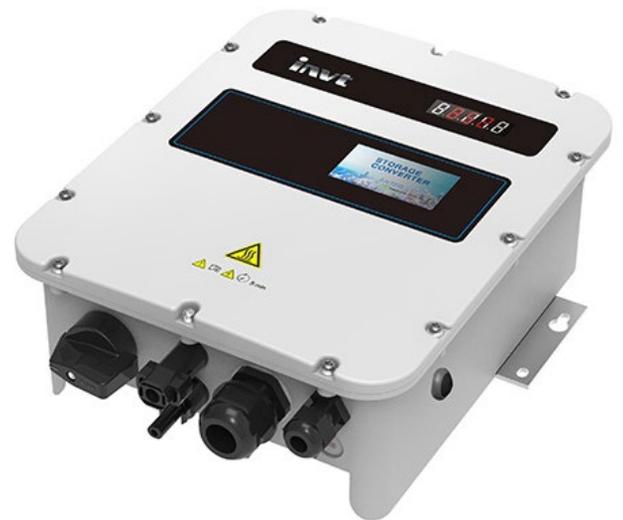




# INVT SPC BASIC SETUP MANUAL



# PRODUCT SPECIFICATIONS



Model	SPC2K2TR20 SPC2K2TR26-S SPC2K2TR26-H	SPC004TR40 SPC004TR46-S SPC004TR46-H	SPC7K5TR40 SPC7K5TR46-S SPC7K5TR46-H
Output power (kW)	2.2	4	7.5
<b>DC input</b>			
Max. DC input voltage (V)	450	800	800
Start voltage (V)	120	250	250
Min. working voltage (V)	70	200	200
Recommended DC input voltage range (V)	200–400	300–750	300–750
Recommended MPP voltage (V)	330	580	580
<b>AC output</b>			
Output voltage (V)	0–230	0–400	0–400
Output frequency (Hz)	0–400	0–400	0–400
<b>Control performance</b>			
Control mode	V/F (SVPWM), SVC		
Motor type	Asynchronous motor (AM) and synchronous motor (SM)		
Overload capacity	Able to run at 120% of the rated current for 1 minute and 150% of the rated current for 10 seconds		
<b>Other</b>			
Ingress protection (IP) rating	IP65		
Cooling method	Natural cooling		
Human-machine interface (HMI)	External LED keypad		

Model	Output power		Rated input current (A)	Rated output current (A)
	(kW)	(HP)		
3PH 230V				
SPC2K2TR20	2.2	3	9	10
3PH 380V				
SPC004TR40	4.0	5	9	9.5
SPC7K5TR40	7.5	10	18	17



## PRODUCT PACKAGING INCLUDE

AC OUTPUT PLUG



MC4 CONNECTORS



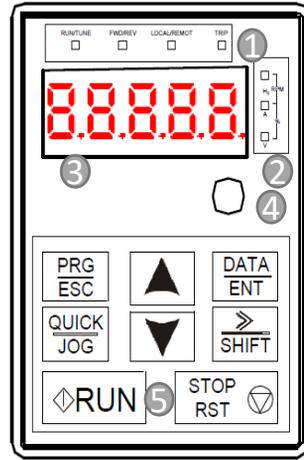
LED KEYPAD DISPLAY

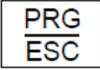
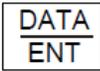


LED DISPLAY CABLE



# KEYPAD INTRODUCTION



No.	Name	Description
1	Status indicator	RUN/TUNE Running status indicator. LED off means that inverter is in the stopping state; LED blinking means the inverter is in the parameter auto tuning state; LED on means the inverter is in the running state.
		FWD/REV FED/REV indicator. LED off means the inverter is in the forward rotation state; LED on means the inverter in in the reverse rotation state.
		LOCAL/REMOTE LED for keypad operation, terminals operation and remote communication control; LED off means that the inverter is in the keypad operation state; LED blinking means the inverter is in the remote communication control state.
		TRIP Fault indicator. LED on when the inverter is in the fault state; LED off in normal state; LED blinking means the inverter is in the overload pre-alarm state.
2	Unit Indicator	Indicating the unit of the displayed digits Hz – Unit of frequency A – Unit of current V – Unit of voltage RPM – Unit of rotating speed % – Percentage
3	Code displaying zone	displaying zone 5-digit LED display , displaying various monitoring data and alarm code such as set frequency and output frequency
4	Analog potentiometer	Corresponds to AI1.
5	Buttons	 Programming key Enter or escape from the first level menu and remove the parameter quickly
		 Entry key Enter the menu step-by-step confirm parameters
		 Up key Increase data or function code progressively
		 Down key Decrease data or function code progressively
		 Right-shift key Move right to select the displaying parameter circularly in stopping and running mode. Select the parameter modifying digit during the parameter modification.
		 Run key This key is used to run the inverter in key operation mode.
		 Stop /Reset key This key is used to stop the inverter when it is in running state, and is limited by function code PO07.04 This key is used to reset all control modes in

