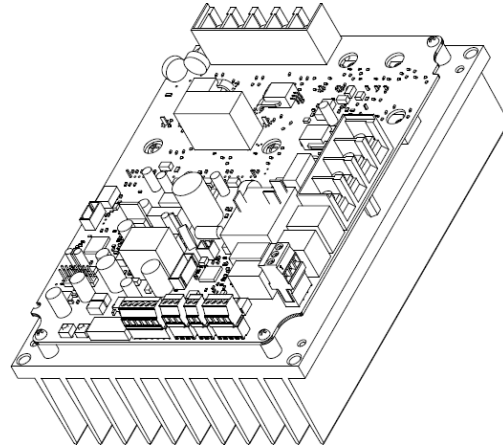


PM50B-220

Embrital inverter Power Module

Characteristic

Without rotor position
sensor FOC(Field-oriented
control SVPWM Sin
180°driver Synchronized
start
Stable speed control
Flexible PFC (auto adjust DC Voltage)
Compressor overload protection
Programmable functions needed for DC compressor



Applications

DC compressor/motor
Maximum Power output 5
kW Power supply:
220/240Vac

Default Control method:

0 ~ 10V

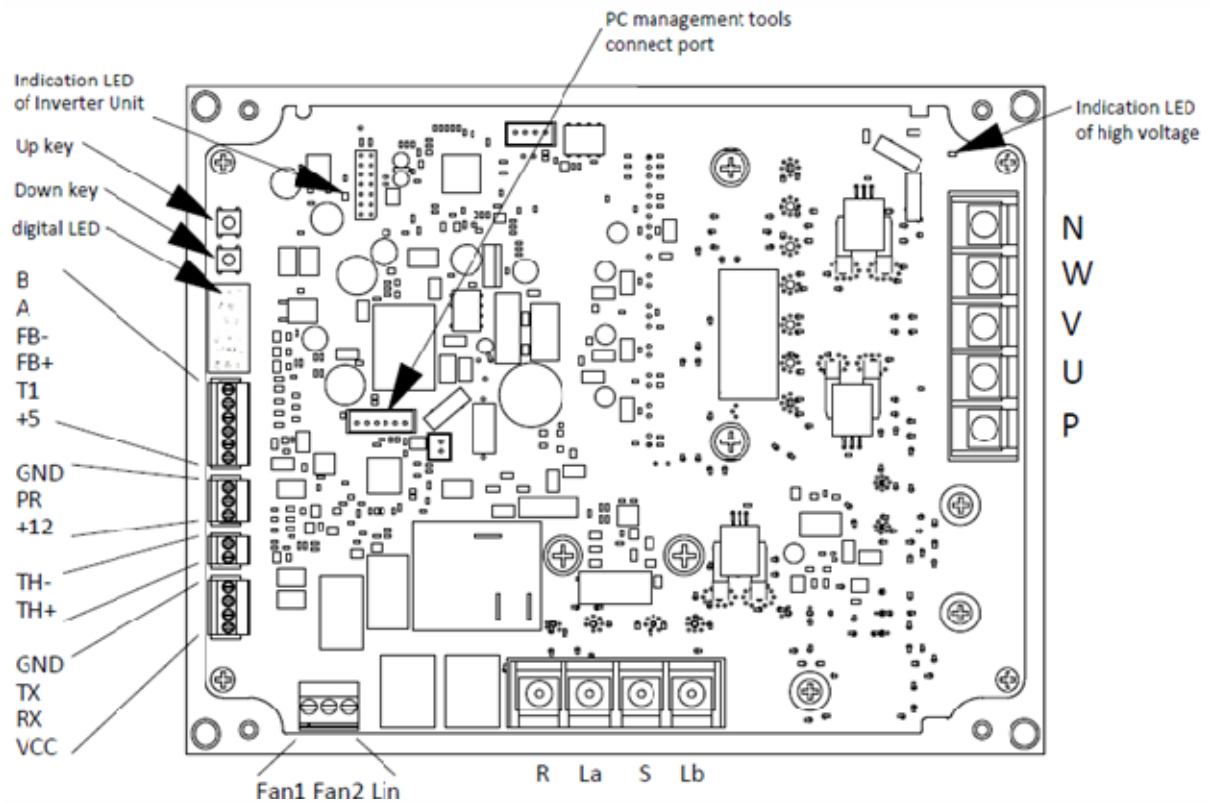
Control Method Available Under Request:

