

# MODEL AH-330 Series INSTRUCTION MANUAL



## Caution

- (1) The application of voltage or current exceeding its maximum allowable value to the input terminals may result in instrument damage.
- (2) The supply of power out of its allowable range may cause fire, electric shock or instrument failure.
- (3) The content of this manual may subject to change without prior notice for product improvement.
- (4) This manual is carefully prepared. However, if any question arises, or any mistake, omission or suggestion is found in the content of this manual, contact your nearest our sales agent.
- (5) After read this manual, please keep it as anytime can see.

## 1. INTRODUCTION

This AH-330 Series panel meter is high reliable 3 digit display meter based on a custom made LSI and will be very usefull in development of your new equipment.  
A DC voltage of +5V can be used for meter drive. In addition, it has hold function.

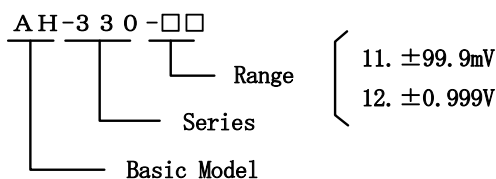
## 2. SPECIFICATIONS

### ●DC Voltage Measurement

Model No. Range Code	Measring Range	Resolution	Input Impedance	Input Protection
AH-330-11	$\pm 99.9\text{mV}$	$100\mu\text{V}$	$100\text{M}\Omega$	$\pm 100\text{V}$
AH-330-12	$\pm 0.999\text{V}$	$1\text{mV}$	$100\text{M}\Omega$	$\pm 100\text{V}$

Accuracy:  $\pm(0.1\% \text{ of rdg} + 1\text{digit})$  (at  $23^\circ\text{C} \pm 5^\circ\text{C}$ , 35 to 85% RH)

### ●Model Configuration

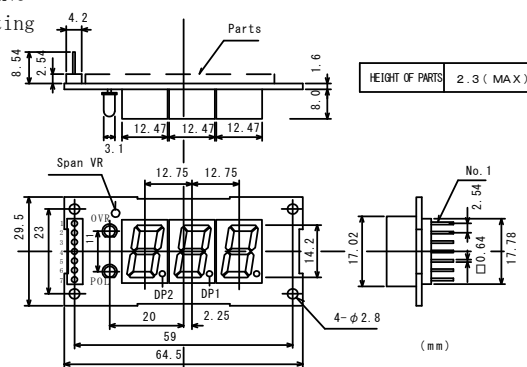


## 3. COMMON SPECIFICATIONS

Measurement	: DC voltage Measurement
Operating Method	: Dual Slope A/D Conversion
Input Circuit	: Single Ended
Input Bias Current	: $50\text{pA}$ (Typ.)
Conversion Rate	: Approx. 2.5/sec
Noise Elimination	: NMR 40dB (Typ.)
Display	: LED, 14.2mm (RED)
Maximum Reading	: 999
Overrange Indication	: Input signals exceeding maximum indication range will indicated OVER LED
Polarity Indication	: Automatically indicated POL LED when input signals negative
External Control	: Hold; Short circuit between HOLD (terminal 3) and OV (terminal 6) Decimal point; Can be set at a desired position
Operating Temperature	: 0 to $50^\circ\text{C}$ , 35 to 85% RH
Power Supply	: $5\text{V} \pm 5\%$
Power Consumption	: $75\text{mA}$ (Typ.)
Dimensions	: $65\text{mm (W)} \times 29.5\text{mm (H)} \times 18.14\text{mm (D)}$
Weight	: Approx. 20g
Accessory	: Instruction Manual

## 4. HANDLING

### 4.1 Mounting






### 4.2 Connector Connection

#### 1) Input Connection

Connect an Input Signal (DC Voltage) to HI (terminal 1) and LO (terminal 2)

#### 2) Decimal point setting

The decimal point can be set any position when the following connector terminals are shorted.

1	HI	] Input	Decimal Point Lit	Connector Terminal Nos. Connected
2	LO		$10^1$	4-6
3	HOLD		$10^2$	5-6
4	$10^1$	] D. P		
5	$10^2$			
6	OV	] Power	OVR	  
7	+5V		POL	$10^2$

#### 3) Power Connection

Connect the DC5V power supply to +5V (terminal 7), OV (terminal 6). Power consumption is Typ. 75mA.

#### 4) Hold

The displayed value can be held by shorting the HOLD (terminal 3) with OV (terminal 6), or by setting the HOLD (terminal 3) to level "0". Measurement also starts by opening these terminals or by setting the HOLD (terminal 3) to level "1" at the necessary timing.  
(Level "0" 0 to 1.5V, Level "1" 3.5 to 5V)

#### 5) Precaution for wiring

In this product, LO (terminal 2) and OV (terminal 6) are internally connected.

### 4.3 Caution

For fixing the board, please use 2.6mm screw. When you use studs or spacers, please note no touching these parts with pattern.

## 5. MAINTENANCE AND INSPECTION

### 5.1 Caution for Maintenance

The storage temperature of this instrument should be within the range  $-10^\circ\text{C}$  to  $+60^\circ\text{C}$  with relative humidity not higher than 60%.

### 5.2 Calibration

● To maintain the initial accuracy of this instrument over an extended period, it is recommended that it be calibrated periodically by a standard reference device with an accuracy of 0.01%.

● Calibrate the meter by taking the following steps.

- 1) Connect the power supply and after running for at least 20 minutes, start adjusting the instrument as instructed below.
- 2) Zero adjustment  
Short input terminals HI (terminal 1) and LO (terminal 2) and check the display shows 000.
- 3) Span adjustment  
Apply voltage with "+" polarity corresponding to the fullscale (900) to the input terminals and turn the span adjustment VR to display 900. Next apply Voltage with "-" polarity to check that the display shows  $-900 \pm (0.1\% \text{ of rdg} + 1\text{digit})$

## 6. WARRANTY

This meter is warranted for a period of one year from date of delivery. Any defect which occurs in this period and is undoubtedly caused by Watanabe Electric Industry faults will be remedied free of charge.

This warranty does not apply to the meter showing abuse or damage which has been altered or repaired by others except as authorized by Watanabe Electric Industry.

## 7. AFTER-SALE SERVICE

This meter is delivered after being manufactured, tested inspected under strict quality control.  
However, if any problem does occur, contact your nearest Watanabe Electric Industry sales agent or Watanabe Electric Industry directly giving as much information on problem as possible.

**watanabe**

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