

SD750

HARDWARE AND INSTALLATION MANUAL



LOW VOLTAGE VARIABLE SPEED DRIVE

SD750

— *LOW VOLTAGE VARIABLE SPEED DRIVE* —

Variable Speed Drive
Hardware and Installation Manual

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SD75MTHW01KI Rev. K

ABOUT THIS MANUAL

PURPOSE

This manual contains important instructions for the installation and maintenance of Power Electronics SD750 variable speed drives.

TARGET AUDIENCE

This manual is intended for qualified customers who will install, operate, and maintain Power Electronics SD750 variable speed drives.

Only trained electricians may install and commission the drives.

REFERENCE MANUALS

The following reference documents are available for SD750 variable speed drives:

- SD750 Hardware and Installation Manual.
- SD750 Programming and Software Manual.
- Pumps Application Manual.

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EN

The equipment and technical documentation are periodically updated. Power Electronics reserves the right to modify all or part of the contents of this manual without previous notice. To consult the most updated information of this product, you may access our website www.power-electronics.com, where the latest version of this manual can be downloaded. The reproduction or distribution of the present manual is strictly forbidden, unless express authorization from Power Electronics.

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ACRONYMS

The terms commonly used in the documentation of Power Electronics' products are listed in the table below.

Please notice this is a general series of terms and it encompasses all our product divisions (industrial, solar, storage, and electric mobility), thus, some of the following expressions may not apply to this particular manual.

ACRONYM	MEANING
AASS	Auxiliary Services
AC	Alternating Current
AI	Analogue Input
AO	Analogue Output
BESS	Battery Energy Storage System
BMS	Battery Manager Solution
CCID	Charge circuit interrupting device
CCL	Charge Current Limit.
CCS	Combined charging system – charging and communications protocol following the standard IEC 61851-23 Annex CC
CHAdeMO	Charging and communications protocol following the standard IEC 61851-23 Annex AA
CPU	Central Processing Unit
DC	Direct Current
DCL	Discharge Current Limit
DI	Digital Input
DSP	Digital Signal Processor
DO	Digital Output
EV	Electric Vehicle
FPGA	Programmable device (Field-Programmable Gate Array)
FRU	Field Replaceable Unit
GFDI	Ground Fault Detector Interrupter
GPRS	General Packet Radio Services, a data transmission system
HVAC	Heating, Ventilation, and Air Conditioning
IGBT	Insulated Gate Bipolar Transistor
IMI	Insulation monitoring device
IT	Grid system where the power supply is kept isolated and the electrical equipment system is grounded.
LOTO	Lock Out – Tag Out
MCB	Miniature Circuit Breaker
MPCS	Multi Power Conversion System
MID	Measuring Instrument Directive
MV	Medium Voltage. This term is used to refer to high voltage in general
PE	Ground connection
PI	Proportional and Integral
POI	Point Of Interconnection
PPE	Personal Protection Equipment
PV	Photovoltaic energy
RCD	Residual Current Device

ACRONYM	MEANING
RCM	Residual Current Monitor
RFID	Radio Frequency Identification
SOC	State Of Charge – referred to battery
SOH	State Of Health – referred to battery. It compares the actual state of the battery to its initial conditions. It is measured in percentage
STO	Safe Torque Off
TN	Grid system where the power supply is grounded, and the electrical equipment system is brought to the same ground through the neutral connector.
TT	Grid system where both the power supply and the electrical devices are connected to the ground via separate connections
UPS	Uninterruptible Power Supply
VSD / VFD	Variable Speed Drive, Variable Frequency Drive. Both terms are used

SAFETY SYMBOLS

Always follow safety instructions to prevent accidents and potential hazards from occurring.

In this manual, safety messages are classified as follows:



WARNING

Identifies potentially hazardous situations where dangerous voltage may be present, which if not avoided, could result in minor personal injury, serious injury or death.

Be extremely careful and follow the instructions to avoid the risk of electrical shocks.



CAUTION

Identifies potentially hazardous situations, which if not avoided, could result in product damage, or minor or moderate personal injury.

Read the message and follow the instructions carefully.



NOTICE

Identifies important measures to take in order to prevent damage equipment and warranty lost, as well as encouraging good use and environmental practices.

Other symbols used in this manual for safety messages are the following:



Hot surface. Be careful and follow the instructions to avoid burns and personal injuries.



Risk of fire. Be careful and follow the instructions to prevent causing an unintentional fire.



Caution, risk of electric shock. Energy storage timed discharge. Wait for the indicated time to avoid electrical hazards.



Caution, risk of hearing damage. Wear hearing protection.

SAFETY INSTRUCTIONS

IMPORTANT!

Read carefully this manual to maximize the performance of the product and to ensure its safe use.

In order to appropriately use the drive, please, follow all instructions described in the installation manual which refer to transportation, installation, electrical connection, and commissioning of the equipment.

Power Electronics accepts no responsibility or liability for partial or total damages resulting from incorrect use of equipment.

Please, pay careful attention to the following recommendations:



WARNING

Do not remove the cover while the drive is powered or running.

Otherwise, you may get an electric shock.

Do not run the drive with the front cover removed.

Otherwise, you may get an electric shock.

The drive does not remove the voltage from the input terminals of the drive. Before working on the drive, isolate the whole drive from the supply.

If you do not remove the power supply, you may get an electric shock.

Do not remove the cover except for periodic inspections or wiring, even if the input power is not applied.

Otherwise, you get an electric shock.

Operate the drive with dry hands.

Otherwise, you may get an electric shock.

Do not use cables with damaged insulation.

Otherwise, you may get an electric shock.

Do not subject the cables to abrasions, excessive stress, heavy loads, or pinching.

Otherwise, you may get an electric shock.

Do not make any insulation or voltage withstand tests on the motor while the drive is connected.



WARNING



Both wiring and periodic inspections must be carried out at least 10 minutes after disconnecting the input power. To remove the front cover, make sure that the red "DC Link" LED is off. Then remove the metal cover from the terminals and check the following with a multimeter:

- Voltage between the output busbars U, V, W, and the cabinet is around 0V.
- Voltage between the terminals + HVDC, -HVDC and the cabinet is below 30VDC.

If you omit this recommendation, you may get an electric shock.



Even though multimeters have their own revisions Schedule, it is convenient to verify it works properly, specially to check voltage absence. It could be damaged and show incorrect values. Use a 1.5V battery to verify proper functioning.

EN



CAUTION

Install the drive on a non-flammable surface. Do not place flammable material nearby.

Otherwise, a fire could occur.



Disconnect the input power if the drive is damaged.

Otherwise, it could result in a secondary accident or fire.

Do not allow lint, paper, wood chips, dust, metallic chips, or other foreign matter into the drive.

Otherwise, a fire or accident could occur.



After stopping the drive, some of its parts will stay warm for a while. Wait for the drive to cool down for handling.

Touching hot parts may result in skin burns.



Do not apply power to a damaged drive or to a drive with parts missing, even if the installation is complete.

Otherwise, you may get an electric shock.



It is not allowed to weld the cabinet or structure; this could damage the sensitive electronic components inside the cabinet or structure.



NOTICE

RECEPTION

SD750 drives are delivered tested and perfectly packed.

In the event of damage during transport, please ensure to notify the transport agency and POWER ELECTRONICS: 902 40 20 70 (International +34 96 136 65 57) or your nearest agent, within 24h from receiving the goods.

UNPACKING

Make sure model and serial number of the variable speed drive are the same on the box, delivery note and unit.

Each variable speed drive is delivered with Hardware and Software technical manuals.

RECYCLING

Packaging equipment must be recycled. Separate all different materials (plastic, paper, cardboard, wood...) and place them in the corresponding containers. Ensure waste collection is properly managed with a Non-Hazardous Waste Agent.



To guarantee health and natural environmental sources protection, the European Union has adopted the WEEE directive concerning discarded electric and electronic equipment (SEEA).

Waste of electrical and electronic equipment (WEEE) must be collected selectively for proper environmental management.

Our products contain electronic cards, capacitors and other electronic devices that should be separated when they are no longer functional. These WEEEs should be managed accordingly with a Hazardous Waste Agent.

Power Electronics promotes good environmental practices and recommends that all its products sold outside of the European Union, once they reach the end of their life, are separated and the WEEE managed according to the particular country applicable legislation (especially: electronic cards, capacitors, and other electronic devices).

If you have any questions about the electric and electronic equipment waste, please contact Power Electronics.

ELECTROMAGNETIC COMPATIBILITY (EMC)

The drive is intended to be used in industrial environment (Second Environment). It achieves compliance with category C3 defined in IEC/EN 61800-3 standard when the installation recommendations within this manual are followed. The driver can optionally operate in domestic environments (First Environment), complying with category C2 defined in IEC / EN 61800-3 standard. For category C1 consult Power Electronics. Optional IT filter.

Select communication and control system according to the drive EMC environment. Otherwise, systems could suffer from interferences due to a low EMS level.

CAPACITORS DEPLETION

If the drive has not been operated for a long time, capacitors lose their charging characteristics and are depleted. To prevent depletion, once a year run the device under no-load conditions during 30-60 minutes.

SAFETY

- Before operating the drive, read this manual thoroughly to gain an understanding of the unit. If any doubt exists, please contact POWER ELECTRONICS, (902 40 20 70 / +34 96 136 65 57) or your nearest agent.
- Wear safety glasses when operating the drive with power applied or for when the front cover is removed.
- Handle and transport the drive following the recommendations within this manual.
- Install the drive according to the instructions within this manual and the local regulations.
- Do not place heavy objects on the drive.
- Ensure that the drive is mounted vertically and keeping the minimum clearance distances.
- Do not drop the drive or subject it to impact.
- The SD750 drives contain static sensitive printed circuits boards. Use anti-static safety procedures when handling these boards.
- Avoid installing the drive in conditions that differ from those described in the Environmental Ratings section.

CONNECTION PRECAUTIONS

- To ensure a correct operation of the drive, it is recommended to use a SCREENED CABLE for the control wiring.
- The motor cable should comply with the requirements within this manual. Due to increased leakage capacitance between conductors, the external ground fault protection threshold value should be adjusted ad hoc.
- Do not disconnect motor cables if the input power supply remains connected.
- The internal circuits of the SD750 Series will be damaged if the incoming power is connected and applied to output terminals (U, V, W).
- Do not use power factor correction capacitors banks, surge suppressors, or RFI filters on the output side of the drive. Doing so may damage these components.
- Always check whether the DC Link red LED is OFF before wiring terminals. The capacitors may hold high-voltage even after the input power is disconnected.

COMMISSIONING

- Verify all parameters before operating the drive. Alteration of parameters may be required depending on application and load.
- Always apply voltage and current signals to each terminal that are within the levels indicated in this manual. Otherwise, damage to the drive may occur.
- For correct starting, refer to the start-up section.

HANDLING PRECAUTIONS

- When the "Automatic Restart" function is selected, observe the appropriate safety measures to avoid any damage in case of sudden restart of the motor after an emergency and subsequent reset.
 - The "STOP / RESET" key on the driver's own keypad will be operative as long as this option has been selected. By pressing this button, the drive will not perform an emergency stop. The driver has a STO function which, installed with an external EMERGENCY pushbutton, will disconnect the motor power supply and prevent the ability to generate torque in the motor.
 - If an alarm is reset without having lost the reference signal (setpoint), an automatic start may occur. Check that the system has not been configured as such. Failure to do so could result in personal injury.
 - Do not modify anything inside the driver without the supervision of Power Electronics.
 - Before starting the parameter setting, reset all parameters.
-

EARTH CONNECTION

- Ground the drive and adjoining cabinets to ensure a safe operation and to reduce electromagnetic emission.
 - Connect the input PE terminal only to the dedicated PE terminal of the drive. Do not use the case, nor chassis screw for grounding.
 - Ground the drive chassis through the labelled terminals. Use appropriate conductors to comply with local regulations. The ground conductor should be connected first and removed last.
 - Motor ground cable must be connected to the PE output terminal of the drive and not to the installation's ground. We recommend that the section of the ground conductor (PE) is equal or greater than the active conductor (U, V, W).
 - If the user decides to use screened motor cable, ensure a good 360° connection of the cable screen in both the drive cabinet and the motor terminal box.
-

CYBER SECURITY DISCLAIMER

This product is designed to be connected to and to communicate information and data via a network interface. The customer is the sole responsible for providing and continuously ensuring a secure connection between the product and customer network or any other network (as the case may be). Customer shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of antivirus programs, etc.) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information.

Power Electronics and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

TORQUE AND SCREW SIZING

The following table shows, broadly speaking, the recommended tightening torque for both mechanical and electrical connections, applicable to all cabinets ^[1, 2]:

SCREW SIZE		RECOMMENDED TORQUE			
Metric (mm)	English (inches)	DIN (Nm)		ASTM (ft*lb)	
		6,9 Quality ^[a]	8,8 Quality ^[a]	A449 Type 1 ^[a]	A325 Type 1 ^[a]
M3	1/8	1	1,3	-	-
M4	5/32	2,5	3		
M5	3/16	4	6		
M6	1/4	5	10	4	-
M8	5/16	20	25	9	
M10	7/16	40	50	25	
M12	1/2	60	70	38	50 – 58
M14	9/16	100	120	54	-
M16	5/8	150	210	75	99 – 120

[a] For other qualities, follow the screw's manufacturer guidelines.



CAUTION

For all screwing that hold a **particular component** such as a bus, contactor, etc. it will be necessary to **apply the tightening torque indicated by the manufacturer** of the same component.

Screwing should be tightened correctly only when necessary, i.e. when the factory marks are not in place. For small screws that do not have marks, the good electrical praxis will determine if it is loose.

¹ Power Electronics recommends the use of **Zinc Steel quality 8.8 bolts for internal connections in general**, DC and earth connections included.

² Power Electronics recommends **the use of A2-70 stainless bolts for external connections** in general, AC connections included.

INTRODUCTION

1

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

The whole series integrates unique features such as low dV/dt, smart mechanical design with a higher power density, the most advanced motor control algorithms and a removable memory unit for easy and smart maintenance. With a built-in energy efficiency calculator, the SD750 series will help you to monitor, analyze and optimize your processes for energy saving and to contribute to the digital transformation of your industry into a “Smart Industry”.

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



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

² Different IP grades, consult Power Electronics.

CONFIGURATION TABLE & STANDARD RATINGS

2

Configuration table

To consult the configuration table of SD750 drives manufactured by Power Electronics, please refer to the latest brochure (visit <http://www.power-electronics.com>).

Standard ratings

Voltages in the standard ratings shown in the following tables are the three-phase input voltages for the drive.

The number of pulses depend on the number of transformer secondaries at drive input.

- 6 pulses: Transformer with a single secondary.
- 12 pulses: Transformer with two secondaries.
- 18 pulses: Transformer with three secondaries.
- 24 pulses: Transformer with four secondaries.

EN

400Vac

FRAME	CODE	Operation Temperature 40 °C NORMAL DUTY			Operation Temperature 50 °C HEAVY DUTY			OVERLOAD (A)
		Motor Power (kW)	Motor Power (hp)	I(A) Rated	Motor Power (kW)	Motor Power (hp)	I(A) Rated	
1	SD75S0006 5BCDE	2.2	3	6	1.5	2	3	6
	SD75S0008 5BCDE	4	5	8	2.2	3	6	9
	SD75S0011 5BCDE	5.5	7,5	11	4	5	9	14
	SD75S0015 5BCDE	7.5	10	15	5.5	7,5	12	18
	SD75S0024 5BCDE	11	15	24	7.5	10	18	27
	SD75S0030 5BCDE	15	20	30	11	15	24	36
	SD75S0040 5BCDE	18.5	25	40	15	20	32	48
2	SD75S0048 5BCDE	22	30	48	18.5	25	38	57
	SD75S0060 5BCDE	30	40	60	22	30	48	72
	SD75S0075 5BCDE	37	50	75	30	40	60	90
3	SD75S0095 5BCDE	45	60	95	37	50	75	113
	SD75S0110 5BCDE	55	75	110	45	60	90	135
	SD75S0145 5BCDE	75	100	145	55	75	115	173
	SD75S0180 5BCDE	90	125	180	75	100	150	225
4	SD75S0200 5BCDE	110	150	200	90	125	170	255
	SD75S0260 5BCDE	132	200	260	110	150	210	315
5	SD75S0320 5BCDE	160	250	320	132	200	250	375
	SD75S0400 5BCDE	220	300	400	160	250	330	495
6	SD75S0450 5BCDE	250	350	450	220	300	370	555
	SD75S0570 5BCDE	315	400	570	250	350	460	690
	SD75S0700 5BCDE	400	550	700	315	450	580	870
7	SD75S0800 5BCDE	450	650	800	355	500	650	975
	SD75S0900 5BCDE	500	700	900	400	550	720	1080
	SD75S1050 5BCDE	560	800	1050	450	700	840	1260
8	SD75S1140 5BCDE	630	900	1140	500	750	925	1388
	SD75S1400 5BCDE	800	1000	1400	630	900	1150	1725
9 ^{1,2}	SD75S1550 5BCDE	900	1250	1550	710	1000	1260	1890
	SD75S1800 5BCDE	1000	1400	1800	800	1150	1440	2160
	SD75S1950 5BCDE	1100	1500	1950	900	1250	1580	2370
10 ^{1,2}	SD75S2250 5BCDE	1200	1750	2250	1000	1450	1800	2700
	SD75S2750 5BCDE	1500	2200	2750	1200	1750	2200	3300
11 ^{1,2}	SD75S3100 5BCDE	1750	2450	3100	1400	2000	2500	3750

¹ Consult availability with Power Electronics.

² Values suitable for multipulses (number of pulses: 12, 18 and 24).

440Vac

FRAME	CODE	Operation Temperature 40 °C NORMAL DUTY			Operation Temperature 50 °C HEAVY DUTY			OVERLOAD (A)
		Motor Power (kW)	Motor Power (hp)	I(A) Rated	Motor Power (kW)	Motor Power (hp)	I(A) Rated	
1	SD75S0006 5BCDE	2.2	3	5	1.5	2	3	6
	SD75S0008 5BCDE	4	5	7	2.2	3	5	8
	SD75S0011 5BCDE	5.5	7,5	10	4	5	8	13
	SD75S0015 5BCDE	7.5	10	14	5.5	7,5	11	16
	SD75S0024 5BCDE	11	15	22	7.5	10	16	25
	SD75S0030 5BCDE	15	20	27	11	15	22	33
	SD75S0040 5BCDE	18.5	25	36	15	20	29	44
2	SD75S0048 5BCDE	22	30	44	18.5	25	35	52
	SD75S0060 5BCDE	30	40	55	22	30	44	65
	SD75S0075 5BCDE	37	50	68	30	40	55	82
3	SD75S0095 5BCDE	45	60	86	37	50	68	103
	SD75S0110 5BCDE	55	75	100	45	60	82	123
	SD75S0145 5BCDE	75	100	132	55	75	105	157
	SD75S0180 5BCDE	90	125	164	75	100	136	205
4	SD75S0200 5BCDE	110	150	182	90	125	155	232
	SD75S0260 5BCDE	132	200	236	110	150	191	286
5	SD75S0320 5BCDE	160	250	291	132	200	227	341
	SD75S0400 5BCDE	220	300	364	160	250	300	450
6	SD75S0450 5BCDE	250	350	409	220	300	336	505
	SD75S0570 5BCDE	315	400	518	250	350	418	627
	SD75S0700 5BCDE	400	550	636	315	450	527	791
7	SD75S0800 5BCDE	450	650	727	355	500	591	886
	SD75S0900 5BCDE	500	700	818	400	550	655	982
	SD75S1050 5BCDE	560	800	955	450	700	764	1145
8	SD75S1140 5BCDE	630	900	1036	500	750	841	1262
	SD75S1400 5BCDE	800	1000	1273	630	900	1045	1568
9 ¹	SD75S1550 5BCDE	900	1250	1409	710	1000	1145	1718
	SD75S1800 5BCDE	1000	1400	1636	800	1150	1309	1964
	SD75S1950 5BCDE	1100	1500	1773	900	1250	1436	2155
10 ¹	SD75S2250 5BCDE	1200	1750	2045	1000	1450	1636	2455
	SD75S2750 5BCDE	1500	2200	2500	1200	1750	2000	3000
11 ¹	SD75S3100 5BCDE	1750	2450	2818	1400	2000	2273	3409

EN

¹ Consult availability with Power Electronics.

480Vac

FRAME	CODE	Operation Temperature 40 °C NORMAL DUTY			Operation Temperature 50 °C HEAVY DUTY			OVERLOAD (A)
		Motor Power (kW)	Motor Power (hp)	I(A) Rated	Motor Power (kW)	Motor Power (hp)	I(A) Rated	
1	SD75S0006 5BCDE	2.2	3	5	1.5	2	3	6
	SD75S0008 5BCDE	4	5	7	2.2	3	5	8
	SD75S0011 5BCDE	5.5	7,5	9	4	5	8	12
	SD75S0015 5BCDE	7.5	10	13	5.5	7,5	10	15
	SD75S0024 5BCDE	11	15	20	7.5	10	15	23
	SD75S0030 5BCDE	15	20	25	11	15	20	30
	SD75S0040 5BCDE	18.5	25	33	15	20	27	40
2	SD75S0048 5BCDE	22	30	40	18.5	25	32	48
	SD75S0060 5BCDE	30	40	50	22	30	40	60
	SD75S0075 5BCDE	37	50	63	30	40	50	75
3	SD75S0095 5BCDE	45	60	79	37	50	63	94
	SD75S0110 5BCDE	55	75	92	45	60	75	113
	SD75S0145 5BCDE	75	100	121	55	75	96	144
	SD75S0180 5BCDE	90	125	150	75	100	125	188
4	SD75S0200 5BCDE	110	150	167	90	125	142	213
	SD75S0260 5BCDE	132	200	217	110	150	175	263
5	SD75S0320 5BCDE	160	250	267	132	200	208	313
	SD75S0400 5BCDE	220	300	333	160	250	275	413
6	SD75S0450 5BCDE	250	350	375	220	300	308	463
	SD75S0570 5BCDE	315	400	475	250	350	383	575
	SD75S0700 5BCDE	400	550	583	315	450	483	725
7	SD75S0800 5BCDE	450	650	667	355	500	542	813
	SD75S0900 5BCDE	500	700	750	400	550	600	900
	SD75S1050 5BCDE	560	800	875	450	700	700	1050
8	SD75S1140 5BCDE	630	900	950	500	750	771	1157
	SD75S1400 5BCDE	800	1000	1167	630	900	958	1438
9 ¹	SD75S1550 5BCDE	900	1250	1292	710	1000	1050	1575
	SD75S1800 5BCDE	1000	1400	1500	800	1150	1200	1800
	SD75S1950 5BCDE	1100	1500	1625	900	1250	1317	1975
10 ¹	SD75S2250 5BCDE	1200	1750	1875	1000	1450	1500	2250
	SD75S2750 5BCDE	1500	2200	2292	1200	1750	1833	2750
11 ¹	SD75S3100 5BCDE	1750	2450	2583	1400	2000	2083	3125

¹ Consult availability with Power Electronics.

525Vac

FRAME	CODE	Operation Temperature 40 °C NORMAL DUTY			Operation Temperature 50 °C HEAVY DUTY			OVERLOAD (A)
		Motor Power (kW)	Motor Power (hp)	I(A) Rated	Motor Power (kW)	Motor Power (hp)	I(A) Rated	
3 ¹	SD75S0055 6BCDE	37	50	55	30	40	42	63
	SD75S0065 6BCDE	45	60	65	37	50	52	78
	SD75S0075 6BCDE	55	75	75	45	60	62	93
4 ¹	SD75S0100 6BCDE	75	100	100	55	75	80	120
	SD75S0120 6BCDE	90	125	120	75	100	105	157
5	SD75S0160 6BCDE	110	150	160	90	125	130	195
	SD75S0180 6BCDE	132	180	180	110	150	150	225
	SD75S0210 6BCDE	150	200	210	132	180	170	255
6	SD75S0250 6BCDE	185	250	250	150	200	210	315
	SD75S0310 6BCDE	220	300	310	185	250	260	390
	SD75S0400 6BCDE	280	400	400	220	300	320	480
7	SD75S0480 6BCDE	355	450	480	280	400	385	578
	SD75S0570 6BCDE	400	550	570	355	450	460	690
8	SD75S0680 6BCDE	500	650	680	400	550	550	825
	SD75S0825 6BCDE	560	800	825	500	650	660	990
9 ¹	SD75S0930 6BCDE	630	900	930	560	800	750	1125
	SD75S1050 6BCDE	710	1000	1050	630	900	840	1260
	SD75S1200 6BCDE	900	1200	1200	710	1000	950	1425
10 ¹	SD75S1400 6BCDE	1000	1400	1400	900	1200	1140	1710
	SD75S1550 6BCDE	1100	1500	1550	1000	1400	1270	1905
	SD75S1750 6BCDE	1250	1700	1750	1100	1500	1420	2130
11 ¹	SD75S1850 6BCDE	1400	1800	1850	1250	1700	1500	2250
	SD75S2200 6BCDE	1600	2100	2200	1400	1800	1800	2700
	SD75S2500 6BCDE	1800	2400	2500	1600	2100	2000	3000

EN

¹ Consult availability with Power Electronics.

600Vac

FRAME	CODE	Operation Temperature 40 °C NORMAL DUTY			Operation Temperature 50 °C HEAVY DUTY			OVERLOAD (A)
		Motor Power (kW)	Motor Power (hp)	I(A) Rated	Motor Power (kW)	Motor Power (hp)	I(A) Rated	
3 ¹	SD75S0055 6BCDE	45	60	55	37	50	42	63
	SD75S0065 6BCDE	55	75	65	45	60	52	78
	SD75S0075 6BCDE	60	90	75	55	75	62	93
4 ¹	SD75S0100 6BCDE	90	125	100	60	90	80	120
	SD75S0120 6BCDE	110	150	120	90	125	105	157
5	SD75S0160 6BCDE	132	180	160	110	150	130	195
	SD75S0180 6BCDE	150	200	180	132	180	150	225
	SD75S0210 6BCDE	180	250	210	150	200	170	255
6	SD75S0250 6BCDE	220	300	250	180	250	210	315
	SD75S0310 6BCDE	250	350	310	220	300	260	390
	SD75S0400 6BCDE	355	450	400	250	350	320	480
7	SD75S0480 6BCDE	400	550	480	355	450	385	578
	SD75S0570 6BCDE	500	650	570	400	550	460	690
8	SD75S0680 6BCDE	560	800	680	500	650	550	825
	SD75S0825 6BCDE	710	950	825	560	800	660	990
9	SD75S0930 6BCDE	800	1100	930	710	950	750	1125
	SD75S1050 6BCDE	900	1250	1050	800	1100	840	1260
	SD75S1200 6BCDE	1000	1400	1200	900	1250	950	1425
10	SD75S1400 6BCDE	1200	1600	1400	1000	1400	1140	1710
	SD75S1550 6BCDE	1300	1700	1550	1200	1600	1270	1905
	SD75S1750 6BCDE	1500	2000	1750	1300	1700	1420	2130
11	SD75S1850 6BCDE	1600	2200	1850	1500	2000	1500	2250
	SD75S2200 6BCDE	1900	2500	2200	1600	2200	1800	2700
	SD75S2500 6BCDE	2200	2900	2500	1900	2500	2000	3000

¹ Consult availability with Power Electronics.

690Vac

FRAME	CODE	Operation Temperature 40 °C NORMAL DUTY			Operation Temperature 50 °C HEAVY DUTY			OVERLOAD (A)
		Motor Power (kW)	Motor Power (hp)	I(A) Rated	Motor Power (kW)	Motor Power (hp)	I(A) Rated	
3 ¹	SD75S0055 6BCDE	45	75	55	37	50	42	63
	SD75S0065 6BCDE	55	90	65	45	75	52	78
	SD75S0075 6BCDE	75	100	75	55	90	62	93
4 ¹	SD75S0100 6BCDE	90	125	100	75	100	80	120
	SD75S0120 6BCDE	110	150	120	90	125	105	157
5	SD75S0160 6BCDE	132	200	160	110	150	130	195
	SD75S0180 6BCDE	160	250	180	132	200	150	225
	SD75S0210 6BCDE	200	300	210	160	250	170	255
6	SD75S0250 6BCDE	250	350	250	200	300	210	315
	SD75S0310 6BCDE	315	400	310	250	350	260	390
	SD75S0400 6BCDE	355	450	400	315	400	320	480
7	SD75S0480 6BCDE	450	600	480	355	450	385	578
	SD75S0570 6BCDE	560	700	570	450	600	460	690
8	SD75S0680 6BCDE	630	900	680	560	700	550	825
	SD75S0825 6BCDE	800	1000	825	630	900	660	990
9 ^{1,2}	SD75S0930 6BCDE	900	1200	930	800	1000	750	1125
	SD75S1050 6BCDE	1000	1400	1050	900	1200	840	1260
	SD75S1200 6BCDE	1200	1600	1200	1000	1400	950	1425
10 ^{1,2}	SD75S1400 6BCDE	1400	1800	1400	1200	1600	1140	1710
	SD75S1550 6BCDE	1500	2000	1550	1400	1800	1270	1905
	SD75S1750 6BCDE	1700	2200	1750	1500	2000	1420	2130
11 ^{1,2}	SD75S1850 6BCDE	1800	2400	1850	1700	2200	1500	2250
	SD75S2200 6BCDE	2100	2750	2200	1800	2400	1800	2700
	SD75S2500 6BCDE	2200	3000	2500	2100	2750	2000	3000

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¹ Consult availability with Power Electronics.

² Values suitable for multipulses (number of pulses: 12, 18 and 24).

TECHNICAL CHARACTERISTICS

3

SD750S SERIES		
INPUT	POWER RANGE ^[1]	1.5kW – 2200kW
	VOLTAGE RANGE	380 – 480 Vac ($\pm 10\%$), 525 – 690 Vac ($-5/+10\%$)
	INPUT FREQUENCY	50Hz/60Hz ($\pm 6\%$)
	INPUT RECTIFIER TECHNOLOGY	Diode-Diode Frames 1 and 2 / Thyristor-Diode Frames 3 to 11 (multipulse available ^[11])
	DISPLACEMENT POWER FACTOR (DPF = $\cos \Phi$)	≥ 0.98
	POWER FACTOR (PF = $I_1/I_{rms} \cdot \cos \Phi$)	≥ 0.91
	MOMENTARY POWER LOSS	> 2s (depending on the load inertia)
	EMC INPUT FILTER	Second environment (Industrial): (C3 Standard) First environment (Domestic): C2 (Optional). C1 consult Power Electronics Optional IT filter
	HARMONICS FILTER	Choke coils 3% impedance
	CURRENT THD (%)	< 40%
	REGENERATIVE	NO
OUTPUT	OUTPUT FREQUENCY ^[2]	0...599Hz
	OVERLOAD CAPACITY	Constant torque: 150% during 60s at 50°C Variable torque: 120% during 60s at 40°C
	EFFICIENCY (At full load)	$\geq 98\%$
	CONTROL METHOD	V/Hz VECTOR CONTROL Open Loop. PWM speed control / torque, AVC: speed control / torque Close Loop (Encoder): PWM speed control / torque, AVC: speed control / torque PMSM I/f, sensorless and HEPOL (High Efficiency Performance Open Loop)
	CARRIER FREQUENCY	4 to 8kHz – PEWave
	OUTPUT DV/DT FILTER	500 to 800V/ μ s ^[3]
	OUTPUT CABLE LENGTH ^[4]	USC 300m, SC 150m
	DYNAMIC BRAKE	External B150 Dynamic Brake (Integrated in Frames 1 and 2)
ENVIRONMENTAL RATINGS	OPERATION AMBIENT TEMPERATURE	Minimum: -20°C Maximum: +50°C (Heavy duty) Minimum: -20°C Maximum: +40°C (Normal duty)
	STORAGE TEMPERATURE	Minimum: -40°C Maximum: +70°C
	ALTITUDE	1000m
	POWER ALTITUDE DERATING ^[1]	> 1000m, 1% P _N (kW) per 100m; 4000m maximum
	AMBIENT HUMIDITY	<95%, non-condensing
	DEGREE OF PROTECTION	IP20 ^[5] , IP54 ^[6] , IP42 ^[7] Marine series adapted (IP44/IP54, under request)
	VIBRATION	Amplitude: ± 1 mm (2Hz-13.2Hz), ± 0.075 mm (13.2Hz-57Hz) Acceleration: 6.86m/s ² (13.2Hz-57Hz), 9.8m/s ² (57Hz-150Hz)
	HEATING RESISTORS	Optional
PROTECTIONS	MOTOR PROTECTIONS	Rotor Locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor overtemperature (PT100 signal), Speed Limit, Torque Limit
	DRIVE PROTECTIONS	IGBT's Overload, Input Loss, Low Input Voltage, High Input Voltage, DC Bus Voltage Limit, DC Bus Low Voltage, High Supply Frequency, Low Supply Frequency, IGBT Temperature, Heat-sink overtemperature, Power supply fault, Drive thermal model, Ground Fault, Software and Hardware fault, Analog Input signal loss (speed reference loss), Safe stop / Emergency stop

[1]: Consult availability with Power Electronics.

