

# **BJ193 Series Panel Meter**

## **User Manual**

**Version: 2.2**

## Read me

**When you use BJ193-X series Digital Meter, be sure to carefully read this user manual, and be able to fully understand the implications, the correct guidance of operations in accordance with user manual, which will help you make better use BJ193 series Digital Meter, and help to solve the various problems at the scene.**

1. Before the meter turning on the power supply, be sure that the power supply within the provisions of the instrument;
2. When installation, the current input terminal must non-open, voltage input terminals must Non-short circuit;
3. Communication terminal (RS232 or RS485) is strictly prohibited to impose high pressure;
4. Be sure the instrument wiring consistent with the internal system settings;
5. When communicating with the PC, instrument communication parameters must be consistent with the PC.



- **Please read carefully before using this user manual**
- **Please save this document**

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## 1.- SUMMARIZE

BJ193-X series Digital Meter is used for power quality monitoring, factory automation and building automation.

These series can measure the power parameters in power grid:

Current,	Reactive power,
Voltage,	Apparent power,
Frequency,	Power factor,
Active power,	

It can replace many of a traditional analog measurement instruments, improve system accuracy and reliability.

## 2. - SPECIFICATIONS

### 1.- Reference standard:

Basic electricity: GB/T13850-1998 (IEC688-1992)  
 Active power : GB/T17215-2002 (IEC61036:2000)  
 Reactive power : GB/T17882-1999 (IEC61268:1995)

### 2- Accuracy standards

Parameter	Accuracy
Voltage	0.5%fs
Current	0.5%fs
Active Power	0.5%fs
Reactive Power	0.5%fs
Apparent power	0.5%fs
Power Factor	0.5%fs
Frequency	0.05%rd

### 3.- Input

Voltage: Rated 100/ 220/ 380V  
 Current: Rated 5A (optional 1A)  
 Frequency: 45-65Hz

Notes: accept customized order

**4.- Load**

Voltage: <0.5VA / phase (rated 220V)

Current: <0.5VA / phase (rated 5A)

**5.- Overload**

Current: 1.2 times rated continuous; 10 seconds for 10 times the rated.

Voltage: 1.2 times the rated continuous; 10 seconds for 800V.

**6.- Dielectric strength**

IEC 688 / IEC 255-3 (1989)

2kV AC RMS 1 minute, between input / output / case / power supply.

**7.- EMC Test**

	standard	Test voltage
Electrostatic discharge immunity test:	IEC-61000-4-2 level 4	8Kv
Electrical fast transient burst immunity test	IEC61000-4-4 level 3	Input 1kV; Power supply 2kV
Surge (Shock) immunity test	IEC61000-4-5 level 4	common mode test voltage 4kV

**8.- Work environment**

Temperature: -20°C~ +60°C

Humidity: RH 20%~95% (No condensation)

**9.- Protection**

Panel: IP40

**10.- Storage Conditions**

Temperature: -25°C~+70°C

Humidity: RH 20%~95%

**11.- Power Supply**

AC /DC 80-270V

Maximum power consumption 3W

### 3.- INSTALLATION AND START-UP



The manual you hold in your hands contains information and warnings that the user should respect in order to guarantee a proper operation of all the instrument functions and keep its safety conditions. The instrument must not be powered and used until its definitive assembly on the cabinet's door.

**Whether the instrument is not used as manufacturer's specifications, the protection of the instrument can be damaged.**

