EC75 Series

Engineering Products

Frequency Converters Sample Handbook

WISDRI (WUHAN) AUTOMATION CO.,LTD.

1. Company Profile

WISDRI (WUHAN) AUTOMATION CO.,LTD., established in 2004, is a key high-tech enterprise under the National Torch Plan. At present, it has won one first prize of the National Science and Technology Progress Award and six international advanced and above appraisal achievements.

The company has the industry leading R&D and manufacturing capabilities of frequency converters, big data software and other products, and has accumulated rich experience in the whole process of automation services based on products. It can provide system solutions in metallurgy, petrochemical, non-ferrous metal, coal, lifting, military and other fields, and will continue to inject strong power into high-quality development, make factories more intelligent, and make cities more intelligent.

2. Overview of EC7 Series Frequency Converters

The design purpose of E-CONVERT is to provide users with high-performance, high-precision, and highly reliable AC transmission products with excellent cost-effectiveness. The E-CONVERT 75 (referred to as EC75) series products are the latest intelligent modular engineering drive products launched by MCC Southern (Wuhan) Automation Co., Ltd., which integrate V/F and vector control. Its superior steady-state and dynamic performance are prerequisites for meeting various engineering applications.

The freely integrated functional blocks within EC75 enable logic, computation, and simple process control, making the frequency conversion system programmable. The data transmission between functional blocks and the setting of control parameters are achieved through parameter interconnection technology, and users can freely construct and match transmission systems according to process requirements.

3. The EC75 Series Products include Frequency Converters, Rectifiers, Inverters, and Auxiliary Apare Parts:

Engineering type frequency converter	Engineering inverter	Basic rectifier
EC750	EC751	EC752
Feedback rectifier	Active rectifier	
EC753	EC754	

The Naming convention of EC75 series products is as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	
E	C	7	5	0	4	B	X	X	1	9	A	6	＋ Option code

EC75 Series Products Frequency Converters

【1-2】product name		【6】voltage		【10-13】Rated output current	
EC	E-CONVERT	4	380V-480V	06A1	6.1A
【3-5】Product Series		6	500V-690V	19A6	19.6A
750	Engineering type frequency converter	【7】size		033A	33A
751	Engineering inverter	A-J	Size specifications A-J	1500	1500A
752	Basic rectifier	【8-9】reserved			
753	Feedback rectifier	XX	Reserve 2 digits		
754	Active rectifier	Note: Please refer to the ordering data parameter table for details			

## 3.1 EC750 Engineering Type Frequency Converter

EC750 is an engineering type frequency converter in the E-CONVERT series of products, with a structure that integrates a rectifier unit and an inverter unit. Especially suitable for single machine control situations with high requirements for control accuracy.

Rating	Input Voltage	3AC 380V（-15%）-480V （+10%）	input frequency	50Hz/60Hz，±5%
	Output voltage	Corresponding input voltage	efficiency	≥96%
	Frequency	V/f control：0-400Hz Vector control：0-300Hz	Carrier Frequency	1kHz-16kHz
Control characteristics	Speed range	1:100 (PG free flux vector control)，1:1000(Magnetic flux vector control with PG)		
	Starting torque	0.5Hz:200% (PG free flux vector control)，0Hz:200% (Magnetic flux vector control with PG)		
	Overload capacity	heavy load：Reference load current IH150% operates for 60 seconds，160%Run for 10 seconds，Cycle 300s underloading：Reference load current IL110% operation for 60 seconds，150% operation for 10 seconds，Cycle 300s		
Environment	Operating environment temperature	0-40℃（4Use with reduced capacity above 0 ℃）	Storage temperature	-40℃~+70℃
	Relative humidity	5%~95%，No condensation	Altitude	Derating above 2000 meters
	Safety regulations	CE	Cooling method	Forced air cooling
	EMC specifications	Complies with IEC61800-3C3 level		

Note: The carrier frequency range is related to the device power, as detailed in the carrier frequency reduction section

3.1.1 Overload Characteristics

Heavy load	Under load
Impact load: shear, rolling, etc	General loads: winding, conveying, etc
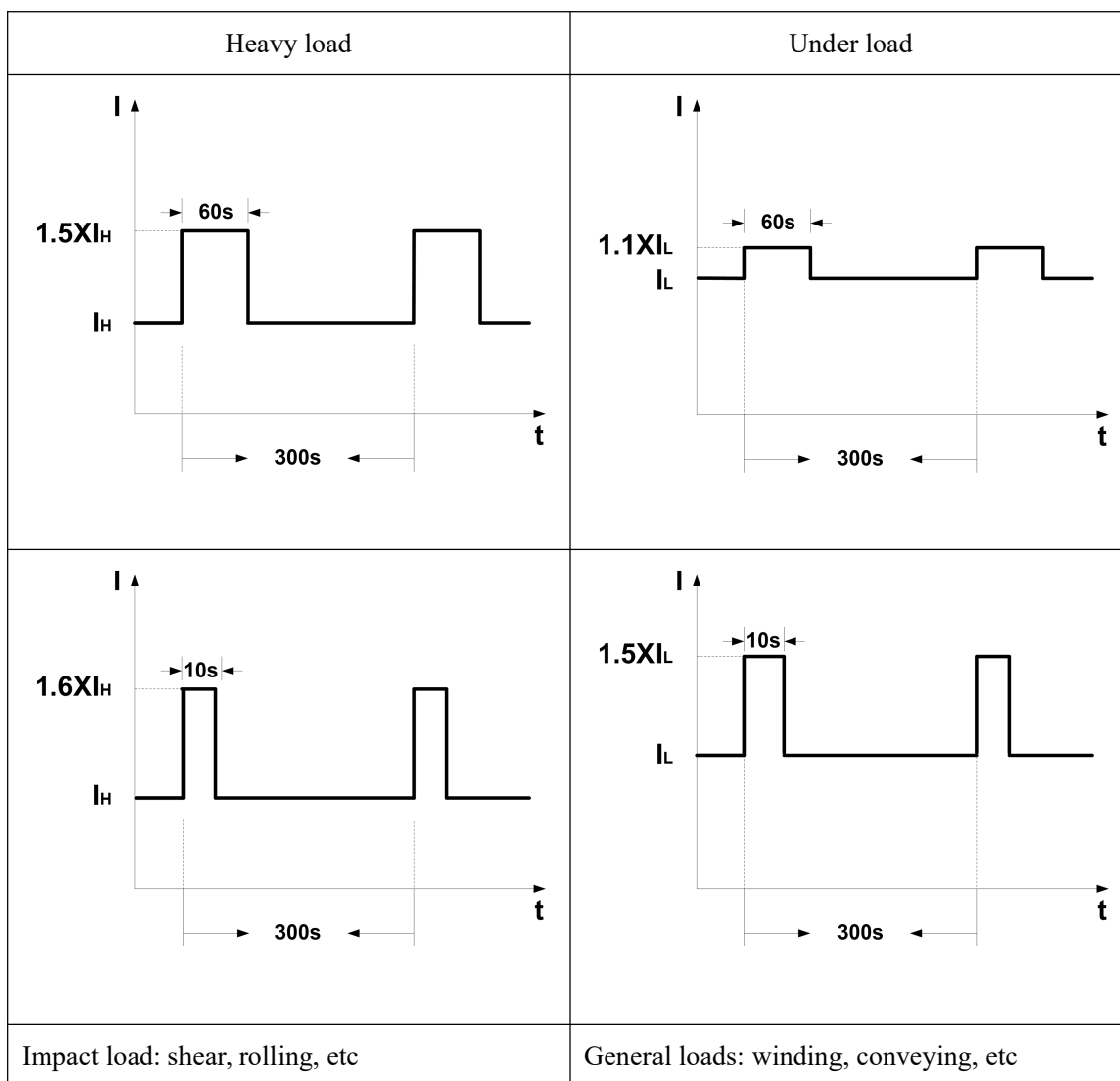
Note: IH: Heavy load basic load current, IL: Light load basic load current, IH<IL.

3.1.2 Ordering Data

Product order number	Input current (A)	Output current(A)	Underloading		Heavy load		size (width * height * depth, mm)
			power (kW)	IL(A)	power (kW)	IH(A)	
EC750-4AXX-06A 1	6.3	6.1	2.2	5.9	1.5	4.1	82*465*340
EC750-4AXX-07A 9	8.2	7.9	3	7.7	2.2	5.9	
EC750-4AXX-10A 5	10.8	10.5	4	10.2	3	7.7	
EC750-4AXX-13A 6	14.2	13.6	5.5	13.2	4	10.2	

EC750-4BXX-19A6	20.4	19.6	7.5	19	5.5	13.2	105*465*385
EC750-4BXX-26A8	28	26.8	11	26	7.5	19	
EC750-4CXX-033A	34	33	15	31	11	26	135*465*385
EC750-4CXX-39A2	40	39.2	18.5	37	15	31	
EC750-4DXX-46A4	48	46.4	22	45	18.5	37	208*465*402
EC750-4DXX-61A9	64	61.9	30	60	22	45	
EC750-4DXX-77A3	80	77.3	37	74	30	60	
EC750-4EXX-92A8	96	92.8	45	90	37	74	270*600*380
EC750-4FXX-113A	117	113	55	110	45	90	320*702*380
EC750-4FXX-149A	154	149	75	145	55	110	
EC750-4FXX-184A	189	184	90	178	75	145	
EC750-4GXX-210A	223	210	110	205	90	178	320*1370*380
EC750-4GXX-260A	277	260	132	250	110	233	
EC750-4HXX-310A	330	310	160	302	132	277	325*1530*542
EC750-4HXX-380A	404	380	200	370	160	340	
EC750-4HXX-490A	521	490	250	477	200	438	
EC750-4IXX-605A	644	605	315	590	250	460	523*1519*547
EC750-4IXX-745A	793	745	400	725	315	570	

Guideline

➤ The EC750 is an independent drive from AC to DC to AC, and needs to be selected based on the actual load current and considering the overload capacity of the EC750. When applied in heavy-duty situations, IH is the long-term allowable working current, and its overload characteristic is: 1.5 × IH overload for 60s, 1.6 × IH overload for 10 seconds, with a cycle of 300 seconds. When applied in light load situations, IL is the long-term allowable working current, and its overload characteristic is: 1.1 × IL overload for 60s, 1.5 × IL overload for 10 seconds, with a cycle of 300 seconds. When EC750 is installed in an altitude higher than
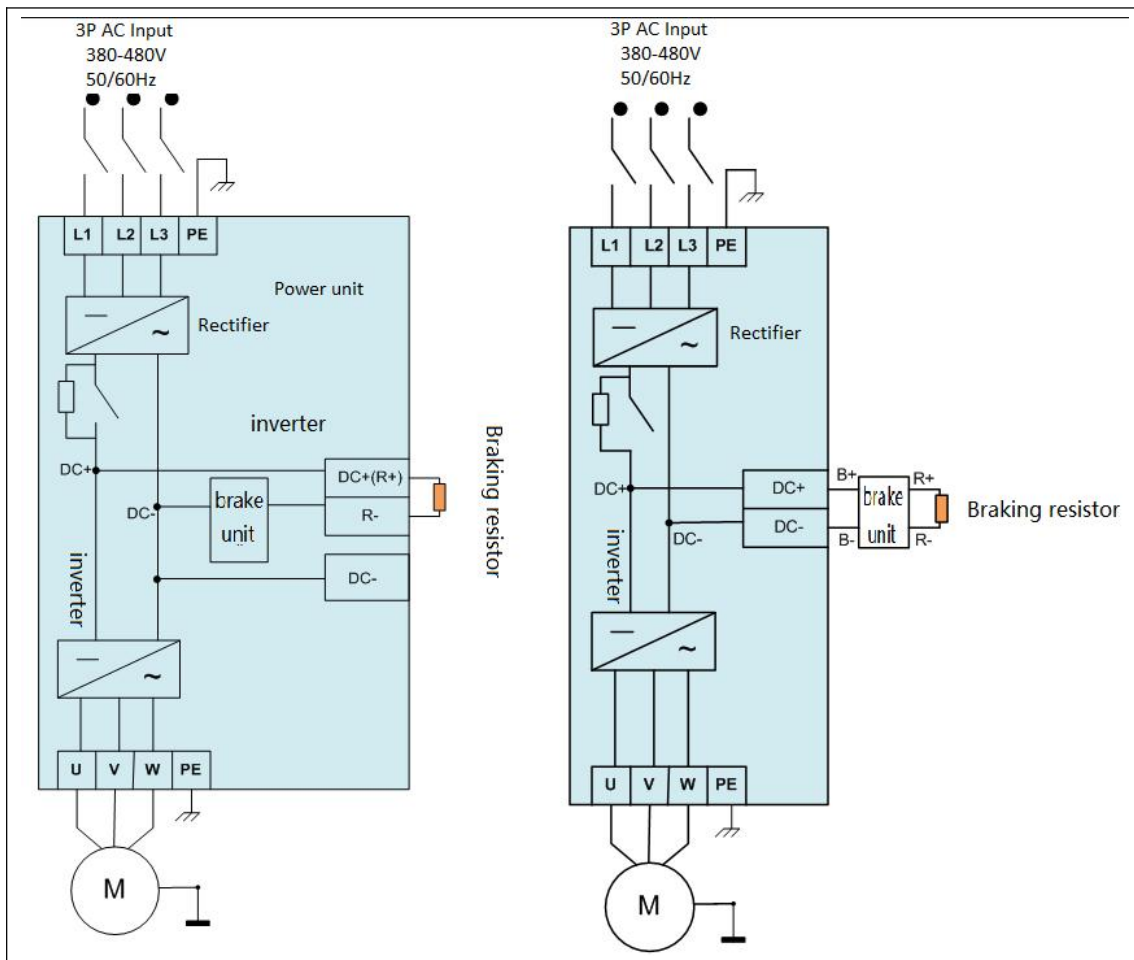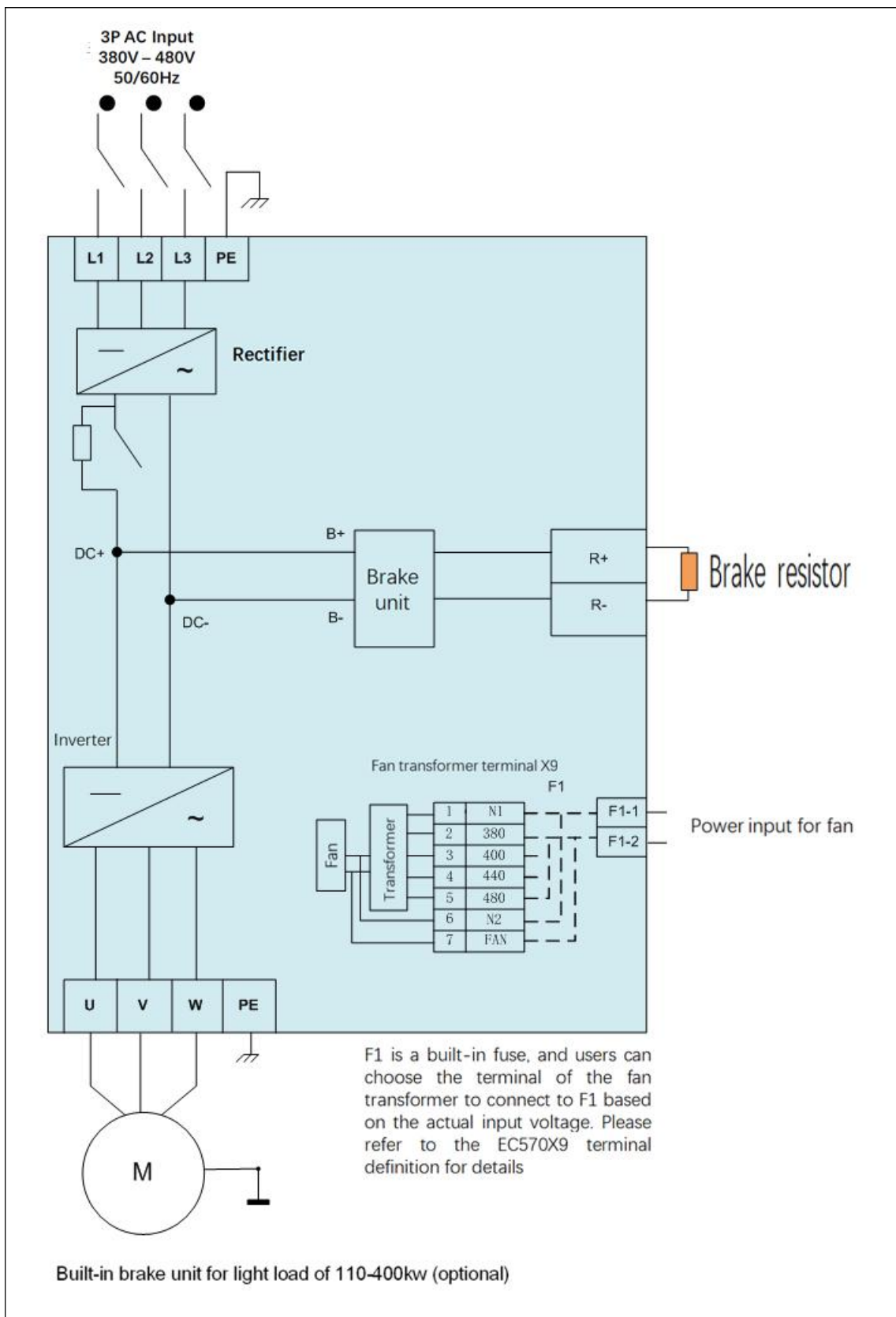
2000m or in a high temperature environment or with an increase in carrier frequency, it needs to be derated for use. The current derating and voltage derating curves can be found in the "Operating Environment" section;

➢ The main components on the grid side include fuses, contactors, circuit breakers, incoming reactors, etc. It is recommended to configure fuses with semiconductor protection capabilities to effectively protect the frequency converter from damage in the event of short circuits or overcurrent. It is recommended to configure a 2% incoming reactor, which can effectively suppress harmonic currents and limit current surges caused by grid side overvoltage (such as compensation equipment or grounding or operation overvoltage);

➢ It is recommended to configure a 1% output reactor at 100m;

➢ Please refer to the "Control Unit and External Options" section for the options of the braking unit and other options.

3.1.3 Power Unit Wiring Diagram

3P AC Input
380V – 480V
50/60Hz

L1 L2 L3 PE

Rectifier

DC+ B+ R+ Brake resistor
Brake unit
DC- B- R-

Inverter

Fan transformer terminal X9
F1

		N1		F1-1	Power input for fan
Fan	Transformer	1			
		2	380	F1-2	
		3	400		
		4	440		
		5	480		
		6	N2		
		7	FAN		

U V W PE

M

F1 is a built-in fuse, and users can choose the terminal of the fan transformer to connect to F1 based on the actual input voltage. Please refer to the EC570X9 terminal definition for details

Built-in brake unit for light load of 110-400kw (optional)

[Terminal Block×9]

Fan transformer	1	N1	Transformer primary input ground selection

terminal×9	2	380	Transformer input 380V selection
	3	400	Transformer input 400V selection
	4	440	Transformer input 440V selection
	5	480	Transformer input 480V selection
	6	N2	Transformer secondary input ground selection (for 220V direct supply)
	7	FAN	Transformer secondary input 220V selection (when 220V is directly supplied)

Note: The incoming terminal of the fan power supply is connected from the fuse F1 terminal, and the internal default connection method is 380V power supply. If there is a change in the fan power supply voltage, it is necessary to adjust the terminal wiring of the fuse F1. Please refer to the user manual or user manual for details.

3.2 EC751 Engineering Inverter

EC751 is an engineering inverter in the E-CONVERT series products, which is combined with a rectifier unit to form a DC bus transmission system. Multiple inverters are connected to the same DC bus section. Especially suitable for multi machine collaborative control with complex processes, such as steel, paper, and other fields.

3.2.1 Basic characteristics

RATING	**INPUT VOLTAGE**	DC510V-720V	**efficiency**	≥96%
	Output voltage	0.67×INPUT VOLTAGE	**Carrier Frequency**	1kHz-16kHz
	Frequency	V/f control：0-400Hz，Vector control：0-300Hz		
control characteristics	**speed range**	1:100 (PG free flux vector control)，1:1000(Magnetic flux vector control with PG)		
	starting torque	0.5Hz:200% (PG free flux vector control)，0Hz:200% (Magnetic flux vector control with PG)		
	Overload capacity	heavy load：Reference load currentI_H150% run60s，160%run10s，cycle300s underloading：Reference load currentI_L110% run60s，150%run10s，cycle300s		
environment	**Operating environment temperature**	0-40 ℃ (for use above 40 ℃, the capacity needs to be reduced)	**storage temperature**	-40℃~+70℃
	relative humidity	5%~95%，No condensation	**altitude**	Derating above 2000 meters
	Safety regulations	CE	**Cooling method**	Forced air cooling
	EMC specifications	Complies with IEC 61800-3 C3 level		

Note: The carrier frequency range is related to the device power, as detailed in the carrier frequency reduction section.

