



# Shihlin Electric General Inverters SC3 Series Simple instruction

V1.09-01

High performance-price ratio

- SC3-021-0.2K ~ 2.2K
- SC3-023-0.2K ~ 3.7K
- SC3-043-0.4K ~ 5.5K
- SC3-043-7.5K/11KF ~ 18.5K/22KF
- SC3-043-22K

Thank you for choosing Shihlin inverters SC3 series.

These instructions will explain the use and precautions of the product. Please read the instructions carefully before installation and use the inverter correctly and safely.

\*Actual maximum output frequency is 599Hz, Even if the parameter setting exceeds 599Hz, the maximum output frequency will still be 599Hz.

## 1) Safety Instructions

**Safety Instructions**

- ✓ Please contact the professionals to install, operate, maintain and inspect the product.
- ✓ The safety level could be classified as "Warning" and "Caution".
- ⚠ **Warning:** the incorrect operation may cause hazardous situation, and accordingly lead to death or serious injury.
- ⚠ **Caution:** the incorrect operation may cause hazardous situation, and accordingly lead to general or minor injury or damage of the object.

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**Warning**

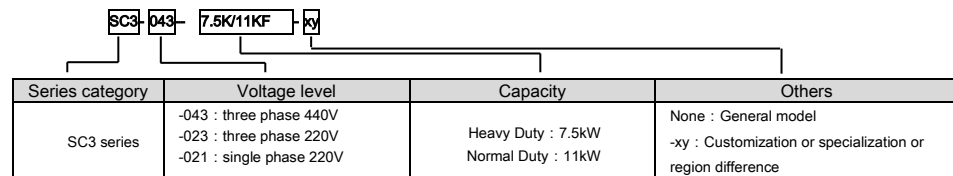
- ✓ The front cover plate and the wiring board should not be opened when the inverter is powered on. In addition, the inverter should not be operated when the front cover plate and the wiring board are demounted. Otherwise, the electric shock may be caused due to contacting with the high-voltage terminal and the charging part.
- ✓ If the wiring needs to be changed or inspection is required, the power supply of the inverter should be turned off first. There is still high voltage inside the inverter before the LED display of the inverter is turned off. Therefore, please don't touch the internal circuit and parts.
- ✓ The inverter must be earthed correctly.
- ✓ Please don't operate with wet hands, don't touch the heat sink, and don't plug and unplug the cable; or electric shock may be caused.
- ✓ Do not replace the cooling fan when the inverter is powered on, otherwise the risk may occur. It is dangerous to replace the cooling fan when the inverter is powered on.

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**Caution**

- ✓ Voltage applied to each terminal must be the one specified in the user manual; otherwise, failure or damage may be caused.
- ✓ Do not operate a voltage-resistant test for the parts inside the inverter because semiconductors in inverter may be easily damaged due to high-voltage breakdown.
- ✓ Do not touch the inverter because the temperature of the inverter is very high when it is powered on or right after disconnecting the power supply, only built-in keypad is touchable, otherwise, scalds may occur.
- ✓ Failure or damage may be caused due to wrong wiring.
- ✓ Do not reverse the polarities (+, -) by mistake, otherwise failure or damage may be caused.
- ✓ Please install the inverter on nonflammable walls without holes (to avoid contacting with the cooling fin of the inverter from the back). If the inverter is installed on or close to flammable objects it may cause a fire.
- ✓ Please disconnect the inverter from power supply in case of failure. Overload current passes through the inverter continuously may cause a fire.

## 2) Product Model

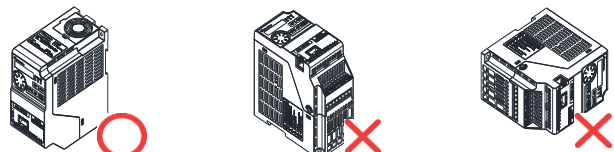


## 3) Installation Environment

|                         |   |
|-------------------------|---|
| Ambient temperature     | -10 ~ +50°C (non-freezing), parallel install -10~ +40°C (non-freezing).                           |
| Ambient humidity        | Under 90%Rh (non-condensing).   |
| Storage temperature     | -20 ~ +65°C.  |
| Surrounding environment | Indoor, no corrosive gas, no flammable gas, no flammable dust.                                    |
| Altitude                | Altitude below 2000 meters. When altitude is above 1,000 m, derate the rated current 2% per 100 m |
| Vibration               | Below 5.9m/ s <sup>2</sup> (0.6G)   |
| Protection level        | IP20  |
| Pollution degree        | 2   |

## 4) Installation and Wiring

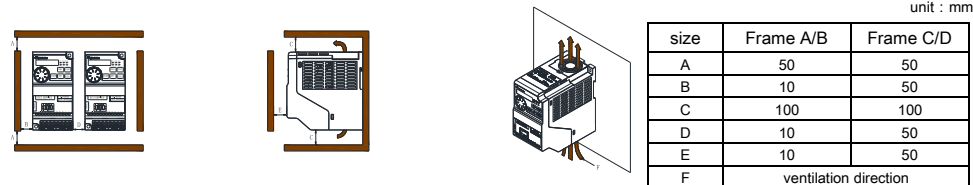
➤ Please install the inverter vertically in order not to reduce the heat dissipation effect:



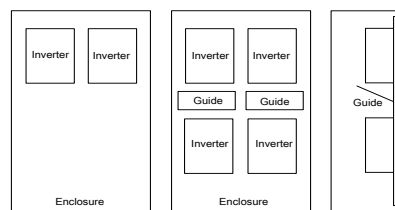
(a) Vertical arrangement (b) Horizontal arrangement (c) Level arrangement

➤ Please follow the installation restrictions shown below to ensure enough ventilation space for inverter cooling and wiring space:

- Single or side-by-side installation :

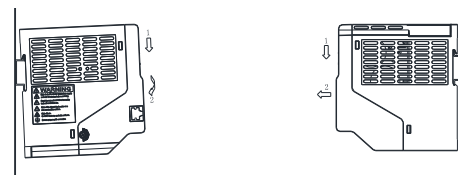


## Arrangement of multiple inverters :



(a) Horizontal arrangement (b) Vertical arrangement

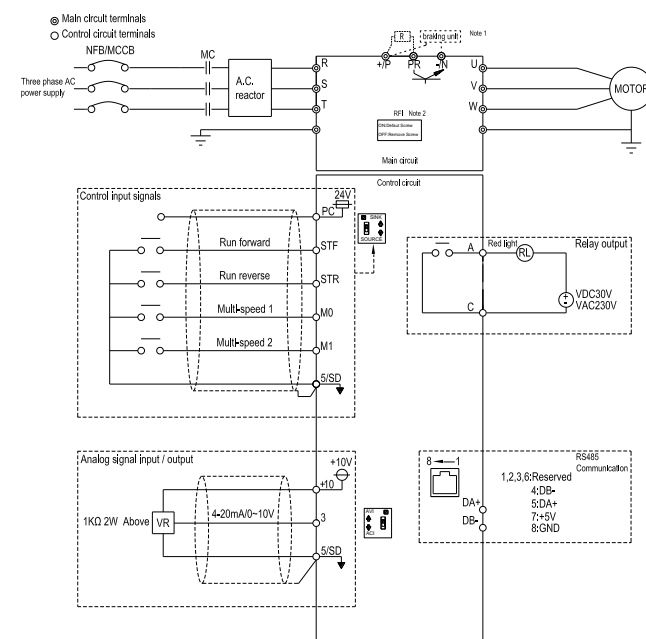
## Din rail installation :