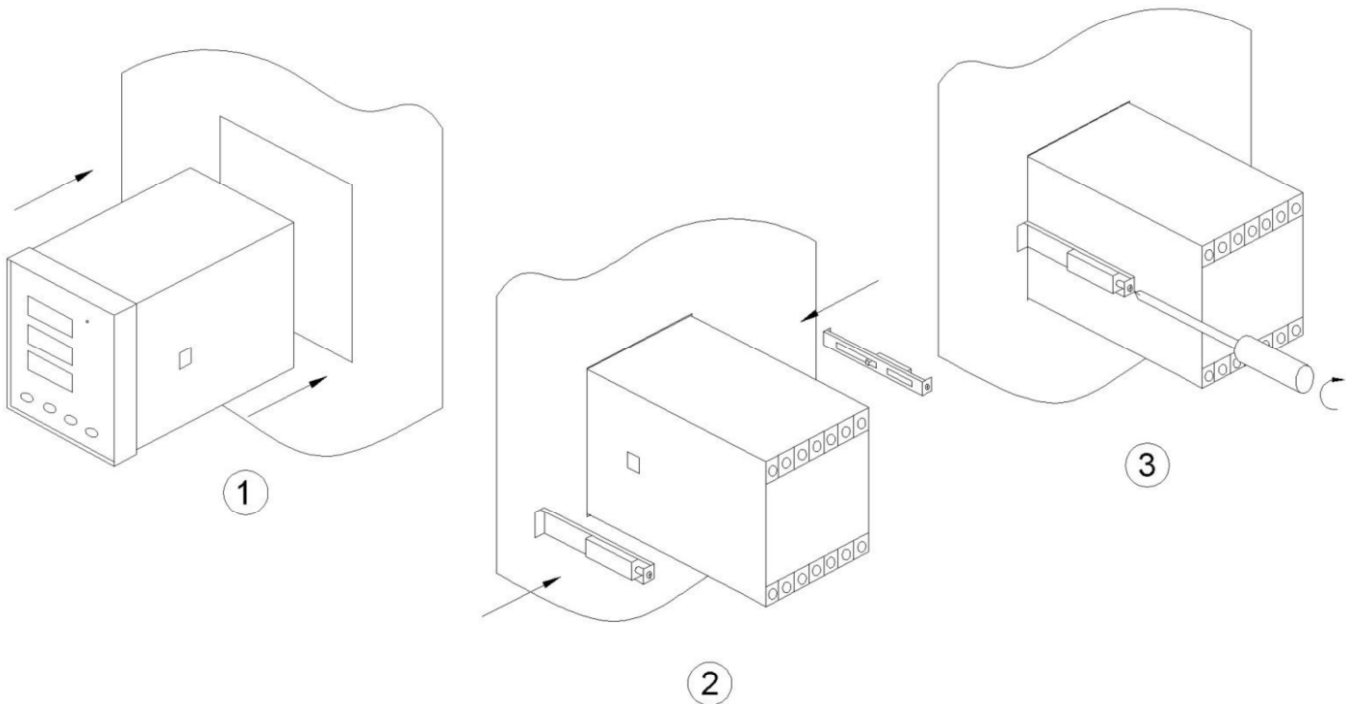
When any protection failure is suspected to exist (for example, it presents external visible damages), the instrument must be immediately powered off. In this case contact a qualified service representative.

#### 3.1.- Installation

##### Mounting

Instrument is to be mounted on panel. All connections keep inside the cabinet.

Note that with the instrument powered on, the terminals could be dangerous to touching and cover opening actions or elements removal may allow accessing dangerous parts. Therefore, the instrument must not be used until this is completely installed.



**Auxiliary power:**

BJ193X Series Digital Meter with universal (AC / DC) power input, if not for a special statement, we provide the 220VAC/DC or 110VAC/DC power interface for standard products Instruments limit work power supply : AC / DC :80-270V, please ensure that the auxiliary power can match for BJ193-X series meter to prevent damage to the product.

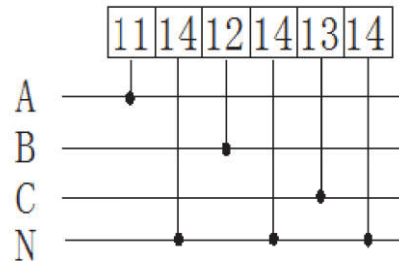
- A. Suggest install 1A fuse in the fire line side.
- B. For the areas with poor power quality, suggest install lightning surge suppressor and rapid burst suppressor to prevent lightning strikes.

