

## IQ200 series multi-function harmonic component meter user manual

### A. Function, technical parameter

#### 1、Function

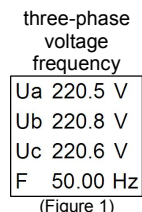
- 1) 、Measurement of three-phase voltage, current, active power, reactive power, apparent power, Four quadrant power, power factor, frequency, maximum power
- 2) 、Measurement of 3-63 sub harmonic of each phase voltage, current harmonic content and total content
- 3) 、 1 active energy pulse output, 1 reactive energy pulse output
- 4) 、 Maximum Demand(U,I,P,Q,S)
- 5) 、 6 DI, 2 DO (relay output) , 2 Analog Output 4-20mA
- 6) 、 1 RS485,MODBUS-RTU, LCD display

#### 2、Technical Data

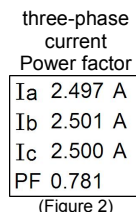
Featue	Data
Wiring	3-phase 3-wire, 3-phase 4-Wire
Citification	GB/T 22264.1-2008 (China)
Input voltage	AC380V (100% -120%) Continuous
Input Current	0~5A Continuous:20Ie /1s
Voltage Operation	AC220V ( 85~265V) DC220V ± 15%
Active power pulse output	5000imp/kwh
Reactive power pulse output	5000imp/kvarh
Digital Input	Passive contact input
Digital Output	Relay output AC220V 5A
Communication interface	RS-485、 MODBUS-RTU
Accuracy	0.2 class
Display	LCD
Frequency	40~60Hz,0.1Hz
Consumption	≤5VA
Environment	-10~55℃ without corrosive gas (at 20℃ RH≤90%, at 40℃ RH≤50%)
Dimensions	96×96×75 (L* W* D)

### B, Programming and operating

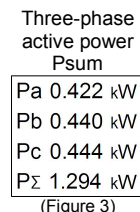
#### 1、Display:



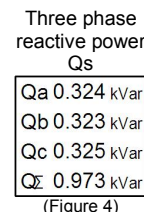
(Figure 1)



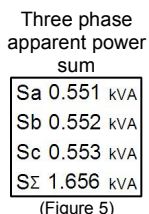
(Figure 2)



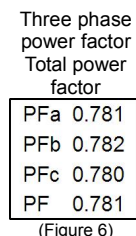
(Figure 3)



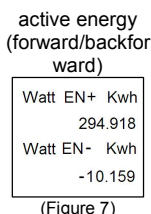
(Figure 4)



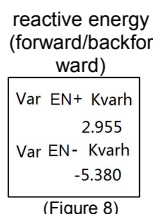
(Figure 5)



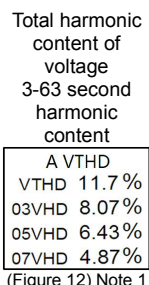
(Figure 6)



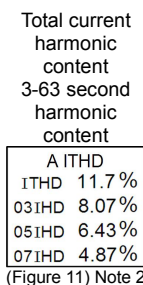
(Figure 7)



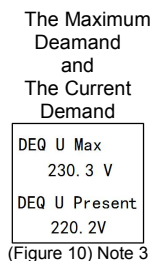
(Figure 8)



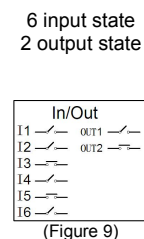
(Figure 12) Note 1



(Figure 11) Note 2



(Figure 10) Note 3



(Figure 9)

Explain:

- 1) Figure1-Figure10 shows the interface of common data display instrument, according to the "V" or "A" button switch interface.
- 2) According to the "<" button in the common data interface, enter the phase voltage harmonic data display interface such as (Figure 12).
- 3) According to the ">" button in the common data interface, enter the data display interface such as phase current harmonics (Figure 11).
- 4) In the harmonic data display interface, press "MENU" key, can return to the commonly used data display interface.

Note 1: according to the "<" key A/B/C phase voltage harmonic distortion data display interface switching  
According to the "A" or "V" can choose to display the time harmonic content (3-63).

Note 2: according to the ">" key A/B/C phase current harmonic distortion data display interface switching  
According to the "A" or "V" can choose to display the time harmonic content (3-63).

Note 3: at this screen ,you can press the "MENU" key to see the other Demand Values(I-current, P- total active power, Q- total reactive power , S-total apparent power)

#### 2.Setting up:

Press "MENU"."A"."V"."<". ">". "←" to finish setting up.

MENU: press this button to enter into the programming mode when in Meter measurement display, displaying 'password' on the meter. Program and set up the meter only after entering the correct password ,instrument factory initial password 0001;

the other function of the "MENU" button is to backspace during the programming process.  
Press "<" and ">" to choose the parameter for modification select the number in each digit (in XXXX form).

