

# Goodrive390L Series Lift-dedicated VFD

## Quick Start Guide

This guide briefly describes the peripheral wiring, terminals, keypads, quick running, and common function parameter settings of Goodrive390L series lift-dedicated variable frequency drive (VFD).

Visit [www.invt.com](http://www.invt.com) for more information and source download. For details, see the full version of corresponding product e-manual.

Scan the QR code to view the full version of GD390L series product e-manual.



### Warning

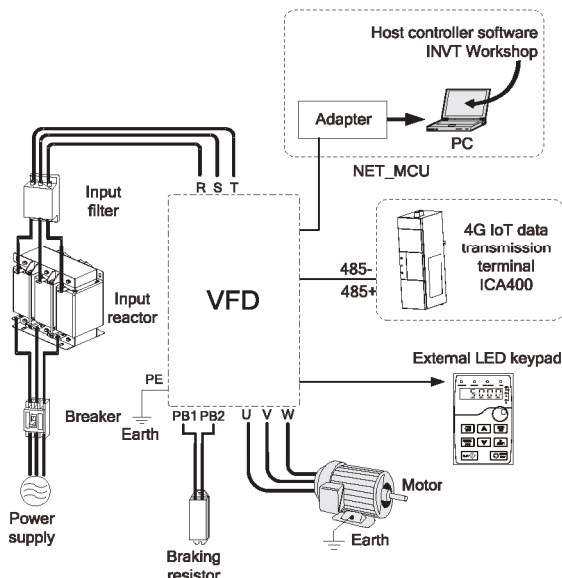
- This guide only provides the basic installation and commissioning information. Failure to comply with the safety instructions and installation and commissioning instructions in the relevant documentation may result in accidents such as equipment damage, personal injury, or even death.
- Only trained and qualified professionals are allowed to carry out related operations.

### Danger

- Do not perform any operations including wiring, inspection, or component replacement when power supply is applied. Before performing these operations, ensure all the input power supplies have been disconnected, and wait for at least the time designated on the VFD.

| Minimum waiting time | VFD model                                                |
|----------------------|----------------------------------------------------------|
| 5 minutes            | 1PH 220V 2.2kW; 3PH 220V 2.2kW–18.5kW; 3PH 380V 4kW–37kW |

## 1 Peripheral wiring



## 2 Terminal function

Figure 2-1 Main circuit wiring diagram

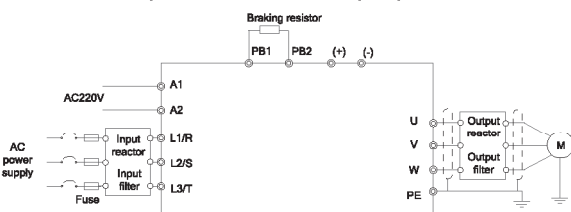
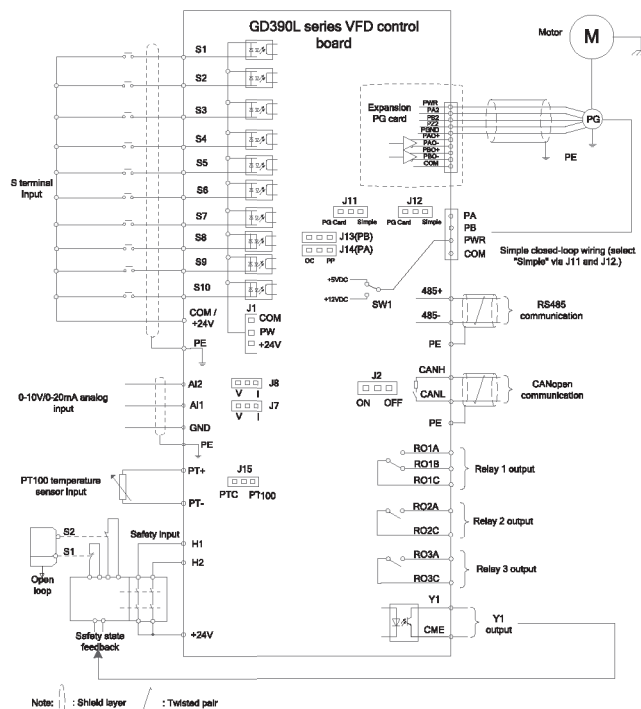


