

Figure 4-2 Displayed states

### 4.3 Keypad operation

Operate the VFD via operation panel. See the detailed structure description of function codes in the brief diagram of function codes.

#### 4.3.1 How to modify the function codes of the VFD

The VFD has three levels menu, which are:

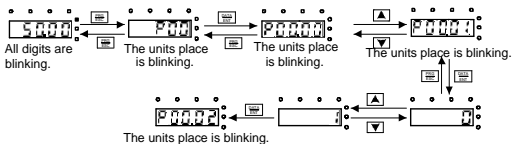
1. Group number of function code (first-level menu)
2. Tab of function code (second-level menu)
3. Set value of function code (third-level menu)

Remarks: Press both the **PRG/ESC** and the **DATA/ENT** can return to the second-level menu from the third-level menu. The difference is: pressing **DATA/ENT** will save the set parameters into the control panel, and then return to the second-level menu with shifting to the next function code automatically; while pressing **PRG/ESC** will directly return to the second-level menu without saving the parameters, and keep staying at the current function code.

Under the third-level menu, if the parameter has no flickering bit, it means the function code cannot be modified. The possible reasons could be:

- 1) This function code is not modifiable parameter, such as actual detected parameter, operation records and so on;
- 2) This function code is not modifiable in running state, but modifiable in stop state.

Example: Set function code P00.01 from 0 to 1.



Note: When setting,  and  +  can be used to shift and adjust

Figure 4-3 Sketch map of modifying parameters

### 4.3.2 How to set the password of the VFD

Goodrive10 series VFDs provide password protection function to users. Set P7.00 to gain the password and the password protection becomes valid instantly after quitting from the function code editing state. Press **PRG/ESC** again to the function code editing state, "0.0.0.0.0" will be displayed. Unless using the correct password, the operators cannot enter it.

Set P7.00 to 0 to cancel password protection function.

The password protection becomes valid instantly after retreating from the function code editing state. Press **PRG/ESC** again to the function code editing state, "0.0.0.0.0" will be displayed. Unless using the correct password, the operators cannot enter it.

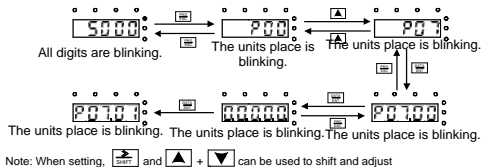


Figure 4-4 Sketch map of password setting

### 4.3.3 How to view the VFD state through function codes

Goodrive10 series VFDs provide group P17 as the state inspection group. Users can enter into P17 directly to watch the state.

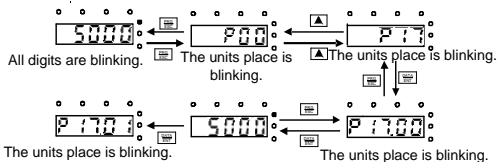


Figure 4-5 Sketch map of state watching

## Chapter 5 Function parameters

The function parameters of Goodrive10 series VFDs have been divided into 30 groups (P00–P29) according to the function, of which P18 – P28 are reserved. Each function group contains certain function codes applying 3-level menus. For example, “P08.08” means the eighth function code in the P8 group function, P29 group is factory reserved, and users are forbidden to access these parameters.

For the convenience of function codes setting, the function group number corresponds to the first level menu, the function code corresponds to the second level menu and the function code corresponds to the third level menu.

1. Below is the instruction of the function lists:

**The first column** “Function code”: codes of function parameter group and parameters;

**The second column** “Name”: full name of function parameters;

**The third column** “Detailed description of parameters”: Detailed illustration of the function parameters

**The fourth column** “Default value”: the original factory set value of the function parameter;

**The fifth column** “Modify”: the modifying character of function codes (the parameters can be modified or not and the modifying conditions), below is the instruction:

“○”: means the set value of the parameter can be modified on stop and running state;

“⊙”: means the set value of the parameter can not be modified on the running state;

“●”: means the value of the parameter is the real detection value which can not be modified.

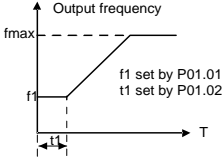
Function code	Name	Detailed description of parameters	Default value	Modify
<b>P00 group Basic functions</b>				
P00.00	Speed control mode	<p>2:SVPWM control (suitable for asynchronous motor)</p> <p>2 is suitable in cases where it does not need high control accuracy, such as the load of fan and pump. One VFD can drive multiple motors.</p> <p><b>Note:</b> Carry out motor parameter autotuning before adopting vector mode.</p>	2	⊙
P00.01	Channel of running commands	<p>Select the run command channel of the VFD.</p> <p>The control command of the VFD includes: start-up, stop, forward, reverse, jogging and fault reset.</p> <p>0:Keypad running command channel(“LOCAL/REMOTE” light off)</p> <p>Carry out the command control by <b>RUN</b>, <b>STOP/RST</b> on the keypad.</p> <p>Set the multi-function key <b>QUICK/JOG</b> to <b>FWD/REV</b> shifting function (P07.02=3) to change the running direction; press <b>RUN</b> and <b>STOP/RST</b> simultaneously in running state to make the VFD coast to stop.</p>	0	○