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

[3]: Valid for frames 3 to 11, depending on the SD750 rated power. Optional filter available for frames 1 and 2.

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

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

[6] Applicable to the electronics.

[7] Applicable to the electronics.

SD750S SERIES		
HARDWARE	DIGITAL INPUTS	6 programmable, Active high (24Vdc). Isolated power supply
	DIGITAL OUTPUTS	3 programmable changeover relays (250Vac, 8A or 30Vdc, 8A)
	ANALOGUE INPUT	3 programmable differential inputs: 0 – 20mA, 4 – 20mA, 0 – 10Vdc and ±10Vdc, PT100 (optically isolated)
	ANALOGUE OUTPUTS	2 isolated programmable outputs: 0 – 20mA, 4 – 20mA, 0 – 10Vdc and ±10Vdc
	ENCODER INPUTS (Optional)	1 differential encoder input. Voltage inputs from 5 to 24Vdc
	USER POWER SUPPLY	+24Vdc user power supply, (Max. 180 mA) 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)	Digital I/O board: 5 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated. 5 Digital Outputs: programmable multi-function relays. Analogue I/O board: 2 Analogue Inputs: Programmable and differential input. 2 Analogue Outputs: Programmable outputs in voltage / current.
	EXTERNAL POWER SUPPLY	24Vdc External Power Supply
	SD CARD	Port for an external SD Card. Data Logging, events registration
COMMUNICATION	STANDARD HARDWARE	USB port
		RS485 port
		Ethernet
	OPTIONAL HARDWARE	Optical fiber
		Communication Cards
	STANDARD PROTOCOL	Modbus-RTU
		Ethernet (Modbus TCP)
	OPTIONAL PROTOCOL	Profibus-DP
Field Bus		
Ethernet IP		
CAN Open		
	ProfiNet	
CONTROL PANEL	TYPE	Removable
	LENGTH	3 meters and 5 meters (optional)
	CONNECTION	USB
	VISUALIZATION LEDS	LED RUN: Motor receiving power supply
		LED FAULT: Flashing displays that a fault has occurred
	LCD DISPLAY	LCD screen
		Keypad with 68 keys to control and configure the drive, start and stop / reset
		Independent memory
	TOUCH AND COLOUR GRAPHIC DISPLAY (Optional)	Wi-Fi communication module (optional)
		Optional Colour touch-screen display 4.3"
		4Gbytes for recording historical files
		Panel or USB cable connection
	DISPLAY INFORMATION	Wi-Fi remote connection, micro-USB connection to control card
		Average current and 3-phase motor current
		Average voltage and 3-phase motor voltage
		Average input voltage and 3-phase input voltage
		3-phase motor input and output frequency
		DC Bus Voltage
	OTHERS	Drive Status
		Speed, Torque, Power, Power Factor of the 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 outputs value		
Motor and equipment overload status		
IGBT and rectifier temperature		
Fault history (last 6 faults)		
Real time clock		
Perpetual calendar		

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SD750S SERIES		
REGULATIONS	CERTIFICATIONS	CE, cTick, UL, cUL, Marine certifications (under request)
	ELECTROMAGNETIC COMPATIBILITY	EMC Directive (2004/108/CE)
		IEC/EN 61800-3
	DESIGN AND CONSTRUCTION	LVD Directive (2006/95/CE)
		IEC/EN 61800-2 General requirements
		IEC/EN 61800-5-1 Safety
		IEC/EN 60146-1-1 Semiconductors
FUNCTIONAL SAFETY	IEC 60068-2-6 – Vibration	
	IEC/EN 61800-5-2 Safety Stop (STO)	

DIMENSIONS



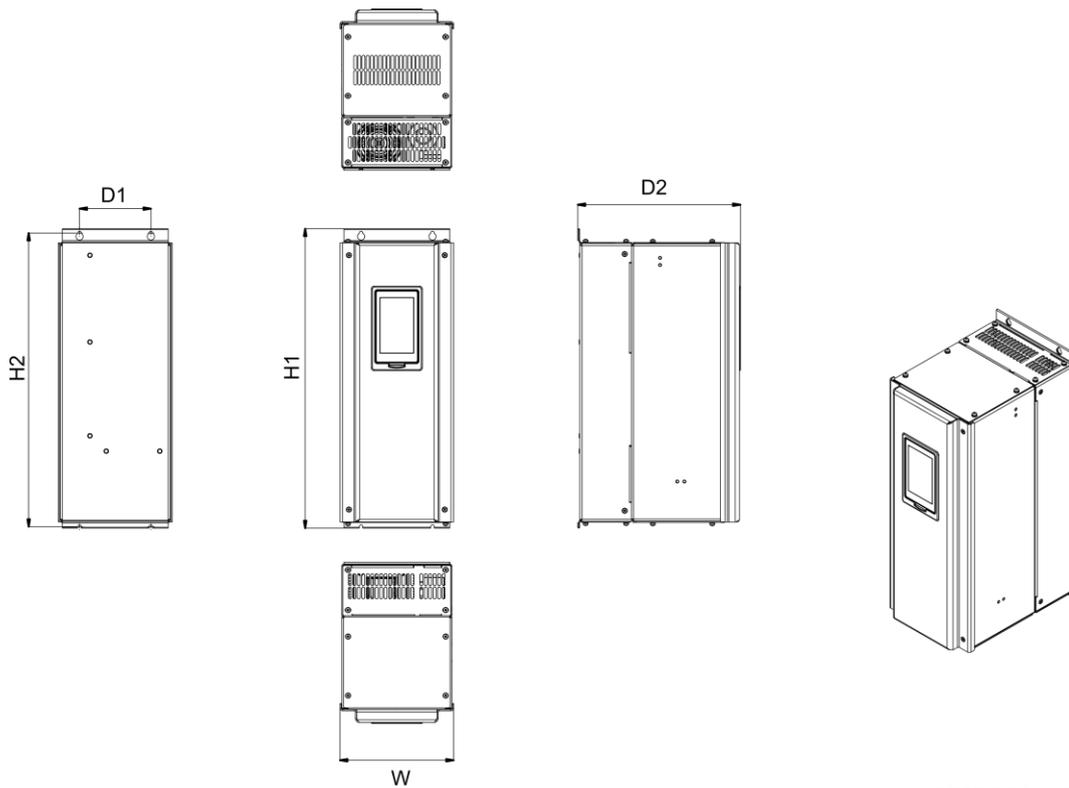
NOTICE

Consult drives input supply voltage in section "[Technical characteristics](#)".

Dimensions of frame 1

DIMENSIONS (mm)					WEIGHT (kg)
H1	H2	D1	D2	W	
507	497,6	120	273	191	16,7

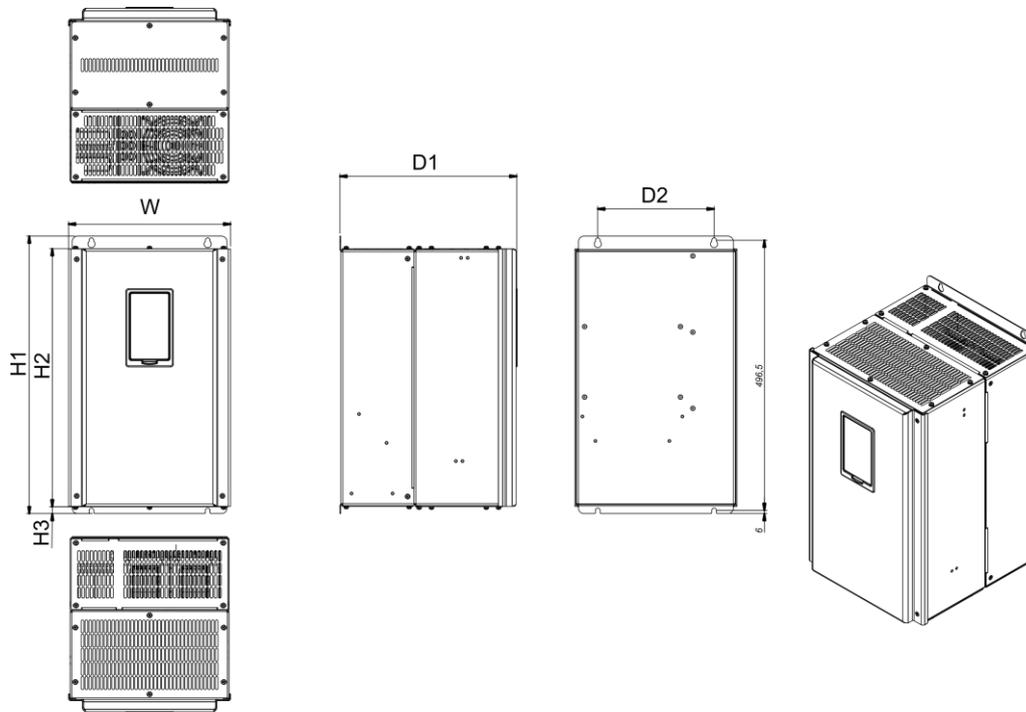
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SD75DTD001B

Dimensions of frame 2

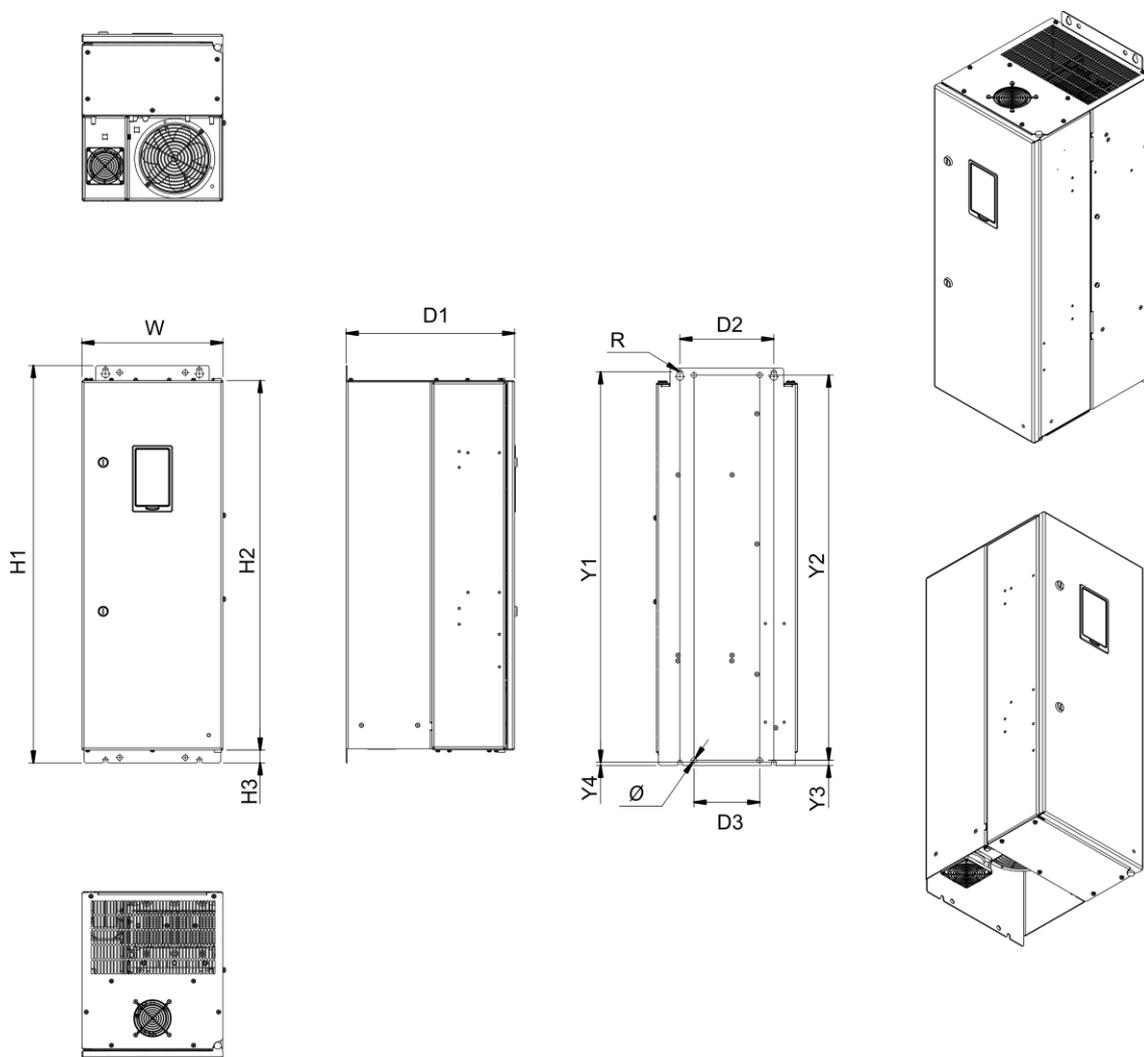
DIMENSIONS (mm)						WEIGHT (kg)
H1	H2	H3	W	D1	D2	
510	474,3	13	296	323	212,4	29



SD75DTD0013B

Dimensions of frame 3

DIMENSIONS (mm)													WEIGHT (kg)
H1	H2	H3	W	D1	D2	D3	Y1	Y2	Y3	Y4	Φ	R	
854	794	27,6	301	359	200	140	838,5	827,2	11,4	7	11	4,5	61,2

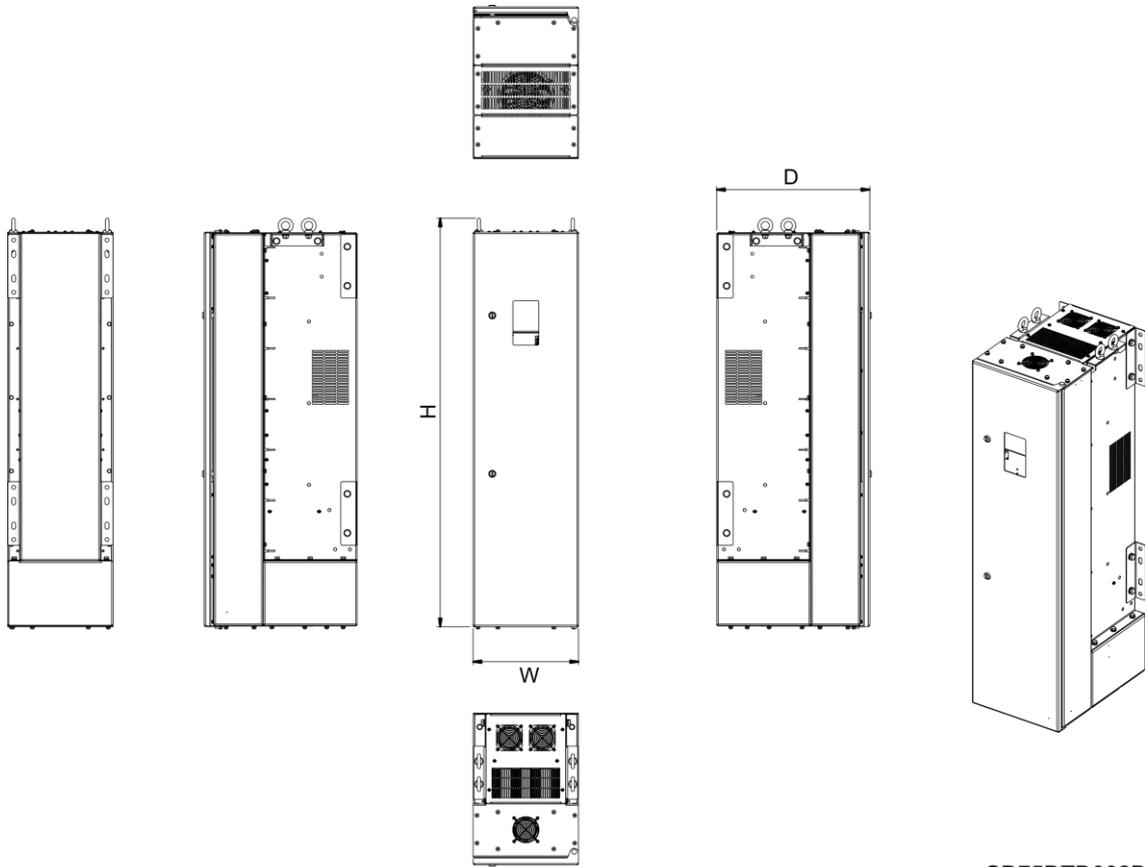


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SD750DTD005D

Dimensions of frame 4

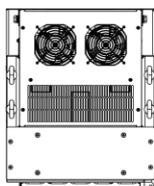
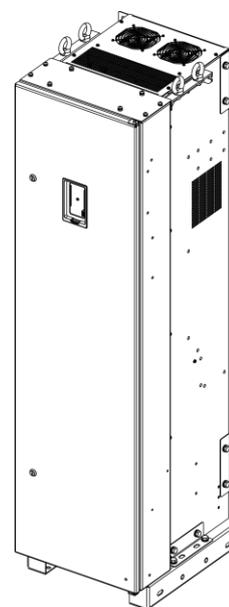
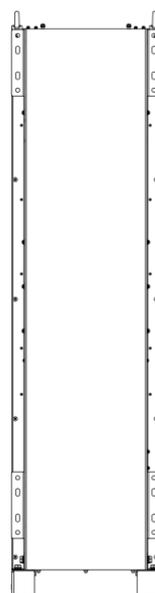
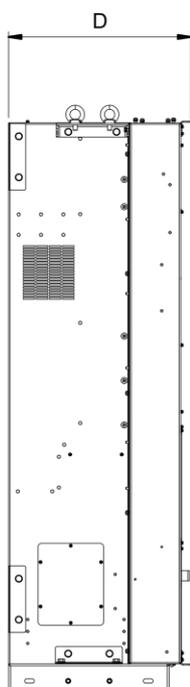
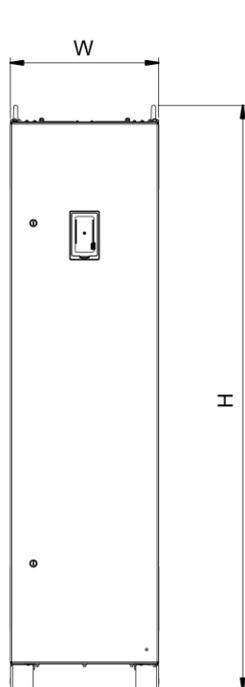
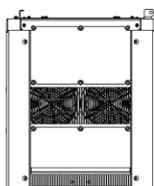
DIMENSIONS (mm)			WEIGHT (kg)
H	W	D	
1251	320	464,5	85,05



SD750DTD002B

Dimensions of frame 5

DIMENSIONS (mm)			WEIGHT (kg)
H	W	D	
1715	431	529	168,25

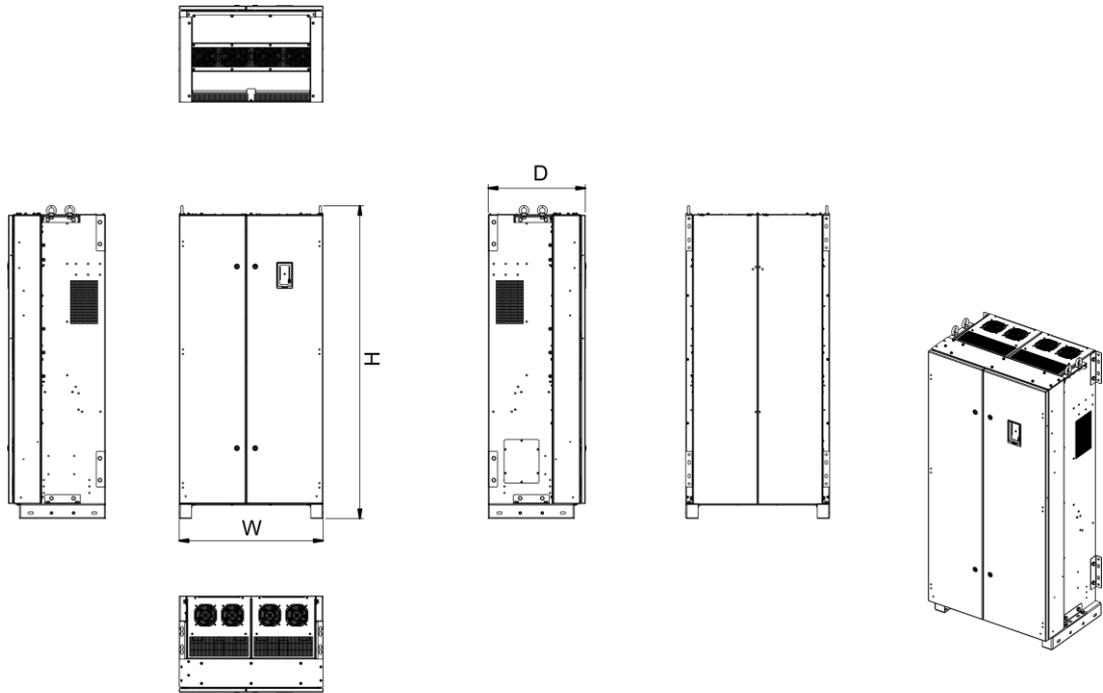


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SD75DTD003B

Dimensions of frame 6

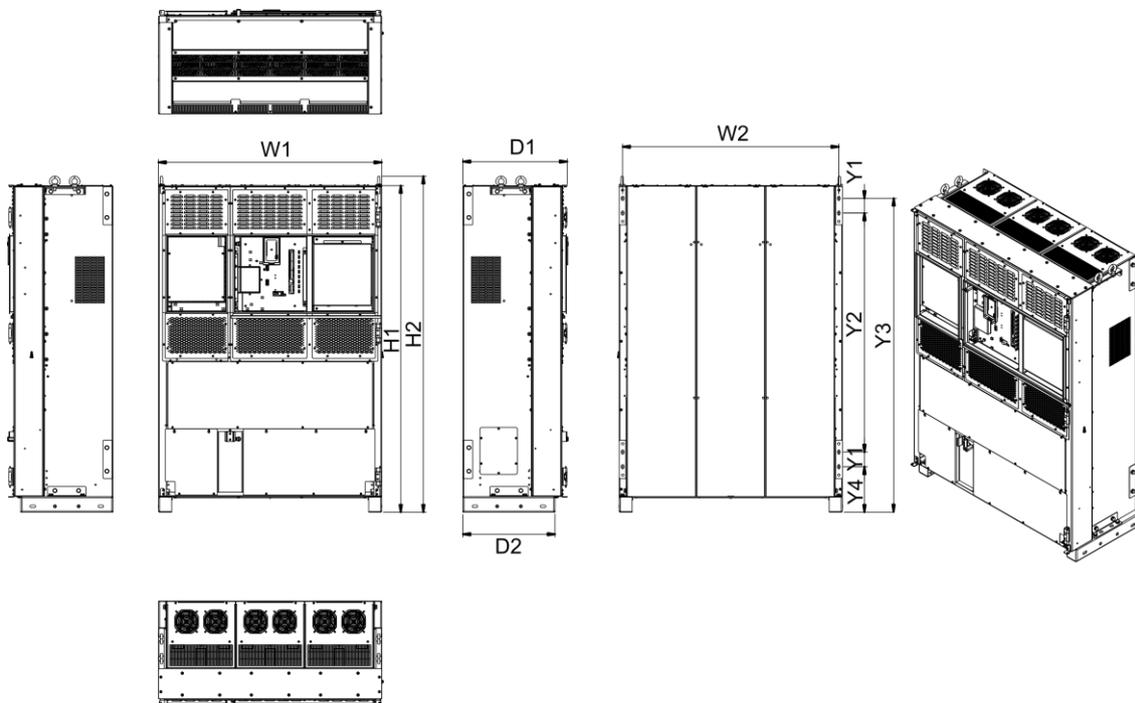
DIMENSIONS (mm)			WEIGHT (kg)
H	W	D	
1715	782	528	286,52



SD750DTD004B

Dimensions of frame 7

DIMENSIONS (mm)										WEIGHT (kg)
H1	H2	W1	W2	D1	D2	Y1	Y2	Y3	Y4	
1667,4	1715	1132	1096	529	467	75	1220	1602	232	441,3

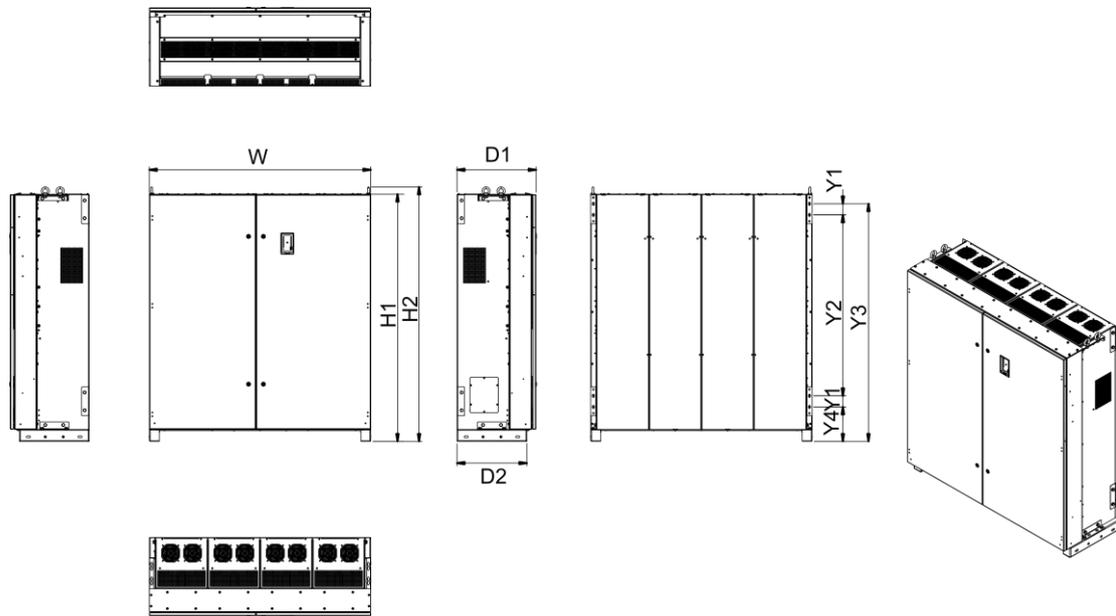


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SD75DTD014B

Dimensions of frame 8

DIMENSIONS (mm)									WEIGHT (kg)
H1	H2	W	D1	D2	Y1	Y2	Y3	Y4	
1667	1715	1482	529	467	75	1220	1602	232	576,37



SD750DTD017B

Dimensions of frame 9, 10 and 11

Frames 9 to 11 of SD750 are made up of several modules of smaller frames, depending on the power required by the customer. Therefore, the overall dimensions of the equipment will vary according to the number of modules and their size.

The possible combinations of the equipment are listed below, depending on the voltage and number of pulses. Additionally, the total width is shown for each case.

When installing the equipment, minimum safety distances must be taken into account. Consult section “Clearances”.