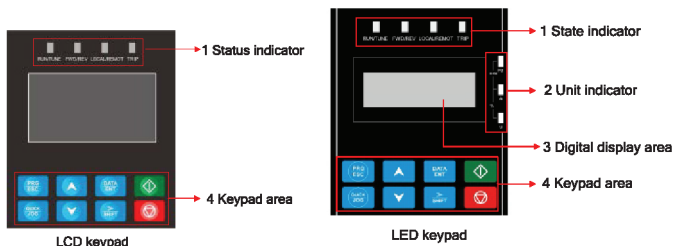
Figure 2-2 Control circuit wiring diagram



| Terminal name | Description                                                                                                                                                                                                                                                                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | PTC: Ts±5°C                                                                                                                                                                                                                                                                                                                                                                 |
| PA, PB        | Simplified closed-loop encoder signal interfaces (The interfaces default to open-collector encoder signals, which can be switched to push-pull encoder signals through the J13 and J14 jumpers). <ul style="list-style-type: none"> <li>Applicable to 5V/12V push-pull, OC encoders</li> <li>Response frequency: 100kHz</li> </ul>                                          |
| PWR           | Encoder power interface. The common terminal is COM which can be set to 5V or 12V through SW1.                                                                                                                                                                                                                                                                              |
| CANH, CANL    | CANopen communication interfaces. The terminal matching resistor can be connected through the J2 jumper.                                                                                                                                                                                                                                                                    |
| 485+, 485-    | RS485 communication interfaces                                                                                                                                                                                                                                                                                                                                              |
| H1, H2        | STO function input terminals <ul style="list-style-type: none"> <li>Connected to external NC contacts. When the contacts open, STO acts and VFD output stops.</li> <li>H1 and H2 are redundant inputs. They are short connected to +24V by default. Remove the jumper before using STO function.</li> <li>Use the shielded cable with a length shorter than 25m.</li> </ul> |

### 3 Keypad

Figure 3-1 Keypad



Digital display on LED keypad

| Display | Means | Display | Means | Display | Means | Display | Means |
|---------|-------|---------|-------|---------|-------|---------|-------|
| 0       | 0     | 1       | 1     | 2       | 2     | 3       | 3     |
| 4       | 4     | 5       | 5     | 6       | 6     | 7       | 7     |
| 8       | 8     | 9       | 9     | A       | A     | b       | b     |
| C       | C     | d       | d     | E       | E     | F       | F     |
| H       | H     | I       | I     | L       | L     | N       | N     |
| n       | n     | O       | O     | P       | P     | r       | r     |
| S       | S     | t       | t     | U       | U     | v       | v     |
| .       | .     | -       | -     |         |       |         |       |

#### Note:

Some models of the product carry a LCD keypad, which supports multiple languages (press ENT on the main interface to enter the language selection interface), parameter copying function, and four-row high-definition display. The other models carry a LED keypad. Set P00.01=2 if using an LCD keypad; set P00.01=0 if using an LED keypad.

Table 3-1 Keypad introduction

| Indicator      | State      | Meaning                                                    |
|----------------|------------|------------------------------------------------------------|
| RUN/TUNE       | Steady on  | The VFD is running.                                        |
|                | Blinking   | The VFD is in parameter autotuning.                        |
|                | Steady off | The VFD has stopped.                                       |
| FWD/REV        | Steady on  | The VFD is running reversely.                              |
|                | Steady off | The VFD is running forward.                                |
| LOCAL/REMOT    | Steady on  | The VFD uses communication as the command running channel. |
|                | Blinking   | The VFD uses terminal as the command running channel.      |
|                | Steady off | The VFD uses keypad as the command running channel.        |
| TRIP           | Steady on  | The VFD is in fault state.                                 |
|                | Blinking   | The VFD is in alarm state.                                 |
|                | Steady off | The VFD is in normal state.                                |
| Unit indicator |            | Hz                                                         |
|                |            | RPM                                                        |
|                |            | A                                                          |
|                |            | %                                                          |
|                |            | V                                                          |
|                |            | m/s                                                        |

| Key | Function                                                                                                                                                                                    |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | Programming key<br>Press it to enter or exit level-1 menus.                                                                                                                                 |
|     | Confirmation key<br>Press it to enter menus in cascading mode or confirm the setting of a parameter.                                                                                        |
|     | UP key<br>Press it to increase data or move upward.                                                                                                                                         |
|     | Down key<br>Press it to decrease data or move downward.                                                                                                                                     |
|     | Right-shifting key<br>Press it to select display parameters rightward in the interface for the VFD in stopped or running state or to select digits to change during parameter setting.      |
|     | Run key<br>Press it to run the VFD when using the keypad for control.                                                                                                                       |
|     | Stop/Reset key<br>Press it to stop the VFD that is running. The function of this key is restricted by P07.04.<br>In fault alarm state, this key can be used for reset in any control modes. |
|     | Multifunction shortcut key<br>The function is determined by P07.02.                                                                                                                         |