(a) DIN rail mounting

(b) DIN rail remove

## 5) Terminal Connection Diagrams



Note 1: SC3-043-0.4K~1.5K, SC3-023-0.2K~1.5K, SC3-021-0.2K~0.75K without +P, PR and N terminals; SC3-043-2.2K~5.5K, SC3-023-2.2K~3.7K, SC3-021-1.5K~2.2K without N terminals.

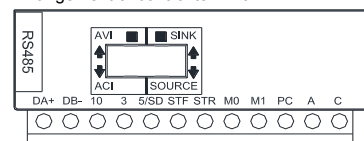
Note 2: All SC3 have built-in RFI filters to suppress electromagnetic interference, but to comply with CE regulations, please refer to the relevant instructions in the user manual for installation.

## 6) Main Circuit Wiring and Terminal Specification

| Inverter model     | Terminal screw specifications | Tightening torque(Kgf.cm) | Recommended wiring specification(mm2) |          |        |                 | Recommended wiring specification (AWG) |         |        |                 |
|--------------------|-------------------------------|---------------------------|---------------------------------------|----------|--------|-----------------|--|---------|--------|-----------------|
|                    |                               |                           | R, S, T                               | U, V, W  | +P, PR | Grounding Cable | R, S, T                                | U, V, W | +P, PR | Grounding Cable |
| SC3-021-0.2K       | M3                            | 4-6                       | 2.5                                   | 1.5      | ---    | 1.5             | 14                                     | 16      | ---    | 16              |
| SC3-023-0.2K       |                               |                           | 1.5                                   | 1.5      | ---    | 1.5             | 16                                     | 16      | ---    | 16              |
| SC3-043-0.4K       |                               |                           | 1.5                                   | 1.5      | ---    | 1.5             | 16                                     | 16      | ---    | 16              |
| SC3-021-0.4K       |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-023-0.4K       |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-043-0.75K      |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-021-0.75K      |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-023-0.75K      |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-043-1.5K       |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-023-1.5K       |                               |                           | 2.5                                   | 2.5      | ---    | 2.5             | 14                                     | 14      | ---    | 14              |
| SC3-021-1.5K       |                               |                           | 2.5                                   | 2.5      | 2.5    | 2.5             | 14                                     | 14      | 14     | 14              |
| SC3-043-2.2K       |                               |                           | 2.5                                   | 2.5      | 2.5    | 2.5             | 14                                     | 14      | 14     | 14              |
| SC3-021-2.2K       |                               |                           | 4                                     | 4        | 4      | 4               | 12                                     | 12      | 12     | 12              |
| SC3-023-2.2K       |                               |                           | 4                                     | 4        | 4      | 4               | 12                                     | 12      | 12     | 12              |
| SC3-043-3.7K       |                               |                           | 2.5                                   | 2.5      | 2.5    | 2.5             | 10                                     | 14      | 14     | 14              |
| SC3-043-5.5K       |                               |                           | 2.5                                   | 2.5      | 2.5    | 2.5             | 14                                     | 14      | 14     | 14              |
| SC3-023-3.7K       |                               |                           | 4                                     | 4        | 4      | 4               | 12                                     | 12      | 12     | 12              |
| SC3-043-7.5K/11KF  |                               |                           | M4                                    | 9.5~10.5 | 6      | 6               | 6                                      | 6       | 10     | 10              |
| SC3-043-11K/15KF   | 10                            | 10                        |                                       |          | 10     | 10              | 8                                      | 8       | 8      | 8               |
| SC3-043-15K/18.5KF | 10                            | 10                        |                                       |          | 10     | 10              | 8                                      | 8       | 8      | 8               |
| SC3-043-18.5K/22KF | M5                            | 19~20                     | 16                                    | 16       | 16     | 16              | 6                                      | 6       | 6      | 6               |
| SC3-043-22K        |                               |                           | 25                                    | 25       | 25     | 25              | 4                                      | 4       | 4      | 4               |

## 7) Control Terminal

➤ Arrangement of control terminal



## Control terminal description

| Terminal type          | Terminal name | Function instructions  | Terminal specifications  |
|------------------------|---------------|--|--|
| Digital signal input   | STF           | These four terminals are multifunction digital input, can switch between SINK/SOURCE.      | Input impedance:4.7 kΩ<br>Action current:5mA(when 24VDC)<br>Voltage range:10~28VDC<br>Maximum frequency:1kHz             |
|                        | STR           |  |  |
|                        | M0            |  |  |
|                        | M1            |  |  |
| Analog signal input    | 10            | +10.5±0.5V   | Maximum current:10mA   |
|                        | 3             | 0~10V/4~20mA   | Input impedance:10kΩ   |
| Relay output           | A             | Multi-function relay output terminals. A-C is normally open contact, C is common terminal. | Maximum voltage:30VDC or 250VAC<br>Maximum current: Resistor load 5A NO/3A NC<br>Inductance load 2A NO/1.2A ( cosΦ=0.4 ) |
|                        | C             |  |  |
| Communication terminal | RJ45          | RS485, optical coupling isolation  | Distance: up to 500m<br>Bit rate: up to 115200bps  |
|                        | DA+           | RJ45 and "DA+/DB-" can't work at the same time   |  |
|                        | DB-           |  |  |
| Common terminal        | 5/SD          | Common terminal for terminal STF,STR,M0, M1,3 ( SINK )                                     | ---  |
|                        | PC            | Common terminal for terminal STF,STR,M0, M1 ( SOURCE )                                     | ---  |

Note1: When connecting control terminal to external devices, please pay attention to the voltage and current specifications of terminals to avoid damaging the inverter.

Note2: The function of the control terminal is decided by inverter parameters, please refer to user manual for setting.

Note3: Please pay attention to polarity when connect to external power and devices.

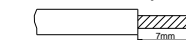
## Wiring method

- Wire connection

For the control circuit wiring, strip off the sheath of a cable, and use it with a blade terminal. For a single wire, strip off the sheath of the wire and apply it directly.

Insert the blade terminal or the single wire into a socket of the terminal.