# BASIC SETUP SHEET FOR SPC



GROUP 0 BASIC FUNTION GROUP			
00.01	1	Terminal Run Command	
00.03	50	Maximum Running Frequency	
00.04	50	Upper Freq Limit	
00.05	35	Minimum Running Frequency	
00.11	1.5	Acceleration time	1.5 Borehole 20 Centrifugal
00.12	20	Deceleration time	15 Borehole 20 Centrifugal
GROUP 1 START UP AND STOP CONTROL			
01.18	1	Operation protection	
01.21	1	Restart after power of	
GROUP 2 MOTOR 1 PARAMMETER			
02.00	0	Motor type	0=3PH Motor, 1=1PH Motor
02.01		Rated of Power (kW)	TO BE OBTAINED FROM MOTOR
02.02	50	Rated of Freq (Hz)	
02.03		Rated of Speed (RPM)	TO BE OBTAINED FROM MOTOR
02.04		Rated of Voltage (V)	TO BE OBTAINED FROM MOTOR
02.05		Rated Current (A)	TO BE OBTAINED FROM MOTOR
GROUP 8 ENHANCED FUNCTIONS			
08.28	8	Nr. Fault Reset Times	
08.29	1000	Fault reset seconds	
GROUP 11 PROTECTIVE PARAMETERS			
11.06		Auto current limit	Default 120
11.09		Overload protection	Default 120
GROUP 15 GROUP SPECIAL FUNCTION PARAMETERS FOR PV INVERTER			
15.05	70%	Lower freq limit %	See setting below
15.17	1200	Wake-up delay empty-water	A-TL wake up time
15.24	600	Wake-up delay weak Light	

Setting

15.05 = P00.05 / P00.03\*100

Setting

11.06 = Motor Amp / Rated output current of drive \*100

11.09 = 11.06 + 3

All setting in yellow to be set

## Float Switch Settings

GROUP 05 GROUP SPECIAL FUNCTION PARAMETERS FOR PV INVERTER			
05.02	44		
GROUP 15 GROUP SPECIAL FUNCTION PARAMETERS FOR PV INVERTER			
15.16	5		
15.17	20		

## Reset Drive Factory Default Reset:

GROUP 0		BASIC FUNTION GROUP	
00.18	1	Factory Default Drive	0 = No operation, 1 = Restore the default value

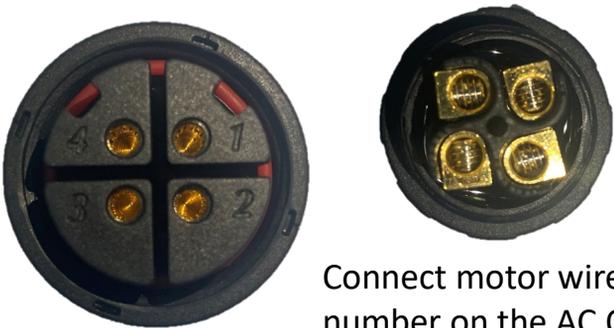
- Note:
1. The function code will restore to 0 after finishing the operation of the selected function code.
  2. Restoring to the default value will cancel the user password, please use this function with caution.
  3. Power off vsd for 1 min, then power back on

## Master Reset:

GROUP 29			
29.00	40721	Password	
29.02	1	Change value up then date enter	
29.02	0	Change value back to original value then data enter	

- Note:
1. Power off vsd for 1 min, then power back on

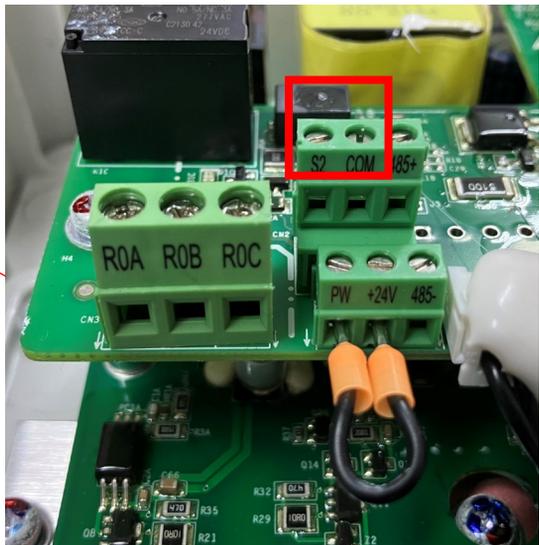
## AC OUTPUT CONNECTION



**3PH Motors:**  
1,2,3 – Connect motor  
4 – Earth

Connect motor wire to correct number on the AC OUTPUT PLUG

## FLOAT SWITCH CONNECTION



Float switch connection to S2 & Com inside box (see settings on previous page)