3.2.2 Overload characteristics
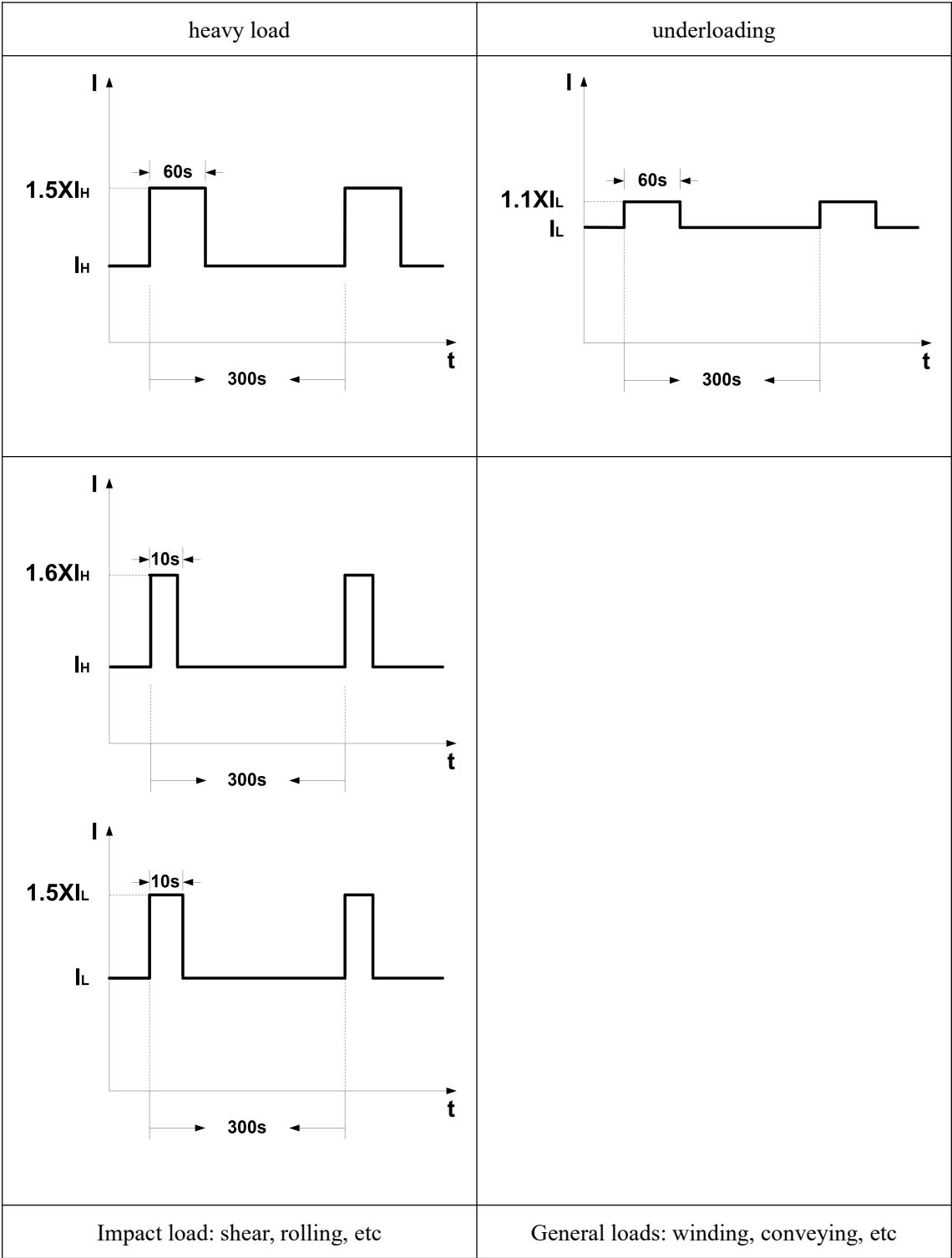
heavy load	underloading
$1.5XI_H$ $60s$ I_H $300s$ I — t	$1.1XI_L$ I_L $60s$ $300s$ I — t
$1.6XI_H$ $10s$ I_H $300s$ I — t $1.5XI_L$ $10s$ I_L $300s$ I — t	
Impact load: shear, rolling, etc	General loads: winding, conveying, etc

Note: IH: Heavy load basic load current, IL: Light load basic load current, IH<IL.

3.2.3 Ordering data

Product order number	Output current (A)	underloading		heavy load		size (width * height * depth, mm)
		power(kW)	I_L(A)	power(kW)	I_H(A)	
EC751-4AXX-07A9	7.9	3	7.7	2.2	5.9	82*465*340
EC751-4AXX-10A5	10.5	4	10.2	3	7.7	
EC751-4AXX-13A6	13.6	5.5	13.2	4	10.2	
EC751-4BXX-19A6	19.6	7.5	19	5.5	13.2	105*465*385
EC751-4BXX-26A8	26.8	11	26	7.5	19	
EC751-4CXX-033A	33	15	31	11	26	135*475*385
EC751-4CXX-39A2	39.2	18.5	37	15	31	
EC751-4DXX-46A4	46.4	22	45	18.5	37	208*465*402
EC751-4DXX-61A9	61.9	30	60	22	45	
EC751-4DXX-77A3	77.3	37	74	30	60	
EC751-4EXX-92A8	92.8	45	90	37	74	270*600*380
EC751-4FXX-113A	113	55	110	45	90	320*702*380
EC751-4FXX-149A	149	75	145	55	110	
EC751-4FXX-184A	184	90	178	75	145	
EC751-4GXX-210A	210	110	205	90	178	320*1370*380
EC751-4GXX-260A	260	132	250	110	233	
EC751-4HXX-310A	310	160	302	132	277	325*1530*542
EC751-4HXX-380A	380	200	370	160	340	
EC751-4HXX-490A	490	250	477	200	438	

EC751-4IXX-605A	605	315	590	250	460	523*1519*547
EC751-4IXX-745A	745	400	725	315	570	
EC751-4JXX-840 A	840	450	820	400	700	750*1540*545
EC751-4JXX-985 A	985	560	960	450	860	
EC751-4JXX-1260	1260	710	1230	560	1127	
EC751-4JXX-1405	1405	800	1370	710	1257	

Guideline

➢ EC751 is an inverter unit that needs to be selected based on the actual load current and considering the overload capacity of EC751. When applied in heavy-duty situations, to allow long-term working current, its overload characteristics are: overload for 60s, overload for 10s, and cycle for 300s. When applied in light load situations, to allow long-term working current, its overload characteristics are: overload for 60s, overload for 10s, and cycle for 300s. When EC751 is installed at an altitude above 2000m or in a high temperature environment or with an increase in carrier frequency, a lineup is required. Please refer to the "Operating Environment" section for its current lineup and voltage reduction curve.

➢ The DC side of EC751 is equipped with semiconductor protection and fuses, which can effectively protect the frequency converter from damage in case of short circuit or overcurrent.

➢ The output reactor is used to compensate for the capacitive charging current of long cables. When the cable length exceeds 100m, it is recommended to configure a 1% output reactor.

➢ Please refer to the "Control Unit and External Selection" section for the selection of brake units and other selected accessories

3.2.4 Power Unit Wiring Diagram
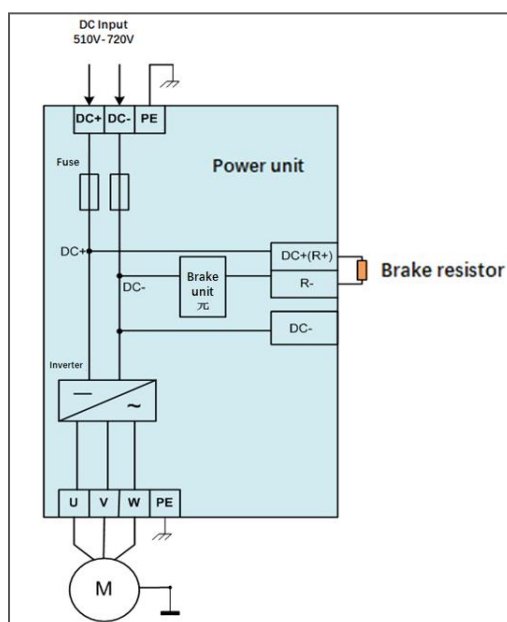
Light load 3-18.5kW brake unit built-in (standard)

DC Input
510V-720V

DC+ DC- PE

Fuse   Power unit

DC+   DC+   B+   Brake   R+   **Brake resistor**
       DC-   unit
DC-   DC-   B-   R-

Inverter

U V W PE

M

Built-in brake unit for light load of 22-90kw (optional)

Built-in brake unit for light load of 110-800kw (Standard)
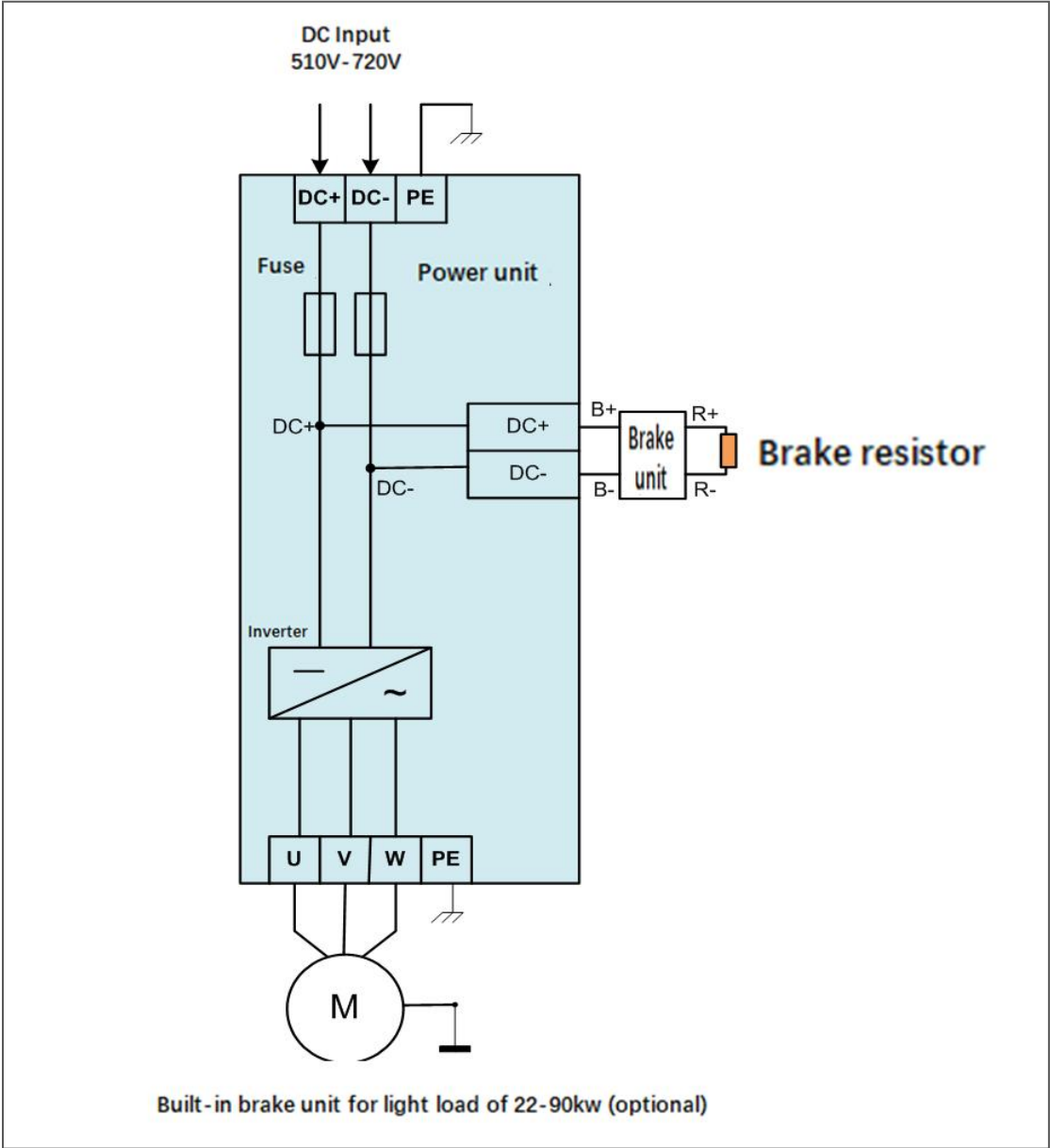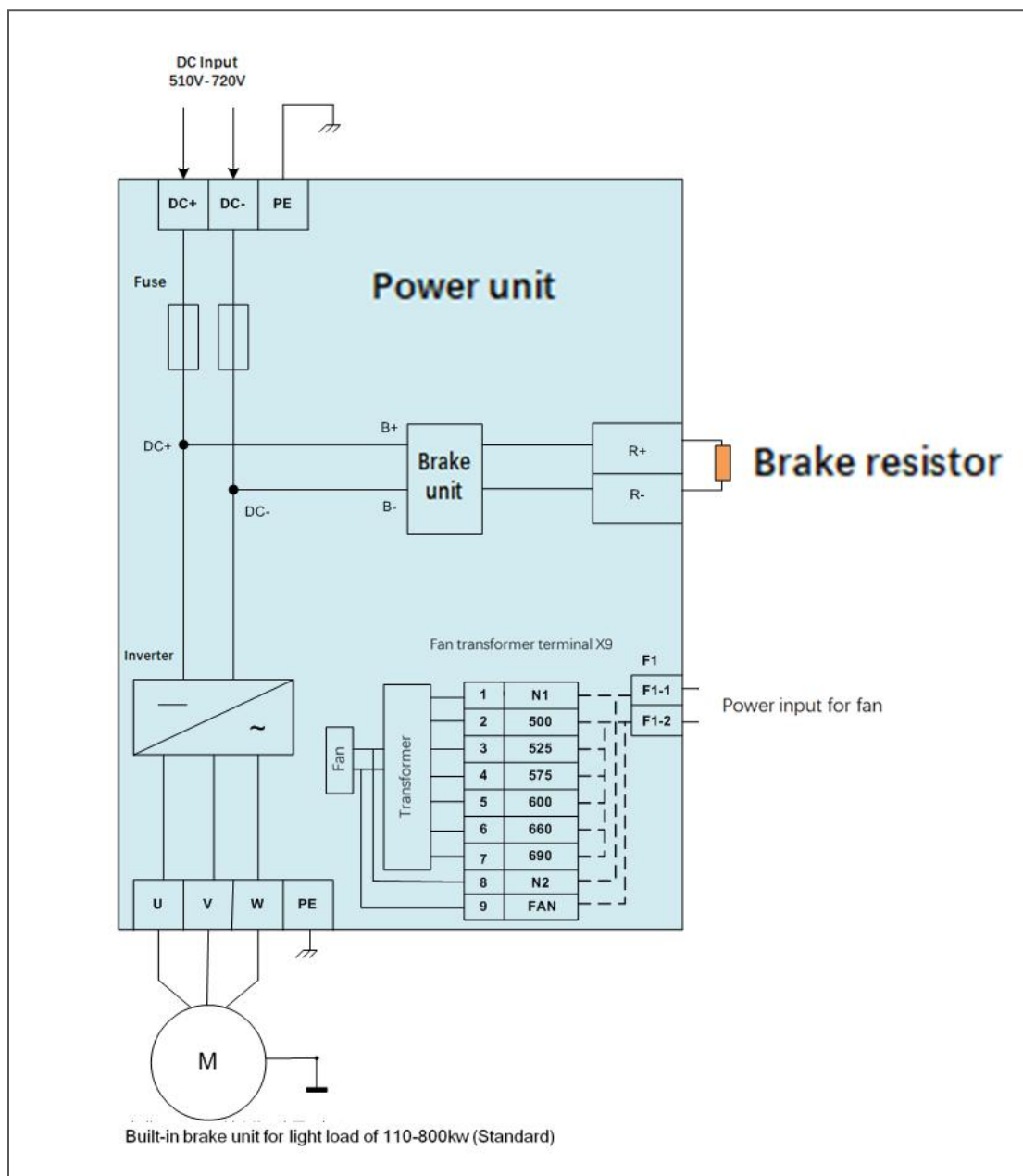
3.3 EC752 Basic rectifier

EC752 is a basic rectifier unit in the E-CONVERT series of products. It is a device that provides DC power to the EC751 inverter, and can be equipped with brake units and resistors to achieve fast braking and other functions.

3.3.1 Basic characteristics

RATING	INPUT VOLTAGE	3AC 380V（-15%）~480V（+10%）	efficiency	≥96%
	Output voltage	one point three two × Input voltage (full load)	Braking method	Built-in options
	Overload capacity	Operating for 60 seconds with a reference load current of 150% and a cycle of 300 seconds Maximum bus current operation for 5 seconds, cycle for 300 seconds		
environment	Operating environment temperature	0-40 ℃ (use with reduced capacity below 40 ℃)	storage temperature	-40℃~+70℃
	relative humidity	5%~95%，No condensation	altitude	Derating above 2000 meters
	Safety regulations	CE	Cooling method	Forced air cooling
	EMC specifications	Complies with IEC 61800-3 C3 level		

3.3.2 Overload Characteristics
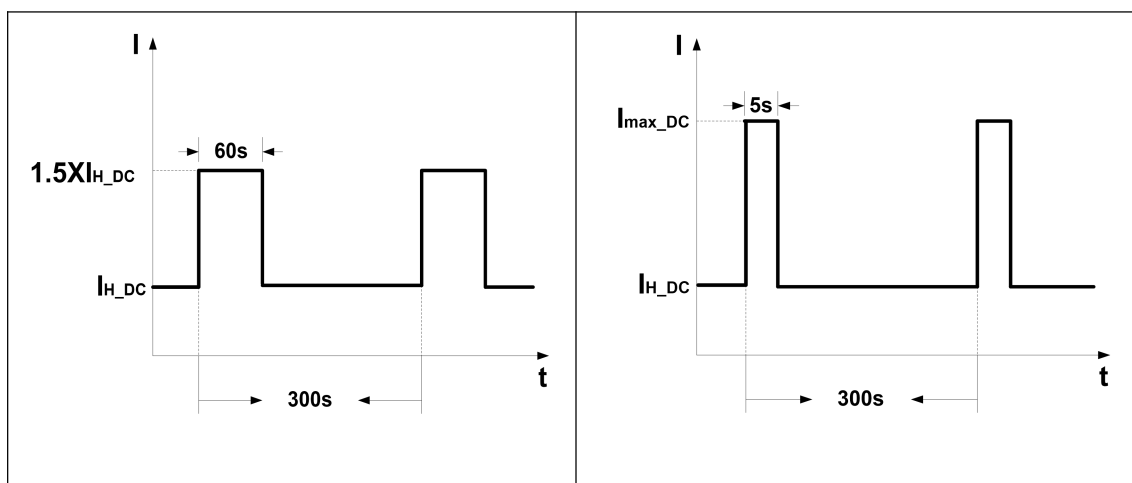
Note:<1>: Basic load current,: Maximum bus current.

3.3.3 Ordering Data

Product order number	power (kW)	input current(A)	Maximum input current (A)	Output rated current (A)	Basic load current (A)	Maximum busbar current (A)	size (width * height * depth, mm)
EC752-4D-420A	200	365	547	420	328	630	306*1161*365

EC752-4D-530A	250	460	690	530	413	795	
EC752-4D-820A	400	710	1065	820	640	1230	
EC752-4E-1200	560	1010	1515	1200	936	1800	306*1650*542
EC752-4E-1500	710	1265	1897	1500	1170	2250	

Guideline

➢ EC752 is a basic rectifier unit that needs to be selected based on the actual load current and considering the overload capacity of EC752. For long-term allowable working current, its overload characteristic is: overload for 60s, with a cycle of 300s; When the maximum bus current is reached (as shown in the table above), it can operate for 5 seconds with a cycle of 300 seconds. When EC752 is installed in an altitude above 2000m or in a high temperature environment, it needs to be derated for use. The current derating and voltage derating curves can be found in the "Operating Environment" section.

➢ The main components on the grid side include fuses, contactors, circuit breakers, incoming reactors, etc. It is recommended to configure fuses with semiconductor protection capabilities. It can effectively protect the rectifier from damage in case of short circuit or overcurrent. It is recommended to configure a 2% incoming reactor, which can effectively suppress harmonic currents and limit current surges caused by grid side overvoltage (such as compensation equipment or grounding or operation overvoltage).

➢ EC752 charges the DC side capacitor by controlling the trigger angle of the thyristor, eliminating the need for designing a pre charging circuit, saving costs and simplifying the system.

➢ Please refer to the "Control Unit and External Options" section for the selection of brake units and other options.

