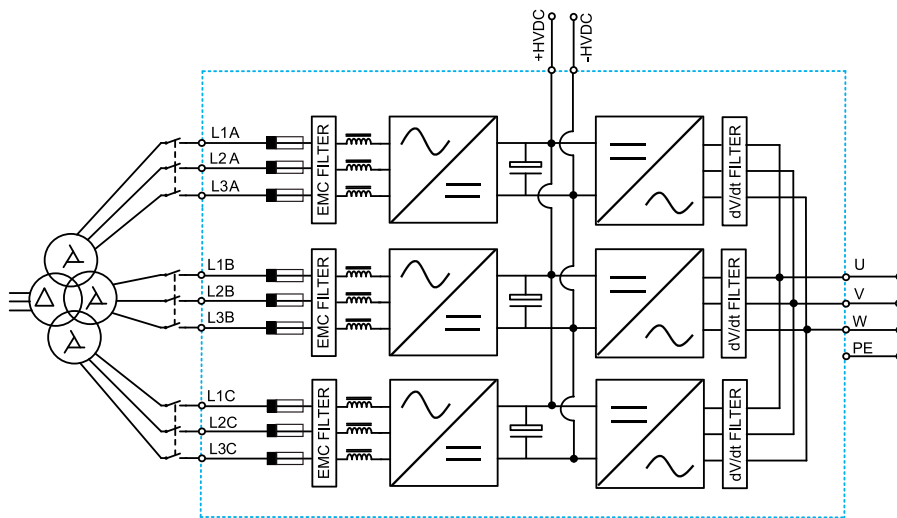
SD70DTP00010AI



# SD700 SERIES

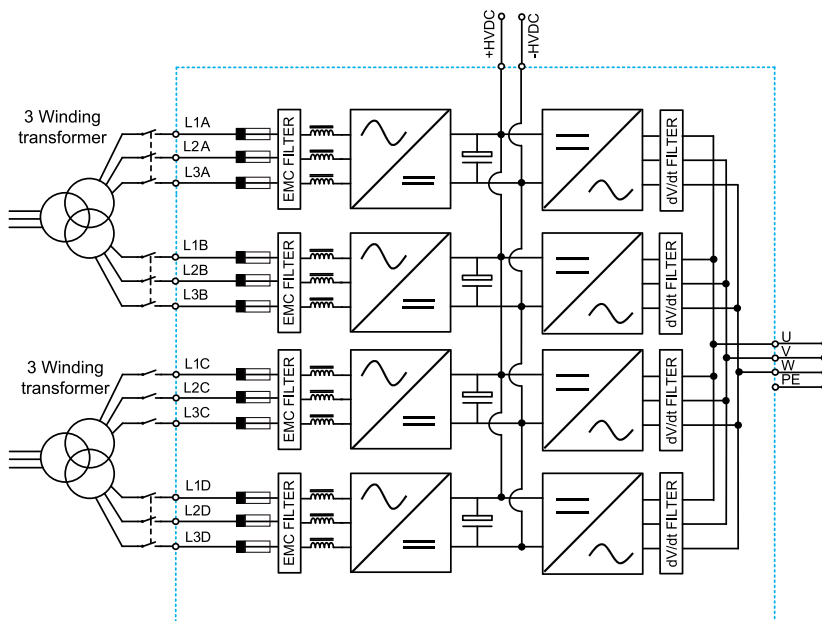
## Functional Diagram

### 18 PULSES



SD70DTP0011AI

### 24 PULSES



SD70DTP00012AI

# SD700 SERIES

# Technical Characteristics

<b>INPUT</b>	Power range	1.5kW - 2000 kW <sup>[1]</sup>
	Voltage power	230Vac, 380-500Vac, 525Vac, 690Vac , 3 phases (±10%)
	Multipulse	6, 12, 18, 24
	Input frequency	50Hz/60Hz ± 6%
	Input rectifier technology	Thyristor-Diode
	Displacement power factor (DPF = cos Φ)	≥ 0.98
	Power factor (PF= I <sub>r</sub> /I <sub>rms</sub> · cos Φ)	≥ 0.91
	Momentary power loss	> 2sec (depending on the load inertia)
	EMC input filter	Frames 1 & 2: First environment (C2 standard) Frames 3 to 11: Second environment (Industrial) (C3 Standard) First environment (C2 Optional). C1 consult Power Electronics. Optional IT filter
	Harmonics filter	Choke coils 3% impedance
	Current THDi (%)	≤ 40%
	Regenerative	NO
<b>OUTPUT</b>	Output frequency <sup>[2]</sup>	0.. 200Hz
	Overload capacity	Constant torque/heavy duty: 150% during 60 sec at 50°C Variable torque/normal duty: 120% during 60 sec at 40°C.
	Efficiency (at rated current and rated voltage)	≥ 98%
	Control method	V/Hz VECTOR CONTROL Open Loop: PMC: speed (OLSP)/torque control (OLTQ), AVC: speed(OLSP) / torque control (OLTQ) Close Loop (Encoder): PMC: speed (CLSP)/torque control (CLTQ), AVC: speed(CLSP)/torque control (CLTQ)
	Switching frequency	Surface Permanent Magnet Motor (SPM) 4 to 8kHz - PEWave
	Output dv/dt filter	500 to 800V/μs <sup>[3]</sup>
	Output cable length <sup>[4]</sup>	USC 300m SC 150m
	Dynamic brake	External B150 Dynamic Brake (Frames 1 and 2 Integrated)
	Operation ambient temperature	Minimum: -20°C Maximum: +50°C
	Storage temperature	Minimum: -40°C Maximum: +70°C
<b>ENVIRONMENTAL CONDITIONS</b>	Altitude	1000m
	Power altitude derating <sup>[1]</sup>	>1000m, 1% P <sub>N</sub> (kW) per 100m; 4000m maximum
	Ambient humidity	<95%, non-condensing
	Degree of protection	IP20, IP54
	Vibration <sup>[5]</sup>	Deflection: ± 1mm ( 2Hz-13.2Hz), ± 0.075mm (13.2Hz-57Hz) Acceleration: 6.86m/s <sup>2</sup> (13.2Hz-57Hz), 9.8m/s <sup>2</sup> (57Hz-150Hz)
	Heating resistors	Optional
<b>PROTECTIONS</b>	Motor protections	Rotor locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PTC 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.
<b>INPUTS/OUTPUTS</b>	Digital inputs	6 programmable active high (24Vdc), Isolated power supply 1 PTC input
	Digital outputs	3 Programmable changeover relays (250Vac, 8A or 30Vdc, 8A)
	Analogue input	2 Programmable differential inputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc. (Optically isolated)
	Analogue outputs	2 Isolated programmable outputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc
	Encoder inputs (optional)	Differential encoder input. Voltages inputs from 5 to 24Vdc
	User power supply	+24Vdc user power supply ( Max 180mA) regulated and short-circuit protected +10Vdc user power supply (Max 2 potentiometers R= 1 kΩ) regulated and short-circuit protected
	I/O Extension board (optional)	4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 1 Analogue Input: Programmable and differential input. 5 Digital Outputs: Programmable multi-function relays.
	External power supply (optional)	1 Analogue Output: Programmable outputs in voltage / current. 24V External Power Supply, Fault Relay integrated

NOTES [1] Other configuration, consult Power Electronics.  
[2] For operation frequencies higher than 100Hz consult Power Electronics.

[3] Depending on the rated power, the input voltage and under Power Electronics' installation recommendations.

[4] SC: Shielded cable, USC: Unshielded Cable. Follow Power Electronics installation recommendations. For greater cable lengths and first environment (C2) consult Power Electronics.

# SD700 SERIES

# Technical Characteristics

<b>COMMUNI- CATION</b>	Standard hardware	USB port RS232 port RS485 port
	Standard protocol	Modbus-RTU
	Optional protocol	Profibus-DP DeviceNet Ethernet (Modbus TCP) Ethernet IP CAN Open N2 Metasys Gateway Fiber optic
<b>CONTROL PANEL</b>	Type	Removable
	Length	3 meters and 5 meters (optional)
	Connection	RJ45
	Visualization leds	LED ON: Control board is energized / BLINKING: Warning present LED RUN: Motor receiving power supply LED FAULT: Flashing displays that a fault has occurred
	Alphanumeric display	4 lines x 16 characters Keypad with 6 keys to control and configure the drive, start and stop/reset Independent memory
	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 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)
	Others	Real time clock Perpetual calendar
<b>REGULA- TIONS</b>	Certifications	CE, cTick, UL <sup>[5]</sup> , cUL <sup>[5]</sup> , GL <sup>[6]</sup>
	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(STO) Tüv Rheinland Certified

NOTES [5] On certification process.

[6] SD700 Series from frame 5 on.  
For further information, please consult with  
Power Electronics.

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 230VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 230VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 230VAC	120% Overload (A)
1	SD70006 2X Y	6	1,5	9	7,5	2,2	9
	SD70009 2X Y	9	2,2	14	11	3	14
	SD70012 2X Y	12	3	18	15	5,5	18
	SD70020 2X Y	20	5,5	30	25	7,5	30
	SD70026 2X Y	26	7,5	39	33	9	39
2	SD70032 2X Y	32	9	48	40	11	48
	SD70039 2X Y	39	11	59	49	15	59
	SD70050 2X Y	50	15	75	63	18,5	75
3	SD70064 2X Y	64	18,5	96	80	22	96
	SD70075 2X Y	75	22	113	94	25	113
	SD70090 2X Y	90	25	135	113	33	135
	SD70115 2X Y	115	33	173	144	45	173
4	SD70150 2X Y	150	45	225	188	51	225
	SD70170 2X Y	170	51	255	213	63	255
5	SD70210 2X Y	210	63	315	263	75	315
	SD70250 2X Y	250	75	375	313	86	375
	SD70275 2X Y	275	86	413	344	100	413
6	SD70330 2X Y	330	100	495	413	110	495
	SD70370 2X Y	370	110	555	463	140	555
	SD70460 2X Y	460	140	690	575	185	690
7	SD70580 2X Y	580	185	870	725	200	870
	SD70650 2X Y	650	200	975	813	220	975
	SD70720 2X Y	720	220	1080	900	250	1080

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 400VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
1	SD70006 5X Y	6	2,2	9	7,5	3	9
	SD70009 5X Y	9	4	14	11	5,5	14
	SD70012 5X Y	12	5,5	18	15	7,5	18
	SD70018 5X Y	18	7,5	27	23	11	27
2	SD70024 5X Y	24	11	36	30	15	36
	SD70032 5X Y	32	15	48	40	18,5	48
	SD70038 5X Y	38	18,5	57	48	22	57
3	SD70048 5X Y	48	22	72	60	30	72
	SD70060 5X Y	60	30	90	75	37	90
	SD70075 5X Y	75	37	113	94	45	113
4	SD70090 5X Y	90	45	135	113	55	135
	SD70115 5X Y	115	55	173	144	75	173
	SD70150 5X Y	150	75	225	188	90	225
5	SD70170 5X Y	170	90	255	213	110	255
	SD70210 5X Y	210	110	315	263	132	315
	SD70250 5X Y	250	132	375	313	160	375
6	SD70275 5X Y	275	150	413	344	200	413
	SD70330 5X Y	330	160	495	413	220	495
	SD70370 5X Y	370	200	555	463	250	555
7	SD70460 5X Y	460	250	690	575	315	690
	SD70580 5X Y	580	315	870	725	400	870
	SD70650 5X Y	650	355	975	813	450	975
8	SD70720 5X Y	720	400	1080	900	500	1080
	SD70840 5X Y	840	450	1260	1050	560	1260
	SD70925 5X Y	925	500	1388	1156	630	1388
9	SD70990 5X Y	990	560	1485	1238	710	1485
	SD71150 5X Y	1150	630	1725	1438	800	1725
	SD71260 5X Y	1260	710	1890	1575	900	1890
10	SD71440 5X Y	1440	800	2160	1800	1000	2160
	SD71580 5X Y	1580	900	2370	1975	1100	2370
	SD71800 5X Y	1800	1000	2700	2250	1200	2700
11	SD72200 5X Y	2200	1200	3300	2750	1500	3300
	SD72500 5X Y	2500	1400	3750	3100	1750	3750

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
6	SD70330 5X 12 Y	330	160	495	413	220	495
	SD70370 5X 12 Y	370	200	555	463	250	555
	SD70460 5X 12 Y	460	250	690	575	315	690
8	SD70840 5X 12 Y	840	450	1260	1050	560	1260
	SD70925 5X 12 Y	925	500	1388	1156	630	1388
	SD70990 5X 12 Y	990	560	1485	1238	710	1485
9	SD71150 5X 12 Y	1150	630	1725	1438	800	1725
	SD71260 5X 12 Y	1260	710	1890	1575	900	1890
	SD71440 5X 12 Y	1440	800	2160	1800	1000	2160
11	SD72200 5X 12 Y	2200	1200	3300	2750	1500	3300
	SD72500 5X 12 Y	2500	1400	3750	3100	1750	3750

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 400VAC

18 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
7	SD70580 5X 18 Y	580	315	870	725	400	870
	SD70650 5X 18 Y	650	355	975	813	450	975
	SD70720 5X 18 Y	720	400	1080	900	500	1080
9	SD71150 5X 18 Y	1150	630	1725	1438	800	1725
	SD71260 5X 18 Y	1260	710	1890	1575	900	1890
	SD71440 5X 18 Y	1440	800	2160	1800	1000	2160
10	SD71580 5X 18 Y	1580	900	2370	1975	1100	2370
	SD71800 5X 18 Y	1800	1000	2700	2250	1200	2700
11	SD72200 5X 18 Y	2200	1200	3300	2750	1500	3300
	SD72500 5X 18 Y	2500	1400	3750	3100	1750	3750

24 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
8	SD70840 5X 24 Y	840	450	1260	1050	560	1260
	SD70925 5X 24 Y	925	500	1388	1156	630	1388
	SD70990 5X 24 Y	990	560	1485	1238	710	1485
11	SD72200 5X 24 Y	2200	1200	3300	2750	1500	3300
	SD72500 5X 24 Y	2500	1400	3750	3100	1750	3750

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 440VAC

6 PULSES									
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Overload (A)
			kW	HP			kW	HP	
1	SD70006 5X Y	5,5	2,2	3	8,2	6,8	3	4	8,2
	SD70009 5X Y	8	4	5	12	10	5,5	7-1/2	12
	SD70012 5X Y	11	5,5	7-1/2	16,5	13,75	7,5	10	16,5
	SD70018 5X Y	16	7,5	10	24	20	11	15	24
2	SD70024 5X Y	22	11	15	33	27,5	15	20	33
	SD70032 5X Y	29	15	20	43,5	36,25	18,5	25	43,5
	SD70038 5X Y	34,5	18,5	25	51,7	43,1	22	30	51,7
	SD70048 5X Y	43,6	22	30	65,4	54,5	30	40	65,4
3	SD70060 5X Y	54,5	30	40	81,7	68,1	37	50	81,7
	SD70075 5X Y	68	37	50	102	85	45	60	102
	SD70090 5X Y	82	45	60	123	102,5	55	75	123
	SD70115 5X Y	104,5	55	75	156,7	130,6	75	100	156,7
4	SD70150 5X Y	136	75	100	204	170	90	125	204
	SD70170 5X Y	154,5	90	125	231,6	193	110	150	231,6
5	SD70210 5X Y	191	110	150	286,5	238,7	132	180	286,5
	SD70250 5X Y	227	132	180	340,5	283,7	160	240	340,5
6	SD70275 5X Y	250	150	200	375	312,5	200	275	375
	SD70330 5X Y	300	160	240	450	375	220	300	450
	SD70370 5X Y	336	200	275	504	420	250	340	504
7	SD70460 5X Y	418	250	340	627	522,5	315	400	627
	SD70580 5X Y	527	315	400	790,5	658,7	400	500	790,5
	SD70650 5X Y	591	355	450	886,5	738,7	450	600	886,5
8	SD70720 5X Y	654,5	400	500	981,7	818,1	500	650	981,7
	SD70840 5X Y	764	450	600	1146	955	560	750	1146
	SD70925 5X Y	841	500	650	1261,5	1051,2	630	850	1261,5
9	SD70990 5X Y	900	560	750	1350	1125	710	900	1350
	SD71150 5X Y	1045,5	630	850	1568	1306,8	800	1000	1568
	SD71260 5X Y	1145,5	710	900	1718	1431,8	900	1250	1718
10	SD71440 5X Y	1309	800	1000	1963,5	1636,2	1000	1400	1963,5
	SD71580 5X Y	1436	900	1250	2154	1795	1100	1500	2154
11	SD71800 5X Y	1636	1000	1400	2454	2045	1200	1600	2454
	SD72200 5X Y	2000	1200	1600	3000	2500	1500	2000	3000
11	SD72500 5X Y	2300	1400	1900	3450	2800	1750	2350	3450

12 PULSES									
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Overload (A)
			kW	HP			kW	HP	
6	SD70330 5X 12 Y	300	160	240	450	375	220	300	450
	SD70370 5X 12 Y	336	200	275	504	420	250	340	504
	SD70460 5X 12 Y	418	250	340	627	522,5	315	400	627
8	SD70840 5X 12 Y	764	450	600	1146	955	560	750	1146
	SD70925 5X 12 Y	841	500	650	1261,5	1051,2	630	850	1261,5
	SD70990 5X 12 Y	900	560	750	1350	1125	710	900	1350
9	SD71150 5X 12 Y	1045,5	630	850	1568	1306,8	800	1000	1568
	SD71260 5X 12 Y	1145,5	710	900	1718	1431,8	900	1250	1718
11	SD71440 5X 12 Y	1309	800	1000	1963,5	1636,2	1000	1400	1963,5
	SD72200 5X 12 Y	2000	1200	1600	3000	2500	1500	2000	3000
11	SD72500 5X 12 Y	2300	1400	1900	3450	2800	1750	2350	3450

