

# **BJ193PQH**

## **Three-phase Combined Power Meter**

### **User Manual**

**Version: 1.3**

## 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 Multifunction Power 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**

# Directory

<b>CONTENTS</b>	<b>Page</b>
1. Summarize -----	3
2. Specifications-----	3
3. Installation and Start-up -----	5
3.1.- Installation -----	5
3.2.- Connection terminal -----	6
4. Screen Display -----	8
4.1.- Panel diagram -----	8
4.2.- Display Summary -----	8
5. Operating Mode -----	9
6. Setup Procedure -----	10
7. Safety Considerations -----	11
8. Maintenance -----	11
9. Technical Service -----	11

## 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,	Energy,
Active power,	Power factor,

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	Three phase
Active Power	0.5%fs	W
Reactive Power	0.5%fs	Var
Power Factor	0.5%fs	PF

### 3.- Input

Voltage: Rated 100/400V

Current: Rated 5A (optional 1A)

Frequency: 45-65Hz

### 4.- Load

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

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

### 5.- Overload

Current: 2 times rated continuous; 10 seconds for 10 times the rated

Voltage: 2 times the rated continuous; 10 seconds for 600V

### 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 (-4°F ~ 140°F)

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

### 9.- Protection

Panel: IP40

### 10.- Storage Conditions

Temperature: -25°C~+70°C(-13°F ~ 158°F)

Humidity: RH 20%~95%

### 11.- Power Supply

AC /DC 80-270V

Maximum power consumption 3W

### 12.- Dimensions

L x W x H =96x96x71mm (3.78x3.78x2.80 inch)

### 13.- Installation hole size

L x W =(91+0.8)mmx(91+0.8)mm [(3.58+0.032)inch x (3.58+0.032)inch]

### 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.**

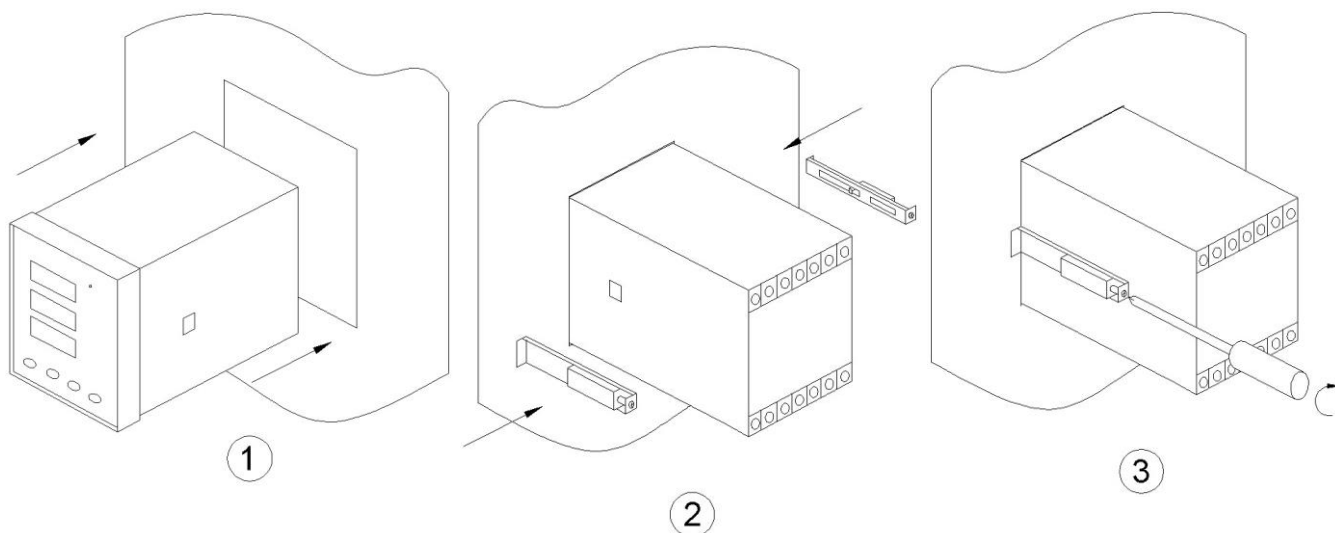
When any protection failure is suspected to exist (for example, it presents external visible damages), the instrument must be immediately powered off. In this case contact a qualified service representative.

#### 3.1.- Installation

##### Mounting

Instrument is to be mounted on panel (cut-out  $91+0.8 \times 91+0.8 \text{ mm}$ ). 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.