3.3.4 Power Unit Wiring Diagram
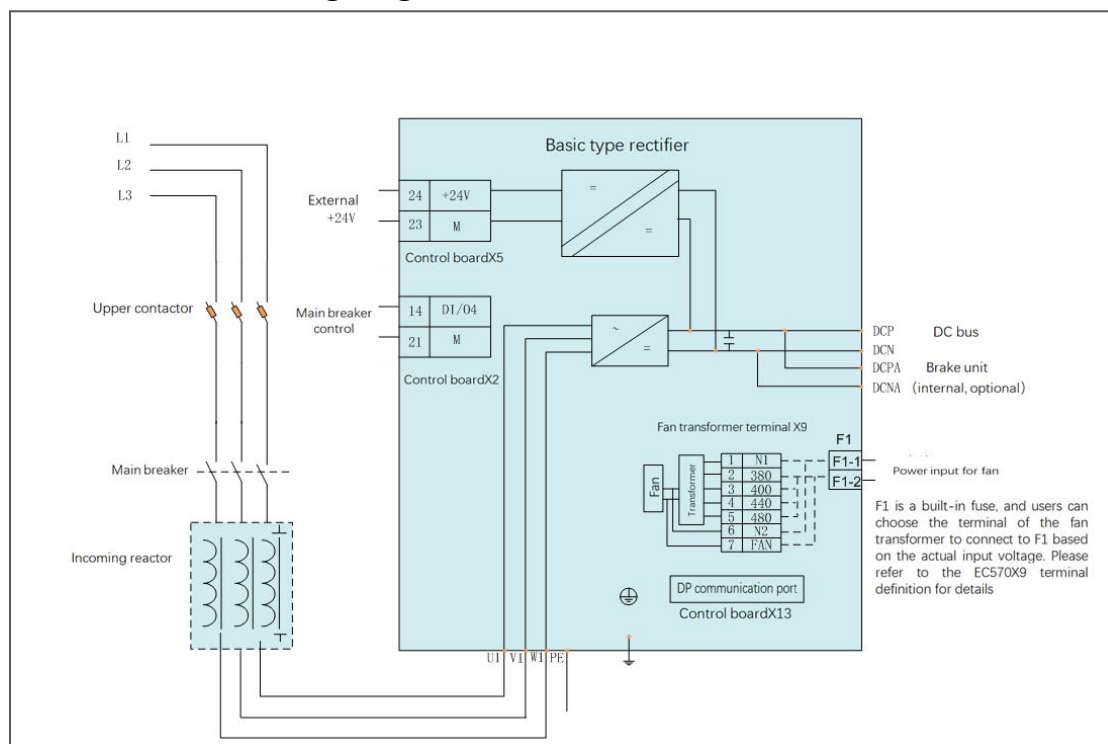
3.4 EC753 Feedback Rectifier

EC753 is a feedback rectifier unit in the E-CONVERT series of products. It is a device that provides DC power to the EC751 inverter, with 100% energy feedback function and no need to configure braking components.

3.4.1 Basic characteristics

RATING	INPUT VOLTAGE	3AC 380V（-15%）~480V（+10%）	efficiency	≥98.5%
	Output voltage	one point three zero × Input voltage (full load) one point three two × Input voltage (light load)	Fundamental power factor	＞0.96
	Overload capacity	Operating for 60 seconds with a reference load current of 150% and a cycle of 300 seconds Maximum bus current operation for 5 seconds, cycle for 300 seconds		
environment	Operating environment temperature	0-40 ℃ (use with reduced capacity below 40 ℃)	storage temperature	-40℃~+70℃
	relative humidity	5%~95%，No condensation	altitude	Derating above 2000 meters
	Safety regulations	CE	Cooling method	Forced air cooling
	EMC specifications	Complies with IEC 61800-3 C3 level		

3.4.2 Overload characteristics
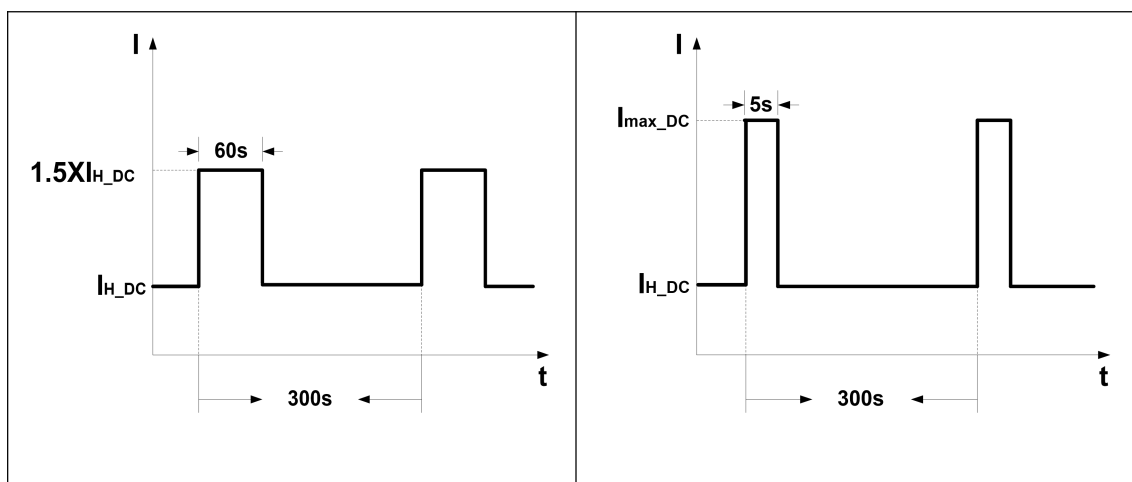
Note:<1>: Basic load current,: Maximum bus current.

3.4.3 Ordering Data

Product order number	power kW	Rated output Incoming current A（AC）	Maximum input current A(AC)	Output rated current A(DC)	Basic load current A(DC)	Maximum busbar currentA(DC)	size (width * height * depth, mm)
EC753-4J-1050	500	883	1324	1050	934	1575	
EC753-4J-1300	630	1093	1639	1300	1157	1950	750*1540*545
EC753-4J-1700	800	1430	2145	1700	1513	2550	

Guideline

➢ EC753 is a feedback rectifier unit that needs to be selected based on the actual load current and considering the overload capacity of EC753. For long-term allowable working current, its overload characteristic is: overload for 60s, with a cycle of 300s; When the maximum bus current is reached (as shown in the table above), it can operate for 5 seconds with a cycle of 300 seconds. When EC753 is installed in an altitude above 2000m or in a high temperature environment, it needs to be derated for use. The current derating and voltage derating curves can be found in the "Operating Environment" section.

➢ The main components on the grid side include fuses, contactors, circuit breakers, incoming reactors, etc. It is recommended to configure fuses with semiconductor protection capabilities. It can effectively protect the rectifier from damage in case of short circuit or overcurrent. It is recommended to configure a 2% incoming reactor, which can effectively suppress harmonic currents and limit current surges caused by grid side overvoltage (such as compensation equipment or grounding or operation overvoltage).

➢ The EC753 has a built-in pre charging circuit that can charge the DC side capacitor without the need for a separate pre charging circuit, saving costs and simplifying the system.

3.4.4 Power Unit Wiring Diagram

Feedback type rectifier

External +24V — 24 +24V
+24V — 23 COM
Control boardX5

L1
L2
L3

13 DI8 Main breaker closing feedback
15 DI7 Pre-charging breaker closing feedback
22 +24V
Control boardX2

F1 is a built-in fuse, and users can choose the terminal of the fan transformer to connect to F1 based on the actual input voltage. Please refer to the EC753x6 terminal definition for details

Main switch

Fan transformer terminalX9
F1_1   1 N1
F1_2   2 380
F1   3 400
       4 440
       5 480
       6 N2
       7 FAN
       9 K11
      10 K12
      11 K21
      12 K22
220V AC
L N

Transformer
220V AC
fan

Main breaker

Rectifier
L1   13 L1
L2   14 L2
L3   15 L3
     16 EA
     17 EC
     18 RA
     19 RC

Incoming reactor

Pre-charging breaker

DP communication port
Control boardX13

DCP — DC bus
DCN

U1 V1 W1 PE

3.5 EC754 Active Rectifier

The EC754 active rectifier is a new generation of high-frequency PWM rectifiers in the E-CONVERT series of products. It generates an adjustable DC bus voltage and can provide DC power to the EC751 inverter. With 100% energy feedback function, there is no need to configure braking components. The EC754 active rectifier is composed of a combination of filtering unit and rectification unit.

The operation of the EC754 active rectifier must use a matching filtering unit.

3.5.1 Basic Characteristics

RATING	INPUT VOLTAGE	3AC 380V-10 % (-15% < 1 min)～3AC 480V+10%	efficiency	≥97.5%
	Output voltage	The DC bus voltage can be adjusted, and the set value can be independent of the input voltage. The factory set value of DC bus voltage is 625V.	Fundamental power factor	1 (Can be changed by setting the reactive current)
	Overload capacity	Operating for 60 seconds with a reference load current of 150% and a cycle of 300 seconds Maximum bus current operation for 5 seconds, cycle for 300 seconds		
	Current harmonics	Under rated load, grid side current harmonics ≤ 5%		
environment	Operating environment temperature	-10℃～+55℃ (For use above 40 ℃, the capacity needs to be reduced)	storage temperature	-40℃～+70℃
	relative humidity	5%～95%，No condensation	altitude	Derating above 1000 meters
	Safety regulations	CE	Cooling method	Forced air cooling
	EMC specifications	Complies with IEC 61800-3 C3 level		

3.5.2 Overload Characteristics

Note: IH: Heavy load basic load current, IL: Light load basic load current, IH<IL.
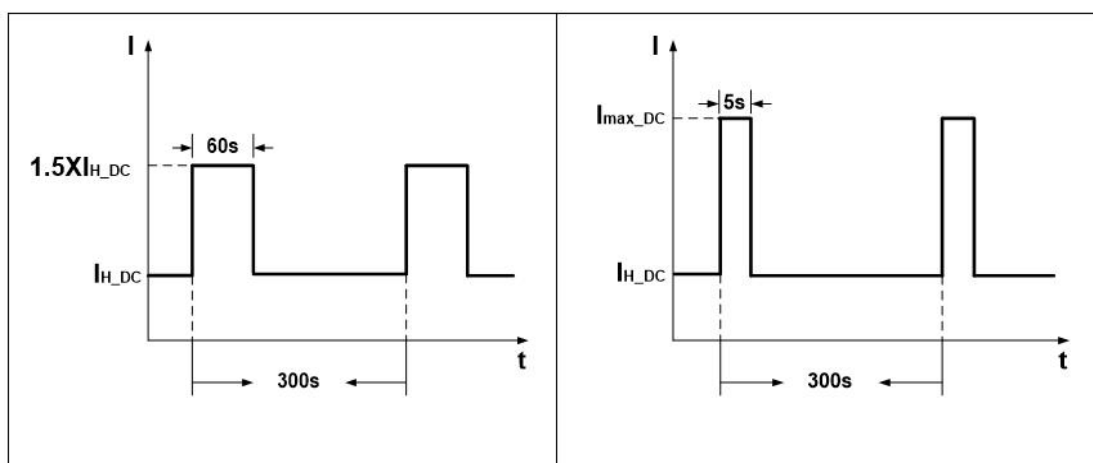
3.5.3 Ordering Data

Table 1

Rectifier unit Order number	Rated output power （KW）	output currentI_N DC A (DC)	Reference output currentI_H DC A(DC)	maximum output currentI_{max} DC A(DC)	input currentI_N E A (AC)	Maximum input currentI_{max} E A (AC)	Rectifier unit size (width * height * depth, mm)
EC754-4GXX-235A	132	235	209	352	210	315	320*1370*380
EC754-4GXX-291A	160	291	259	436	260	390	
EC754-4HXX-425A	235	425	378	637	380	570	325*1530*542
EC754-4HXX-549A	300	549	489	823	490	735	
EC754-4IXX-678A	380	678	603	1017	605	907	523*1519*547
EC754-4IXX-835A	450	835	700	1252	745	1117	
EC754-4JXX-940A	500	940	837	1410	840	1260	750*1540*545
EC754-4JXX-1103	630	1103	982	1654	985	1477	
EC754-4JXX-1412	800	1412	1255	2120	1260	1890	
EC754-4JXX-1574	900	1574	1401	2361	1405	2107	

Table 2

active rectifier Rated output power （KW）	Filter unit Order number	Filter unit size (width * height * depth, mm)
132	EC754-4GXL-235A	325*1400*355
160	EC754-4GXL-291A	
235	EC754-4HXL-425A	325*1533*543
300	EC754-4HXL-549A	
380	EC754-4IXL-678A	305*1750*544

450	EC754-4IXL-835A	
500	EC754-4JXL-940A	
630	EC754-4JXL-1103	505*1750*544
800	EC754-4JXL-1412	
900	EC754-4JXL-1574	

Guideline

➢ The EC754 active rectifier is a high-frequency PWM rectifier unit that needs to be selected based on the actual load current and considering the overload capacity of EC754. For long-term allowable working current, its overload characteristic is: overload for 60s, with a cycle of 300s; When the maximum bus current is reached (as shown in the table above), it can operate for 5 seconds with a cycle of 300 seconds. When EC754 is installed in an altitude above 1000m or in a high temperature environment, it needs to be derated for use. The current derating and voltage derating curves can be found in the "Operating Environment" section;

➢ The main components on the grid side include fuses, contactors, circuit breakers, etc. It is recommended to configure fuses with semiconductor protection capabilities to effectively protect the rectifier from damage in the event of short circuits or overcurrent;

➢ The operation of the EC754 active rectifier must use a matching filtering unit.

3.5.4 Power Unit Wiring Diagram
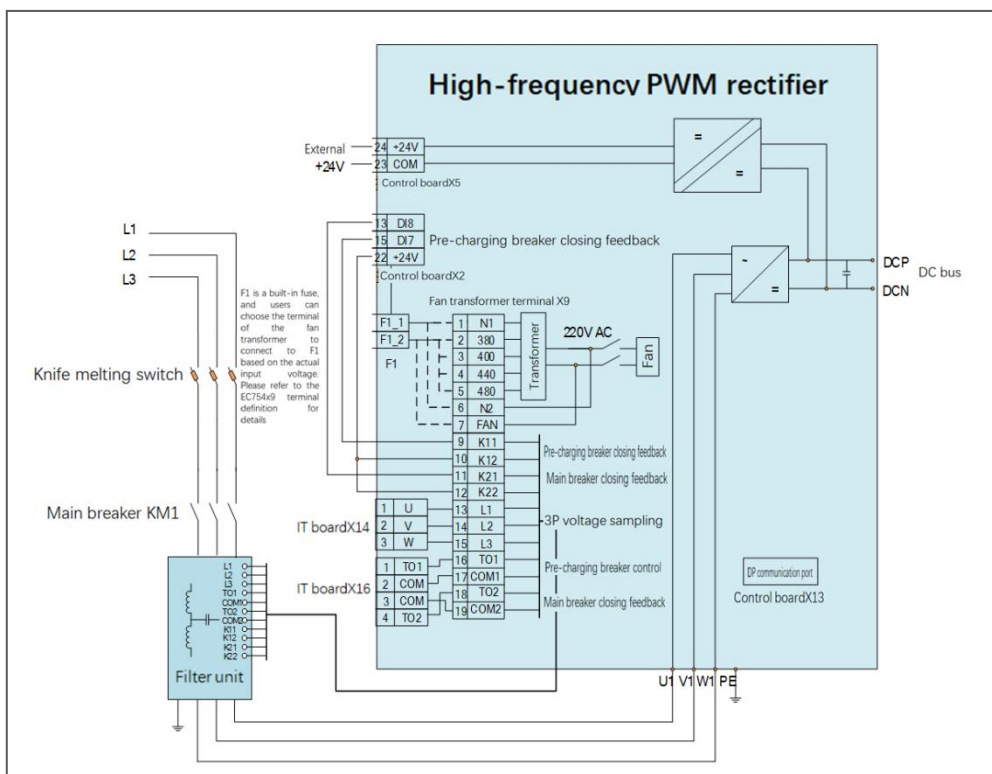
4. Control Unit and External Options

The control unit is the core control part of the E-CONVERT series products, responsible for controlling and coordinating all components in the drive system. EC750, EC751, EC752, and EC753 have the same control board hardware and are already standard, so there is no need to order separately.

4.1 Wiring diagram
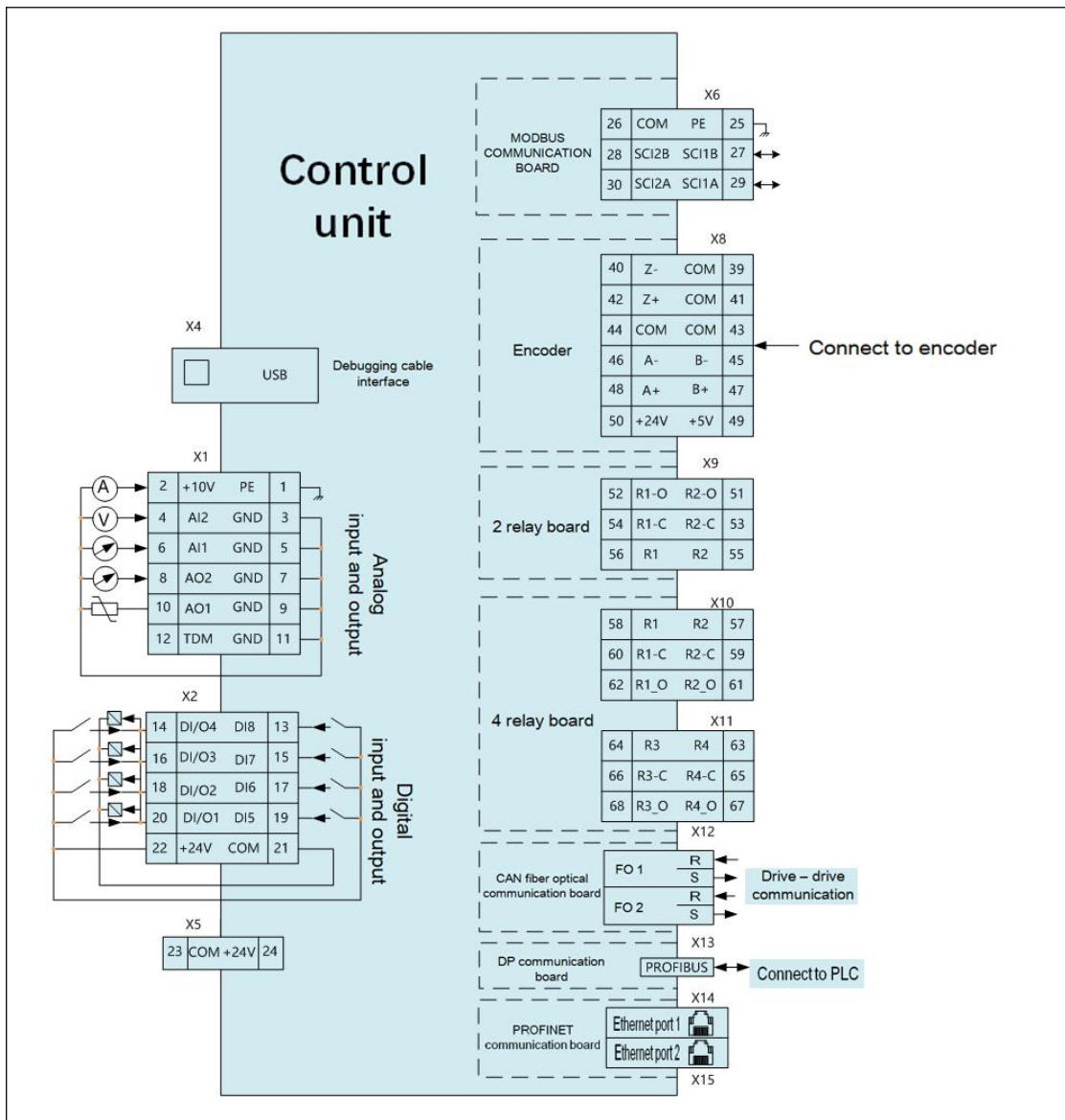
4.2 Definition of control part terminals

Terminal classification	terminal number	Terminal markings	Terminal Function Description	technical specifications
X1 simulation Input output	1	PE	shielding grounding	Internally connected to the main circuit terminal PE
	2	+10V	+10V analog voltage grounded	+10V（±10%）, maximum10mA
	3	GND	analog ground	Internal and COM isolation
	4	AI2	Analog Input 2	-10V/0V~10V or -20/0/4mA~20mA, with a resolution of 12 bits and 1 bit symbol bit
	5	GND	analog ground	Internal and COM isolation
	6	AI1	Analog Input 1	-10V/0V~10V or -20/0/4mA~20mA, with a resolution of 12 bits and 1 bit symbol bit
	7	GND	analog ground	Internal and COM isolation
	8	AO2	Analog output 2	-10V~10V or 0mA~20mA, with a resolution of 11 bits
	9	GND	analog ground	Internal and COM isolation
	10	AO1	Analog output 1	-10V~10V or 0mA~20mA, with a resolution of 11 bits
	11	GND	analog ground	Internal and COM isolation
	12	TDM	Motor temperature detection（PTC/KTY）	-40°C~300°C
X2Digital input and output	13	DI8	Digital input terminals 5-8	Optocoupler isolation input terminals, including DI5~DI7 with a maximum input frequency of 200Hz and DI8 with a maximum input frequency of 10KHz
	15	DI7		
	17	DI6		
	19	DI5		
	14	DI/O4	Digital input/output terminals 1-4	Optocoupler isolation input terminal, Among them: maximum input frequency 200Hz, maximum output 50mA/24V DC
	16	DI/O3		
	18	DI/O2		
	20	DI/O1		