400Vac – 480Vac

N° PULSES	FRAME	CODE	COMBINATION	BASE MODEL CODE (INDIVIDUAL EQUIPMENT)	TOTAL WIDTH (W)
6	T9	SD751550 5BDEF	2 x T7	SD75S0900 5	2274
		SD751800 5BDEF	2 x T7	SD75S1050 5	2274
		SD751950 5BDEF	2 x T8	SD75S1140 5	2974
	T10	SD752250 5BDEF	2 x T8	SD75S1400 5	2974
		SD752750 5BDEF	3 x T7	SD75S1050 5	3416
	T11	SD753100 5BDEF	3 x T8	SD75S1140 5	4456
12	T9	SD751550 5BDEF	2 x T7	SD75S0900 5	2274
		SD751800 5BDEF	2 x T7	SD75S1050 5	2274
		SD751950 5BDEF	2 x T8	SD75S1140 5	2974
	T10	SD752250 5BDEF	2 x T8	SD75S1400 5	2974
		SD752750 5BDEF	4 x T7	SD75S0800 5	4558
	T11	SD753100 5BDEF	4 x T7	SD75S0900 5	4558
18	T9	SD751550 5BDEF	3 x T6	SD75S0570 5	2366
		SD751800 5BDEF	3 x T6	SD75S0700 5	2366
		SD751950 5BDEF	3 x T6	SD75S0700 5	2366
	T10	SD752250 5BDEF	3 x T7	SD75S0900 5	3416
		SD752750 5BDEF	3 x T7	SD75S1050 5	3416
	T11	SD753100 5BDEF	3 x T8	SD75S1140 5	4456
24	T9	SD751550 5BDEF	4 x T6	SD75S0450 5	3158
		SD751800 5BDEF	4 x T6	SD75S0570 5	3158
		SD751950 5BDEF	4 x T6	SD75S0570 5	3158
	T10	SD752250 5BDEF	4 x T6	SD75S0700 5	3158
		SD752750 5BDEF	4 x T7	SD75S0800 5	4558
	T11	SD753100 5BDEF	4 x T7	SD75S0900 5	4558

525Vac – 690Vac

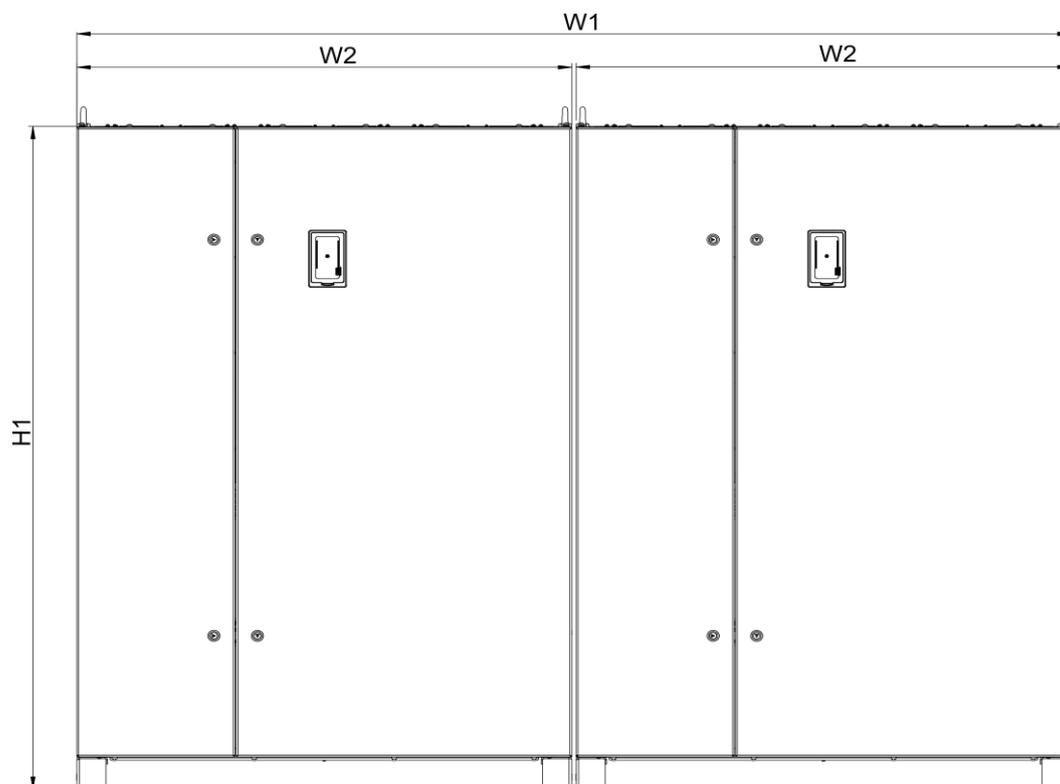
N° PULSES	FRAME	CODE	COMBINATION	BASE MODEL CODE (INDIVIDUAL EQUIPMENT)	TOTAL WIDTH (W)
6	T8	SD750680 6BDEF	1 x T8	SD75S0680 6	1482
		SD750825 6BDEF	1 x T8	SD75S0825 6	1482
	T9	SD750930 6BDEF	2 x T7	SD75S0570 6	2274
		SD751050 6BDEF	2 x T7	SD75S0570 6	2274
		SD751200 6BDEF	2 x T8	SD75S0680 6	2974
	T10	SD751400 6BDEF	2 x T8	SD75S0825 6	2974
		SD751550 6BDEF	3 x T7	SD75S0570 6	3416
		SD751750 6BDEF	3 x T8	SD75S0680 6	4466
	T11	SD751850 6BDEF	3 x T8	SD75S0680 6	4466
		SD752200 6BDEF	3 x T8	SD75S0825 6	4466
SD752500 6BDEF		4 x T8	SD75S0680 6	5958	
12	T8	SD750680 6BDEF	2 x T6	SD75S0400 6	1565
		SD750825 6BDEF	2 x T6	SD75S0400 6	1565
	T9	SD750930 6BDEF	2 x T7	SD75S0570 6	2274
		SD751050 6BDEF	2 x T7	SD75S0570 6	2274
		SD751200 6BDEF	2 x T8	SD75S0680 6	2974
	T10	SD751400 6BDEF	2 x T8	SD75S0825 6	2974
		SD751550 6BDEF	4 x T7	SD75S0480 6	4558
		SD751750 6BDEF	4 x T7	SD75S0480 6	4558
	T11	SD751850 6BDEF	4 x T7	SD75S0570 6	4558
		SD752200 6BDEF	4 x T8	SD75S0680 6	5958
SD752500 6BDEF		4 x T8	SD75S0680 6	5958	
18	T8	SD750680 6BDEF	3 x T6	SD75S0250 6	2366
		SD750825 6BDEF	3 x T6	SD75S0310 6	2366
	T9	SD750930 6BDEF	3 x T6	SD75S0400 6	2366
		SD751050 6BDEF	3 x T6	SD75S0400 6	2366
		SD751200 6BDEF	3 x T7	SD75S0480 6	3416
	T10	SD751400 6BDEF	3 x T7	SD75S0570 6	3416
		SD751550 6BDEF	3 x T7	SD75S0570 6	3416
		SD751750 6BDEF	3 x T8	SD75S0680 6	4466
	T11	SD751850 6BDEF	3 x T8	SD75S0680 6	4466
		SD752200 6BDEF	3 x T8	SD75S0825 6	4466
SD752500 6BDEF		6 x T7	SD75S0480 6	6842	
24	T8	SD750680 6BDEF	4 x T5	SD75S0210 6	1754
		SD750825 6BDEF	4 x T5	SD75S0210 6	1754
	T9	SD750930 6BDEF	4 x T6	SD75S0250 6	3158
		SD751050 6BDEF	4 x T6	SD75S0310 6	3158
		SD751200 6BDEF	4 x T6	SD75S0310 6	3158
	T10	SD751400 6BDEF	4 x T6	SD75S0400 6	3158
		SD751550 6BDEF	4 x T7	SD75S0480 6	4558
		SD751750 6BDEF	4 x T7	SD75S0480 6	4558
	T11	SD751850 6BDEF	4 x T7	SD75S0570 6	4558
		SD752200 6BDEF	4 x T8	SD75S0680 6	5958
SD752500 6BDEF		4 x T8	SD75S0680 6	5958	

Below are two configuration examples and their dimensions.

Example 1

SD750 frame 9 composed of two modules of frame 7.

DIMENSIONS (mm)		
H1	W1	W2
1666,4	2274	1132



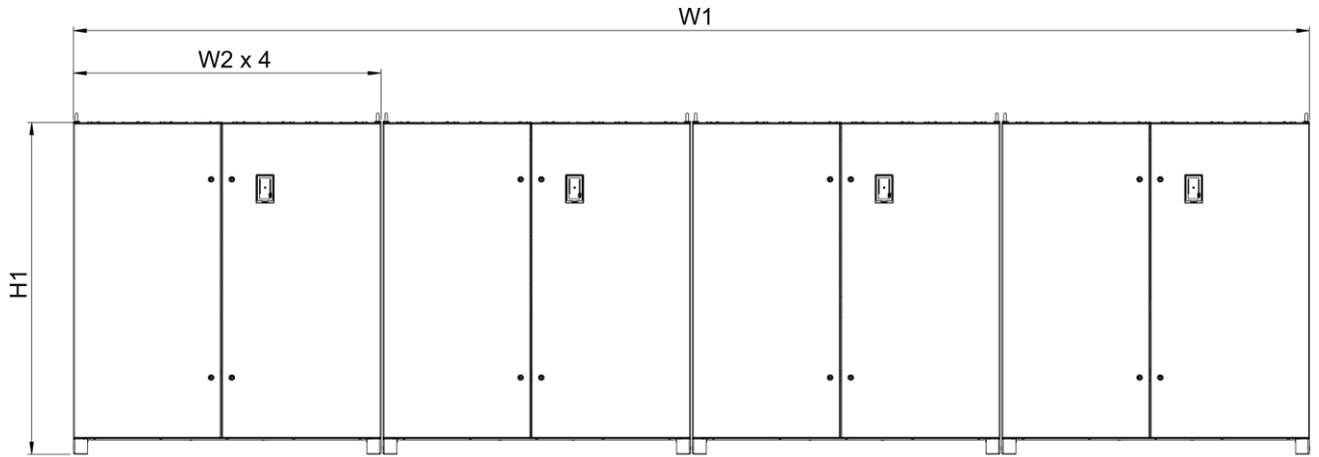
SD75DTD021A

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Example 2

SD750 frame 11 composed of two modules of frame 8.

DIMENSIONS (mm)		
H1	W1	W2
1667	5958	1482



SD75DTD022A

RECEPTION, HANDLING AND TRANSPORTATION

5



CAUTION

Read carefully the following installation instructions for a correct mechanical installation. Otherwise, the equipment can be damaged and lead to personal injury.

Reception

Power Electronics' equipment are carefully tested and packed for shipment. In the event of damage to the unit during transportation notify the transport agency and Power Electronics: 902 40 20 70 (International +34 96 136 65 57) or your nearest agent, within 24h from receipt of the goods.

Make sure model and serial number of the drive match the information on the delivery packing list.

The drive should be stored in a location that is protected from direct sun and moisture excess. The storage temperature rating for the drive is -40°C and $+70^{\circ}\text{C}$, < 95 RH without condensation. It is recommended not to stack more than two units.

Standard storage

In case the equipment is stored for a short period (up to 6 months) before its connection, the following rules will keep the unit safe until it is ready for installation:

- The equipment should be stored in a location that is protected from moisture (inside and outside the equipment).
- Avoid floodable grounds. No part of the equipment should ever be submerged under water.
- Temperature in the storage location must be kept between -40°C and $+70^{\circ}\text{C}$ (-40°F and $+158^{\circ}\text{F}$).
- Store unit on a flat, even surface.
- Store unit away from high traffic areas where the drive could get damaged.
- Make sure animals cannot get inside the unit.
- Keep doors closed and covers in place during storage.
- Store unit away from corrosive chemical products or gases.
- Keep the equipment packed until the moment of installation.

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Extended storage

If the equipment is stored for an extended period (more than 6 months) before installation for an undefined date, new considerations should be taken, in addition to the recommendations in section [“Standard storage”](#):

- The drive must be stored in its original packaging.
- Draining bags shall be included inside the packaging to prevent moisture from damaging the equipment or its electronic components. These shall be replaced when storage conditions require it.
- Periodic inspections of the internal equipment status should be performed when possible. Proper internal cleanness must also be checked.
- To prevent deterioration of the capacitors, connect the equipment without load for 30-60 minutes once a year.
- Before commissioning, it is recommended to follow the instructions to connect power supply safely to the equipment. Please refer to document **VFIC001**.

Handling and Transportation

Only the transport methods described in this document or in the delivery notes are permissible. Any other transport method or system could damage the unit.

SD750 is delivered vertically. Frames 1 and 2 are delivered in a cardboard box. From frame 3 they are delivered fastened to a wooden pallet. Frames 3 and 4 are covered with a cardboard box and from frames 5 with a wooden box. Depending on the method of transportation, the drive is supplied wrapped to be protected against dust. Place the entire pallet as close as possible to the installation site before removing the wooden box to prevent damage to the drive during transportation.

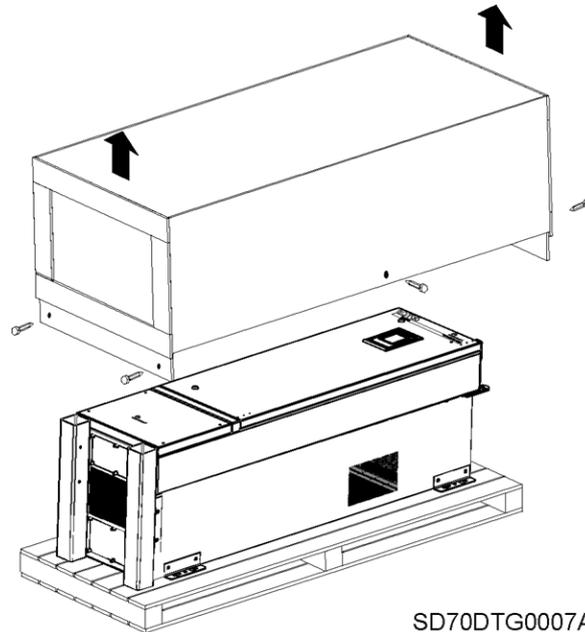
It is mandatory to carry the drive with a pallet truck, a forklift truck, or a crane, taking into account the load distribution and its center of gravity. Check the size and weight of the VFD to choose a proper equipment that can lift a higher weight.

Remove the drive packaging carefully (do not use sharp tools). After removing the packaging, please check the material inside. Verify that the number of items included in the package is in accordance with the inventory. In case of receiving spare parts with the product, please separate it and store it in a safe place. It should not be exposed to vibrations, falls or moisture.



CAUTION

If the weight of the load to be handled is greater than the maximum permissible weight of the crane, it could damage the equipment and personnel.



SD70DTG0007A

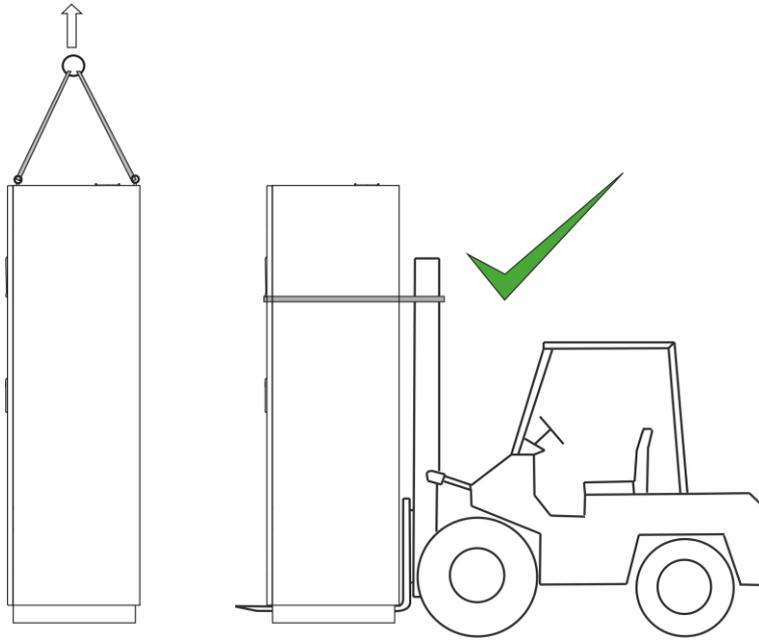
Frame 5 unpacking

To unpack, if necessary, unscrew the screws that fix the wooden box to the pallet. Then, unscrew the fixing screws on the angle brackets. To lift the drive and place it in a vertical position, use only a crane or a forklift equipped with straps or slings. Lift gently by pulling the top bolts.

To rise to an upright position, use only a crane or forklift equipped with belts or slings. Lift it carefully pulling from the top eyebolts.

Once the drive is upright, reinsert the straps / slings. The crane or forklift must always lift the drive from its bottom. Avoid sudden movements and blows during transportation. When placing the equipment on the ground, stop the lowering movement just before contacting the ground, and after this, lower it very slowly to avoid shocks.

In case of doubt about how to manipulate and transport equipment composed by several modules, consult Power Electronics.



SD75DTG0002A

Lifting and transporting the equipment

MECHANICAL INSTALLATION

6



CAUTION

The installation must be done by qualified personal.

Otherwise, the equipment can be damaged and lead to personal injury.

Before installation, make sure the location chosen is appropriate. There should be sufficient space to adapt the unit to the recommended distances and to ensure that there are no obstacles preventing the airflow from the fans.

Environmental ratings

Power Electronics recommends following the instructions in this manual carefully to ensure a correct operation of the drive. The installer is responsible for performing a proper installation in order to comply with the ambient conditions of the VFD. In addition, the installer is solely responsible for complying with the local regulations. The environmental conditions are:

- Environmental category: Indoor
- Outdoor: No
- Pollution degree: Clean area: PD2
Dirty area: PD3
- Ingress protection rating: Clean zone: Electronics IP54 or IP20
Power connection and Input filters: IP20
- Operation Ambient temperature: -20°C to 50°C Constant torque
-20°C to 40°C Variable torque
- Storage Ambient temperature: -40°C to 70°C
- Humidity: Relative humidity less than 95% (non-condensing)
- Heating resistors: Optional
- Maximum altitude and power derating: 1000m 1% PN(kW) every 100m; 4000m maximum
- Vibration (IEC60068-2-6): Amplitude $\pm 1\text{mm}$ (2Hz – 13.2Hz), ± 0.075 (13.2Hz – 57Hz)
Acceleration 6.86m/s^2 (13.2Hz-57Hz), 9.8m/s^2 (57Hz-150Hz)
- Audible Noise: Maximum 68-70 dB Frames 1 and 2
Maximum 80 dB Frame 3 and above
- Overvoltage category: III
- Protection class: Class 1
- Painting: Standard colour RAL 9016. Any other, on request

EN

Drive mounting

This section contains assembly instructions for optimum operation of the drive and precautions to avoid personal injury and property damage.

SD750 drives are designed for wall or panel mounting.

The drive may become hot during operation. Install it on a surface that is fire resistant or flame retardant and with sufficient space around the drive to allow air to circulate. Make sure to follow the space recommendations given in section 6.3.

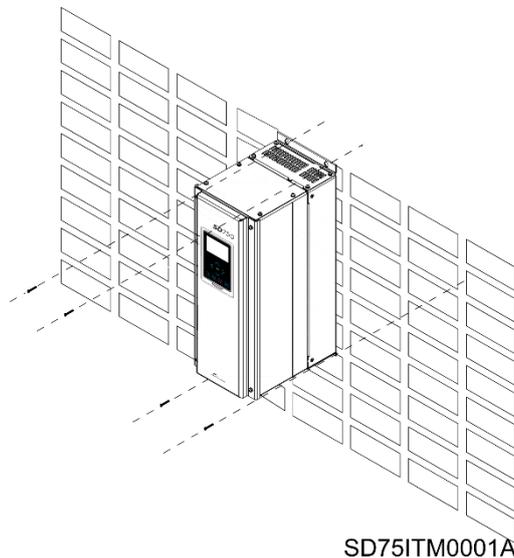
Wall mounting drives

The drives SD750 from frame 1 to 4 are designed for wall mounting. In addition, the frame 4 has optionally available a plinth that allows its mounting on the ground.

The installation method and its location must be in accordance with the weight and dimensions of the drive. Power Electronics recommends hanging the SD750 in a wall or solid structure using the anchors arranged in the back, which supports the weight and possible forces generated by the wiring.

Use a level to draw a horizontal line on the mounting surface and mark the attachment points. Then, drill the two holes of the top mounting bolts, and then install the mounting bolts. Do not fully tighten bolts yet.

Mount the unit with the top two bolts and then fully tighten the mounting bolts. Make sure the SD750 is flat on the mounting surface.

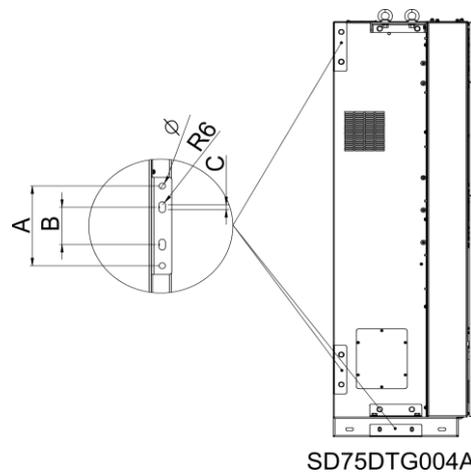


SD750 wall mounting

Stand alone drives

Frames 5 to 11 are designed to be placed over a technical floor. If necessary, there are optional plinths that increase the height of the drive from 1710 mm to 2000 mm or 2200 mm. The floor must guarantee a non-flammable, solid, plain and level surface to the drive, a minimum safety distance around it and easy cable access. The maximum allowed slope is 1cm per 6 meters. The installation site should be level since the cabinet is not equipped with a height-adjustable base. The walls adjoining the drive must be of a non-flammable material. Attach the SD750 to the wall or floor using the L brackets on both sides of the drive. The brackets have $\varnothing 11$ hole diameters and are located on the legs and rear.

DIMENSIONS (mm)				WEIGHT (kg)
A	B	C	Ø	
160	75	10	12	16,7



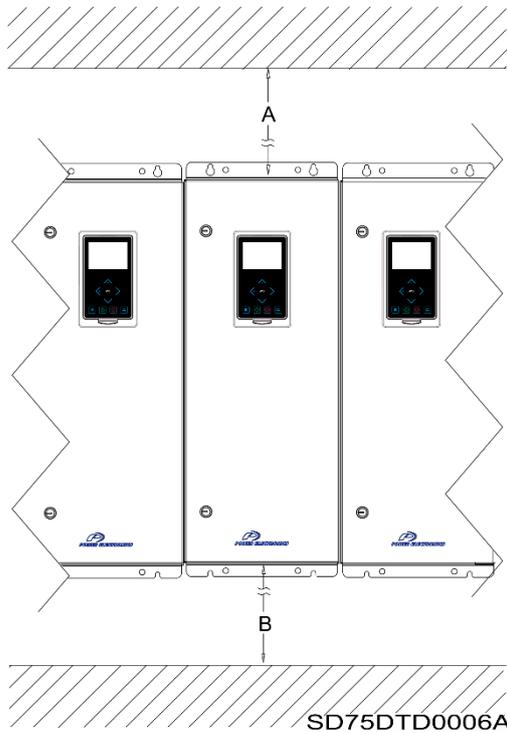
It is recommended to construct a cable duct to get the cables to the input / output connections. The duct width must not exceed 300 mm and the ground contact surface must withstand the weight of the cabinet that falls on its legs.

NOTICE

The anchors of size 9, 10 and 11 in the common area, is done in the interior part. If there is not a platform available, two holes on the sides without L brackets must be used. If there is a platform available, L brackets must be put in the interior part.

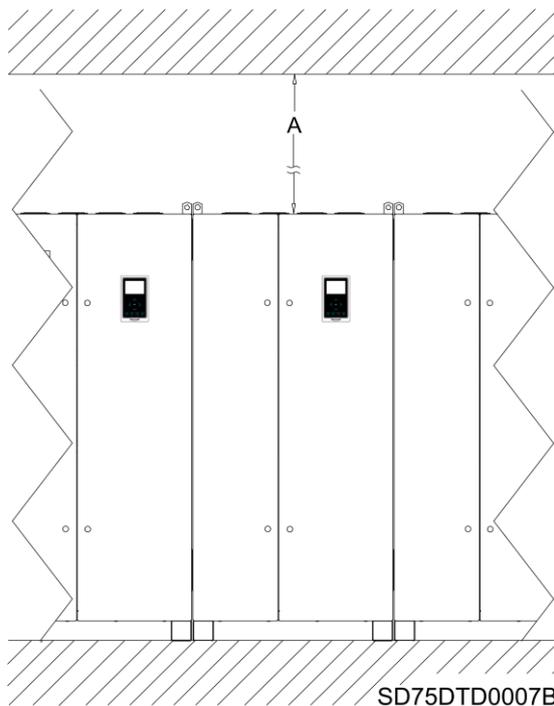
Clearances

If the equipment is installed inside a cabinet, ensure that the hot air expelled from the VFD is evacuated outside. This hot air could be sucked back and cause the drive to overheat. To ensure proper ventilation avoid air recirculation and maintain the minimum clearances indicated below.



Minimum clearances for frames 1 to 4

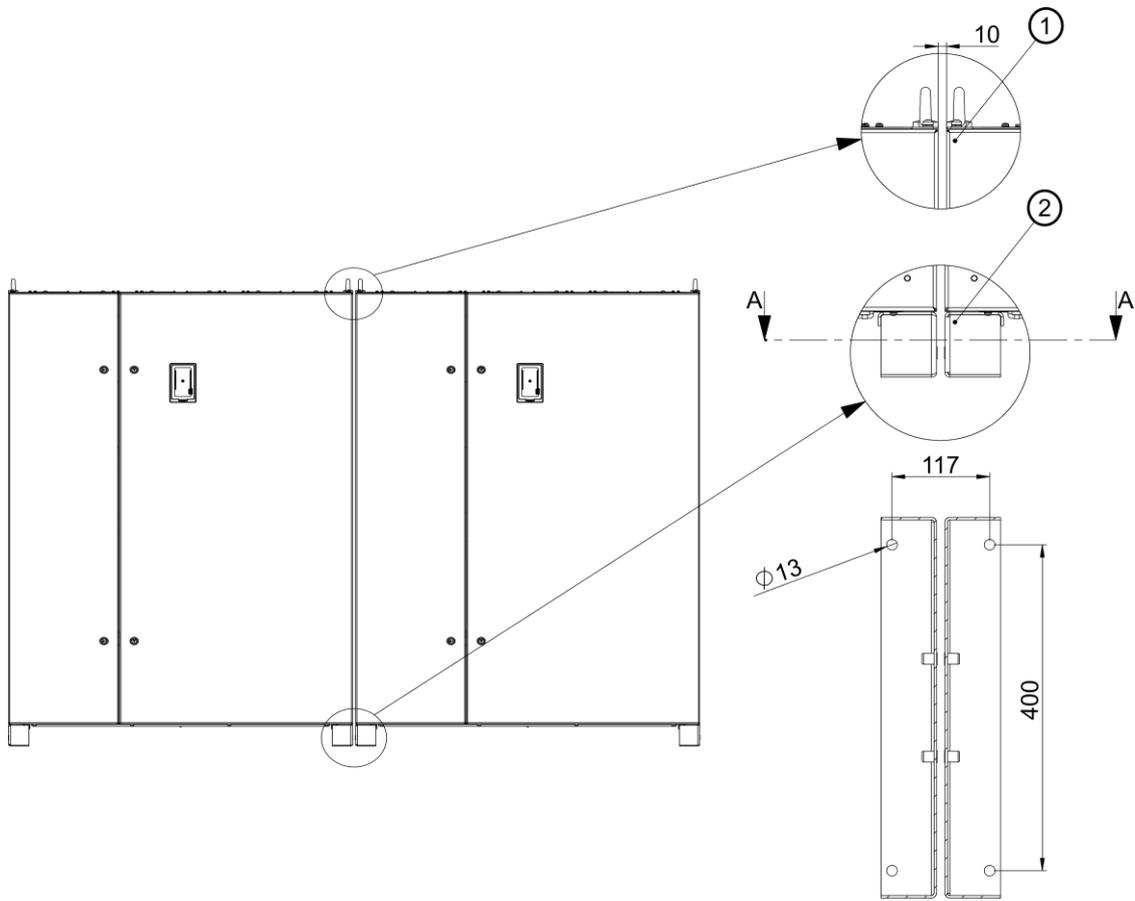
FRAME	DISTANCE (mm)		FRONT CLEARANCE
	A	B	
1	200	200	700
2	200	200	800
3	200	200	800
4	300	300	820



Minimum clearances for frames 5 to 11

FRAME	DISTANCE (mm)	FRONT CLEARANCE
	A	
5	400	930
6	400	940
7	400	1260
8	400	1260
9	400	940
10	400	1260
11	400	1260

In case of drives frame 9 to 11, they must be installed side-to-side and following the minimum distances between modules (values in mm).



SD75DTD023A

Minimum clearances between modules, SD750 frame 9 to 11

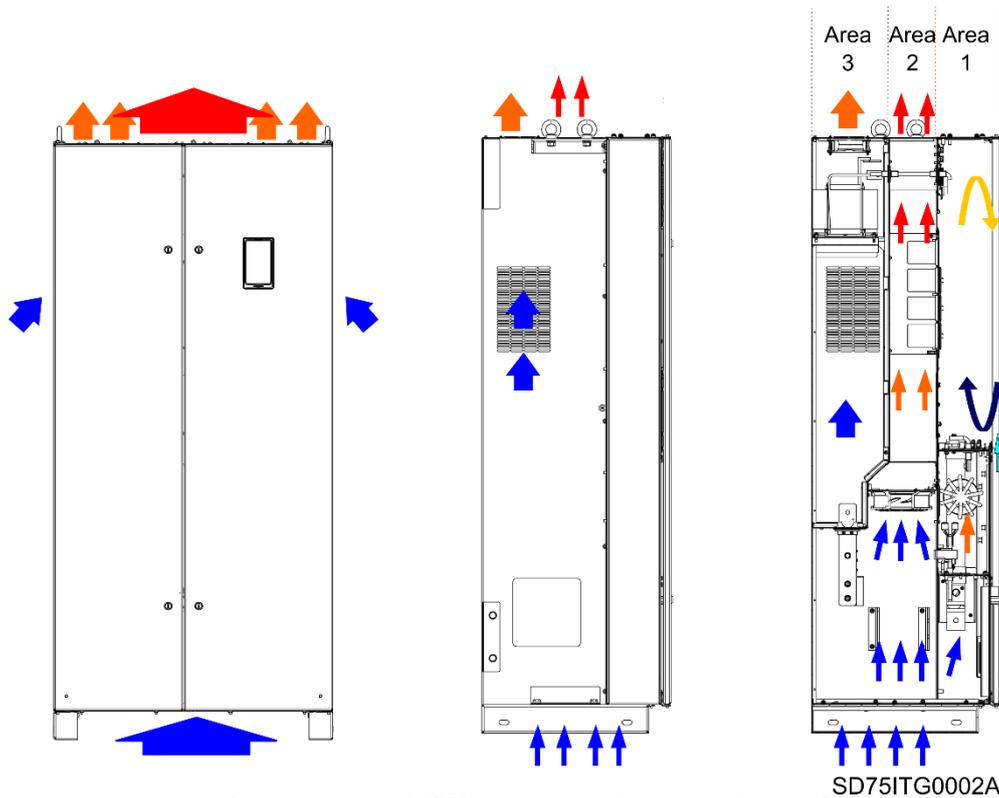
REF.	DESCRIPCIÓN
①	Minimum distance necessary to open both doors at the same time.
②	Anchor to the ground from the interior part with the diameters of 13 mm. If the equipment has a platform, place the L brackets in the interior screwed onto the inserts.

EN

Cooling

The main heat sources inside the equipment correspond to: losses in the bridge rectifier (IGBTs), the input filter and the output dV/dt filter. The SD750 series has an overall efficiency higher than 98%, so losses due to heat dissipation correspond to 2% of the power supplied by the equipment.

The cooling system of the drive depends on its degree of protection and its frame. In general terms, the drive has been designed with three independent cooling areas.



Cooling airflow for SD750. Frames 4 to 11(Protection Grade IP54).

1st Area - Electronics:

IP20 cabinets incorporate extractors in its upper part that evacuate the internal heat generated in the area.

IP54 cabinets keep electronic components fully sealed. The internal heat generated is evacuated through the metal doors thanks to an internal forced convection system.

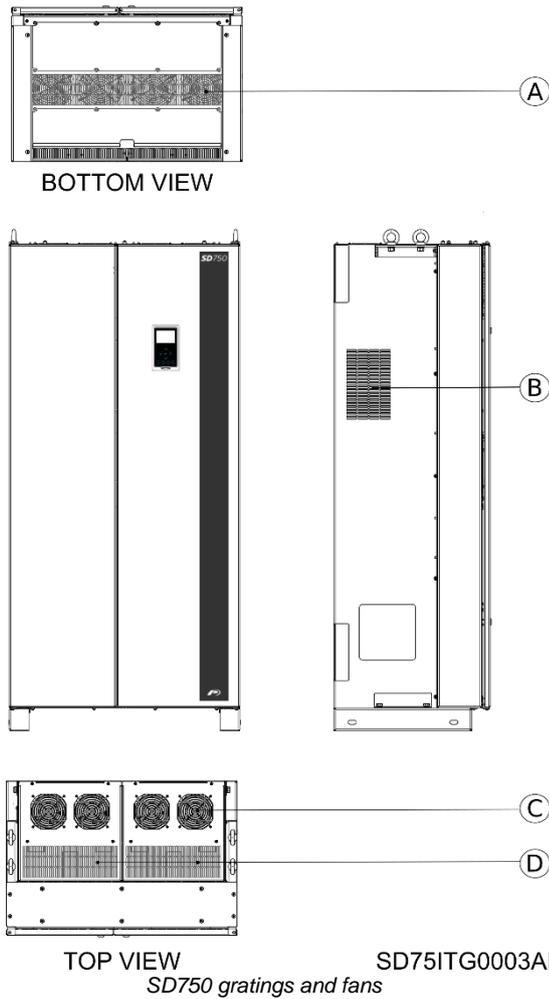
2nd Area – Rectifier bridge, Inverter bridge and DC bus cooling area:

The drive has fans that collect the air from the bottom and evacuate it through the central grid at the top. The fans propel the air through the radiator thus evacuating the heat generated by the main components.

3rd Area – Filters:

Intake grills are placed on the sides of the equipment. In addition, the rear upper part incorporates extractors.

The following figure identifies the gratings and extraction fans of the different levels.



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		FRAMES											
		ID	1	2	3	4	5	6	7	8	9	10	11
AREA 2	OPERATION FLOW (m³/h) (*)	D	64-77	239-287	306-367	342-410	396-475	486-583	720-864	972-1166	1458-1750	2178-2614	2898-3478
	INLET GRATING NET SECTION (m²)	A	0.081	0.016	0.025	0.031	0.034	0.064	0.101	0.123	0.192	0.303	0.369
	OUTLET GRATING NET SECTION (m²)	D	0.003	0.013	0.017	0.019	0.022	0.027	0.040	0.054	0.081	0.121	0.161
AREA 3	OPERATION FLOW (m³/h)	C	-	-	-	180	360	720	1080	1440	2160	3240	4320
	INLET GRATING NET SECTION (m²)	B	0.081	0.016	0.025	0.031	0.034	0.041	0.041	0.041	0.122	0.122	0.122

Heat dissipation

The heat generated by the SD750 depends on the carrier frequency (Hz), the grid frequency and the load. It can be estimated by the following equation, considering the worst case at rated power condition.

$$P_{loss} [W] = 0,02 \cdot P_{motor} [W]$$

(*) The air velocity, which passes through the gratings, varies between 5 and 6 m/s depending on the blocking of the gratings.