Do as follows after inverter encounter a fault

1. First, check whether there is something wrong with the keypad. If yes, contact the local INVT office
2. If there is nothing wrong, check function codes of P07 group, view the corresponding recorded fault parameters, and identify the actual state when the current fault occurred based on all the parameters
3. See the following table, check for exceptions based on the specific solutions.
4. Rectify the fault or seek help
5. After ensuring that the fault has been rectified, perform fault reset and start the inverter

Fault code	Fault type	Possible cause	Solution
OV1	Overvoltage during ACC	<ul style="list-style-type: none"> <li>▪ The input voltage is abnormal.</li> <li>▪ There is large energy feedback.</li> <li>▪ No braking components.</li> <li>▪ Energy-consumption braking is not enabled.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the input power.</li> <li>▪ Check whether the loaded DEC time is too short or the inverter starts when the motor is rotating.</li> <li>▪ Install the braking components.</li> <li>▪ Check the setting of related function codes.</li> </ul>
OV2	Overvoltage during DEC		
OV3	Overvoltage during constant speed running		
OC1	Overcurrent during ACC	<ul style="list-style-type: none"> <li>▪ The acceleration or deceleration is too fast.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increase the ACC time.</li> <li>▪ Check the input power.</li> </ul>
OC2	Overcurrent during DEC		
OC3	Overcurrent during constant speed running	<ul style="list-style-type: none"> <li>▪ The voltage of the grid is too low.</li> <li>▪ The power of the inverter is too low.</li> <li>▪ The load transients or is abnormal.</li> <li>▪ There is to-ground short circuit or output phase loss.</li> <li>▪ There is strong external interference.</li> <li>▪ The overvoltage stall protection is not enabled.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Select the inverter with larger power.</li> <li>▪ Check whether there is short circuit (to-ground or inter-wire) in the load or the rotation is not smooth.</li> <li>▪ Check the output wiring.</li> <li>▪ Check whether there is strong interference.</li> <li>▪ Check the setting of related function codes.</li> </ul>
UV	Bus undervoltage fault	<ul style="list-style-type: none"> <li>▪ The voltage of the grid is too low.</li> <li>▪ The overvoltage stall protection is not enabled.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the grid input power supply.</li> <li>▪ Check the setting of related function codes.</li> </ul>
OL1	Motor overload	<ul style="list-style-type: none"> <li>▪ The grid voltage is too low.</li> <li>▪ The motor rated current is set incorrectly.</li> <li>▪ The motor stall occurs or the load transient is too large.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the grid voltage.</li> <li>▪ Reset the motor rated current.</li> <li>▪ Check the load and adjust the torque boost quantity.</li> </ul>
OL2	Inverter overload	<ul style="list-style-type: none"> <li>▪ The ACC is too fast.</li> <li>▪ The rotating motor is reset.</li> <li>▪ The grid voltage is too low.</li> <li>▪ The load is too heavy.</li> <li>▪ The motor power is too small.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increase the ACC time.</li> <li>▪ Avoid the restarting after stop.</li> <li>▪ Check the grid voltage.</li> <li>▪ Select an inverter with larger power.</li> <li>▪ Select a proper motor.</li> </ul>