Terminal classification	terminal number	Terminal markings	Terminal Function Description	technical specifications
	21	COM	Digital input/output terminal common ground	Internal and GND isolation
Terminal classification	terminal number	Terminal markings	Terminal Function Description	technical specifications
	22	+24V	+24VDigital input/output auxiliary power supply	5mA/20V~24V DC
X4Upper Computer communication		USB	USB interface	Standard USB_ B-type male port
X5 external power interface	23	COM	Common ground	Internal and GND isolation
	24	+24V	External+24V power supply positive terminal	1A/20V~28VDC
X6 Modbus	25	PE	shielding grounding	Internally connected to the main circuit terminal PE
	26	COM	Common ground	Internal and GND isolation
	27	SCI1B	Serial interface 1	B signal of serial interface 1
	28	SCI2B	Serial interface 2	B signal of serial interface 2
	29	SCI1A	Serial interface 1	A signal of serial interface 1
	30	SCI2A	Serial interface 2	A signal of serial interface 2
X8Encoder interface	39	COM	Common ground	Isolation from internal GND
	40	Z-	Connected to motor encoder	Z-signal connected to motor encoder
	41	COM	Common ground	Isolation from internal GND
	42	Z+	Connected to motor encoder	Z+signal connected to motor encoder
	43	COM	Common ground	Isolation from internal GND
	44	COM	Common ground	Isolation from internal GND
	45	B-	Connected to motor encoder	B-signal connected to motor encoder
	46	A-	Connected to motor encoder	A-signal connected to motor encoder
	47	B+	Connected to motor	B+signal connected to motor

Terminal classification	terminal number	Terminal markings	Terminal Function Description	technical specifications
			encoder	encoder
	48	A+	Connected to motor encoder	A+signal connected to motor encoder
	49	COM	Encoder power selection	+5V or+24V power supply can be selected through a dial switch
	50	ENC	Common ground	Isolation from internal GND
	51	R2_O	R2 relay normally open contact	Maximum output 5A/30V DC; 10A/125V AC or 5A/250V AC
	52	R1_O	R1 relay normally open contact	Maximum output 5A/30V DC; 10A/125V AC or 5A/250V AC
Terminal classification	terminal number	Terminal markings	Terminal Function Description	technical specifications
X9 2-way Relay board	53	R2_C	R2 relay normally closed contact	Maximum output 5A/30V DC; 10A/125V AC or 5A/250V AC
	54	R1_C	R1 relay normally closed contact	Maximum output 5A/30V DC; 10A/125V AC or 5A/250V AC
	55	R2	R2 relay common contact	Maximum output 5A/30V DC; 10A/125V AC or 5A/250V AC
	56	R1	R1 relay common contact	Maximum output 5A/30V DC; 10A/125V AC or 5A/250V AC
X10/X11 4Circuit relay board	57	R2_O	R2 Normally open contact of relay	maximum output 1A/30V DC; 0.3A/125V AC
	58	R1_O	R1 Normally open contact of relay	maximum output1A/30V DC; 0.3A/125V AC
	59	R2_C	R2 Normally closed contact of relay	maximum output1A/30V DC; 0.3A/125V AC
	60	R1_C	R1 Normally closed contact of relay	maximum output1A/30V DC; 0.3A/125V AC
	61	R2	R2 Relay Common Contact	maximum output1A/30V DC; 0.3A/125V AC
	62	R1	R1 Relay Common Contact	maximum output1A/30V DC; 0.3A/125V AC
	63	R4_O	R4 Normally open contact of relay	maximum output1A/30V DC; 0.3A/125V AC
	64	R3_O	R3 Normally open contact of relay	maximum output1A/30V DC; 0.3A/125V AC

	65	R4_C	R4 Normally closed contact of relay	maximum output1A/30V DC；0.3A/125V AC
	66	R3_C	R3 Normally closed contact of relay	maximum output1A/30V DC；0.3A/125V AC
	67	R4	R4 Relay Common Contact	maximum output1A/30V DC；0.3A/125V AC
	68	R3	R3 Relay Common Contact	maximum output1A/30V DC；0.3A/125V AC
X12 CAN-Optical Communicati on		optical fiber 1	Fiber optic transceiver integrated	Maximum communication rate1M/s
		optical fiber 2	Fiber optic transceiver integrated	Maximum communication rate1M/s
X13 Profibus-DPc ommunicate		Profibus-DPcomm unicate	Profibus-D Pinterface	Maximum communication rate12M/s
X14、X15 PROFINETc ommunicate		PROFIN ETcomm unicate	PROFINETetherNet	Maximum communication rate 100Mb/s

4.3 Ordering Data

Name	Relay Board	
shape		
code	R01	R02
order No	EC700Z-R01	EC700Z-R02
illustrate	2 normally open/normally closed outputs - Maximum output capacity：5A/30V DC；10A/125V AC 或 5A/250V AC	4 NO/NC outputs - Maximum output capacity：1A/30V DC；0.3A/125V AC

Name	DP communication board	Modbus Communication Board

EC75 Series Products Frequency Converters

shape		
code	C01	C02
order No	EC700Z-C01	EC700Z-C02
illustrate	● PROFIBUS Open Message Protocol ● Can be connected to standard PROFIBUS-DP fieldbus system	● Modbus RTU/ASCII Communication protocol ● Can be connected to standard Modbus fieldbus system

Name	PROFINET-IO Communication Board	Encoder board
shape		
code	C04	E01
order No.	EC700Z-C04	EC700Z-E01
illustration	● Support for PROFINET communication ● Can be connected to a standard PROFINET fieldbus system	● Supports HTL/TTL signals ● Provide： DC 5V/24V power supply； TTL pulse distribution interface

Name	CAN Fiber-optic communication board	Multifunctional operation panel
shape		
code	C03	P01
order No.	EC700Z-C03	EC750Z-P01(Suitable for EC750 and EC751 series products) EC752Z-P01(Suitable for EC752 series products) EC753Z-P01(Suitable for EC753 series

EC75 Series Products Frequency Converters
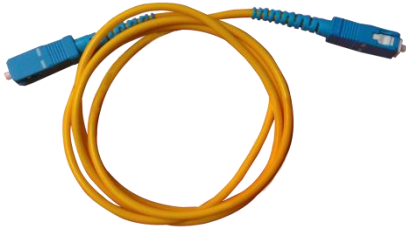
		products)
illustration	• Maximum communication rate of 1M/S for driver communication • CAN Fiber-optic communication cable is required • Only applicable to EC750 and EC751 series products	• Chinese operation interface, LCD display • Support parameter upload and download functions • Cabinet door installation components (EC700Z-P03) need to be adapted for cabinet door installation

Name	Easy operation panel	Cabinet door installation components
shape		
code	P02	P03
order No	EC750Z-P02(Suitable for EC750 and EC751 series products) EC752Z-P02(Suitable for EC752 series products) EC753Z-P02(Suitable for EC753 series products) EC754Z-P02(Suitable for EC754 series products)	EC700Z-P03
illustration	• LED display	• The operation panel can be fixed on the frequency conversion cabinet • Including injection molded casing, fasteners, and connecting cables (5m)

Name	USB debugging cable	CAN Fiber-optic communication cable

shape		
code	USBxM (x: cable length)	CANxM (x: cable length)
order No.	EC500Z-USBxM	EC700Z-CANxM
illustration	● Upper computer software debugging and use ● Optional cable length: 2m/5m	● Used together with CAN Fiber-optic communication board ● The default length is 2m, which can be customized ● Two communication optical cables are required for receiving and sending communication data, and users can choose the number of communication optical cables according to their actual needs

4.4 Option Installation Method

The option board is uniformly installed in the device backplane, and the corresponding relationship is as follows:

Slot A: Encoder board slot
Slot B: Communication board slot, either DP or MODBUS
Slot C: Relay board slot, choose between 2 and 4 channels
Slot D: CAN Fiber-optic communication board slot

Guideline:

➢ The EC7 series products offer a wide range of options, allowing users to choose according to their

actual needs and save costs. EC7 has 4 slots, namely:

➢ Slot A - Encoder board slot, suitable for differential signal encoders with HTL and TTL levels (EC752 does not have this option board);

➢ Slot B - Communication board slot, optional DP communication board or MODBUS communication board;

➢ Slot C - Relay board slot, optional with 2-way relay board or 4-way relay board;

➢ Slot D - CAN Fiber-optic communication board slot, optional Fiber-optic communication board, which can easily realize drive to drive communication, and help to realize master-slave control, synchronous control, etc. (EC752 does not have this option board).

➢ The operation panel is divided into a multi-functional operation panel and a simple operation panel. The multi-functional operation panel has a Chinese display, and users can choose according to their actual needs. When installing the operation panel on the cabinet door, they can choose the operation panel component.

5. Brake unit

The braking unit is a device that provides braking power for the EC7 series products, divided into standard and optional according to configuration. Among the optional devices, 2-10kW is wall mounted (separate from the device), and 12.5-25kW is built-in (integrated with the device). The current voltage level of the braking unit is DC510-650V.

Wall mounted brake unit	Built-in brake unit
EC500Z	EC700Z

5.1 Ordering Data for Optional Brake Units

| Product order number	Rated power (kW)	Peak power (kW)	Braking resistance (kW/Ω)	Rated voltage (V)	High threshold (V)	Low threshold (V)	Size (mm) (width × high × Deep)
EC500Z-B01	2	20	4.8/27.2	510-650	760	674	82×295×156
EC500Z-B02	4	40	9.6/16	510-650	760	674	82×295×156
EC500Z-B03	6	60	10/10	510-650	760	674	82×295×156
EC500Z-B04	10	100	15/6	510-650	760	674	145×300×156
EC500Z-B05	15	150	30/3	510-650	760	674	220×393×250
EC500Z-B06	25	200	50/2.2	510-650	760	674	220×393×250
EC500Z-B07	50	300	75/1.5	510-650	760	674	290×473×273
EC500Z-B08	100	400	100/1.1	510-650	760	674	290×473×273
EC700Z-B01	25	125	25/4.4	510-650	760	674	built-in
EC700Z-B02	50	250	50/2.2	510-650	760	674	built-in
EC700Z-B03	50	250	50/2.2	510-650	760	674	built-in

Note:

➢ Users need to select the corresponding braking resistor based on the braking resistor parameters provided in the table above;

➢ To achieve higher braking power, the braking units can be used in parallel, but their corresponding braking resistors must be connected;

➢ The braking unit supports two ordering methods, with the option code added after the device ordering number (shipped with the device) and a separate ordering number (shipped separately with the option).

5.2 Braking Characteristics
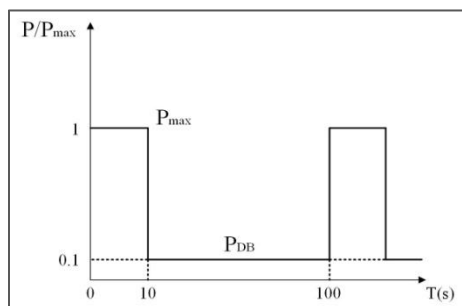
Note: The above figure shows the characteristic curve of the EC500Z series brake unit.

P_{DB}：Continuous braking power，

P_{max}：peak power
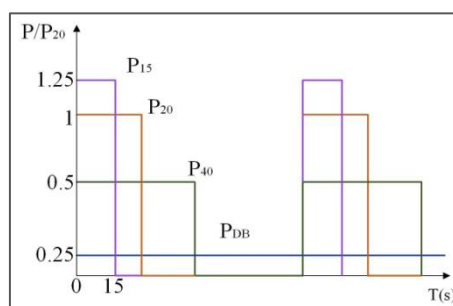
Note: The above figure shows the characteristic curve of the EC700Z series brake unit.

$P_{15}=5*P_{DB}=$ The braking power at 15 seconds of braking every 90 seconds is the peak power

$P_{40}=2*P_{DB}=$ Braking power at 40 seconds of braking every 90 seconds

$P_{DB}=$Rated continuous braking power

5.3 Standard Braking Unit Braking Resistance Parameters

Type	Frequency (kW)	Resistance parameters W/Ω
EC750-4AXX-06A1	2.2	260/260
EC750/1-4AXX-07A9	3	390/175
EC750/1-4AXX-10A5	4	390/150
EC750/1-4AXX-13A6	5.5	520/100
EC750/1-4BXX-19A6	7.5	780/75
EC750/1-4BXX-26A8	11	1040/50
EC750/1-4CXX-033A	15	1560/40

| EC750/1-4CXX-39A2 | 18.5 | 1800/32 |

Note: EC750/1 with a power output of 18.5kW and below is equipped with a standard braking unit. Users only need to select the corresponding braking resistor based on the braking resistor parameters in the table above.
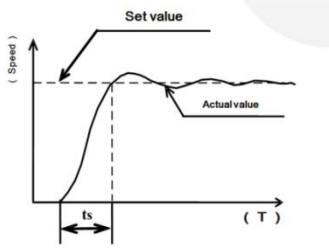
Guideline:

According to power division, EC75 has designed multiple brake unit configurations.

EC750/1 converter and inverter		
power 2.2kW-18.5kW	collocation method	Standard built-in
	Brake extension	EC500Z series external brake unit that can be connected in parallel
power 22kW-90kW	collocation method	Optional external EC500Z series brake unit
power 110kW-400kW	collocation method	Optional built-in, the structural size determines the model and quantity of optional built-in brake units: 4G: configuration EC700Z-B01，Maximum quantity is 1 4H: configuration EC700Z-B02，Maximum quantity is 1 4I: configuration EC700Z-B03，Maximum quantity is 2 4J: configuration EC700Z-B03，Maximum quantity is 3
EC752 basic rectification		
power 200kW-710kW	collocation method	Optional built-in, the structural size determines the model and quantity of optional built-in brake units: 4D: configuration EC700Z-B01，Maximum quantity is 1 4E: configuration EC700Z-B02，Maximum quantity is 1

6. Performance or Function

6.1 Indicator Definition

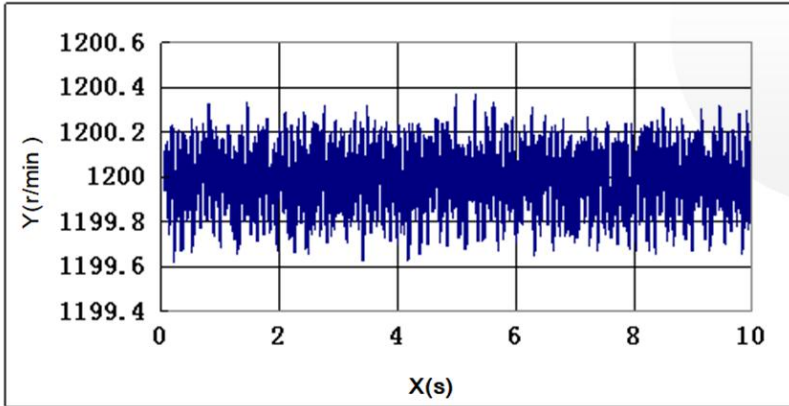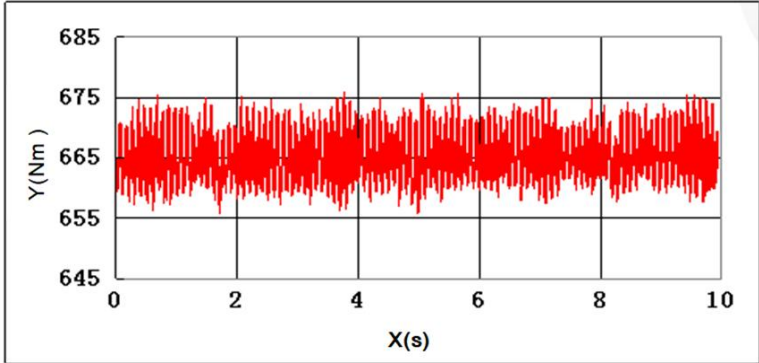| Project	Index	Define	Test conditions
Speed pulsation	±0.1%	Pulsation (%)=(set value) - (actual value)/(Rated value) * 100	● Rated value takes the synchronous speed of the motor ● Based on the actual PG value detected by the system as feedback ● The results are based on the maximum value within 10 seconds ● Stable speed operation, full load
Speed accuracy	0.003%	Precision (%)=| (set value) - (average value)| /(Rated value) * 100	● Rated value takes the synchronous speed of the motor ● Based on the actual PG value detected by the system as feedback ● Effective after 10s of average value ● Stable speed operation, full load
Speed response time	ts≦70ms		● Based on the actual PG value detected by the system as feedback ● Synchronous speed with speed step less than 10% ● Sudden increase of speed step, full load
Torque Ripple	±3%	Pulsation (%) = (set value) - (actual value)/(Rated value) * 100	● Rated value takes the rated torque of the motor ● Feedback based on torque tester detection values ● The results are based on the maximum value within 10 seconds ● Locked motor rotation
Torque accuracy	1%	Precision (%)= | (set value) -	● Rated value takes the rated torque

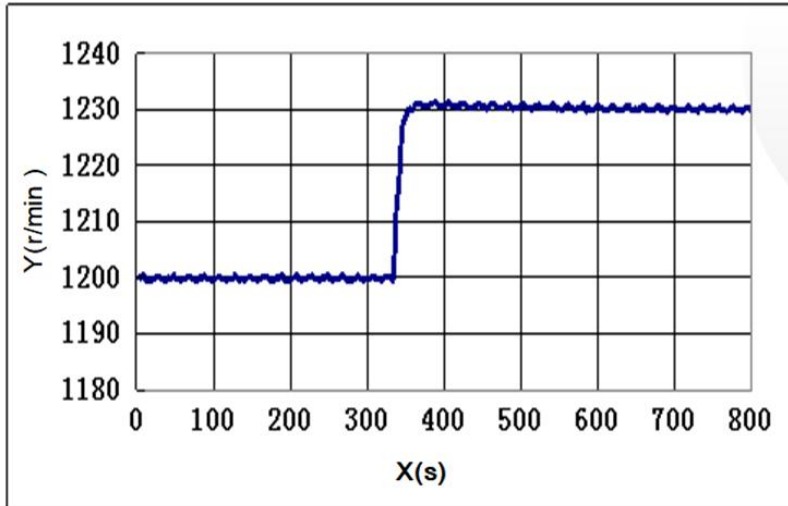|			
		(average value)| /(Rated value) * 100	of the motor ● Feedback based on torque tester detection values ● Effective after 10s of average value ● Locked motor rotation
Torque current response time	ts≦15ms		● Feedback based on Hall sensor detection values ● Take a current step of 20% of the rated current ● Sudden current step, full load
Maximum dynamic speed change	5%	Dynamic speed change (%)= Δ D/(rated value) * 100 	● Rated value takes the synchronous speed of the motor ● Based on the actual PG value detected by the system as feedback ● Sudden increase/decrease of full load

Note:

➢ Performance testing is conducted on AC/DC traction units, and the testing motor is a three-phase AC asynchronous motor;

➢ The speed measurement uses a 1024 pulse incremental encoder, and the torque tester outputs -10-10V, with a measurement accuracy of 0.1% (full scale);

➢ The above performance indicators vary depending on different installation situations and motor types. Please contact our company for details.
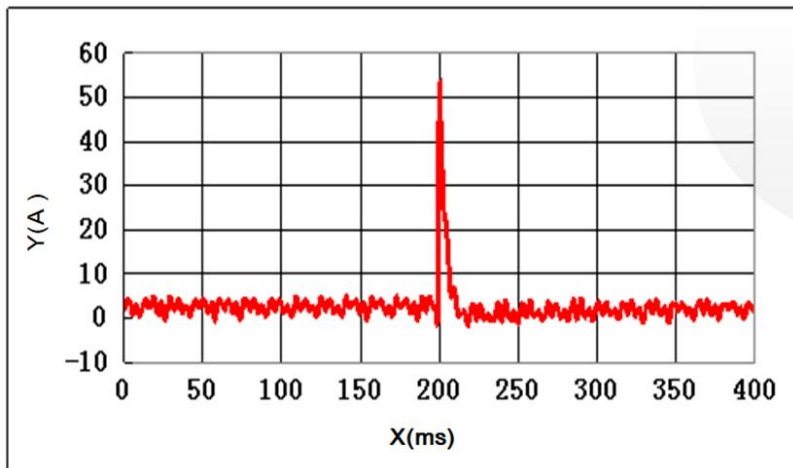
6.2 Test Data

Measured curve	User benefits
Actual speed value (set at 80%, synchronous speed 1500r/min) Actual torque value (set at 80%, rated torque 840Nm)	● Lower speed and torque pulsation ensure smooth operation of the equipment,reducing product defect rates caused by oscillations ● High speed accuracy ensures the accuracy of speed output, mainly used for synchronous control of multiple motor speeds, such as the transportation of steel and paper strips on the board ● High torque accuracy ensures the accuracy of torque output, mainly applied to equipment for indirect tension control, such as winding without feedback from a tension gauge

Measured curve	User benefits

Speed response (step 2%, synchronous speed 1500r/min)

Current response (step 20%, rated current 242A)

- Fast dynamic response ensures that the equipment can quickly follow the changes in control commands when switching operating conditions, and the system has no overshoot or oscillation after adjustment
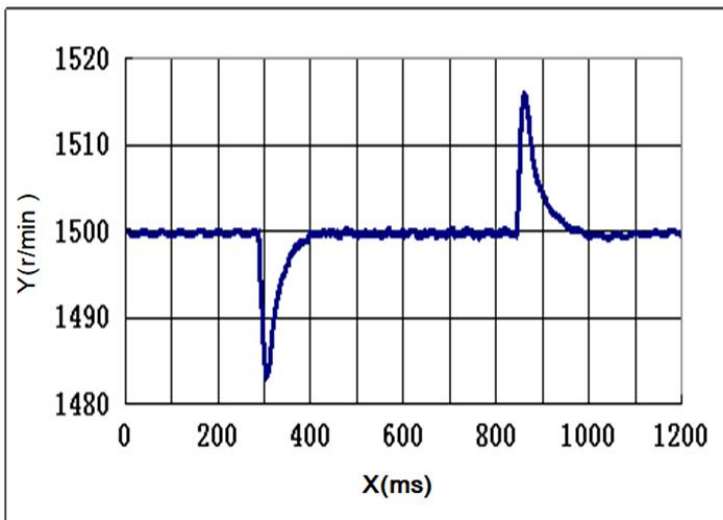
Dynamic speed change (sudden increase or decrease of full load, synchronous speed 1500r/min)

- Rapid recovery from transient conditions caused by sudden changes in load and other external disturbances, such as biting and throwing steel during the rolling process

6.3 Major Function

6.3.1 Connector Data Group

The control parameters (speed setting, control words, etc.) include 2 switchable data sets, allowing users to switch from local operations to remote control between the two operation sources. For example, the start and stop of the frequency converter can be switched from the operation panel to PLC control.