### 4 Quick startup

#### 4.1 Check before power-on

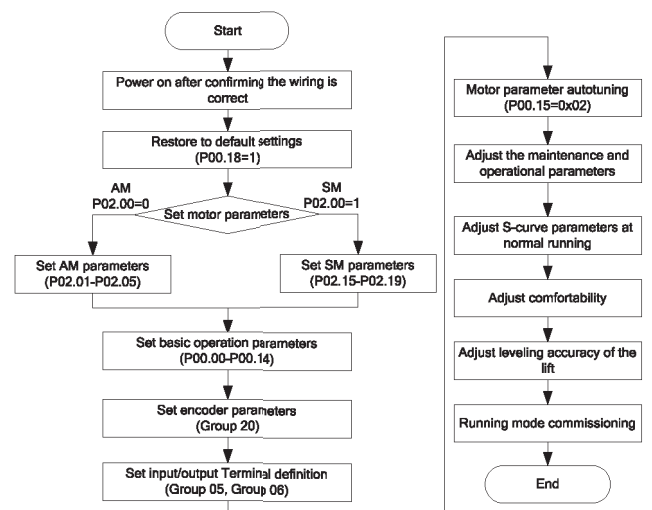
|  |                                                         |
|--|---------------------------------------------------------|
|  | Ensure that all terminals have been securely connected. |
|  | Ensure that the motor power matches the VFD power.      |

#### 4.2 First power-on

After confirming the wiring and power are correct, close the air switch of the AC power supply at the VFD input side to power on the VFD. The keypad displays as the following figure, indicating that the VFD is ready for run.



The quick startup diagram is as follows:



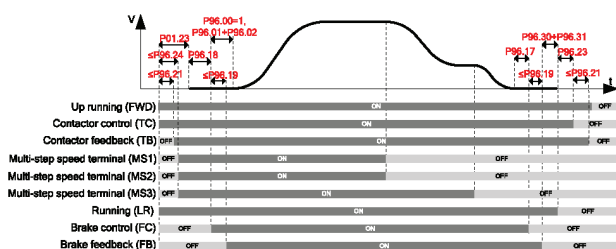
#### 4.3 Procedures of motor autotuning

- Step 1 After setting the correct motor data, first set the VFD to keypad control mode.
- Step 2 After completing the settings, set P0.15 to 02, and the drive will display "TUN".
- Step 3 After pressing the RUN button, the motor contactor will close, and the motor will emit a sound. Keep the RUN button pressed.
- Step 4 After autotuning is complete, "SUC" will be displayed, and the contactor will open again. Then set P0.01 to 1 and try running the motor.

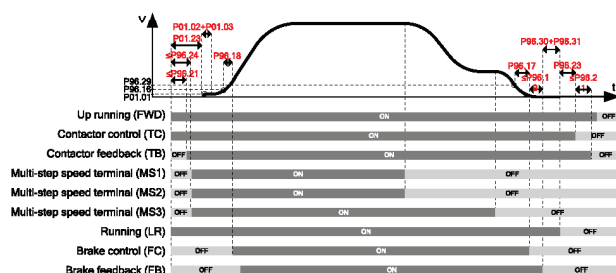
**Step 5** If an error "FAL" appears, try setting P20.02 to 101, 001, or 100, and restart from Step 1.

#### 4.4 Running timing diagram

**Figure 4-1 Timing diagram for lift multi-step speed running in closed-loop mode**



**Figure 4-2 Timing diagram for lift multi-step speed running in open-loop mode**



## 5 Common function parameter setup

The following table briefly describes some common function parameters and typical values.

"○" indicates that the value of the parameter can be modified when the VFD is in stopped or running state.

"⊙" indicates that the value of the parameter cannot be modified when the VFD is in running state.

"●" indicates that the value of the parameter is detected and recorded, and cannot be modified.

(The VFD automatically checks and constrains the modification of parameters, which helps prevent incorrect modifications.)