Fault code	Fault type	Possible cause	Solution
SPO	Phase loss on output side	<ul style="list-style-type: none"> <li>Phase loss output occurs to U, V, W (or the three phases of the load are seriously asymmetrical).</li> </ul>	<ul style="list-style-type: none"> <li>Check the output wiring.</li> <li>Check the motor and cables.</li> </ul>
OH2	Inverter module overheat	<ul style="list-style-type: none"> <li>Air duct jam or fan damage occurs.</li> <li>Ambient temperature is too high.</li> <li>The time of overload running is too long.</li> </ul>	<ul style="list-style-type: none"> <li>Dredge the vent duct or replace the fan.</li> <li>Lower the ambient temperature.</li> </ul>
EF	External fault	<ul style="list-style-type: none"> <li>SI external faulty input terminal action.</li> </ul>	<ul style="list-style-type: none"> <li>Check external device input.</li> </ul>
CE	RS485 communication fault	<ul style="list-style-type: none"> <li>The baud rate setting is incorrect.</li> <li>A fault occurs to the communication wiring.</li> <li>The communication address is incorrect.</li> <li>There is strong interference to the communication.</li> </ul>	<ul style="list-style-type: none"> <li>Set a proper baud rate.</li> <li>Check the communication interface wiring.</li> <li>Set a proper communication address.</li> <li>Change or replace the wire or improve the anti-interference capability.</li> </ul>
ItE	Current detection fault	<ul style="list-style-type: none"> <li>The control board connector is in poor contact.</li> <li>Hall device is damaged.</li> <li>An exception occurs on the magnifying circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Check the connector and re-plug.</li> <li>Replace the Hall device.</li> <li>Change the main control board.</li> </ul>
tE	Motor autotuning fault	<ul style="list-style-type: none"> <li>The motor capacity does not match the inverter capacity.</li> <li>Motor parameters are not set correctly.</li> <li>The difference between the parameters obtained from autotuning and the standard ones is great.</li> <li>Autotuning timed out.</li> </ul>	<ul style="list-style-type: none"> <li>Change the inverter model.</li> <li>Set the motor type and nameplate parameters correctly.</li> <li>Empty the motor load.</li> <li>Check the motor wiring and parameter settings.</li> <li>Check whether the upper limit frequency is higher than 2/3 of the rated frequency.</li> </ul>
EEP	EEPROM operation error	<ul style="list-style-type: none"> <li>Error in reading or writing control parameters.</li> <li>The EEPROM is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>Press STOP/RST for reset.</li> <li>Change the main control board.</li> </ul>
END	Running time reached	<ul style="list-style-type: none"> <li>The actual running time of the inverter is longer than the internal set running time.</li> </ul>	<ul style="list-style-type: none"> <li>Ask for the supplier and adjust the set running time.</li> </ul>
OL3	Electronic overload fault	<ul style="list-style-type: none"> <li>The inverter reports overload pre-alarm according to the setting.</li> </ul>	<ul style="list-style-type: none"> <li>Check the load and the overload pre-alarm points.</li> </ul>
ETH1	To-ground short-circuit fault 1	<ul style="list-style-type: none"> <li>The output of the inverter is short circuited to the ground.</li> <li>There is a fault in the current detection circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the motor wiring is normal.</li> <li>Replace the Hall device.</li> <li>Change the main control board.</li> </ul>
ETH2	To-ground short-circuit fault 2		
dEu	Speed deviation fault	<ul style="list-style-type: none"> <li>The load is too heavy or stalled.</li> </ul>	<ul style="list-style-type: none"> <li>Check the load and increase the detection time if the load is normal.</li> <li>Check whether control parameters are set correctly.</li> </ul>

Fault code	Fault type	Possible cause	Solution
STo	Mal-adjustment fault	<ul style="list-style-type: none"> <li>▪ SM control parameters are set incorrectly.</li> <li>▪ Autotuned parameters are not accurate.</li> <li>▪ The inverter is not connected to the motor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the load and ensure the load is normal.</li> <li>▪ Check whether control parameters are set correctly.</li> <li>▪ Increase the mal-adjustment detection time.</li> </ul>
LL	Electronic underload fault	<ul style="list-style-type: none"> <li>▪ The inverter reports underload pre-alarm according to the setting.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the load and the underload pre-alarm points.</li> </ul>
A-LS	Weak-light pre-alarm	<ul style="list-style-type: none"> <li>▪ The sunlight is weak or the PV module configuration is insufficient.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The device will automatically run when the light is sufficient.</li> <li>▪ Check whether the PV module configuration is sufficient.</li> </ul>
A-LL	Underload pre-alarm	<ul style="list-style-type: none"> <li>▪ The pumping pool has no water.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check the pumping pool.</li> </ul>
A-tF	Full-water pre-alarm	<ul style="list-style-type: none"> <li>▪ The pumping pool is full.</li> </ul>	<ul style="list-style-type: none"> <li>▪ If you have configured the full-water pre-alarm function, the device automatically stops when the pre-alarm elapsed a period of time. Otherwise, check whether terminals are wired correctly.</li> </ul>
A-tL	Empty-water pre-alarm	<ul style="list-style-type: none"> <li>▪ The pumping pool has no water.</li> </ul>	<ul style="list-style-type: none"> <li>▪ If you have configured the empty-water pre-alarm function, the device automatically stops when the pre-alarm elapsed a period of time. Otherwise, check whether terminals are wired correctly.</li> </ul>

## NOTES:




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