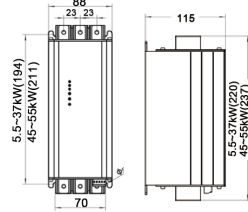## Warning Message

⚠️ The product should be operated by qualified electricians as per safety specifications, including installation, pilot run and maintenance, etc;

The voltage used by the product is dangerous, which may cause serious injury or death of others. Prohibit touching terminal after electrifying the device or during operation. Although the device is switched off, voltage may still exist in output terminal;

The product should be used under rated specification of product.Before use, please check the accuracy of various parameters such as power motor and frequency of product or device.

The product has passed insulation test before leaving factory.Incorrect megger test may damage product or shorten product life.

It is strictly forbidden to connect strong electricity in secondary linessuch as RUN and COM. Secondary ter-minal power supply can cause damageto the main borad.
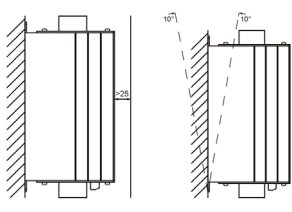
## Electrical Parameters

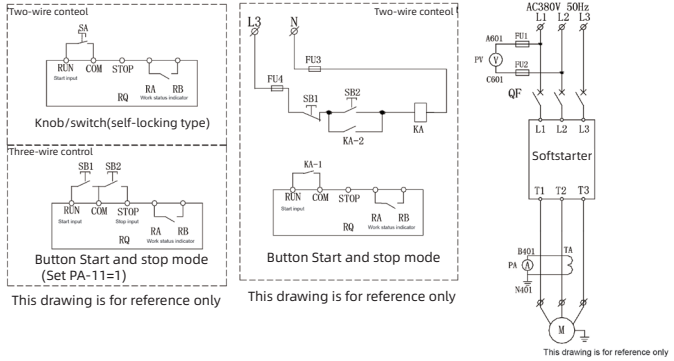| Standard | GB/T 14048.6-2016/IEC 60947-4-2:2011 | |
|---|---|---|
| Rated operation voltage | 200~415V(-15%+10%) | |
| Max length between soft starter and cable | 300m | |
| Permissible ambient environment | Operation | -25 ℃~+60 ℃ (When the ambient temperature exceeds 40℃ , for every 1℃ increase, the soft starter rated current will decrease by 1%.) |
| | Storage | -40℃ ~ +70℃ |
| Protection grade | IP20 | |
| Rated frequency | 50/60Hz | |
| Permissible installation height | 5000m (start to reduce capacity for above 1000m, and the soft starter rated current is reduced by 5% for every 1000m.) | |
| Starting frequency | ≈ 20 times / hour(Class10 standard load) | |

## Product Dimensions



## Install Sketch



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## Wiring Diagram



Knob/switch(self-locking type)

Button Start and stop mode (Set PA-11=1)

This drawing is for reference only

Button Start and stop mode

This drawing is for reference only

Softstarter

This drawing is for reference only

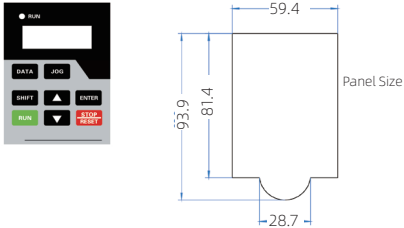## Keyboard setting

This is an optional accessory (not included in the standard product) and is connected through the RJ45 interface (network cable required). If need it, please contact the manufacturer.



Panel Size

## Setting-up process

Satrt setting up.

First, connect the main power supply of L1-L3, and check Power-on Reset for the soft starter. For the first time use, a power-on reset must be carried out, in case there is uncompleted commands. At this stage,output terminal T2 is electriferous, so please pay attention to safe operation.