 **Note:** The function codes highlighted in the following table are the most commonly used.

| Function code | Name                                   | Description                                                                                                                                                                                        | Default  | Modify |
|---------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|
| P00.00        | Speed control mode                     | 0: SVC 0<br>1: Reserved<br>2: VF control<br>3: Closed-loop vector control                                                                                                                          | 2        | ⊙      |
| P00.01        | Channel of running commands            | 0: Keypad<br>1: Terminal<br>2: Communication                                                                                                                                                       | 0        | ⊙      |
| P00.02        | Communication mode of running commands | 0: Modbus/Modbus TCP communication<br>1: CANopen communication                                                                                                                                     | 0        | ⊙      |
| P00.03        | Max. output frequency                  | Max(P00.04,10.00)–200.00Hz                                                                                                                                                                         | 50.00Hz  | ⊙      |
| P00.04        | Upper limit of running frequency       | P00.05–P00.03                                                                                                                                                                                      | 50.00Hz  | ⊙      |
| P00.05        | Lower limit of running frequency       | 0.00Hz–P00.04                                                                                                                                                                                      | 0.00Hz   | ⊙      |
| P00.06        | Rated speed of the lift                | 0.100–4.000m/s                                                                                                                                                                                     | 1.000m/s | ⊙      |
| P00.07        | Speed command channel selection        | 0: Keypad<br>1: AI1 (follow)<br>2: AI2 (follow)<br>3: AI1<br>4: AI2<br>5: Reserved<br>6: Multi-step speed running<br>7: Reserved<br>8: Modbus/Modbus TCP communication<br>9: CANopen communication | 0        | ⊙      |

| Function code | Name                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                | Default                 | Modify |
|---------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------|
| P00.10        | Speed set through keypad                             | 0.000m/s-P00.06                                                                                                                                                                                                                                                                                                                                                                            | 1.000m/s                | ○      |
| P00.13        | Running direction                                    | 0: Run at the default direction<br>1: Run at the opposite direction<br>2: Disable reverse running                                                                                                                                                                                                                                                                                          | 0                       | ⊙      |
| P00.14        | Carrier frequency setting                            | Setting range: 1.0-15.0kHz<br>A high carrier frequency results in lower motor current harmonics and reduced noise, while increasing inverter switching losses and temperature rise.                                                                                                                                                                                                        | Model depended (8.0kHz) | ⊙      |
| P00.15        | Motor parameter autotuning                           | Setting range: 0x00-0x34<br>Ones place: Motor basic parameter autotuning<br>0: No operation<br>1: Dynamic autotuning<br>2: Complete parameter static autotuning<br>3: Partial parameter static autotuning<br>4: Deadzone compensation autotuning<br>Tens place: Initial pole angle autotuning<br>0: No operation<br>1: Rotary autotuning<br>2: Static autotuning<br>3: Rotary autotuning 2 | 0x00                    | ⊙      |
| P00.18        | Function parameter restoration                       | 0: No operation<br>1: Restore to default values (excluding motor parameters)<br>2: Clear fault records                                                                                                                                                                                                                                                                                     | 0                       | ⊙      |
| P01.00        | Running mode of start                                | 0: Direct start<br>1: Start after DC braking                                                                                                                                                                                                                                                                                                                                               | 0                       | ⊙      |
| P01.02        | ACC time of start                                    | Setting range: 0.000-0.100s                                                                                                                                                                                                                                                                                                                                                                | 0.010s                  | ⊙      |
| P01.03        | Starting frequency hold time                         | Setting range: 0.0-50.0s                                                                                                                                                                                                                                                                                                                                                                   | 0.0s                    | ⊙      |
| P01.04        | Braking current before start                         | Setting range: 0.0-100.0%                                                                                                                                                                                                                                                                                                                                                                  | 0.0%                    | ⊙      |
| P01.05        | Braking time before start                            | Setting range: 0.00-50.00s                                                                                                                                                                                                                                                                                                                                                                 | 0.00s                   | ⊙      |
| P01.06        | ACC/DEC mode                                         | 0: Linear<br>1: S curve                                                                                                                                                                                                                                                                                                                                                                    | 1                       | ⊙      |
| P01.08        | Stop mode                                            | 0: Decelerate to stop. After the stop command becomes valid, the VFD decelerates to decrease the output frequency during the set time. When the frequency decreases to the stop speed, the VFD stops.<br>1: Coast to stop. After a stop command takes effect, the VFD ceases the output immediately, and the load coasts to stop according to mechanical inertia.                          | 0                       | ○      |
| P01.09        | Starting frequency of braking for stop               | Setting range: 0.00Hz-P00.03                                                                                                                                                                                                                                                                                                                                                               | 0.00Hz                  | ○      |
| P01.11        | DC braking current for stop                          | Setting range: 0.0-100.0% (of the rated VFD output current)                                                                                                                                                                                                                                                                                                                                | 0.0%                    | ○      |
| P01.12        | DC braking time for stop                             | Setting range: 0.00-50.00s<br>🔧 <b>Note:</b> If the value is 0, DC braking is invalid, and the VFD decelerates to stop within the specified time.                                                                                                                                                                                                                                          | 0.00s                   | ○      |
| P01.15        | Stop inflection speed                                | 0.000-P00.06(m/s)                                                                                                                                                                                                                                                                                                                                                                          | 0.000m/s                | ⊙      |
| P01.18        | Terminal running command detection state at power-on | 0: Detect the edge state of the terminal running command at power-on (edge-triggered)<br>1: Detect the level state of the terminal running command at power-on (state-triggered)                                                                                                                                                                                                           | 0                       | ○      |
| P01.23        | Start delay                                          | Setting range: 0.0-600.0s                                                                                                                                                                                                                                                                                                                                                                  | 0.0s                    | ○      |
| P02.00        | Motor type                                           | Setting range: 0-1<br>0: Asynchronous motor (AM)<br>1: Synchronous motor (SM)                                                                                                                                                                                                                                                                                                              | 0                       | ⊙      |
| P02.01        | Rated power of AM                                    | Setting range: 0.1-3000.0kW                                                                                                                                                                                                                                                                                                                                                                | Model depended          | ⊙      |

