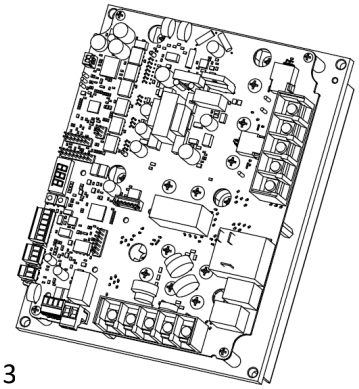
PM75A-380
Smart Sin wave inverter Power Module



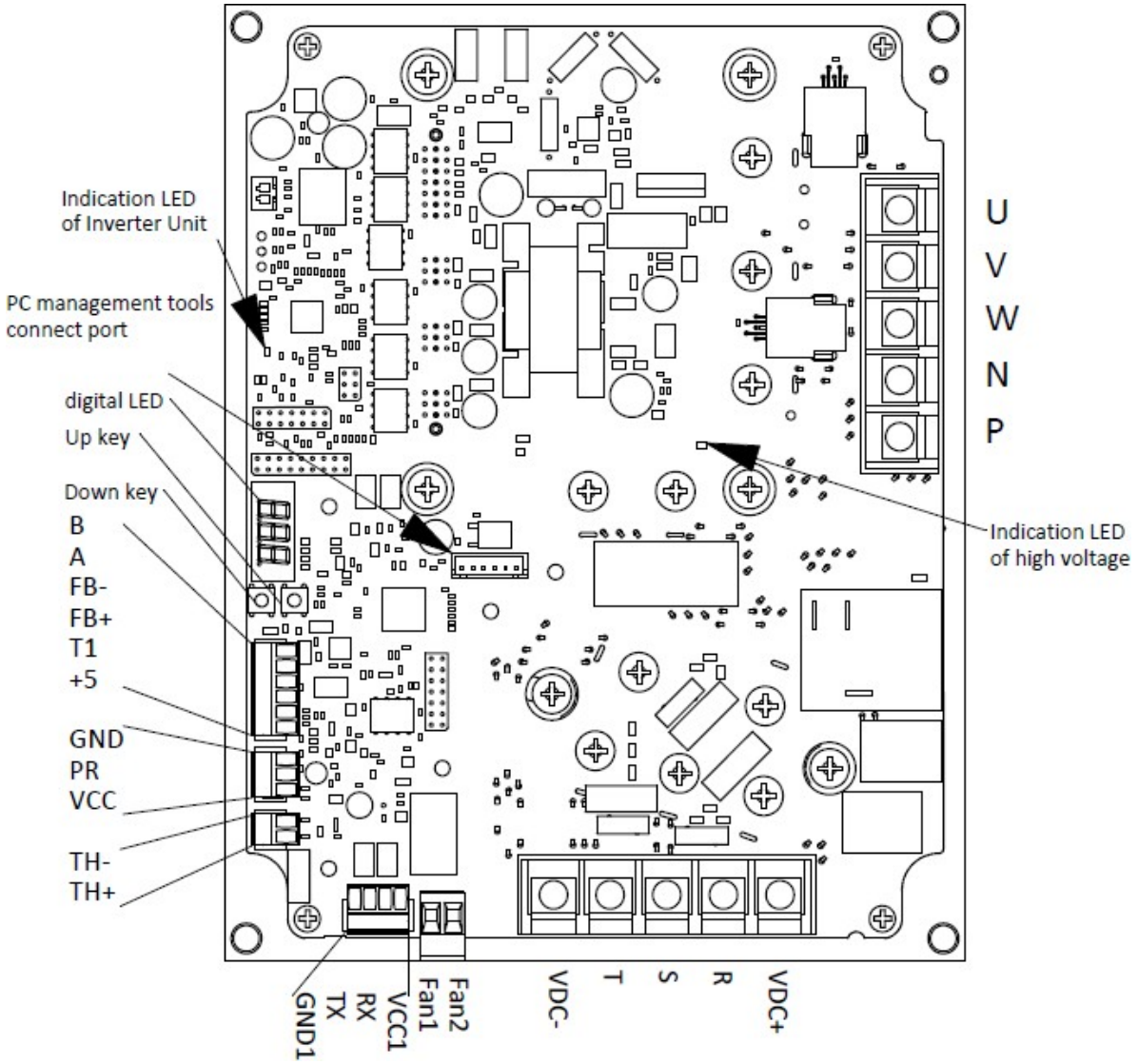
Characteristic
Without rotor position sensor
FOC(Field-oriented control)
SVPWM Sin 180°driver Synchronized start
Stable speed control Compressor overload protection
Programmable functions needed for DC compressor