PWM
Asynchronous serial communication
RS485

Output

Compressor on/off
indication Operation
information
Heat sink cooling fan control

Ports Function



Symbol	Function	Description
R	Power Input for Inverter Unit	Connected with "L" of power supply
S		Connected with "N" of power supply
Lin	Power Input for Control Unit	Connected with "L" of power supply. If disconnected, PM will switch down the power supply of Inverter Unit. A switch is preferred to control this power input.
La	Connected with PFC Inductance	Connected with one terminal of PFC reactor
Lb		Connected with the other terminal of PFC reactor
p	Connected with filter capacitor	Connected with "+" polar of filter capacitor
N		Connected with "-" polar of filter capacitor
U	Compressor Driving Output	Connected with "U" of DC compressor
V		Connected with "V" of DC compressor
W		Connected with "W" of DC compressor
Vcc1	Asynchronous serial communication	Communication port, isolated by optocoupler. It can be directly connected with peripheral asynchronous communication circuit
Rx		
Tx		
Gnd1		
FB+	Compressor status indication output	Output the compressor running or stop status by isolated optocoupler
FB-		
+12	Target speed signal	Target speed signal (Linear Voltage signal or PWM signal) input to give the

Symbol	Function	Description
PR	Input	instruction of compressor target speed, Simultaneously supply +12V power.
Gnd		
+5	Compressor discharge temperature input	Connected with compressor discharge temperature sensor.
T1		
A	RS485 Protocol input	Connected with RS485 communication bus.
B		
TH+	Compressor overheat protection input	Connected with thermal switch of compressor shell.
TH-		
Fan1	Heat sink fan output	Connected with heat sink fan.
Fan2		

Technology Characteristic

Working Conditions

Item	Symbol	Min	Type	Max	Unit	Note
working condition		-20		60	°C	
store condition		-25		75		
Environment Humidity		10		90		

Electrical Characteristic

Item	Symbol	Min	Type	Max	Unit	Note
Power Supply Voltage		170	220	265	Vac	
Power Supply Frequency		-	50	-	Hz	
Current of power supply of Inverter Unit		1.0	-	25	A	
Consumption of Inverter Unit		0.3	-	5.5	kW	
Current of power supply of Control Unit		0.1	-	1.0	A	
Consumption of Control Unit		-	-	3	W	
Thermo switch current		1	-	-	A	
PR voltage		0	-	10	Vdc	
PR input Resistance		7.8	-	10.0	kΩ	
Output current of "+12"		-	-	20	mA	
Input current of PWM		2	-	10	mA	
Input voltage of PWM		5	-	15	Vdc	

Item	Symbol	Min	Type	Max	Unit	Note
PWM carry Frequency		50	-	10k	Hz	
Heating productivity				180	W	
Overload temperature of heatsink	T_heatsink _S	100	110	120	°C	
Release temperature of heatsink	T_heatsink _R	82	85	88	°C	
DC Voltage		240		375	Vdc	
Shortcut current of Compressor		72		85	A	
Current for Heat Sink fan				1	A	
lutput current of compressor running status feed back				10	mA	
Output voltage of compressor running status feed back				30	Vdc	
Carry Frequency of DC Driving			4/8		kHz	
Carry Frequency of PFC			16		kHz	
Parameter programming and erasure endurance				10000	Times	

Accessories

PFC reactor	:	5mH 25A
Electrolytic capacitor	:	2200uF 450V
Temperature sensor	:	R0=187.25kΩ, B0/100=3979K
EMC Filter	:	Ref. Pg 13
Variable resistor	:	10k
Compressor	:	For different type of compressor, calibrated test needed respectively