| Function code | Name                               | Description                                          | Default        | Modify |
|---------------|------------------------------------|------------------------------------------------------|----------------|--------|
| P02.02        | Rated frequency of AM              | Setting range: 0.00Hz~P00.03                         | 50.00Hz        | ⊙      |
| P02.03        | Rated speed of AM                  | Setting range: 1~60000rpm                            | Model depended | ⊙      |
| P02.04        | Rated voltage of AM                | Setting range: 0~1200V                               | Model depended | ⊙      |
| P02.05        | Rated current of AM                | Setting range: 0.8~6000.0A                           | Model depended | ⊙      |
| P02.06        | Stator resistance of AM            | Setting range: 0.001~65.535Ω                         | Model depended | ○      |
| P02.07        | Rotor resistance of AM             | Setting range: 0.001~65.535Ω                         | Model depended | ○      |
| P02.08        | Leakage inductance of AM           | Setting range: 0.1~6553.5mH                          | Model depended | ○      |
| P02.09        | Mutual inductance of AM            | Setting range: 0.1~6553.5mH                          | Model depended | ○      |
| P02.10        | No-load current of AM              | Setting range: 0.1~6553.5A                           | Model depended | ○      |
| P02.15        | Rated power of SM                  | Setting range: 0.1~3000.0kW                          | Model depended | ⊙      |
| P02.16        | Rated frequency of SM              | Setting range: 0.00Hz~P00.03                         | 50.00Hz        | ⊙      |
| P02.17        | Number of pole pairs of SM         | Setting range: 1~128                                 | 2              | ⊙      |
| P02.18        | Rated voltage of SM                | Setting range: 0~1200V                               | Model depended | ⊙      |
| P02.19        | Rated current of SM                | Setting range: 0.8~6000.0A                           | Model depended | ⊙      |
| P03.00        | Speed-loop proportional gain 1     | Setting range: 0.0~200.0                             | 20.0           | ○      |
| P03.01        | Speed-loop integral time 1         | Setting range: 0.000~10.000s                         | 0.600s         | ○      |
| P03.02        | Low-point frequency for switching  | Setting range: 0.00~P03.05(Hz)                       | 5.0Hz          | ○      |
| P03.03        | Speed-loop proportional gain 2     | Setting range: 0.0~200.0                             | 20.0           | ○      |
| P03.04        | Speed-loop integral time 2         | Setting range: 0.000~10.000s                         | 0.600s         | ○      |
| P03.05        | High-point frequency for switching | Setting range: P03.02~P00.03(Hz)                     | 10.00Hz        | ○      |
| P03.06        | Speed-loop output filter           | Setting range: 0~8                                   | 0              | ○      |
| P03.09        | Current loop bandwidth             | Setting range: 0~2000Hz                              | 400Hz          | ○      |
| P05.01        | Function of S1                     | Setting range: 0~40                                  | 0              | ⊙      |
| P05.02        | Function of S2                     | 0: No function                                       | 1              | ⊙      |
| P05.03        | Function of S3                     | 1: Up running (FWD)                                  | 2              | ⊙      |
| P05.04        | Function of S4                     | 2: Down running (REV)                                | 8              | ⊙      |
| P05.05        | Function of S5                     | 3: Running in inspection (EXM)                       | 9              | ⊙      |
| P05.06        | Function of S6                     | 4: Emergency running (EMER)                          | 10             | ⊙      |
| P05.07        | Function of S7                     | 5: Coast to stop (FSTP)                              | 0              | ⊙      |
| P05.08        | Function of S8                     | 6: Fault reset (RET)                                 | 0              | ⊙      |
| P05.09        | Function of S9                     | 7: External fault (EF)                               | 0              | ⊙      |
| P05.10        | Function of S10                    | 8: Multi-step speed terminal 1 (MS1)                 | 0              | ⊙      |
|               |                                    | 9: Multi-step speed terminal 2 (MS2)                 |                |        |
|               |                                    | 10: Multi-step speed terminal 3 (MS3)                |                |        |
|               |                                    | 11: Up forced DEC 1 (UFS1)                           |                |        |
|               |                                    | 12: Up forced DEC 2 (UFS2)                           |                |        |
|               |                                    | 13: Up forced DEC 3 (UFS3)                           |                |        |
|               |                                    | 14: Down forced DEC 1 (DFS1)                         |                |        |
|               |                                    | 15: Down forced DEC 2 (DFS2)                         |                |        |
|               |                                    | 16: Down forced DEC 3 (DFS3)                         |                |        |
|               |                                    | 17: Contactor feedback signal (TB)                   |                |        |
|               |                                    | 18: Brake feedback signal (FB)                       |                |        |
|               |                                    | 19: VFD enabling (ENA)                               |                |        |
|               |                                    | 20: Forced decelerate to stop                        |                |        |
|               |                                    | 21: Emergency mode                                   |                |        |
|               |                                    | 22: Motor overheating                                |                |        |
|               |                                    | 23: Main power supply input disconnected (for India) |                |        |