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 440VAC

18 PULSES									
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Overload (A)
			kW	HP			kW	HP	
7	SD70580 5X 18 Y	527	315	400	790,5	658,7	400	500	790,5
	SD70650 5X 18 Y	591	355	450	886,5	738,7	450	600	886,5
	SD70720 5X 18 Y	654,5	400	500	981,7	818,1	500	650	981,7
9	SD71150 5X 18 Y	1045,5	630	850	1568	1306,8	800	1000	1568
	SD71260 5X 18 Y	1145,5	710	900	1718	1431,8	900	1250	1718
	SD71440 5X 18 Y	1309	800	1000	1963,5	1636,2	1000	1400	1963,5
10	SD71580 5X 18 Y	1436	900	1250	2154	1795	1100	1500	2154
	SD71800 5X 18 Y	1636	1000	1400	2454	2045	1200	1600	2454
11	SD72200 5X 18 Y	2000	1200	1600	3000	2500	1500	1800	3000
	SD72500 5X 18 Y	2300	1400	1900	3450	2800	1750	2350	3450

24 PULSES									
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Overload (A)
			kW	HP			kW	HP	
8	SD70840 5X 24 Y	764	450	600	1146	955	560	750	1146
	SD70925 5X 24 Y	841	500	650	1261,5	1051,2	630	850	1261,5
	SD70990 5X 24 Y	900	560	750	1350	1125	710	900	1350
11	SD72200 5X 24 Y	2000	1200	1600	3000	2500	1500	1800	3000
	SD72500 5X 24 Y	2300	1400	1900	3450	2800	1750	2350	3450



# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 500VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 500VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 500VAC	120% Overload (A)
1	SD70006 5X Y	4,8	2,2	7,2	6	4	7,2
	SD70009 5X Y	7	4	10	9	5,5	10
	SD70012 5X Y	9,5	5,5	14	12	7,5	14
	SD70018 5X Y	14	7,5	21	18	11	21
	SD70024 5X Y	19	11	28	24	15	28
2	SD70032 5X Y	25	15	38	32	18,5	38
	SD70038 5X Y	30	18,5	45	38	22	45
	SD70048 5X Y	38	22	57	48	30	57
3	SD70060 5X Y	48	30	72	60	37	72
	SD70075 5X Y	60	37	90	75	45	90
	SD70090 5X Y	72	45	108	90	55	108
	SD70115 5X Y	92	55	138	115	75	138
4	SD70150 5X Y	120	75	180	150	90	180
	SD70170 5X Y	136	90	204	170	110	204
5	SD70210 5X Y	168	110	252	210	132	252
	SD70250 5X Y	200	132	300	250	150	300
	SD70275 5X Y	212	150	318	265	160	318
6	SD70330 5X Y	264	160	396	330	200	396
	SD70370 5X Y	296	200	444	370	250	444
	SD70460 5X Y	368	250	552	460	315	552
7	SD70580 5X Y	464	315	696	580	355	696
	SD70650 5X Y	520	355	780	650	400	780
	SD70720 5X Y	576	400	864	720	450	864
8	SD70840 5X Y	672	450	1008	840	500	1008
	SD70925 5X Y	740	500	1110	925	560	1110
	SD70990 5X Y	767	560	1151	959	630	1151
9	SD71150 5X Y	920	630	1380	1150	710	1380
	SD71260 5X Y	1008	710	1512	1260	800	1512
	SD71440 5X Y	1152	800	1728	1440	900	1728
10	SD71580 5X Y	1264	900	1896	1580	1000	1896
	SD71800 5X Y	1440	1000	2160	1800	1200	2160
11	SD72200 5X Y	1760	1200	2640	2200	1500	2640
	SD72500 5X Y	2000	1400	3000	2500	1750	3000

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 500VAC

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 500VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 500VAC	120% Overload (A)
6	SD70330 5X 12 Y	264	160	396	330	200	396
	SD70370 5X 12 Y	296	200	444	370	250	444
	SD70460 5X 12 Y	368	250	552	460	315	552
8	SD70840 5X 12 Y	672	450	1008	840	500	1008
	SD70925 5X 12 Y	740	500	1110	925	560	1110
	SD70990 5X 12 Y	767	560	1151	959	630	1151
9	SD71150 5X 12 Y	920	630	1380	1150	710	1380
	SD71260 5X 12 Y	1008	710	1512	1260	800	1512
	SD71440 5X 12 Y	1152	800	1728	1440	900	1728
11	SD72200 5X 12 Y	1760	1200	2640	2200	1500	2640
	SD72500 5X 12 Y	2000	1400	3000	2500	1750	3000

18 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 500VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 500VAC	120% Overload (A)
7	SD70580 5X 18 Y	464	315	696	580	355	696
	SD70650 5X 18 Y	520	355	780	650	400	780
	SD70720 5X 18 Y	576	400	864	720	450	864
9	SD71150 5X 18 Y	920	630	1380	1150	710	1380
	SD71260 5X 18 Y	1008	710	1512	1260	800	1512
	SD71440 5X 18 Y	1152	800	1728	1440	900	1728
10	SD71580 5X 18 Y	1264	900	1896	1580	1000	1896
	SD71800 5X 18 Y	1440	1000	2160	1800	1200	2160
11	SD72200 5X 18 Y	1760	1200	2640	2200	1500	2640
	SD72500 5X 18 Y	2000	1400	3000	2500	1750	3000

24 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 500VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 500VAC	120% Overload (A)
8	SD70840 5X 24 Y	672	450	1008	840	500	1008
	SD70925 5X 24 Y	740	500	1110	925	560	1110
	SD70990 5X 24 Y	767	560	1151	959	630	1151
11	SD72200 5X 24 Y	1760	1200	2640	2200	1500	2640
	SD72500 5X 24 Y	2000	1400	3000	2500	1750	3000

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 525VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
4	SD70100 7X Y	100	75	150	122	90	150
	SD70120 7X Y	120	90	180	147	110	180
	SD70145 7X Y	145	110	218	176	132	218
5	SD70180 7X Y	180	132	270	222	150	270
	SD70205 7X Y	205	150	308	254	185	308
6	SD70270 7X Y	270	200	405	334	250	405
	SD70295 7X Y	295	220	443	360	280	443
	SD70340 7X Y	340	250	510	417	315	510
7	SD70425 7X Y	425	315	638	526	400	638
	SD70470 7X Y	470	355	705	586	450	705
	SD70535 7X Y	535	400	803	666	500	803
8	SD70660 7X Y	660	500	990	824	600	990
	SD70750 7X Y	750	560	1125	936	700	1125
9	SD70845 7X Y	845	630	1268	1052	800	1268
	SD70950 7X Y	950	710	1425	1157	900	1425
10	SD71070 7X Y	1070	800	1605	1337	1000	1605
	SD71205 7X Y	1205	900	1808	1504	1100	1808
	SD71340 7X Y	1340	1000	2010	1672	1250	2010
	SD71605 7X Y	1605	1200	2408	2006	1500	2408
11	SD72005 7X Y	2005	1500	3008	2507	1900	3008

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
6	SD70270 7X 12 Y	270	200	405	334	250	405
	SD70295 7X 12 Y	295	220	443	360	280	443
	SD70340 7X 12 Y	340	250	510	417	315	510
8	SD70660 7X 12 Y	660	500	990	824	600	990
	SD70750 7X 12 Y	750	560	1125	936	700	1125
9	SD70845 7X 12 Y	845	630	1268	1052	800	1268
	SD70950 7X 12 Y	950	710	1425	1157	900	1425
11	SD72005 7X 12 Y	2005	1500	3008	2507	1900	3008

18 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
7	SD70425 7X 18 Y	425	315	638	526	400	638
	SD70470 7X 18 Y	470	355	705	586	450	705
	SD70535 7X 18 Y	535	400	803	666	500	803
9	SD70845 7X 18 Y	845	630	1268	1052	800	1268
	SD70950 7X 18 Y	950	710	1425	1157	900	1425
10	SD71070 7X 18 Y	1070	800	1605	1337	1000	1605
	SD71205 7X 18 Y	1205	900	1808	1504	1100	1808
	SD71340 7X 18 Y	1340	1000	2010	1672	1250	2010
	SD71605 7X 18 Y	1605	1200	2408	2006	1500	2408
11	SD72005 7X 18 Y	2005	1500	3008	2507	1900	3008

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 525VAC

24 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
8	SD70660 7X 24 Y	660	500	990	824	600	990
	SD70750 7X 24 Y	750	560	1125	936	700	1125
11	SD72005 7X 24 Y	2005	1500	3008	2507	1900	3008

### POWER RANGE AT 690VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
4	SD70052 6X Y	52	45	78	65	55	78
	SD70062 6X Y	62	55	93	78	75	93
	SD70080 6X Y	80	75	120	100	90	120
	SD70105 6X Y	105	90	157	131	110	157
5	SD70130 6X Y	130	110	195	163	132	195
	SD70150 6X Y	150	132	225	188	160	225
	SD70170 6X Y	170	160	255	213	200	255
6	SD70210 6X Y	210	200	315	263	250	315
	SD70260 6X Y	260	250	390	325	315	390
	SD70320 6X Y	320	315	480	400	400	480
7	SD70385 6X Y	385	355	578	481	450	578
	SD70460 6X Y	460	450	690	575	560	690
8	SD70550 6X Y	550	500	825	688	630	825
	SD70660 6X Y	660	630	990	825	800	990
9	SD70750 6X Y	750	710	1125	938	900	1125
	SD70840 6X Y	840	800	1260	1050	1000	1260
	SD70950 6X Y	950	900	1425	1188	1100	1425
10	SD71140 6X Y	1140	1000	1710	1425	1300	1710
	SD71270 6X Y	1270	1200	1905	1588	1600	1905
	SD71420 6X Y	1420	1400	2130	1775	1700	2130
11	SD71500 6X Y	1500	1500	2250	1875	1800	2250
	SD71800 6X Y	1800	1800	2700	2250	2000	2700

# SD700 SERIES

## Standard Ratings

### POWER RANGE AT 690VAC

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
6	SD70210 6X 12 Y	210	200	315	263	250	315
	SD70260 6X 12 Y	260	250	390	325	315	390
	SD70320 6X 12 Y	320	315	480	400	400	480
8	SD70550 6X 12 Y	550	500	825	688	630	825
	SD70660 6X 12 Y	660	630	990	825	800	990
9	SD70750 6X 12 Y	750	710	1125	938	900	1125
	SD70840 6X 12 Y	840	800	1260	1050	1000	1260
	SD70950 6X 12 Y	950	900	1425	1188	1100	1425
11	SD71500 6X 12 Y	1500	1500	2250	1875	1800	2250
	SD71800 6X 12 Y	1800	1800	2700	2250	2000	2700

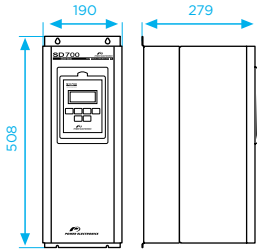
18 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
7	SD70385 6X 18 Y	385	355	578	481	450	578
	SD70460 6X 18 Y	460	450	690	575	500	690
9	SD70750 6X 18 Y	750	710	1125	938	900	1125
	SD70840 6X 18 Y	840	800	1260	1050	1000	1260
	SD70950 6X 18 Y	950	900	1425	1188	1100	1425
10	SD71140 6X 18 Y	1140	1000	1710	1425	1300	1710
	SD71270 6X 18 Y	1270	1200	1905	1588	1600	1905
	SD71420 6X 18 Y	1420	1400	2130	1775	1700	2130
11	SD71500 6X 18 Y	1500	1500	2250	1875	1800	2250
	SD71800 6X 18 Y	1800	1800	2700	2250	2000	2700

24 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
8	SD70550 6X 24 Y	550	500	825	680	630	825
	SD70660 6X 24 Y	660	630	990	825	800	990
11	SD71500 6X 24 Y	1500	1500	2250	1875	1800	2250
	SD71800 6X 24 Y	1800	1800	2700	2250	2000	2700

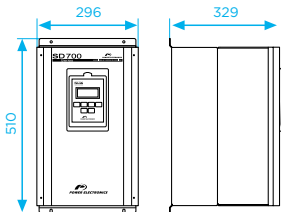
# SD700 SERIES

## Dimensions

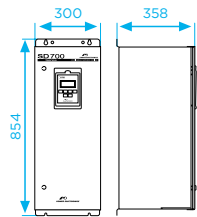
### DIMENSIONS AND WEIGHT



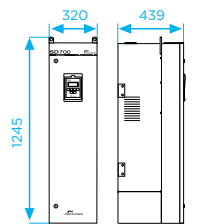
FRAME 1				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70006 2X Y	SD70006 5X Y	-	-	15
SD70009 2X Y	SD70009 5X Y			
SD70012 2X Y	SD70012 5X Y			
SD70020 2X Y	SD70018 5X Y			
SD70026 2X Y	SD70024 5X Y			



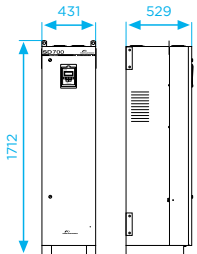
FRAME 2				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70032 2X Y	SD70032 5X Y	-	-	26
SD70039 2X Y	SD70038 5X Y			
SD70050 2X Y	SD70048 5X Y			



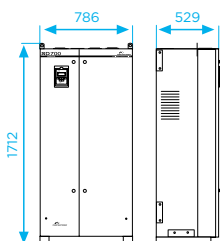
FRAME 3				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70064 2X Y	SD70060 5X Y	-	-	67.5
SD70075 2X Y	SD70075 5X Y			
SD70090 2X Y	SD70090 5X Y			
SD70115 2X Y	SD70115 5X Y			



FRAME 4				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70150 2X Y	SD70150 5X Y	SD70100 7X Y	SD70052 6X Y	94
SD70170 2X Y	SD70170 5X Y	SD70120 7X Y	SD70062 6X Y	
		SD70145 7X Y	SD70080 6X Y	
			SD70105 6X Y	



FRAME 5				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70210 2X Y	SD70210 5X Y	SD70180 7X Y	SD70130 6X Y	200
SD70250 2X Y	SD70250 5X Y	SD70205 7X Y	SD70150 6X Y	
SD70275 2X Y	SD70275 5X Y		SD70170 6X Y	

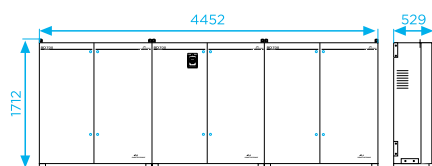
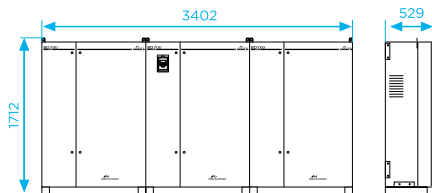
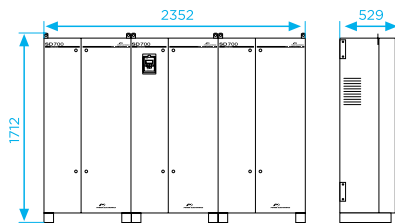
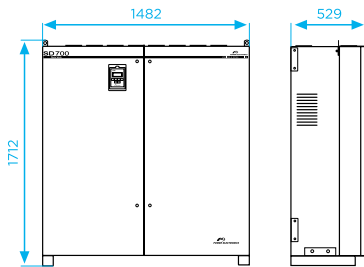
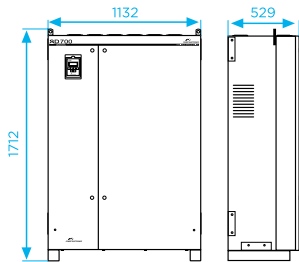


FRAME 6				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70330 2X Y	SD70330 5X Y	SD70270 7X Y	SD70210 6X Y	335
SD70370 2X Y	SD70370 5X Y	SD70295 7X Y	SD70260 6X Y	
SD70460 2X Y	SD70460 5X Y	SD70340 7X Y	SD70320 6X Y	
	SD70330 5X 12 Y	SD70270 7X 12 Y	SD70210 6X 12 Y	
	SD70370 5X 12 Y	SD70295 7X 12 Y	SD70260 6X 12 Y	
	SD70460 5X 12 Y	SD70340 7X 12 Y	SD70320 6X 12 Y	

# SD700 SERIES

## Dimensions

### DIMENSIONS AND WEIGHT



FRAME 7				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
SD70580 2X Y	SD70580 5X Y	SD70425 7X Y	SD70385 6X Y	479
SD70650 2X Y	SD70650 5X Y	SD70470 7X Y	SD70460 6X Y	
SD70720 2X Y	SD70720 5X Y	SD70535 7X Y	SD70385 6X 18 Y	
	SD70580 5X 18 Y	SD70425 7X 18 Y	SD70460 6X 18 Y	
	SD70650 5X 18 Y	SD70470 7X 18 Y		
	SD70720 5X 18 Y	SD70535 7X 18 Y		

FRAME 8				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
-	SD70840 5X Y	SD70660 7X Y	SD70550 6X Y	585
	SD70925 5X Y	SD70750 7X Y	SD70660 6X Y	
	SD70990 5X Y	SD70660 7X 12 Y	SD70550 6X 12 Y	
	SD70840 5X 12 Y	SD70750 7X 12 Y	SD70660 6X 12 Y	
	SD70925 5X 12 Y	SD70660 7X 24 Y	SD70550 6X 24 Y	
	SD70990 5X 12 Y	SD70750 7X 24 Y	SD70660 6X 24 Y	
	SD70840 5X 24 Y			
	SD70925 5X 24 Y			
	SD70990 5X 24 Y			

FRAME 9				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
-	SD71150 5X Y	SD70845 7X Y	SD70750 6X Y	1005
	SD71260 5X Y	SD70950 7X Y	SD70840 6X Y	
	SD71440 5X Y	SD70845 7X 12 Y	SD70950 6X Y	
	SD71150 5X 12 Y	SD70950 7X 12 Y	SD70750 6X 12 Y	
	SD71260 5X 12 Y	SD70845 7X 18 Y	SD70840 6X 12 Y	
	SD71440 5X 12 Y	SD70950 7X 18 Y	SD70950 6X 12 Y	
	SD71150 5X 18 Y		SD70750 6X 18 Y	
	SD71260 5X 18 Y		SD70840 6X 18 Y	
	SD71440 5X 18 Y		SD70950 6X 18 Y	

FRAME 10				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
-	SD71580 5X Y	SD71070 7X Y	SD71140 6X Y	1437
	SD71800 5X Y	SD71205 7X Y	SD71270 6X Y	
	SD71580 5X 18 Y	SD71340 7X Y	SD71420 6X Y	
	SD71800 5X 18 Y	SD71605 7X Y	SD71140 6X 18 Y	
		SD71070 7X 18 Y	SD71270 6X 18 Y	
		SD71205 7X 18 Y	SD71420 6X 18 Y	
		SD71340 7X 18 Y		
		SD71605 7X 18 Y		

FRAME 11				
INPUT VOLTAGE				WEIGHT (kg)
230Vac	380-500Vac	525Vac	690Vac	
-	SD72200 5X Y	SD72005 7X Y	SD71500 6X Y	1755
	SD72200 5X 12 Y	SD72005 7X 12 Y	SD71800 6X Y	
	SD72200 5X 18 Y	SD72005 7X 18 Y	SD71500 6X 12 Y	
	SD72200 5X 24 Y	SD72005 7X 24 Y	SD71800 6X 12 Y	
			SD71500 6X 18 Y	
			SD71800 6X 18 Y	
			SD71500 6X 24 Y	
			SD71800 6X 24 Y	

# SD700SP

VARIABLE SPEED DRIVES

## Solar Pumping





## **SD700SP**

Power Electronics have a strong commitment to reduce the levelized cost of water (LCoW) by powering upgraded energy saving solutions. Synergies between our Industrial and Solar Divisions have come together in the SD700 SOLAR PUMPING - SD700SP. This unique product takes advantage of the outstanding features of the SD700 variable speed drive to power pumping systems from either the solar PV panels (off-grid) or simultaneously from the PV panels and grid supply (PV solar assisted).