POWER CONNECTION

7



CAUTION

Please read the following instructions for proper electrical installation. Otherwise, it could result in damage to equipment and personnel.

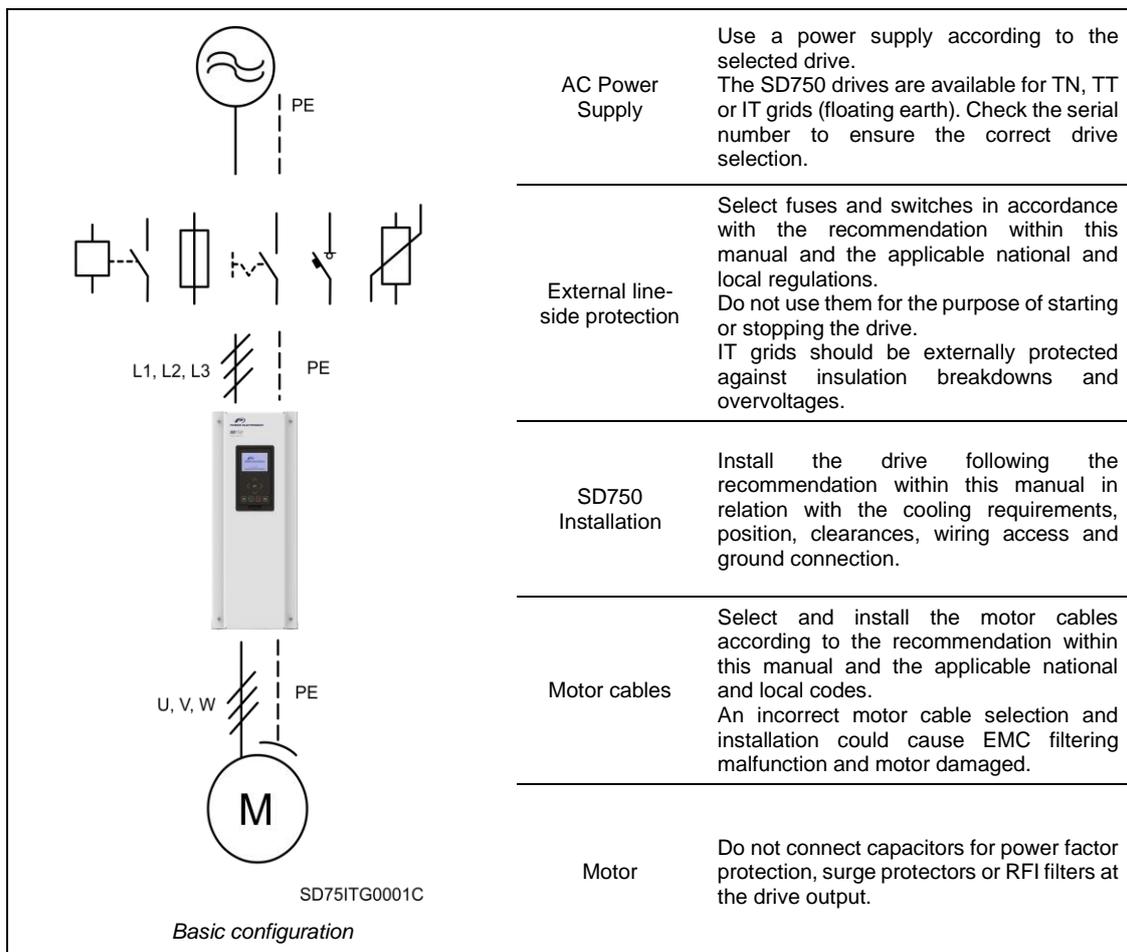


NOTICE

Consult the recommended tightening torque for both mechanical and electrical connections in section “[Torque and screw sizing](#)”.

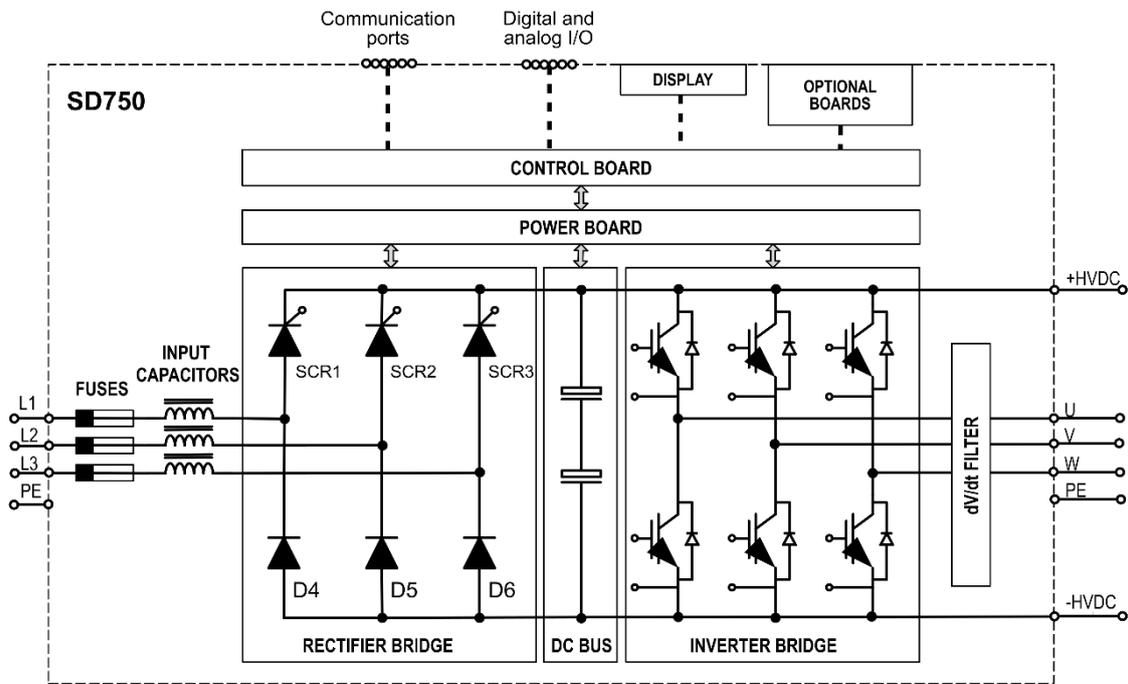
Basic configuration

Select the appropriate safety equipment and perform the wiring properly to ensure proper operation of the equipment. Incorrect application or installation can lead to malfunction of the drive and consequently reduce its life or damage its components. Read and understand this manual thoroughly before performing any operations.



Topology

The operating principle of the SD750 is the pulse width modulation (PWM). Varying the power supply voltage and the grid frequency, it is possible to control the speed and torque of the connected induction three-phase motors thanks to its main components: rectifier bridge, the DC bus, inverter bridge, and power and control card.



SD75DTG0001AI

General Block Scheme for frames 5 to 11

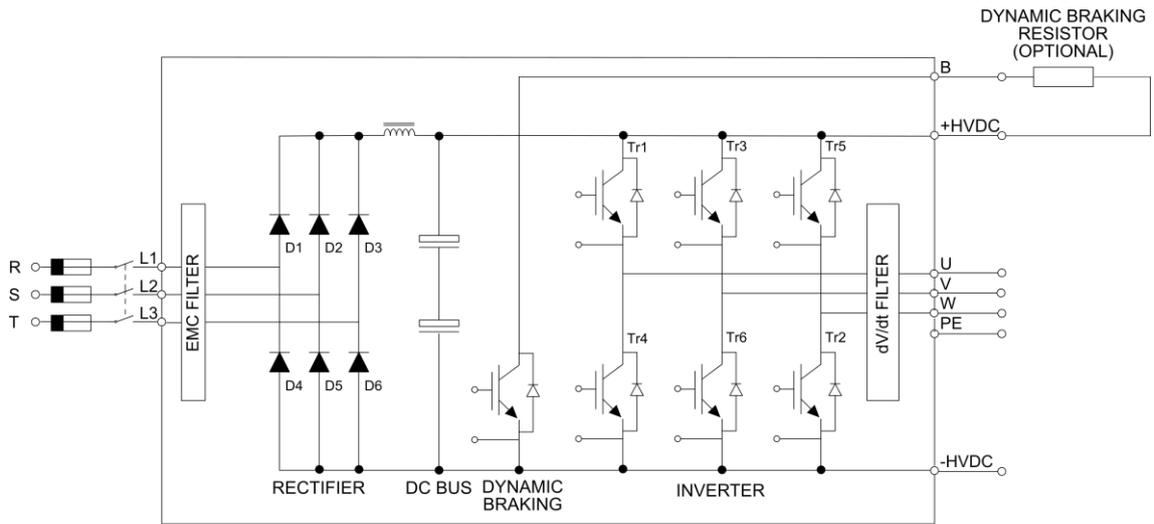
The SD750 drive is equipped with an input filter. This input filter significantly reduces the THDi values and increases line impedance, thus protecting the drive from electrical system distortions. Depending on the frame, the input filter is connected to the input or to the DC bus. From frames 3 to 11 the filter is installed in the input side. In frames 1 and 2 the filter is installed on the DC bus (see figure "Power electronics for Frames 1 and 2 equipment").

Frames 5 to 11 integrate as standard ultra-fast fuses that protect the drive against downstream overcurrents. Additionally, the drive integrates multiple electrical protections that protect the drive and the motor, similar to those provided by a motor protection relay.

The SD750 drive includes a power and a control board that are responsible for the rectifier bridge trip, inverter bridge trip, soft load management, DC bus voltage control and motor operation. In addition, the control card integrates terminals such as communication ports, digital and analogue inputs and outputs, colour touch-screen display, alphanumeric display, etc.

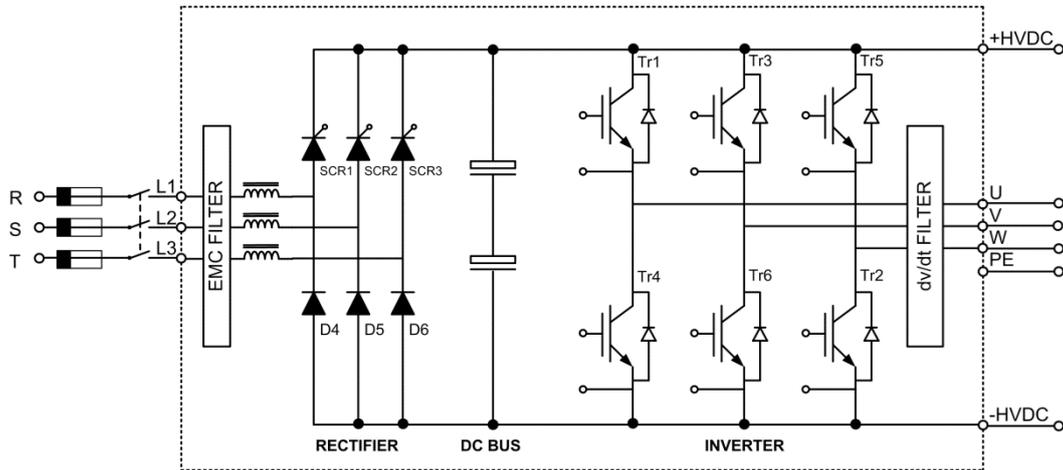
The inverter bridge generates the PWM wave that controls the motor response (voltage, current, torque, etc.). The Power Electronics SD750 series integrates as standard dV/dt filters and a CLAMP system that reduces significantly the rise time (dV/dt) below 500V/μs - 800V/μs, therefore, it reduces the voltage peaks in the motor windings, the common mode currents and the EMC emissions.

The following schemes illustrate the SD750 internal power structure.



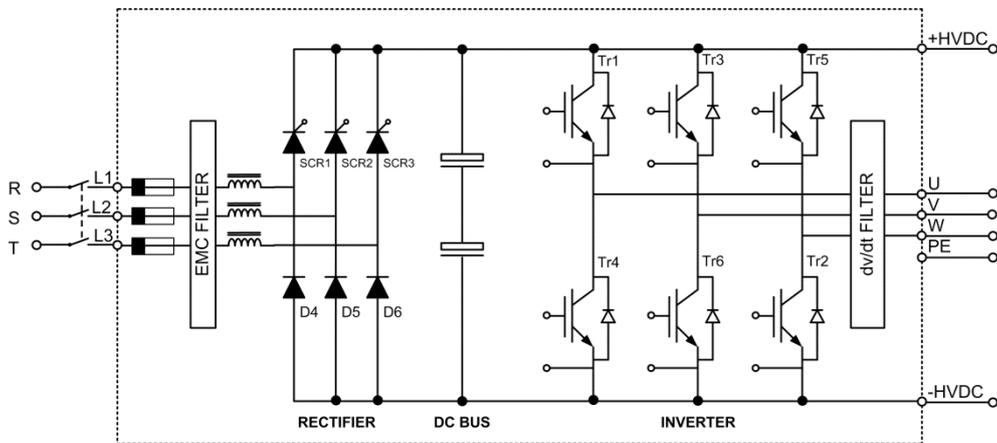
SD75DTP001AI

SD750 frames 1 and 2 power electronics.



SD70DTP0001BI

SD750 frames 3 and 4 power electronics



SD70DTP0002CI

SD750 frames 5 to 11 power electronics

Power connection



CAUTION

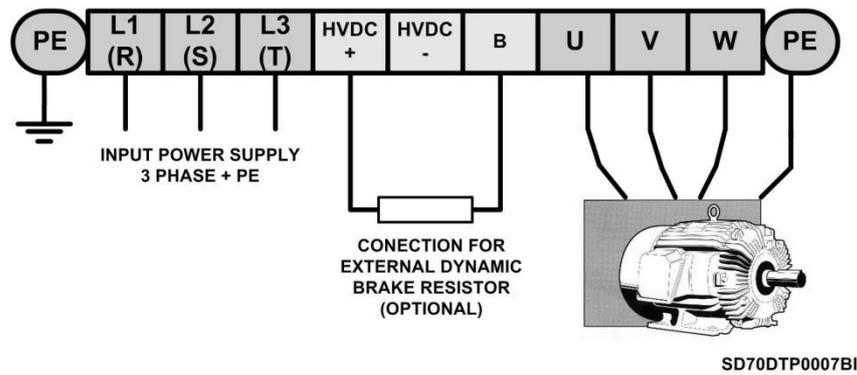
The following installation recommendations are suitable for TN and TT grids. For IT grids refer the dedicated section. Otherwise, you could cause damage to equipment and personnel.

Wiring and periodic inspections should be performed at least 10 minutes after disconnecting the input power. When removing the front cover, check that the red DC Link LED is off. Afterwards you can remove the metal cover and check with a multimeter the following measures:

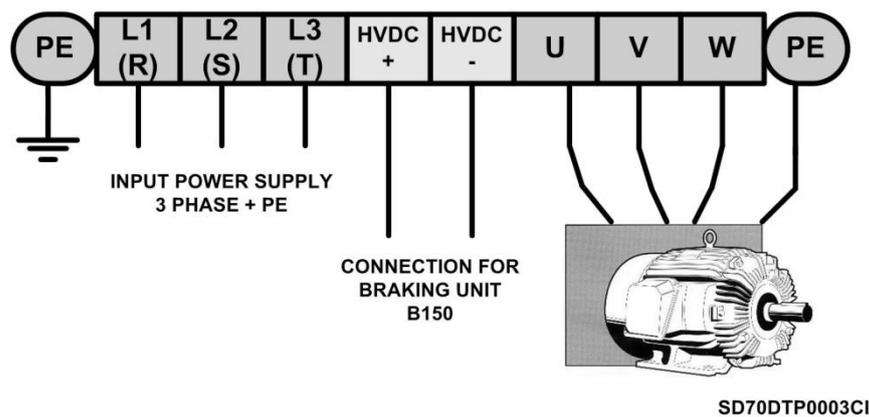
- The voltage between the output plates U, V, W and the cabinet must be around 0V.
- The voltage between the DC link +, - terminals and the chassis must be below 30Vdc.

Otherwise, you may get an electric shock.

The input and output busbars are labelled according to the following diagram.



Power wiring connection for frames 1 and 2



Power wiring connection for frames 3 to 11



NOTICE

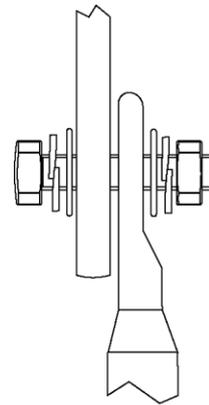
To perform the fiber optic connections between modules, refer to the manual of the fiber optic board (SD75MA07).

The input terminals L1, L2, L3 and PE (drive power supply), output terminals U, V, W and PE (motor power supply) must be introduced through the metal plates situated in the bottom part of the cabinet. Do not drill or mechanize the vents. Otherwise, the drive could reduce its cooling capacity.

The front metal panel corresponds to the motor cables and the rear metal panel to the input cables; these panels are not delivered neither drilled nor pre-marked to enable any configuration. Each cable must be equipped with its own cable gland or grommet that prevent dust or moisture from entering the equipment.

To perform a correct terminals connection, follow the next steps.

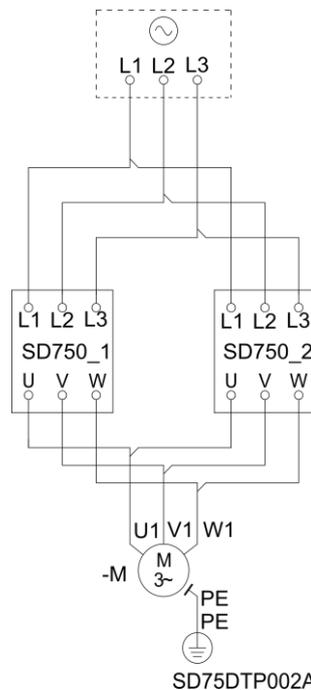
- Refer to section "[Power terminals](#)" for recommended screws and washers metrics, as well as recommended torque.
- The number of busbars depends on the frame size. Check the "[Power terminals](#)" section.
- Before connecting the cables, clean the contact surface with a clean cloth and ethanol cleaner.
- Use a pressure washer and a flat washer between the nut or bolt head and the terminal lug.
- Use copper or aluminium conductors that withstand a voltage of 1000Vac for equipment with rated voltage up to 690Vac.



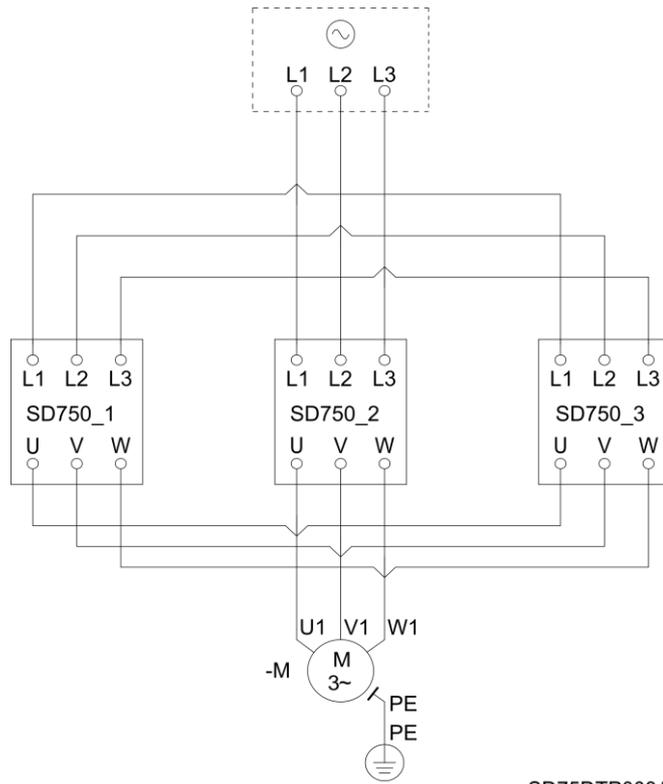
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Power connection for 6 pulses

In the case of 6 pulses frames 9 to 11, power connections must be made as shown in the following diagrams.

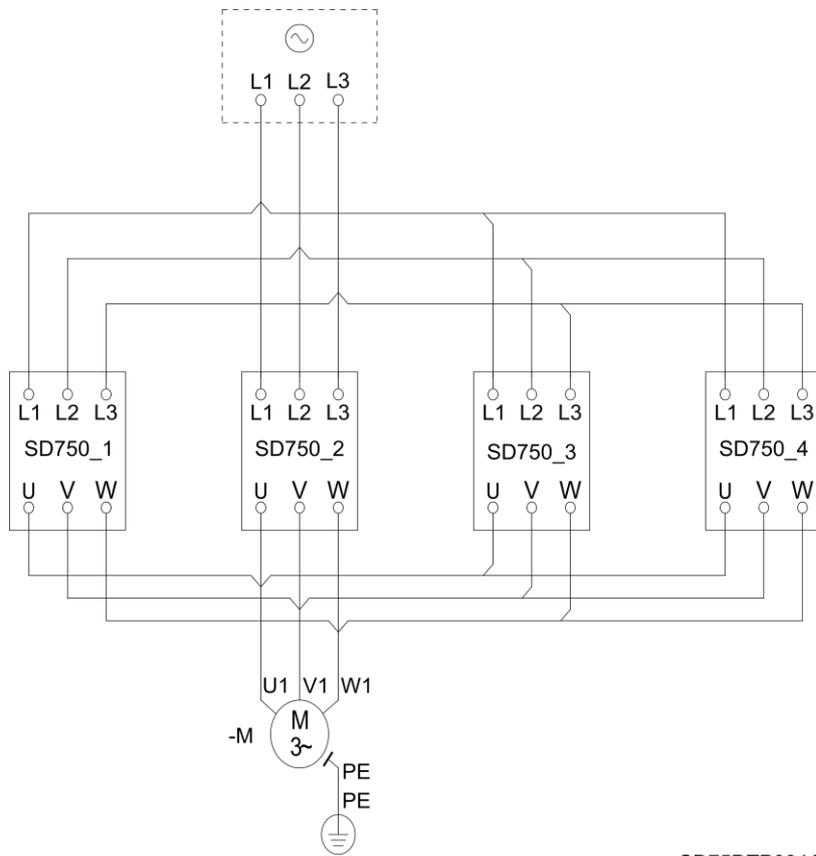


Power wiring connection for variable speed drives composed of two modules of 6 pulses frames 9 to 11



SD75DTP003A

Power wiring connection for variable speed drives composed of three modules of 6 pulses frames 9 to 11



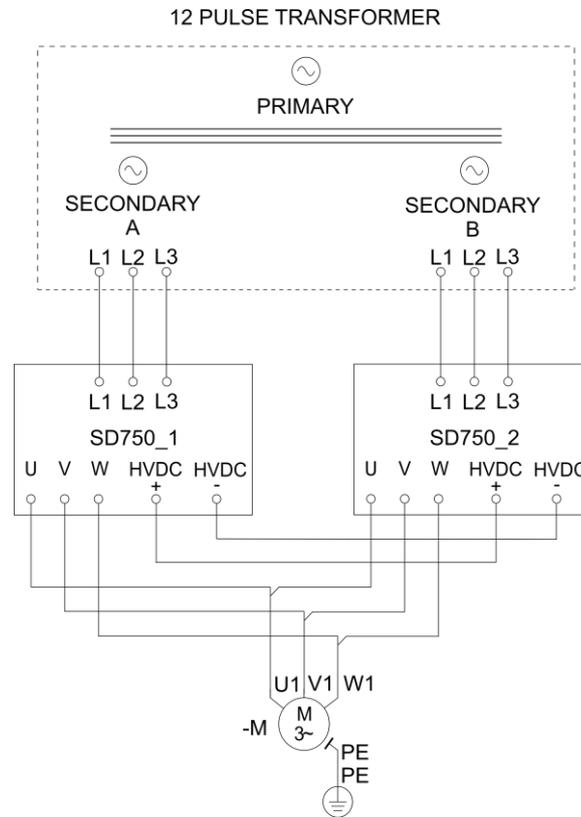
SD75DTP004A

Power wiring connection for variable speed drives composed of four modules of 6 pulses frames 9 to 11

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Power connection for multipulses (12, 18 and 24)

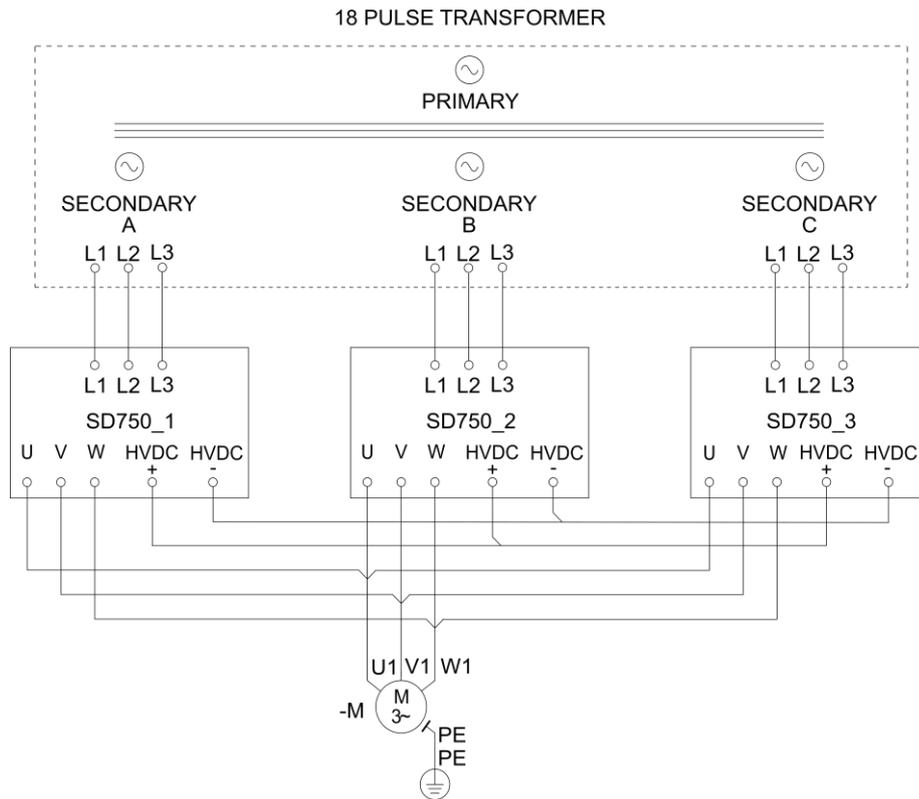
In the case of multipulses frames 9 to 11, power connections must be made as shown in the following diagrams and tables.



Power wiring connection for variable speed drives composed of two modules of multipulses frames 9 to 11

Depending on the transformer primary connection type, the secondary connection type varies:

PRIMARY	SECONDARY		
CONNECTION	SECONDARY	CONNECTION	DEGREES
Y	A	Y	0
	B	Δ	30
Δ	A	Δ	0
	B	Y	30



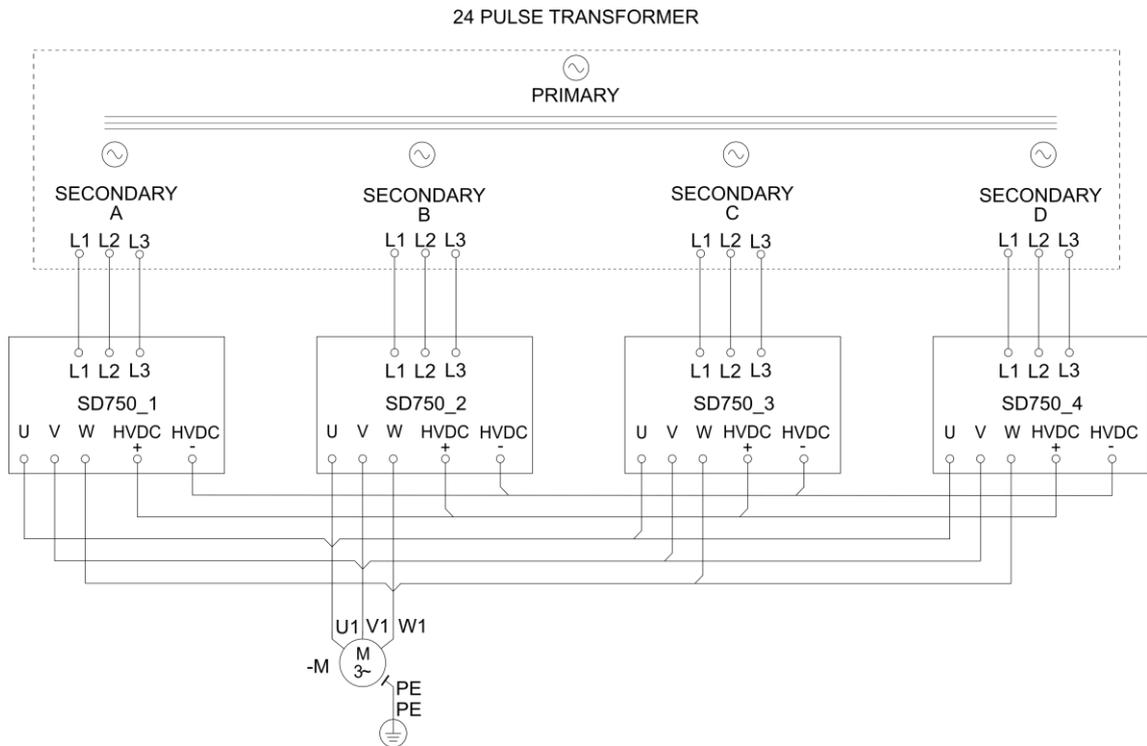
EN

SD75DTP006BI

Power wiring connection for variable speed drives composed of three modules of multipulses frames 9 to 11

Depending on the transformer primary connection type, the secondary connection type varies:

PRIMARY	SECONDARY		
CONNECTION	SECONDARY	CONNECTION	DEGREES
Y	A	Z	-20
	B	Y	0
	C	Z	20
Δ	A	Δ	0
	B	Z	-20
	C	Z	-40



Power wiring connection for variable speed drives composed of four modules of multipulses frames 9 to 11

Depending on the transformer primary connection type, the secondary connection type varies:

PRIMARY CONNECTION	SECONDARY		
	SECONDARY	CONNECTION	DECREES
Y	A	Z	-15
	B	Y	0
	C	Z	15
	D	Δ	30
Δ	A	Δ	0
	B	Z	-15
	C	Y	-30
	D	Z	-45

Note: Be aware that Power Electronics is responsible for the DC bus connection of multipulses frames 9 to 11.