"A" and "V" key: select the parameters or to increase or decrease the cursor position data

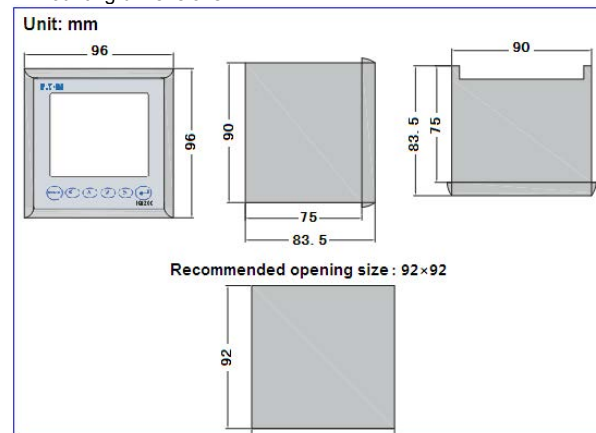
"←" key parameters: enter the next layer of menus or save the Modified value and returns a layer on the menu.

The organizational structure of the menu is as follows: Users can choose the appropriate programming setting parameters according to the actual situation.

Level 1	Level 2	Level 3	Description
Password Input	password	Default password 0001	Enter into programming only when the entered password is correct
System setup	Change Password	0-9999	Reset password
	Energy clearance	YES/NO	Electric energy is cleared to zero after confirmation
	backlight time	0-9999	Unit: second. Default value :120
NetWork setup	Connection mode	N.3.4 N.3.3	Default value: N.3.4
	Voltage transforming ratio	1-9999	Set up voltage signal atio =Primary alue/secondary value
	Current transforming ratio	1-9999	Set up current signal ratio =Primary alue/secondary value
Comm. setup	Comm. rate BAUD	4800,9600 19200	Default: 9600
	Communicat ion data type	N.8.1	N.8.1:none cannot change
	Address	1-247	Meter address range :1-247
Alarm setup	UaMax	0-9999 (V)	Set A/B/C phase alarm voltage value The default setting of 0, to use the alarm function
	UbMax	0-9999 (V)	
	UcMax	0-9999 (V)	
Analog1/2 output setup	Enable	ON / OFF	Turn on or turn off the Analog output
	Item	Ua/Ia/Ps .....	Set Part-E to get more info
	Up Limit	0-7500	Set Part-E to get more info
Demand setup	Enable	ON/OFF	Turn on or turn off this function
	Time	15(min)	Demand Period cannot change
	Clear	YES/NO	Clear the Demand

## C. Mounting and wiring

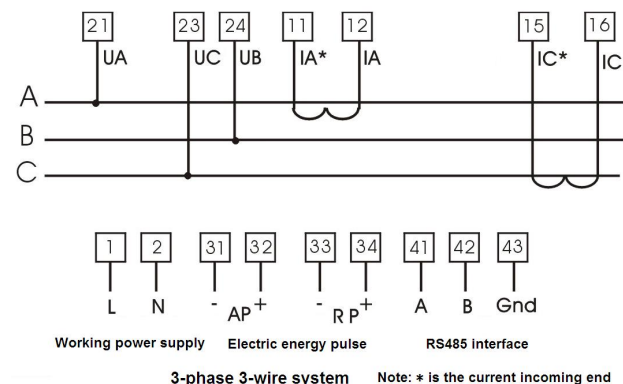
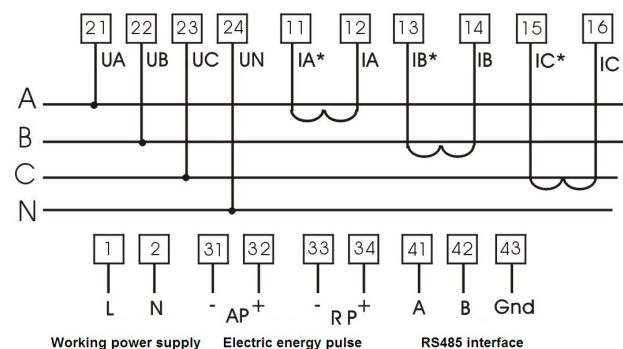
### 1. Mounting dimensions:



### 2. Mounting method:

Installed in a dark way installed on the panel

### 2. Terminal wiring:



Note: L-N is the auxiliary power supply. Make proper wiring according to the meter enclosure wiring diagram!

1) Auxiliary power supply: The IQ200 series multi-functional power meter has universal AC/DC switch power supply input interface, offering standard products with the 220V AC/DC or 110V AC/DC power supply interface when not stated specially. The meter's operating power supply voltage limit is 85 to 265V (AC/DC). Make sure that the supplied power supply is suitable for this series product, to avoid damages to the product.