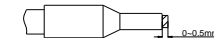
(1) Strip off the sheath according to the lengths provided by the table below. If the length of the sheath peeled is too long, a short circuit may occur with neighboring wires. If the length is too short, wires might come off.



(2) Crimp the blade terminal

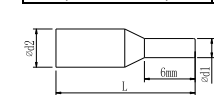
Insert wires to a blade terminal, and check that the wires come out for about 0 to 0.5 mm from a sleeve.

Check the condition of the blade terminal after crimping. Do not use a blade terminal of which the crimping is inappropriate, or the face is damaged.



- Please do use blade terminals with insulation sleeve. Blade terminals are commercially available:

| Cable gauge (mm <sup>2</sup> ) | Blade terminals model | L (mm) | d1 (mm) | d2 (mm) | Manufacturer              | Tool type  |
|--------------------------------|-----------------------|--------|---------|---------|---------------------------|------------|
| 0.3                            | AI 0,25-6 WH          | 10.5   | 0.8     | 2       | Phoenix Contact Co., Ltd. | CRIMPFOX 6 |
| 0.5                            | AI 0,5-6 WH           | 12     | 1.1     | 2.5     |                           |            |
| 0.75                           | AI 0,75-6 GY          | 12     | 1.3     | 2.8     |                           |            |
| 0.75 (for two wires)           | AI-TWIN 2x0,75-6 GY   | 12     | 1.3     | 2.8     |                           |            |



Note1: Please use a small flathead screw driver (tip thickness: 0.6mm, width:3.0mm). If a flathead screwdriver with a unsuitable tip is used, terminal block maybe damaged.

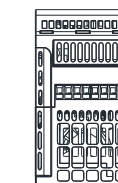
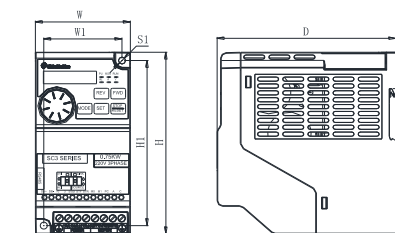
Note2: Tightening torque is 3.2~4.8kgf.cm. Tightening torque which is too large can cause screw slippage, while tightening torque which is too small can cause a short circuit or malfunction.

## Wiring Precautions

- After wiring, wire offcuts must not be left in the inverter. Wire offcuts can cause an alarm, failure or malfunction. Always keep the inverter clean. When drilling mounting holes in an enclosure etc., please make sure no metal scraps enter the inverter.
- To prevent a malfunction due to noise, keep the signal cables 10 cm (3.94 inches) or more away from the power cables, and keep it away from the input/output side.
- Set the voltage/current input switch correctly. Incorrect setting may cause a fault, failure or malfunction.

## 8) Appearance and Dimensions

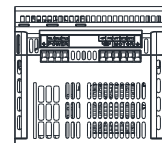
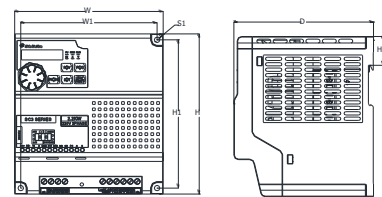
➤ Frame A



unit: mm

| Model         | W  | W1 | H   | H1  | H2   | D   | S1                                   |
|---------------|----|----|-----|-----|------|-----|--------------------------------------|
| SC3-021-0.2K  | 68 | 56 | 132 | 120 | 26.5 | 128 | 5<br>(tighten torque<br>20~25kgf.cm) |
| SC3-021-0.4K  |    |    |     |     |      |     |                                      |
| SC3-021-0.75K |    |    |     |     |      |     |                                      |
| SC3-023-0.2K  |    |    |     |     |      |     |                                      |
| SC3-023-0.4K  |    |    |     |     |      |     |                                      |
| SC3-023-0.75K |    |    |     |     |      |     |                                      |
| SC3-023-1.5K  |    |    |     |     |      |     |                                      |
| SC3-043-0.4K  |    |    |     |     |      |     |                                      |
| SC3-043-0.75K |    |    |     |     |      |     |                                      |
| SC3-043-1.5K  |    |    |     |     |      |     |                                      |

► Frame B/C/D



unit : mm

| Model              | W   | W1    | H   | H1    | H2    | D   | S1                                     |
|--------------------|-----|-------|-----|-------|-------|-----|--|
| SC3-021-1.5K       | 136 | 125   | 147 | 136   | 26.5  | 128 | 5<br>(tighten torque<br>20~25kgf.cm)   |
| SC3-021-2.2K       |     |       |     |       |       |     |  |
| SC3-023-2.2K       |     |       |     |       |       |     |  |
| SC3-023-3.7K       |     |       |     |       |       |     |  |
| SC3-043-2.2K       |     |       |     |       |       |     |  |
| SC3-043-3.7K       |     |       |     |       |       |     |  |
| SC3-043-5.5K       |     |       |     |       |       |     |  |
| SC3-043-7.5K/11KF  | 132 | 115.6 | 215 | 198.6 | Note1 | 150 | 6.2<br>(tighten torque<br>20~25kgf.cm) |
| SC3-043-11K/15KF   |     |       |     |       |       |     |  |
| SC3-043-15K/18.5KF |     |       |     |       |       |     |  |
| SC3-043-18.5K/22KF | 175 | 158.6 | 260 | 243.6 | Note1 | 180 | 6.2<br>(tighten torque<br>20~25kgf.cm) |
| SC3-043-22K        |     |       |     |       |       |     |  |

Note1: Frame C and frame D do not have this feature, that is, they do not support DIN rail installation

9) Optional Equipment

| Category | Name  | Description | Order code |
|----------|-------|-------------|------------|
| Keypad   | PU301 | LED display | SNKPU301   |
|          | DU06  | LED display | SNKDU06    |
|          | DU08  | LED display | SNKDU08    |
|          | PU302 | LED display | SNKPU302   |
|          | DU10  | LED display | SNKDU10    |