Inverter Precautions for Use

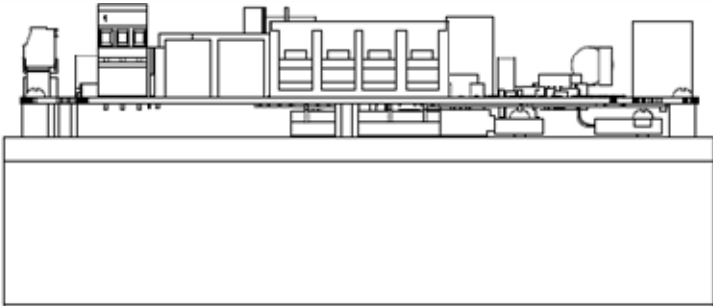
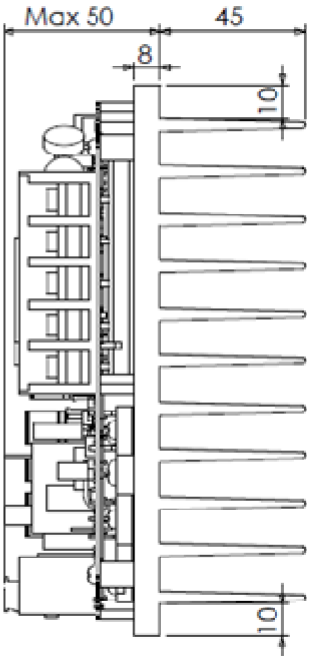
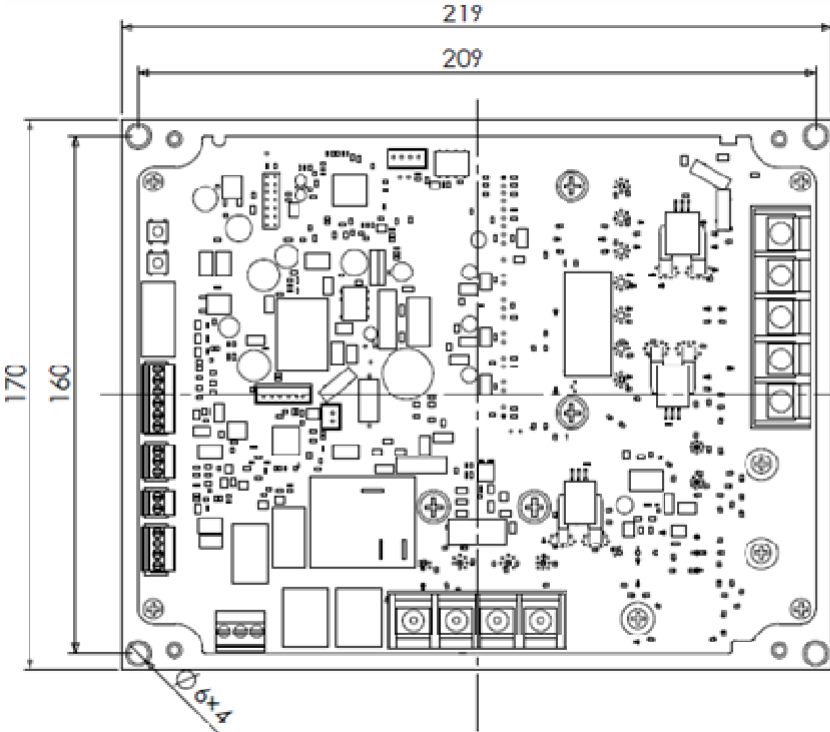
Avoid using parameters values outside the ranges specified in this document. It is the customer's responsibility to confirm that the final unit complies with local safety and security standards. During installing operations shut down the power supply.

The installation should be performed by qualified personnel.

Safety measures should be taken when handling the inverter during operation due to the presence of high voltage.

Avoid using multi-core cable as it can break easily and cause unexpected short circuits.

INVERTER DRAWING



FILTER EMC DRAWING

