

## 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 or DC 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			
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			
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 1 ~ 100V、AC 5 ~ 600V

Accessory device: AC \*/100V ( The PT rate can be freely programmed within 1 ~ 9999 )

#### 3.1.2 Programmable DC voltmeter

Direct measurement: DC 0 ~ ± 600V

#### 3.1.3 Programmable AC Ammeter

Direct measurement: AC 0.01 ~ 1A、AC 0.05 ~ 6A

Accessory device: AC \*/1A、AC \*/5A ( \*/5A current transformer is necessary the measuring range can be freely programmed within 1 ~ 9999 )

#### 3.1.4 Programmable DC Ammeter

Direct measurement: DC 0 ~ ± 6A

Accessory device: DC -1999 ~ +9999A ( \*/75mV shunt is necessary)

### 3.2 Accuracy rating: ± 0.5%FS ± 1digit

### 3.3 Sampling rate: about 1.5 times /sec.

### 3.4 Frequency range of input signal ( AC current or voltage): 45-65 Hz

### 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 ± 10% 50/60Hz

### 3.8 Auxiliary supply consumption: < 3VA

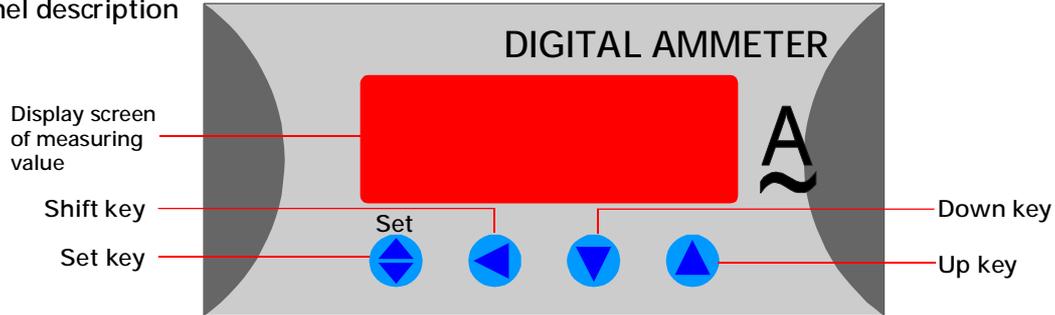
### 3.9 Overflow indication: Displaying character "HHHH" or "LLLL"

### 3.10 Alarm Output: Higher and lower limit alarm output via the same relay contact, contact rating AC250V/1A、DC30V/1A 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 ≤ 85%RH.

## Chapter 4. Program and Usage

### 4.1 Panel description



### 4.2 How to operate

When measuring through CT( specification is \*/1A or \*/5A), you can set the CT rate(menu "rAtE") by pressing the "UP" key for 2s; when it is with other specification( not \*/1A or \*/5A), you can set the display measuring range(menus "dP" and "inPH") by pressing the "UP" key for 2s;

If it is with alarm function more, you can set the menus "AH", "AL" and "dt" by pressing the "DOWN" key. If it is without alarm function, this operation is invalid; the lamps AH or AL flicker to indicate the alarm object.