6.3.2 Motor Data Set

The parameters related to the motor rating (speed, current, etc.) include 4 switchable data sets, and a frequency converter can switch and control 4 different motors. For example, if a commonly used motor malfunctions during operation, the relevant parameters can also be quickly switched after the frequency converter is connected to the backup motor.

6.3.3 Functional Data Group

The functional parameters (control mode, acceleration and deceleration time, etc.) include four switchable data sets, and different control schemes are selected according to different process requirements. For example, selecting different proportional integration gains for different load types.

6.3.4 Parameter Interconnection

The data between functional blocks and variables related to control functions appear in the form of connectors. Connectors can not only be used for observation, but also for interconnection with control parameters. For example, the speed setting value can be given from internal fixed settings, electric potentiometer settings, or external analog input ports or communication interfaces through parameter interconnection.

6.3.5 Macro Application

For different application scenarios, setting and connecting functional parameters through pre programming to achieve rapid debugging is a fast function for standard application requirements.

- Standard application macros
- Manual/automatic macro
- PID control macro
- Torque control macro
- Sequence control macro
- Master-slave control macro

6.3.6 Free Function Block

The set of user-defined programming functions, including logic, operations, process control, and other functional blocks, is an important feature to address non-standard application requirements. For example, using logical functions to achieve interlocking control of frequency converter start stop and external fan, brake, emergency stop and other signals.

- General function block

☑Fixed setting value   ☑Display module   ☑Conversion module

● Logic function block

☑ AND, OR, NOT gate   ☑Tongor, XOR gate Gate   ☑On/Off, bidirectional delay timer

☑RS flip-flop   ☑D Flip-Flop

● Calculation function block

☑Adder, Subtractor   ☑Multiplier, Divider   ☑Integrator, Differentiator

☑Absolute value generator with filtering   ☑Signal monitor with hysteresis loop ☑Multiple signal selector

☑Custom feature value generator

6.3.7 Motor Identification

The process of matching the device with the motor, obtaining accurate motor parameters (resistance, inductance, etc.) through static measurements of DC and single-phase AC. After the operation of the frequency converter, online compensation can be performed on the previously identified cold state parameters based on environmental changes and actual operating conditions, which can continuously improve the motor control performance.

6.3.8 PI Parameter Self-tuning

In the process of matching the device and transmission equipment, accurate mechanical parameters (friction coefficient, Moment of inertia) are obtained through acceleration and deceleration rotation measurement, and on this basis, PI parameters of speed loop and Current loop are

calculated to achieve the best dynamic and static performance indicators.

6.3.9 Power Stops But Machine Continues

When the power supply system is temporarily interrupted or the voltage drops instantaneously, the mechanical energy on the transmission side can be converted into electrical energy and fed back to the DC side of the device, extending the operating time of the frequency converter. The duration is determined by the Moment of inertia of the transmission system.

6.3.10 Droop Control

When multiple motors drive the same load, the load between each motor can be evenly distributed to achieve speed synchronization.

6.3.11 Hopping Frequency

To avoid mechanical system vibration, frequency resonance points are automatically avoided during acceleration, deceleration, and constant speed operation.

6.3.12 Speed tracking restart

The motor is in a free running state and can accurately track the current speed when starting.

6.3.13 DC Brake Restart

The motor is in a free running state with irregular steering, and the frequency converter outputs DC power to quickly stop the motor before restarting, which can reduce the impact on the system.

6.3.14 Zero Servo

In lifting machinery, the position of suspended objects at high altitudes can be ensured to be constant, and this function can also be used to complete the return to zero of the machinery.

6.3.15 Simple PLC

The frequency converter can operate in cycles at pre-set frequencies, supporting up to 15 speeds. The size of each frequency segment, acceleration and deceleration time, and operating time can be set through parameters, which can achieve simple PLC functions.

6.3.16 Swing Frequency Control

By utilizing the specific triangular swing, an adjustable P-step speed is added during the operation of the motor to meet the process requirements of transverse winding in industries such as textiles and chemical fibers.

6.3.17 Holding Brake Control

Reasonably control the motor body brake or the externally installed brake. The opening and closing of the brake are interlocked with internal signals of the frequency converter such as speed and fault. The action delay time and threshold can be set through parameters.

6.3.18 PID Control

Control functions commonly used in process control, such as pressure, flow, and liquid level regulation.

➢ Debugging software

Provide users with two versions of upper computer debugging software: DriveInspector (PC version) and MobileInspector (mobile version);

➢ DriveInspector Features:

☑Chinese display interface;

☑All basic parameters are set and monitored in a table format;

☑Reading, writing, uploading, and downloading parameters;

☑Search, compare, and print parameters;

☑Keyboard: Quickly control the start and stop of the frequency converter, displaying the current status;

☑Oscilloscope: Simultaneously record 10 curves, of which 2 are computable;

☑Online mode: USB (serial communication for one device), RS485 (DP communication for multiple devices);

☑Four sets of motor parameter switching.
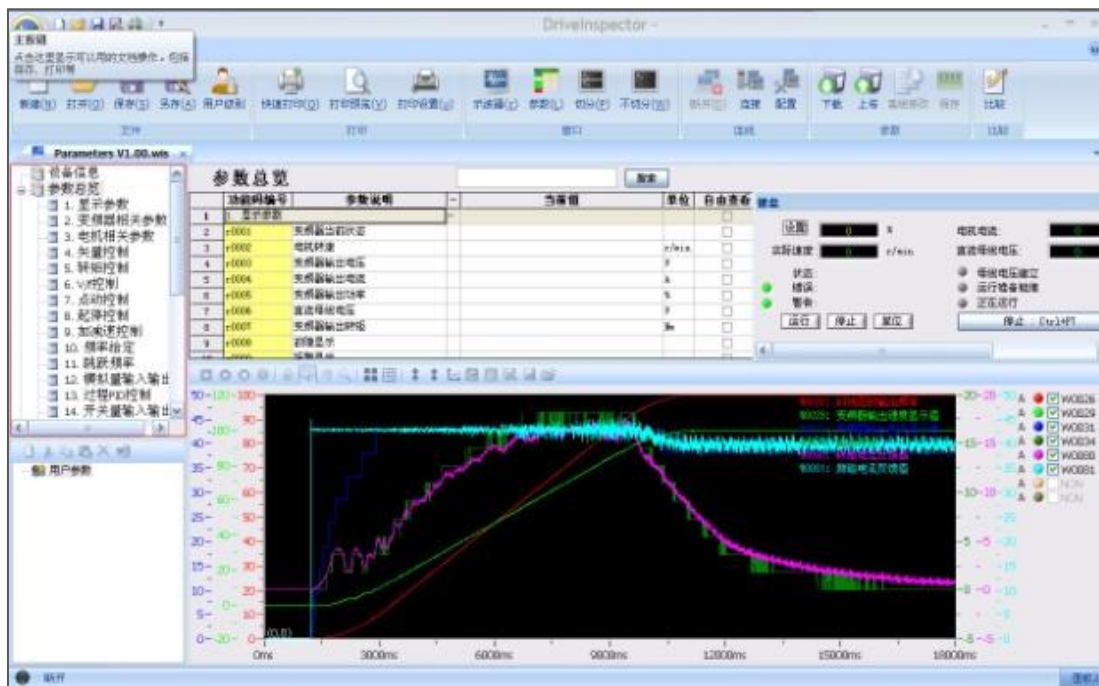
6.3.19 MobileInspector functional features: (The frequency converter end needs to be equipped with a dedicated Bluetooth module EC700Z-M01):

☑Chinese display interface;

☑All basic parameters are set and monitored in a table format;

☑Reading and writing parameters;

☑ Keyboard: Quickly control the start and stop of the frequency converter, displaying the current status;

☑Oscilloscope: Simultaneously record 8 curves;

☑Online mode: Bluetooth (wireless communication, used for one device);

☑System requirements: Android 2.2 and above smartphones.

7. Usage Environment

7.1 Thermal Design Parameters

The losses of frequency converters, inverters, and rectifiers refer to the calculated heating capacity of frequency converters, inverters, and rectifiers operating within the rated voltage range, rated output current, and default carrier frequency. The loss, air volume, and air pressure values provided in this article are all calculated through software simulation, and there is a certain error between them and the actual values, with an error range of ± 5%.

7.1.1 Thermal design parameters of EC750 series frequency converters

Type	Loss (W)	Air volume (m³/ H)	Wind pressure (Pa)
EC750-4AXX-06A1	40	27	54
EC750-4AXX-07A9	55	27	54
EC750-4AXX-10A5	75	27	54
EC750-4AXX-13A6	100	27	54
EC750-4BXX-19A6	135	100	77
EC750-4BXX-26A8	200	100	77
EC750-4CXX-033A	265	98	53
EC750-4CXX-39A2	320	98	53
EC750-4DXX-46A4	400	202	53
EC750-4DXX-61A9	565	202	53
EC750-4DXX-77A3	640	202	53
EC750-4EXX-92A8	810	174	80
EC750-4EXX-113A	940	181	78
EC750-4FXX-149A	1375	181	78
EC750-4FXX-184A	1650	260	141
EC750-4GXX-210A	1885	439	140
EC750-4GXX-260A	2185	439	140
EC750-4HXX-310A	2615	875	216
EC750-4HXX-380A	3270	1090	300
EC750-4HXX-490A	4320	1090	300

7.1.2 EC751 Series Inverter Thermal Design Parameters

Type	Loss (W)	Air volume (m³/ H)	Wind pressure (Pa)
EC751-4AXX-07A9	35	27	54
EC751-4AXX-10A5	80	27	54
EC751-4AXX-13A6	90	27	54
EC751-4BXX-19A6	140	100	77
EC751-4BXX-26A8	155	100	77
EC751-4CXX-033A	205	98	53
EC751-4CXX-39A2	265	98	53
EC751-4DXX-46A4	240	202	53
EC751-4DXX-61A9	365	202	53
EC751-4DXX-77A3	450	202	53
EC751-4EXX-92A8	540	203	105
EC751-4FXX-113A	670	300	208
EC751-4FXX-149A	860	300	208
EC751-4FXX-184A	1145	300	208
EC751-4GXX-210A	1330	694	347
EC751-4GXX-260A	1580	694	347
EC751-4HXX-310A	1810	1653	452
EC751-4HXX-380A	2350	1653	452
EC751-4HXX-490A	2570	1653	452
EC751-4IXX-605A	3005	3310	456
EC751-4IXX-745A	3925	3310	456
EC751-4JXX-840A	4955	4970	454
EC751-4JXX-985A	6160	4970	454
EC751-4JXX-1260	7380	4970	454
EC751-4JXX-1405	8460	4970	454

7.1.3 Thermal Design Parameters of EC752 Series Rectifier

Type	Default carrier frequency (kHz)	Loss (W)	Air volume (m³/ H)
EC752-4D-420A	1480	521	302
EC752-4D-530A	1985	521	302
EC752-4D-820A	2965	521	302
EC752-4E-1200	3495	1350	438
EC752-4E-1500	4595	1350	438

7.1.4 Thermal Design Parameters of EC753 Series Rectifier

Type	Default carrier frequency (kHz)	Loss (W)	Air volume (m ³/ H)	
EC753-4J-1050	5070	4970	454	
EC753-4J-1300	4960	4970	454	
EC753-4J-1700	7340	4970	454	

7.1.5 Thermal design parameters of EC754 series rectifier

Type	Loss (W)	Air volume (m ³/ H)	Type
EC754-4GXX-235A	1135	694	347
EC754-4GXX-291A	1915	694	347
EC754-4HXX-425A	2550	1653	452
EC754-4HXX-549A	3550	1653	452
EC754-4IXX-678A	3730	3310	456
EC754-4IXX-835A	4945	3310	456
EC754-4JXX-940A	5450	3310	456
EC754-4JXX-1103	6840	4970	454
EC754-4JXX-1412	7305	4970	454
EC754-4JXX-1574	8550	4970	454

7.2 Carrier Frequency Capacity Reduction

Increasing the carrier frequency can appropriately reduce the operating noise of the motor, but it will increase the switching loss of the power device. Therefore, it is necessary to reduce the capacity of the devices (EC750 and EC751).

7.2.1 EC750 Derating Characteristics (2.2-250KW):

Product order number	Output current derating depending on pulse frequency (factory default pulse frequency of 2kHz frequency converter)								
	power (kw)	Rated output current at corresponding switching frequency (A)							
		2kHz	4kHz	6kHz	8kHz	10kHz	12kHz	14kHz	16kHz
EC750-4A-06A1	2.2	6.1	5.1	4.5	3.4	2.7	2.2	1.3	1.3
EC750-4A-07A9	3	7.9	7.0	6.3	5.1	4.9	3.4	3.2	3.0
EC750-4A-10A	4	10.5	9.0	7.7	6.1	5.0	4.2	3.5	3.0

5									
EC750-4B-13A6	5.5	13.6	10.4	9.0	7.6	6.0	5.7	4.4	3.8
EC750-4B-19A6	7.5	19.6	15.9	13.5	10.8	9.3	8.0	7.6	6.0
EC750-4C-26A8	11	26.8	22.6	19.8	17.0	14.6	12.7	11.3	10.1
EC750-4C-033A	15	33.0	26.8	22.4	18.4	14.8	12.3	10.5	8.8
EC750-4C-39A2	18.5	39.2	33.5	28.0	23.5	19.9	17.7	14.8	13.8
EC750-4D-46A4	22	46.4	38.5	32.3	26.2	22.7	18.2	15.5	12.7
EC750-4D-61A9	30	61.9	53.5	46.6	39.8	34.7	29.7	25.9	22.6
EC750-4D-77A3	37	77.3	63.4	52.8	43.7	36.5	30.4	25.5	20.8
EC750-4E-92A8	45	92.8	71.8	56.2	46.0	38.3	33.2	27.6	21.8
EC750-4E-113A	55	113.0	91.6	73.2	58.5	47.6	37.7	29.6	23.8
EC750-4F-149A	75	149.0	118.0	93.9	75.0	-	-	-	-
EC750-4F-184A	90	184.0	152.1	126.1	103.7	-	-	-	-
EC750-4G-210A	110	210.0	176.7	148.9	125.9	-	-	-	-
EC750-4G-260A	132	260.0	210.6	170.2	138.0	-	-	-	-
EC750-4H-310A	160	310.0	249.2	200.0	159.8	-	-	-	-
EC750-4H-380A	200	380.0	290.2	219.6	164.2	-	-	-	-
EC750-4H-490A	250	490.0	392.2	313.8	251.2	-	-	-	-

7.2.2 EC750 Derating Feature 2:

Product order number	Output current derating depending on pulse frequency (factory default pulse frequency of 1.5kHz frequency converter)				
	power (kw)	Rated output current at corresponding switching frequency (A)			
		1.5kHz	3.5kHz	5.5kHz	7.5kHz
EC750-4I-605A	315	605.0	459.3	348.3	262.5

EC750-4I-745A	400	745.0	595.2	471.3	374.4

7.2.3 EC751 Derating Feature 1:

Product order number	power (kw)	Output current derating depending on pulse frequency (factory default pulse frequency of 2kHz frequency converter)							
		Rated output current at corresponding switching frequency (A)							
		2kHz	4kHz	6kHz	8kHz	10kHz	12kHz	14kHz	16kHz
EC751-4Axx-07A9	3	7.9	7.0	6.3	5.1	4.9	3.4	3.2	3.0
EC751-4Axx-10A5	4	10.5	9.0	7.7	6.1	5.0	4.2	3.5	3.0
EC751-4Axx-13A6	5.5	13.6	10.4	9.0	7.6	6.0	5.7	4.4	3.8
EC751-4Bxx-19A6	7.5	19.6	15.9	13.5	10.8	9.3	8.0	7.6	6.0
EC751-4Bxx-26A8	11	26.8	22.6	19.8	17.0	14.6	12.7	11.3	10.1
EC751-4Cxx-033A	15	33.0	26.8	22.4	18.4	14.8	12.3	10.5	8.8
EC751-4Cxx-39A2	18.5	39.2	33.5	28.0	23.5	19.9	17.7	14.8	13.8
EC751-4Dxx-46A4	22	46.4	38.5	32.3	26.2	22.7	18.2	15.5	12.7
EC751-4Dxx-61A9	30	61.9	53.5	46.6	39.8	34.7	29.7	25.9	22.6
EC751-4Dxx-77A3	37	77.3	63.4	52.8	43.7	36.5	30.4	25.5	20.8
EC751-4Exx-92A8	45	92.8	71.8	56.2	46.0	38.3	33.2	27.6	21.8
EC751-4Fxx-113A	55	113.0	91.6	73.2	58.5	47.6	37.7	29.6	23.8
EC751-4Fxx-149A	75	149.0	118.0	93.9	75.0	-	-	-	-
EC751-4Fxx-184A	90	184.0	152.1	126.1	103.7	-	-	-	-
EC751-4Gxx-210A	110	210.0	176.7	148.9	125.9	-	-	-	-
EC751-4Gxx-260A	132	260.0	210.6	170.2	138.0	-	-	-	-
EC751-4Hxx-310A	160	310.0	249.2	200.0	159.8	-	-	-	-
EC751-4Hxx-380A	200	380.0	290.2	219.6	164.2	-	-	-	-
EC751-4Hxx-490A	250	490.0	392.2	313.8	251.2	-	-	-	-

7.2.4 EC751 capacity reduction feature three:

Product order number	power (kw)	Output current derating depending on pulse frequency (factory default pulse frequency of 1.5kHz frequency converter)			
		Rated output current at corresponding switching frequency (A)			
		1.5kHz	3.5kHz	5.5kHz	7.5kHz
EC751-4IXX-605A	315	605.0	459.3	348.3	262.5
EC751-4IXX-745A	400	745.0	595.2	471.3	374.4
EC751-4JXX-840A	450	840.0	635.0	490.0	385.0
EC751-4JXX-985A	560	985.0	768.0	607.0	488.0
EC751-4JXX-1260A	710	1260.0	900.0	656.0	486.0
EC751-4JXX-1405A	800	1405.0	1026.0	764.0	580.0

7.2.5 Temperature and Altitude Derating

8. Preservation and Transportation

The EC75X series products must meet the following environmental conditions during storage and transportation:

Mechanical Parameters		
Vibration	transportion	Grade 2M3 according to EN60068-2-6
	operation	Grade 3M4 complies with EN60068-2-6; 10~58HZ: constant amplitude 0.075mm, 58~200HZ: constant acceleration=9.81m/s2
Impact	transportion	Grade 2M3 according to EN60068-2-27
	operation	Grade 3M4 complies with EN60068-2-27; Constant acceleration=49m/s2, lasting for 30ms
Environmental parameters		
protection grade		Level I (system with protective grounding) and Level III (PELV) comply with EN61800-5-1
Impact protection		Comply with EN61800-5-1 when used correctly
Climate environment condition	conservation	符合 EN60721-3-1 的 1K3，温度-10℃~+55℃
	transportation	2K4 according to EN60721-3-2, temperature -40 ℃~+70 ℃, maximum air humidity of 95% at 40 ℃
	operation	3K4 in accordance with EN60721-3-3, with temperatures ranging from 0 ℃ to+40 ℃, no condensation, water splashing, or freezing allowed
Environmental standards/hazardous chemicals	conservation	1C2 standard according to EN60721-3-1
	transportation	2C2 standard in accordance with EN60721-3-2
	operation	3C2 standard in accordance with EN60721-3-3

Special Notice

1. The device power involved in the sample generally refers to light load power;
2. For more selection data and technical parameters, please refer to the EC7 User Manual;
3. If you have any questions, please consult WISDRI (Wuhan) Automation Co., Ltd;

9. Overall Dimensions

9.1 Installation hole size EC750-4A/EC751-4A

The dashed line indicates the ventilation space that needs to be reserved.
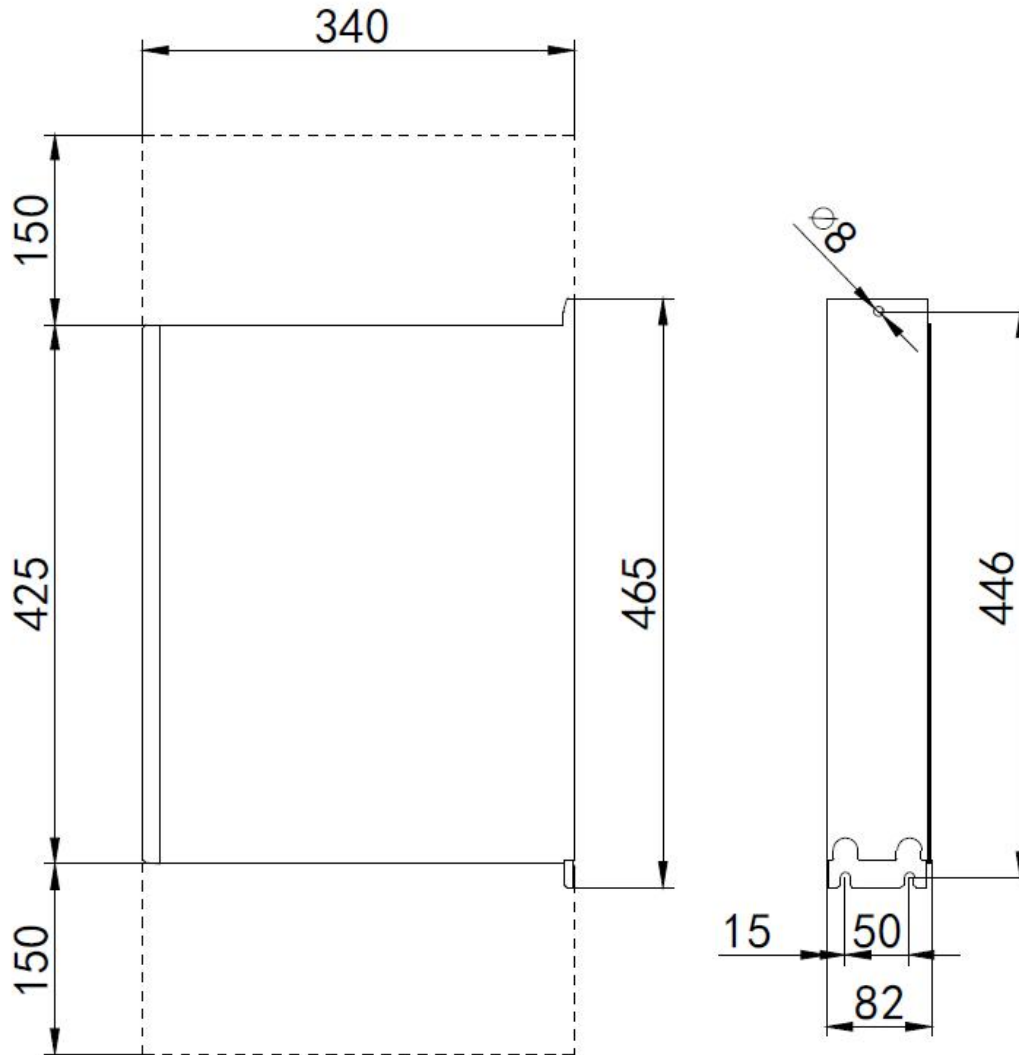
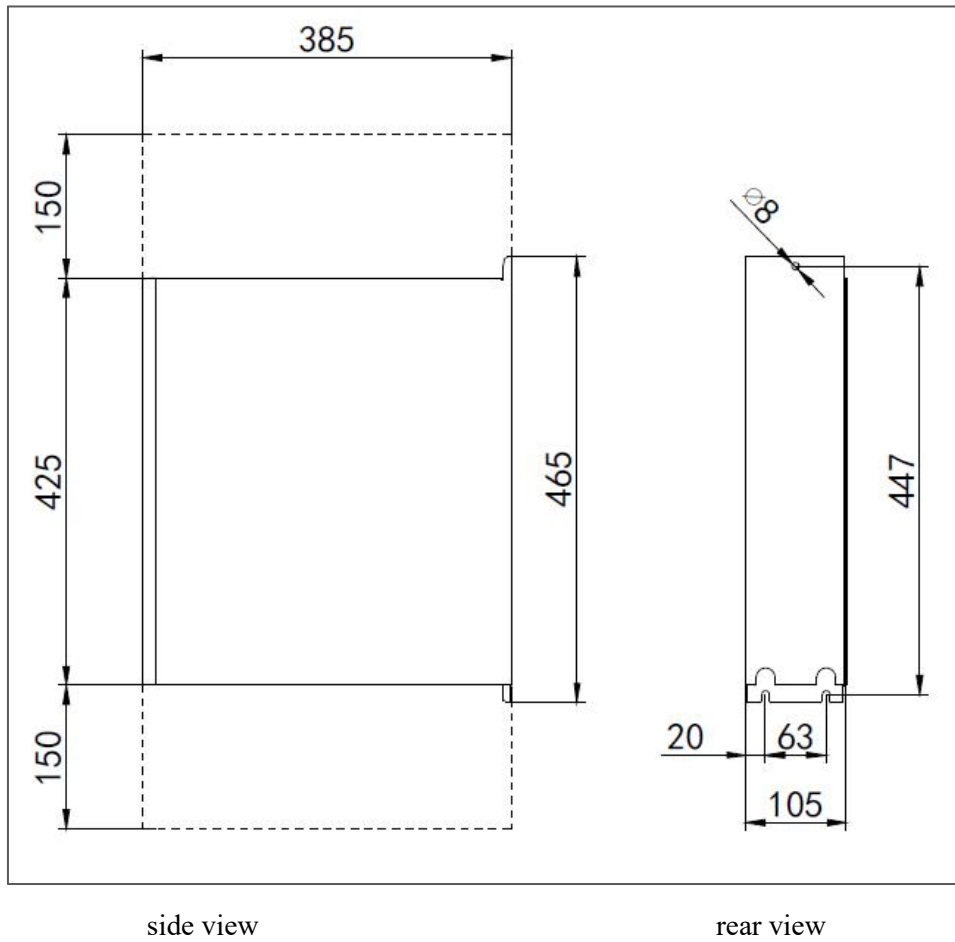side view   rear view

EC750-4A/EC751-4A Outline Dimensional Drawing
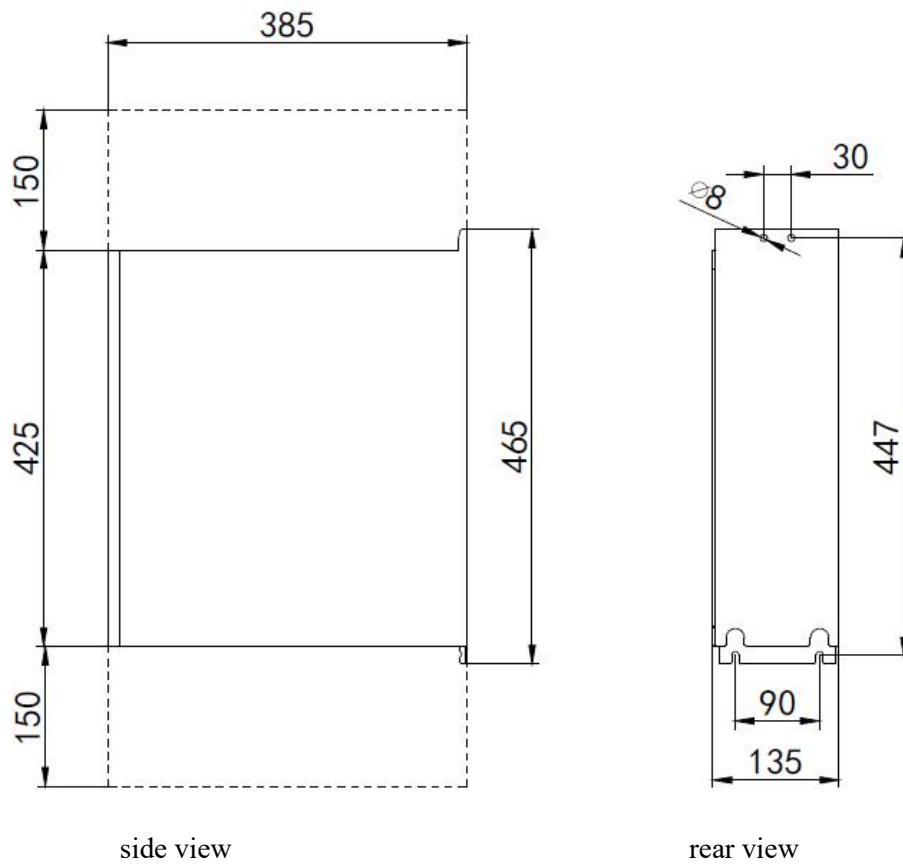
9.2 Installation Hole Size EC750-4B/EC751-4B

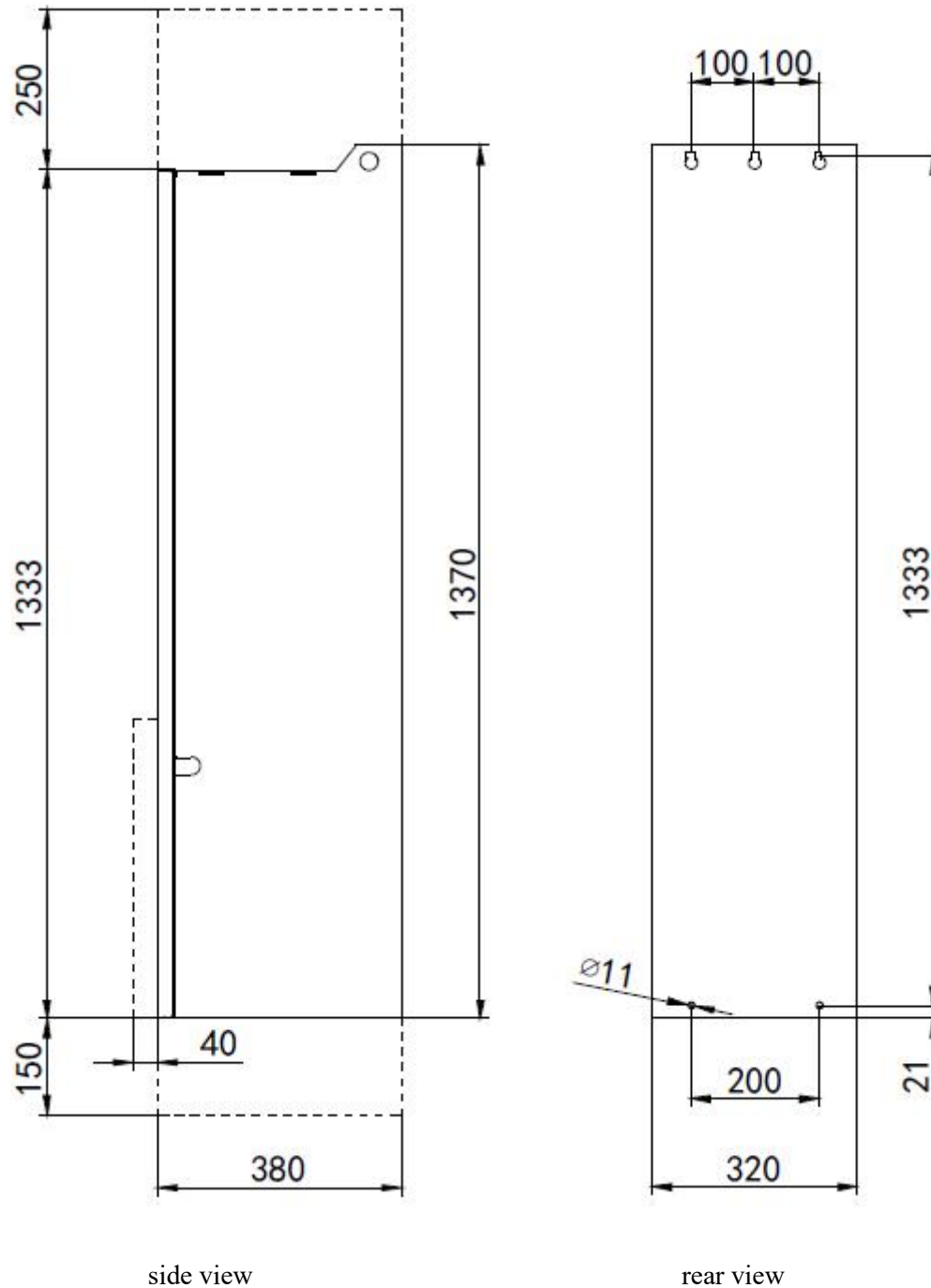The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC750-4B/EC751-4B Outline Dimensional Drawing

9.3 Installation hole size EC750-4C/EC751-4C

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC750-4C/EC751-4C Outline Dimensional Drawing

9.4 Installation Hole Size EC750-4D/EC751-4D

The dashed line indicates the ventilation space that needs to be reserved

side view   rear view
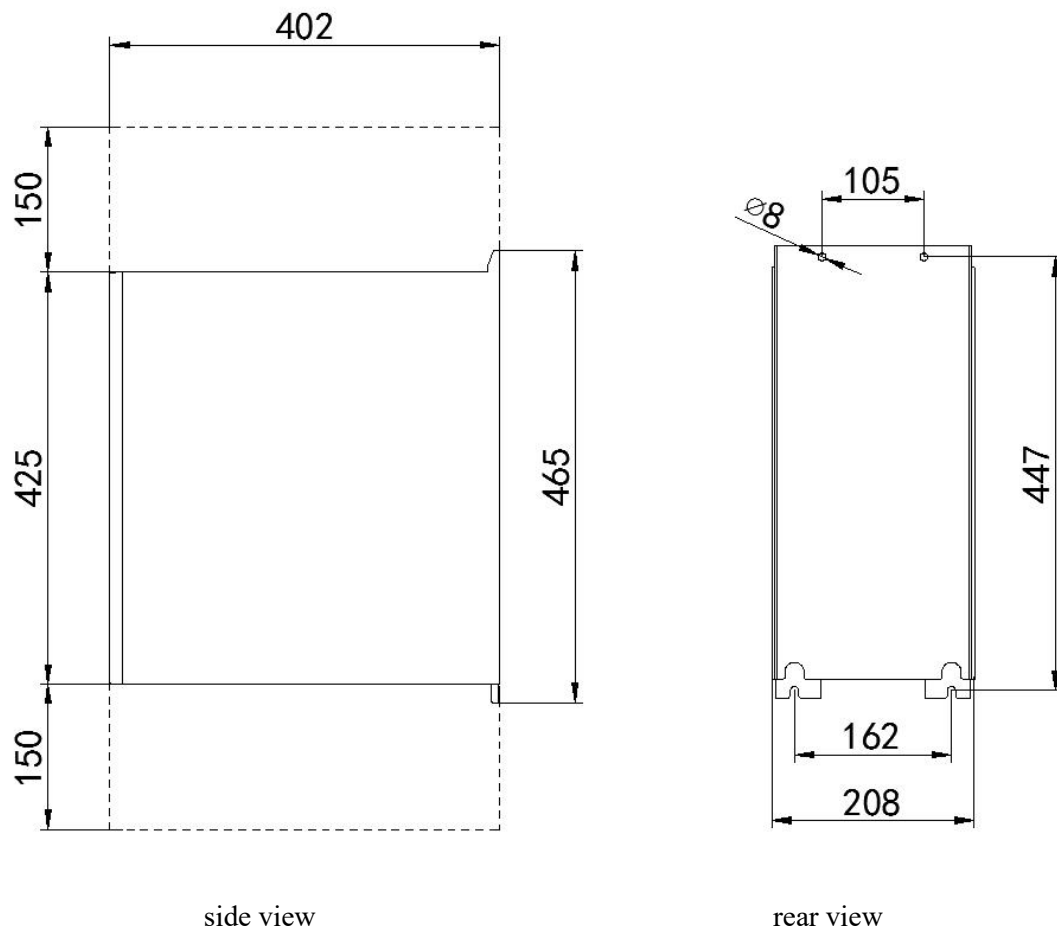
EC750-4D/EC751-4D Outline Dimensional Drawing

9.5 Installation hole size EC750-4E/EC751-4E

The dashed line indicates the ventilation space that needs to be reserved

side view   rear view
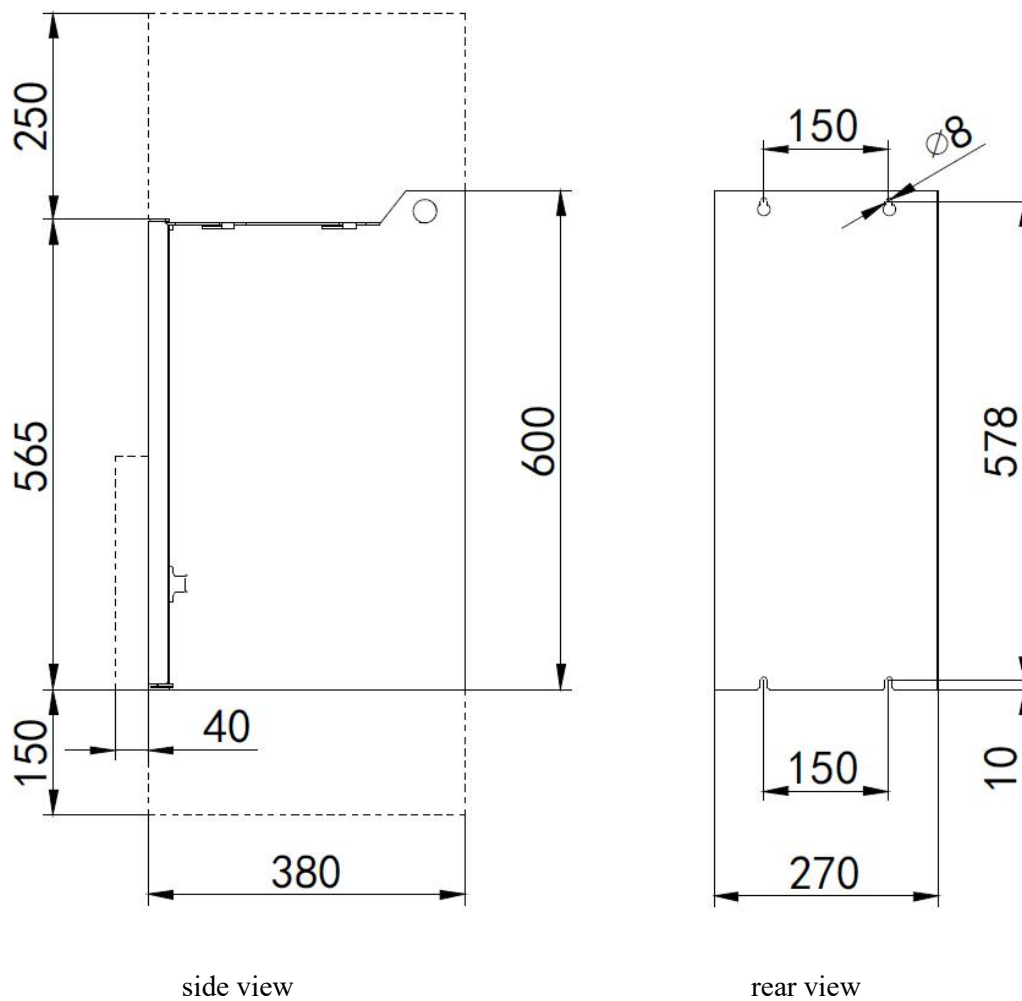
EC750-4E/EC751-4E Outline Dimensional Drawing

