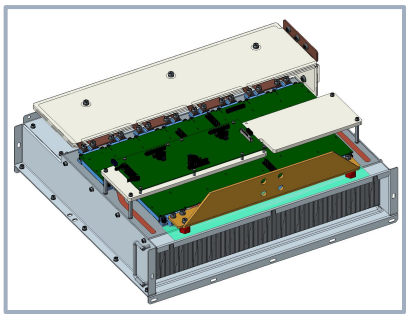
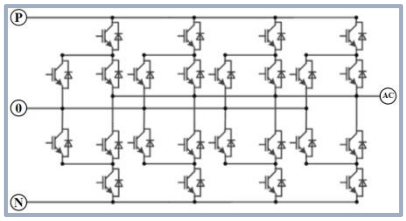
FPS160HA124XA002





Ordering No.

- **FPS160HA124XA002**

Features

- **3 level-ANPC**
- **4 IGBTs in parallel**
- **Forced air cooling**

  (fan not implemented)

Typical Applications

- **ESS converter**
- **Electrolyser Power Supply**
- **PV inverter**

Symbol	Description	min	typ	max	Unit
Electrical Characteristics					
V_{DC}	Rated Full DC bus voltage		1500		V
V_{AC}	Rated AC voltage		690		V_{RMS}
I_{AC}	Rated AC current		1600		A_{RMS}
I_{AC1}	Short-time overload		1950		A_{RMS}
f_{SW}	Switching frequency		7		kHz
PF	Power factor	-1.0		1.0	
P_{LOSS}	Stack power loss		6.5		kW
V_{ISOL}	Insulation voltage		2.5		kV_{RMS}
IGBT module	Package	[1]1200V/600A Econo DUAL™3			

Note1: Taking Infineon modules as an example, modules with compatible packages are available for use.

Symbol	min	typ	max	Unit
Environmental Data				
Air volume **ΔV/ Δt**	2500			m^3/h
Air pressure **Δp**		1000		Pa
Inlet temperature T_{INLET}	-25		45	°C
Installation altitude	0		1000	m
Protection degree, According to EN 50178		IP00		
Pollution degree, According to IEC 60529		2		
Storage temperature	-40		65	°C
Operational ambient temperature	-25		55	°C
Relative humidity	0		95	%

Mechanical Data				
Dimensions, Length × width × height	621.5*538*222			mm
Weight		47		kg
DC terminal mounting torque M_{DC}		24		Nm
AC terminal mounting torque M_{AC}		55		Nm