The SD700SP is a customised SD700 VSD with extended DC range, adapted to work with AC or DC or from a hybrid supply. The SD700SP has modified firmware able to find and track the MPP to maximize the performance running in solar mode. Optional Solar Kits with diode, DC protections, disconnection and filtering are available. Our engineering and consulting department will support you with advice on PV sizing and SD700SP selection. Full integration into a cabinet is also available to enable easy installation and commissioning.

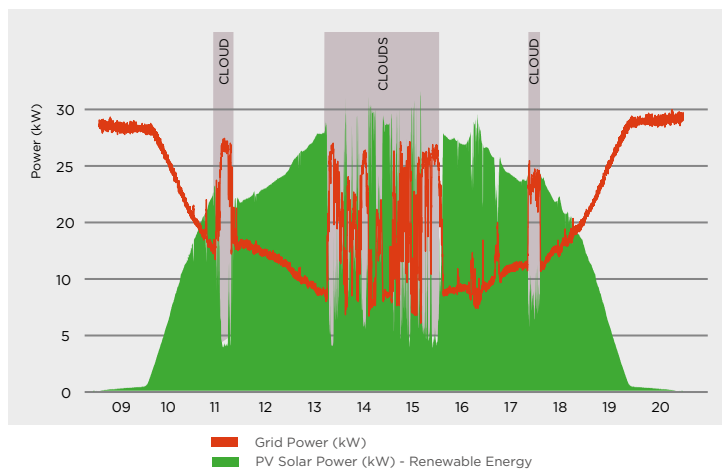
REDUCE YOUR LEVELIZED  
COST OF WATER (LCOW)  
BY INSTALLING SD700SP

- IP54 WITHOUT DUST FILTERS
- 50°C OPERATION WITHOUT POWER DERATING
- (FFA) FULL FRONTAL ACCESS
- BUILT-IN HARMONICS AND RFI FILTERS
- BUILT-IN DV/DT FILTER 500V/ $\mu$ S-800V/ $\mu$ S (UNSCREENED CABLE UP TO 300M)
- MODULARITY
- CONFORMALLY COATED ELECTRONICS WITH MILITAR AND AEROSPACE TECHNOLOGY

## HYBRID SYSTEM

The SD700SP is connected simultaneously to the AC mains and the PV DC field. The AC input voltage determines the SD700SP DC bus voltage and therefore the required DC voltage from the strings. The maximum energy produced at the fixed DC voltage depends on the number of PV panels connected in series. The number of strings in parallel will be determined according to the pump power. The figure shows the system performance with a pump continuously working. During broad daylight the energy generated by the PV panels (green area) is injected to the motor. This helps to proportionally reduce the power consumption from the grid (red line). When a cloud partially covers the panels, the drive will absorb more line power in order to keep the process constant.

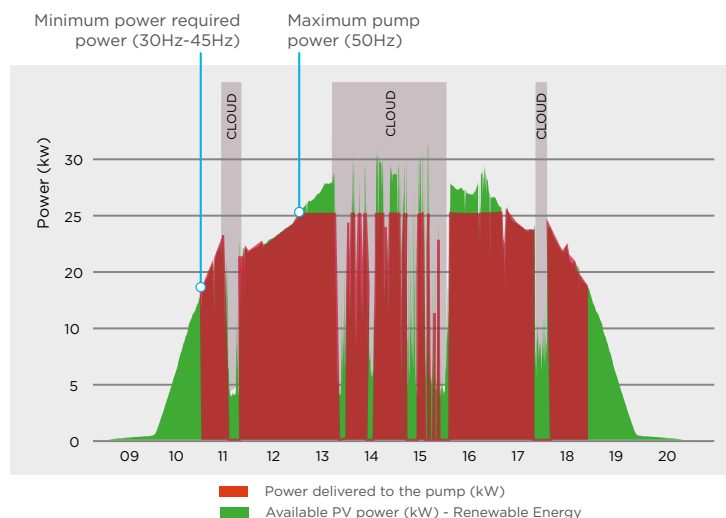
Power Electronics have developed a system, which is able to use all DC energy available and take from the AC supply only the complementary power. This system connects/disconnects the AC input to the mains therefore avoiding the need to have a "stand by" power source. SD700SP takes all energy possible from the PV field to pump the water needed, and if the energy of PV field is not enough, SD700SP switches on the AC input to "top up" and deliver all energy required by the motor. Once the energy available in the PV field is higher than the energy needed by the motor, SD700SP will disconnect the AC input. This feature is especially important when the AC is supplied by a generator; when the AC mains power it is not needed, the generator can be stopped.



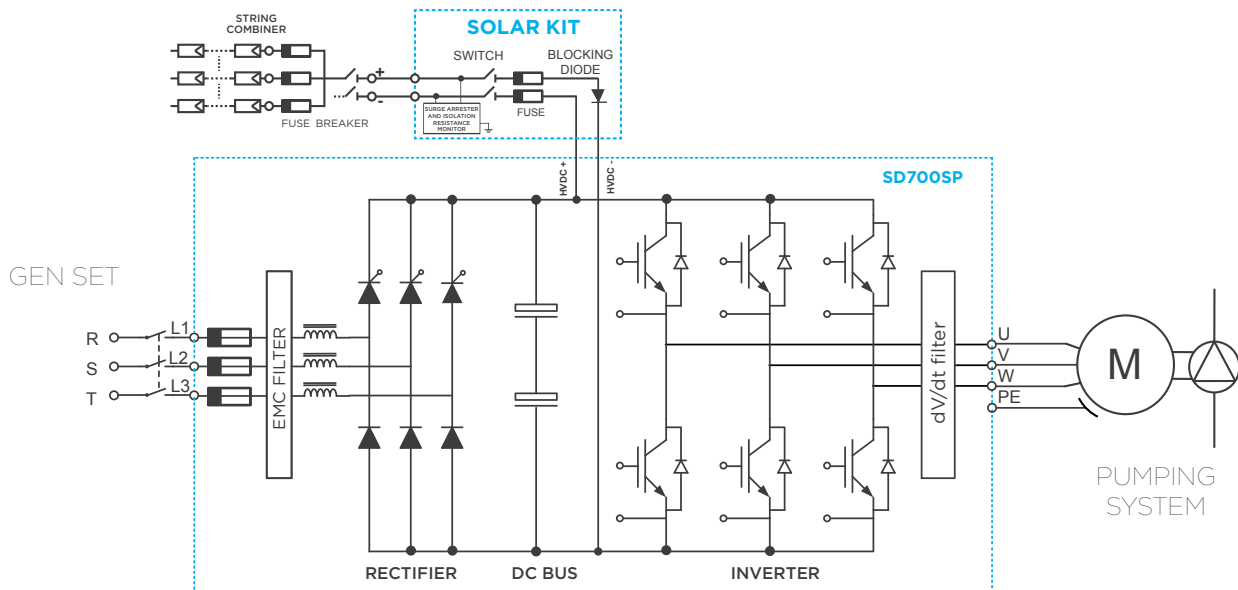
## ISOLATED SYSTEM

The SD700SP is only connected to the PV field, generating the necessary power to start and speed-up the pump. The minimum power required depends on the hydraulic response of the complete pump-load system. A complete study of the system determines the motor operation frequency range (typically from 30Hz to 45Hz) that generates a minimum pump flow. At the same time, the frequency range determines the minimum power threshold and therefore PV sizing.

With the MPPT dynamic search algorithm developed by Power Electronics, the SD700SP searches for the Maximum Power Point automatically, therefore the PV field will always deliver the maximum power available. Irrespective of whether the system is working in winter or summer, or of the intensity of sunlight.



## SD700SP OPERATIONAL DIAGRAM



## SD700SP TECHNICAL CHARACTERISTICS

INPUT	Power range	1,5kW - 560kW <sup>[1]</sup>
	Voltage power	380-500Vac, 3 phases (±10%) 540-900Vdc (830Vdc for Frame 1 & 2)
	Hybrid supply	Yes, simultaneous connection
	Input frequency	50Hz/60Hz ± 6%
	Input rectifier technology	Thyristor-Diode
	DPF=cos φ / Power factor	≥ 0.98 / ≥ 0.91
	EMC input filter	Frames 1 & 2: First environment (C2 standard); Frames 3 to 11: Second environment (Industrial) (C3 Standard); First environment (C2 Optional). C1 consult Power Electronics. Optional IT filter
	Current THDi (%) / Filter harmonics	≤ 40% / Choke coils 3% impedance
	Regenerative	No
OUTPUT	Output frequency <sup>[2]</sup>	0...200Hz
	Overload capacity	Constant torque/heavy duty: 150% during 60 sec at 50°C
	Efficiency @rated current and voltage)	≥ 98%
	Switching frequency	4 to 8kHz - PEWave
	Output dV/dt filter	500 to 800V/μs <sup>[3]</sup>
Output cable length <sup>[4]</sup>	USC 300m, SC 150m	
ENVIRONMENTAL CONDITIONS	Operation temp. / Storage temp.	-20°C to +50°C / -40°C to +70°C
	Altitude/Power altitude derating <sup>[1]</sup>	1000m / >1000m, 1% PN(kW) per 100m; 4000m maximum
	Ambient humidity	<95%, non-condensing
	Degree of protection	IP20, IP54
INPUTS / OUTPUTS	Digital inputs	6 programmable active high (24Vdc), Isolated power supply, 1 PTC input
	Digital outputs	3 Programmable changeover relays (250Vac, 8A or 30Vdc, 8A)
	Analogue input	2 Programmable differential inputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc. (Optically isolated)
	Analogue outputs	2 Isolated programmable outputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc
	Encoder inputs (optional)	2 differential encoders input. Voltages inputs from 5 to 24Vdc
	User power supply	+24Vdc user power supply (Max. 180mA) regulated and short-circuit protected +10Vdc user power supply (Max. 2 potentiometers R= 1 kΩ) regulated and short-circuit protected
COMMUNICATION	I/O Extension board (optional)	4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 1 Analogue Input: Programmable and differential input. 5 Digital Outputs: Programmable multi-function relays. 1 Analogue Output: Programmable outputs in voltage / current.
	External power supply (optional)	24V External Power Supply, Fault Relay integrated
	Standard protocol	Modbus-RTU
	Optional protocol	Profibus-DP, DeviceNet, Ethernet (Modbus TCP), Ethernet IP, CAN Open, N2 Metasys Gateway
REGULATIONS	Certifications	CE, cTick, UL <sup>[5]</sup> , cUL <sup>[5]</sup> , GL <sup>[6]</sup>
	Electromagnetic compatibility	EMC Directive (2004/108/CE), IEC/EN 61800-3
	Design and construction	LVD Directive (2006/95/CE), IEC/EN 61800-2, IEC/EN 61800-5-1, IEC/EN 60146-1-1, IEC60068-2-6, IEC/EN 61800-5-2(STO) TÜV Rheinland Certified

NOTES [1] Other configuration, consult Power Electronics.  
[2] For operation frequencies higher than 100Hz consult Power Electronics.  
[3] Valid for frames 3 to 11, depending on the rated power, the input voltage and under Power

Electronics' installation recommendations. For frames 1 and 2 it is available optional filters.  
[4] SC: Shielded cable, USC: Unshielded Cable. Follow Power Electronics installation recommendations. For greater cable lengths and first environment (C2)

consult Power Electronics.  
[5] On certification process.  
[6] SD700 series from frame 5 on. For further information, please consult with Power Electronics.



# Configuration table Standard ratings

## SD700SP CONFIGURATION TABLE

SD700SP Series model		Output Current <sup>[1]</sup>		Input Voltage		Degree of protection		Cabinet plinths <sup>[2]</sup>		EMC Filter		Floating Earth		Solar Kit	
SD7SP	SD700SP SOLAR PUMPING	0006	6A	5	380Vac-500Vac	2	IP20	-	Standar	-	Second environment	-	Without Floating Earth	-	-
		0100	100A			5	IP54	20	Total height 2000mm	E	First environment <sup>[3]</sup>	T	With Floating Earth	K	Solar kit included
		...	...			22	Total height 2200mm	M	Optional IT filter						
		990	990A												

NOTES [1] Verify the rated current of the motor nameplate to guarantee the compatibility with the selected drive.  
[2] SD700 frame 4 available with standard height and with 1712mm total height.

[3] Floating earth drive not available with first environment filter. For more ordering info contact our sales representatives.

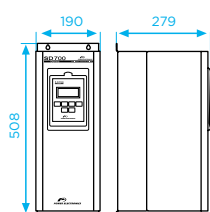
## STANDARD RATINGS

400Vac - 565Vdc						
FRAME	CODE	Operation Temperature 50°C AC SUPPLY			DC SUPPLY @565Vdc	
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) DC input	I(A) DC input 120% Overload
1	SD7SP0006 5	6	2,2	9	4	5
	SD7SP0009 5	9	4	14	7	8
	SD7SP0012 5	12	5,5	18	10	12
	SD7SP0018 5	18	7,5	27	13	16
	SD7SP0024 5	24	11	36	19	23
2	SD7SP0032 5	32	15	48	27	32
	SD7SP0038 5	38	18,5	57	33	39
	SD7SP0048 5	48	22	72	39	47
3	SD7SP0060 5	60	30	90	53	64
	SD7SP0075 5	75	37	113	65	79
	SD7SP0090 5	90	45	135	80	96
	SD7SP0115 5	115	55	173	97	117
4	SD7SP0150 5	150	75	225	133	159
	SD7SP0170 5	170	90	255	159	191
5	SD7SP0210 5	210	110	315	195	234
	SD7SP0250 5	250	132	375	234	280
	SD7SP0275 5	275	150	413	265	319
6	SD7SP0330 5	330	160	495	283	340
	SD7SP0370 5	370	200	555	354	425
	SD7SP0460 5	460	250	690	442	531
7	SD7SP0580 5	580	315	870	558	669
	SD7SP0650 5	650	355	975	628	754
	SD7SP0720 5	720	400	1080	708	850

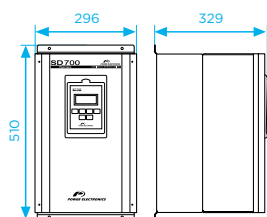
Higher power drives available. Consult Power Electronics.

# SD700 SP | Dimensions

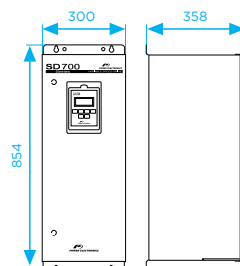
## DIMENSIONS



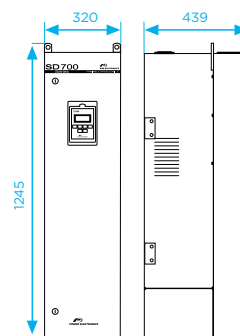
FRAME	WEIGHT (kg)
1	15



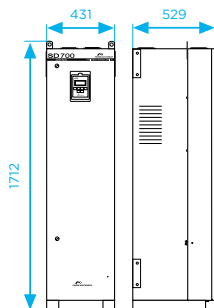
FRAME	WEIGHT (kg)
2	26



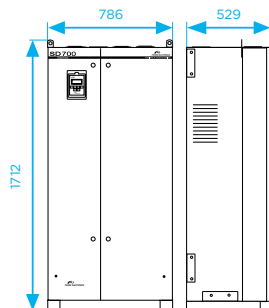
FRAME	WEIGHT (kg)
3	67.5



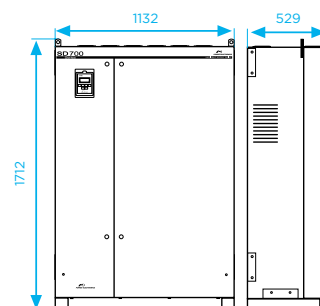
FRAME	WEIGHT (kg)
4	94



FRAME	WEIGHT (kg)
5	200



FRAME	WEIGHT (kg)
6	335



FRAME	WEIGHT (kg)
7	479

# SD700 KOMPAKT

VARIABLE SPEED DRIVES



## **SD700 KOMPAKT**

When space saving is a must, the SD700 KOMPAKT series with a power density up to 800kW/m<sup>3</sup> is your suitable solution. The drive keeps the advanced family features reducing up to 2.5 times the size. This product is suitable for professional project engineers to get freedom and competitiveness to their own electrical projects. Inspired by the contactors wiring concept, it has a top input power and a bottom output motor cable.

The drive unit and the input chokes are delivered together with a IP00 degree of protection. The customer following Power Electronics' recommendation will easily install the components in a dedicated cabinet or technical room.