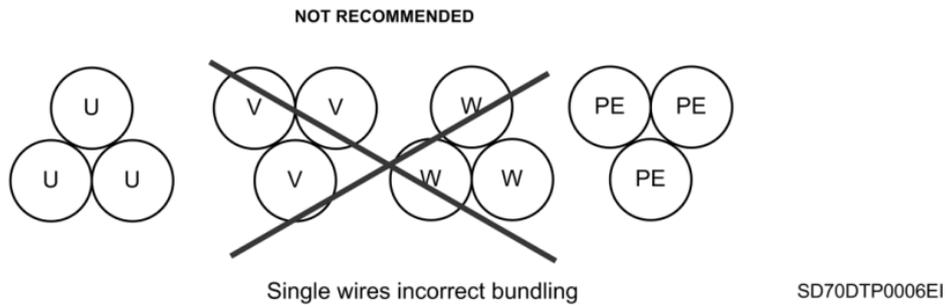
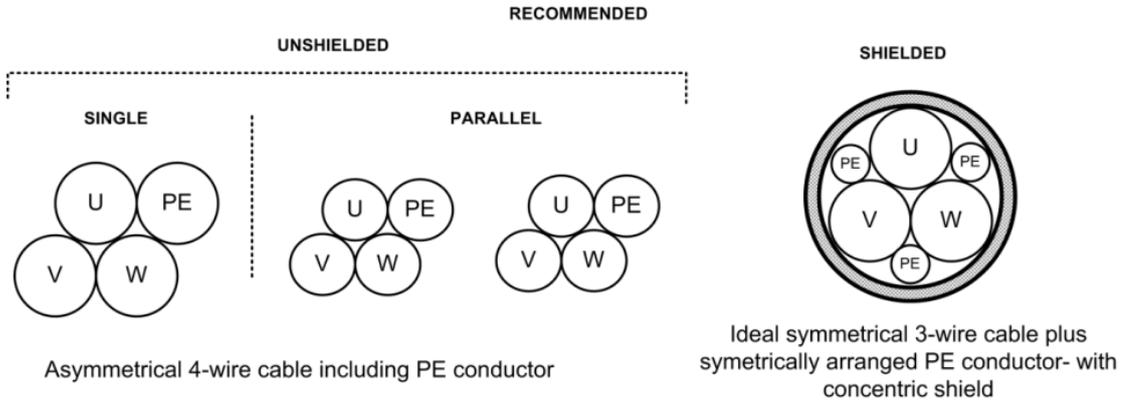
Wiring

The recommended cable types and lengths between the drive (with factory settings) and the motor are:

- **Unshielded cable:** 300m. Asymmetrical 4-wire cable including PE conductor. It is recommended to use a motor ground cable (PE) with a cross section equal or higher than the supply motor wires cross section (U, V, W). When single-wire cables are used in three-phase systems, the three phase conductors must be bundled symmetrically.
- **Shielded cable:** 150m. Symmetrical 3-wire cable with PE conductor- with concentric shield. To implement an effective shield bonding, an EMC cable gland should be used in both the motor junction box and the drive cabinet to ensure effective 360° ground connection and a low impedance path for high frequency current. Refer to "[EMC installation requirements](#)" section.

Wiring grouping

The following figures show the recommended cable type and bundling.

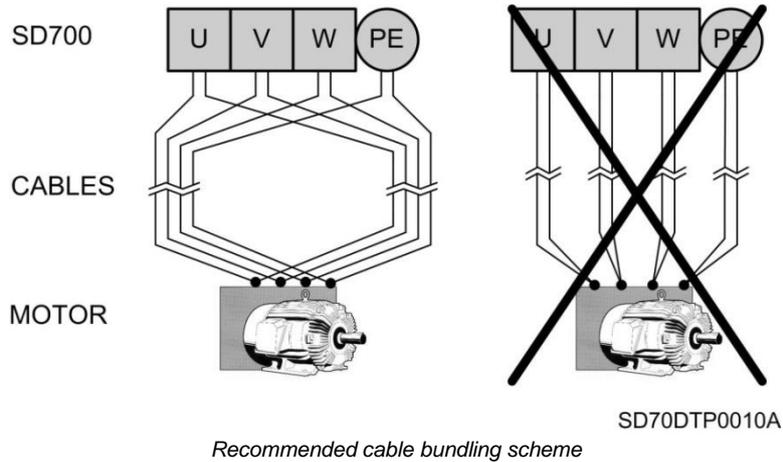


Recommended cable type and bundling



NOTICE

The number of three phase plus neutral cable hose (U, V, W, PE) to the motor should be equal to the number of IGBTs in the drive, having one 4-wire cable hose by each IGBTs block.



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CAUTION

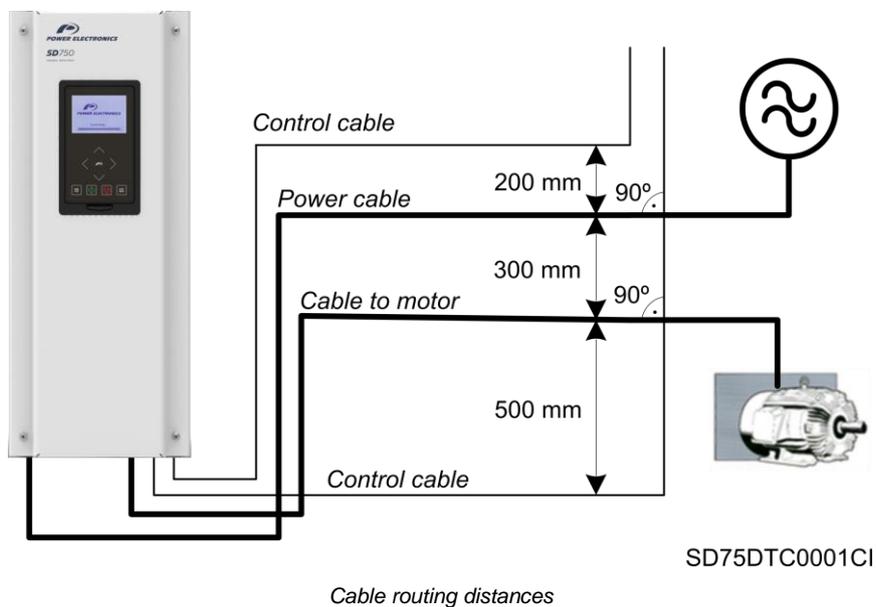
Line voltage (input supply) must never be connected to U, V and W terminals.
Otherwise, the drive may get be damaged.

It is absolutely necessary that the installer ensures correct compliance with the laws and regulations in force in the countries or areas where the drive is to be installed.

Do not use capacitors for power factor correction, surge suppressors or RFI filters on the output side of the drive. Doing so may damage these components or the drive itself.

Minimum distances between wires

All power conductors such as power input cables, output cables to the motor or DC link cables must be separated from the control, signal, PTC, encoder or data cables. The recommended distances between the cables are shown in the next figure:



Power Electronics recommends installing separately the following circuits, whether in cable racks, trays or in different wire ducts:

- Single-wire signal or data cables with $V < 60V$
- Single-wire cables with $60V < V < 230V$
- Input power cables with a low level of interferences $230V < V < 1000V$
- Output power cables to the motor and dynamic DC brake with a high level of interference $230V < V < 1000V$.
- Medium voltage cables with $V < 1000V$

Reference cable section

Power cables must have a sufficient nominal current to prevent important wiring overheating and voltage drops. It is only permitted the use of copper or aluminum cables. **Please check the maximum cable section and the available holes per phase in section “[Power terminals](#)”.**

The following tables show the **reference cable section** for each SD750 frame, based on the internal drive sections. **The installer must consider the cable cross-section, cable type, wiring method and ambient conditions to select the appropriate cable to be installed between the drive and the motor.**

Note: The cable must permanently support a $T^a > 75^\circ\text{C}$. Use cable of 1000Vac (e.g. RV-K) for all equipment (400 to 690 Vac). **Make sure to comply with local regulations.**

The reference cable section for 9, 10 and 11 frames is defined as follows:

$$\text{modules} \times (\text{phases} \times (\text{active conductors per phase} \times \text{section}))$$

400Vac – 6 pulses

FRAME	CODE	I(A) rated at 40°C	I(A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
1	SD75S0006 5BCDE	6	6	3x(1x6)	6
	SD75S0008 5BCDE	8	9	3x(1x6)	6
	SD75S0011 5BCDE	11	14	3x(1x6)	6
	SD75S0015 5BCDE	15	18	3x(1x6)	6
	SD75S0024 5BCDE	24	27	3x(1x6)	6
	SD75S0030 5BCDE	30	36	3x(1x10)	10
2	SD75S0040 5BCDE	40	48	3x(1x16)	16
	SD75S0048 5BCDE	48	57	3x(1x25)	25
	SD75S0060 5BCDE	60	72	3x(1x35)	35
3	SD75S0075 5BCDE	75	90	3x(1x35)	35
	SD75S0095 5BCDE	95	113	3x(1x35-50)	35-50
	SD75S0110 5BCDE	110	135	3x(1x50-95)	50-95
	SD75S0145 5BCDE	145	173	3x(1x70-120)	70-120
4	SD75S0180 5BCDE	180	225	3x(1x95-150)	95-150
	SD75S0200 5BCDE	200	255	3x(1x120-240)	120-240
5	SD75S0260 5BCDE	260	315	3x(1x185-240)	185-240
	SD75S0320 5BCDE	320	375	3x(2x150)	2x150
6	SD75S0400 5BCDE	400	495	3x(2x185)	2x185
	SD75S0450 5BCDE	450	555	3x(2x240)	2x240
	SD75S0570 5BCDE	570	690	3x(2x240)	2x240
7	SD75S0700 5BCDE	700	870	3x(2x240)	2x240
	SD75S0800 5BCDE	800	975	3x(3x240)	3x240
	SD75S0900 5BCDE	900	1080	3x(3x240)	3x240
8	SD75S1050 5BCDE	1050	1260	3x(4x240)	4x240
	SD75S1140 5BCDE	1140	1388	3x(4x240)	4x240
9	SD75S1400 5BCDE	1400	1725	3x(6x240)	6x240
	SD75S1550 5BCDE	1550	1890	2x(3x(3x240))	3x240
	SD75S1800 5BCDE	1800	2160	2x(3x(4x240))	4x240
10	SD75S1950 5BCDE	1950	2370	2x(3x(4x240))	4x240
	SD75S2250 5BCDE	2250	2700	2x(3x(6x240))	6x240
11	SD75S2750 5BCDE	2750	3300	3x(3x(4x240))	4x240
	SD75S3100 5BCDE	3100	3750	3x(3x(4x240))	4x240

400Vac – multipulses (12, 18 and 24)

N° PULSES	FRAME	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
12	9	SD751550 5BCDE	1550	1890	2x(3x(3x240))	3x240
		SD751800 5BCDE	1800	2160	2x(3x(4x240))	4x240
		SD751950 5BCDE	1950	2370	2x(3x(4x240))	4x240
	10	SD752250 5BCDE	2250	2700	2x(3x(6x240))	6x240
		SD752750 5BCDE	2750	3300	4x(3x(3x240))	3x240
	11	SD753100 5BCDE	3100	3750	4x(3x(3x240))	3x240
18	9	SD751550 5BCDE	1550	1890	3x(3x(2x240))	2x240
		SD751800 5BCDE	1800	2160	3x(3x(2x240))	2x240
		SD751950 5BCDE	1950	2370	3x(3x(2x240))	2x240
	10	SD752250 5BCDE	2250	2700	3x(3x(3x240))	3x240
		SD752750 5BCDE	2750	3300	3x(3x(4x240))	4x240
	11	SD753100 5BCDE	3100	3750	3x(3x(4x240))	4x240
24	9	SD751550 5BCDE	1550	1890	4x(3x(2x240))	2x240
		SD751800 5BCDE	1800	2160	4x(3x(2x240))	2x240
		SD751950 5BCDE	1950	2370	4x(3x(2x240))	2x240
	10	SD752250 5BCDE	2250	2700	4x(3x(2x240))	2x240
		SD752750 5BCDE	2750	3300	4x(3x(3x240))	3x240
	11	SD753100 5BCDE	3100	3750	4x(3x(3x240))	3x240

440Vac – 6 pulses

FRAME	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
1	SD75S0006 5BCDE	5	6	3x(1x6)	6
	SD75S0008 5BCDE	7	8	3x(1x6)	6
	SD75S0011 5BCDE	10	13	3x(1x6)	6
	SD75S0015 5BCDE	14	16	3x(1x6)	6
	SD75S0024 5BCDE	22	25	3x(1x6)	6
	SD75S0030 5BCDE	27	33	3x(1x10)	10
	SD75S0040 5BCDE	36	44	3x(1x16)	16
2	SD75S0048 5BCDE	44	52	3x(1x25)	25
	SD75S0060 5BCDE	55	65	3x(1x35)	35
	SD75S0075 5BCDE	68	82	3x(1x35)	35
3	SD75S0095 5BCDE	86	103	3x(1x35-50)	35-50
	SD75S0110 5BCDE	100	123	3x(1x50-95)	50-95
	SD75S0145 5BCDE	132	157	3x(1x70-120)	70-120
	SD75S0180 5BCDE	164	205	3x(1x95-150)	95-150
4	SD75S0200 5BCDE	182	232	3x(1x120-240)	120-240
	SD75S0260 5BCDE	236	286	3x(1x185-240)	185-240
5	SD75S0320 5BCDE	291	341	3x(2x150)	2x150
	SD75S0400 5BCDE	364	450	3x(2x185)	2x185
6	SD75S0450 5BCDE	409	505	3x(2x240)	2x240
	SD75S0570 5BCDE	518	627	3x(2x240)	2x240
	SD75S0700 5BCDE	636	791	3x(2x240)	2x240
7	SD75S0800 5BCDE	727	886	3x(3x240)	3x240
	SD75S0900 5BCDE	818	982	3x(3x240)	3x240
	SD75S1050 5BCDE	955	1145	3x(4x240)	4x240
8	SD75S1140 5BCDE	1036	1262	3x(4x240)	4x240
	SD75S1400 5BCDE	1273	1568	3x(6x240)	6x240
9	SD75S1550 5BCDE	1409	1718	2x(3x(3x240))	3x240
	SD75S1800 5BCDE	1636	1964	2x(3x(4x240))	4x240
	SD75S1950 5BCDE	1773	2155	2x(3x(4x240))	4x240
10	SD75S2250 5BCDE	2045	2455	2x(3x(6x240))	6x240
	SD75S2750 5BCDE	2500	3000	3x(3x(4x240))	4x240
11	SD75S3100 5BCDE	2818	3409	3x(3x(4x240))	4x240

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480Vac – 6 pulses

FRAM E	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
1	SD75S0006 5BCDE	5	6	3x(1x6)	6
	SD75S0008 5BCDE	7	8	3x(1x6)	6
	SD75S0011 5BCDE	9	12	3x(1x6)	6
	SD75S0015 5BCDE	13	15	3x(1x6)	6
	SD75S0024 5BCDE	20	23	3x(1x6)	6
	SD75S0030 5BCDE	25	30	3x(1x10)	10
	SD75S0040 5BCDE	33	40	3x(1x16)	16
2	SD75S0048 5BCDE	40	48	3x(1x25)	25
	SD75S0060 5BCDE	50	60	3x(1x35)	35
	SD75S0075 5BCDE	63	75	3x(1x1x35)	50
3	SD75S0095 5BCDE	79	94	3x(1x35-50)	35-50
	SD75S0110 5BCDE	92	113	3x(1x50-95)	50-95
	SD75S0145 5BCDE	121	144	3x(1x70-120)	70-120
	SD75S0180 5BCDE	150	188	3x(1x95-150)	95-150
4	SD75S0200 5BCDE	167	213	3x(1x120-240)	120-240
	SD75S0260 5BCDE	217	263	3x(1x185-240)	185-240
5	SD75S0320 5BCDE	267	313	3x(2x150)	2x150
	SD75S0400 5BCDE	333	413	3x(2x185)	2x185
6	SD75S0450 5BCDE	375	463	3x(2x240)	2x240
	SD75S0570 5BCDE	475	575	3x(2x240)	2x240
	SD75S0700 5BCDE	583	725	3x(2x240)	2x240
7	SD75S0800 5BCDE	667	813	3x(3x240)	3x240
	SD75S0900 5BCDE	750	900	3x(3x240)	3x240
	SD75S1050 5BCDE	875	1050	3x(4x240)	4x240
8	SD75S1140 5BCDE	950	1157	3x(4x240)	4x240
	SD75S1400 5BCDE	1167	1438	3x(6x240)	6x240
9	SD75S1550 5BCDE	1292	1575	2x(3x(3x240))	3x240
	SD75S1800 5BCDE	1500	1800	2x(3x(4x240))	4x240
	SD75S1950 5BCDE	1625	1975	2x(3x(4x240))	4x240
10	SD75S2250 5BCDE	1875	2250	2x(3x(6x240))	6x240
	SD75S2750 5BCDE	2292	2750	3x(3x(4x240))	4x240
11	SD75S3100 5BCDE	2583	3125	3x(3x(4x240))	4x240

525Vac – 6 pulses

FRAME	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
3 ¹	SD75S0055 6BCDE	55	63	3x(1x25)	25
	SD75S0065 6BCDE	65	78	3x(1x35)	35
	SD75S0075 6BCDE	75	93	3x(1x35-50)	35-50
4 ¹	SD75S0100 6BCDE	100	120	3x(1x50-95)	50-95
	SD75S0120 6BCDE	120	157	3x(1x70-120)	70-120
5	SD75S0160 6BCDE	160	195	3x(1x95-150)	95-150
	SD75S0180 6BCDE	180	225	3x(1x120-240)	120-240
	SD75S0210 6BCDE	210	255	3x(1x185-240)	185-240
6	SD75S0250 6BCDE	250	315	3x(2x150)	2x150
	SD75S0310 6BCDE	310	390	3x(2x185)	2x185
	SD75S0400 6BCDE	400	480	3x(2x240)	2x240
7	SD75S0480 6BCDE	480	578	3x(2x240)	2x240
	SD75S0570 6BCDE	570	690	3x(3x240)	3x240
8	SD75S0680 6BCDE	680	825	3x(4x240)	4x240
	SD75S0825 6BCDE	825	990	3x(4x240)	4x240
9 ¹	SD75S0930 6BCDE	930	1125	2x(3x(2x240))	2x240
	SD75S1050 6BCDE	1050	1260	2x(3x(2x240))	2x240
	SD75S1200 6BCDE	1200	1425	2x(3x(2x240))	2x240
10 ¹	SD75S1400 6BCDE	1400	1710	2x(3x(3x240))	3x240
	SD75S1550 6BCDE	1550	1905	3x(3x(2x240))	2x240
	SD75S1750 6BCDE	1750	2130	3x(3x(2x240))	2x240
11 ¹	SD75S1850 6BCDE	1850	2250	3x(3x(2x240))	2x240
	SD75S2200 6BCDE	2200	2700	3x(3x(3x240))	3x240
	SD75S2500 6BCDE	2500	3000	4x(3x(2x240))	2x240

EN

¹ Consult availability with Power Electronics.

600Vac – 6 pulses

FRAME	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
3 ¹	SD75S0055 6BCDE	55	63	3x(1x25)	25
	SD75S0065 6BCDE	65	78	3x(1x35)	35
	SD75S0075 6BCDE	75	93	3x(1x35-50)	35-50
4 ¹	SD75S0100 6BCDE	100	120	3x(1x70-120)	70-120
	SD75S0120 6BCDE	120	157	3x(1x70-120)	70-120
5	SD75S0160 6BCDE	160	195	3x(1x95-150)	95-150
	SD75S0180 6BCDE	180	225	3x(1x120-240)	120-240
	SD75S0210 6BCDE	210	255	3x(1x185-240)	185-240
6	SD75S0250 6BCDE	250	315	3x(2x150)	2x150
	SD75S0310 6BCDE	310	390	3x(2x185)	2x185
	SD75S0400 6BCDE	400	480	3x(2x240)	2x240
7	SD75S0480 6BCDE	480	578	3x(2x240)	2x240
	SD75S0570 6BCDE	570	690	3x(3x240)	3x240
8	SD75S0680 6BCDE	680	825	3x(4x240)	4x240
	SD75S0825 6BCDE	825	990	3x(4x240)	4x240
9 ¹	SD75S0930 6BCDE	930	1125	2x(3x(2x240))	2x240
	SD75S1050 6BCDE	1050	1260	2x(3x(2x240))	2x240
	SD75S1200 6BCDE	1200	1425	2x(3x(2x240))	2x240
10 ¹	SD75S1400 6BCDE	1400	1710	2x(3x(3x240))	3x240
	SD75S1550 6BCDE	1550	1905	3x(3x(2x240))	2x240
	SD75S1750 6BCDE	1750	2130	3x(3x(2x240))	2x240
11 ¹	SD75S1850 6BCDE	1850	2250	3x(3x(2x240))	2x240

¹ Consult availability with Power Electronics.

690Vac – 6 pulses

FRAME	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
3 ¹	SD75S0055 6BCDE	55	63	3x(1x25)	25
	SD75S0065 6BCDE	65	78	3x(1x35)	35
	SD75S0075 6BCDE	75	93	3x(1x35-50)	35-50
4 ¹	SD75S0100 6BCDE	100	120	3x(1x70-120)	70-120
	SD75S0120 6BCDE	120	157	3x(1x70-120)	70-120
5	SD75S0160 6BCDE	160	195	3x(1x70-120)	70-120
	SD75S0180 6BCDE	180	225	3x(1x70-120)	70-120
	SD75S0210 6BCDE	210	255	3x(1x95-150)	95-150
6	SD75S0250 6BCDE	250	315	3x(1x120-240)	120-240
	SD75S0310 6BCDE	310	390	3x(2x150)	2x150
	SD75S0400 6BCDE	400	480	3x(2x185)	2x185
7	SD75S0480 6BCDE	480	578	3x(2x240)	2x240
	SD75S0570 6BCDE	570	690	3x(2x240)	2x240
8	SD75S0680 6BCDE	680	825	3x(2x240)	2x240
	SD75S0825 6BCDE	825	990	3x(3x240)	3x240
9 ¹	SD75S0930 6BCDE	930	1125	2x(3x(2x240))	2x240
	SD75S1050 6BCDE	1050	1260	2x(3x(2x240))	2x240
	SD75S1200 6BCDE	1200	1425	2x(3x(2x240))	2x240
10 ¹	SD75S1400 6BCDE	1400	1710	2x(3x(3x240))	3x240
	SD75S1550 6BCDE	1550	1905	3x(3x(2x240))	2x240
	SD75S1750 6BCDE	1750	2130	3x(3x(2x240))	2x240
11 ¹	SD75S1850 6BCDE	1850	2250	3x(3x(2x240))	2x240
	SD75S2200 6BCDE	2200	2700	3x(3x(3x240))	3x240
	SD75S2500 6BCDE	2500	3000	4x(3x(2x240))	2x240

EN

¹ Consult availability with Power Electronics.

690Vac – multipulses (12, 18 and 24)

N° PULSES	FRAME	CODE	I(A) rated at 40°C	I (A) maximum at 40°C	Reference cable section (mm ²)	Reference cable section for ground cable (mm ²)
12	9	SD75S0930 6BCDE	930	1125	2x(3x(2x240))	2x240
		SD75S1050 6BCDE	1050	1260	2x(3x(2x240))	2x240
		SD75S1200 6BCDE	1200	1425	2x(3x(2x240))	2x240
	10	SD75S1400 6BCDE	1400	1710	2x(3x(3x240))	3x240
		SD75S1550 6BCDE	1550	1905	4x(3x(2x240))	2x240
		SD75S1750 6BCDE	1750	2130	4x(3x(2x240))	2x240
	11	SD75S1850 6BCDE	1850	2250	4x(3x(2x240))	2x240
		SD75S2200 6BCDE	2200	2700	4x(3x(2x240))	2x240
		SD75S2500 6BCDE	2500	3000	4x(3x(2x240))	2x240
18	9	SD75S0930 6BCDE	930	1125	3x(3x(2x185))	2X185
		SD75S1050 6BCDE	1050	1260	3x(3x(2x185))	2X185
		SD75S1200 6BCDE	1200	1425	3x(3x(2x240))	2x240
	10	SD75S1400 6BCDE	1400	1710	3x(3x(2x240))	2x240
		SD75S1550 6BCDE	1550	1905	3x(3x(2x240))	2x240
		SD75S1750 6BCDE	1750	2130	3x(3x(2x240))	2x240
	11	SD75S1850 6BCDE	1850	2250	3x(3x(2x240))	2x240
		SD75S2200 6BCDE	2200	2700	3x(3x(3x240))	3x240
		SD75S2500 6BCDE	2500	3000	6x(3x(2x240))	2x240
24	9	SD75S0930 6BCDE	930	1125	4x(3x(1x120))	1x120
		SD75S1050 6BCDE	1050	1260	4x(3x(2x150))	2x150
		SD75S1200 6BCDE	1200	1425	4x(3x(2x150))	2x150
	10	SD75S1400 6BCDE	1400	1710	4x(3x(2x185))	2x185
		SD75S1550 6BCDE	1550	1905	4x(3x(2x240))	2x240
		SD75S1750 6BCDE	1750	2130	4x(3x(2x240))	2x240
	11	SD75S1850 6BCDE	1850	2250	4x(3x(2x240))	2x240
		SD75S2200 6BCDE	2200	2700	4x(3x(2x240))	2x240
		SD75S2500 6BCDE	2500	3000	4x(3x(2x240))	2x240

Ground connection

Before connecting the power conductors, make sure that the chassis of the drive and the adjoining cabinets are connected to ground through the dedicated (PE) terminals. These are situated at both sides of the bottom metal walls of the drive and they are labeled with the earth symbol. Check section "[Power terminals](#)".

The motor chassis ground must be connected to the drive. In other words, connect the motor's ground conductor to the PE protection terminal of the drive and not to the installation's ground. It is recommended that the section of the motor ground conductor (PE) has at least the same cross section as the motor power cables sections (U, V, W). Additionally, it must be installed following the recommendations indicated in sections "[Power connection](#)" and "[Wiring](#)".

When connecting the earth, ensure that all connected cable terminals are properly tight and protected from mechanical forces.



CAUTION

For safety reasons, the earth resistance of the installation must be measured. This must be established before the first start up of the plant and with the drive disconnected.

It is the responsibility of the installer to provide the appropriate number, type and section of cables for the ground conductor in accordance with the characteristics of the equipment used and the plant to minimize ground resistance, which must comply with local and national regulations.

EN

EMC installation requirements

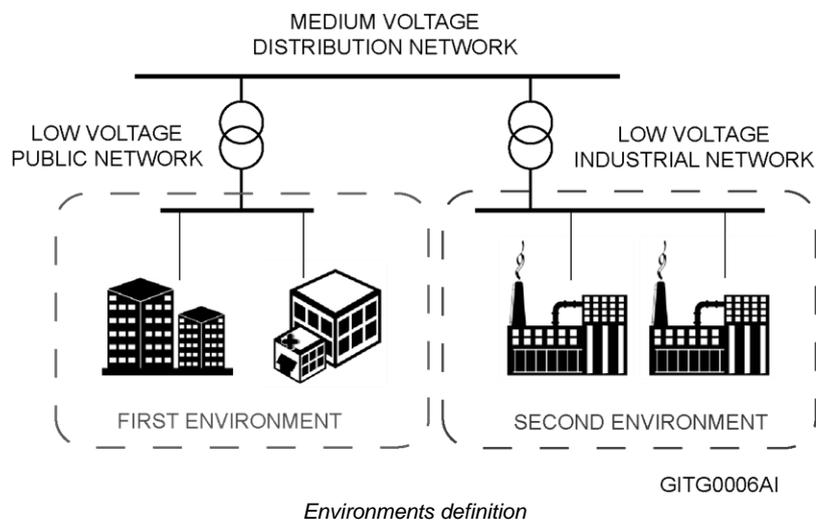
Introduction

The EMC European Directive defines electromagnetic compatibility as the capability of an apparatus, an industrial plant, or a system to work satisfactorily in the electromagnetic environment without at the same time causing electromagnetic disturbances in the apparatus, industrial plant or systems present in the same environment.

The Electromagnetic Compatibility (EMC) depends on two main characteristics of the equipment: Electromagnetic Interference (EMI) and Electromagnetic Susceptibility (EMS). The EMC standards aims to ensure that all the electrical equipment that could operate simultaneously in the same environment are compatible. This means that the interference immunity of all the devices is greater than the interference emission of all the devices within the same environment.

The EMC requirements for Power Drive System (PDS) are defined in IEC/EN 61800-3 standard that is included in the Declaration of conformity CE enclosed. In the European Union, EN61800-3 standard takes priority over all generic standards. The PDS in the context of this standard comprises the drive converter, the motor cables and the motor. Therefore, the installer as the ultimate responsible must follow the installation instructions given within this manual.

Depending on the location of the drive, the standards define four categories distributed in two environments.



- *First Environment:* Domestic installations. It also includes premises directly connected to a low-voltage power supply network without an intermediate transformer which supplies buildings used for domestic purposes such as shopping malls, cinemas, hospitals...
- *Second environment:* Industrial installations. Second Environment includes all plants other than those directly connected to the public low-voltage network which supplies buildings used for domestic purposes, e.g. factories and those other premises supplied by their own dedicated transformer.

The two environments are divided in four categories C1 to C4 that are summarized in the following table.

	FIRST ENVIRONMENT		SECOND ENVIRONMENT	
	C1	C2	C3	C4
Restricted Installation [1]	NO	YES	YES	YES [2]

Notes

[1] "Restricted Installation" means that the installation and commissioning must be carried out by specialist personnel.

[2] C4 Category applies only for complex systems or when ratings are equal or above to 1000 V or 400 A which are unable to comply with the limits of C3 Category. In these cases, C4 Category can be achieved by adjusting the equipment in situ and applying the EMC recommendations.

SD750 compliance

SD750 variable speed drives have been designed for the industrial use (Second Environment). The implementation of radio frequency interference filters (RFI filters) and dV/dt filters as standard, and the correct installation following the recommendations within this manual, permit to achieve compliance with C3 category defined in IEC/EN 61800-3.

Optionally, the SD750 drive with non-floating earth can be installed in residential areas (First Environment) by employing optional RFI filters that permit to achieve the C2 category.

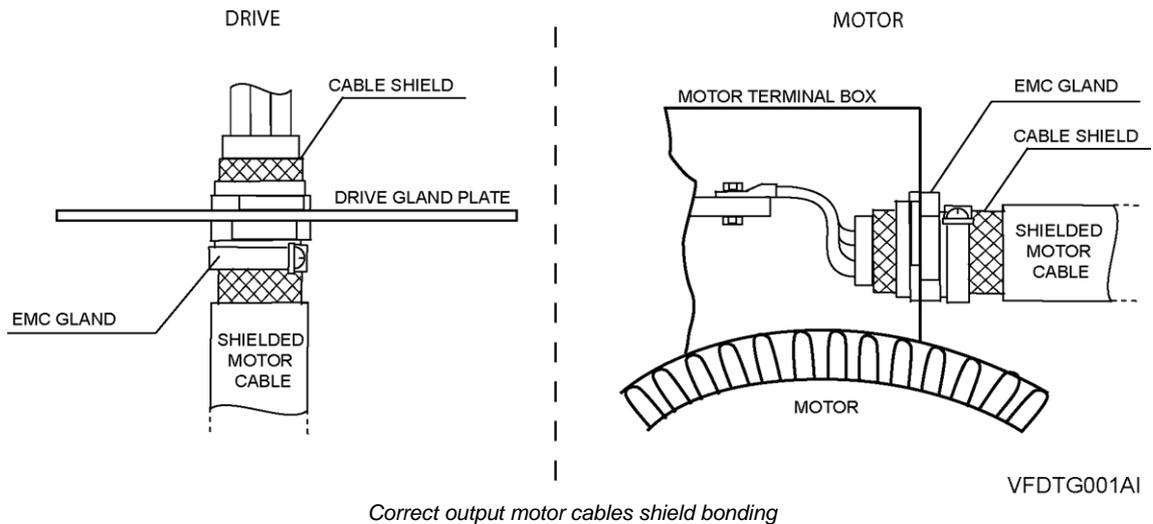
The SD750 is not a retail unit. It is neither a plug in device nor a movable device and it is intended to be installed and commissioned by qualified personnel. Therefore, C1 category will not be required.

The SD750 with floating earth configuration can be installed in industrial (Second Environment) IT grids. Although it does not integrate RFI filters, following the installation recommendations within this manual and with its integrated dV/dt filter, it achieves the C3 category defined in IEC/EN61800-3.

Connection

The SD750 do not require the use of shielded motor cable to achieve compliance with C3 category when a correct installation is made. Wiring and Installation recommendations are included in sections "[Power connection](#)", "[Wiring](#)" and "[Ground connection](#)".