Function code	Name	Detailed description of parameters	Default value	Modify
		1:Terminal running command channel ("LOCAL/REMOTE" flickering) Carry out the running command control by the forward rotation, reverse rotation and forward jogging and reverse jogging of the multi-function terminals 2:Communication running command channel ("LOCAL/REMOTE" on); The running command is controlled by the upper monitor via communication		
P00.03	Max. output frequency	This parameter is used to set the maximum output frequency of the VFD. Users should pay attention to this parameter because it is the foundation of the frequency setting and the speed of acceleration and deceleration. Setting range: P00.04–400.00Hz	50.00Hz	⊙
P00.04	Upper limit of the running frequency	The upper limit of the running frequency is the upper limit of the output frequency of the VFD which is lower than or equal to the maximum frequency. Setting range:P00.05–P00.03 (Max. output frequency)	50.00Hz	⊙
P00.05	Lower limit of the running frequency	The lower limit of the running frequency is that of the output frequency of the VFD. The VFD runs at the lower limit frequency if the set frequency is lower than the lower limit one. <b>Note:</b> Max. output frequency ≥ Upper limit frequency ≥ Lower limit frequency Setting range:0.00Hz–P00.04 (Upper limit of the running frequency)	0.00Hz	⊙
P00.06	A frequency command selection	<b>Note:</b> Frequency A and frequency B cannot use the same frequency setting mode. The frequency source can be set by P00.09. 0:Keypad data setting (correspond to the keyboard potentiometer) Modify the value of function code P00.10 (set the frequency by keypad) to modify the frequency by the keypad. 1:Analog AI1 setting (correspond to AI) 2:Analog AI2 setting Analog input terminal sets the frequency. There are 2 standard analog input terminal, of which AI1 is adjusted through digital potentiometer, AI2 (0 - 10V/0 - 20mA)can	0	○
P00.07	B frequency command selection		2	○

Function code	Name	Detailed description of parameters	Default value	Modify
		<p>be switched by the jumper.</p> <p><b>Note:</b> when AI2 selects 0 - 20mA input, 20mA corresponds to 10V.</p> <p>100.0% of the analog input corresponds to P00.03, -100.0% of the analog input corresponds to the reverse P00.03.</p> <p>6: Multi-stage speed running setting</p> <p>The VFD runs at multi-stage speed mode when P00.06=6 or P00.07=6. Set P05 to select the current running stage, and set P10 to select the current running frequency.</p> <p>The multi-stage speed has the priority when P00.06 or P00.07 does not equal to 6, but the setting stage can only be the 1-15 stage. The setting stage is 1-15 if P00.06 or P00.07 equals to 6.</p> <p>7: PID control setting</p> <p>The running mode of the VFD is process PID control when P00.06=7 or P00.07=7. It is necessary to set P09. The running frequency of the VFD is the value after PID effect. See P09 for the detailed information of the preset source, preset value, feedback source of PID.</p> <p>8:MODBUS communication setting</p> <p>The frequency is set by MODBUS communication. See P14 for detailed information.</p>		
P00.08	B frequency command reference	<p>0: Maximum output frequency, 100% of B frequency setting corresponds to the maximum output frequency</p> <p>1: A frequency command, 100% of B frequency setting corresponds to the maximum output frequency. Select this setting if it needs to adjust on the base of A frequency command</p>	1	○
P00.09	Combination type of the setting source	<p>0: A, the current frequency setting is A frequency command</p> <p>1: B, the current frequency setting is B frequency command</p> <p>2: A+B, the current frequency setting is A frequency command + B frequency command</p> <p>3: A-B, the current frequency setting is A frequency command - B frequency command</p> <p>4: Max (A, B): The bigger one between A frequency command and B frequency is the set frequency.</p> <p>5: Min (A, B): The lower one between A frequency command and B frequency is the set frequency.</p> <p><b>Note:</b>The combination manner can be shifted by P05(terminal function)</p>	0	○
P00.10	Keypad set frequency	When A and B frequency commands are selected as "keypad setting", this parameter will be the initial value of	50.00Hz	○