Applications
DC compressor/motor Maximum Power output 15kW Power supply: 3

Control method (customization available)
0 ~ 10V PWM
Asynchronous serial communication RS485

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

Ports Function



Symbol	Function	Description
R	3Φ380Vac Power Input for Inverter Unit	Connected with “R” of 3Φ380Vac power supply
S		Connected with “S” of 3Φ380Vac power supply
T		Connected with “T” of 3Φ380Vac power supply
VDC+	Connected with DCin Capacitance Board	Connected with VDC+ terminal of Capacitance Board through reactor
VDC-		Connected with VDC- terminal of Capacitance Board
P	Connected with DCout Capacitance Board	Connected with VDC+ terminal of Capacitance Board
N		Connected with VDC- terminal of Capacitance Board
U	Compressor Driving Output	Connected with “U” of DC compressor
V		Connected with “V” of DC compressor
W		Connected with “W” of DC compressor

Symbol	Function	Description
Vcc1 Rx Tx Gnd1	Asynchronous serial communication	Communication port, isolated by optocoupler. It can be directly connected with peripheral asynchronous communication circuit
FB+ FB-	Compressor status indication output	Output the compressor running or stop status by isolated optocoupler
VCC PR Gnd	Target speed signal Input	Target speed signal (Linear Voltage signal or PWM signal)input to give the instruction of compressor target speed, Simultaneously supply +12V power.
+5 T1	Compressor discharge temperature input	Connected with compressor discharge temperature sensor.
A B	RS485 Protocol input	Connected with RS485 communication bus.
TH+ TH-	Compressor overheat protection input	Connected with thermal switch of compressor shell.
Fan1 Fan2	Heat sink fan output	Connected with heat sink fan.

Technology Characteristic

Working Conditions

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

Electrical Characteristic

Item	Symbol	Min	Type	Max	Unit	Note
Power Supply Voltage		304	380	456	Vac	
Power Supply Frequency		-	50	-	Hz	
Current of power supply		-	-	29	A	
Consumption		-	-	15	kW	
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	
PWM carry Frequency		50	-	10k	Hz	
Power Dissipation		-	-	350	W	

Overload temperature of heatsink	T_heatsink _S	100	110	120	℃	
Item	Symbol	Min	Type	Max	Unit	Note
Release temperature of heatsink	T_heatsink _R	82	85	88	℃	
DC Voltage		400	530	644	Vdc	
Shortcut current of Compressor			113		A	
Current for Heat Sink fan				1	A	
Iutput current of compressor running status feed back				10	mA	
Output voltage of compressor running status feed back				30	Vdc	
Carry Frequency of DC Driving			4/8/16		kHz	
Parameter programming and erasure endurance				10000	Times	

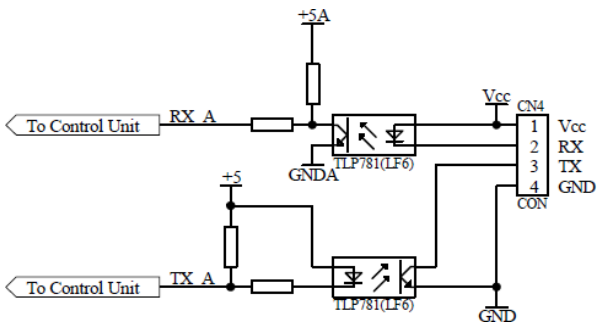
Peripheral Parts

Reactor :5mH 30A
Capacitor Board :SSPM-CAPB-1680-380×2
Temperature sensor :R0=187.25kΩ, B0/100=3979K
EMC flier :To be defined
Variable resistor :10k
Compressor :For different type of compressor, calibrated test needed respectively.

Communication

Serial Communication

SSPM can communicate with central unit of system through optocoupler isolated asynchronous serial circuit. User can control the SSPM operate and set parameter through this port.
For protocol please refer to SSPM communication protocol document Serial communication circuit in SSPM



RS485 Communication

PM can communicate with central unit of system through RS485 bus. User can control the PM operate and set parameter through this port.

PM use same one serial port of Control MCU to realize the serial communication and RS485 communication. So these 2 type communication mode can't be use together at same time.
RS485 mode supports MOBUS protocol.

If needed, RS485 protocol can be developed according to user requirement.

Figure