In shielded cables it is recommended to connect the shield by making 360° contact in both the drive cabinet and the motor terminal box. As an example, EMC cable glands can be installed as shown in the next figure.



It is recommended to use shielded cable for control signals and to follow recommendations included in section "[Wiring recommendations](#)".



CAUTION

Select communication and control system according to the drive EMC environment. Otherwise, systems could suffer from interferences due to a low EMS level.

Protections

Short circuit

The SD750 includes from frame 5 to 11 ultra-fast input protection fuses as standard. Frame 5 includes one fuse per phase with a rated current that depends on the drive's nominal current. From frame 6 upwards, the fuses per phase depend on the number of modules (frame 5) interconnected. The main characteristics of these fuses are shown in the following table.

FUSE CHARACTERISTICS						
I_n (A)	$I_c @ U_n$ (A)	$I^2t @ 1ms$ I^2t_p (A ² s)	$I^2t @ U_n$ (A ² s)	U_n (V)	Manufacturer	Model
350A	200kA	10500	55000	690VAC	FERRAZ-SHAWMUT	PC31UD69V350TF
450A	200kA	26500	140000	690VAC	FERRAZ-SHAWMUT	PC31UD69V450TF

However, it is not recommended to install the drive at points where the short-circuit current available is higher than 200kA. If necessary, install general fuses with a greater breaking capacity and with fastest overcurrent capacity.

380-500Vac		
FRAME	CODE	FUSES PER PHASE (In)
5	SD75S0320 5BCDE	1x350A
	SD75S0400 5BCDE	1x450A
6	SD75S0450 5BCDE	2x350A
	SD75S0570 5BCDE	2x350A
	SD75S0700 5BCDE	2x450A
7	SD75S0800 5BCDE	3x350A
	SD75S0900 5BCDE	3x350A
	SD75S1050 5BCDE	3x450A
8	SD75S1140 5BCDE	4x350A
	SD75S1400 5BCDE	4x450A
9	SD75S1550 5BCDE	6x350A
	SD75S1800 5BCDE	6x350A
	SD75S1950 5BCDE	6x450A
10	SD75S2250 5BCDE	9x350A
	SD75S2750 5BCDE	9x450A
11	SD75S3100 5BCDE	12x350A

Recommended protections for drives Frame 1 to Frame 4 are shown up next; they do not integrate fuses. However, it should be noticed that the equipment installer must calculate the appropriate protection for the application considering that the fuse complies with the following requirements:

- Ultra-fast operation
- Class aR according to VDE 636-23 and IEC 60269-4.
- Recommended for drive protection use.

400-500 Vac		
FRAME	CODE	FUSE CALIBER In
1	SD75S0006 5BCDE	16
	SD75S0008 5BCDE	16
	SD75S0011 5BCDE	16
	SD75S0015 5BCDE	20
	SD75S0024 5BCDE	25
	SD75S0030 5BCDE	40
	SD75S0040 5BCDE	50
2	SD75S0048 5BCDE	63
	SD75S0060 5BCDE	80
	SD75S0075 5BCDE	100
3	SD75S0095 5BCDE	125
	SD75S0110 5BCDE	160
	SD75S0145 5BCDE	200
4	SD75S0180 5BCDE	250
	SD75S0200 5BCDE	250
	SD75S0260 5BCDE	315

EN

Ground fault protection

The drive is equipped with an internal software that protect the motor and the drive against input and output unbalanced currents. For further information, see Programming and Software Manual.

This function is not intended to protect people against direct or indirect contacts or against fire, so an external protection must be provided to ensure that a substantial ground fault current is promptly interrupted. The SD750 drives are suitable to operate with RCD components Type B, if it is required. The EMC / EMC filters and motor cable lengths increase the earth leakage currents, so the protection range is set according to the installation conditions. For additional information, contact Power Electronics.

Motor thermal protection

The drive includes a motor thermal protection based on the motor performance parameters which mathematically calculates the remaining heating capacity in the motor. When this reservoir is reduced below the limits, this is, the motor temperature approaches the maximum, the drive automatically stops the motor. For further information consult the Software and Programming Manual.

The drive includes as standard a PTC connection that permits monitor the motor temperature. Once connected and configured, the drive could either stop the motor or generate a warning signal.

Other protections

Apart from the protections mentioned above, the drive implements additional protections such as Temporary loss of power, automatic re-start, high and low input and output voltage, overload or underload of the pump, etc. For further information, consult the Software and Programming Manual.

Safety Stop Function – STO (Safe Torque Off)

The Safety Stop Function allows the drive's output to be disabled so that the drive cannot provide power or generate torque in the motor.

The Safe Torque Off function complies with EN ISO 13849-1 PLd and EN 61508 SIL3 (EN60204-1, stop category 0). This feature is standard and allows you to comply with current safety standards. For more information see section "[STO - Safe Torque Off](#)".

IT Grids – Floating earth drives

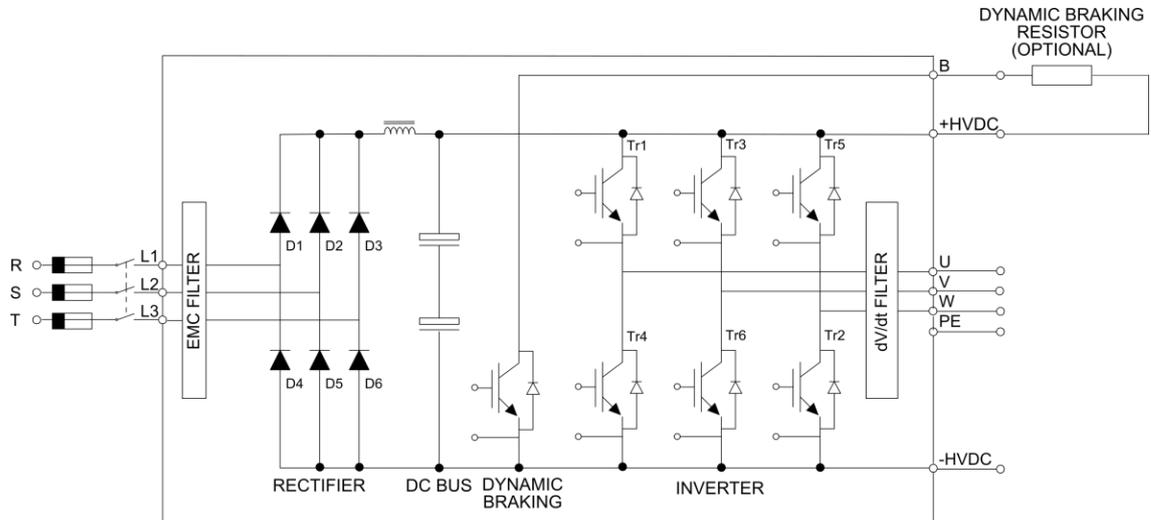
When planning an IT grid electrical installation select the drive for floating earth operation. Check the drive reference and make sure that the drive is suitable for this type of installations.

IT grids must be equipped with an insulation monitoring system. To adjust the parameters, consider that the drive has a very high impedance even if there is a large number of equipment working in parallel in the same IT network.

It is recommended the installation of lightning rods to ground in order to protect against transient overvoltages. The lightning rod must have a rated voltage greater than the drive rated voltage for the purpose of preventing its operation during normal conditions.

Dynamic braking resistors for equipment of Frames 1 and 2

Frames 1 and 2 equipment include the built-in dynamic brake as standard. The user should only connect a resistor between terminals +HVDC and B as the following drawing shows.



SD75DTP001AI



Resistor Values for Dynamic Brake (Optional)

FRAME	CODE	I(A) Rated	Motor Power (kW) at 400VAC	Dynamic Braking Resistor (Ω)	Power of Braking Resistor (kW)
1	SD75S0006 5BCDE	3	1,5	375	1,5
	SD75S0008 5BCDE	6	2,2	250	2,2
	SD75S0011 5BCDE	9	4	140	4
	SD75S0015 5BCDE	12	5,5	100	5,5
	SD75S0024 5BCDE	18	7,5	75	7,5
	SD75S0030 5BCDE	24	11	50	11
2	SD75S0040 5BCDE	32	15	40	15
	SD75S0048 5BCDE	38	18,5	30	18,5
	SD75S0060 5BCDE	48	22	25	22
	SD75S0075 5BCDE	60	30	18	30

Note: This table is based on a 100% enable duty (ED). For other EDs different from 100%, braking resistors with the same ohmic value shall be used and their power shall be calculated by multiplying the power of said resistance to 100% (value of the table) by the new ED. Enable Duty means the time the resistor is working (regeneration). Resistors for 100% of ED = continuous operation. For example, in case of ED of 30%, it will be multiplied by 0.3.

Terminals of the Resistor for Dynamic Brake

The terminals of the dynamic braking resistors are:

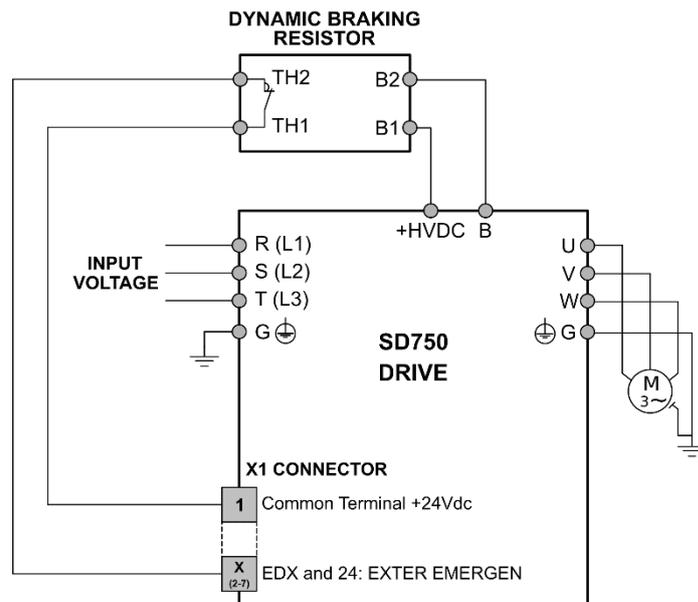
TERMINAL	DESCRIPTION
B1, B2	Connection terminals for connecting the resistor with the integrated dynamic brake terminals in the drive.
TH1, TH2 ^[1]	Thermal sensor of the resistor. The status will change according to the temperature. - For normal temperature (ambient): Normally closed (NC) (TH1 – TH2 closed contact). - In case of resistor over temperature: Normally open (NO) (TH1 – TH2 open contact). Connect this signal to a terminal of one digital input of the drive configured as 'external fault'.

^[1] Terminals TH1 and TH2 will be available when the used braking resistor is equipped with thermal sensor.

Note: It is recommended to use braking resistors equipped with thermal sensors. Connect the thermal sensor to one digital input of the drive and configure this input as 'external fault'.

Connection drawing

The following figure shows the connection between the optional external resistor for the built-in dynamic brake and the drive.



SD75DTF0001BI

Notes:

- The braking resistor should be non-inductive.
- To connect the sensor to the drive it is recommended to use shielded cable.
- The maximum cable length between the drive and the external braking resistor is 20m. For other configurations, contact Power Electronics.



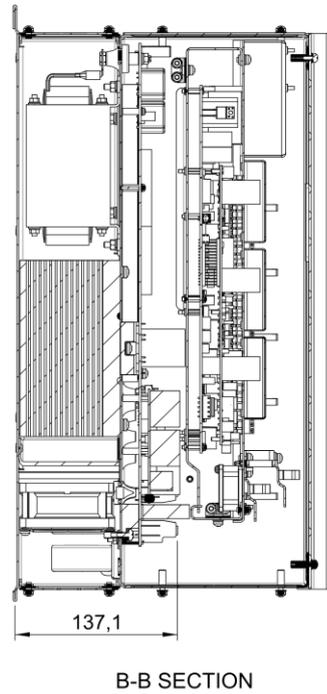
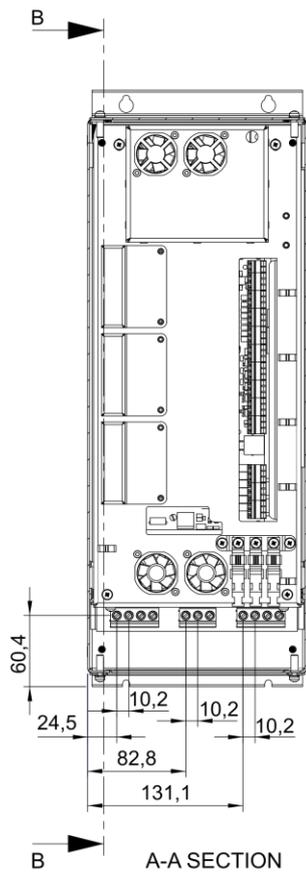
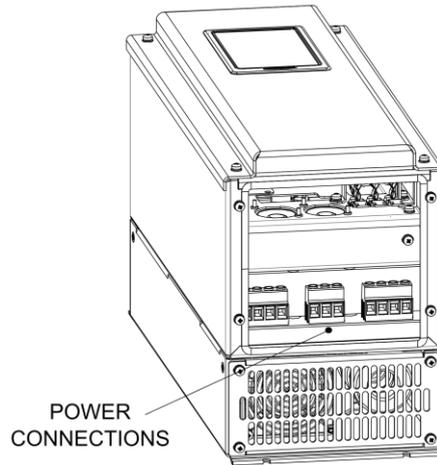
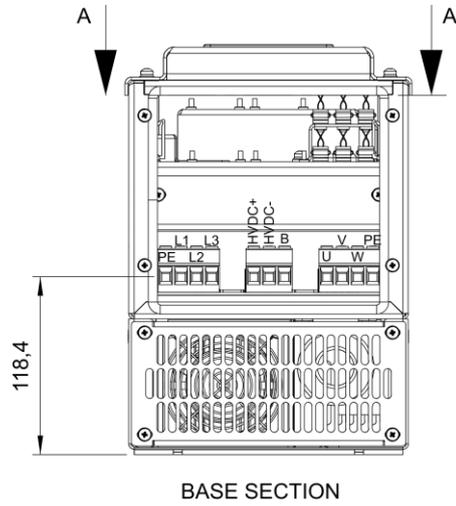
CAUTION

Do not touch the braking resistor during drive operation. It can reach $T > 150^{\circ}\text{C}$. If you omit this precaution, there is a high risk of burns and / or abrasion.

Power terminals

The following figures show the location of power terminals for each frame of SD750.

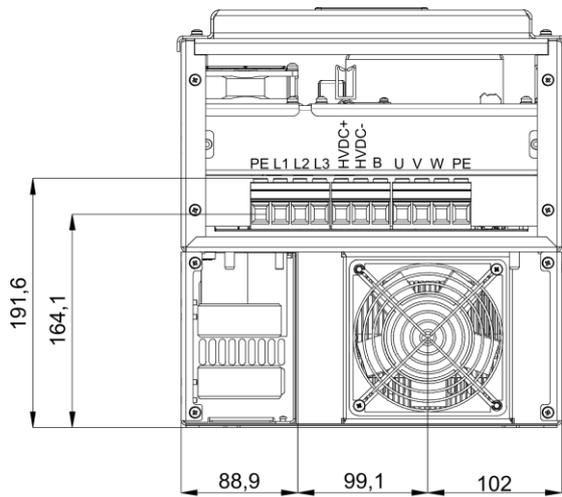
Connections for frame 1



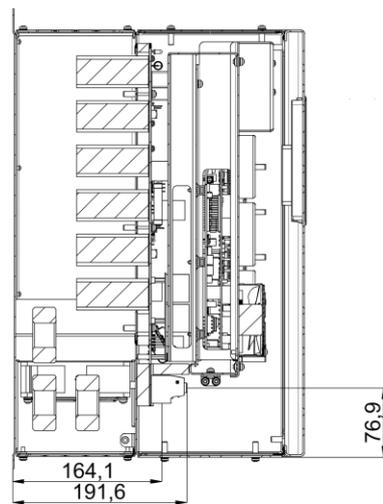
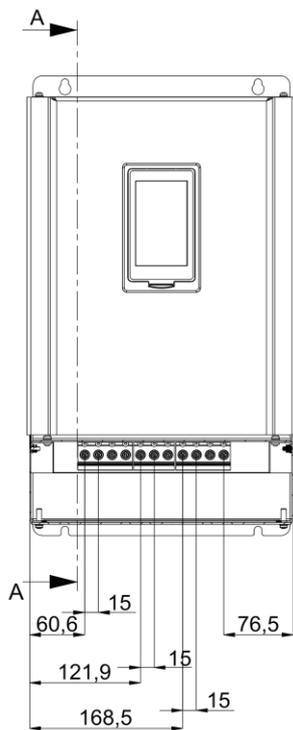
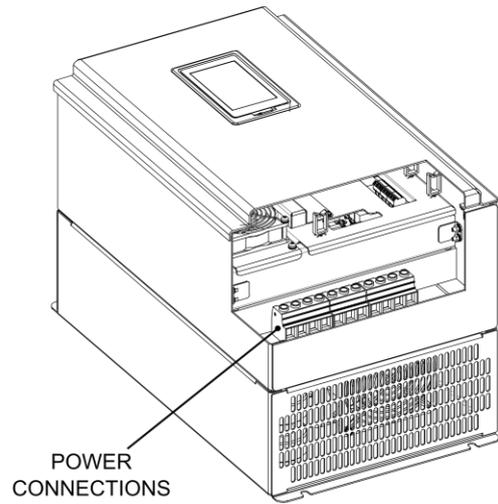
SD75DTD008BI

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Connections for frame 2



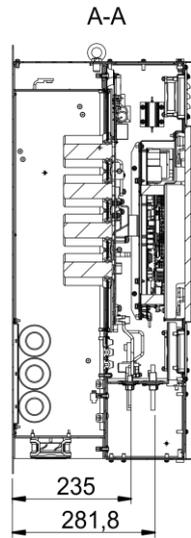
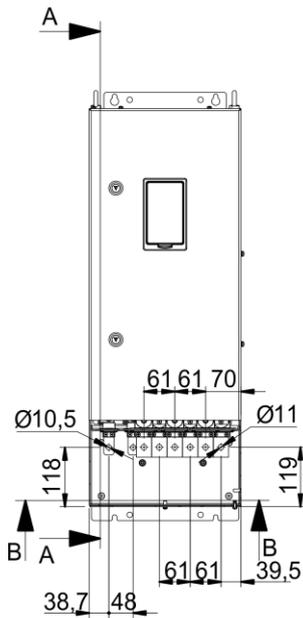
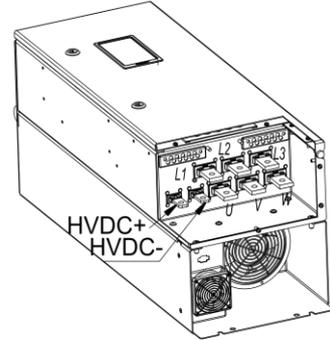
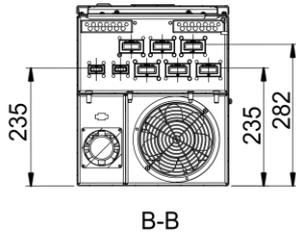
BASE SECTION



A-A SECTION

SD75DTD0015BI

Connections for frame 3

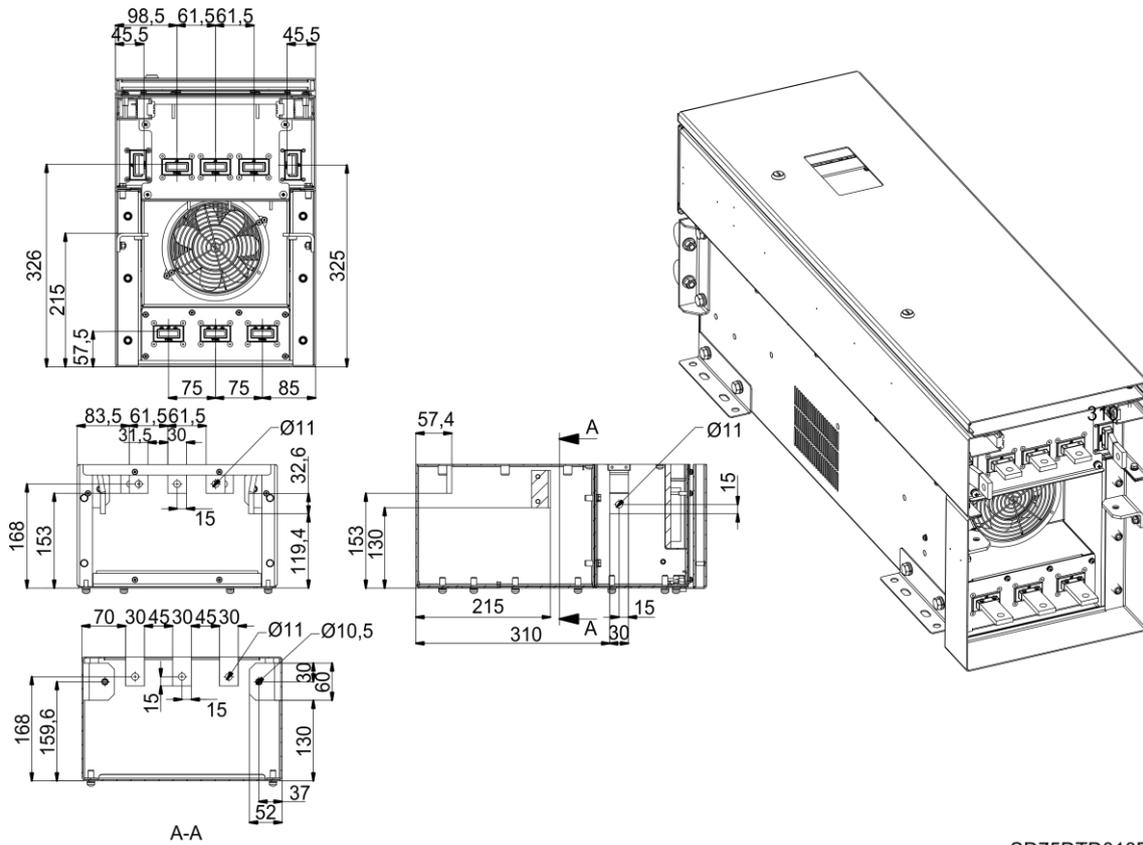


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SD75DTD009B

DRILL DIAMETER (mm)	SCREW METRIC
8,8	M8
11	M10

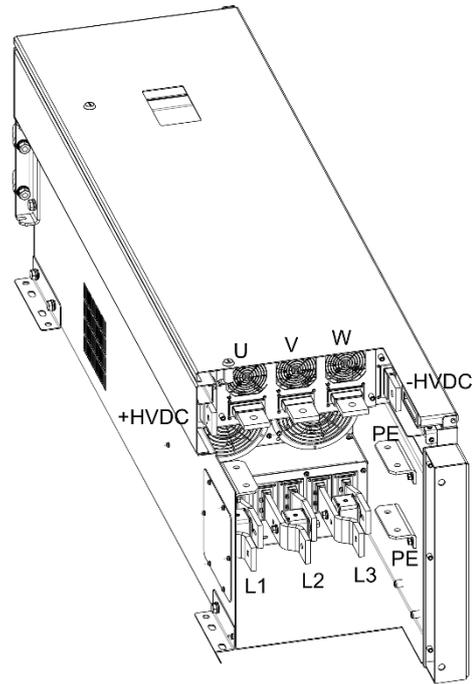
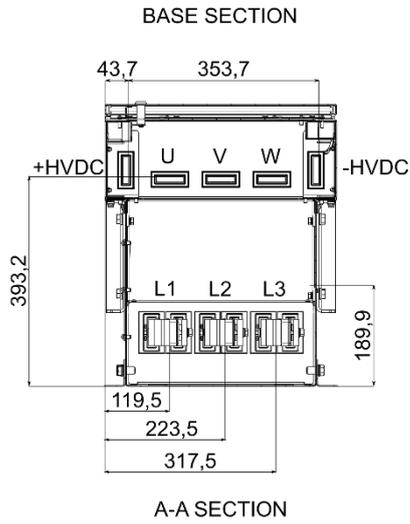
Connections for frame 4



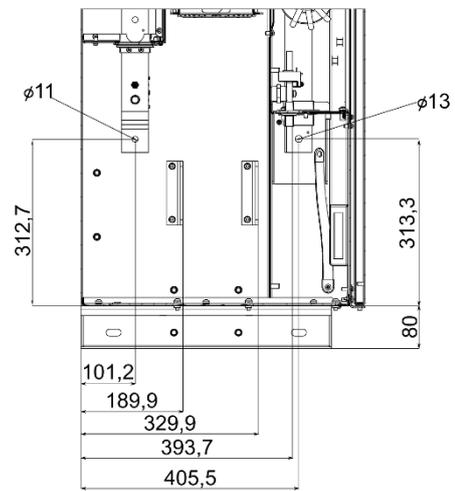
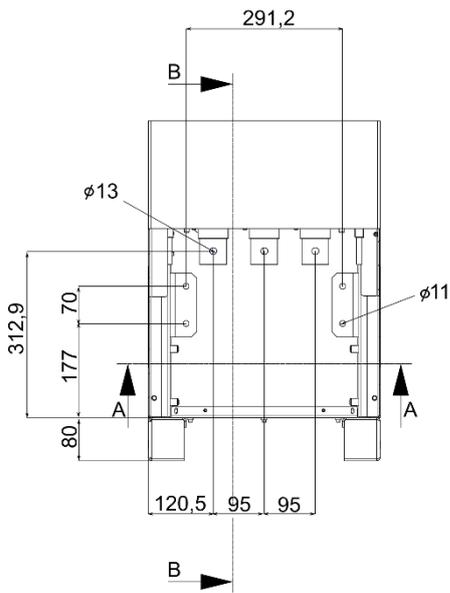
SD75DTD010B

DRILL DIAMETER (mm)	SCREW METRIC
11	M10

Connections for frame 5



EN

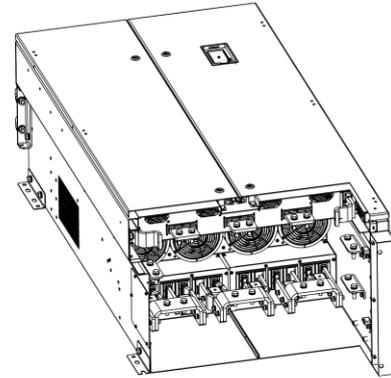
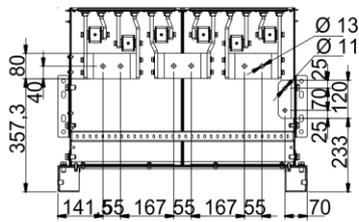
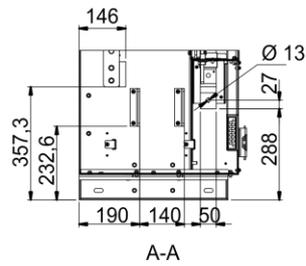
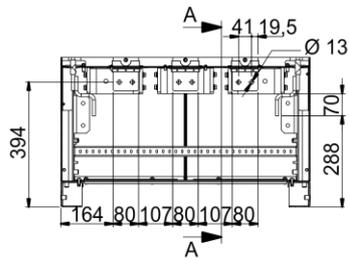
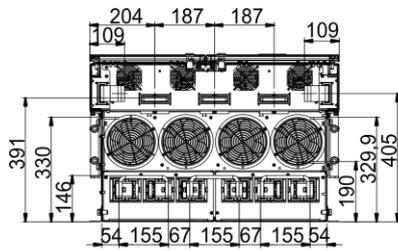


B-B SECTION

SD75DTD0011AI

DRILL DIAMETER (mm)	SCREW METRIC
11	M10
13	M12

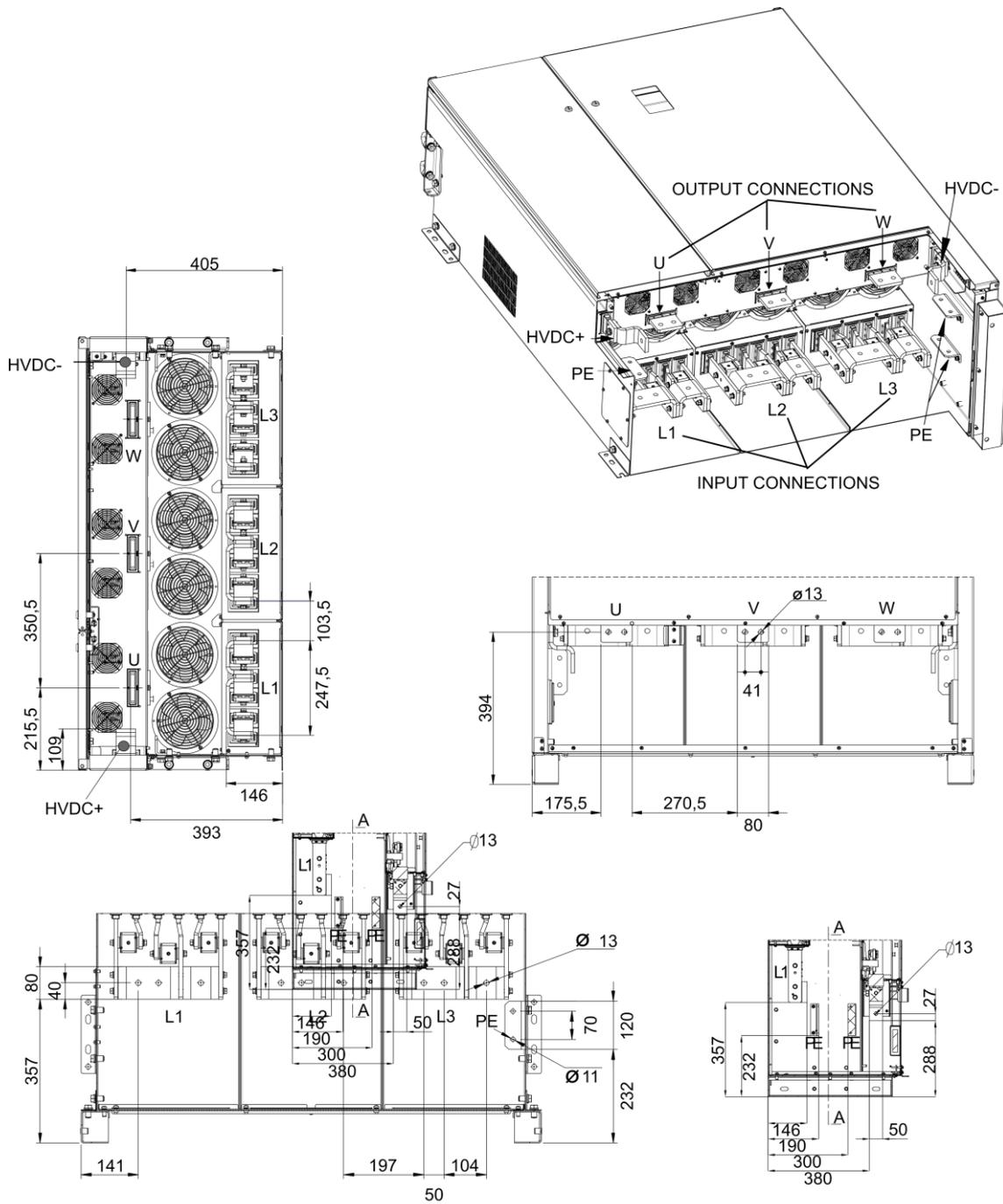
Connections for frame 6



SD750DTD012B

DRILL DIAMETER (mm)	SCREW METRIC
11	M10
13	M12

Connections for frame 7



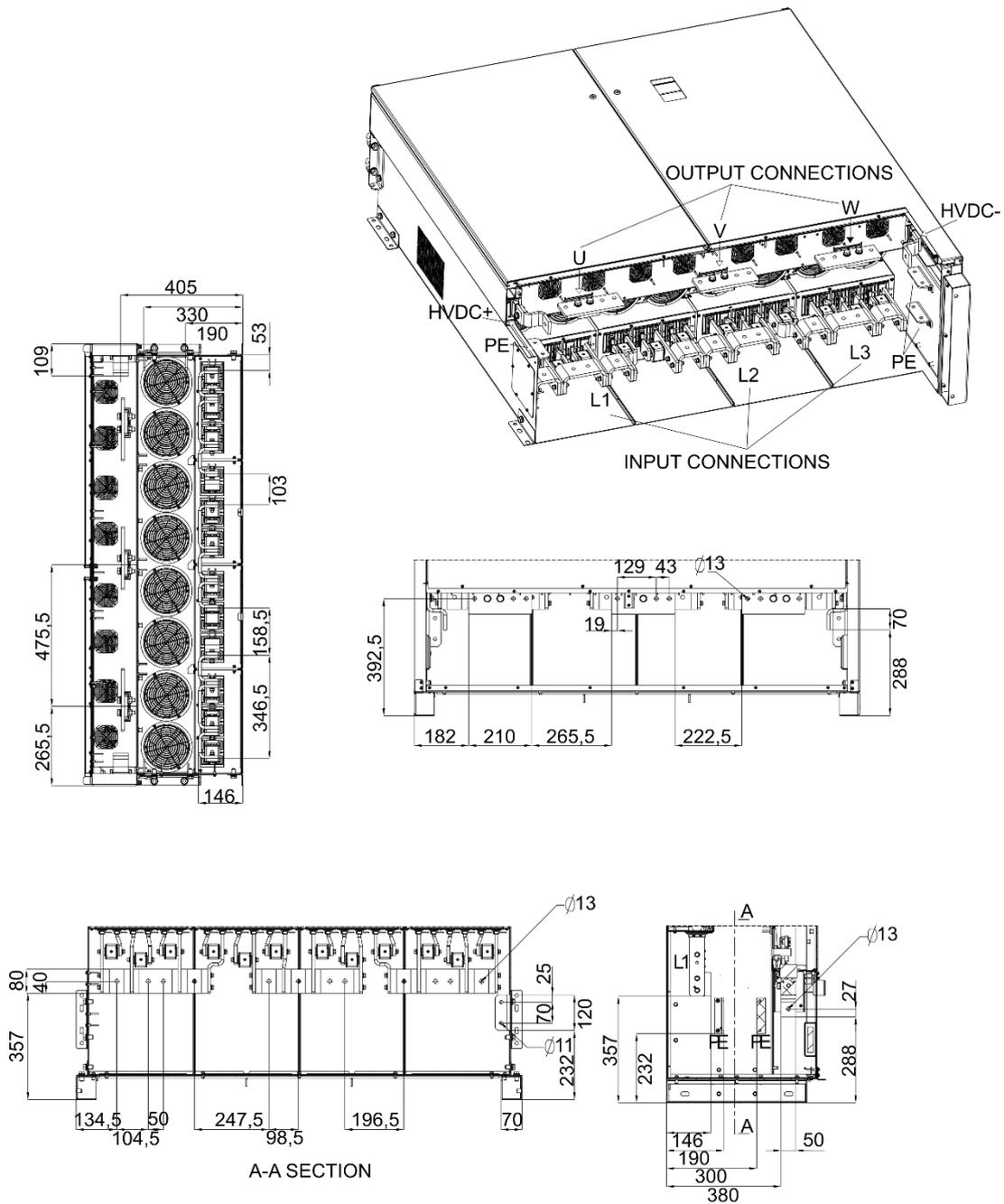
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A-A SECTION

SD75DTD0016BI

DRILL DIAMETER (mm)	SCREW METRIC
11	M10
13	M12

Connections for frame 8



SD75DTD0018AI

DRILL DIAMETER (mm)	SCREW METRIC
11	M10
13	M12

Connections for frame 9, 10 and 11

For the location of the connection plates consult the connection diagrams of frames 6, 7 and 8 as appropriate.