9.6 Installation hole size EC750-4F/EC751-4F

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC750-4F/EC751-4F Outline Dimensional Drawing

9.7 Installation hole size EC750-4G/EC751-4G

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC750-4G/EC751-4G Outline Dimensional Drawing

9.8 Installation hole size EC750-4H/EC751-4H

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view
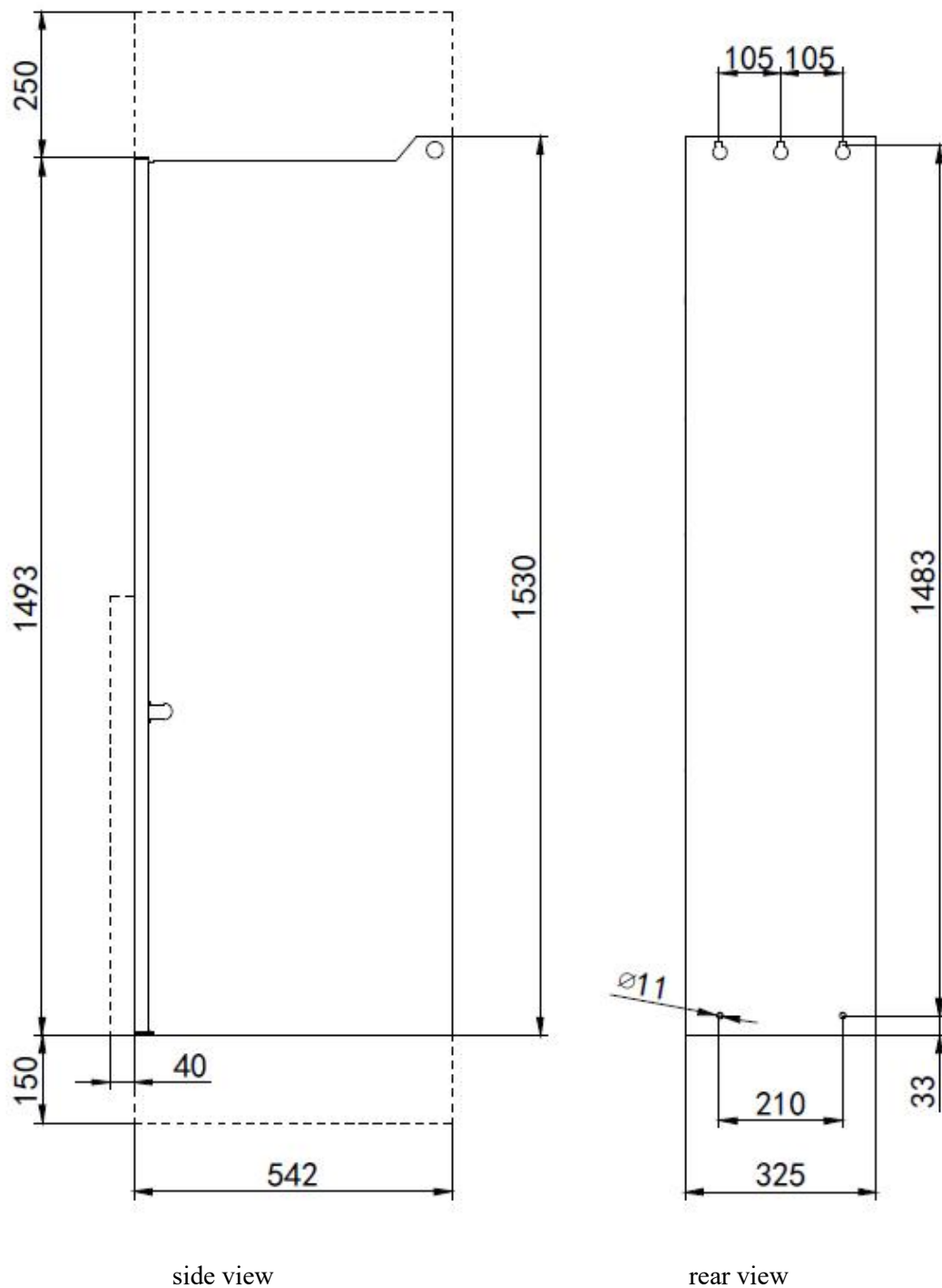
EC750-4H/EC751-4H Outline Dimensional Drawing

9.9 Installation hole size EC750-4I/EC751-4I

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC750-4I/EC751-4I Outline Dimensional Drawing

9.10 Installation hole size EC751-4J/EC753-4J

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC751-4J Outline Dimensional Drawing

9.11 Installation hole size EC752-4D

The dashed line indicates the ventilation space that needs to be reserved

side view   rear view
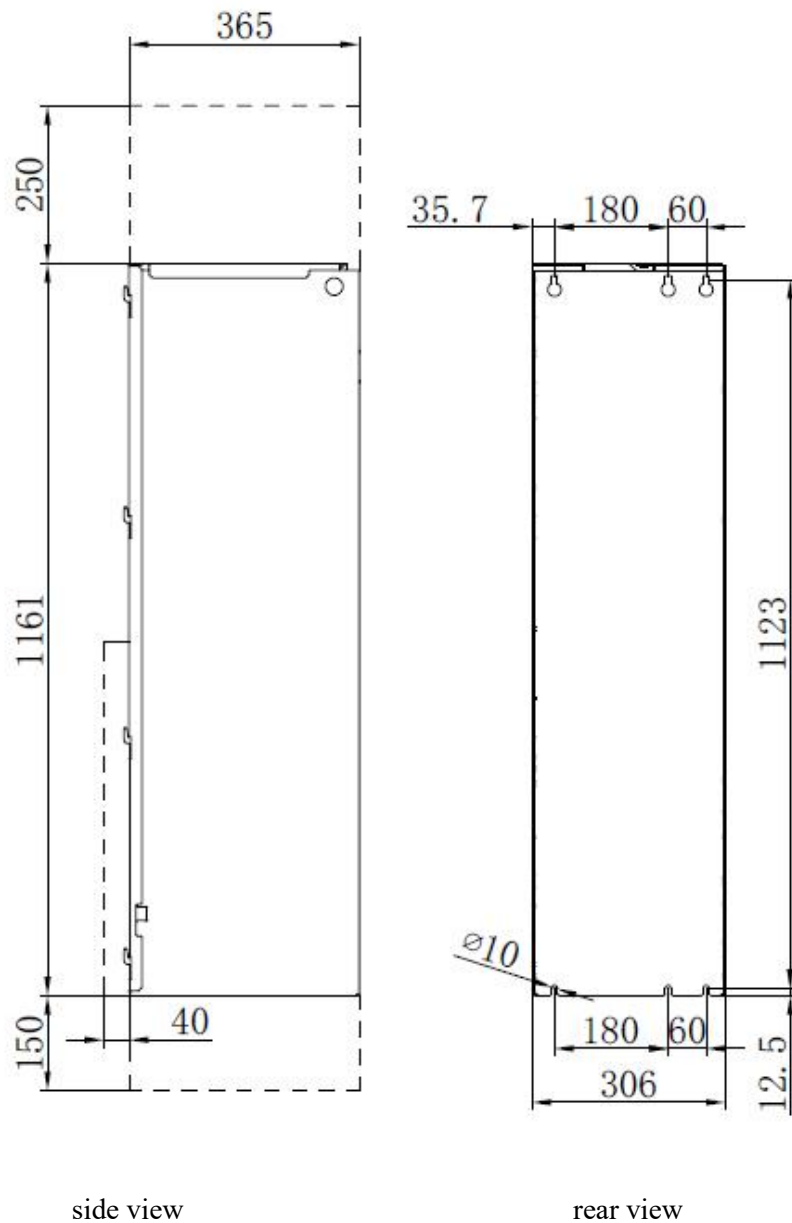
EC752-4D Outline Dimensional Drawing

9.12 Installation hole size EC752-4E

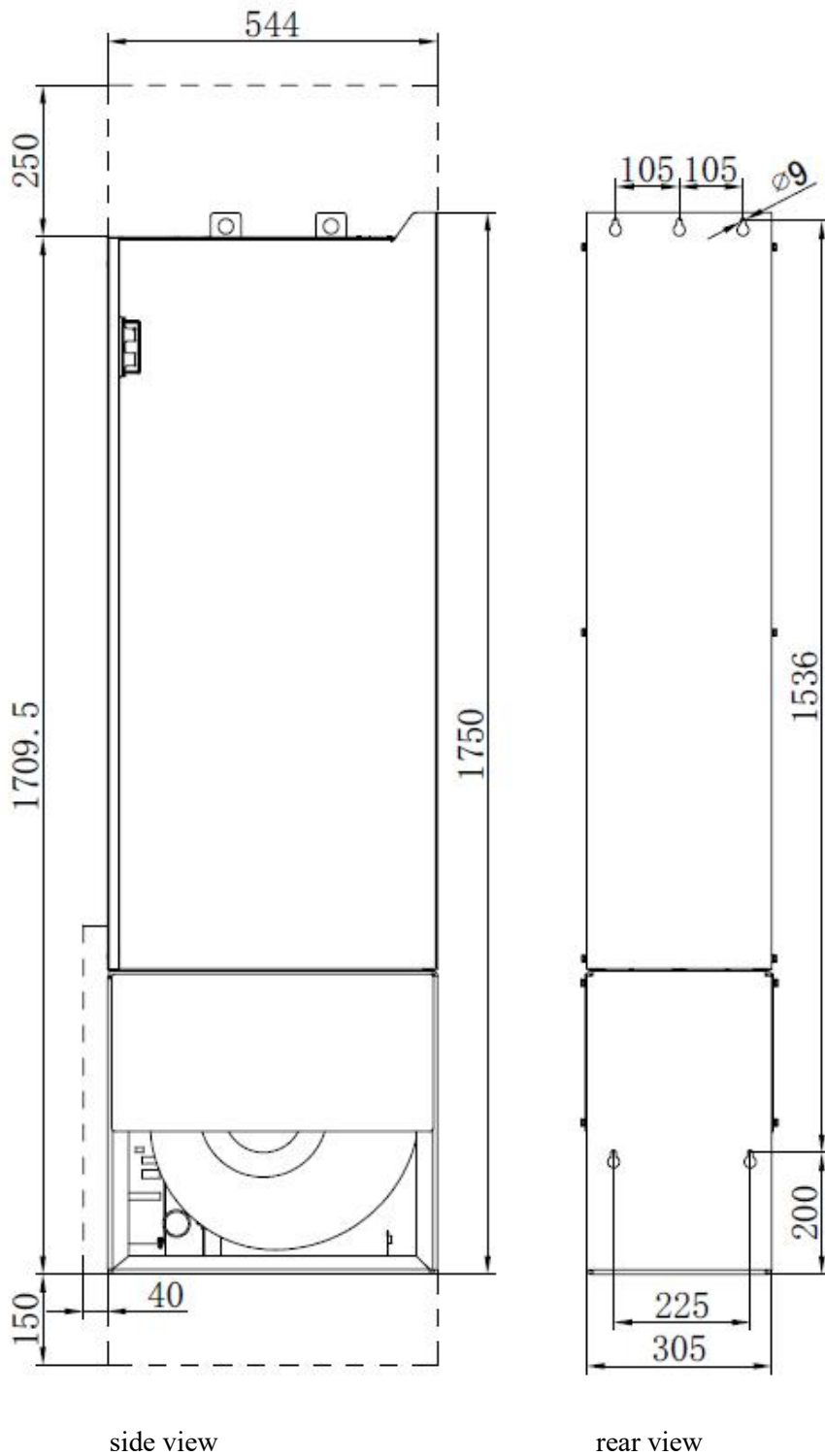The dashed line indicates the ventilation space that needs to be reserved
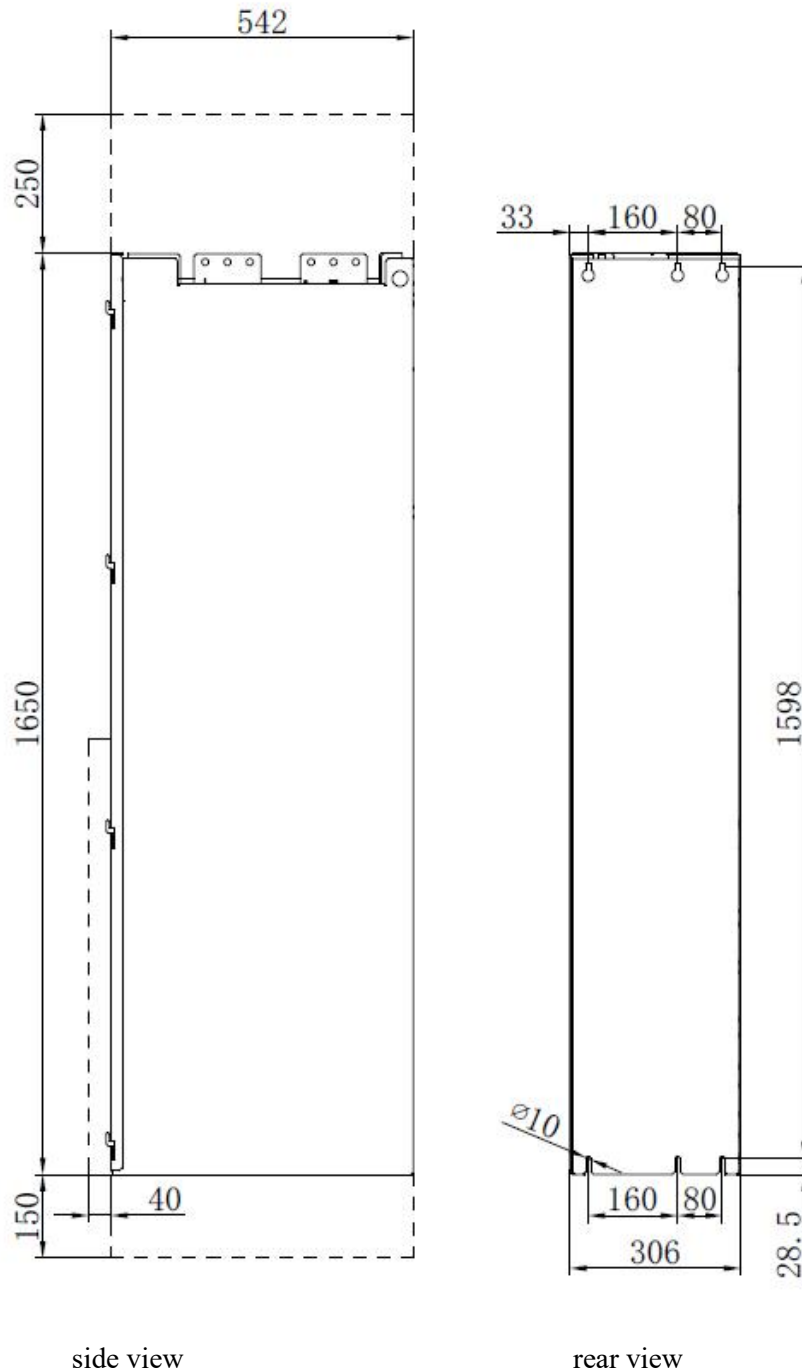
side view   rear view

EC752-4E Outline Dimensional Drawing

9.13 External dimensions of EC754-4G filtering unit

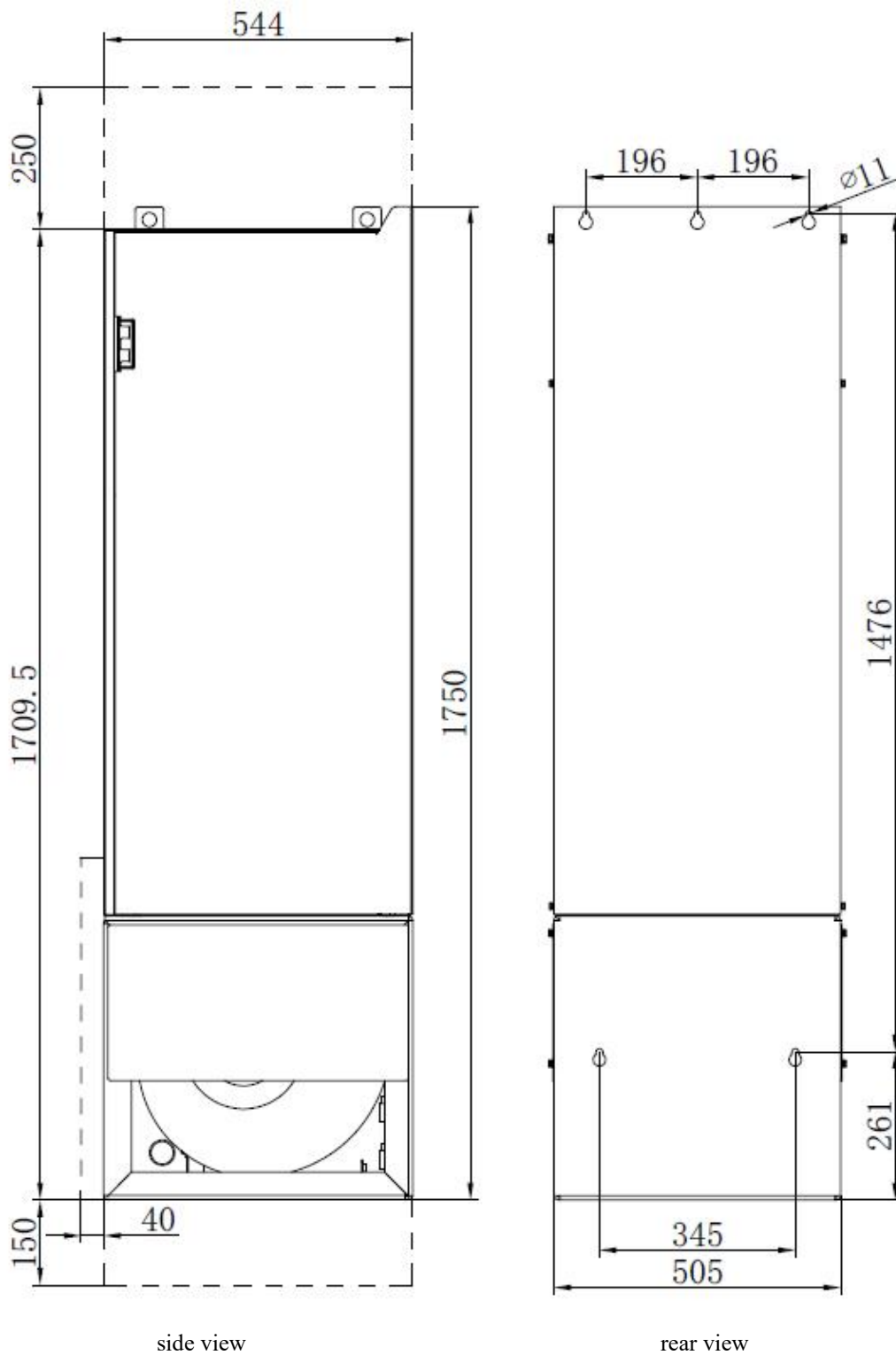The dashed line indicates the ventilation space that needs to be reserved.
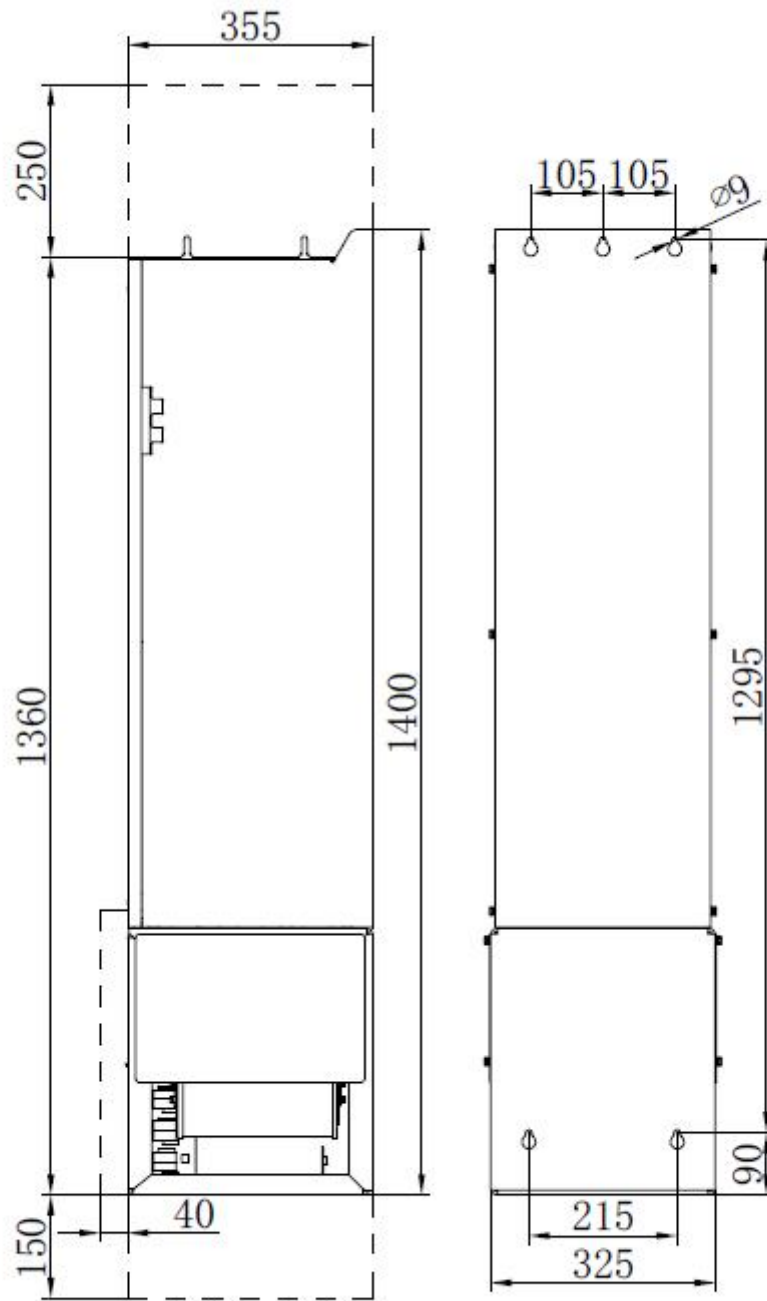
side view   rear view