10) Parameter group

► System Parameter Group 00

| Group | No.                 | Name                                       | Setting Range   | Default | User Setting |
|-------|---------------------|--|---|---------|--------------|
| 00-00 | P.90                | Inverter model                             | Read only   | ---     |              |
| 00-01 | P.188               | Firmware version                           | Read only   | ---     |              |
| 00-02 | P.996<br>~<br>P.999 | Parameter restoration                      | 0: Off  | 0       |              |
|       |                     |  | 1: Clear alarm history (P.996=1)  |         |              |
|       |                     |  | 2: Reset inverter (P.997=1)   |         |              |
|       |                     |  | 3: Restore all parameters to default (P.998=1)  |         |              |
|       |                     |  | 4: Partly restore parameters to default 1 (P.999=1)   |         |              |
| 00-03 | P.77                | Selection of parameters writing protection | 0: Parameters can be written only when the motor stops.   | 0       |              |
|       |                     |  | 1: Parameters cannot be written.  |         |              |
|       |                     |  | 2: Parameters can also be written when the motor is running.  |         |              |
| 00-04 | P.294               | Password parameter                         | 0~65535   | 0       |              |
| 00-05 | P.295               | Password setup                             | 2~65535   | 0       |              |
| 00-06 | P.110               | Built-in keypad monitor selection          | X0 : When inverter starts, built-in keypad enters monitor mode automatically, screen displays current output frequency (with slip compensation).                                    | 2       |              |
|       |                     |  | X1 : When inverter starts, built-in keypad displays current target frequency.   |         |              |
|       |                     |  | X2 : When inverter starts, built-in keypad enters monitor mode automatically, screen displays current steady state output frequency.  |         |              |
|       |                     |  | X3 : When inverter starts, built-in keypad enters monitor mode automatically, screen displays current pressure and feedback pressure of the constant pressure system in percentage. |         |              |
|       |                     |  | X4 : When inverter starts, built-in keypad doesn't enter monitor mode but enter the previous mode before power off.   |         |              |
|       |                     |  | X5 : When inverter starts, built-in keypad enters monitor mode automatically, screen displays current pressure and feedback pressure of the constant pressure system.               |         |              |
| 00-06 | P.110               | Built-in keypad monitor selection          | X4: When the inverter is on standby, the keypad automatically enters target frequency mode and the value flashes.   |         |              |

| Group | No.   | Name   | Setting Range   | Default | User Setting |
|-------|-------|--|---|---------|--------------|
| 00-07 | P.161 | Multi-function display                         | 0: Output AC voltage (V)  | 0       |              |
|       |       |  | 1: DC bus voltage (V)   |         |              |
|       |       |  | 2: Inverter temperature rising accumulation rate (%)  |         |              |
|       |       |  | 3: Target pressure of the constant pressure system (%)  |         |              |
|       |       |  | 4: Feedback pressure of the constant pressure system (%)  |         |              |
|       |       |  | 5: Running frequency (Hz)   |         |              |
|       |       |  | 6: Electronic thermal accumulation rate (%)   |         |              |
|       |       |  | 7: Reserved   |         |              |
|       |       |  | 8: Signal value (mA) of 3-5 input terminals (mA/V).   |         |              |
|       |       |  | 9: Output power (kW).   |         |              |
|       |       |  | 10: Reserved  |         |              |
|       |       |  | 11: Forward/reverse rotation signal.  |         |              |
|       |       |  | Built-in keypad: Frd is forward, Rev is reverse, STOP is not operating status.  |         |              |
|       |       |  | External keypad: 1 is forward, 2 is reverse, 0 is not operating status.   |         |              |
|       |       |  | 12: NTC temperature (°C)  |         |              |
|       |       |  | 13: Motor electronic thermal accumulation rate (%)  |         |              |
|       |       |  | 14~18: Reserved   |         |              |
|       |       |  | 19: Digital terminal input state  |         |              |
|       |       |  | 20: Digital terminal output state   |         |              |
|       |       |  | 21: Actual working carrier frequency  |         |              |
|       |       |  | 00-08   |         |              |
| 00-09 | P.259 | Speed display unit selection                   | 0: Speed display unit is 1<br>1: Speed display unit is 0.1  | 1       |              |
| 00-10 | P.59  | Built-in keypad set target frequency selection | XXX0: Use jog wheel on built-in keypad or external keypad to set frequency  | ---     |              |
|       |       |  | XXX1: Use keypad knob on external keypad to set frequency   |         |              |
|       |       |  | X0XX: After changing the frequency, it will be automatically stored within 30s  |         |              |
|       |       |  | X1XX: After changing the frequency, it will be automatically saved within 10s   |         |              |
|       |       |  | X2XX: Every frequency change will not save  |         |              |
|       |       |  | 0XXX: Set frequency will work immediately when using jog wheel on built-in keypad   |         |              |
|       |       |  | 1XXX: Set frequency will work after pressing SET when using up and down buttons on built-in keypad  |         |              |
|       |       |  | 11K/15KF and below model : 1~15kHz  |         |              |
|       |       |  | 15K/18.5KF and above Heavy Duty : 1~15kHz   |         |              |
|       |       |  | 15K/18.5KF and above Normal Duty : 1~10kHz  |         |              |
| 00-11 | P.72  | Carrier frequency                              | 0: Off<br>1: When 00-11(P.72)<5,Soft-PWM is on(only apply to V/F control)   | 5 kHz   |              |
| 00-12 | P.31  | Soft-PWM carrier function selection            | 2 : When 00-11(P.72) > 9, if the IGBT temperature is higher than 60°C, carrier frequency will decrease automatically. When the temperature drops to under 40°C, carrier frequency go back to 00-11(P.72) value                                    | 0       |              |
| 00-13 | P.71  | Idling brake / DC brake                        | 0: Idling brake<br>1: DC brake  | 1       |              |
| 00-14 | P.75  | Stop function selection                        | 0: Press STOP button and inverter stops running in PU and H2 mode<br>1: Press STOP button and inverter stops running in all modes.  | 1       |              |
| 00-15 | P.78  | Prevent forward/reverse rotation selection     | 0: Forward/reverse rotation are both permitted.<br>1: Prevent reverse rotation (When giving reverse signal, the motor will decelerate and stop).<br>2: Prevent forward rotation (When giving forward signal, the motor will decelerate and stop). | 0       |              |
| 00-16 | P.79  | Operation mode selection                       | 0: "PU mode", "external mode" and "Jog mode" are interchangeable.   | 0       |              |
|       |       |  | 1: "PU mode" and "JOG mode" are interchangeable.  |         |              |
|       |       |  | 2: "External mode" only   |         |              |
|       |       |  | 3: "Communication mode" only  |         |              |
|       |       |  | 4: "Combined mode 1"  |         |              |
|       |       |  | 5: "Combined mode 2"  |         |              |
|       |       |  | 6: "Combined mode 3"  |         |              |
|       |       |  | 7: "Combined mode 4"  |         |              |
| 00-17 | P.97  | Second target frequency selection              | 0: Frequency set by built-in keypad<br>1: Frequency set by RS485 communication<br>2: Frequency set by analog input  | 0       |              |
| 00-19 | P.35  | Communication mode selection                   | 0: In communication mode, run command and frequency are given by communication.<br>1: In communication mode, run command and frequency are given by external signal.  | 0       |              |
| 00-21 | P.300 | Motor control mode selection                   | 0: Induction motor V/F control<br>1: Reserved<br>2: Simple vector control of induction motor  | 0       |              |
| 00-23 | P.186 | Motor types selection                          | 0: Normal Duty (ND), on fan and pump duty type.<br>1: Heavy Duty (HD), apply to other duties.   | 1       |              |
| 00-24 | P.189 | 50Hz/60Hz switch selection                     | 0: Default value of frequency related parameter is 60Hz.<br>1: Default value of frequency related parameter is 50Hz.  | 0       |              |
| 00-25 | P.990 | Parameter display mode setting                 | 0: Parameter is displayed in "group mode"<br>1: Parameter is displayed in "sequence P mode"   | 0       |              |