SD700 KOMPAKT  
KEEPS THE ADVANCED  
FAMILY FEATURES  
REDUCING UP TO 2.5  
TIMES THE SIZE

- IP00
- 50°C OPERATION WITHOUT POWER DERATING
- (FFA) FULL FRONTAL ACCESS
- EXTERNAL HARMONIC FILTER AND BUILT-IN RFI FILTER
- BUILT-IN DV/DT FILTER 500V/μS-800V/μS (UNSCREENED CABLE UP TO 150M)
- MODULARITY
- CONFORMALLY COATED ELECTRONICS WITH MILITAR AND AEROSPACE TECHNOLOGY

## SD700 KOMPAKT SERIES

# Standard features

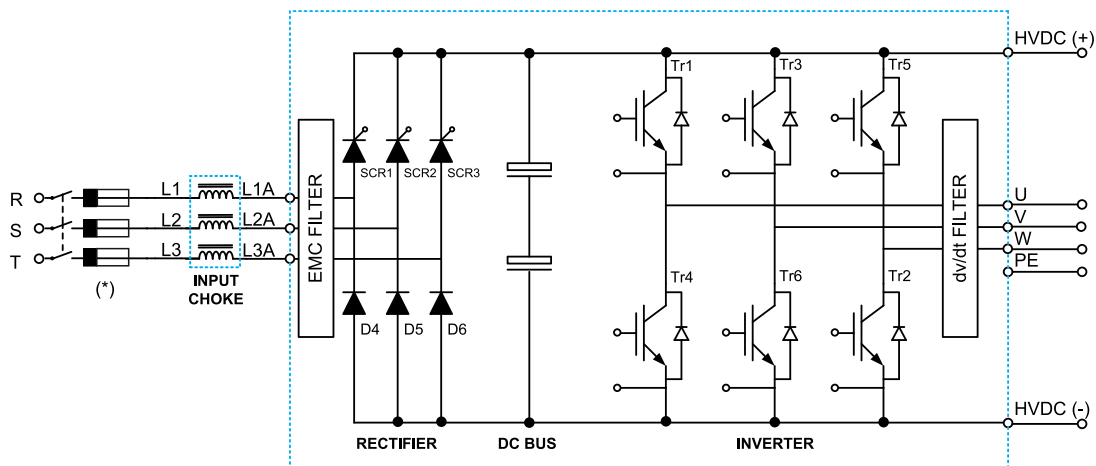
- Power range from 63kW to 800kW<sup>[1]</sup>. When there are many motors, this is a perfect space saving solution.
- Built-in dV/dt filter 500V/μs-800V/μs allows its installation with up to 150m unipolar cable following Power Electronics recommendations.
- 50°C operation without derating.
- Wide voltage range (230Vac, 380Vac-500Vac, 525Vac and 690Vac). Suitable for weak electrical grids and places with variable voltage range operations. The drive keeps running!
- Optional IP20 improvement through its dedicated enclosures suitable for technical room installation.
- Reduce the THD level without modifying the space needs; SD700 KOMPAKT is available with 6 and 12 pulses.
- External input chokes (3% impedance), EMC input filter as standard to keep family performance features.
- External braking units. When the drive absorbs the regenerated energy during braking cycles, B150 accessory will dissipate it.

<sup>[1]</sup> Higher power drives, consult Power Electronics".



# SD700 KOMPAKT | Functional Diagram

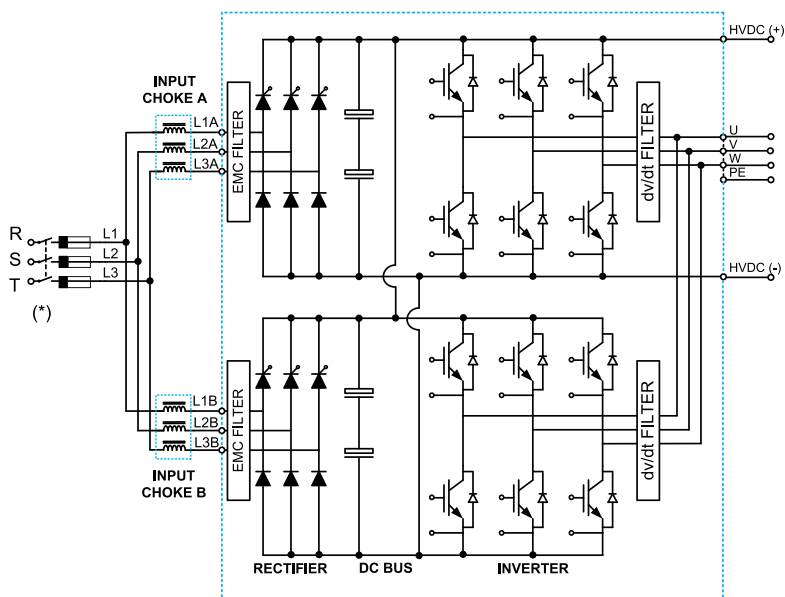
## FRAMES 1 & 2



(\*) : Protections and fuses not included

SD7KDTP0001BI

## FRAMES 3 & 4



(\*) : Protections and fuses not included

SD7KDTP0007AI

# SD700 KOMPAKT | Technical Characteristics

## SD700 KOMPAKT SERIES

INPUT	Power range	63kW - 800 kW <sup>[1]</sup>
	Voltage power	230Vac, 380-500Vac, 525Vac, 690Vac , 3 phases (±10%)
	Multipulse	6, 12
	Input frequency	50Hz/60Hz ± 6%
	Input rectifier technology	Thyristor-Diode
	Displacement power factor (DPF = cos Φ)	≥ 0.98
	Power factor (PF= I <sub>r</sub> /I <sub>rms</sub> · cos Φ)	≥ 0.91
	Momentary power loss	> 2sec (depending on the load inertia)
	EMC input filter	Second environment (Industrial): (C3 Standard) First environment (Domestic): C2 (Optional). C1 consult with Power Electronics
	Harmonics filter	Choke coils 3% impedance
	Current THDi (%)	≤ 40%
Regenerative	NO	
OUTPUT	Output frequency <sup>[2]</sup>	0... 200Hz
	Overload capacity	Constant torque/heavy duty: 150% during 60 sec at 50°C Variable torque/normal duty: 120% during 60 sec at 40°C.
	Efficiency (at rated current and rated voltage)	≥98%
	Control method	V/Hz VECTOR CONTROL
		Open Loop: PMC: speed (OLSP)/torque control (OLTQ), AVC: speed (OLSP) / torque control (OLTQ) Close Loop (Encoder): PMC: speed (CLSP)/torque control (CLTQ), AVC: speed(CLSP)/torque control (CLTQ)
	Switching frequency	4 to 8kHz - PEWave
	Output dv/dt filter	500 to 800V/μs
	Output cable length <sup>[3]</sup>	USC 150m SC 75m
Dynamic brake	External B150 Dynamic Brake	
ENVIRONMENTAL CONDITIONS	Operation ambient temperature	Minimum: -20°C Maximum: +50°C
	Storage temperature	Minimum: -40°C Maximum: +70°C
	Altitude	1000m
	Power altitude derating <sup>[1]</sup>	>1000m, 1% P <sub>N</sub> (kW) per 100m; 3000m maximum
	Ambient humidity	<95%, non-condensing
	Degree of protection	IPOQ, IP20
	Vibration	Deflection: 0.075mm (10Hz-57Hz), Acceleration: 9.8m/s <sup>2</sup> (57Hz-150Hz)
Heating resistors	Optional	
PROTECTIONS	Motor protections	Rotor locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PTC 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 (24Vdc), Isolated power supply 1 PTC input
	Digital outputs	3 Programmable changeover relays (250Vac, 8A or 30Vdc, 8A)
	Analogue input	2 Programmable differential inputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc. (Optically isolated)
	Analogue outputs	2 Isolated programmable outputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc
	Encoder inputs (optional)	Two differential encoders input. Voltages inputs from 5 to 24Vdc
	User power supply	+24Vdc user power supply ( Max 180mA) regulated and short-circuit protected +10Vdc user power supply (Max 2 potentiometers R= 1 kΩ) regulated and short-circuit protected
	I/O Extension board (optional)	4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 1 Analogue Input: Programmable and differential input. 5 Digital Outputs: Programmable multi-function relays.
	External power supply (optional)	1 Analogue Output: Programmable outputs in voltage / current. 24 V External Power Supply, Fault Relay integrated

NOTES [1] Other configuration, consult Power Electronics.

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

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

# SD700 KOMPAKT | Technical Characteristics

## SD700 KOMPAKT SERIES

<b>COMMUNICATION</b>	Standard hardware	USB port RS232 port RS485 port
	Standard protocol	Modbus-RTU
	Optional protocol	Profibus-DP DeviceNet Ethernet (Modbus TCP) Ethernet IP CAN Open N2 Metasys Gateway
<b>CONTROL PANEL</b>	Type	Removable
	Length	3 meters and 5 meters (optional)
	Connection	RJ45
	Visualization leds	LED ON: Control board is energized LED RUN: Motor receiving power supply LED FAULT: Flashing displays that a fault has occurred
	Alphanumeric display	4 lines x 16 characters Keypad with 6 keys to control and configure the drive, start and stop/reset Independent memory
	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
		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)
	Others	Real time clock Perpetual calendar
<b>REGULATIONS</b>	Certifications	CE, cTick, UL <sup>[4]</sup> , cUL <sup>[4]</sup>
	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(STO) TÜV Rheinland Certified

NOTES [4] On certification process.

# SD700 KOMPAKT

## Standard Ratings

### POWER RANGE AT 230VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 230VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 230VAC	120% Overload (A)
1	SD7K0210 2X Y	210	63	315	263	75	315
	SD7K0250 2X Y	250	75	375	313	86	375
	SD7K0275 2X Y	275	86	413	344	100	413
2	SD7K0330 2X Y	330	100	495	413	110	495
	SD7K0370 2X Y	370	110	555	463	140	555
	SD7K0460 2X Y	460	140	690	575	185	690
3	SD7K0580 2X Y	580	185	870	725	200	870
	SD7K0650 2X Y	650	200	975	813	220	975
	SD7K0720 2X Y	720	220	1080	900	250	1080

### POWER RANGE AT 400VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
1	SD7K0210 5X Y	210	110	315	263	132	315
	SD7K0250 5X Y	250	132	375	313	160	375
	SD7K0275 5X Y	275	150	413	344	200	413
2	SD7K0330 5X Y	330	160	495	413	220	495
	SD7K0370 5X Y	370	200	555	463	250	555
	SD7K0460 5X Y	460	250	690	575	315	690
3	SD7K0580 5X Y	580	315	870	725	400	870
	SD7K0650 5X Y	650	355	975	813	450	975
	SD7K0720 5X Y	720	400	1080	900	500	1080
4	SD7K0840 5X Y	840	450	1260	1050	560	1260
	SD7K0925 5X Y	925	500	1388	1156	630	1388
	SD7K0990 5X Y	990	560	1485	1238	710	1485

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
4	SD7K0840 5X 12 Y	840	450	1260	1050	560	1260
	SD7K0925 5X 12 Y	925	500	1388	1156	630	1388
	SD7K0990 5X 12 Y	990	560	1485	1238	710	1485

# SD700 KOMPAKT

## Standard Ratings

### POWER RANGE AT 440VAC

6 PULSES									
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Overload (A)
			kW	HP			kW	HP	
1	SD7K0210 5X Y	191	110	150	286,5	238,7	132	180	286,5
	SD7K0250 5X Y	227	132	180	340,5	283,7	160	240	340,5
	SD7K0275 5X Y	250	150	200	375	312,5	200	275	375
2	SD7K0330 5X Y	300	160	240	450	375	220	300	450
	SD7K0370 5X Y	336	200	275	504	420	250	340	504
	SD7K0460 5X Y	418	250	340	627	522,5	315	400	627
3	SD7K0580 5X Y	527	315	400	790,5	658,7	400	500	790,5
	SD7K0650 5X Y	591	355	450	886,5	738,7	450	600	886,5
	SD7K0720 5X Y	654,5	400	500	981,7	818,1	500	650	981,7
4	SD7K0840 5X Y	764	450	600	1146	955	560	750	1146
	SD7K0925 5X Y	841	500	650	1261,5	1051,2	630	850	1261,5
	SD7K0990 5X Y	900	560	750	1350	1125	710	900	1350

12 PULSES									
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Overload (A)
			kW	HP			kW	HP	
4	SD7K0840 5X 12 Y	764	450	600	1146	955	560	750	1146
	SD7K0925 5X 12 Y	841	500	650	1261,5	1051,2	630	850	1261,5
	SD7K0990 5X 12 Y	900	560	750	1350	1125	710	900	1350

# SD700 KOMPAKT

## Standard Ratings

### POWER RANGE AT 500VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 500VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 500VAC	120% Overload (A)
1	SD7K0210 5X Y	168	110	252	210	132	252
	SD7K0250 5X Y	200	132	300	250	150	300
	SD7K0275 5X Y	212	150	318	265	160	318
2	SD7K0330 5X Y	264	160	396	330	200	396
	SD7K0370 5X Y	296	200	444	370	250	444
	SD7K0460 5X Y	368	250	552	460	315	552
3	SD7K0580 5X Y	464	315	696	580	355	696
	SD7K0650 5X Y	520	355	780	650	400	780
	SD7K0720 5X Y	576	400	864	720	450	864
4	SD7K0840 5X Y	672	450	1008	840	500	1008
	SD7K0925 5X Y	740	500	1110	925	560	1110
	SD7K0990 5X Y	767	560	1151	959	630	1151

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 500VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 500VAC	120% Overload (A)
4	SD7K0840 5X 12 Y	672	450	1008	840	500	1008
	SD7K0925 5X 12 Y	740	500	1110	925	560	1110
	SD7K0990 5X 12 Y	767	560	1151	959	630	1151

### POWER RANGE AT 525VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
1	SD7K0180 7X Y	180	132	270	222	150	270
	SD7K0205 7X Y	205	150	308	254	185	308
2	SD7K0270 7X Y	270	200	405	334	250	405
	SD7K0295 7X Y	295	220	443	360	280	443
	SD7K0340 7X Y	340	250	510	417	315	510
3	SD7K0425 7X Y	425	315	638	526	400	638
	SD7K0470 7X Y	470	355	705	586	450	705
	SD7K0535 7X Y	535	400	803	666	500	803
4	SD7K0660 7X Y	660	500	990	824	600	990
	SD7K0750 7X Y	750	560	1125	936	700	1125

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Overload (A)
4	SD7K0660 7X 12 Y	660	500	990	824	600	990
	SD7K0750 7X 12 Y	750	560	1125	936	700	1125

# SD700 KOMPAKT

## Standard Ratings

### POWER RANGE AT 690VAC

6 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
1	SD7K0130 6X Y	130	110	195	163	132	195
	SD7K0150 6X Y	150	132	225	188	160	225
	SD7K0170 6X Y	170	160	255	213	200	255
2	SD7K0210 6X Y	210	200	315	263	250	315
	SD7K0260 6X Y	260	250	390	325	315	390
	SD7K0320 6X Y	320	315	480	400	400	480
3	SD7K0385 6X Y	385	355	578	481	450	578
	SD7K0460 6X Y	460	450	690	575	560	690
4	SD7K0550 6X Y	550	500	825	688	630	825
	SD7K0660 6X Y	660	630	990	825	800	990

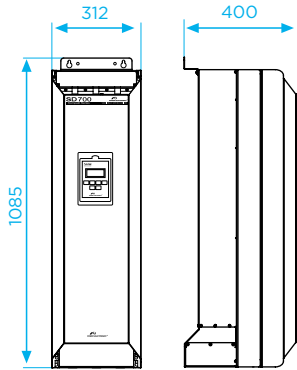
  

12 PULSES							
FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Overload (A)
4	SD7K0550 6X 12 Y	550	500	825	688	630	825
	SD7K0660 6X 12 Y	660	630	990	825	800	990

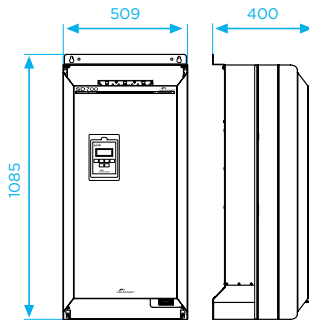
# SERIE KOMPAKT

## Dimensions

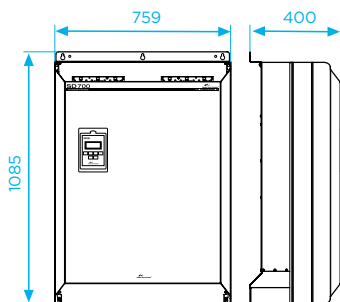
### DIMENSIONS IPOO



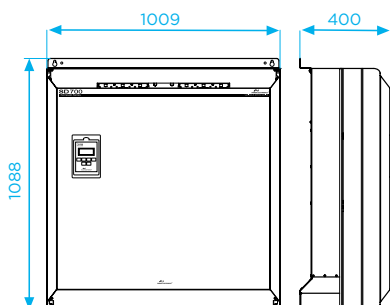
FRAME 1 - IPOO				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
SD7K0210 20 Y	SD7K0210 50 Y	SD7K0180 70 Y	SD7K0130 60 Y	78.2
SD7K0250 20 Y	SD7K0250 50 Y	SD7K0205 70 Y	SD7K0150 60 Y	
SD7K0275 20 Y	SD7K0275 50 Y		SD7K0170 60 Y	



FRAME 2 - IPOO				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
SD7K0330 20 Y	SD7K0330 50 Y	SD7K0270 70 Y	SD7K0210 60 Y	148
SD7K0370 20 Y	SD7K0370 50 Y	SD7K0295 70 Y	SD7K0260 60 Y	
SD7K0460 20 Y	SD7K0460 50 Y	SD7K0340 70 Y	SD7K0320 60 Y	



FRAME 3 - IPOO				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
SD7K0580 20 Y	SD7K0580 50 Y	SD7K0425 70 Y	SD7K0385 60 Y	200
SD7K0650 20 Y	SD7K0650 50 Y	SD7K0470 70 Y	SD7K0460 60 Y	
SD7K0720 20 Y	SD7K0720 50 Y	SD7K0535 70 Y		

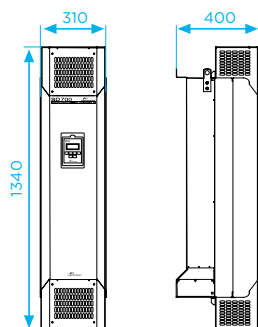


FRAME 4 - IPOO				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
-	SD7K0840 50 Y	SD7K0660 70 Y	SD7K0550 60 Y	280
	SD7K0925 50 Y	SD7K0750 70 Y	SD7K0660 60 Y	
	SD7K0990 50 Y	SD7K0660 70 12 Y	SD7K0550 60 12 Y	
	SD7K0840 50 12 Y	SD7K0750 70 12 Y	SD7K0660 60 12 Y	
	SD7K0925 50 12 Y			
	SD7K0990 50 12 Y			

