

Chapter 1. General Introduction

1.1 Usage

The digital display voltmeters(ammeters) are a new generation of programmable economy digital display mounted meters , which are mainly used in the real-time measurement and indication on AC voltage(ammeter) in an electric circuit . With features of high precision, good stability and calibration-free long-term operation, onsite parameter setting on a panel, it is an idea substitute of traditional dial instrument or ordinary digital instrument.

1.2 Feature

- Adopt SMT product techniques, compact circuit, high reliability;
- AC sampling, RMS measuring mode, wave distortion doesn't effect the accuracy rate;
- With overrun alarm contact output function, the higher and lower limit alarm are programmable.
- Setting function of alarm delay time;
- Display multiply power is programmable and apply to transformer with several specifications.
- Setting function of digital filtering time
- Unique method of installation, can complete the installment easily without tool;
- With performance of intelligent meters, price of common meters, high cost performance.

Chapter 2. Type and Designation

REF Number	Function & shape		Measure and display		Size	Alarm contact
	AC voltage	AC current	Unit: mm			
79500	●		48X48			NO
79510	●		72X72			NO
79520	●		96X48			NO
79530	●		96X96			NO
79560		●	48X48			NO
79570		●	72X72			NO
79580		●	96X48			NO
79590		●	96X96			NO

REF Number	Function & shape		Measure and display		Size	Alarm contact
	AC voltage	AC current	Unit: mm			
79505	●		48X48			YES
79515	●		72X72			YES
79525	●		96X48			YES
79535	●		96X96			YES
79565		●	48X48			YES
79575		●	72X72			YES
79585		●	96X48			YES
79595		●	96X96			YES

Chapter 3 Technical Parameters

3.1 Measuring range

3.1.1 Programmable AC voltmeter

Direct measurement: AC 5 ~ 100V、AC 10 ~ 600V

Accessory device: AC */100V (The multiply power can be freely programmed within 1 ~ 9999)

3.1.2 Programmable AC Ammeter

Direct measurement: AC 0.05 ~ 1A、AC 0.5 ~ 5A、AC 0.5 ~ 10A

Accessory device: AC */1A、AC */5A (*/5A current transformer additional,

the measuring range can be freely programmed the CT ratio as 1~2000 and display within 5 ~ 9999A)

3.2 Accuracy rating: $\pm 0.5\%FS \pm 1$ digit

3.3 Sampling rate: about 3 times /sec.

3.3 Measuring display mode: RMS measurement, four-digit or three-digit LED nixietube display

3.5 Display resolution: Max. display resolution of voltage is 1V, Max. display resolution of current is 0.001A

3.6 Input circuit consumption: current < 0.5VA, voltage < 1VA

3.7 Auxiliary power supply: AC 220V or AC110V 50/60Hz

3.8 Auxiliary supply consumption: < 3VA

3.9 Overflow indication: Displaying character "HHHH" or "LLLL"

3.10 Alarm Output: Higher and lower limit alarm output via the same relay contact, contact rating AC250V/2A、DC30V/2A

The measuring value blinks at the same time of executive alarm operation.

3.11 Operational environment: places free of gas corruption with temperature of -10~50°C, and relative humidity $\leq 85\%RH$.