► Basic Parameter Group 01

| Group | No.  | Name                                      | Setting Range  | Default  | User Setting |
|-------|------|---|--|----------|--------------|
| 01-00 | P.1  | Maximum frequency                         | 0.00 ~ 01-02 ( P.18 ) Hz   | 120.00Hz |              |
| 01-01 | P.2  | Minimum frequency                         | 0 ~ 120.00Hz   | 0.00Hz   |              |
| 01-02 | P.18 | High-speed maximum frequency              | 01-00 ( P.1 ) ~ 650.00Hz   | 120.00Hz |              |
| 01-03 | P.3  | Base frequency                            | 50Hz system setting: 0 ~ 650.00Hz<br>60Hz system setting: 0 ~ 650.00Hz | 50.00Hz  |              |
| 01-04 | P.19 | Base voltage                              | 0 ~ 1000.0V<br>99999: Change according to the input voltage            | 99999    |              |
| 01-05 | P.29 | Acceleration/deceleration curve selection | 0: Linear acceleration /deceleration curve                             | 0        |              |
|       |      |   | 1: S shape acceleration /deceleration curve 1                          |          |              |
|       |      |   | 2: S shape acceleration /deceleration curve 2                          |          |              |
| 01-05 | P.29 | Acceleration/deceleration curve selection | 3: S shape acceleration /deceleration curve 3                          |          |              |

| Group | No.   | Name  | Setting Range  | Default | User Setting |
|-------|-------|---|--|---------|--------------|
| 01-06 | P.7   | Acceleration time                             | 3.7K and below model : 0 ~ 360.00s/0 ~ 3600.0s                                       | 5.00s   |              |
|       |       |   | 5.5K model : 0 ~ 360.00s/0 ~ 3600.0s   |         |              |
|       |       |   | 7.5K/11KF and above model : 0 ~ 360.00s/0 ~ 3600.0s                                  |         |              |
| 01-07 | P.8   | Deceleration time                             | 3.7K and below model : 0 ~ 360.00s/0 ~ 3600.0s                                       | 5.00s   |              |
|       |       |   | 5.5K~7.5K/11KF model : 0 ~ 360.00s/0 ~ 3600.0s                                       |         |              |
|       |       |   | 11K/15KF and above model : 0 ~ 360.00s/0 ~ 3600.0s                                   |         |              |
| 01-08 | P.21  | Acceleration/deceleration time unit           | 0: Time unit is 0.01s<br>1: Time unit is 0.1s  | 0       |              |
| 01-09 | P.20  | Acceleration/deceleration reference frequency | 50Hz system setting: 1.00 ~ 599.00Hz<br>60Hz system setting: 1.00 ~ 599.00Hz         | 50.00Hz |              |
| 01-10 | P.0   | Torque compensation                           | 0.75K and below: 0 ~ 30.0%   | 6.0%    |              |
|       |       |   | 1.5K ~ 3.7K model: 0 ~ 30.0%   |         |              |
|       |       |   | 5.5K~7.5K/11KF model: 0 ~ 30.0%  |         |              |
|       |       |   | 11K/15KF and above model: 0 ~ 30.0%  |         |              |
| 01-11 | P.13  | Starting frequency                            | 0 ~ 60.00Hz  | 0.50Hz  |              |
| 01-12 | P.14  | Load pattern selection                        | 0: For constant torque loads (conveyor belt, etc.)                                   | 0       |              |
|       |       |   | 1: For variable torque loads (fans and pumps, etc.)                                  |         |              |
|       |       |   | 2, 3: For Lifting loads  |         |              |
|       |       |   | 4: Multipoint V/F curve  |         |              |
|       |       |   | 5~13: Special two-point V/F curve  |         |              |
| 01-13 | P.15  | JOG frequency                                 | 0 ~ 650.00Hz   | 5.00Hz  |              |
| 01-14 | P.16  | JOG Acc/ Dec time                             | 0 ~ 360.00s/0 ~ 3600.0s  | 0.50s   |              |
| 01-15 | P.28  | Output frequency filter time                  | 0 ~ 31   | 0       |              |
| 01-16 | P.91  | Frequency jump 1A                             | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-17 | P.92  | Frequency jump 1B                             | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-18 | P.93  | Frequency jump 2A                             | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-19 | P.94  | Frequency jump 2B                             | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-20 | P.95  | Frequency jump 3A                             | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-21 | P.96  | Frequency jump 3B                             | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-22 | P.44  | Second acceleration time                      | 0 ~ 360.00s/0 ~ 3600.0s<br>99999: Off  | 99999   |              |
| 01-23 | P.45  | Second deceleration time                      | 0 ~ 360.00s/0 ~ 3600.0s<br>99999: Off  | 99999   |              |
| 01-24 | P.46  | Second torque compensation                    | 0 ~ 30.0%<br>99999: Off  | 99999   |              |
| 01-25 | P.47  | Second base frequency                         | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-26 | P.98  | Middle frequency 1                            | 0 ~ 650.00Hz   | 3.00Hz  |              |
| 01-27 | P.99  | Output voltage of middle frequency 1          | 0 ~ 100.0%   | 10.0%   |              |
| 01-28 | P.162 | Middle frequency 2                            | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-29 | P.163 | Output voltage of middle frequency 2          | 0 ~ 100.0%   | 0.0%    |              |
| 01-30 | P.164 | Middle frequency 3                            | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-31 | P.165 | Output voltage of middle frequency 3          | 0 ~ 100.0%   | 0.0%    |              |
| 01-32 | P.166 | Middle frequency 4                            | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-33 | P.167 | Output voltage of middle frequency 4          | 0 ~ 100.0%   | 0.0%    |              |
| 01-34 | P.168 | Middle frequency 5                            | 0 ~ 650.00Hz<br>99999: Off   | 99999   |              |
| 01-35 | P.169 | Output voltage of middle frequency 5          | 0 ~ 100.0%   | 0.0%    |              |
| 01-36 | P.255 | S curve time at the beginning of acceleration | 0 ~ 25.00s/0 ~ 250.0s  | 0.20s   |              |
| 01-37 | P.256 | S curve time at the end of acceleration       | 0 ~ 25.00s/0 ~ 250.0s<br>99999: Off  | 99999   |              |
| 01-38 | P.257 | S curve time at the beginning of deceleration | 0 ~ 25.00s/0 ~ 250.0s<br>99999: Off  | 99999   |              |
| 01-39 | P.258 | S curve time at the end of deceleration       | 0 ~ 25.00s/0 ~ 250.0s<br>99999: Off  | 99999   |              |
| 01-40 | P.219 | Remote frequency acc/dec time selection       | 0 : Use default acc/dec time ( same as regular mode )<br>1 : Use second acc/dec time | 0       |              |