A). For AC power supply, it is recommended to install a 1A fuse on the live-wire side.

B). In regions of worse power quality, it is recommended to install a surge protector in the power supply circuit to avoid lightning, and install a fast pulse burst suppressor.

2) Input signal: The IQ200 series product uses the calculation method of individual collection in each measurement channel, ensuring consistency and symmetry when in use, suitable for different load types.

Remark:

A) Voltage input: the input voltage should not exceed the product's rated input voltage (100V or 400V). Otherwise, a PT should be considered to use, and a 1A fuse must be installed in the voltage input end.

B) Current input: the standard rated input current is 5A. An external CT should be used for above 5A current. If the used CT is connected to other meters, serial connection should be made. Make sure to disconnect the CT's primary circuit or short circuit the secondary circuit before removing the product's current input wiring. A connection bar is recommended to use. Do not directly connect to the CT, convenient for removal.

C) Make sure that the input voltage and current are corresponding, with consistent phase sequence and direction; otherwise, value and symbol errors (power and energy) will occur!

D) The meter input network is configured to the CT quantity in the system. Choose the 3-phase 3-wire 2-component method for 2-CT cases, while the 3-phase 4-wire 3-component method is chosen for 3-CT cases. The input net setup in the meter wiring and meter programming should be consistent with the wiring methods for the measured loads. Otherwise, this will result in incorrect voltage or power measurements by the meter. In a 3-phase 3-wire system, the voltage measurement and displayed value are related to line to line voltage, while in a 3-phase 4-wire system, the voltage measurement and displayed value are phase to phase voltage.

3) communication port:

41 for the RS485 (A+), 42 for the RS485 (B-), 43 for the shield

The communication line adopts ZR-RVSP 2×1.5mm<sup>2</sup> two core shielded twisted pair

There must be a shield must be tightly twisted

4) electric energy pulse output:

31- active power pulse output (-) 32- active power pulse output (+)

33- reactive power pulse output (-) 34- reactive power pulse output (+)

5) 2 way relay output (4-7):

4-5 for a set of ,6-7 for a set of. Normally open passive contact signal output, the contact capacity of 5A AC220V (resistive load) (the relay controlled by the communication command)

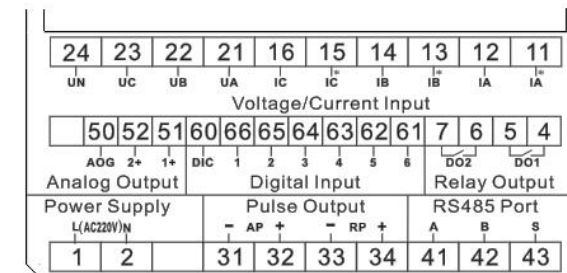
6) digital input (60-66):

6 sets of passive contact input, 60 for the COM (common)

7) analog output (50-52):

2 analog output, 50 is the common GND for the analog. the maximum load 400  $\Omega$  , the output current 4-20mA. see the Part-E to get the output items info. this feature is optional.

8) screw reated tightening torque **5.1kgf.cm (0.5N.m)**



## D. Digital communication

The serial asynchronous half-duplex RS485 communication interface is offered, using MOD-BUS-RTU protocol.

## E. Analog Output Items

The following items are the secondary side of the electrical parameters that IQ200 measured.

Item	Meanings	Suggest up Limit	unit
UA	A phase voltage	5000	0.1V
UB	B phase voltage	5000	0.1V
UC	C phase voltage	5000	0.1V
UAB	AB line voltage	5000	0.1V
UBC	BC line voltage	5000	0.1V
UAC	AC line voltage	5000	0.1V
IA	A phase current	6000	0.001A
IB	B phase current	6000	0.001A
IC	C phase current	6000	0.001A
PA	A phase active power	7500	W
PB	B phase active power	7500	W
PC	C phase active power	7500	W
PS	Total phase active power	7500	W
QA	A phase reactive power	7500	Var
QB	B phase reactive power	7500	Var
QC	C phase reactive power	7500	Var
QS	Total phase reactive power	7500	Var
SA	A phase apparent power	7500	VA
SB	B phase apparent power	7500	VA
SC	C phase apparent power	7500	VA
SS	Total phase apparent power	7500	VA
F	Frequency	5000	0.01Hz

Eaton corporation

Asia Pacific Headquarter

No.3.Lane 280,Linhong Road

Changning District

Shanghai 200335

Tel:86-21-52000099

Eaton is a registered trademark of

Fax:86-21-52000200

Eaton Corporation

© 2018 Eaton Corporation

All Rights Reserved

All trademarks are property of their  
respective owners

Printed in China

APR-2018