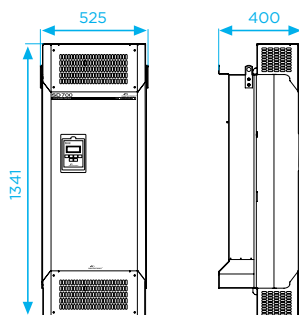


# SERIE KOMPAKT | Dimensiones

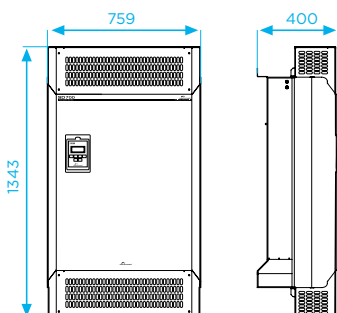
## DIMENSIONS IP20



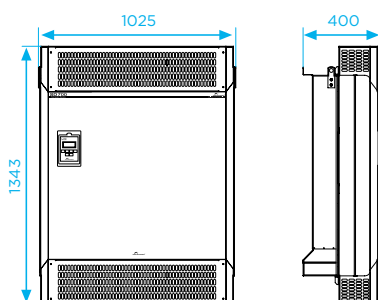
FRAME 1 - IP20				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
SD7K0210 22 Y	SD7K0210 52 Y	SD7K0180 72 Y	SD7K0130 62 Y	85,5
SD7K0250 22 Y	SD7K0250 52 Y	SD7K0205 72 Y	SD7K0150 62 Y	
SD7K0275 22 Y	SD7K0275 52 Y		SD7K0170 62 Y	



FRAME 2 - IP20				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
SD7K0330 22 Y	SD7K0330 52 Y	SD7K0270 72 Y	SD7K0210 62 Y	159
SD7K0370 22 Y	SD7K0370 52 Y	SD7K0295 72 Y	SD7K0260 62 Y	
SD7K0460 22 Y	SD7K0460 52 Y	SD7K0340 72 Y	SD7K0320 62 Y	



FRAME 3 - IP20				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
SD7K0580 22 Y	SD7K0580 52 Y	SD7K0425 72 Y	SD7K0385 62 Y	215,3
SD7K0650 22 Y	SD7K0650 52 Y	SD7K0470 72 Y	SD7K0460 62 Y	
SD7K0720 22 Y	SD7K0720 52 Y	SD7K0535 72 Y		



FRAME 4 - IP20				
INPUT VOLTAGE				WEIGHT (kg)
230Vca	380-500Vca	525Vca	690Vca	
	SD7K0840 52 Y	SD7K0660 72 Y	SD7K0550 62 Y	299,7
	SD7K0925 52 Y	SD7K0750 72 Y	SD7K0660 62 Y	
	SD7K0990 52 Y	SD7K0660 72 12 Y	SD7K0550 62 12 Y	
	SD7K0840 52 12 Y	SD7K0750 72 12 Y	SD7K0660 62 12 Y	
	SD7K0925 52 12 Y			
	SD7K0990 52 12 Y			

# SD700 KOMPAKT

## Input Inductances Standard Ratings

### STANDARD RATINGS

INPUT VOLTAGE 230VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0210 2X Y	P246B	1	250	33
	SD7K0250 2X Y				
	SD7K0275 2X Y	P256A	1	370	65
2	SD7K0330 2X Y	P256A	1	370	65
	SD7K0370 2X Y				
	SD7K0460 2X Y	P233A	1	500	53
3	SD7K0580 2X Y	P297A	2	2x290	2x48
	SD7K0650 2X Y				
	SD7K0720 2X Y	P298A	2	2x360	2x43

INPUT VOLTAGE 380VAC - 500VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0210 5X Y	P246B	1	250	33
	SD7K0250 5X Y				
	SD7K0275 5X Y	P256A	1	370	65
2	SD7K0330 5X Y	P256A	1	370	65
	SD7K0370 5X Y				
	SD7K0460 5X Y	P233A	1	500	53
3	SD7K0580 5X Y	P297A	2	2x290	2x48
	SD7K0650 5X Y				
	SD7K0720 5X Y	P298A	2	2x360	2x43
4	SD7K0840 5X Y	P233A	2	2x500	2x53
	SD7K0925 5X Y				
	SD7K0990 5X Y				
	SD7K0840 5X 12 Y				
	SD7K0925 5X 12 Y				
SD7K0990 5X 12 Y					



INPUT VOLTAGE 525VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0180 7X Y	P317B	1	210	40
	SD7K0205 7X Y	P246B	1	250	33
2	SD7K0270 7X Y	P233A	1	500	53
	SD7K0295 7X Y				
3	SD7K0340 7X Y	P297A	2	2x290	2x48
	SD7K0425 7X Y				
4	SD7K0470 7X Y	P298A	2	2x360	2x43
	SD7K0535 7X Y				
	SD7K0660 7X Y				
	SD7K0750 7X Y				
	SD7K0660 7X 12 Y				
SD7K0750 7X 12 Y	P233A	2	2x500	2x53	

# SD700 KOMPAKT

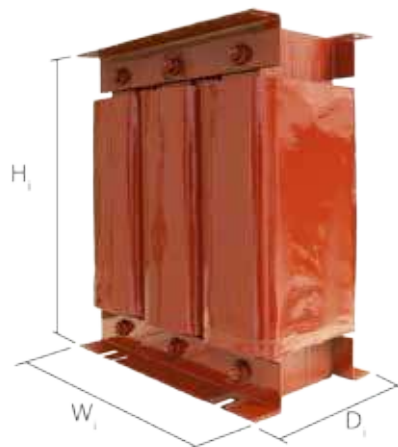
## Input Inductances Standard Ratings

### STANDARD RATINGS

INPUT VOLTAGE 690VAC					
DRIVE		INDUCTANCE			
FRAME	REFERENCE	REFERENCE	QUANTITY	I (A)	WEIGHT (kg)
1	SD7K0130 6X Y	P316B	1	170	33
	SD7K0150 6X Y				
	SD7K0170 6X Y				
2	SD7K0210 6X Y	P317B	1	210	40
	SD7K0260 6X Y	P318A	1	330	62
	SD7K0320 6X Y				
3	SD7K0385 6X Y	P319B	2	2x230	2x42
	SD7K0460 6X Y				
4	SD7K0550 6X Y	P318A	2	2x330	2x62
	SD7K0660 6X Y				
	SD7K0550 6X 12 Y				
	SD7K0660 6X 12 Y				

### DIMENSIONS & WEIGHT

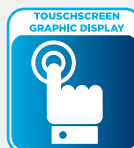
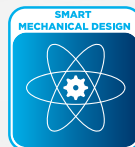
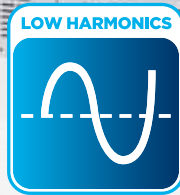
INDUCTANCES DIMENSIONS AND WEIGHT					
REFERENCE	Wi (mm)	Di (mm)	Hi (mm)	WEIGHT (kg)	I (A)
P233A	300	255	350	53	500
P246B	300	170	350	33	250
P256A	300	245	355	65	370
P297A	300	210	360	48	290
P298A	300	200	360	43	360
P316B	300	170	350	33	170
P317B	300	200	360	40	210
P318A	300	245	355	62	330
P319B	300	200	360	42	230



# SD700FL

VARIABLE SPEED DRIVES

## Low harmonics Notch Filter Drive



## SD700FL

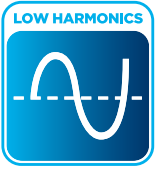
The unique features of the SD700 drive are improved adding an input notch filter that reduces the THDi below 5%<sup>[1]</sup>. It is constructed through the parallel connection of individual filtering modules, all controlled and monitored by the drive. Each module integrates temperature sensors and a contactor that isolates the long life integrated capacitors. This contactor is controlled by the drive depending on the motor load to get best filtering features.

What makes SD700FL different? The filtering features do not depend on the grid impedance, that means that the filter will never cause resonance as the passive filter could cause, and its performance will not vary significantly after electrical grid modifications. This feature makes it suitable for any low harmonic application.

[1]Harmonics are below the limits defined in IEEE519 for all ISC/IL

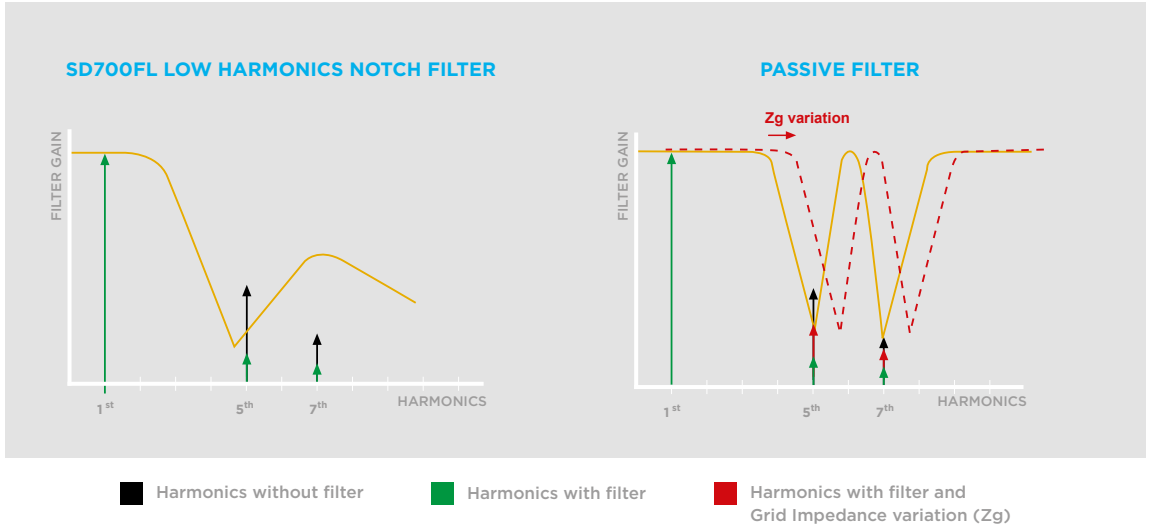
RUGGED AND  
RELIABLE SOLUTION  
FOR LOW HARMONICS  
APPLICATIONS

- IP54 WITHOUT DUST FILTERS
- 50°C OPERATION WITHOUT POWER DERATING
- (FFA) FULL FRONTAL ACCESS
- MODULAR POWER STAGE AND NOTCH FILTER
- BUILT-IN RFI FILTER
- BUILT-IN DV/Dt FILTER 500V/μS-800V/μS (SCREENED CABLE UP TO 300M)
- CONFORMALLY COATED ELECTRONICS WITH MILITAR AND AEROSPACE TECHNOLOGY



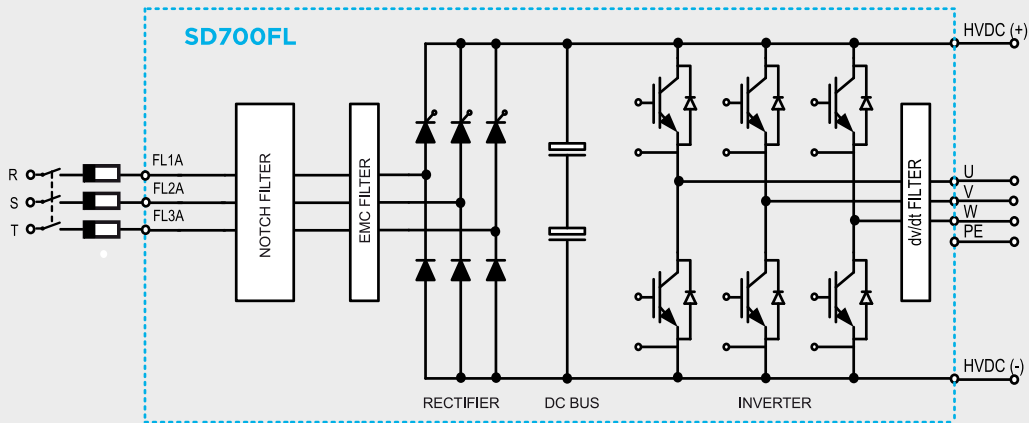
## LOW HARMONIC DRIVE

The additional input filter customised for your application ensures a THDi level that meets all the projects requirements. SD700FL is not a common passive filter, its performance does not depend on the grid impedance so the filter will never cause resonance under normal working conditions.



The passive filters are usually LC filters designed specifically to filter the 5<sup>th</sup> and 7<sup>th</sup> harmonic for a specific grid configuration and impedance  $Z_g$ . If the grid impedance is modified due to the introduction of new loads or motors, the filtering features are modified and may cause a resonance effect in the worst case.

The Notch filter integrates a line impedance that makes negates the grid, consequently the variation of the grid impedance does not affect the filtering features. We create long lasting solutions to meet today and future needs.



SD7FLDTP0001AI

## WIDE VOLTAGE AND POWER RANGE

400Vac and 690Vac from 22kW to 1800kW.

## COMPLETE AND FULLY TESTED SOLUTION

Forget about buying independent filters and separate solutions. SD700FL is a truly tested solution designed for your application. The drive monitors the temperature and activates the integrated contactor of the filter to provide the best performance under any load condition.



# SD700 FL SERIES | Technical Characteristics

## SD700 FL SERIES

<b>INPUT</b>	Power range	2.2kW - 1800kW <sup>[1]</sup>	
	Voltage power	380-500Vac, 690Vac, 3 phase (±10%)	
	Multipulse	6	
	Input frequency	50Hz/60Hz ± 6%	
	Input rectifier technology	Thyristor-Diode	
	Displacement power factor (DPF = cos Φ)	≥ 0.99	
	Power factor (PF= I <sub>1</sub> /I <sub>rms</sub> · cos Φ)	≥ 0.98	
	Momentary power loss	> 2sec (depending on the load inertia)	
	EMC input filter	Frames 1 & 2: First environment (C2 standard) Frames 3 to 11: Second environment (Industrial) (C3 Standard) First environment (C2 Optional). C1 consult Power Electronics.	
	Harmonics filter	Notch Filter	
	Current THDi (%)	≤ 5% <sup>[2]</sup>	
	Regenerative	NO	
	<b>OUTPUT</b>	Output frequency <sup>[3]</sup>	0... 200Hz
Overload capacity		150% during 60s at 50°C	
Efficiency (at rated current and rated voltage)		≥97%	
Control method		V/Hz VECTOR CONTROL Open Loop: PMC: speed (OLSP)/torque control (OLTQ), AVC: speed(OLSP) / torque control (OLTQ) Close Loop (Encoder): PMC:speed (CLSP)/torque control (CLTQ), AVC: speed(CLSP)/torque control (CLTQ)	
Switching frequency		4 to 8kHz - PEWave	
Output dv/dt filter		500 to 800V/μs	
Output cable length <sup>[4]</sup>		USC 300m SC 150m	
Dynamic brake		External BI50 Dynamic Brake	
<b>ENVIRONMENTAL CONDITIONS</b>		Operation ambient temperature	Minimum: -20°C Maximum: +50°C
		Storage temperature	Minimum: -40°C Maximum: +70°C
	Altitude	1000m	
	Power altitude derating <sup>[1]</sup>	>1000m, 1% P <sub>N</sub> (kW) per 100m; 4000m maximum	
	Ambient humidity	<95%, non-condensing	
	Degree of protection	IP42 Filter Cabinet / (IP20/IP54) Drive Cabinet	
	Vibration	Deflection: 0.075mm (10Hz-57Hz), Acceleration: 9.8m/s <sup>2</sup> (57Hz-150Hz)	
Heating resistors	Optional		
<b>PROTECTIONS</b>	Motor protections	Rotor locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PTC 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.	
<b>INPUTS/ OUTPUTS</b>	Digital inputs	5 programmable active high (24Vdc), Isolated power supply 1 PTC input,	
	Digital outputs	3 Programmable changeover relays (250Vac, 8A or 30Vdc, 8A)	
	Analogue input	2 Programmable differential inputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc. (Optically isolated)	
	Analogue outputs	2 Isolated programmable outputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc	
	Encoder inputs (optional)	Differential encoder input. Voltages inputs from 5 to 24Vdc	
	User power supply	+24Vdc user power supply (Max 180mA) regulated and short-circuit protected +10Vdc user power supply (Max 2 potentiometers R= 1 kΩ) regulated and short-circuit protected	
	I/O Extension board (optional)	4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 1 Analogue Input: Programmable and differential input. 5 Digital Outputs: Programmable multi-function relays.	
	External power supply (optional)	1 Analogue Output: Programmable outputs in voltage / current. 24 V External Power Supply, Fault Relay integrated	

### NOTES

[1] Other configuration, consult Power Electronics.  
[2] Harmonics are below the limits defined in IEC61000-3-2 for all I<sub>sc</sub>/I<sub>L</sub>

[3]: For operation frequencies higher than 100Hz consult Power Electronics.

[4] SC: Shielded cable, USC: Unshielded Cable. Follow Power Electronics installation recommendations. For greater cable lengths and first environment (C2) consult Power Electronics.



# SD700 FL SERIES

## Technical Characteristics

### SD700 FL SERIES

<b>COMMUNICATION</b>	Standard hardware	USB port RS232 port RS485 port
	Standard protocol	Modbus-RTU
	Optional protocol	Profibus-DP DeviceNet Ethernet (Modbus TCP) Ethernet IP CAN Open N2 Metasys Gateway
<b>CONTROL PANEL</b>	Type	Removable
	Length	3 meters and 5 meters (optional)
	Connection	RJ45
	Visualization leds	LED ON: Control board is energized LED RUN: Motor receiving power supply LED FAULT: Flashing displays that a fault has occurred
	Alphanumeric display	4 lines x 16 characters Keypad with 6 keys to control and configure the drive, start and stop/reset Independent memory
	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 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)
	Others	Real time clock Perpetual calendar
<b>REGULATIONS</b>	Certifications	CE, cTick, UL <sup>[5]</sup> , cUL <sup>[5]</sup>
	Electromagnetic compatibility	EMC Directive (2004/108/CE) IEC/EN 61800-3 IEEE 519
	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(STO) TÜV Rheinland Certified

NOTES [5] On certification process.