EC754-4G Filter Unit Outline Dimensional Drawing

9.14 External Dimensions of EC754-4H filtering unit

The dashed line indicates the ventilation space that needs to be reserved.
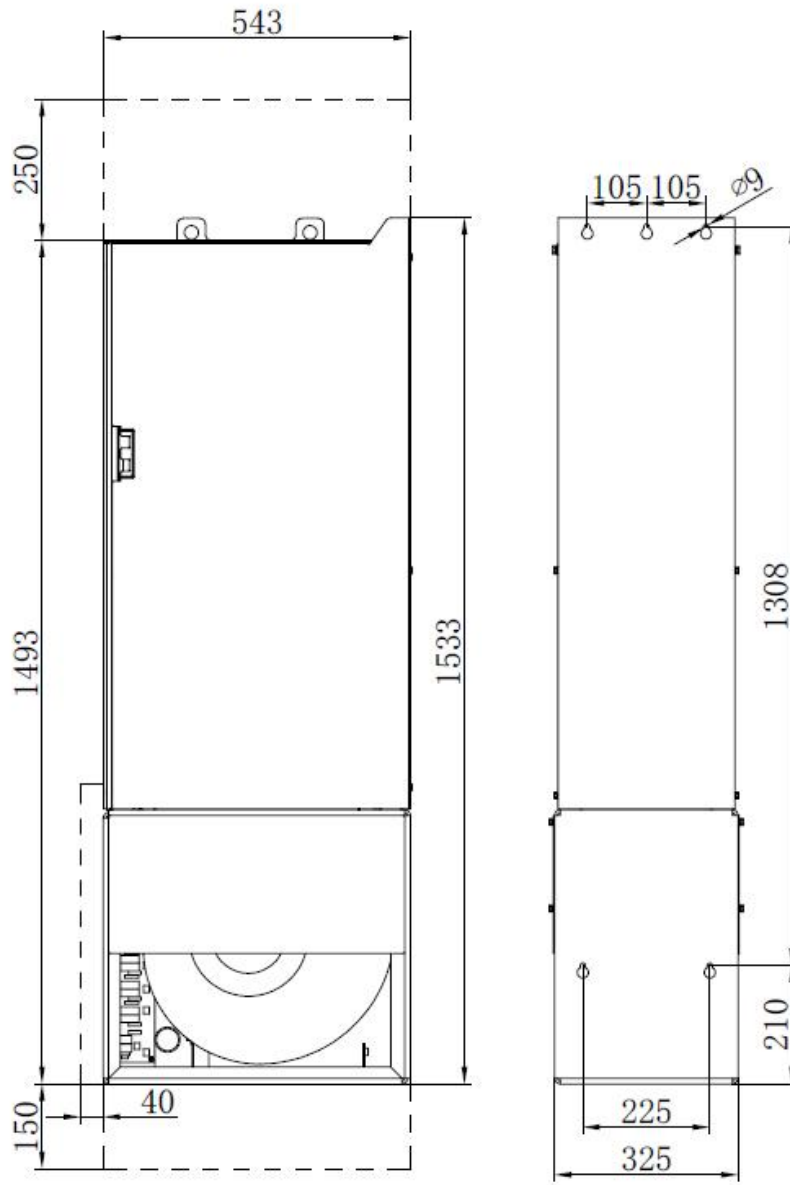
side view   rear view

EC754-4H Filter Unit Outline Dimensional Drawing

9.15 External Dimensions of EC754-4I Filtering Unit

The dashed line indicates the ventilation space that needs to be reserved

side view   rear view

EC754-4I Filter Unit Outline Dimensional Drawing

9.16 External Dimensions of EC754-4J Filtering Unit

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

Outline Dimensional Drawing of EC754-4J Filter Unit

9.17 External Dimensions of EC754-4G Rectifier Unit

The dashed line indicates the ventilation space that needs to be reserved.
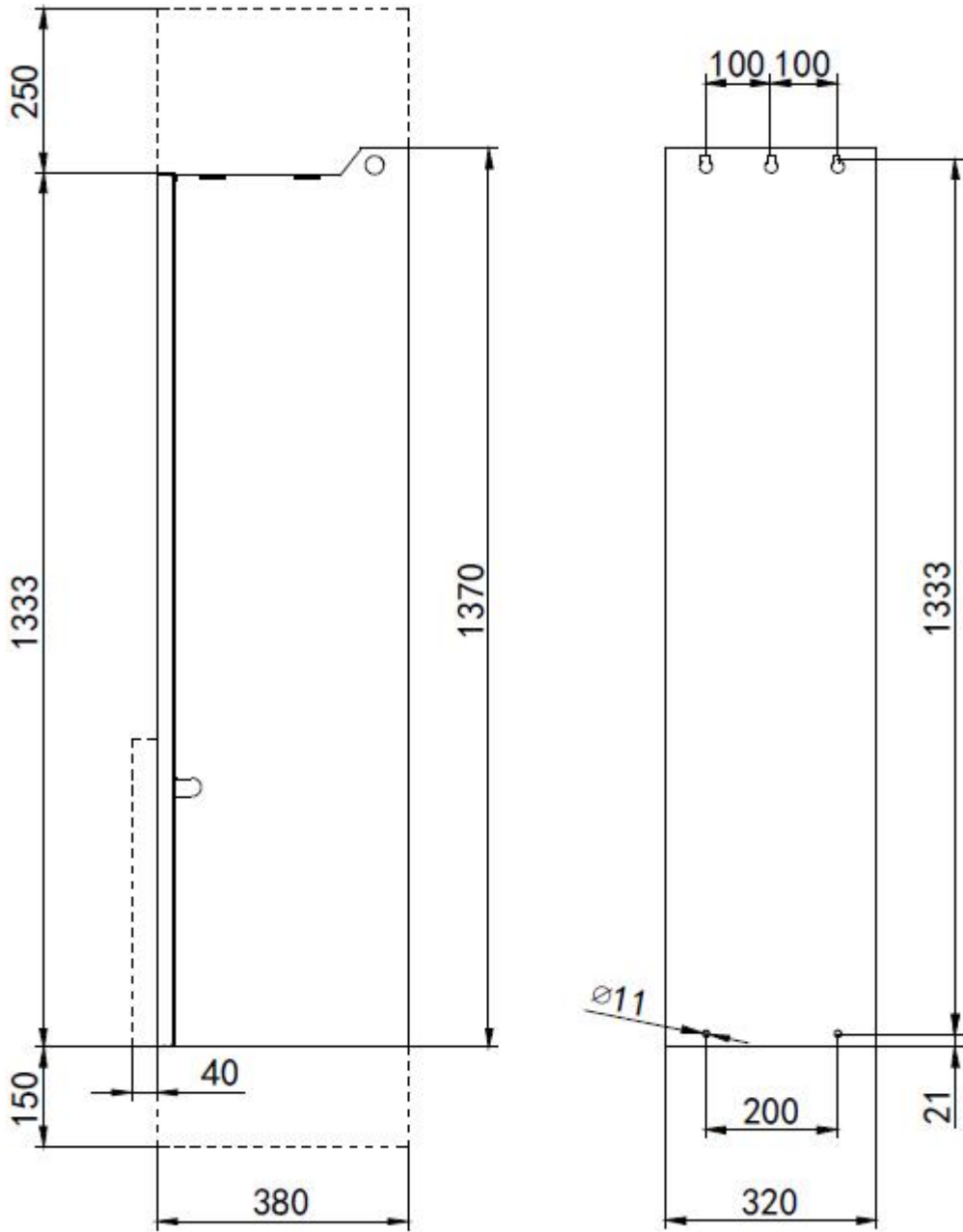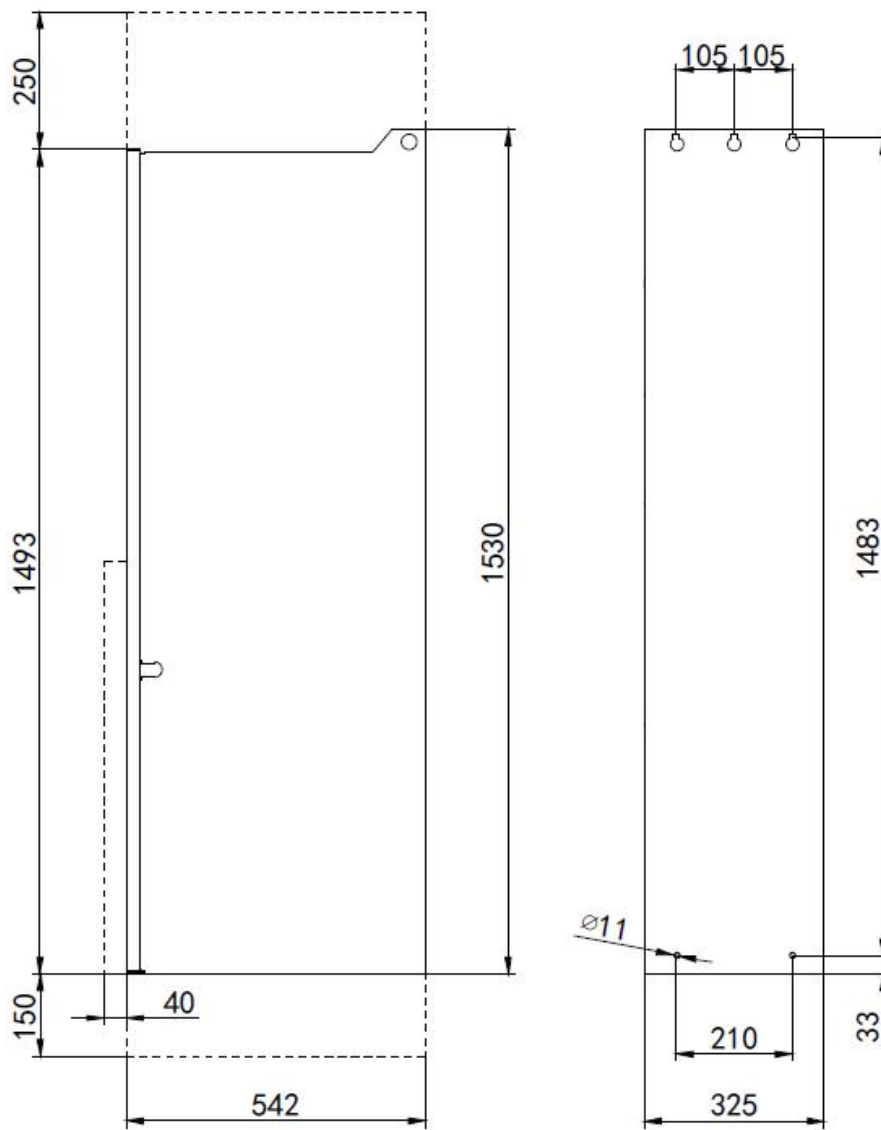

side view   rear view

Outline Dimensional Drawing of EC754-4G Rectifier Unit

9.18 External Dimensions of EC754-4H Rectifier Unit

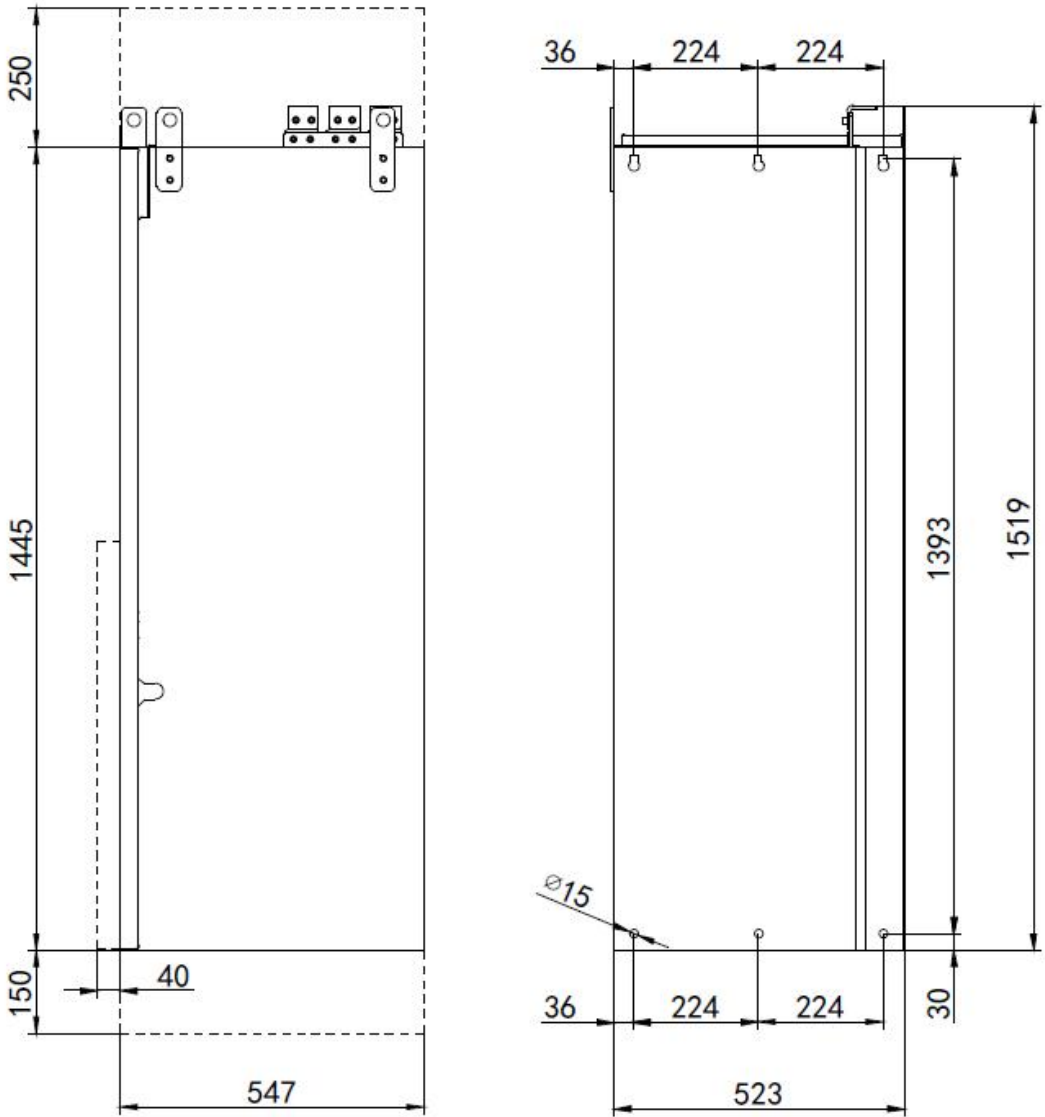The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

Outline Dimensional Drawing of EC754-4H Rectifier Unit

9.19 External Dimensions of EC754-4I Rectifier Unit

The dashed line indicates the ventilation space that needs to be reserved.
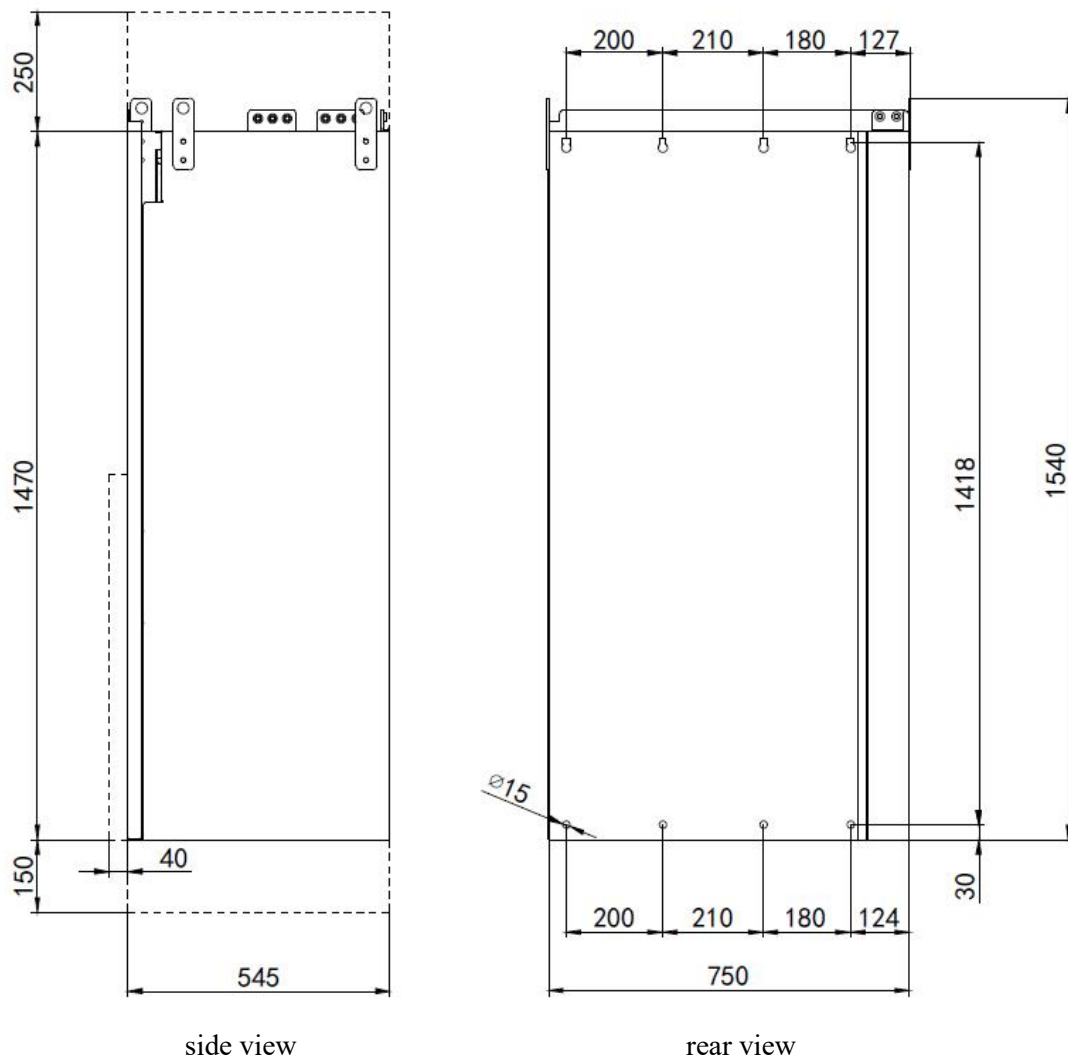
side view   rear view

EC754-4I Rectifier Unit Outline Dimensional Drawing

9.20 External Dimensions of EC754-4J Rectifier Unit

The dashed line indicates the ventilation space that needs to be reserved.

side view   rear view

EC754-4J Rectifier Unit Outline Dimensional Drawing

10. Our Technology

WISDRI (Wuhan) Automation Co., Ltd. has a high-quality R&D team that values basic theoretical research and practice, and goes deep into the bottom to design and innovate products. Through repeated practice of core algorithms and functions, high-level selection of components, modules, fans, and strict control and comprehensive testing of the production process, we ensure that users receive advanced and mature products and technologies.

11. Our Business

We can provide users with automation products, on-site debugging, system maintenance, design consulting, and system integration services.

12. Our Services

18 months of extended warranty period；

Fast and convenient backup service；

Free technical support hotline.

Standards and certifications

Thanks for your using!

Thanks for your using!