| Function code | Name                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Default | Modify |      |      |    |     |     |     |      |   |
|---------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|------|------|----|-----|-----|-----|------|---|
|               |                                    | 24: UPS input disconnected by main control (for India)<br>25: Base lockout<br>26: Brake feedback signal 2<br>27: Brake travel feedback 1<br>28: Brake travel feedback 2<br>29: Brake travel feedback 3<br>30: Brake travel feedback 4<br>31: Reserved<br>32: Upper door zone<br>33: Middle door zone<br>34: Lower door zone<br>35: High-speed trigger point<br>36: Medium-speed trigger point<br>37: Low-speed trigger point<br>38–40: Reserved                                                                                                                                                                                                                                                                 |         |        |      |      |    |     |     |     |      |   |
| P05.13        | Input terminal polarity            | Setting range: 0x000–0x3FF<br>Bit0–bit9 corresponds to S1–S10 in sequence.<br>Specifies the polarity of the input terminal.<br>When a bit is 0, the input terminal is positive.<br>When a bit is 1, the input terminal is negative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0x000   | ○      |      |      |    |     |     |     |      |   |
| P05.14        | Digital input filter time          | Setting range: 0.000–1.000s<br>The function code is used to specify the filter time of S1–S10 terminal sampling. In strong interference cases, increase the value to avoid maloperation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.010s  | ○      |      |      |    |     |     |     |      |   |
| P06.01        | Y1 output                          | Setting range: 0–30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1       | ○      |      |      |    |     |     |     |      |   |
| P06.03        | RO1 output                         | 0: No output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0       | ○      |      |      |    |     |     |     |      |   |
| P06.04        | RO2 output                         | 1: Lift in operation<br>2: Up operation<br>3: Down running<br>4: Fault output<br>5: Running at zero speed<br>6: Ready for running<br>7: Brake control<br>8: Contactor control<br>9: Any frequency reached<br>10: Frequency level detection FDT1 output<br>11: Frequency level detection FDT2 output<br>12: Brake 2 control<br>13: Light-load direction detection completed<br>14: Down as the light-load direction detection result<br>15: Up as the light-load direction detection result<br>16: Running 1 (excluding current withdrawal)<br>17: STO action<br>18: SPI fault output<br>19: UPS control signal output (India)<br>20: Star-sealing output<br>21: STO safety contactor control<br>22–30: Reserved | 7       | ○      |      |      |    |     |     |     |      |   |
| P06.05        | RO3 output                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8       | ○      |      |      |    |     |     |     |      |   |
| P06.06        | Output terminal polarity selection | Specifies the polarity of the output terminal.<br>Setting range: 0x00–0x0F<br><table><tr><td>Bit0</td><td>Bit1</td><td>Bit2</td><td>Bit3</td></tr><tr><td>Y1</td><td>RO1</td><td>RO2</td><td>RO3</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Bit0    | Bit1   | Bit2 | Bit3 | Y1 | RO1 | RO2 | RO3 | 0x00 | ○ |
| Bit0          | Bit1                               | Bit2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Bit3    |        |      |      |    |     |     |     |      |   |
| Y1            | RO1                                | RO2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | RO3     |        |      |      |    |     |     |     |      |   |
| P07.01        | Parameter copy                     | Setting range: 0–3<br>0: No operation<br>1: Upload parameters to keypad<br>2: Download all parameters (including motor parameters)<br>3: Download non-motor parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0       | ⊙      |      |      |    |     |     |     |      |   |
| P08.28        | Auto fault reset count             | Setting range: 0–10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0       | ○      |      |      |    |     |     |     |      |   |
| P08.29        | Auto fault reset interval          | Setting range: 0.1–3600.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.0s    | ○      |      |      |    |     |     |     |      |   |