Chapter 4 Installation and connection

4.1 Shape and hole cutout dimension

Unit: mm

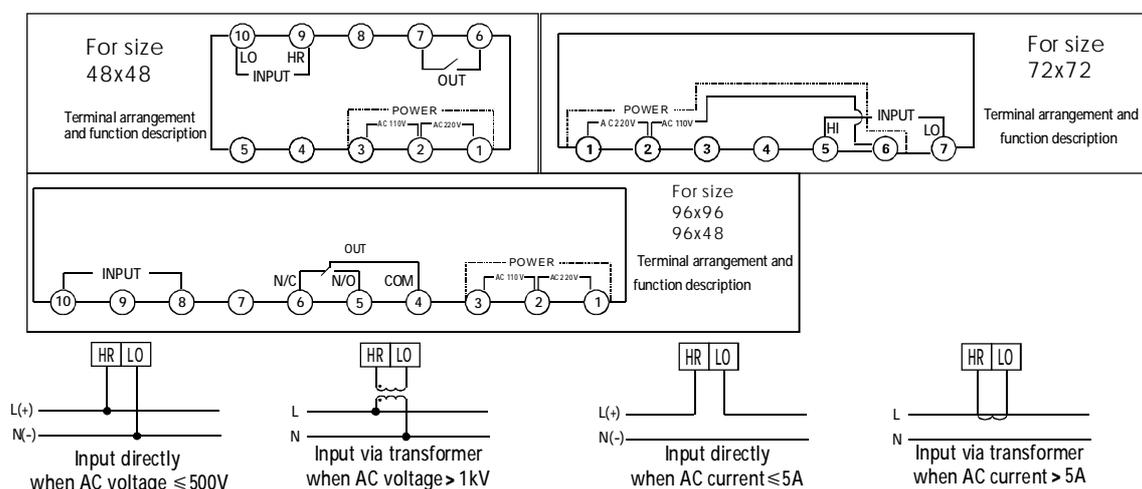
Instrument shape	Panel dimension		Case dimension			Hole cutout dimension	
	W	H	W	H	D	W	H
96x48	96	48	90	44	100	92	45
72 x 72	72	72	67	67	80	68	68
48 x 48	48	48	44	44	100	45	45
96 x 96	96	96	91	91	80	92	92

4.2 Method of installation

Choose the corresponding hole cutout dimension according to the instrument dimension from the table above, make a hole in the installation screen, insert the instruments into the hole, place the two clamping pieces into the clamping holder and push and tighten them by hand.

4.3 Description of Wiring and terminal

(Attention: If it is not the same with the wiring schema of the instrument case, please accord to the one of instrument case.)



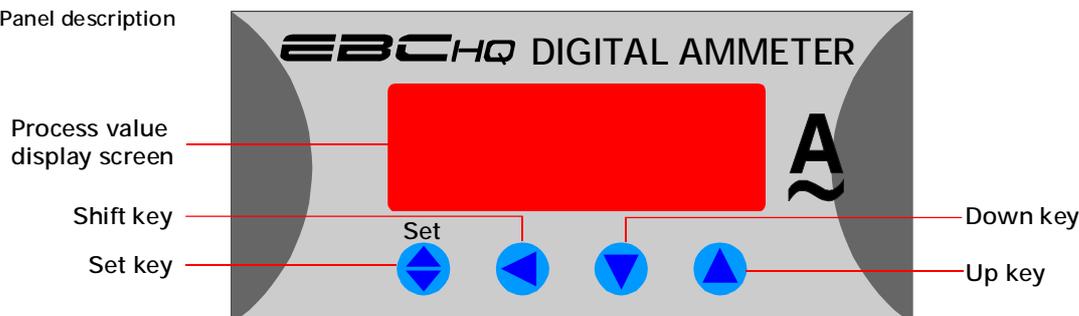
4.3.1 Auxiliary power supply (Power): Instruments need an additional auxiliary power supply to work normally, which is AC 220V.

4.3.2 Signal Input (INPUT): HR represents "+" port of DC input signal, fire wire terminal of AC voltage input signal and inlet wire terminal of AC current input signal. Input voltage should not be higher than the maximum value (AC500V, or you should consider of using PT and installing fuse of 1A on voltage input port. While the current is higher than AC5A, you should consider of using CT.

4.3.3 Output (OUT) : Higher and lower limit alarm contact output port, relay control mode, can control the external alarm executive device through this port(Note: only for the instruments with alarm contact output).