CONTROL CONNECTION

8



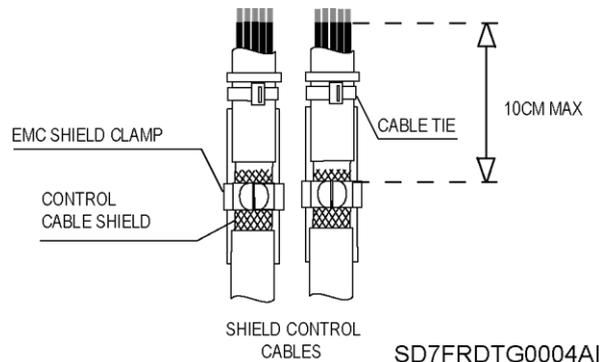
NOTICE

Consult drives control wiring layout in section "[Minimum distances between wires](#)".

Wiring recommendations

Before planning the installation, follow and understand the next recommendations. The parallel cable routing should be avoided and the distance between the control wiring and the power wiring should be maximized. It is recommended to route control cables with different voltages in separately cable racks, trays or ducts.

It is recommended to use shielded cable for all the data, signal or control cables coming from the variable speed drive. Each cable must have an EMC clip that secures an effective ground shield, making a contact of the 360° shield.



Shield bonding

Cable shields for digital signal must be grounded at both ends of the cable. It is recommended to use independent shielded cables for digital and analogue signals. When using multiple analogue signals, do not use common return for them. If using analogue signals, a low interference is experienced (hum loops), disconnect the shield grounding from one of the ends. The maximum section for the control cables is 2.5mm² and the recommended tightening torque is 0.4Nm.

Although the control boards are insulated galvanically, for safety reasons it is recommended not to modify the wiring while the equipment is connected to the input power supply.



CAUTION

Any change to the control board wiring or bridges must be performed following the safety instructions indicated before. Otherwise, it could cause damage to the equipment and cause damage to people.

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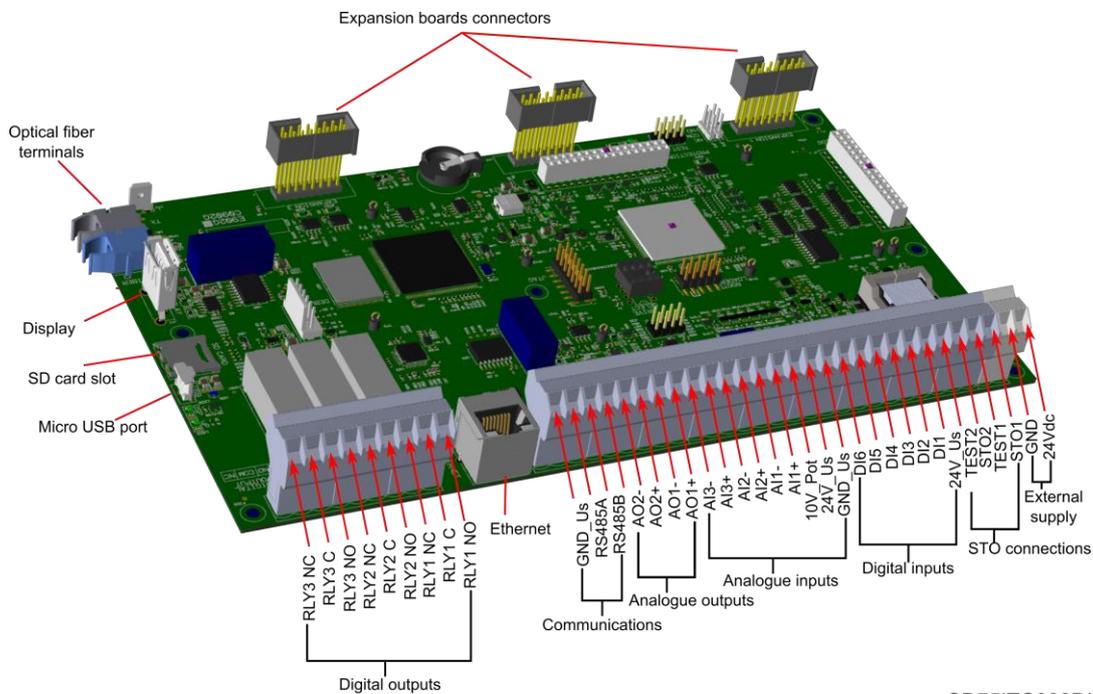
Control board terminals description



CAUTION

Any changes to the control board wiring or bridges must be performed at least 10 minutes after disconnecting the input power and after checking the bus voltage (DC Link) is discharged below 30VDC. Otherwise, you may get an electric shock.

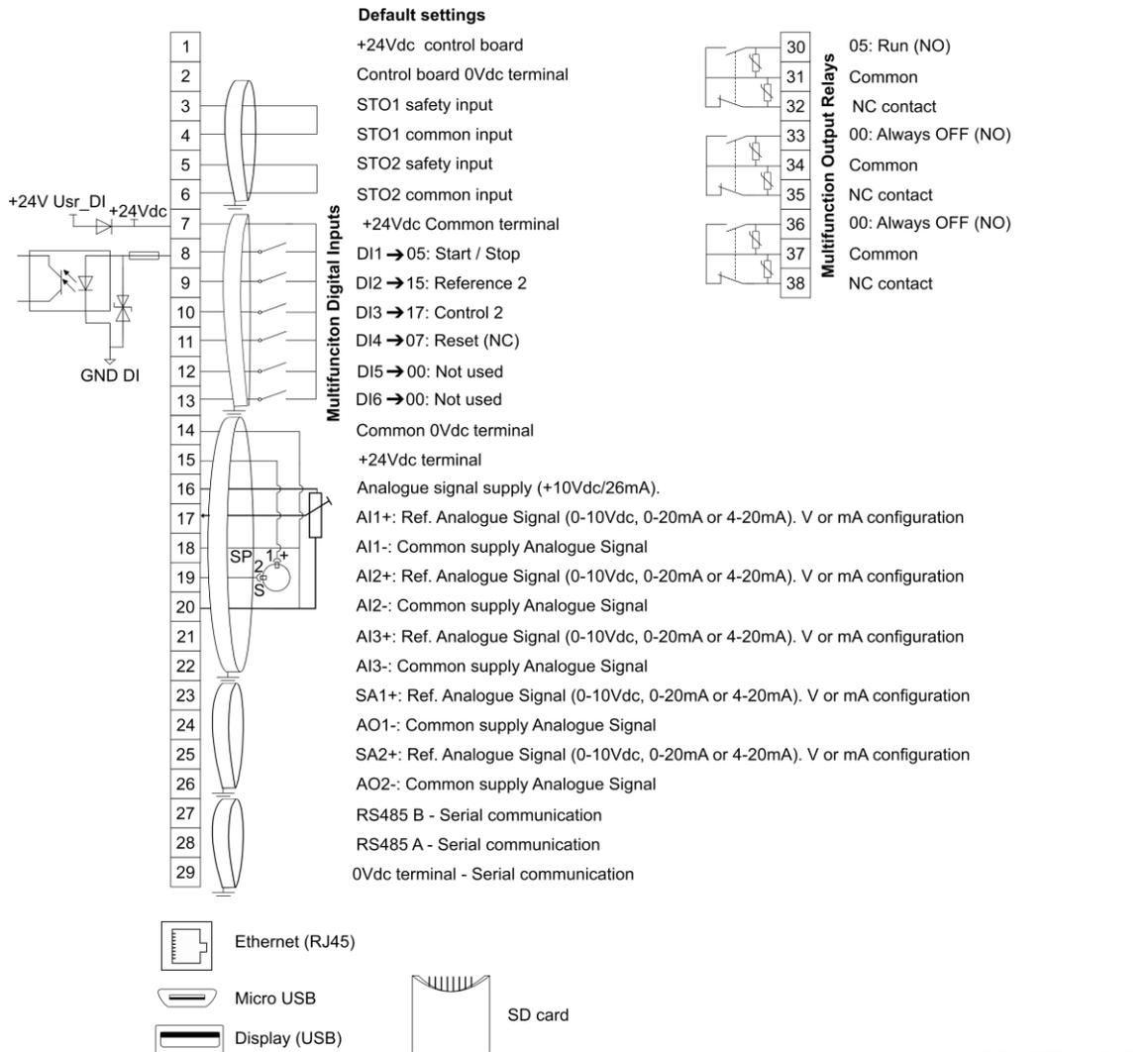
User will have access to the drive control board equipped with user interface ports and connectors. It integrates PTC connection, analogue inputs and outputs, digital inputs and outputs, DC external input power supply, RS485 communication ports, Ethernet, USB port and display connection. In addition, the board is ready for the connection of optional boards such as I/O expansion board, encoder board, communication boards, fiber optic board, etc.



SD75ITC002DI

Location of user connectors

The following figure provides a standard wiring overview of the control terminals.

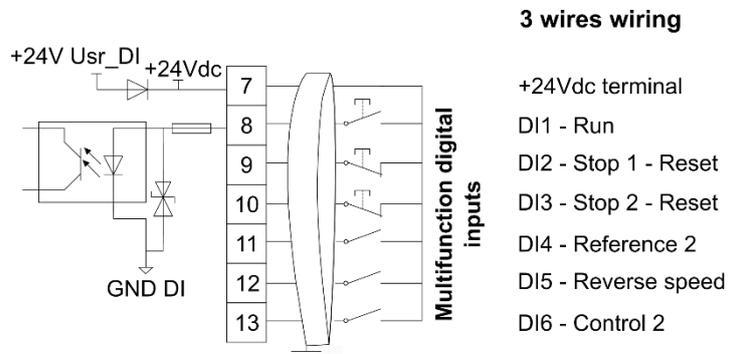


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Example of control terminals standard wiring

SD75DTC0002EI

Digital inputs can be configured individually or collectively. Analogue inputs can be configured as comparators. For further information on configurations, please refer to the *Software and Programming Manual*. The following figure shows the wiring detail of the X1 connector with the wiring of the three-wire start / stop buttons.



SD75DTC0003BI

Wire control terminals wiring

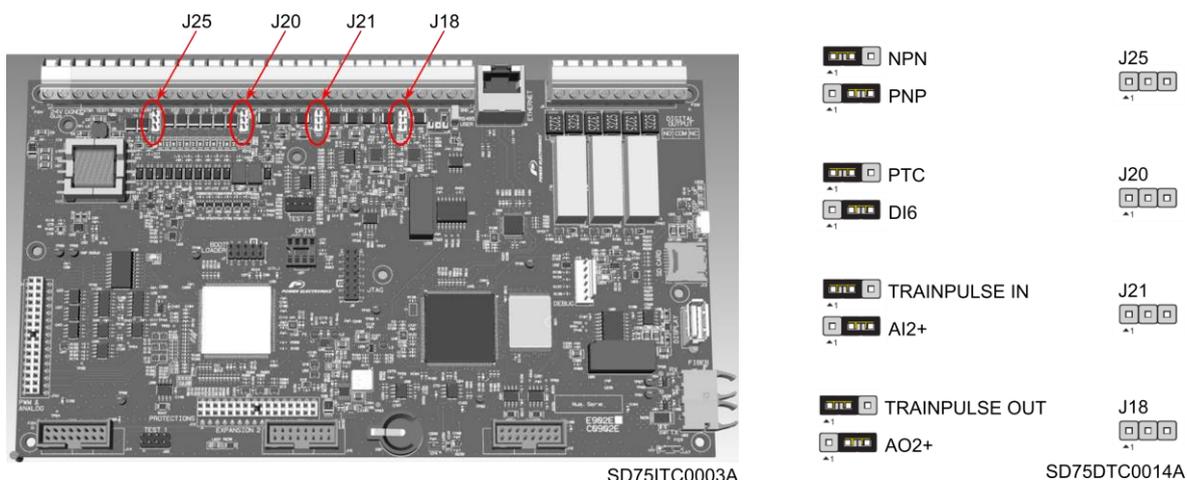
	PIN	SEÑAL	DESCRIPCIÓN
EXT. SUPPLY	1	+24Vdc	Power supply 24Vdc control card.
	2	GND	GND control board.
STO FUNCTION	3	STO 1 ^[1]	Safety input STO 1.
	4	TEST 1	Safety common input STO 1.
	5	STO 2 ^[1]	Safety input STO 2.
	6	TEST 2	Safety common input STO 2.
DIGITAL INPUTS	7	+24V_USER	Power supply for digital inputs. Protect against short circuit and overload. (Maximum +24Vdc, 180mA).
	8	DI1	Programmable Digital Input 1 (Digital Input 1). Digital inputs are configured in the Input group. Their status can be displayed in the visualization group. It is powered from terminal 7 or from an external power 24Vdc supply. If an external power supply is used, the common must be connected to terminal 29 (GND_USER). Programmable input as PNP and NPN ^[2] .
	9	DI2	Programmable Digital Input 2. Same features as DI1.
	10	DI3	Programmable Digital Input 3. Same features as DI1.
	11	DI4	Programmable Digital Input 4. Same features as DI1.
	12	DI5	Programmable Digital Input 5. Same features as DI1.
	13	DI6	Programmable Digital Input 6. Same features as DI1. Besides, input configurable as digital PTC.
ANALOGUE INPUTS	14	GND_USUARIO	GND connection (0 V) for inputs
	15	+24V_USUARIO	Supply voltage for analog inputs
	16	10V_POT	10V power supply for potentiometer. Ready to supply a maximum of 2 potentiometers (R ≥ 1kΩ).
	17	AI1+	Voltage or current Programmable Analogue Input 1 (V o mA). Configurable to 0-10Vdc, 0-20mA or 4-20mA ^[3] . The value of the input resistance in voltage mode is Ri=20kΩ. The value of the input resistance in current mode is Ri=250Ω.
	18	AI1-	Common Analog Input 1.
	19	AI2+-	Voltage or current Programmable Analogue Input 2 (V o mA). Configurable to 0-10Vdc, 0-20mA or 4-20mA. The value of the input resistance in voltage mode is Ri=20kΩ. The value of the input resistance in current mode is Ri=250Ω.
	20	AI2-	Common Analog Input 2.
	21	AI3+-	Voltage or current Programmable Analogue Input 2 (V o mA). Configurable to 0-10Vdc, 0-20mA or 4-20mA. The value of the input resistance in voltage mode is Ri=20kΩ. The value of the input resistance in current mode is Ri=250Ω.
22	AI3-	Common Analog Input 3.	
ANALOGUE OUTPUTS	23	AO1+	Voltage or current Programmable Analogue Output 1 (V o mA). Configurable to 0-10Vdc, 0-20mA or 4-20mA.
	24	AO1-	Common Analog Output 1.
	25	AO2+	Voltage or current Programmable Analogue Output 2 (V o mA). Configurable to 0-10Vdc, 0-20mA or 4-20mA.
	26	AO2-	Common Analog Output 2.
COMMUNICATIONS	27	RS485 B	RS485 Modbus serial communication interface.
	28	RS485 A	RS485 Modbus serial communication interface.
	29	GND_USER	GND Connection.
DIGITAL OUTPUTS	30	RLY1 NO	Digital Output 1. Programmable change over relay (NO / NC). Potential free (Maximum: 250VAC, 8A; 30VDC, 8A).
	31	RLY1 C	
	32	RLY1 NC	
	33	RLY2 NO	Digital Output 2. Programmable change over relay (NO / NC). Potential free (Maximum: 250VAC, 8A; 30VDC, 8A).
	34	RLY2 C	
	35	RLY2 NC	
	36	RLY3 NO	Digital Output 3. Programmable change over relay (NO / NC). Potential free (Maximum: 250VAC, 8A; 30VDC, 8A).
	37	RLY3 C	
38	RLY3 NC		

^[1] It is recommended to use double shielded twisted-pair cable for 24Vdc power supply and safety channels. The shield must be grounded as shown in the examples.

^[2] When a PNP or NPN input is configured, the rest of digital inputs will have to be the same. This means, PNP and NPN inputs cannot coexist.

^[3] Analogue inputs and outputs are configured individually and through the use of Software. In case of configuring the AI3 in mode PT100, the analogue output (any of the two) must be configured in mode 10mA.

Up next, information about location and use of the jumpers associated to the control board are shown:



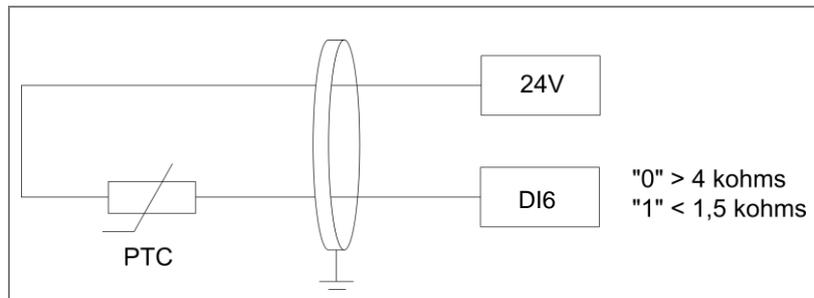
Location of jumpers in the control board (left) and connection detail (right)

Jumper (Signal)	Description	Positions
J18 (AO2+)	Configures AO2+ as Analogue Output or Pulse Output.	
J20 (DI6)	Configures the AI6 as Digital Input or PTC.	
J21 (AI2+)	Configures the AI2+ as Analogue Input or Pulse Input.	
J25 (DI1 a DI6)	Configures each DIx as NPN or PNP.	

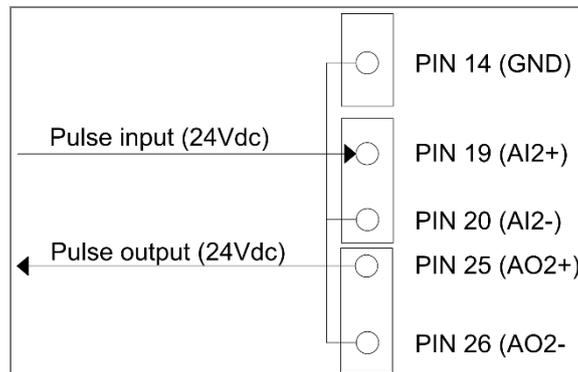
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DI6 (PIN13) PTC sensor input mode.

It is possible to connect a PTC sensor in the digital input 6 (DI6) so that the equipment acts from a temperature (resistance) value associated to motor's temperature and to allow enabling cooling or stop motor running. It must be considered that sensor resistance does not exceed trigger point (pass from 1 to 0) of the DI6 when motor is under normal conditions of operation temperature. Cable ground screening must be connected only in one end.

**AI2/AO2 (PIN19/25) pulse input/output mode.**

Both analogue input and output 2 can be configured as pulse input/output. To do so, bridge J21 must be connected in the position indicated in the table above and, besides, they must be connected to GND (PIN 14).

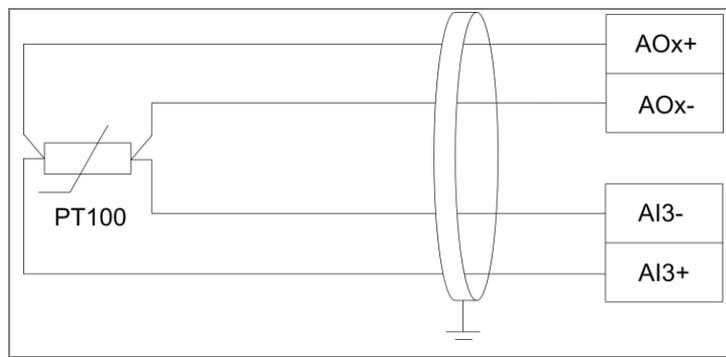


AI3 (PIN 21/22) PT100 mode.

The AI3 allows configuring a PT100 sensor. With this sensor, motor temperature can be measured continuously. Ground cable screening must be connected only in one end. For further information about parameter configuration, consult the *Software and Programming Manual*.

Measurement process:

- a. The chosen analogue output will be configured in current mode, 10 mA, through software. It is recommended to use analogue output 1.
- b. The analogue input 3 (AI3) will be configured in PT100 mode through software.
- c. A current of 1mA (generated by the analogue output) is injected through the PT100.
- d. Voltage in the analogue input is measured.
- e. With injected current and voltage, the PT100 resistance is calculated.
- f. With the PT100 table, and knowing the resistance, temperature is obtained.

**NOTICE**

Terminals PIN14 and PIN15 can be used for other functions depending on the inverter bridge characteristics (frequency regulation by external potentiometer, analogue feedback, etc.). to avoid multiple connections in one terminal (PIN 14, PIN 15), it is advisable to add external terminals for supply distribution.

STO – Safe Torque Off

The STO function is defined as: *Power, that can cause rotation, is not applied to the motor. The frequency converter will not provide energy to the motor, which can generate torque.*

For three-phase asynchronous motor, that means to stop three-phase power supply to the stator.

This function corresponds to a Category 0 Emergency Stop according to IEC 60204-1. When the drive is running and the STO function is applied, the motor will freely stop by its own inertia.

The STO function integrated as standard in the SD750 permits to achieve safety level SIL3 (PLe) for the safe stop function. SIL3 requires the use of an emergency pushbutton. The maximum reaction time of STO function is less than 50ms. See section "[Safety Integrity Level SIL3-PLe](#)" for additional information.

By using this function, you can safely carry out cleaning, maintenance or emergency work on non-electric parts of the equipment, without having to disconnect the power supply. In case STO safety function is not used, user must connect the corresponding terminals.

Based on a study of each application and risk assessment, the designer should define the required safety function and safety level.



CAUTION

The STO safety function does not disconnect nor the main neither the auxiliary power supply. With STO function the drive disconnects the motor power supply. To carry out electrical maintenance tasks, isolate the drive. Particular care must be taken with the active conductors inside the drive. Failure to do so could result in damage to equipment and personnel.

Do not use the STO function as a normal drive stop.

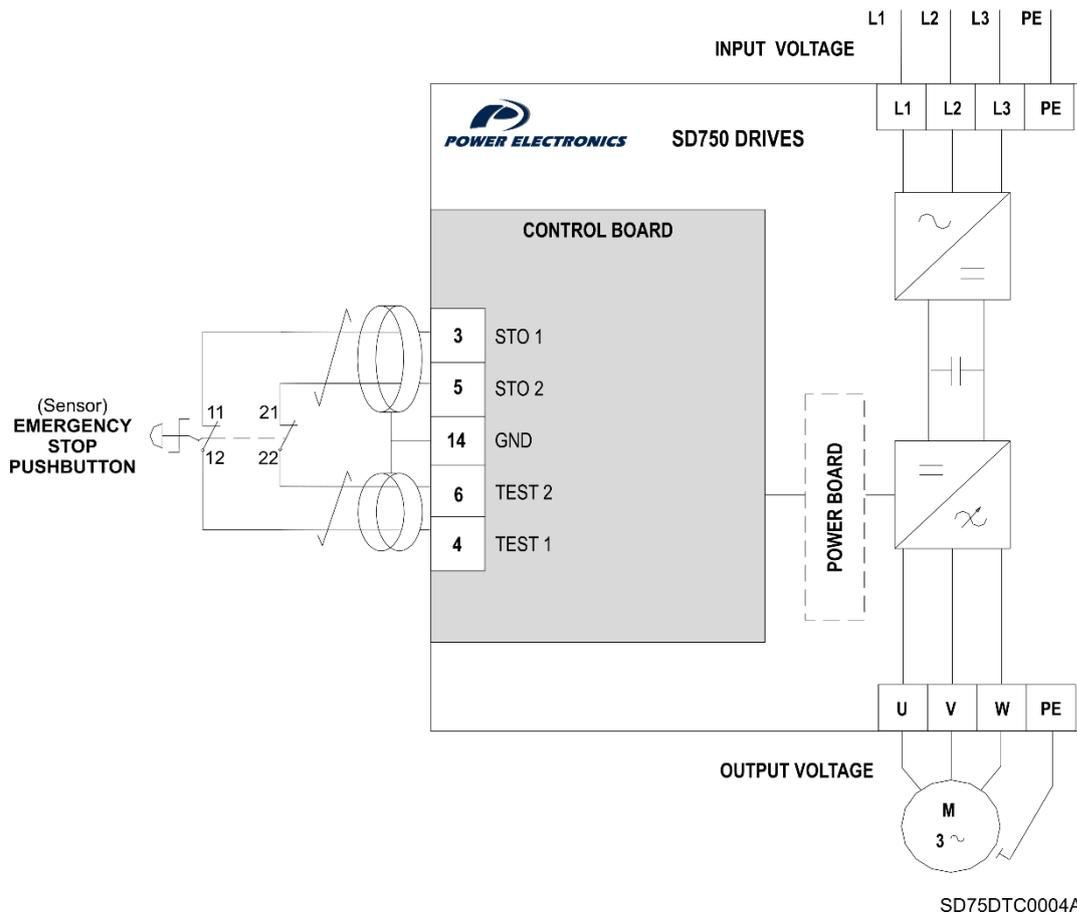
Safety integrity level SIL3- PLe

This configuration provides a highly reliable safety level. When the sensor is activated due to an emergency situation, the STO function interrupts the power supply to the motor. The motor will stop for its own inertia or will prevent an accidentally start.

The sensors (emergency push buttons, limit switches, etc.) must be certified as safety elements.

The value of the average probability of a dangerous failure per hour (PFH) of all elements applicable to the safety function, must not exceed the limit of the corresponding SIL level. The installation must be performed by trained personal with experience in functional safety.

Example 1: Safety function with automatic restart by emergency stop buttons (SIL3, PLe). It is mandatory that the stop button has 2 closed contacts (NC) that will be connected to the safety inputs of the relay.



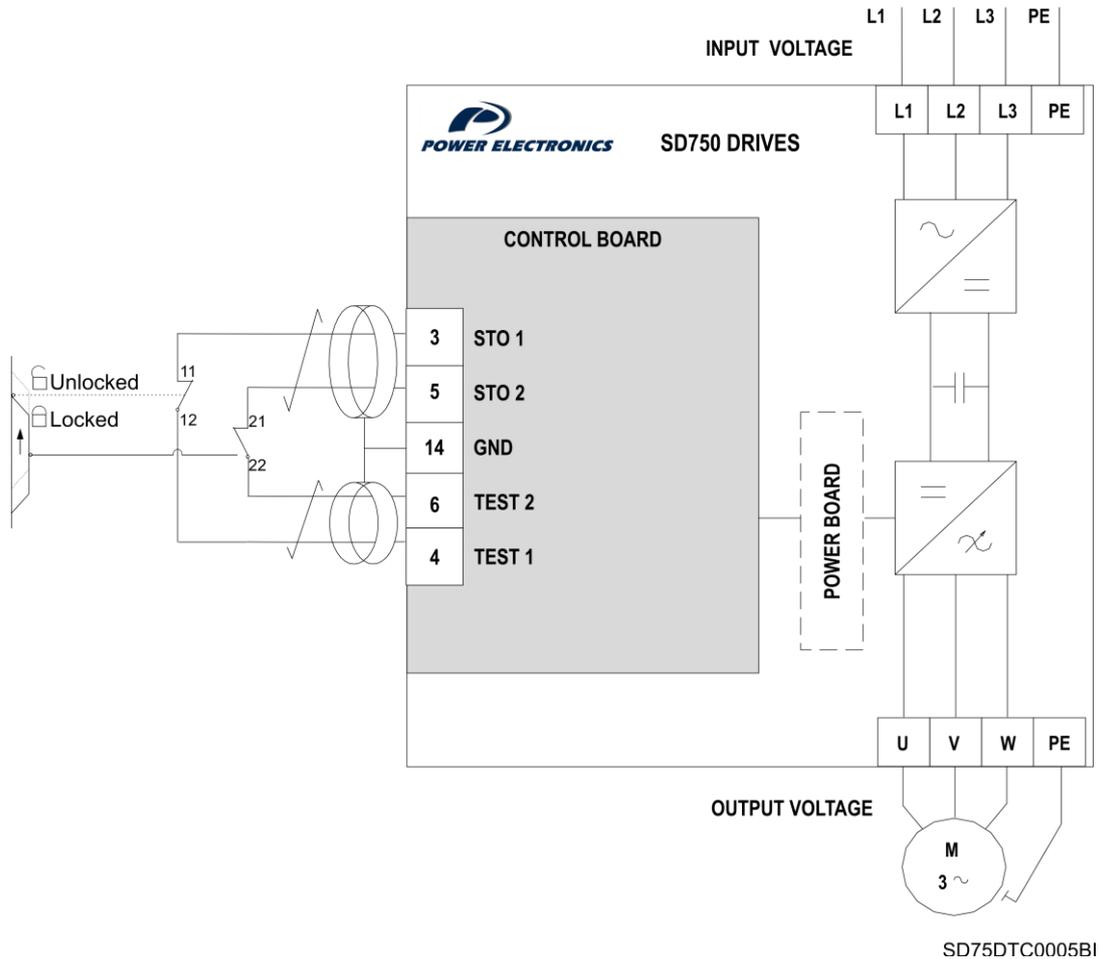
Example 1- Emergency stop push button

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CAUTION

According to EN 60204-1 automatic restart is not allowed after an emergency stop. For this reason, the machine control must prevent an automatic start after an emergency stop. For SIL 3 applications the safety function has to be tested regularly (approximately once per month) in order to detect certain failures.