**Notes:**

**Auxiliary power:**

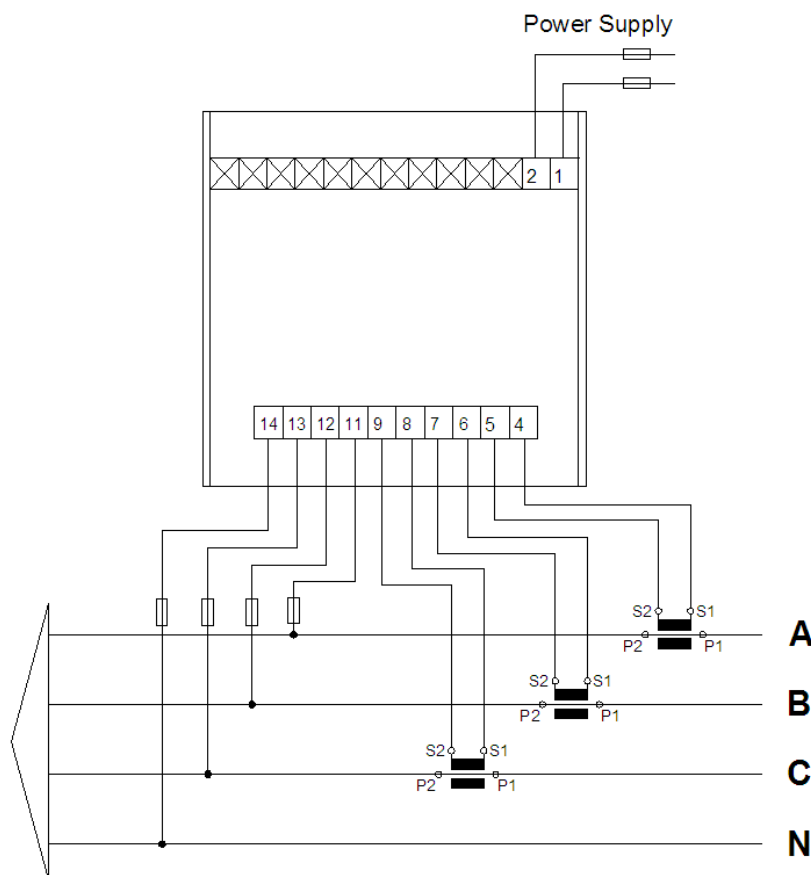
BJ193X Series Power Meter with universal (AC / DC) power input, if not for a special statement, we provide the 220VAC/DC or 110VAC/DC power interface for standard products Instruments limit work power supply : AC / DC :80-270V, please ensure that the auxiliary power can match for BJ193-X series meter 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 for BJ193PQH (see label on the rear part)**

**Terminal description**

- 1. \*Supply voltage input: 0 V
- 2. \*Supply voltage input:85~265 Va.c.
- 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
- 11. Voltage A-phase input
- 12. Voltage B-phase input
- 13. Voltage C-phase input
- 14. Neutral Voltage input



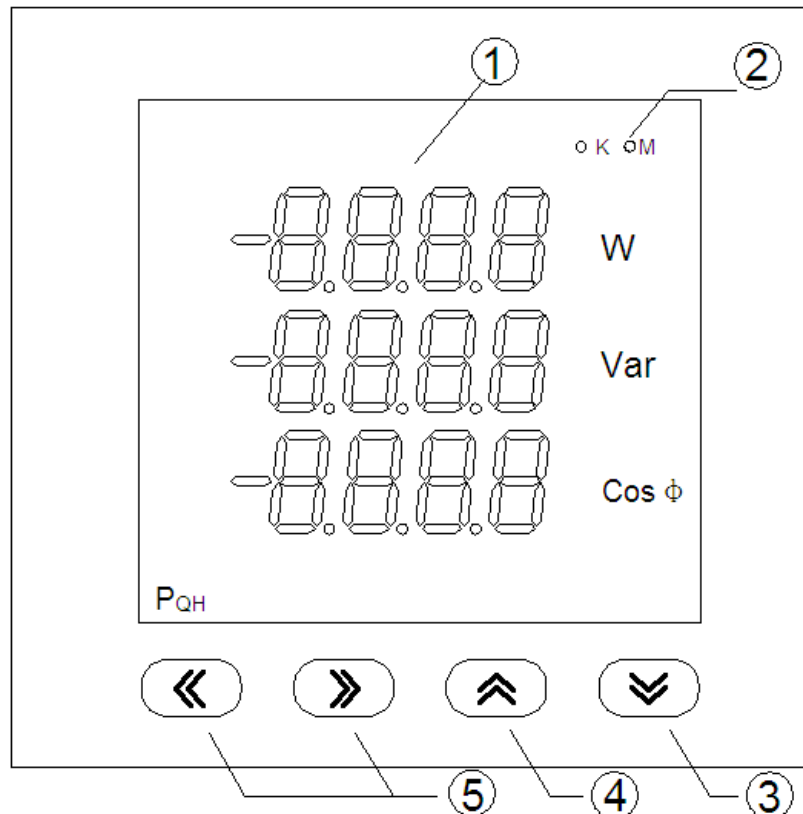
**IMPORTANT REMARK!**

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

### 4.1.- Panel diagram



### 4.2.- Display Summary

No.	Display	Explanation
1	Digital display module	Three lines 4 digital LED show measurement power data
2	Indicator of the data Unit	"K" means thousand; "M" means million
3*	Enter key	For menu selection and confirmation
4*	Menu key	Used to open the menu and return to previous menu
5*	Up and Down key	Set the programming value

**Note:** Please see detail instructions of "\*" items at "OPERATION MODE"





## 5.- OPERATION MODE


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

When the 193PQH is powered up, the entire symbol will be on, and the meter starts to 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  or  LED shown on screen at any moment

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

Pressing again the key , the screen will show the following parameters successively.