# Standard Ratings

## POWER RANGE AT 400VAC

400Vca													
FRAME	CODE	Operation temperature 50°C			DIMENSIONS						Weight (kg)		
		I(A) Rated	Motor power (kW) at 400Vac	150% Overload (A)	Width		Depth		Height <sup>[1]</sup>		Drive	Filter	
					Drive (W <sub>D</sub> )	Filter (W <sub>F</sub> )	Drive (D <sub>D</sub> )	Filter (D <sub>F</sub> )	Drive (H <sub>D</sub> )	Filter (H <sub>F</sub> )			
1	SD7FL0006 5X	6	2.2	9	190	207	278.6	279	507.6	507.6	15	50	
	SD7FL0009 5X	9	4	14									
	SD7FL0012 5X	12	5.5	18									
	SD7FL0018 5X	18	7.5	27									
	SD7FL0024 5X	24	11	36									
2	SD7FL0032 5X	32	15	48	296	500	328.8	394	510.3	851	26	75	
	SD7FL0038 5X	38	18.5	57									
	SD7FL0048 5X	48	22	72									
3	SD7FL0060 5X	60	30	90	300.5	500	358	390	853.5	990	67.5	100	
	SD7FL0075 5X	75	37	113								105	
	SD7FL0090 5X	90	45	135								110	
	SD7FL0115 5X	115	55	173								110	
4	SD7FL0150 5X	150	75	225	320	608	438.5	440	1245	1206	94	175	
	SD7FL0170 5X	170	90	255								180	
5	SD7FL0210 5X	210	110	315	431	407	529	1712	1712	1712	94	425	
	SD7FL0250 5X	250	132	375								450	
	SD7FL0275 5X	275	150	413								460	
6	SD7FL0330 5X	330	160	495	786	407	529	1712	1712	1712	94	614	
	SD7FL0370 5X	370	200	555								649	
	SD7FL0460 5X 20	460	250	690								814	2000
7	SD7FL0580 5X 20	580	315	870	1132	814	529	2000	2000	2000	94	1037	
	SD7FL0650 5X 20	650	355	975								1221	1236
	SD7FL0720 5X 20	720	400	1080								814	1107
8	SD7FL0840 5X 20	840	450	1260	1482	1221	529	2000	2000	2000	94	1412	
	SD7FL0925 5X 20	925	500	1388								1457	
	SD7FL0990 5X 20	990	560	1485								1492	
9	SD7FL1150 5X 20	1150	630	1725	2352	1628	529	2000	2000	2000	94	2121	
	SD7FL1260 5X 20	1260	710	1890								2171	
	SD7FL1440 5X 20	1440	800	2160								2261	
10	SD7FL1580 5X 20	1580	900	2370	3402	2035	529	2000	2000	2000	94	2937	
	SD7FL1800 5X 20	1800	1000	2700								3007	
11	SD7FL2200 5X 20	2200	1200	3300	4452	2442	529	2000	2000	2000	94	3429	
	SD7FL2500 5X 20	2500	1400	3750								2849	3953

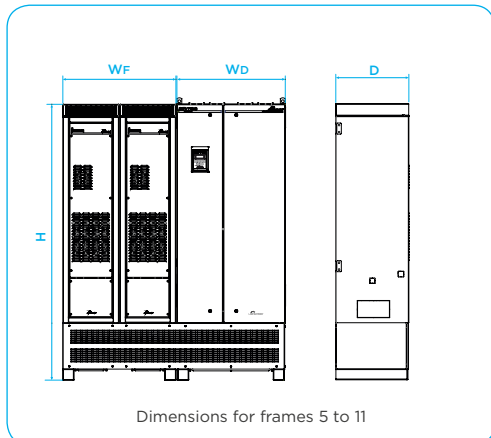
NOTE [1] Available optional plinths for frames 5 to 11, 2000mm and 2200mm total height.

## POWER RANGE AT 690VAC

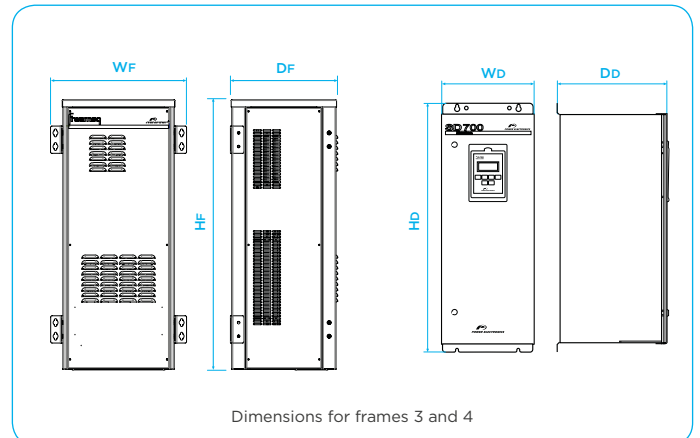
690V <sub>CA</sub>												
FRAME	CODE	Operation temperature 50°C			DIMENSIONS						Weight (kg)	
		I(A) Rated	Motor power (kW) at 690Vac	150% Overload (A)	Width		Depth		Height <sup>[1]</sup>		Drive	Filter
					Drive (W <sub>D</sub> )	Filter (W <sub>F</sub> )	Drive (D <sub>D</sub> )	Filter (D <sub>F</sub> )	Drive (H <sub>D</sub> )	Filter (H <sub>F</sub> )		
4 <sup>[1]</sup>	SD7FL0052 6X	52	45	78	300.5	-	358	-	853.5	-	67.5	-
	SD7FL0062 6X	62	55	93		500		390		990		128
	SD7FL0080 6X	80	75	120	320	608	438.5	440	1245	1206	94	128
	SD7FL0105 6X	105	90	157								185
5	SD7FL0130 6X	130	110	195	431	407	529	1712	1712	2000	94	413
	SD7FL0150 6X	150	132	225								550
	SD7FL0170 6X	170	160	255								560
6	SD7FL0210 6X	210	200	315	786	407	529	1712	2000	2000	94	724
	SD7FL0260 6X 20	260	250	390		814						1073
	SD7FL0320 6X 20	320	315	480		1093						
7	SD7FL0385 6X 20	385	355	578	1132	814	529	2000	2000	2000	94	1247
	SD7FL0460 6X 20	460	450	690		1221						1606
8	SD7FL0550 6X 20	550	500	825	1482	1221	529	2000	2000	2000	94	1732
	SD7FL0660 6X 20	660	630	990		1628						2101
9	SD7FL0750 6X 20	750	710	1125	2352	1628	529	2000	2000	2000	94	2541
	SD7FL0840 6X 20	840	800	1260								2561
	SD7FL0950 6X 20	950	900	1425								2035
10	SD7FL1140 6X 20	1140	1000	1710	3402	2035	529	2000	2000	2000	94	3382
	SD7FL1270 6X 20	1270	1200	1905		2442						3771
	SD7FL1420 6X 20	1420	1400	2130		2849						4160
11	SD7FL1500 6X 20	1500	1500	2250	4452	3256	529	2000	2000	2000	94	4847
	SD7FL1800 6X 20	1800	1800	2700		3663						5256

NOTES [1] Dimensions and weights not indicated upon request.  
[2] Available optional plinths for frames 5 to 11, 2000 and 2200 total height.

### DRIVES



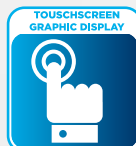
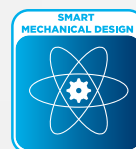
### FILTERS



# SD700FR

VARIABLE SPEED DRIVES

## Regenerative Active Front End



## **SD700FR**

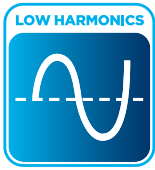
SD700FR SERIES goes one step ahead keeping the family unique characteristics. Based on the latest active front end technology, they are able to: regenerate the braking energy, reduce the THDi<5%<sup>[1]</sup>, adjust the cosine phi and keep it constant at any load condition, and keep the motor voltage constant even when high input voltage drops occur.

SD700FR provides the best regeneration features. Save money reducing your energy bills and increasing the process performance at the same time!

[1]Harmonics are below the limits defined in IEEE519 for all ISC/IL

SAVE MONEY REDUCING YOUR  
ENERGY BILLS AND INCREASING  
THE PROCESS PERFORMANCE AT  
THE SAME TIME!

- IP54 WITHOUT DUST FILTERS
- 50°C OPERATION WITHOUT POWER DERATING
- (FFA) FULL FRONTAL ACCESS
- ACTIVE FRONT END AND LCL FILTER MODULAR POWER STAGE
- REGENERATIVE DRIVE 4Q
- ADJUSTABLE DISPLACEMENT POWER FACTOR
- BUILT-IN RFI FILTER
- BUILT-IN DV/DT FILTER 500V/μS-800VμS (UNSCREENED CABLE UP TO 300M)
- CONFORMALLY COATED ELECTRONICS WITH MILITAR AND AEROSPACE TECHNOLOGY

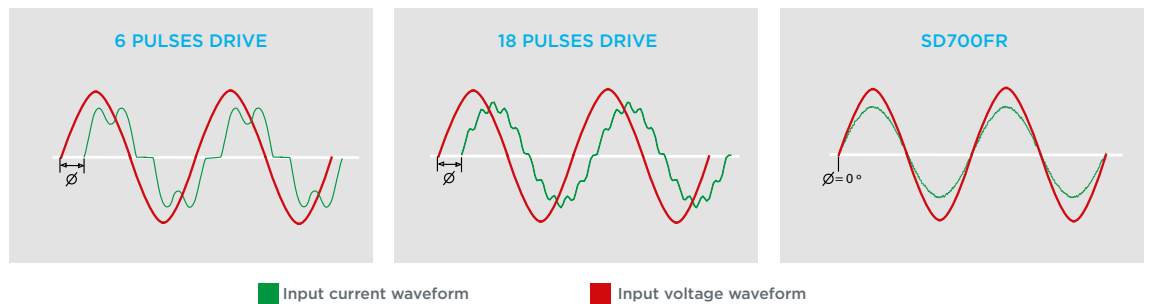


## WHAT IS THE ACTIVE FRONT END TECHNOLOGY?

The traditional thyristor-diode rectifier has been replaced by a controlled Isolated Gate Bipolar Transistor (IGBT) bridge. This bridge is operated by its own control and power board that creates an almost sinusoidal input current wave.

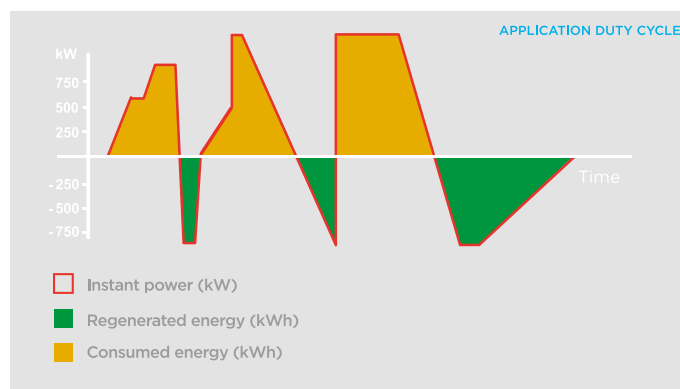
This technology reduces the THDi with the highest efficiency and space savings. Furthermore the  $\text{Cos}\Phi = 1.0$  is adjustable and will be kept at any load condition. Forget the capacitor bank installation, additional bill charges and transformer and wiring overheating!

The active front end technology substitutes the multipulse drives and passive filters. The multipulse solutions have: higher installation cost by means of special transformers and wiring requirements, no cosine phi control, filtering features load dependant, higher input voltage drops and no regeneration capacity.



## ENERGY REGENERATION - 4 QUADRANT OPERATION

The best regeneration features are provided by the SD700FR. Some applications such as cranes, downhill conveyors, centrifuges pumps and fans generate a huge amount of energy during braking periods. This energy has been traditionally dissipated in braking units constructed by resistors. The SD700FR goes one step ahead giving the regenerated energy back to the grid, saving energy and providing low harmonic distortion at the same time.

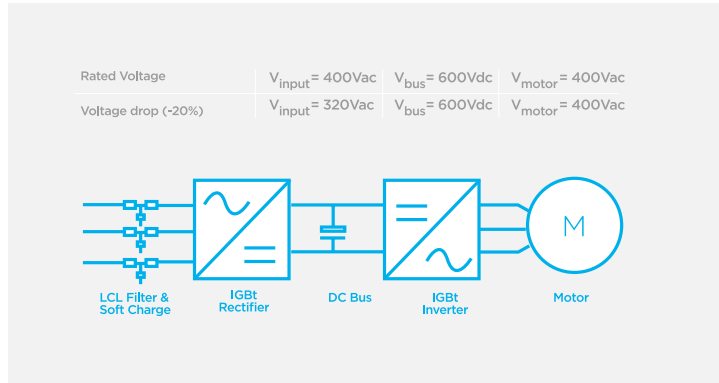


## COMPLETE AND FULLY TESTED SOLUTION

Forget about buying independent AFE and motor units that are separate solutions. It is a truly tested and optimized solution. The rectifier and inverter bridge integrates a control and a power board each. They are communicated and synchronized by fibre optics, monitoring the input and output electric parameters continuously.

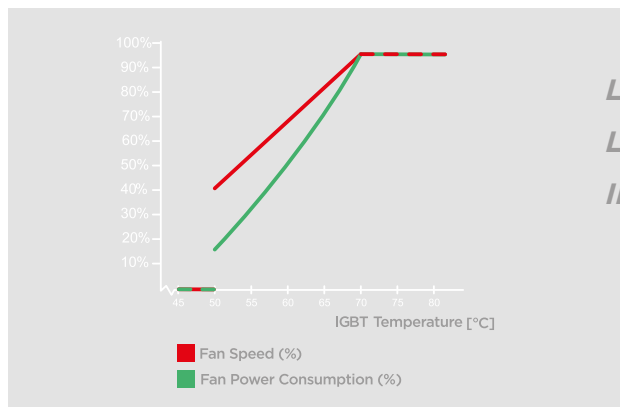
## ARE YOU AFRAID BECAUSE OF YOUR WEAK GRID?

This is your best solution, the IGBT rectifier bridge allows a constant DC bus voltage under the most demanding voltage dips. Even when high voltage drops occurs, the drive will provide the rated motor voltage.



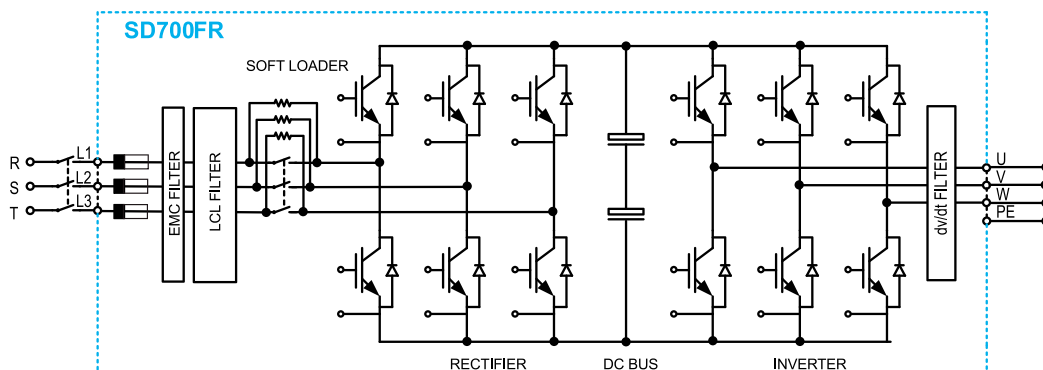
## VARIABLE SPEED COOLING

When savings are a must, the design goes one step ahead integrating a variable speed system for the cooling fans that vary the air speed depending on the IGBT's temperature. This way, not only does the SD700FR reduce the stand-by consumption at low capacity but also reduces the environment noise level and increases the fans' lifetime.



**LESS ENERGY CONSUMPTION**  
**LESS NOISE POLLUTION**  
**INCREASE FAN'S LIFETIME**

## SD700FR OPERATIONAL DIAGRAM



# SD700 FR SERIES

# Technical Characteristics

## SD700 FR SERIES

<b>INPUT</b>	Power range	110kW - 2000kW [1]	
	Voltage power	380-480Vac, 525Vac, 690Vac , 3 phases (±10%)	
	Multipulse	-	
	Input frequency	50Hz/60Hz ± 6%	
	Input rectifier technology	IGBT	
	Rectifier bridge Switching Frequency	2.8kHz	
	Displacement power factor (DPF = cos Φ)	1 (factory settings)	
	Power factor (PF= I <sub>r</sub> /I <sub>rms</sub> · cos Φ)	0.90 leading ... 0.90 lagging (adjustable)	
	Momentary power loss	≥0.98	
	EMC input filter	> 2sec (depending on the load inertia)	
	Harmonics filter	Second environment (Industrial): (C3 Standard) First environment (Domestic): C2 (Optional). C1 consult Power Electronics	
	Current THDi (%)	LCL ≤ 3% / 5% [2]	
	Regenerative	Yes - 4 quadrant operation	
<b>OUTPUT</b>	Output frequency [3]	0... 200Hz	
	Overload capacity	Constant torque/heavy duty: 150% during 60 sec at 50°C Variable torque/normal duty: 120% during 60 sec at 40°C.	
	Efficiency (at I <sub>n</sub> and at V <sub>n</sub> )	>97%	
	Control method	V/Hz VECTOR CONTROL	
	Switching frequency	Open Loop: PMC: speed (OLSP)/torque control (OLTQ), AVC: speed(OLSP) / torque control (OLTQ) Close Loop (Encoder): PMC:speed (CLSP)/torque control (CLTQ), AVC: speed(CLSP)/torque control (CLTQ)	
	Output dV/dT filter	4-8kHz -PEWave	
	Output cable length [4]	500 to 800V/μs USC 300m SC 150m	
	Dynamic brake	-	
	<b>ENVIRONMENTAL CONDITIONS</b>	Operation ambient temperature	Minimum: -20°C Maximum: +50°C
		Storage temperature	Minimum: -40°C Maximum: +70°C
Altitude		1000m	
Power altitude derating [1]		>1000m, 1% PN(kW) per 100m; 4000m maximum	
Ambient humidity		<95%, non-condensing	
Degree of protection		IP20, IP54	
Vibration		Deflection: 0.075mm (10Hz-57Hz), Acceleration: 9.8m/s <sup>2</sup> (57Hz-150Hz)	
Heating resistors	Optional		
<b>PROTECTIONS</b>	Motor protections	Rotor locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PTC signal), Speed limit, Torque limit.	
	Drive protections	Overload, 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.	
<b>INPUTS/OUTPUTS</b>	Digital inputs	6 programmable active high (24Vdc), Isolated power supply 1 PTC input,	
	Digital outputs	3 Programmable changeover relays (250Vac, 8A or 30Vdc, 8A)	
	Analogue input	2 Programmable differential inputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc. Optically isolated.	
	Analogue outputs	2 Isolated programmable outputs: 0 - 20mA, 4 - 20mA, 0 - 10Vdc and ±10Vdc	
	Encoder inputs (optional)	Differential encoder input. Voltages inputs from 5 to 24Vdc	
	User power supply	+24Vdc user power supply ( Max 180mA) regulated and short-circuit protected +10Vdc user power supply (Max 2 potentiometers R= 1 kΩ) regulated and short-circuit protected	
	I/O Extension board (optional)	4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 1 Analogue Input: Programmable and differential input. 5 Digital Outputs: Programmable multi-function relays.	
	External power supply (optional)	1 Analogue Output: Programmable outputs in voltage / current. 24 V External Power Supply, Fault Relay integrated	

**NOTES** [1] Other configuration, consult Power Electronics.  
[2] THDi < 3% (THDv = 0%). Harmonics are below the limits defined in IEEE519 for all I<sub>sc</sub>/I<sub>L</sub>

[3]: For operation frequencies higher than 100Hz consult Power Electronics.