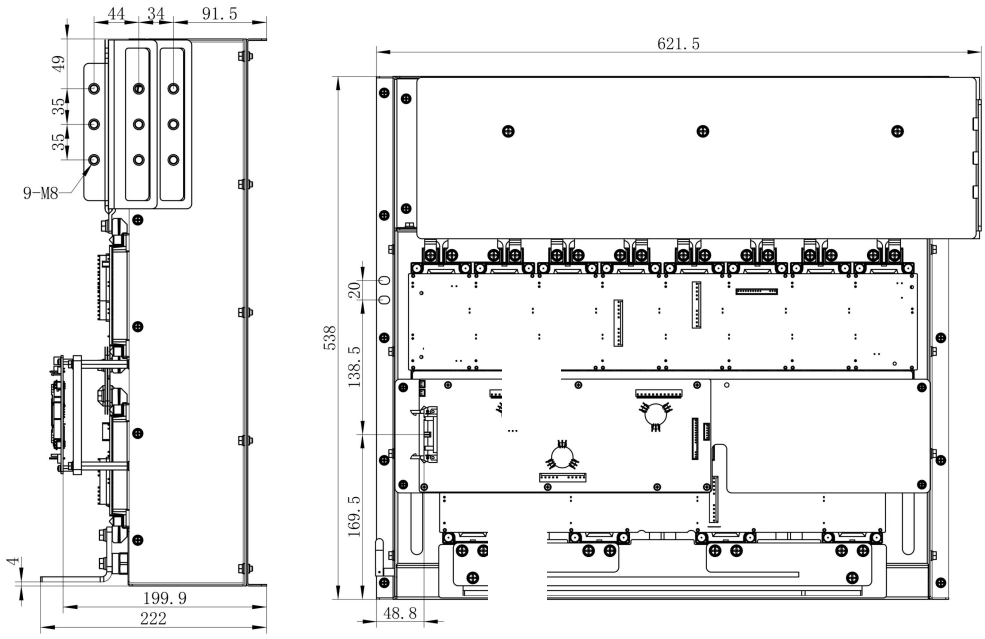
Controller Interface

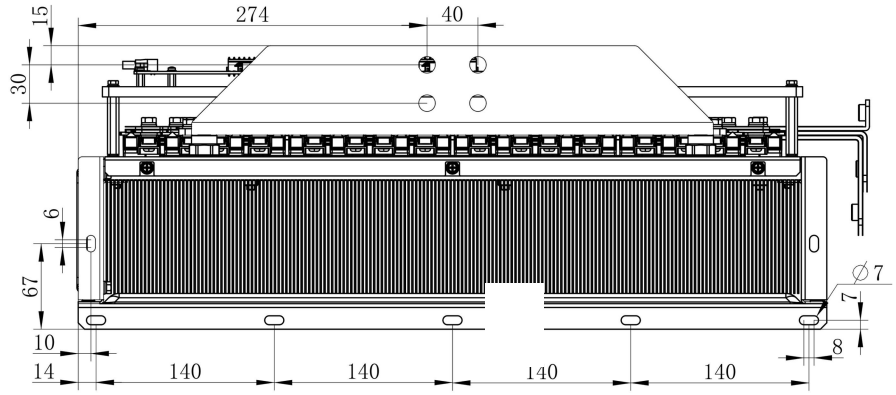
Symbol	Conditions	min	typ	max	Unit
Auxiliary power supply voltage		14.5	15	15.5	V
Auxiliary power requirement			50		W
Auxiliary power supply interface type		Ejector header with 30 positions and a pitch of 2.54mm			
Auxiliary power supply undervoltage threshold			12		V
PWM signal high level threshold			8.3		V
PWM signal low level threshold			4.8		V
Frequency signal corresponding to NTC	T_{NTC} = 25°C		21.4		kHz
Fault output current capability	Fault condition			500	mA
Fault hold time			40		ms

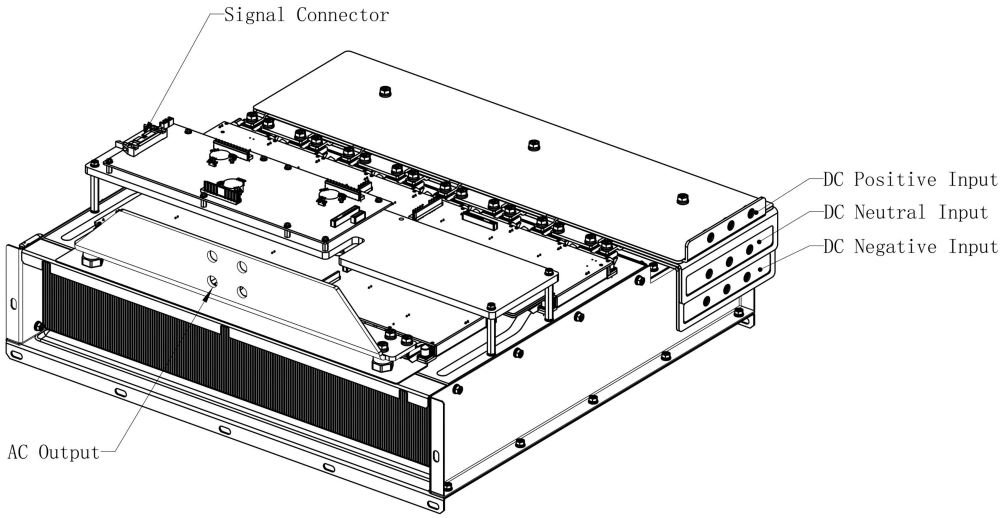
Controller Signal Connector Pin Definitions