### 4.3 Program parameter specification

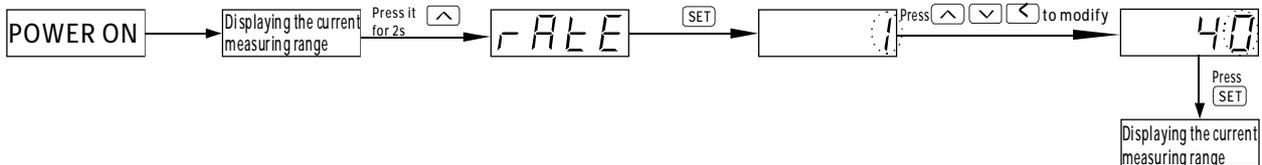
Serial code	Parameter code	Parameter name	Setting range	Description
1	dP	Position of decimal point dP	0 ~ 3	Displaying the position of decimal point (it is fixed when measuring and displaying; It changes the measuring range together with menu inPH; DP=0, displayed in format xxxx, no decimal point DP=1, displayed in format xxx.x, decimal at tens place DP=2, displayed in format xx.xx, decimal at hundreds place DP=3, displayed in x.xxx, decimal at thousands place
2	inPH	Measuring range inPH	1 ~ 9999	It is used to define the full scale indicating value corresponding to the linear electrical quantity rated input signals; that is to say it can set the full scale indicating value freely on the condition of rated input signal: i.e 1: Rated input DC10V, display 50Hz, just set dP as 2 and inPH as 50.00; i.e 2: Rated input DC4~20mA, display 0~100A, just set dP as 1 and inPH as 100.0;
3	rAtE	Setting of display multiplying factor rAtE	1 ~ 9999	For setting the multiplying factor of current transformer in input circuit( that is Line CT Ratio / Meter CT Ratio), for example, CT 200/5A, please set it as 40, CT 100/1A, please set it as 100; please set it as 1 when no CT input
4	AH	Higher limit alarm point AH	0 ~ 120.1(%)	The setting value of higher limit alarm. It will alarm when the measuring value is higher than this value. Setting value= the alarm value ÷ Measuring range × 100, and it must be higher than the setting value of lower limit; if you want to close the higher limit alarm, just set it as 120.1. I.e. The measuring range is 500/5A, the lower limit alarm value is 400A, please set it as 400 ÷ 500 × 100 = 80.0
5	AL	Lower limit alarm point AL	-0.1 ~ 120.0(%)	The setting value of lower limit alarm. It will alarm when the measuring value is lower than this value. Setting value= the alarm value ÷ Measuring range × 100, and it must be lower than the setting value of higher limit; if you want to close the lower limit alarm, just set it as -0.1. I.e. The measuring range is 500/5A, the lower limit alarm value is 50A, please set it as 50 ÷ 500 × 100 = 10.0
6	dt	Delay time of alarm dt	0 ~ 900(s)	For setting the delay time of alarm action. when the measuring range is higher than AH setting value or lower than the AL setting value. For example, if it is set as 60s, that means the alarm will output if the measuring value is higher than AH setting value or lower than AL setting value for lasting 60 s.

### 4.3 Examples of Programming

i.e.1: If the factory specification of AC ammeter is AC 5A, if the user want to change the specification to 200/5A, please change the CT rate as 40.

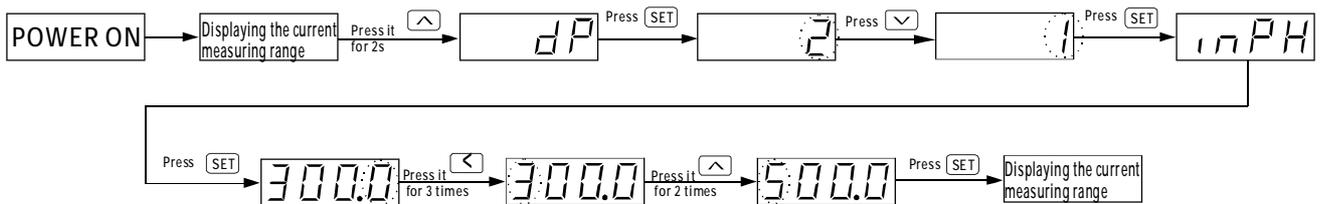
(Rate setting value =  $200 \div 5 = 40$ )

Setting flow chart ( Note: the figure which has broken line circle is flickering, you can modify the flickering figures by pressing  $\wedge$  and  $\vee$ , and shift the position of flickering one by pressing  $\leftarrow$ )



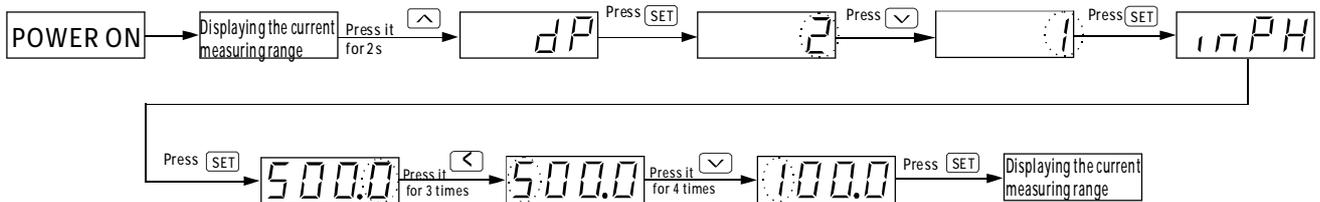
i.e.2: If the factory specification is "input DC10V, display 30Hz", if the user want to change the specification to "input DC10V, display 500Hz", please set the decimal position dP as 1, change the display measuring range inPH is 500.0,

Setting flow chart ( Note: the figure which has broken line circle is flickering, you can modify the flickering figures by pressing  $\wedge$  and  $\vee$ , and shift the position of flickering one by pressing  $\leftarrow$ )