| Function code     | Name                                                              | Description                                                                                                                                                                                                                                                                                                                                                               | Default  | Modify |
|-------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|
| P08.52            | STO-SAFE status reset selection                                   | Setting range: 0-3<br>0: Manual reset, with triggering fault output<br>1: Automatic reset, with triggering fault output<br>2: Manual reset, without triggering fault output<br>3: Automatic reset, without triggering fault output                                                                                                                                        | 3        | ○      |
| P10.00-<br>P10.07 | Multi-step speed 0-<br>Multi-step speed 7                         | Setting range: 0.000m/s-P00.06                                                                                                                                                                                                                                                                                                                                            | 0.000m/s | ○      |
| P10.38            | S-curve ACC start segment duration                                | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.39            | S-curve ACC end segment duration                                  | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.40            | ACC time                                                          | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.41            | S-curve DEC start segment duration                                | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.42            | S-curve DEC end segment duration                                  | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.43            | DEC time                                                          | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.44            | S-curve start segment duration during stop                        | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.45            | S-curve end segment duration during stop                          | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.46            | Running speed at maintenance                                      | Setting range: 0.000-P00.06(m/s)                                                                                                                                                                                                                                                                                                                                          | 0.200m/s | ◎      |
| P10.47            | ACC/DEC time at maintenance                                       | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 4.0s     | ◎      |
| P10.48            | Forced DEC time                                                   | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 2.0s     | ◎      |
| P10.49            | Emergency running speed                                           | Setting range: 0.001-P00.06(m/s)                                                                                                                                                                                                                                                                                                                                          | 0.100m/s | ◎      |
| P10.50            | Emergency ACC/DEC time                                            | Setting range: 0.1-360.0s                                                                                                                                                                                                                                                                                                                                                 | 20.0s    | ◎      |
| P10.53            | DEC time for creeping to stop                                     | Setting range: 0.1-360.0s<br>During deceleration to stop, when the speed reached the value set in P01.15, the curve of deceleration to stop switches to those set in P10.44, P10.45, and P10.53.                                                                                                                                                                          | 2.0s     | ◎      |
| P10.54            | Frequency threshold for light-load detection in open-loop control | Setting range: 5.00-20.00Hz                                                                                                                                                                                                                                                                                                                                               | 5.00Hz   | ◎      |
| P11.00            | Phase loss protection                                             | Setting range: 0x000-0x111<br>Ones place:<br>0: Disable input phase loss protection<br>1: Enable input phase loss protection<br>Tens place:<br>0: Disable output phase loss protection<br>1: Enable output phase loss protection<br>Hundreds place:<br>0: Output phase loss detection not enabled before startup<br>1: Output phase loss detection enabled before startup | 0x011    | ○      |
| P11.08            | OL/UL pre-alarm selection                                         | Setting range: 0x0000-0x1132<br>Ones place: Overload/underload (OL/UL) detection method<br>0: Motor OL/UL, relative to the motor rated current.<br>1: VFD OL/UL, relative to the VFD rated current.<br>2: Motor output torque OL/UL, relative to motor rated torque.                                                                                                      | 0x0000   | ○      |