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## Terminal Description



For external panel only
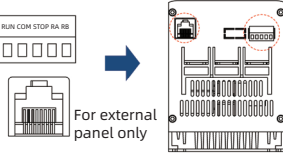
### Control Loop

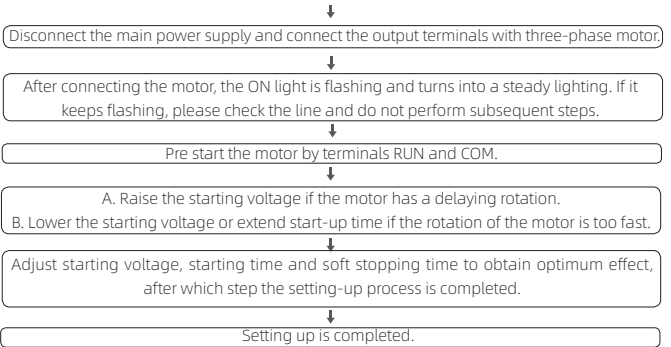| Terminal Marking | Terminal Name | Function |
|---|---|---|
| RUN | Enable input | When RUN and COM are closed, the motor starts to run; when disconnected, the motor decelerates and stops (only two-wire control (default); if necessary, please contact the manufacturer |
| COM | Common port | For Run and Stop |
| STOP | Stop input | The motor stops when STOP and COM are closed (only three-wire control) |
| RA、RB | Indication of working status | Working status: relay output, normally open contact, closed during operation, open during shutdown or failure, relay capacity 250V/AC 0.3A |

### Major Loop

| Terminal Marking | Terminal Name | Function |
|---|---|---|
| L1/L2/L3 | Mains input of major loop | Connect three-phase source |
| T1/T2/T3 | Output connection of soft start | Connect three-phase motor |

## Parameter Settings   Panel Parameters



Knob of soft start time: used to adjust the soft start time. The range is 1~20s. The longer the time is set, the smoother the soft start process will be, which is beneficial to reduce the impact on the power grid.

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↓
Disconnect the main power supply and connect the output terminals with three-phase motor.
↓
After connecting the motor, the ON light is flashing and turns into a steady lighting. If it keeps flashing, please check the line and do not perform subsequent steps.
↓
Pre start the motor by terminals RUN and COM.
↓
A. Raise the starting voltage if the motor has a delaying rotation.
B. Lower the starting voltage or extend start-up time if the rotation of the motor is too fast.
↓
Adjust starting voltage, starting time and soft stopping time to obtain optimum effect, after which step the setting-up process is completed.
↓
Setting up is completed.

## Button Description

| Button | Name | Function |
|---|---|---|
| DATA | Programming Button | Enter or exit the first level menu |
| JOG | Jog Button | Jog running motor (for testing only) |
| ▲ | Increment | Increment of data or function code |
| ▼ | Decrement | Decrement of data or function code |
| SHIFT | Shift | In the stop and running display interface, the display parameters can be selected cyclically; when changing the parameters, the modification position can be selected |
| ENTER | Enter | Enter the menu screen step by step, and set the parameters to confirm |
| RUN | Run | In the keyboard operation mode, used for running operation |
| STOP/ RESET | Stop/Reset | When running, this button can be used to stop running operation; in fault alarm state; used to reset operation |

## Code view and modification method description



-Rdy-    PA    PA-07    050.00
Level 1    Level 2    Level 3

6
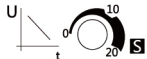


Knob of soft stop time: used to adjust the soft stop time, the range is 0~20s. The soft stop function can effectively avoid the "water hammer effect" when the pump stops in some pump applications. When the knob is adjusted to 0s, it means that the motor parking mode is the free parking mode, and the soft start stops the output immediately.



Knob of starting voltage: used to adjust the starting voltage. The range is 40%~70%. When starting, the motor needs to overcome the friction force in the static state. Properly increase the starting voltage to obtain a larger starting torque. The user should refer to the actual load situation and cooperate with the start and stop time to obtain the best smooth start effect.
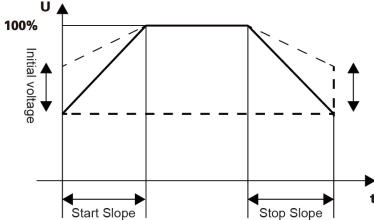


## Operation sequence diagram

### Operation sequence diagram
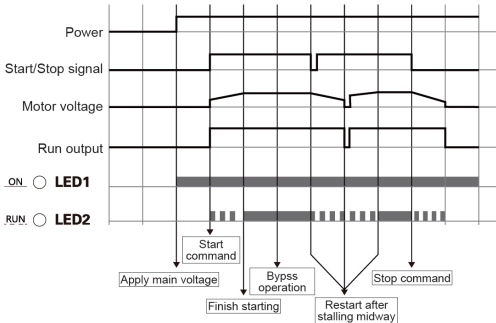


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The operation panel adopts a three-level menu structure.Function parameter group (level 1 menu) → function code (level 2 menu) → function code setting value (level 3 menu).