► Analog Input and Output Parameter Group 02

| Group | No.   | Name                                     | Setting Range  | Default | User Setting |
|-------|-------|--|--|---------|--------------|
| 02-06 | P.185 | Proportional linkage gain                | 0 ~ 100%   | 0%      |              |
| 02-07 | P.240 | Auxiliary frequency                      | 0: Off   | 0       |              |
|       |       |  | 2: Output frequency = basic frequency + auxiliary frequency (given by terminal 3-5)  |         |              |
|       |       |  | 4: Output frequency = basic frequency - auxiliary frequency (given by terminal 3-5)  |         |              |
|       |       |  | 6: Output frequency = proportional linkage signal (given by terminal 3-5)  |         |              |
| 02-10 | P.60  | Terminal 3-5 filter time                 | 0 ~ 2000ms   | 31ms    |              |
| 02-20 | P.17  | Terminal 3-5 signal range selection      | 0: Signal sampling range from 4~20mA.  | 1       |              |
|       |       |  | 1: Signal sampling range from 0 ~ 10V.<br>2: Signal sampling range from 0 ~ 5V.  |         |              |
| 02-21 | P.39  | Terminal 3-5 maximum operation frequency | 50 Hz system: 1.00 ~ 599.00Hz  | 50.00Hz |              |
|       |       |  | 60 Hz system: 1.00 ~ 599.00Hz  |         |              |
| 02-24 | P.184 | Terminal 3-5 disconnect selection        | 0: Off   | 0       |              |
|       |       |  | 1: Inverter decelerates to 0Hz, multi-function digital output terminal set off alarm   |         |              |
|       |       |  | 2: Inverter stops immediately, and keypad displays "AEr" alarm   |         |              |
| 02-24 | P.184 | Terminal 3-5 disconnect selection        | 3: Inverter runs continuously according to the frequency command before disconnection. Digital output terminal will set off alarm. |         |              |





| Group | No.   | Name                                  | Setting Range   | Default | User Setting |
|-------|-------|---------------------------------------|---|---------|--------------|
| 07-05 | P.50  | Parity check selection                | 0: No parity check<br>1: Odd<br>2: Even   | 0       |              |
| 07-06 | P.51  | CR/LF selection                       | 1: CR only<br>2: Both CR and LF   | 1       |              |
| 07-07 | P.154 | Modbus communication format           | 0: 1, 7, N, 2 (Modbus, ASCII)<br>1: 1, 7, E, 1 (Modbus, ASCII)<br>2: 1, 7, O, 1 (Modbus, ASCII)<br>3: 1, 8, N, 2 (Modbus, RTU)<br>4: 1, 8, E, 1 (Modbus, RTU)<br>5: 1, 8, O, 1 (Modbus, RTU)<br>6: 1, 8, N, 1 (Modbus, RTU) | 4       |              |
| 07-08 | P.52  | Number of communication retries       | 0 ~ 1000  | 5       |              |
| 07-09 | P.53  | Communication interval allowable time | 0~999.8s: Checking communication timeout with the set value<br>99999: No timeout check  | 99999   |              |
| 07-10 | P.153 | Communication alarm action            | 0: Alarm and stop in idle state<br>1: No alarm and continue to operate  | 0       |              |
| 07-11 | P.34  | EEPROM write-in selection             | 0: When writing parameters in communication mode, write in RAM and EEPROM<br>1: When writing parameters in communication mode, only write in RAM  | 0       |              |

► PID Parameter Group 08

| Group | No.   | Name   | Setting Range  | Default | User Setting |
|-------|-------|--|--|---------|--------------|
| 08-00 | P.170 | PID function selection                       | 0: Off<br>2: Parameter 08-03(P.225) as target value, terminal 3-5 current/voltage input as feedback source<br>3: The target value is given by the multi-speed, terminal 3-5 current/voltage input as feedback source | 0       |              |
| 08-01 | P.171 | PID feedback control method                  | 0: Negative feedback control.<br>1: Positive feedback control.   | 0       |              |
| 08-03 | P.225 | PID target value from keypad                 | 0 ~ 08.43 ( P.251 )  | 20.0%   |              |
| 08-04 | P.172 | Proportional gain                            | 1~100  | 20      |              |
| 08-05 | P.173 | Integral time                                | 0 ~ 100.0s   | 1.0s    |              |
| 08-06 | P.174 | Differential time                            | 0 ~ 1000ms   | 0ms     |              |
| 08-07 | P.175 | Abnormal deviation                           | 0 ~ 200.0%   | 0.0%    |              |
| 08-08 | P.176 | Abnormal duration time                       | 0 ~ 600.0s   | 30.0s   |              |
| 08-09 | P.177 | Abnormal processing mode                     | 0: Stop freely<br>1: Slow down to stop<br>2: Alarm and continue operation  | 0       |              |
| 08-10 | P.178 | Sleep detection deviation                    | 0 ~ 100.0%   | 0.0%    |              |
| 08-11 | P.179 | Sleep detection duration time                | 0 ~ 255.0s   | 1.0s    |              |
| 08-12 | P.180 | Wake-up level                                | 0 ~ 200.0%   | 90.0%   |              |
| 08-13 | P.181 | Stop level                                   | 0 ~ 120.00Hz<br>50Hz system: 0 ~ 120.00Hz<br>60Hz system: 0 ~ 120.00Hz   | 40.00Hz |              |
| 08-14 | P.182 | Upper integral limit                         | 50Hz system: 0 ~ 120.00Hz<br>60Hz system: 0 ~ 120.00Hz   | 60.00Hz |              |
| 08-15 | P.183 | Deceleration step length when stable         | 0 ~ 10.00Hz  | 0.50Hz  |              |
| 08-18 | P.223 | Analog feedback signal bias                  | 0 ~ 100.0%   | 0.0%    |              |
| 08-19 | P.224 | Analog feedback signal gain                  | 0 ~ 100.0%   | 100.0%  |              |
| 08-43 | P.251 | PID pressure extreme value                   | 1.0~100.0  | 100.0   |              |
| 08-45 | P.253 | Analog signal feedback loss detection time   | 0.0~600.0s   | 0.0s    |              |
| 08-46 | P.254 | Analog signal feedback loss action selection | 0: Alarm AErr and inverter stops freely<br>1: Slow down to stop then alarm AErr<br>2: Alarm AErr and continue operation  | 0       |              |