**3.2.- Connection terminal and drawing (details please see label on the rear part)**

**3.2.1.- Three phase 4 wire voltage**

**Terminal description**

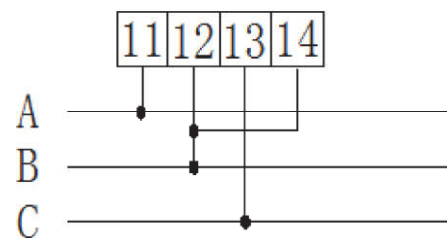
- 11. Voltage A-phase input
- 12. Voltage B-phase input
- 13. Voltage C-phase input
- 14. Neutral Voltage input



**3.2.2.- Three phase 3 wire voltage**

**Terminal description**

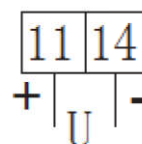
- 11. Voltage A-phase input
- 12. Voltage B-phase input
- 13. Voltage C-phase input
- 14. COM for B-phase input



**3.2.3.- Single phase or DC voltage**

**Terminal description**

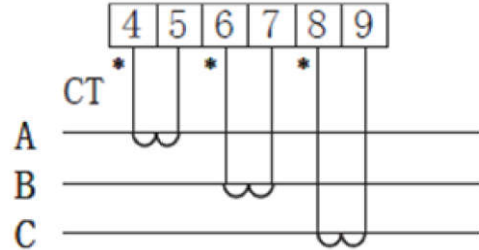
- 11. Voltage phase input
- 14. Neutral Voltage input



### 3.2.4.- Three phase current

#### Terminal description

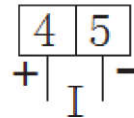
- 4. Current A-phase - S1 input
- 5. Current A-phase - S2 input
- 6. Current B-phase - S1 input
- 7. Current B-phase - S2 input
- 8. Current C-phase - S1 input
- 9. Current C-phase - S2 input



### 3.2.5.- Single phase or DC current

#### Terminal description

- 4. CT secondary side - S1 input
- 5. CT secondary side - S2 input



### 3.2.5.- Other terminals (optional function)

<b>AUX</b>	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1 2</div> L     N	<b>Analog output</b>	<div style="border: 1px solid black; display: inline-block; padding: 2px;">15 16</div> -     +
<b>RS485 port</b>	<div style="border: 1px solid black; display: inline-block; padding: 2px;">58 59 60</div> A   B   ⊥	<b>Digital input Digital output</b>	<div style="border: 1px solid black; display: inline-block; padding: 2px;">72 71 70</div> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-left: 10px;">20 19 22 21</div> DI2 DI1 COM   D01   D02

**Note:** This connection drawing is for reference only, the actual connecting terminal please refer to the label on the rear part.

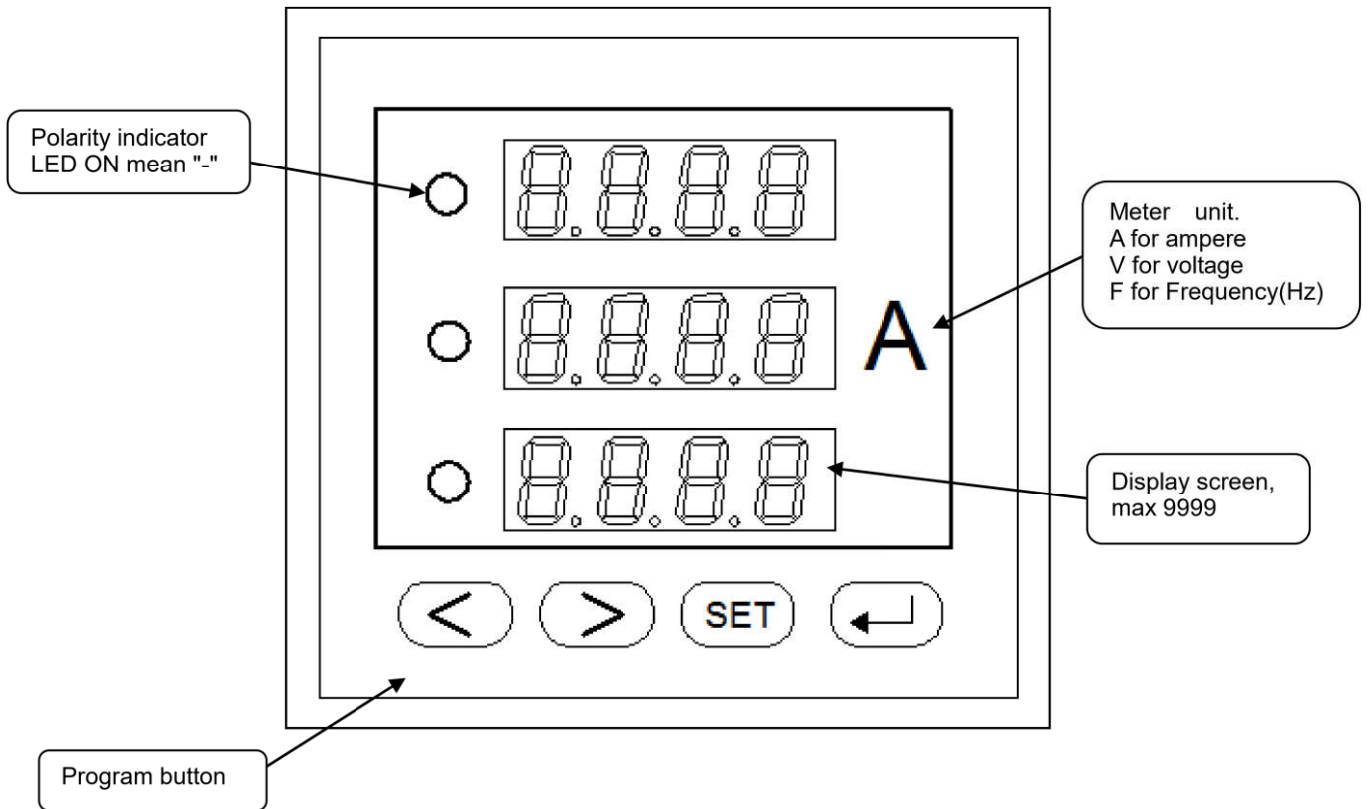
#### IMPORTANT REMARK!