Note: When operating in the third-level menu, press the DATA or ENTER to return to the second-level menu. The difference is: press the ENTER to save the set parameters and return to the secondary menu, and automatically transfer to the next function code; while pressing the DATA will directly return to the secondary menu without storing the parameters, and return to the current function code.

## Code Setting Instructions

| Code | Name | Setting | Default | Description |
|---|---|---|---|---|
| PA-03 | Overload multiple during soft start | 1.0-5.0 | 5.0 | The soft-start process is based on the overload multiple of the rated load current, and the value of it is set according to the weight of the load. |
| PA-04 | Rated power operation overload multiple | 1.0-2.0 | 1.5 | Based on the rated power current normal operation overload multiple, the size of the overload multiple is set based on load site conditions |
| PA-05 | Overload delay during soft start | 1-250 | 10 | The delay time after exceed the rated current overload multiple in the soft-start process is set based on the site conditions, in seconds (s) |
| PA-06 | Rated power operation overload delay | 1-20min | 5min | Based on the delay of overload time after exceed the rated power current overload multiple during the operation of the soft starter, in minutes (min) |
| PA-07 | Motor underload protection | 0-100% | 20% | The current setting range of underload protection is up to 100%; when set to 0, this protection is invalid |
| PA-08 | Motor underload protection delay | 1-20min | 5min | Delay time of underload protection, in minutes (min) |
| PA-09 | Protection off | 0-250 | 0 | This parameter is used to choose to close the protection function. If you need to close the corresponding protection function, set the corresponding position in the table below as 1, and convert the binary value into decimal and set it in PA-09. This parameter will cause the protection to fail, please use this parameter with caution. |

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## Indicator light

### Indicator light

| RUN \ ON | Steady lighting | Flashing | Off |
|---|---|---|---|
| Steady lighting | Bypass operation | Input or output phase loss / hardware malfunction | Hardware malfunction |
| Flashing | Soft start / stop in progress | Hardware malfunction | Hardware malfunction |
| Off | The device is ready for power on | Input or output phase loss / Motor not connected | Soft start power failure / Indicator failure |
| FAULT | Fault | - | No Fault |

## Power Diagram

| Model | 230V/kW | 400V/kW | Rated current(A) |
|---|---|---|---|
| Nx5R5 | 3 | 5.5 | 13 |
| Nx7R5 | 4 | 7.5 | 17 |
| Nx11 | 5.5 | 11 | 25 |
| Nx15 | 7.5 | 15 | 32 |
| Nx18 | 7.5 | 18.5 | 37 |
| Nx22 | 11 | 22 | 45 |
| Nx30 | 15 | 30 | 60 |
| Nx37 | 18.5 | 37 | 75 |
| Nx45 | 22 | 45 | 90 |
| Nx55 | 30 | 55 | 110 |

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| Code | Name | Setting | Default | Description |
|---|---|---|---|---|
| PA-11 | Operation control mode selection | 0/1/ 2 | 0 | Operation control mode selection: 0. Terminal control (two-wire system); 1. Terminal control (three-wire system); 2. Panel control |
| PA-15 | Restore default | 0/1 | 0 | Restore default: 0. Invalid; 1. Restore default value |

| Bit7 | Bit6 | Bit5 | Bit4 | Bit3 | Bit2 | Bit1 | Bit0 |
|---|---|---|---|---|---|---|---|
| Under load | Function reserved | Function reserved | Function reserved | Three-phase unbalance (Phase loss) | Overheat | Overload | Overcurrent |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Example: If the overcurrent and overheat protection needs to be turned off; the binary code "00000101" is converted to the corresponding decimal "5" .

## Error Code   Error code description

| Error code | Fault name |
|---|---|
| Err01 | Overcurrent fault |
| Err02 | Overload fault |
| Err03 | Overheating faul |
| Err04 | Output three-phase unbalanced |
| Err05 | A-Phase current sensor failure |
| Err06 | C-Phase current sensor failure |
| Err07 | Host failure |
| Err08 | Underload fault |
| Err09 | Arrears (exceeding the set number of runs) |

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