Chapter 5. Program and Usage

5.1 Panel description

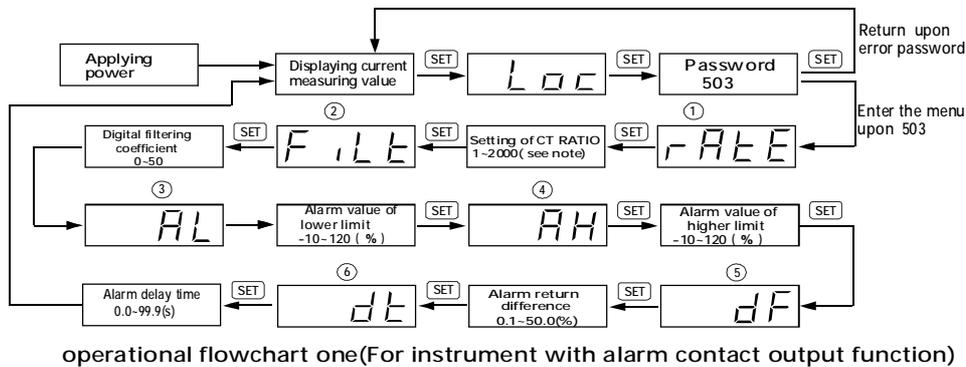


5.2 How to operate

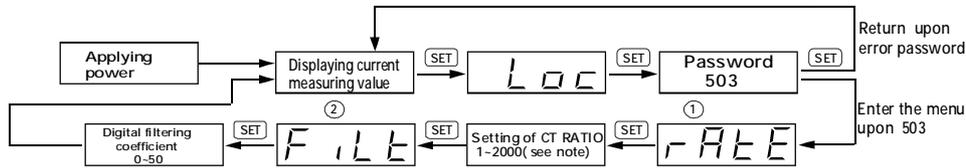
The instrument displays program version code and enters measuring valve display status automatically 2s later when applying power. Enter programming status by pressing down SET key. The operational flowchart is as following:

Note: 1. Password to enter the menu is 503;

2. Press down the SET key for 2s to quit programming status under the parameter display status and it will return to measuring valve display status automatically if there is no key action for 60s under the programming status.



operational flowchart one(For instrument with alarm contact output function)



operational flowchart two(For instrument without alarm contact output function)

Note: Set the CT ratio as 100, that means CT 500/5A;
 set the max CT ratio as 2000, that means CT 10000/5A.
 So if you want to set CT 60/5A, please set CT ratio as 60/5=12...

5.3. Program parameter specification

Serial code	Parameter code	Parameter name	Setting range	Description
1	rAtE	Setting of CT RATIO rAtE	1 ~ 2000	For setting multiply power of the CT or PT transformer in the instrument input circuit, Setting value = (Electrical quantity of primary circuit of transformer)/(Electrical quantity of secondary circuit). For example, if 100/5A, please set CT ratio as 20; if 1500/5A, please set CT ratio as 300. And the CT ratio should be set as 1 when there is no transformer.
2	FILT	Digital filtering coefficient FILT	0 ~ 50	It is used to set the filter coefficient of the meter's measured value to make the display more stable. The setting of filter coefficient can normally affect the response time of the meter. If the filter coefficient is bigger, the measured value will be more stable, but it will response more slowly and have poorer real-time measurement. (Note: For voltmeter, when the hundreds of filter coefficient is 1 and the indicating value is less than 600V, it displays one decimal point; while the hundreds of filter coefficient is not 1, it doesn't display decimal point.
3	AL	Lower limit alarm value AL	-10 ~ 120(%)	Define the range of overrun alarm together with higher limit alarm value setting. Set value=Lower limit value + Measuring range × 100 And it should be lower than that of higher limit alarm
4	AH	Higher limit alarm value AH	-10 ~ 120(%)	Define the range of overrun alarm together with lower limit alarm value setting. Set value=Lower limit value + Measuring range × 100 And it should be higher than that of lower limit alarm
5	dF	Alarm return difference dFAL	0.1 ~ 50.0(%)	Set the alarm return difference to avoid the continuous action of alarm outputs when the meter is at the critical status of alarm. Set value=(Higher limit alarm value - higher limit alarm relieve value) ÷ Measuring range × 100
6	dL	Alarm delay time dLAL	0.0 ~ 99.9(s)	Set the alarm action delay time when the measuring value is higher than the higher limit alarm set value or lower than the lower limit alarm set value.

5.4. Cautions

- 5.4.1 Please confirm if the power supply, input signal and each terminal wiring of the meter are correct and reliable before applying the power.
- 5.4.2 The instrument must be preheated for 15 minutes to guarantee the precision of measurement.
- 5.4.3 The instrument should not be rapped, knocked and vibrate excessively and its using environment should meet the technical requirements.
- 5.4.4 The meter has been calibrated according to the measuring range required by the customer upon order. The user should check once again if the measuring range of the meter is fit with the specifications of the transformer or shunt and set the measuring range again if not.

Chapter 6. Packing and Storage

The instrument and accessories with packing should keep storage conditions cool and dry and free of wet and gas corruption with temperature not more than 70°C and not less than -40°C, and relative humidity ≤ 85%