If power = -0.01 is shown for any of the phases and voltage and current are not zero for this phase, check out following points:

- Assure that A,B,C phases coincide in voltage and current.
- Correct polarity? Reverse the current transformer placed at this phase.

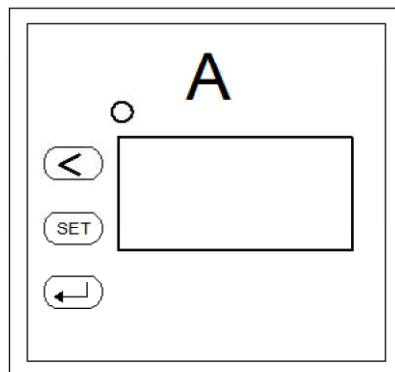


### 4.- SCREEN DISPLAY



**Note:**

1. Single phase meter only have one line LED screen
2. 48\*48 meter panel like following panel design. Without "right" button, detail operation please see chapter 5.



## 5.- OPERATION MODE

The instrument has three line displays. Every led will be on according to the parameter presently shown in screen.

When the 193-X is powered up, all the LED indicator will on, and meter start self- test, after some seconds, the meter is ready for operation and shows one of the available screens.



Parameters on display can be switched by pressing key on screen at any moment

When the key is pressed, the screen CURRENT values of each phase are now showing.

In setting menu, pressing  can move the setting cursor to left;

Pressing  can enter the number 0 ~ 9.




Pressing it can open the setting menu and return to previous menu.


In setting menu for change number 0~9 (only for 48\*48 size meter)



Pressing this key you can exit it with saving any modification that you might have done, in menu operation press "Enter" key, and user can go to the next menu.

### Note:

Press  in normal standby status, and the meter will show different data in main screen:

In the menu set mode, when changes the parameter and exit setting, the meter will ask to "SAVE", press  *exit without saving*