Example 2: SIL3 (PLe) Safety door opening for maintenance tasks with manual restart. This function is used to prevent an unexpected restart when a maintenance task is being carried out in a risk area. In this case, the relay's safety inputs will be connected to a safety interlock switch placed in the door. Additionally, a pushbutton will be installed to force a relay manual restart and a lamp connected to the NC close contact to indicate it.



Example 2- Safety door opening



CAUTION

For SIL 3 applications the safety function has to be tested regularly (approximately once per month) in order to detect anomalies or possible failures.

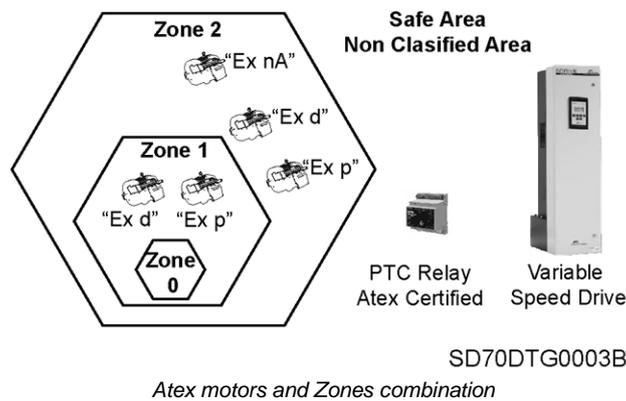
According to EN 60204-1 automatic restart is not allowed after an emergency stop. For this reason, the machine control must prevent an automatic start after an emergency stop.

For SIL 3 applications the safety function has to be tested regularly (approximately once per month) in order to detect certain failures.

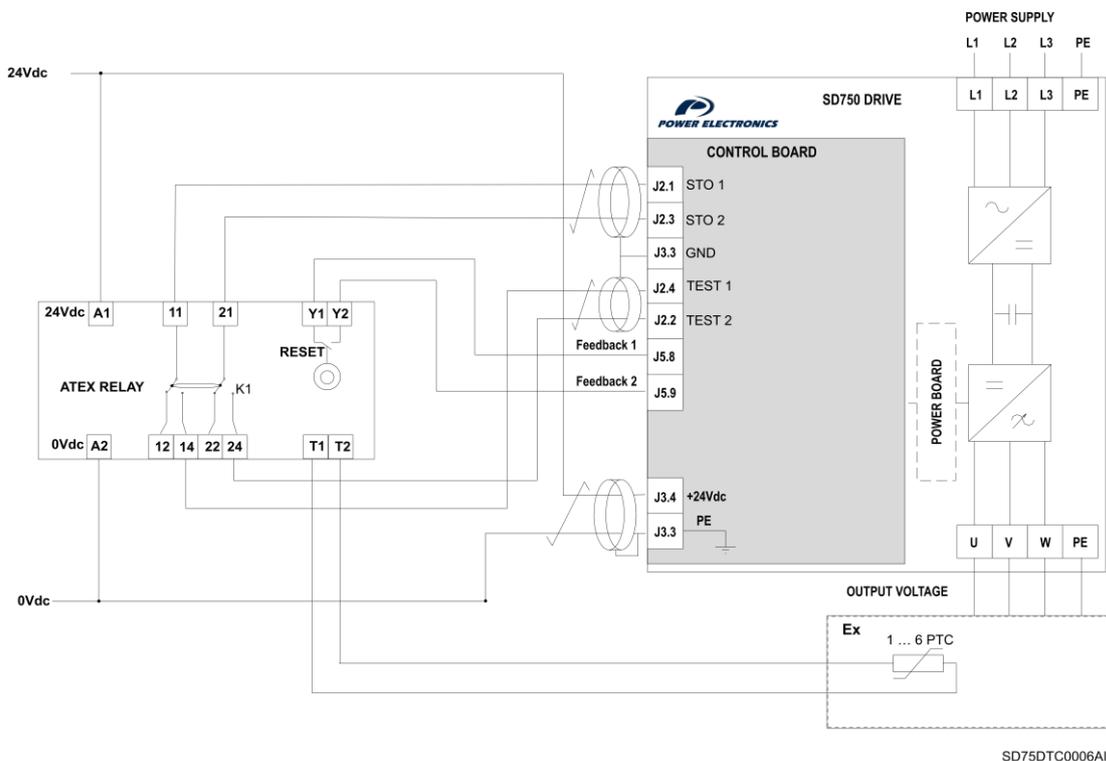
Connection with ATEX motors

The ATEX standard is related to the use of machinery, installations and equipment in areas with a potentially explosive atmosphere. In the European Union, the use of equipment in these areas. Is regulated by two complementary directives: Directive 1999/92/EC for the installation environment and worker’s protection, and Directive 94/9/EC for the ATEX equipment. These guidelines and directives are based on two basic concepts: the classification of potentially explosive areas or zones and the limitation of equipment that can be installed in each of them.

Power Electronics provides a solution for driving ATEX motors such as “Ex nA”, “Ex d” and “Ex p” under the ATEX zone areas illustrated below. For different motor and ATEX zone combinations, consult Power Electronics.



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Connection scheme (Example with ZIEHL - PTC Thermistor Relay Type MSR 220 Vi)

As shown in the figure above, the SD750 drive and the ATEX relay must be installed in a safe zone, outside the ATEX zone. This solution is valid for motors with "Ex d" or "Ex p" protection installed in zones 1 and 2, or motors with "EX nA" protection installed in zone 2. The external relay must be certified for ATEX zones and Must be compatible with the following features: 24 Vdc power supply voltage, 2 safety inputs, at least 2 open contacts and reset function. (Example: ZIEHL - PTC MSR 220Vi).

The SD750 series features a dV/dt filter and a unique CLAMP¹ system that reduces dV/dt and voltage peaks in the motor windings. This reduces the risk of voltage leaks in the windings, motor overheating and leakage currents through the bearings. In addition, it is possible to regulate the thermal protection of the motor, thus increasing the protection against overheating in the motor. In self-ventilated motors, the inverter may require an oversizing according to the derating curves provided by the motor manufacturer.

¹ Only in equipment with rated voltage of 690 Vac.

MODBUS COMMUNICATION

9

Introduction

To guarantee a correct operation of the drive, peripheral elements must be correctly selected and properly connected. A wrong installation and/or application could cause a wrong operation of the system or a reduction of the long life of the equipment, as well as damage to the components. This manual should be read and understood carefully before proceeding.

The purpose of the Serial Communication Bus of the SD750 drive is to integrate the drive itself into a network compatible with the Modbus communications protocol. This is possible using the physical communications ports RS485, Ethernet or USB port.

The Modbus communications system allows the SD750 drive to be controlled and / or monitored as a slave by a Modbus master from a remote location.

The RS485 network allows to connect up to 240 computers on the same network.

The SD750 drive operates as a peripheral slave when connected to a Modbus system. This means that the drive does not initiate the communication task, the master will start the task instead.

Virtually all of the drive operating modes, parameters and drive characteristics are accessible through serial communications. As an example, the master can give command to start and stop the drive, check the status of the SD750, read the current consumed by the motor, etc. The master mode can access all the possibilities of the drive.

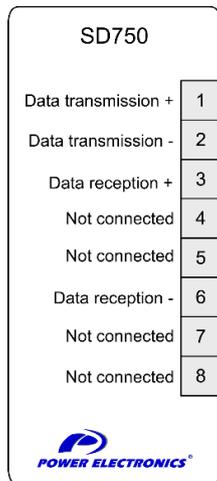
Hardware technical specifications

Ethernet	Physical level	8 cables, half and full duplex, RJ45 ending
	Terminals	1 → Transmission data +
		2 → Transmission data -
		3 → Reception data +
		4 → Not connected
		5 → Not connected
		6 → Reception data -
		7 → Not connected
8 → Not connected		
Type of wiring	Ethernet 10Base-T, Ethernet 100Base-TX	
Data Interconnection Protocol	Modbus TCP/IP, Ethernet/IP Supports DHCP auto-addressing	
Data Transfer Rate	10Mbps, 100Mbps, auto-negotiation 10 / 100	
Compliance Standards	IEEE 802.3, IEEE 802.3u (only for 100Base-TX)	
Maximum cable length	100m per network segment	
RS485	Physical level	2 cables, optically insulated, half duplex, RS485 differential mode
	Terminals	27 → RS485 A (negative)
		28 → RS485 B (positive)
		29 → RS Common (0VDC)
	Output signal level	'1' logical = +5V differential '0' logical = -5V differential
	Input signal level	'1' logical = +5V differential '0' logical = -5V differential
	Insulation	± 50VDC regarding to the earth
	Programmable inputs via Modbus	7 digital inputs 2 programmable analogue inputs (0 – 10V, ±10V, 0 – 20mA, 4 – 20mA)
	Programmable outputs via Modbus	3 relay outputs 2 programmable analogue outputs (0 – 10V, ±10V, 0 – 20mA, 4 – 20mA)
Max. number of SD750 in network	240	
Maximum cable length	1000m	
USB	Connector: USB 1.1 and 2.0 type B. Controller FTDI chip Model FT232BM	For the correct operation of the USB connection, it is necessary to install the proper drivers. To this, simply access to the information of the appropriate model in: http://www.ftdichip.com/Drivers/VCP.htm From this site you can download the required files and complete their correct installation.

Note: For the installation of the driver in the Host of the SD750 USB, it is only necessary to indicate the driver at the time of the installation. The USB device will be detected by the operating systems XP or later versions. In case of operating systems before W98 / Me, execute a search of new Hardware in the device administrator and complete the installation by indicating the drivers when the computer requires them.

Ethernet connection

The following diagram shows the common wiring for an Ethernet connection:



SD75DTR0001AI

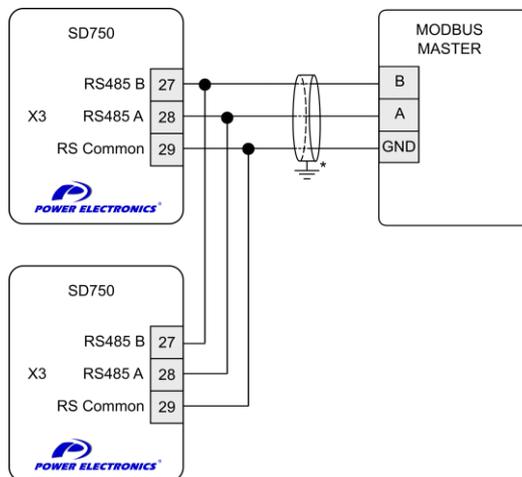
Ethernet Connection



To configure the connection, it is necessary to define the port and default IP address, among others. Refer to the *Software and Programming Manual*.

RS485 connection

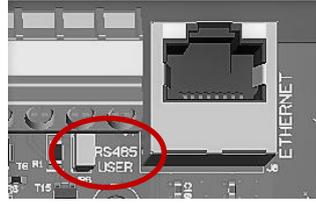
The following diagram shows a common wiring for a RS485 connection:



* Screen connection must be performed on the side of the Modbus master or on the other side depending on the installation. SD75DTR0002CI

RS485 connection

It is recommended to connect the jumper "RS485 USER" at the first and the last device of the RS485 communication network, to connect the end of line resistor.



To configure the connection, it is necessary to define the port and default IP address, among others. Refer to the *Software and Programming Manual*.

COMMISSIONING

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CAUTION

Only qualified personnel are allowed to commission the drive. Read carefully and follow the safety instructions of this manual.

Failure to do so may result in damage to the equipment and you may suffer an electric shock.

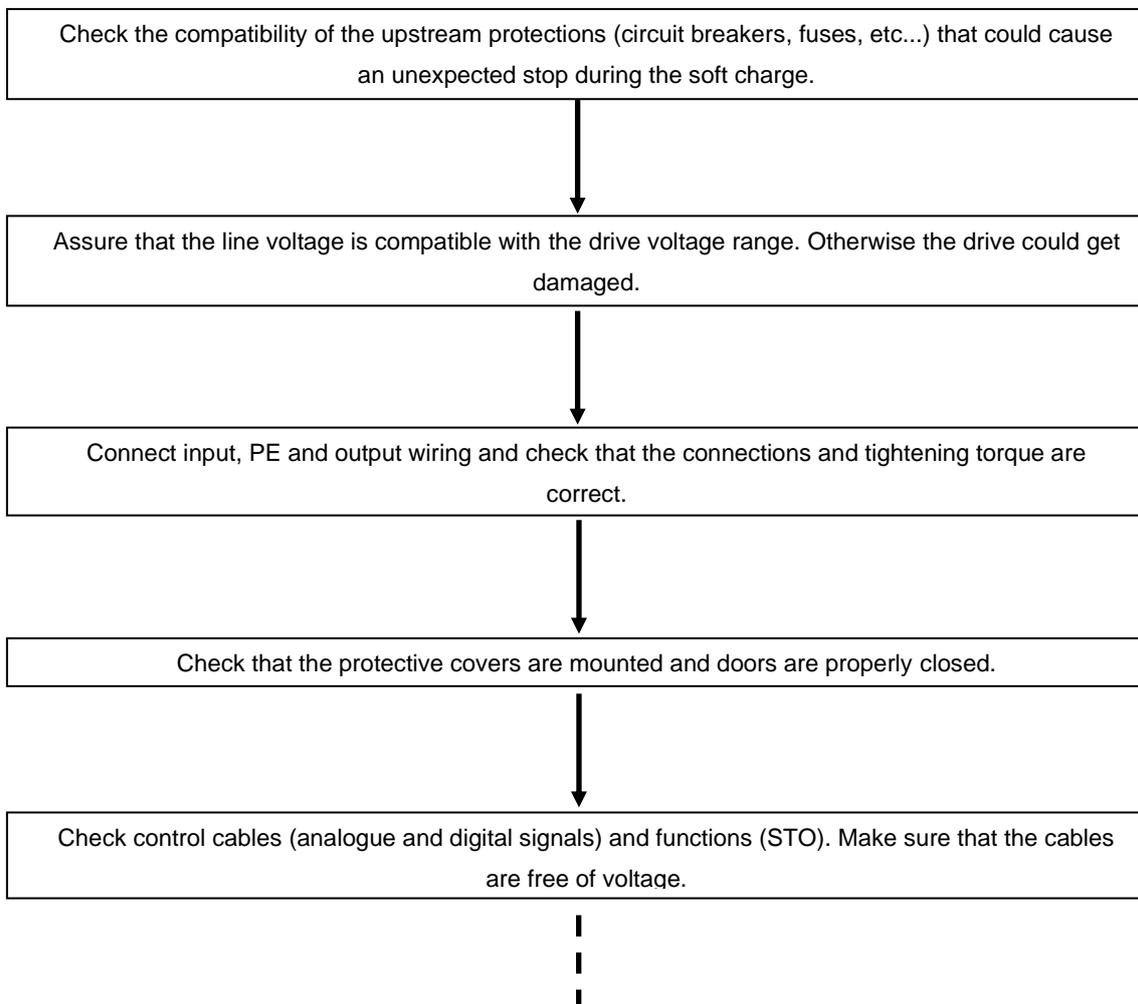
Make sure that there is no voltage at the power terminals. Make sure that voltage is not connected to the computer unexpectedly.

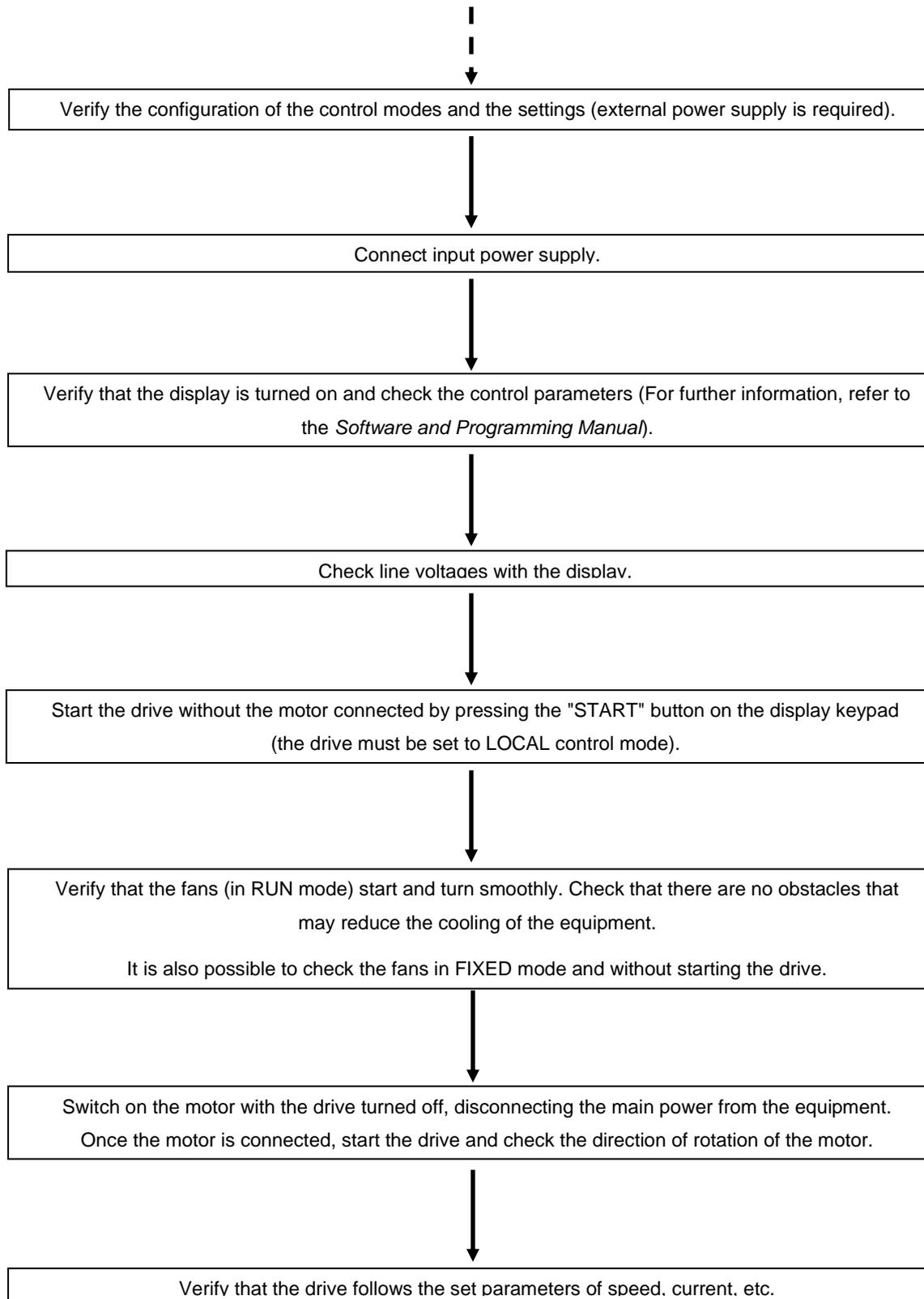
This section does not include all the tasks to be performed during the commissioning of the equipment. Follow local and national regulations.

If the equipment is stored for an extended period (more than 6 months) before installation, the recommendations from section "[Extended storage](#)" must be taken into account.

Ensure all the instructions on such section have been followed before starting the commissioning of the equipment.

For a proper commissioning, follow the next steps:

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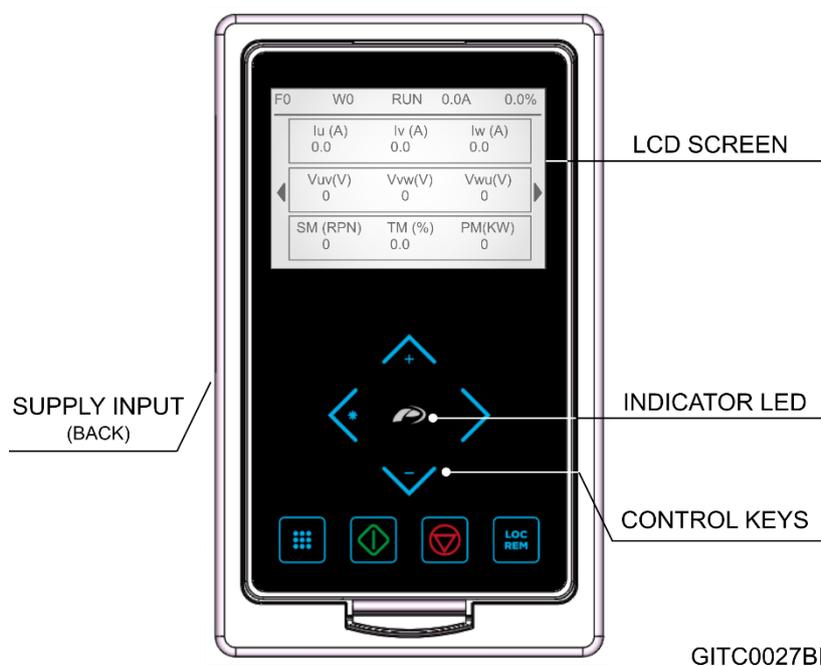
USE OF THE DISPLAY

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The SD750 drive has two types of screens, a monochrome graphics and an optional, tactile and color. Both screens provide intuitive data presentation, easy navigation through the control parameters and allow thousands of customized configurations to be stored by the user.

Graphic display

The graphic display is a removable display unit for remote installation. It is shown in the following figure. There is a built-in LED indicator on the display that provides information on the operating status of the device. In addition, there is a 2.8" LCD screen and eight control keys.



Screen and keyboard

The LED indicator generates three different colors depending on the status of the drive, which indicates the following information:

- Yellow: Warning
- Red: Fault
- Green: Running

MAINTENANCE

12

The SD750 Series drives are industrial electronic products that contain advanced semiconductor elements. For this reason, temperature, humidity, vibrations and worn components can affect performance. To avoid any possible irregularities, it is recommended to carry out periodic inspections.



NOTICE

Maintenance tasks and recommendations are detailed in the *Maintenance Manual*.
Ensure you have the latest edition.



WARNING

Ensure to follow all instructions to safely carry out maintenance tasks.
Otherwise, you could cause damages to the equipment and personnel.

ACCESSORIES

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Codes and description

CODE	DESCRIPTION
SD75ET	Ethernet/IP communication board
SD75PN	Profinet communication board.
SD75PB	Profibus communication board.
SD75CO	CAN Open communication board.
SD75EC	Encoder board. It allows connecting 1 differential Encoder in TTL or HTL, from 5 to 24VDC.
SD75DIO	Digital Inputs / Outputs Expansion board. It allows increasing the number of inputs and outputs of the drive. It includes: <ul style="list-style-type: none"> • 5 Programmable Digital Inputs optically isolated • 5 Digital Outputs (Relays)
SD75AIO	Analogue Inputs / Outputs Expansion board. It allows increasing the number of inputs and outputs of the drive. It includes: <ul style="list-style-type: none"> • 2 Programmable Analogue Input • 2 Programmable Analogue Output
SD75FO	Fiber Optic board. It allows communication between multiple drives in a master slave configuration. This board is optional for drives frame 5 to 8. For frames 9 to 11, it is supplied by default, along with the modules connection kit.
SD75PT	Board for 8 thermal probes type PT100 or PT1000 (configurable).
B150	Dynamic Braking Unit. (For further information, see section " Dynamic braking unit B150 ").
SD75DE3	Kit 3 meters Extender for Display.

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Communication boards

SD750 family is compatible with the most commonly used communication protocols (Profibus-DP, Profinet, Modbus TCP, Ethernet IP, CAN Open, Field Bus, etc.), thanks to its optional boards.

Refer to the specific manual of each board for further information.

Expansion boards

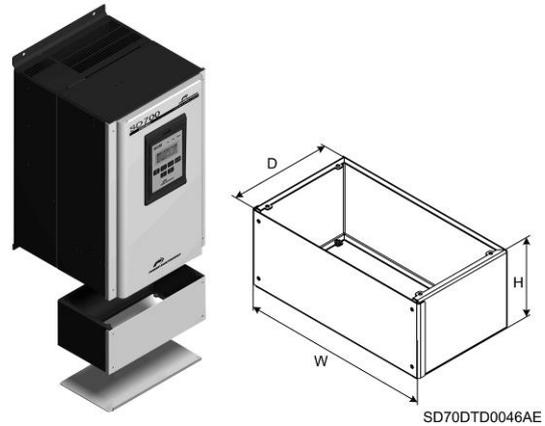
SD750 series is compatible with the most commonly used communication protocols (Profibus, Profinet, Ethernet I/P, CanOPEN...), thanks to its optional boards.

Mechanical accessories

IP20 connection boxes

Permit larger cables to be terminated.

FRAME	CODE	Dimensions (mm)		
		W	H	D
1	SD75EB1	189	122	161
2	SD75EB2	295	122	161
3	SD75EB3	300	151	168



SD70DTD0046AE

Dimensions of the connection box

Plinths

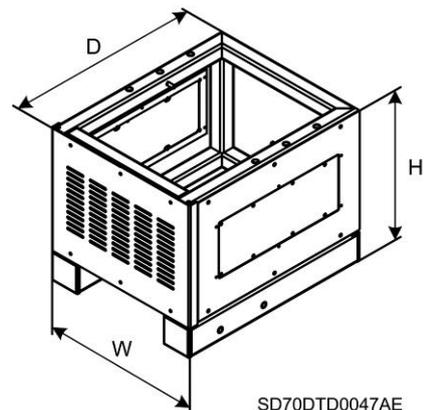
SD750 frames 5 and up are stand-alone drives. They can be equipped with optional plinths to attain 2000mm or 2200mm total height. A stand-alone plinth for frame 4 attaining total height of 1712mm is also available.

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

Code Explanation: SD75PL0520

SD75	PL05	20
SD750 Series	Plinth for Frame 5	Total Height 2000mm

Dimensions for Plinths



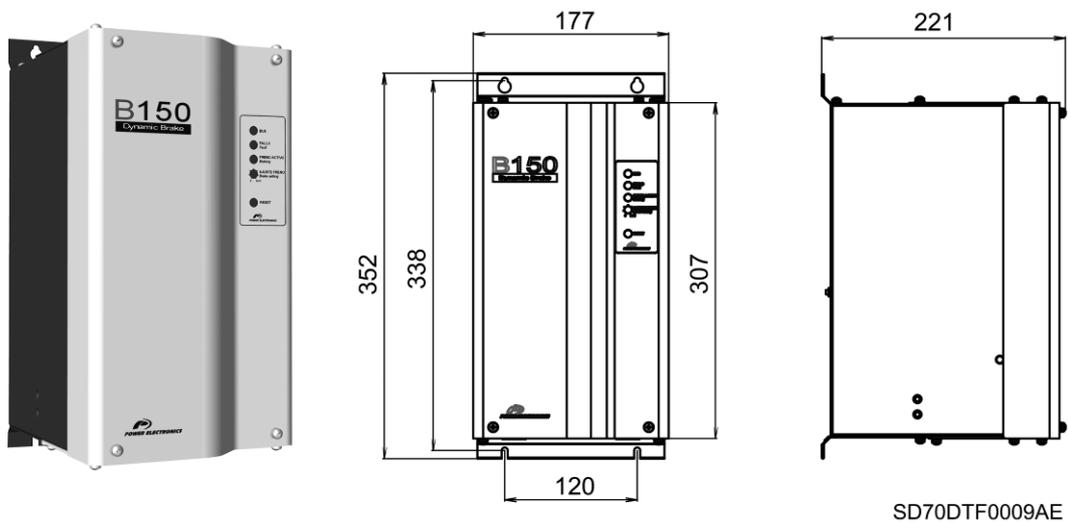
SD70DTD0047AE

Other accessories

Dynamic braking unit b150

The Dynamic brake permits to control the regenerated energy for series SD750 (integrated in frames 1 and 2). B150 dynamic brake activates an IGBT to discharge the DC bus with external resistors when the DC voltage overpasses a pre-set value. This activation signal can also be sent by the drive in slave mode from the common fiber optic port included in the control board.

The B150, with reduced dimensions and high reliability, is the main power-switching device of such dynamic braking systems.



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REF.	VOLTAGE (Vac)	CURRENT (A)		MINIMUM RESISTANCE RATING (Ω)	DIMENSIONS (mm)			WEIGHT (kg)
		MAXIMUM	CONTINUOUS		W	D	H	
B150	400 - 500	300	150	2.4	177	221	352	7

DECLARATION OF CONFORMITY CE

DECLARACIÓN DE CONFORMIDAD CE

The Company *La empresa:*

Name *Nombre:* **POWER ELECTRONICS ESPAÑA, S.L.**
Address *Dirección:* C/ Ronda Camp d'Aviació,4 Pol. Ind. Les Carrases 46160 Liria, Valencia, Spain
Telephone *Teléfono:* +34 96 136 65 57
Fax: +34 96 131 82 01

Declares under its own responsibility, that the product:

Declaro bajo su propia responsabilidad, que el producto:

Variable Speed Drive for AC motors
Variadores de velocidad para motores AC

Brand *Marca* : Power Electronics
Model *Modelo*: SD750

Is in conformity with the following European Directives:

Se halla en conformidad con las siguientes Directivas Europeas:

Reference <i>Referencia</i>	Title <i>Título</i>
2014/30/UE	Electromagnetic Compatibility <i>Compatibilidad Electromagnética</i>
2014/35/UE	Electrical Material intended to be used with certain limits of voltage <i>Material Eléctrico para su utilización con determinados límites de tensión (Baja tensión)</i>
2006/42/CE	Machinery directive <i>Directiva de Máquinas</i>

References of the harmonized technical norms applied under the Electromagnetic Compatibility Directive:

Referencias de las normas técnicas armonizadas aplicadas bajo la Directiva de Compatibilidad Electromagnética:

Reference <i>Referencia</i>	Title <i>Título</i>
EN IEC 61800-3:2018	Adjustable speed electrical power drive systems. Part 3: EMC requirements and specific test methods. <i>Accionamientos eléctricos de potencia de velocidad variable. Parte 3: Requisitos CEM y métodos de ensayo específicos.</i>

References of the harmonized technical norms applied under the Low Voltage Directive:

Referencias de las normas técnicas armonizadas aplicadas bajo la Directiva de Baja Tensión:

Reference <i>Referencia</i>	Title <i>Título</i>
EN 61800-5-1:2007 /A11:2021	Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy <i>Accionamientos eléctricos de potencia de velocidad variable. Parte 5-1: Requisitos de seguridad. Eléctricos, térmicos y energéticos.</i>

References of the harmonized technical norms applied under the Machinery Directive:

Referencias de las normas técnicas armonizadas aplicadas bajo la Directiva de Máquinas

Reference <i>Referencia</i>	Title <i>Título</i>
EN 61800-5-2:2017	Adjustable speed electrical power drive systems. Part 5-2: Safety requirements - Functional <i>Accionamientos eléctricos de potencia de velocidad variable. Parte 5-2: Requisitos de Seguridad Funcional.</i>

Paterna, 28th of August, 2021



David Salvo
CEO



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