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



# SD700 FR SERIES

## Technical Characteristics

### SD700 FR SERIES

<b>COMMUNICATION</b>	Standard hardware	USB port RS232 port RS485 port
	Standard protocol	Modbus-RTU Profibus-DP DeviceNet
	Optional protocol	Ethernet (Modbus TCP) Ethernet IP CAN Open N2 Metasys Gateway
<b>CONTROL PANEL</b>	Type	Removable
	Length	3 meters and 5 meters (optional)
	Connection	RJ45
	Visualization leds	LED ON: Control board is energized LED RUN: Motor receiving power supply LED FAULT: Flashing displays that a fault has occurred
	Alphanumeric display	4 lines x 16 characters Keypad with 6 keys to control and configure the drive, start and stop/reset Independent memory
	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 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) Register of total and partial energy regenerated 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)
	Others	Real time clock Perpetual calendar Adjustable DC bus voltage
<b>REGULATIONS</b>	Certifications	CE, cTick, UL <sup>[5]</sup> , cUL <sup>[5]</sup>
	Electromagnetic compatibility	EMC Directive (2004/108/CE) IEC/EN 61800-3 IEEE 519
	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(STO) TÜV Rheinland Certified

NOTES [5] On certification process.

# SD700 FR | Standard Ratings

## POWER RANGE AT 400VAC

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 400VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 400VAC	120% Overload (A)
5	SD7FR0210 5X Y	210	110	315	263	132	315
	SD7FR0250 5X Y	250	132	375	313	160	375
	SD7FR0275 5X Y	275	150	413	344	200	413
6	SD7FR0330 5X Y	330	160	495	413	220	495
	SD7FR0370 5X Y	370	200	555	463	250	555
	SD7FR0460 5X Y	460	250	690	575	315	690
7	SD7FR0580 5X Y	580	315	870	725	400	870
	SD7FR0650 5X Y	650	355	975	813	450	975
	SD7FR0720 5X Y	720	400	1080	900	500	1080
8	SD7FR0840 5X Y	840	450	1260	1050	560	1260
	SD7FR0925 5X Y	925	500	1388	1156	630	1388
	SD7FR0990 5X Y	990	560	1485	1238	710	1485
9	SD7FR1150 5X Y	1150	630	1725	1438	800	1725
	SD7FR1260 5X Y	1260	710	1890	1575	900	1890
	SD7FR1440 5X Y	1440	800	2160	1800	1000	2160
10	SD7FR1580 5X Y	1580	900	2370	1975	1100	2370
	SD7FR1800 5X Y	1800	1000	2700	2250	1200	2700
11	SD7FR2200 5X Y	2200	1200	3300	2750	1500	3300
	SD7FR2500 5X Y	2500	1400	3750	3100	1750	3750

## POWER RANGE AT 440VAC

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY				Operation Temperature 40°C NORMAL DUTY			
		I(A) Rated	Motor Power (kW) at 440VAC		150% Overload (A)	I(A) Rated	Motor Power (kW) at 440VAC		120% Sobrecarga (A)
			kW	HP			kW	HP	
5	SD7FR0210 5X Y	191	110	150	286,5	238,7	132	180	286,5
	SD7FR0250 5X Y	227	132	180	340,5	283,7	160	240	340,5
	SD7FR0275 5X Y	250	150	200	375	312,5	200	275	375
6	SD7FR0330 5X Y	300	160	240	450	375	220	300	450
	SD7FR0370 5X Y	336	200	275	504	420	250	340	504
	SD7FR0460 5X Y	418	250	340	627	522,5	315	400	627
7	SD7FR0580 5X Y	527	315	400	790,5	658,7	400	500	790,5
	SD7FR0650 5X Y	591	355	450	886,5	738,7	450	600	886,5
	SD7FR0720 5X Y	654,5	400	500	981,7	818,1	500	650	981,7
8	SD7FR0840 5X Y	764	450	600	1146	955	560	750	1146
	SD7FR0925 5X Y	841	500	650	1261,5	1051,2	630	850	1261,5
	SD7FR0990 5X Y	900	560	750	1350	1125	710	900	1350
9	SD7FR1150 5X Y	1045,5	630	850	1568	1306,8	800	1000	1568
	SD7FR1260 5X Y	1145,5	710	900	1718	1431,8	900	1250	1718
	SD7FR1440 5X Y	1309	800	1000	1963,5	1636,2	1000	1400	1963,5
10	SD7FR1580 5X Y	1436	900	1250	2154	1795	1100	1500	2154
	SD7FR1800 5X Y	1636	1000	1400	2454	2045	1200	1600	2454
11	SD7FR2200 5X Y	2000	1200	1600	3000	2500	1500	1800	3000
	SD7FR2500 5X Y	2300	1400	1900	3450	2800	1750	2350	3450



# Standard Ratings

## POWER RANGE AT 480VAC

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 480VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 480VAC	120% Sobrecarga (A)
5	SD7FR0210 5X Y	168	110	252	210	132	252
	SD7FR0250 5X Y	200	132	300	250	150	300
	SD7FR0275 5X Y	220	150	330	275	160	330
6	SD7FR0330 5X Y	264	160	396	330	200	396
	SD7FR0370 5X Y	296	200	444	370	250	444
	SD7FR0460 5X Y	368	250	552	460	315	552
7	SD7FR0580 5X Y	464	315	696	580	355	696
	SD7FR0650 5X Y	520	355	780	650	400	780
	SD7FR0720 5X Y	576	400	864	720	450	864
8	SD7FR0840 5X Y	672	450	1008	840	500	1008
	SD7FR0925 5X Y	740	500	1110	925	560	1110
	SD7FR0990 5X Y	792	560	1188	990	630	1188
9	SD7FR1150 5X Y	920	630	1380	1150	710	1380
	SD7FR1260 5X Y	1008	710	1512	1260	800	1512
	SD7FR1440 5X Y	1152	800	1728	1440	900	1728
10	SD7FR1580 5X Y	1264	900	1896	1580	1000	1896
	SD7FR1800 5X Y	1440	1000	2160	1800	1200	2160
11	SD7FR2200 5X Y	1760	1200	2640	2200	1500	2640
	SD7FR2500 5X Y	2000	1400	3000	2500	1750	3000

## POWER RANGE AT 525VAC

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 525VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 525VAC	120% Sobrecarga (A)
5	SD7FR0180 7X Y	180	132	270	222	150	270
	SD7FR0205 7X Y	205	150	308	254	185	308
6	SD7FR0270 7X Y	270	200	405	334	250	405
	SD7FR0295 7X Y	295	220	443	360	280	443
	SD7FR0340 7X Y	340	250	510	417	315	510
7	SD7FR0425 7X Y	425	315	638	526	400	638
	SD7FR0470 7X Y	470	355	705	586	450	705
	SD7FR0535 7X Y	535	400	803	666	500	803
8	SD7FR0660 7X Y	660	500	990	824	600	990
	SD7FR0750 7X Y	750	560	1125	936	700	1125
9	SD7FR0845 7X Y	845	630	1268	1052	800	1268
	SD7FR0950 7X Y	950	710	1425	1157	900	1425
10	SD7FR1070 7X Y	1070	800	1605	1337	1000	1605
	SD7FR1205 7X Y	1205	900	1808	1504	1100	1808
	SD7FR1340 7X Y	1340	1000	2010	1672	1250	2010
	SD7FR1605 7X Y	1605	1200	2408	2006	1500	2408
11	SD7FR2005 7X Y	2005	1500	3008	2507	1900	3008

# SD700 FR | Standard Ratings

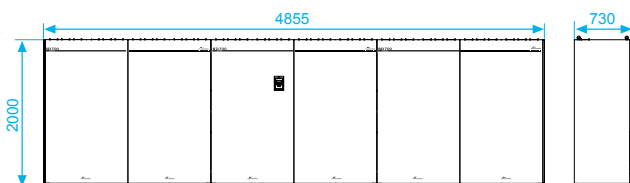
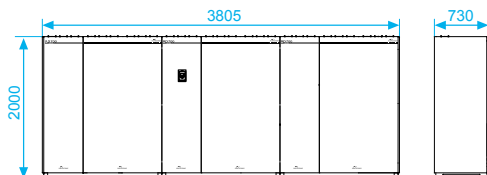
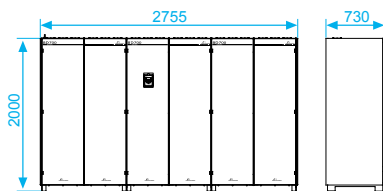
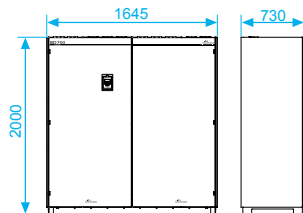
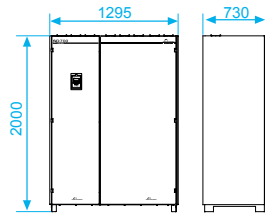
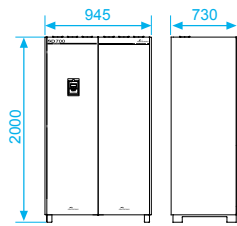
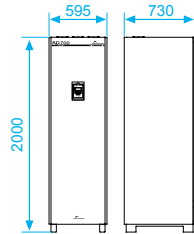
## POWER RANGE AT 690VAC

FRAME	CODE	Operation Temperature 50°C HEAVY DUTY			Operation Temperature 40°C NORMAL DUTY		
		I(A) Rated	Motor Power (kW) at 690VAC	150% Overload (A)	I(A) Rated	Motor Power (kW) at 690VAC	120% Sobrecarga (A)
5	SD7FR0130 6X Y	130	110	195	163	132	195
	SD7FR0150 6X Y	150	132	225	188	160	225
	SD7FR0170 6X Y	170	160	255	213	200	255
6	SD7FR0210 6X Y	210	200	315	263	250	315
	SD7FR0260 6X Y	260	250	390	325	315	390
	SD7FR0320 6X Y	320	315	480	400	400	480
7	SD7FR0385 6X Y	385	355	578	481	450	578
	SD7FR0460 6X Y	460	450	690	575	560	690
8	SD7FR0550 6X Y	550	500	825	688	630	825
	SD7FR0660 6X Y	660	630	990	825	800	990
9	SD7FR0750 6X Y	750	710	1125	938	900	1125
	SD7FR0840 6X Y	840	800	1260	1050	1000	1260
	SD7FR0950 6X Y	950	900	1425	1188	1100	1425
10	SD7FR1140 6X Y	1140	1000	1710	1425	1300	1710
	SD7FR1270 6X Y	1270	1200	1905	1588	1600	1905
	SD7FR1420 6X Y	1420	1400	2130	1775	1700	2130
11	SD7FR1500 6X Y	1500	1500	2250	1875	1800	2250
	SD7FR1800 6X Y	1800	1800	2700	2250	2000	2700

# SD700 FR

## Dimensions

### DIMENSIONS AND WEIGHTS



FRAME 5			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR0210 5X Y	SD7FR0185 7X Y	SD7FR0130 6X Y	350
SD7FR0250 5X Y	SD7FR0205 7X Y	SD7FR0150 6X Y	
SD7FR0275 5X Y		SD7FR0170 6X Y	

FRAME 6			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR0330 5X Y	SD7FR0270 7X Y	SD7FR0210 6X Y	700
SD7FR0370 5X Y	SD7FR0295 7X Y	SD7FR0260 6X Y	
SD7FR0460 5X Y	SD7FR0340 7X Y	SD7FR0320 6X Y	

FRAME 7			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR0580 5X Y	SD7FR0425 7X Y	SD7FR0385 6X Y	1000
SD7FR0650 5X Y	SD7FR0470 7X Y	SD7FR0460 6X Y	
SD7FR0720 5X Y	SD7FR0535 7X Y		

FRAME 8			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR0840 5X Y	SD7FR0660 7X Y	SD7FR0550 6X Y	1200
SD7FR0925 5X Y	SD7FR0750 7X Y	SD7FR0660 6X Y	
SD7FR0990 5X Y			

FRAME 9			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR1150 5X Y	SD7FR0845 7X Y	SD7FR0750 6X Y	2100
SD7FR1260 5X Y	SD7FR0950 7X Y	SD7FR0840 6X Y	
SD7FR1440 5X Y		SD7FR0950 6X Y	

FRAME 10			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR1580 5X Y	SD7FR1070 7X Y	SD7FR1140 6X Y	3000
SD7FR1800 5X Y	SD7FR1205 7X Y	SD7FR1270 6X Y	
	SD7FR1340 7X Y	SD7FR1420 6X Y	
	SD7FR1605 7X Y		

FRAME 11			
INPUT VOLTAGE			WEIGHT (kg)
380-480Vac	525Vac	690Vac	
SD7FR2200 5X Y	SD7FR2005 7X Y	SD7FR1500 6X Y	3600
SD7FR2500 5X Y		SD7FR1800 6X Y	

# Accessories

## SD700

SD700 through its accessories fulfils the most extended requirements of the industrial sector. SD700 series offers a wide variety of communication protocols, dedicated boards, filters, interface accessories, etc... that enhances family features.



# SD700 SERIES

## Accessories

### REFERENCES

CODE	ACCESSORIES DESCRIPTION
<b>SD7PD</b>	Profibus Communication Board
<b>SD7ET</b>	Ethernet Communication Board
<b>SD7DN</b>	DeviceNet Communication Board
<b>SD7CO</b>	CAN Open Communication Board
<b>(*)</b>	N2 Metasys Communication Gateway
<b>SD7EC</b>	Encoder Board
<b>SD7IO</b>	Inputs / Outputs Expansion Board - Additional 4DI, 5DO, 1AI and 1 AO
<b>SD7FO</b>	Fiber Optics board
<b>SD7STO</b>	Safe Torque Off (STO) board. Allows to implement in the drive the safe torque off function according to IEC/EN 61800-5-2
<b>SD7ES01E</b>	External 24Vdc Power Supply - Frame 1 of SD700. Exterior assembly - SD7EB1 extension box required
<b>SD7ES02I</b>	External 24Vdc Power Supply - Frame 2 of SD700. Interior Assembly.
<b>SD7ES03I</b>	External 24Vdc Power Supply - Frame 3 of SD700. Interior Assembly.
<b>SD7ES04I</b>	External 24VDC Power Supply - Frame 4 of SD700. Interior Assembly
<b>SD7ES05I</b>	External 24VDC Power Supply - Frame 5 of SD700. Interior Assembly
<b>SD7ES06I</b>	External 24VDC Power Supply - Frames 6, 7, 9 and 10 of SD700. Interior Assembly
<b>SD7ES08I</b>	External 24VDC Power Supply - Frames 8 and 11 of SD700. Interior Assembly
<b>V11</b>	Display Extender Kit (3 meters)
<b>V12</b>	Display Extender Kit (5 meters)
<b>SD7FRES05I</b>	External 24VDC Power Supply - Frame 5. Interior Assembly
<b>SD7FRES06I</b>	External 24VDC Power Supply - Frames 6, 7 and 8. Interior Assembly
<b>SD7FRES09I</b>	External 24VDC Power Supply - Frame 9. Interior Assembly
<b>SD7FRES10I</b>	External 24VDC Power Supply - Frame 10 and 11. Interior Assembly

\*Consult availability



## **COMMUNICATION ACCESSORIES**

SD700 family is compatible with the most commonly used communication protocols (Profibus-DP, DeviceNet, Ethernet Modbus TCP, Ethernet IP, N2 Metasys, CAN Open...), thanks to its optional boards.

## **I/O EXPANDER BOARD**

Extend the standard number of programmable, digital and analogue inputs/outputs. Getting up to 10 Digital Inputs, 1 PTC, 8 Digital Outputs, 3 Analogue Inputs, 3 Analogue Outputs in total.

## **FIBRE OPTICS BOARD**

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

## **ENCODER BOARD**

The encoder board improves the speed regulation thanks to the close loop control with up to two differential encoders. The encoders improve the vector control and the process control, they are optically isolated and have the possibility to be powered by 5Vdc or 24Vdc.

## **EXTERNAL 24VDC POWER SUPPLY BOARDS**

This board powers the control system externally with 24Vdc. The board powered by a UPS keeps the display, the communication system and the control boards active even when there is not input power connected to the drive. There are 5 different boards to cover the whole series. Frames 4 upwards allow the boards to be internally installed.

## **STO BOARD**

Safe Torque off board (STO) allows to implement the safety torque off function according to IEC/EN 61800-5-2 (SIL1 or SIL3)





## DYNAMIC BRAKE B150

The Dynamic brake controls the regenerated energy for series SD700, SD700KOMPAKT and SD700FL. B150 dynamic brake activates an IGBT to discharge the DC bus over 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.