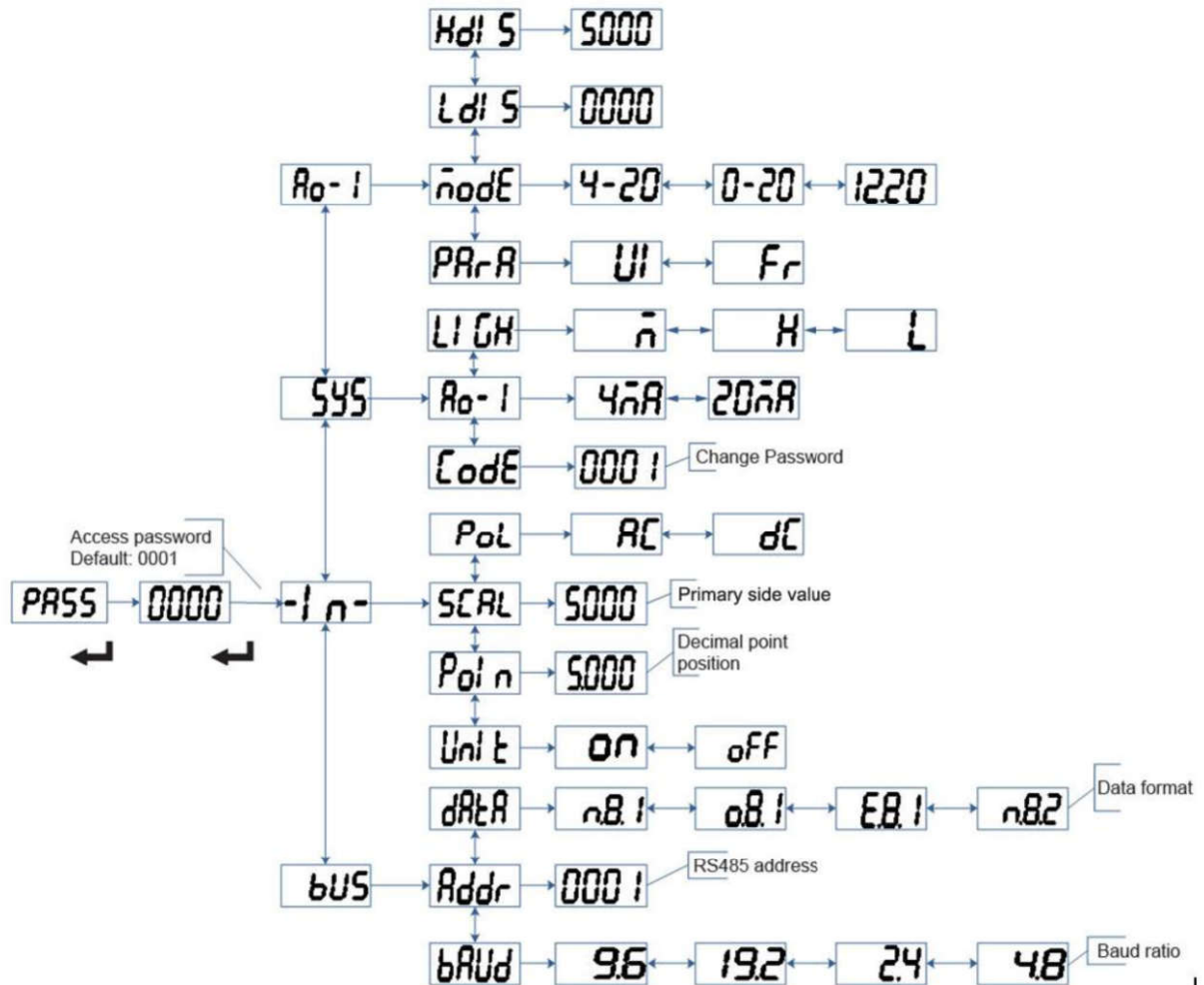
press  *save and exit.*

## 6.- SETUP PROCEDURE

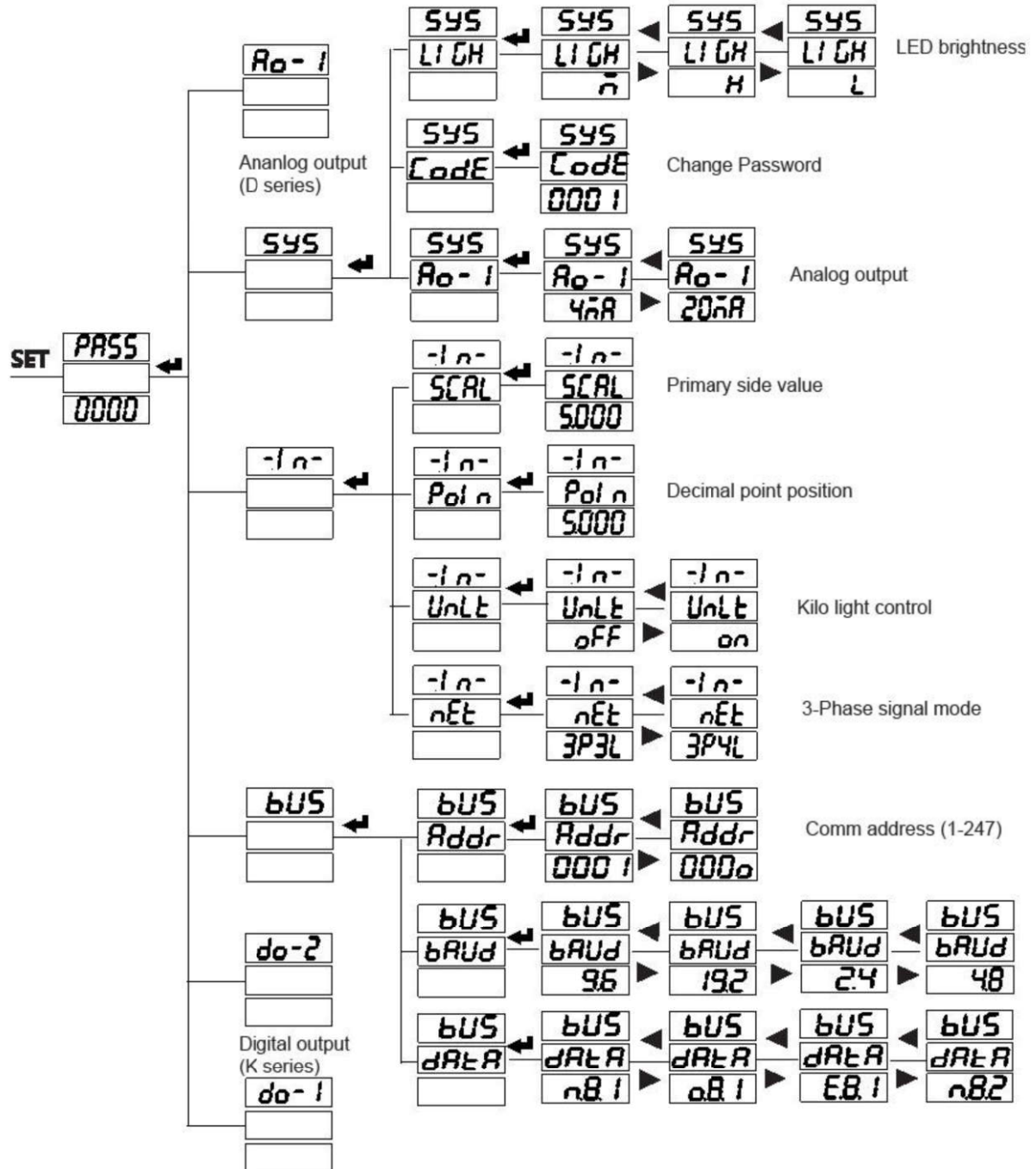
The SETUP procedure of the BJ193-X is performed by means of several SETUP options. Once into the SETUP, use the keyboard to select different options and enter required variables:

1. Password enter
2. Input signal selection
3. Communication preferences

### Single phase menu:



Three phase menu:



**Note:**

The procedure above is for reference, not all series have the step 3 (communication preference), AO menu for D series have this function, bUS menu for K series, please contact the Technical Service.

## 7.- SAFETY CONSIDERATIONS



All installation specification described at the previous chapters named :  
INSTALLATION AND STARTUP, OPERATION MODE and SPECIFICATIONS.

Note that with the instrument powered on, the terminals could be dangerous to touching and cover opening actions or elements removal may allow accessing dangerous parts. This instrument is factory-shipped at proper operation condition.

## 8.- MAINTENANCE

The 193-X does not require any special maintenance. No adjustment, maintenance or repairing action should be done when the instrument open and powered on, should those actions are essential, high-qualified operators must perform them.

Before any adjustment, replacement, maintenance or repairing operation is carried out, the instrument must be disconnected from any power supply source.

When any protection failure is suspected to exist, the instrument must be immediately put out of service. The instrument's design allows a quick replacement in case of any failure.

## 9.- TECHNICAL SERVICE

For any inquiry about the instrument performance or whether any failure happens, contact to Blue Jay's technical service.

*Blue Jay - After-sales service*

*E-mail : [tech@cqbluejay.com](mailto:tech@cqbluejay.com)*