► Application Parameter Group 10

| Group | No.   | Name                                    | Setting Range   | Default       | User Setting |
|-------|-------|---|---|---------------|--------------|
| 10-00 | P.10  | DC brake operating frequency            | 0 ~ 120.00Hz  | 3.00Hz        |              |
| 10-01 | P.11  | DC brake operating time                 | 0 ~ 60.0s   | 0.5s          |              |
| 10-02 | P.12  | DC brake operating voltage              | 7.5K/11KF and below model : 0 ~ 30.0%<br>11K/15KF and above model: 0 ~ 30.0%  | 4.0%          |              |
| 10-03 | P.151 | Zero-speed control function selection   | 0: Off.<br>1: DC voltage braking  | 0             |              |
| 10-04 | P.152 | Voltage at zero-speed control           | 7.5K/11KF and below model : 0 ~ 30.0%<br>11K/15KF and above model: 0 ~ 30.0%  | 2.0%          |              |
| 10-05 | P.242 | DC brake before inverter starts         | 0: Off<br>1: Before starting to operate DC brake  | 0             |              |
| 10-06 | P.243 | DC brake time before inverter starts    | 0 ~ 60.0s   | 0.5s          |              |
| 10-07 | P.244 | DC brake voltage before inverter starts | 7.5K/11KF and below model : 0 ~ 30.0%<br>11K/15KF and above model: 0 ~ 30.0%  | 2.0%          |              |
| 10-08 | P.150 | Restart mode selection                  | X0: No frequency search.<br>X1: Reserved<br>X2: Decrease voltage mode<br>0X: Power on once.<br>1X: Start each time.<br>2X: Only instantaneous stop and restart<br>3X: Only valid when the fire mode is reset  | 0             |              |
| 10-09 | P.57  | Restart idling time                     | 0 ~ 30.0s<br>99999: Off.  | 99999         |              |
| 10-10 | P.58  | Restart rising time                     | 7.5K/11KF and below model : 0 ~ 60.0s :<br>11K/15KF and above model : 0 ~ 60.0s :   | 5.0s<br>10.0s |              |
| 10-11 | P.61  | Remote control function                 | 0: Off<br>X1: Remote control function, frequency can be memorized.<br>X2: Remote control function, frequency can't be memorized<br>X3: Remote control function, frequency won't save, clear frequency setting every time STF/STR turn off.<br>X4: Remote control function, frequency will be memorized every 5s<br>1X: Target frequency 01-01(P.2)-01-00(P.1), target frequency value from RH, RM setting | 0             |              |

| Group | No.   | Name                                     | Setting Range   | Default      | User Setting |
|-------|-------|--|---|--------------|--------------|
| 10-12 | P.65  | Auto reset function                      | 0: Off.<br>1: When over-voltage occurs, inverter will reset.<br>2: When over-current occurs, inverter will reset.<br>3: When either over-voltage or over-current occurs, inverter will reset.<br>4: When any alarm occurs, inverter will reset. | 0            |              |
| 10-13 | P.67  | Auto reset times                         | 0: Off.<br>1 ~ 10: If the alarm exceeds 10-13(P.67) times, inverter will not reset.   | 0            |              |
| 10-14 | P.68  | Auto reset waiting time                  | 0 ~ 360.0s  | 6.0s         |              |
| 10-15 | P.69  | Alarm reset accumulated times            | Read only   | 0            |              |
| 10-16 | P.119 | Forward and reverse rotation dead time   | 0 ~ 3000.0s   | 0.0s         |              |
| 10-17 | P.159 | Energy-saving control function           | 0: Off.<br>1: Energy-saving mode.   | 0            |              |
| 10-18 | P.229 | Dwell function selection                 | 0: Off.<br>1: Backlash compensation function.<br>2: Acceleration and deceleration interrupted waiting function.   | 0            |              |
| 10-19 | P.230 | Dwell frequency at acceleration          | 0 ~ 650.00Hz  | 1.00Hz       |              |
| 10-20 | P.231 | Dwell time at acceleration               | 0 ~ 360.0s  | 0.5s         |              |
| 10-21 | P.232 | Dwell frequency at deceleration          | 0 ~ 650.00Hz  | 1.00Hz       |              |
| 10-22 | P.233 | Dwell time at deceleration               | 0 ~ 360.0s  | 0.5s         |              |
| 10-23 | P.234 | Triangular wave function selection       | 0: Off.<br>1: If external signal TRI is triggered, triangular wave function will be turned on.<br>2: Triangular wave function is on at all time.  | 0            |              |
| 10-24 | P.235 | Maximum amplitude                        | 0 ~ 25.0%   | 10.0%        |              |
| 10-25 | P.236 | Amplitude compensation at deceleration   | 0 ~ 50.0%   | 10.0%        |              |
| 10-26 | P.237 | Amplitude compensation at acceleration   | 0 ~ 50.0%   | 10.0%        |              |
| 10-27 | P.238 | Amplitude acceleration time              | 0 ~ 360.00s/0 ~ 3600.0s   | 10.00s       |              |
| 10-28 | P.239 | Amplitude deceleration time              | 0 ~ 360.00s/0 ~ 3600.0s   | 10.00s       |              |
| 10-46 | P.268 | Voltage stall level                      | 220V : 155 ~ 400V<br>440V : 310 ~ 800V  | 380V<br>760V |              |
| 10-55 | P.226 | Reciprocating machine function selection | 0: Off<br>1: Turn on reciprocating machine function   | 0            |              |
| 10-56 | P.227 | Reciprocating forward limit time         | 0~3600.0s   | 0.0s         |              |
| 10-57 | P.228 | Reciprocating reverse limit time         | 0~3600.0s   | 0.0s         |              |

► Speed control parameter group 11

| Group | No.   | Name  | Setting Range | Default         | User Setting |
|-------|-------|---|---------------|-----------------|--------------|
| 11-00 | P.320 | Slip compensation gain                          | 0~200%        | 85%             |              |
| 11-01 | P.321 | Torque boost filter coefficient                 | 0~2000        | 20              |              |
| 11-02 | P.322 | Cutoff frequency point of current filter time 1 | 0~30.00Hz     | 4.00Hz          |              |
| 11-03 | P.323 | Current filter time 1                           | 0~400.00ms    | According to kw |              |
| 11-04 | P.324 | Low frequency current filter time 2             | 0~400.00ms    | According to kw |              |
| 11-05 | P.325 | High frequency current filter time 2            | 0~400.00ms    | According to kw |              |

► Special Adjustment Parameter Group 13

| Group | No.   | Name  | Setting Range  | Default    | User Setting |
|-------|-------|---|--|------------|--------------|
| 13-00 | P.89  | Slip compensation coefficient               | 0 ~ 10   | 0          |              |
| 13-03 | P.286 | High frequency vibration suppression factor | 0.2K~5.5K model: 0 ~ 1515<br>7.5K/11KF and above: 0 ~ 1515 | 300<br>509 |              |