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

Pressing  can enter the number 0 ~ 9.






This key named "SET" key, pressing it can open the programming menu and return to previous menu.



This key named "Enter" key, 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:

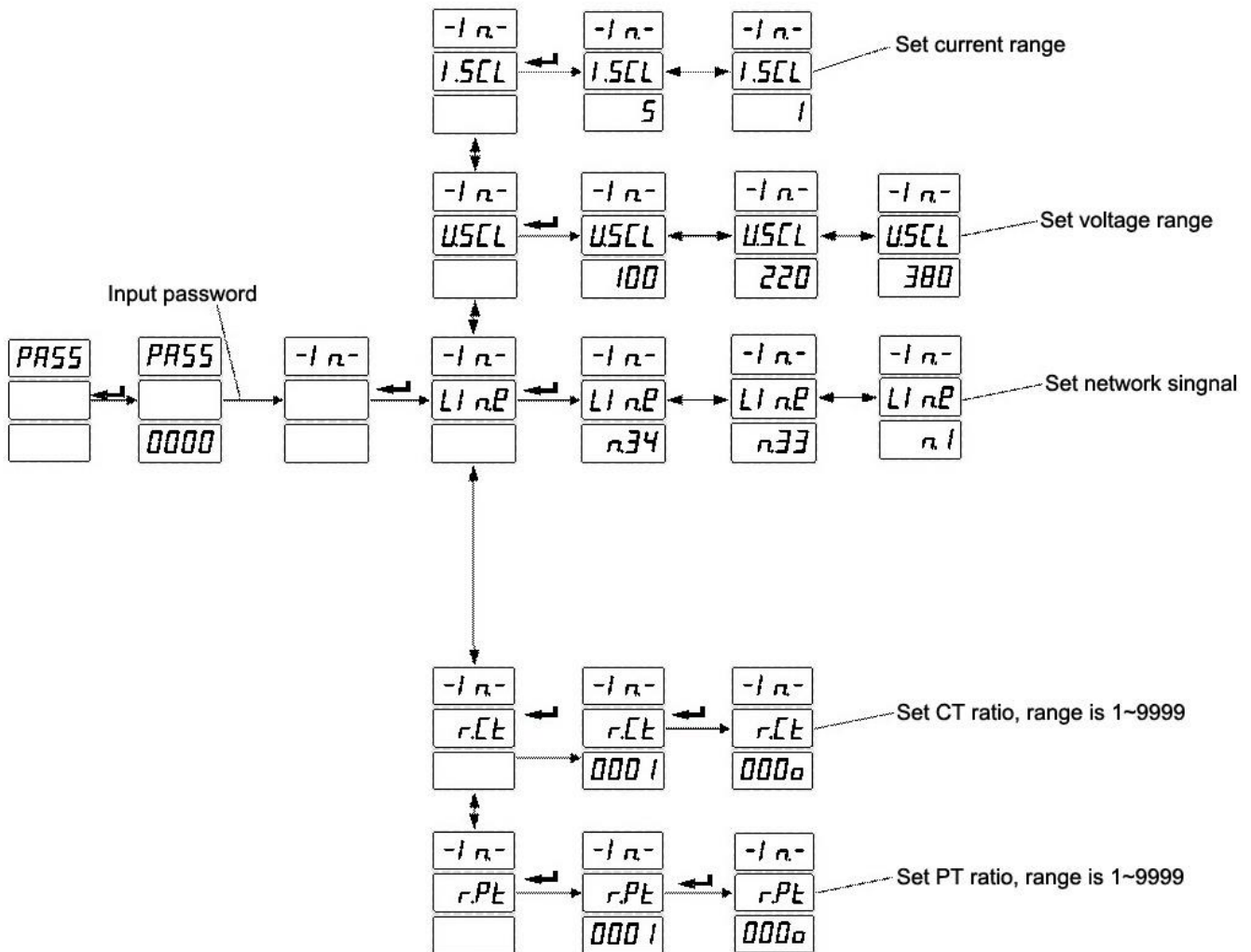
Press key  or  in normal standby status, and the meter will show different data in main screen:

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:



### Note:

The procedure above is for reference, not all series have the step 3 (communication preference), only the K series have this step. If you want the X series and D series have this function,

Menu are not specified in the manual would be invalid, do any modify will be no change. If doubt about the please contact the Technical Service. [tech@cqbluejay.com](mailto:tech@cqbluejay.com)

## 7.- SAFETY CONSIDERATIONS

All installation specification described at the previous chapters named :  
INSTALLATION AND STARTUP, INSTALLATION MODES 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 193X 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)*