## MECHANICAL ACCESSORIES

### IP20 Connection boxes

SD700 frames 1 to 3 have extension boxes permitting larger cables to be terminated. SD700 KOMPAKT has IP00 connection terminals that can be protected by IP20 connection boxes.



### SD700 Frame 4 to 11 plinths

SD700 frames 5 on 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.



## OTHER ACCESSORIES

**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:** SD700 can include safety accessories such as PT100, emergency off and emergency stop pushbuttons.

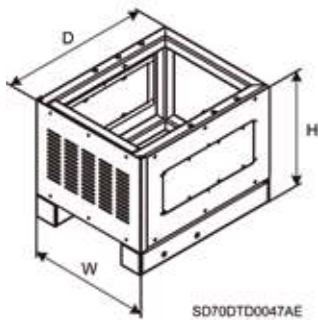
**Painting:** SD700 can include special cabinet painting.

Customised solutions available.

# SD700 SERIES

## Accessories

### PLINTHS



FRAME	CODE	DIMENSIONS			Total Drive Height (mm)
		W	D	H	
4	SD7PL0417	320	464	438.5	1712
5	SD7PL0520	431	413.5	529	2000
	SD7PL0522	431	613.5	529	2200
6	SD7PL0620	786	413.5	529	2000
	SD7PL0622	786	613.5	529	2200
7	SD7PL0720	1132	413.5	529	2000
	SD7PL0722	1132	613.5	529	2200
8	SD7PL0820	1482	413.5	529	2000
	SD7PL0822	1482	613.5	529	2200
9	SD7PL0920	3 x SD7PL0620			2000
	SD7PL0922	3 x SD7PL0622			2200
10	SD7PL1020	3 x SD7PL0720			2000
	SD7PL1022	3 x SD7PL0722			2200
11	SD7PL1120	3 x SD7PL0820			2000
	SD7PL1122	3 x SD7PL0822			2200

Code explanation: **SD7PL0520**

SD7	PL05	20
SD700 Series	Plinth for frame 5	Total Height 2000mm

### DYNAMIC BRAKE



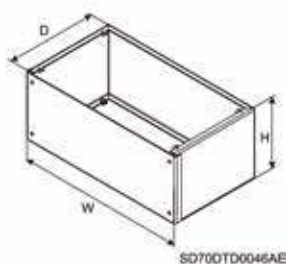
REFERENCE	VOLTAGE	Current (A)		Minimum Resistance Rating ( $\Omega$ )	Dimensions (mm)			Weight (kg)
		Maximum	Continuous		W	D	H	
B150.2	230Vac	300A	150A	2.4 $\Omega$	177	221	352	7
B150	380Vac,500Vac	300A	150A	2.4 $\Omega$				
B150.6	690Vac	200A	100A	5.75 $\Omega$				

CODE	ACCESSORIES DESCRIPTION
SD7DB	Optional Board for Slave Mode Brake

# SD700 SERIES

## Accessories

### SD700 CONNECTION BOXES



FRAME	CODE	DIMENSIONS		
		W	D	H
1	SD7EB1	189	122	161
2	SD7EB2	295	122	161
3	SD7EB3	300	151	168

### SD700 KOMPAKT CONNECTION BOXES



FRAME	CODE	DIMENSIONS		
		W	D	H
T1	SD7KEB1	303	150	202
T2	SD7KEB2	501	150	202
T3	SD7KEB3	751	150	202
T4	SD7KEB4	1001	150	202



# FOR ALL LOW VOLTAGE INDUSTRIAL APPLICATIONS





# WATER

The SD700 Series provides reliability and multiple functionalities for saving energy in water applications. The drive modifies pump impeller rotational speed; consequently it modifies the pump's performance curve adapting the water flow to the process requirements without additional losses.

## SPECIFIC FEATURES:

- Accurate direct and reverse action of the PID control regulation of pressure, flow, level.
- Sleep and wake up functionality for extra energy saving depending on pressure and flow.
- Water Hammer control to prevent catastrophic breakdowns.
- Direct programming in engineering units (l/s, m<sup>3</sup>/s, %, °C, ...).
- Operation in manual or automatic mode is up to you.
- Several Pump alternation modes for homogeneous ageing.
- Visualization of working time per pump and number of starts.
- Under-pressure and Over-pressure compensation.
- Head or pressure compensation depending on flow rate.
- Pipe fill function.
- Out of service Motor monitoring
- Pulse measurement of the flow.
- Pump safety protections: cavitation with reset activation time, minimum pressure detection, over-pressure control, zero-flow detection...

## TYPICAL APPLICATIONS:

Water distribution networks  
Pumping stations  
Irrigation networks  
Desalination plants  
Municipal Treatment and Recycling  
Industrial Treatment and Recycling  
Thermo solar plants  
Solar pumping



Souk Tleta Desalination plant  
Location: Souk Tleta-Tlemcen (Algeria)  
Capacity: 200.000 m<sup>3</sup>/day



Trebujena solar pumping plant  
Location: Trebujena (Spain)  
Capacity: 1000 l/s



# MINING & CEMENT

Copper, gold, aluminium, iron, uranium and coal world leader mining companies already trust SD700 drives by Power Electronics due to their reliability, performance and quality. Its unique mechanical and hardware design fit perfectly in adverse situations and demanding applications. Altitude, dust, pollution, moisture or hazardous environments are easy challenges for SD700.



## SPECIFIC FEATURES:

- Automatic crusher unclogging.
- Totally sealed electronics with PCB Conformal coating varnish. Sensitive components are fully protected IP54 without dust filters regular maintenance.
- PMC-OLTQ (Power Motor Control-Open Loop Torque Control) over fibre optics communications provides unique master-slave performance in the most demanding applications, and guaranties a perfect torque distribution.
- Precise and high starting torque features dedicated to loaded lifting systems.
- Fast commissioning and invariable control response due to motor or belt parameters variation.



Ministro Hales / Codelco North Division  
Location: Calama, Antofagasta (Chile)  
Capacity: 200 kton copper



Jaw crushers  
Recovering and process plant  
Location: La Rioja, (Spain)



# Metal and Paper

On the one hand, accuracy and quick response are necessary features for precise applications with multiple motors controlled by electronic line shafting such as rolling systems, printing and stamping machines in paper industries, on the other hand high torque at low speed, overload capacity and torque distribution control make SD700 suitable for metal and general industry applications such as compressors, plastic injection machines, conveyors, mills, mixers, etc.



# Original Equipment Manufacturers

Power Electronics works closely with OEM manufacturers to integrate SD700 in multiple complex machines. SD700 not only provides manufacturers a high reliability and flexibility, but also a 24h- 365days a year service to your customers.



# Hoisting

SD700 has specific safety and performance features for cranes, elevators, conveyor belts that ensure long life operation.

- Mechanical brake control MBC to avoid load regression.
- High torque response at low speed through the induction and permanent magnet motor control.



# Oil and Gas

Power Electronics has been present for more than 15 years in a wide number of applications within the oil and gas industry. When safety, availability, flexibility and customised equipment are the main issues, our variable speed drives and soft starters offer highly proven software and hardware protections that make them suitable for extraction plants, refineries, treatment plants, storage and distribution plants, and chemical industries based on petroleum derivatives. Power Electronics offers custom made solutions for long cable distances, redundant systems, master-slave configurations, ATEX motors driving, and safety functions STO (Safe Torque Off) that enhance plants' reliability.



# Power Generation

Industrial excellence and quality, together with solar competitiveness, availability rates and harsh conditions, led us to develop suitable products for power generation plants (Gas, Coal and biomass), CSP plants, hydraulic plants, ...

In fact, Power Electronics is the world leading company in MV and LV drives supply for CSP plants, by producing over 1300MW. We continue growing due to our custom made solutions, unique service conditions, cooling system effectiveness and a 50°C operation without power derating.



# Marine

Vessels, shuttle tankers, cruise ships and ferries can now enjoy the greatest features of the SD700 such as flexibility, reliability and low maintenance. SD700 has been certified by Germanischer Lloyd to comply with the offshore requirements.





# 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 by 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](mailto: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.

# Standards

		SD700	SD700 KOMPAKT	SD700 FREEMAQ	
				SD700FL Low Harmonics Notch Filter	SD700FR Regenerative
REGULATIONS	CERTIFICATIONS	CE, cTick, UL <sup>[1]</sup> , cUL <sup>[1]</sup> , GL <sup>[2]</sup>			
	ELECTROMAGNETIC COMPATIBILITY	EMC Directive (2004/108/CE)			
		IEC/EN 61800-3		IEEE 519	
	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					
FUNCTIONAL SAFETY	IEC60068-2-6 - Vibration				
	IEC/EN 61800-5-2(STO) TÜV Rheinland Certified				

[1] On certification process.

[2] SD700 Series from frame 5 on. For further information about deviations from the standard drive units, please consult with Power Electronics.

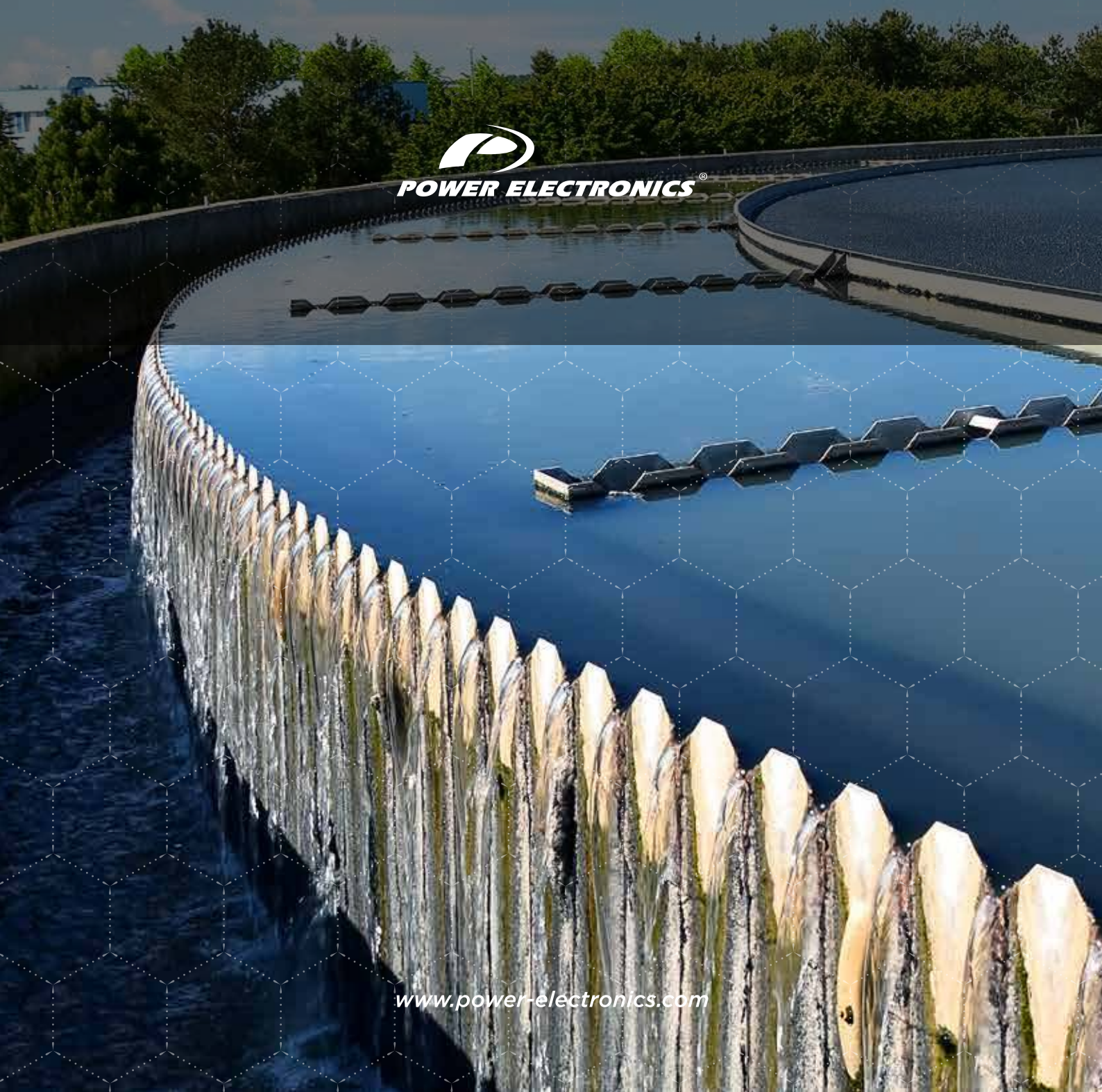


# Contact

24H/7D TECHNICAL ASSISTANCE	HEADQUARTERS - VALENCIA - SPAIN
	C/ Leonardo da Vinci, 24 - 26 - Parque Tecnológico - 46980 - PATERNA - VALENCIA - SPAIN Tel. 902 40 20 70 - Tel. (+34) 96 136 65 57 - Fax (+34) 96 131 82 01
INTERNATIONAL SUBSIDIARIES	
AUSTRALIA	Power Electronics Australia Pty Ltd - Unit 4, 1378 Lytton Road, Hemmant Qld 4174 - Brisbane Tel. (+61) 7 3386 1993 • Email: sales@power-electronics.com.au
BRAZIL	P.E. Brazil Ltda - Domo Business - Rua José Versolato, 111 - Conjunto 1509 - Torre B - Centro São Bernardo do Campo - SP - Brasil CEP 09750-730 Tel. (+55) 11 5891 9612 - Tel. (+55) 11 5891 9762 Email: comercialbrasil@power-electronics.com
CHILE	Alonso de Córdova nº 5870, Oficina 210-211 - Las Condes - Santiago de Chile Tel. (+56) 2 3223 8916 - Email: ventas@pech.cl
CHINA	<ul style="list-style-type: none"> <li>• Power Electronics Beijing - Room 606, Yiheng Building - No 28 East Road, Beisanhuan - 100013, Chaoyang District, BEIJING - R.P. CHINA - Tel. (+86 10) 6437 9197 - Fax (+86 10) 6437 9181</li> <li>• Power Electronics Asia Ltd - 20/F Winbase Centre - 208 Queen's Road Central - Hong Kong Email: sales@power-electronics.com.cn</li> </ul>
COLOMBIA	Terminal Terrestre de Carga, Autopista vía Medellín, km. 3.5 Costado Sur, Bodega 60, Sector Cota. Bogota. Mobile +57 322 3464855, PBX +57 1 8985278
FRANCE	Power Electronics France SARL - Bibliothèque Nationale 2 - 104 Avenue de France - 75013 Paris, France Telf. +33(0)1 46 46 10 34 Ext. 1034 Email: ventesfrance@power-electronics.com
GERMANY	Power Electronics Solar GmbH - DNeuseser Strasse 15 - 90455 Nürnberg Tel. (+49) 911 99 43 99 0 - Fax (+49) 911 99 43 99 8 • Email: info@ped-deutschland.de
INDIA	Power Electronics India - N°5, Cunningham Crescent, 1 <sup>st</sup> floor. Bangalore- 560052 Tel./Fax : +91 80 6569 0489 • Email: salesindia@power-electronics.com
ITALY	Power Electronics Italia Srl. - Centro Direzionale Colleoni - Via Paracelso 16 - 20864 Agrate Brianza - Monza Tel. (+39) 039 9050899 • Email: infoitalia@power-electronics.com
JAPAN	Power Electronics Japan KK - 2-7-5, Toranomon, Minato-ku, Tokyo, Japan 105-0001 Burex Toranomon Building 3 <sup>rd</sup> Floor Tel. 03-6206-1145 • Fax 03-6206-1175 • Email: salesjapan@power-electronics.com
KOREA	P.E. Asia HQ Co - Room #305, SK Hub Primo Building - 953-1 Dokok-dong, Gangnam-gu - 135-270 - Seoul Tel. (+82) 2 3462 4656 - Fax (+82) 2 3462 4657 • Email: sales@power-electronics.kr
MEXICO	P. E. Internacional Mexico S de RL - Calz. Jinetes #197 - Las Arboledas Atizapan de Zaragoza - 52950, Mexico Tel. (+52) 55 5390 8818 • Tel. (+52) 55 5390 8363 • Email: ventasmexico@power-electronics.com
MOROCCO	Power Electronics - Ekoakua • Geea sarl , N°184 Bloc Hay EL.Massira Ait Melloul •CP 80150 • Agadir Tel: + 212 5 28 24 04 57 • Mob: (+34) 628 11 76 72 • Email: ventesmaroc@power-electronics.com
NEW ZEALAND	P.E. New Zealand Ltd - 14B Opawa Road, Waltham - Christchurch 8023 P.O. Box 1269 Christchurch 8140 Tel. (+64 3) 379 98 26 - Fax.(+64 3) 379 98 27 • Email: sales@power-electronics.co.nz
SOUTH AFRICA	Power Electronics South Africa Pty Ltd · Central Office Park Unit 5 · 257 Jean Avenue · Centurion 0157 Tel. (+34) 96 136 65 57 · Fax (+34) 96 131 82 01 • Email: salesza@power-electronics.com
SWEDEN	Stora Varvsgatan 13a, 211 75 Malmö Tel. 040-35 86 00 Fax 040-93 23 01 • Email: swedensales@power-electronics.com
TURKEY	Şerifali Mah. Edep Sok. No:30 Ümraniye • Istanbul Tel: 0 216 824 00 00 Pbx · Fax: 0 216 824 01 01 • Email: turkiyesatis@power-electronics.com
UAE	Power Electronics España S.L. DMCC Branch - P.O. Box 487282, 33 <sup>rd</sup> Floor, HDS Business Centre, Plot M1 Jumeirah Lakes Tower, Dubai, U.A.E. - Tel. +971 4 364 1200 Email: middleeast@power-electronics.com
UNITED KINGDOM	Power Electronics UK Pty Ltd · Wells House, 80 Upper Street, Islington · London, N1 ONU · 147080 Islington 5 Tel. (+44) 149 437 00 29 • Email: uksales@power-electronics.com
UNITED STATES	Power Electronics USA Inc. • 4777 N 44 <sup>th</sup> Ave • Phoenix, Arizona 85031 Tel. 602-354-4890 • Email: sales@power-electronics.us







  
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