► User Parameter Group 15

| Group | No.   | Name                         | Setting Range | Default | User Setting |
|-------|-------|------------------------------|---------------|---------|--------------|
| 15-00 | P.900 | User registered parameter 1  |               | 99999   |              |
| 15-01 | P.901 | User registered parameter 2  |               | 99999   |              |
| 15-02 | P.902 | User registered parameter 3  |               | 99999   |              |
| 15-03 | P.903 | User registered parameter 4  |               | 99999   |              |
| 15-04 | P.904 | User registered parameter 5  |               | 99999   |              |
| 15-05 | P.905 | User registered parameter 6  |               | 99999   |              |
| 15-06 | P.906 | User registered parameter 7  |               | 99999   |              |
| 15-07 | P.907 | User registered parameter 8  |               | 99999   |              |
| 15-08 | P.908 | User registered parameter 9  |               | 99999   |              |
| 15-09 | P.909 | User registered parameter 10 |               | 99999   |              |
| 15-10 | P.910 | User registered parameter 11 |               | 99999   |              |
| 15-11 | P.911 | User registered parameter 12 |               | 99999   |              |
| 15-12 | P.912 | User registered parameter 13 |               | 99999   |              |
| 15-13 | P.913 | User registered parameter 14 |               | 99999   |              |
| 15-14 | P.914 | User registered parameter 15 |               | 99999   |              |
| 15-15 | P.915 | User registered parameter 16 |               | 99999   |              |
| 15-16 | P.916 | User registered parameter 17 |               | 99999   |              |
| 15-17 | P.917 | User registered parameter 18 |               | 99999   |              |
| 15-18 | P.918 | User registered parameter 19 |               | 99999   |              |
| 15-19 | P.919 | User registered parameter 20 |               | 99999   |              |

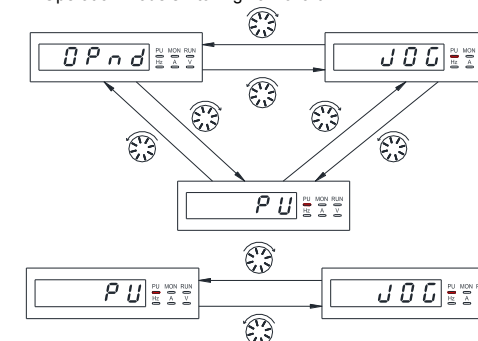
11) Switching Parameter Mode

► SC3 series classify parameters according to functions, and default is displayed as "Group Mode"

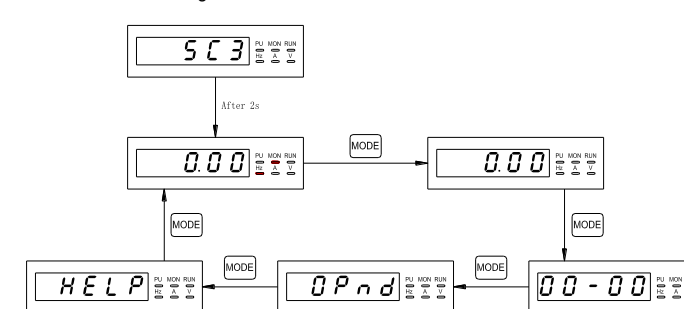
► If users prefer to display as "P.xxx" mode, please set parameter 00-25 as "1", and parameters will be displayed as "Traditional P Mode".

12) Parameter Setting Flow chart

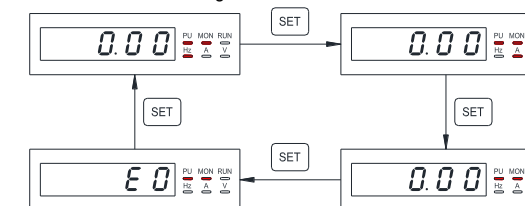
► Operation mode switching flow chart :



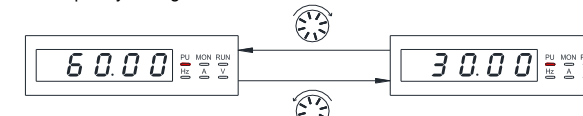
► Work mode switching flow chart :



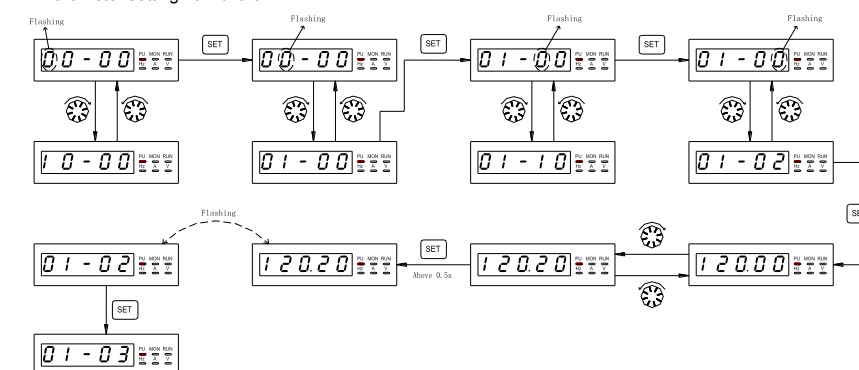
► Monitor mode switching flow chart :



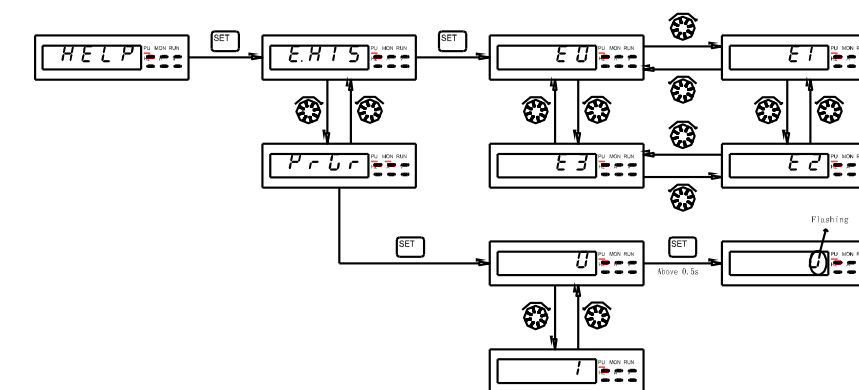
► Frequency setting flow chart :



► Parameter setting flow chart :



► HELP mode flow chart :



13) Others

► To improve our products, the parameters and contents may be modified, please contact the agent or refer to Shihlin websites (<http://automation.seec.com.tw>) to download the latest version.