Pin	Name	Function	Pin	Name	Function
1	1 to 20	Connected to pin 20	2	15V	15V supply signal
3	15V	15V supply signal	4	15V	15V supply signal
5	GND	Primary side ground	6	FAULT	Fault summary output signal
7	GND	Primary side ground	8	GND	Primary side ground
9	GND	Primary side ground	10	T1-IN	T1 PWM input signal
11	GND	Primary side ground	12	NTC1-1	External NTC1-pin1
13	NTC1-2	External NTC1-pin2	14	NC	Free
15	GND	Primary side ground	16	T2-IN	T2 PWM input signal
17	GND	Primary side ground	18	NTC2-1	External NTC2-pin1
19	NTC2-2	External NTC2-pin2	20	1 to 20	Connected to pin 1
21	GND	Primary side ground	22	T3-IN	T3 PWM input signal
23	GND	Primary side ground	24	T4-IN	T4 PWM input signal
25	GND	Primary side ground	26	T5-IN	T5 PWM input signal
27	GND	Primary side ground	28	T6-IN	T6 PWM input signal
29	GND	Primary side ground	30	NTC-VF	NTC Temperature Frequency Signal

Dimensions







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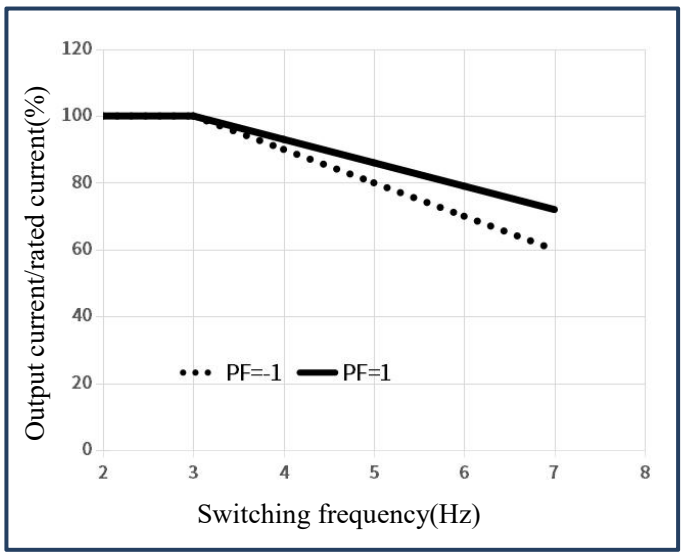

Fig.1 Output current versus switching frequency curve
(V_{DC}=1500 V, V_{AC} = 690 V_{RMS}, $f_{AC\ sine}$ = 50 Hz, T_{inlet} = 45°C)

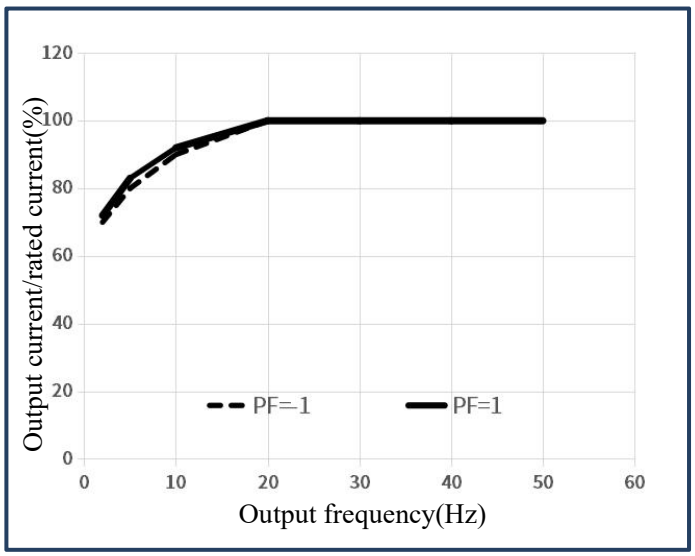

Fig.2 Output current versus output frequency curve
(V_{DC}=1500 V, V_{AC} = 690 V_{RMS}, f_{SW} = 3kHz, T_{inlet}= 45°C)