| Function code | Name                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Default                      | Modify |
|---------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------|
|               |                                               | Tens place: Action selection after OL/UL condition is triggered<br>0: The VFD continues to work, while keeping the OL/UL alarm.<br>1: For a UL fault, the VFD continues to work, while keeping the alarm; for an OL fault, it reports the fault and stops.<br>2: For an OL fault, the VFD continues to work, while keeping the alarm; for a UL fault, it reports the fault and stops.<br>3: The VFD reports the OL/UL fault and stops.<br>Hundreds place: Detection method<br>0: Always detect<br>1: Detect during constant speed running.<br>Thousands: VFD overload current reference selection<br>0: Related to the current correction coefficient<br>1: Not related to the current correction coefficient |                              |        |
| P11.09        | Overload pre-alarm detection level            | If the VFD or motor output current is larger than the overload pre-alarm detection level (P11.09), and the duration exceeds the overload pre-alarm detection time (P11.10), overload pre-alarm signal will be outputted.<br>Setting range: 50%-200% (relative value determined by the ones place of P11.08)                                                                                                                                                                                                                                                                                                                                                                                                   | G type: 150%<br>P type: 150% | ○      |
| P11.10        | Overload alarm detection time                 | Setting range: 0.1-3600.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1.0s                         | ○      |
| P14.00        | Local serial communication address            | Setting range: 1-247                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1                            | ○      |
| P15.01        | CANopen module address                        | Setting range: 0-127                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                            | ◎      |
| P20.00        | Encoder type selection                        | 0: Incremental encoder<br>1: Reserved<br>2: Sin/Cos encoder without CD signals<br>3: EnDat absolute encoder<br>4: SSI absolute encoder<br>5: Sin/Cos encoder with CD signals<br>6: Reserved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                            | ◎      |
| P20.01        | Encoder pulse count                           | Setting range: 0-16000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1024                         | ◎      |
| P20.02        | Encoder direction                             | Setting range: 0x000-0x111<br>Ones place: AB direction<br>0: Forward<br>1: Reverse<br>Tens place: Reserved<br>Hundreds place: CD/absolute position pole signal direction<br>0: Forward<br>1: Reverse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0x000                        | ◎      |
| P96.00        | Non-weighing compensation enable              | Setting range: 0-1<br>0: Disable<br>1: Enable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                            | ◎      |
| P96.01        | Load compensation time                        | Setting range: 0.000-5.000s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.400s                       | ◎      |
| P96.02        | Load compensation reduction time              | Setting range: 0.000-5.000s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.100s                       | ◎      |
| P96.03        | Load compensation ASR gain                    | Setting range: 0.0-100.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 25.0                         | ○      |
| P96.04        | Load compensation ASR integral time           | Setting range: 0.001-1.000s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.160s                       | ○      |
| P96.05        | Load compensation current coefficient KP gain | Setting range: 0.0-200.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 50.0%                        | ○      |

| Function code | Name                                | Description                                                                                               | Default | Modify |
|---------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------|---------|--------|
| P96.17        | Brake close delay                   | Setting range: 0.00–5.00s                                                                                 | 0.10s   | ⊙      |
| P96.18        | Brake release delay                 | Setting range: 0.0–5.0s                                                                                   | 0.10s   | ⊙      |
| P96.23        | Contactor switch-off delay          | Setting range: 0.00–10.00s                                                                                | 0.50s   | ⊙      |
| P96.24        | Speed signal detection time         | Setting range: 0.0–5.0s                                                                                   | 2.0     | ⊙      |
| P96.29        | Braking frequency during shutdown   | Setting range: 0.00–5.00Hz                                                                                | 0.40Hz  | ○      |
| P96.30        | Stop delay                          | Setting range: 0.00–5.00s                                                                                 | 0.10s   | ⊙      |
| P96.31        | Current withdrawal time after stop  | Setting range: 0.00–5.00s                                                                                 | 0.00s   | ⊙      |
| P96.32        | Enable light load direction search  | Setting range: 0–2<br>0: Disable<br>1: Enable auto running<br>2: Enable to only provide running direction | 0       | ⊙      |
| P96.33        | Light-load direction detection time | Setting range: 0.000–5.000s                                                                               | 2.000s  | ⊙      |
| P96.34        | Safety gear mode                    | Setting range: 0–1<br>0: Disable<br>1: Enable                                                             | 0       | ⊙      |
| P96.35        | Enable electronic stator shorting   | Setting range: 0–1<br>0: Disable<br>1: Enable                                                             | 1       | ○      |

## 6 More information

Please contact us for any information about the product. It is necessary to provide the product model and serial number during consultation. To obtain more information, you can:

- Contact INVT local office.
- Visit [www.invt.com](http://www.invt.com) or scan the following QR code of INVT official website.



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