Function code	Name	Detailed description of parameters	Default value	Modify				
		VFD reference frequency Setting range:0.00 Hz–P00.03(the Max. frequency)						
P00.11	ACC time 1	ACC time means the time needed if the VFD speeds up from 0Hz to the Max. One (P00.03).	Depend on model	○				
P00.12	DEC time 1	DEC time means the time needed if the VFD speeds down from the Max. Output frequency to 0Hz (P00.03). Goodrive10 series VFDs define four groups of ACC/DEC time which can be selected by P05. The factory default ACC/DEC time of the VFD is the first group. Setting range of P00.11 and P00.12:0.0–3600.0s	Depend on model	○				
P00.13	Running direction selection	0: Runs at the default direction, the VFD runs in the forward direction. <b>FWD/REV</b> indicator is off. 1: Runs at the opposite direction, the VFD runs in the reverse direction. <b>FWD/REV</b> indicator is on. Modify the function code to shift the rotation direction of the motor. This effect equals to the shifting the rotation direction by adjusting either two of the motor lines (U, V and W). The motor rotation direction can be changed by <b>QUICK/JOG</b> on the keypad. Refer to parameter P07.02. <b>Note:</b> When the function parameter comes back to the default value, the motor's running direction will come back to the factory default state, too. In some cases it should be used with caution after commissioning if the change of rotation direction is disabled. 2: Forbid to run in reverse direction: It can be used in some special cases if the reverse running is disabled.	0	○				
P00.14	Carrier frequency setting	The relationship table of the motor type and carrier frequency: <table><tr><th>Motor type</th><th>Factory value of carrier frequency</th></tr><tr><td>0.2–2.2kW</td><td>4kHz</td></tr></table>	Motor type	Factory value of carrier frequency	0.2–2.2kW	4kHz	Depend on model	○
Motor type	Factory value of carrier frequency							
0.2–2.2kW	4kHz							

Function code	Name	Detailed description of parameters	Default value	Modify																
		<table><tr><th>Carrier frequency</th><th>Electro magnetic noise</th><th>Noise and leakage current</th><th>Heating eliminating</th></tr><tr><td>1kHz</td><td>↑ High</td><td>↑ Low</td><td>↑ Low</td></tr><tr><td>10kHz</td><td></td><td></td><td></td></tr><tr><td>15kHz</td><td>↓ Low</td><td>↓ High</td><td>↓ High</td></tr></table> <p>The advantage of high carrier frequency: ideal current waveform, little current harmonic wave and motor noise.</p> <p>The disadvantage of high carrier frequency: increasing the switch loss, increasing VFD temperature and the impact to the output capacity. The VFD needs to derate on high carrier frequency. At the same time, the leakage and electrical magnetic interference will increase.</p> <p>Applying low carrier frequency is contrary to the above, too low carrier frequency will cause unstable running, torque decreasing and surge.</p> <p>The manufacturer has set a reasonable carrier frequency when the VFD is in factory. In general, users do not need to change the parameter.</p> <p>When the frequency used exceeds the default carrier frequency, the VFD needs to derate 10% for each additional 1kHz carrier frequency.</p> <p>Setting range:1.0–15.0kHz</p>	Carrier frequency	Electro magnetic noise	Noise and leakage current	Heating eliminating	1kHz	↑ High	↑ Low	↑ Low	10kHz				15kHz	↓ Low	↓ High	↓ High		
Carrier frequency	Electro magnetic noise	Noise and leakage current	Heating eliminating																	
1kHz	↑ High	↑ Low	↑ Low																	
10kHz																				
15kHz	↓ Low	↓ High	↓ High																	
P00.16	AVR function selection	0:Invalid 1:Valid during the whole process The auto-adjusting function of the VFD can cancel the impact on the output voltage of the VFD because of the bus voltage fluctuation.	1	○																
P00.18	Function restore parameter	0:No operation 1:Restore the default value 2:Clear fault records <b>Note:</b> The function code will restore to 0 after finishing the operation of the selected function code. Restoring to the default value will cancel the user password, please use this function with caution.	0	◎																

Function code	Name	Detailed description of parameters	Default value	Modify
<b>P01 group Start and stop control</b>				
P01.00	Start mode	0:Start-up directly:start from the starting frequency P01.01 1:Start-up after DC braking: start the motor from the starting frequency after DC braking (set the parameter P01.03 and P01.04). It is suitable in the cases where reverse rotation may occur to the low inertia load during starting.	0	☉
P01.01	Starting frequency of direct start-up	Starting frequency of direct start-up means the original frequency during the VFD starting. See P01.02 for detailed information. Setting range: 0.00–50.00Hz	0.50Hz	☉
P01.02	Retention time of the starting frequency	Set a proper starting frequency to increase the torque of the VFD during starting. During the retention time of the starting frequency, the output frequency of the VFD is the starting frequency. And then, the VFD will run from the starting frequency to the set frequency. If the set frequency is lower than the starting frequency, the VFD will stop running and keep in the stand-by state. The starting frequency is not limited in the lower limit frequency.  <p>Setting range: 0.0–50.0s</p>	0.0s	☉
P01.03	The braking current before starting	The VFD will carry out DC braking at the braking current set before starting and it will speed up after the DC braking time. If the DC braking time is set to 0, the DC braking is invalid.	0.0%	☉
P01.04	The braking time before starting	The stronger the braking current, the bigger the braking power. The DC braking current before starting means the percentage of the rated current of the VFD. Setting range of P01.03: 0.0–100.0%	0.00s	☉