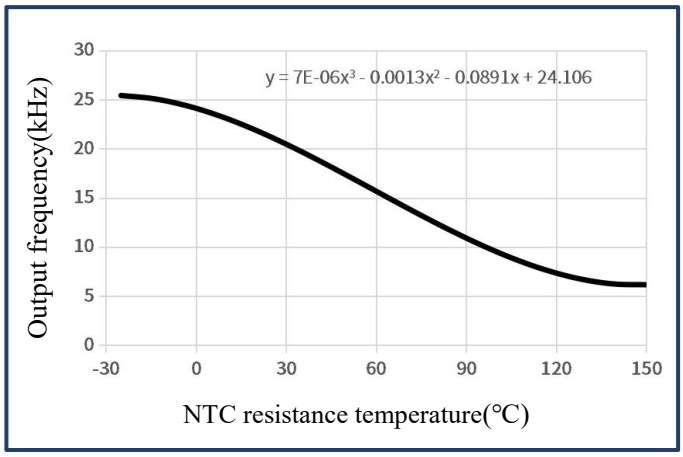

Fig.3 Output frequency versus NTC temperature curve

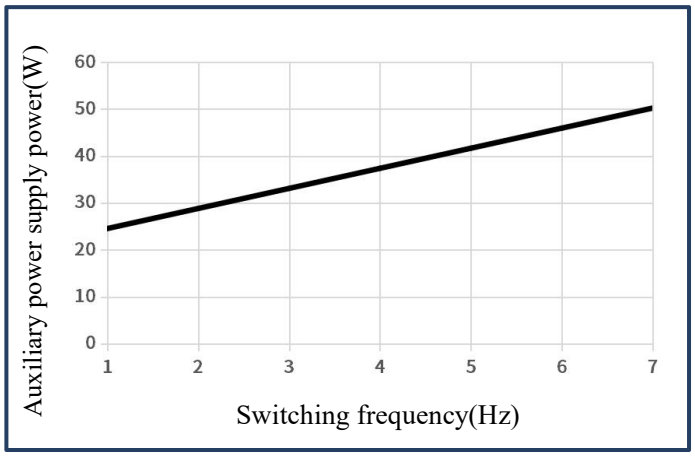

Fig.4 Auxiliary power requirement versus switching frequency curve

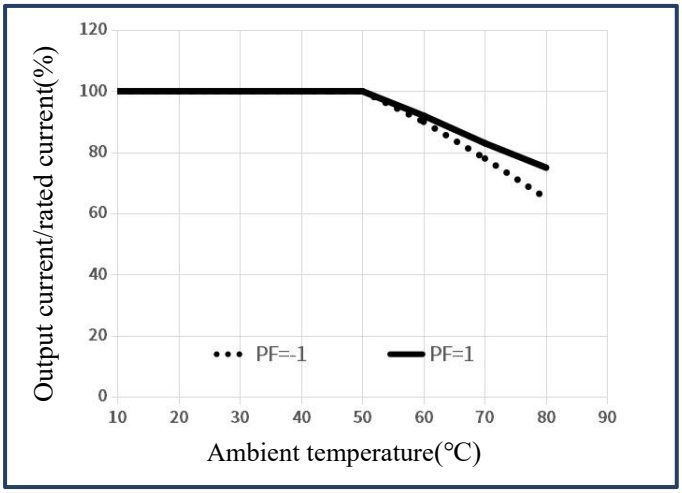

Fig.5 Output current versus ambient temperature curve

Safety instructions

1. The data contained in this product datasheet is intended for technically trained engineers only. The suitability of this product for your specific application scenario and the completeness of the information provided must be fully evaluated before implementation.
2. This product must not be operated beyond the absolute maximum ratings listed in this specification under any circumstances. Operating the device at multiple maximum rating thresholds simultaneously is strictly prohibited.
3. External cooling and dissipation requirements indicated in this specification must be strictly enforced to prevent performance derating or catastrophic thermal failure.
4. For applications in safety-critical systems (such as aviation, medical, or life-support systems), please contact Firstack to establish dedicated quality agreements and risk assessments before ordering.

Legal disclaimer

This manual gives a detailed introduction about the product, but cannot promise to provide specific parameters. No warranty or guarantee, express or implied, is given herein as to the delivery, performance or applicability of the product.

Firstack reserves the right to modify technical data and product specifications at any time without prior notice. Firstack's general payment terms and conditions apply.

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