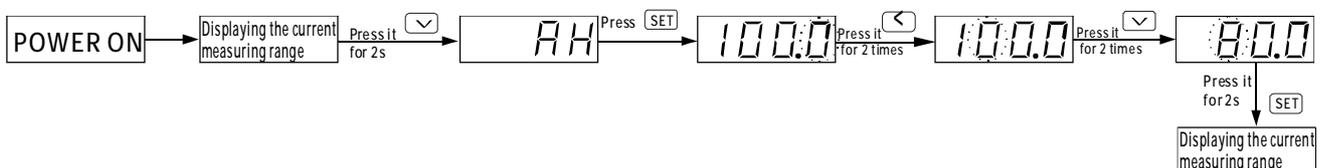
i.e.3: If the factory specification is DC 50A/75mV, if the user want to change the specification to DC 100A/75mV, please set the decimal position dP as 1, change the display measuring range inPH is 100.0,

Setting flow chart ( Note: the figure which has broken line circle is flickering, you can modify the flickering figures by pressing  $\wedge$  and  $\vee$ , and shift the position of flickering one by pressing  $\leftarrow$ )



i.e.4: If the factory specification is AC500/5A, if the user want it to output alarm signal at once when the current is over 400A, please set the higher limit alarm AH as  $400 \div 500 \times 100 = 80$ .

Setting flow chart ( Note: the figure which has broken line circle is flickering, you can modify the flickering figures by pressing  $\wedge$  and  $\vee$ , and shift the position of flickering one by pressing  $\leftarrow$ )



## Chapter 5 Installation and connection

### 5.1 Shape and hole cutout dimension

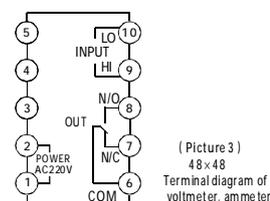
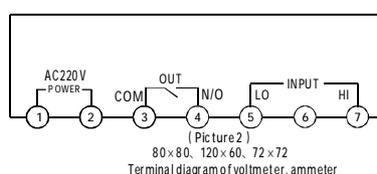
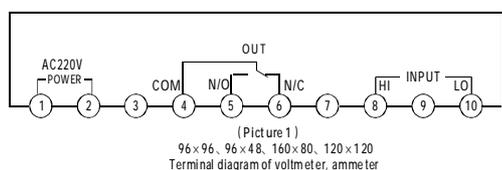
Unit: mm

Size	Panel dimension		Case dimension			Hole cutout dimension	
	W	H	W	H	D	W	H
160 × 80	160	80	150	75	100	152	76
120 × 120	120	120	110	110	80	112	112
80 × 80	80	80	75	75	80	76	76
120 × 60	120	60	115	55	80	116	56
96 × 48	96	48	90	44	100	92	45
72 × 72	72	72	67	67	80	68	68
48 × 48	48	48	44	44	100	45	45
96 × 96	96	96	91	91	80	92	92

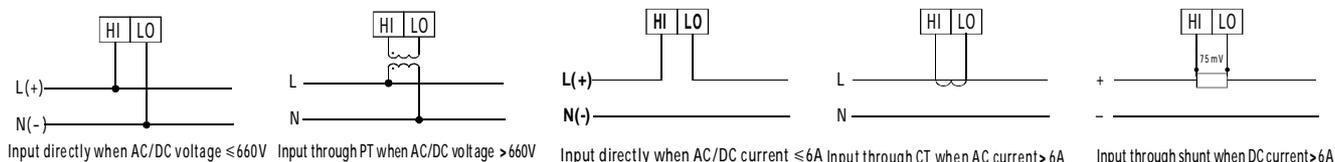
### 5.2 Method of installation

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.

### 5.3 Description of Wiring and terminal



**POWER:** The input port of auxiliary power supply, the auxiliary power supply is AC220V ± 10% (please tell us if you need other value)  
**INPUT:** Signal input port, HI represents “+” port of DC input signal, one wire of AC voltage input signal and inlet port of AC current input signal. LO represents “-” port of DC input signal, the other wire of AC voltage input signal and outlet port of AC current input signal.  
**OUT:** Higher and lower limit alarm contact output port, relay control mode (Note: only for model with alarm function)



## Chapter 6. Cautions

- Please confirm if the power supply, input signal and each terminal wiring of the meter are correct and reliable before applying the power.
- The instrument must be preheated for 15 minutes to guarantee the precision of measurement.
- The instrument should not be rapped, knocked and vibrate excessively and its using environment should meet the technical requirements.
- 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 tranformer or shunt and set the measuring range again if not.

## Chapter 7. 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%