

# HB 404 AC Power/Wattage Meter

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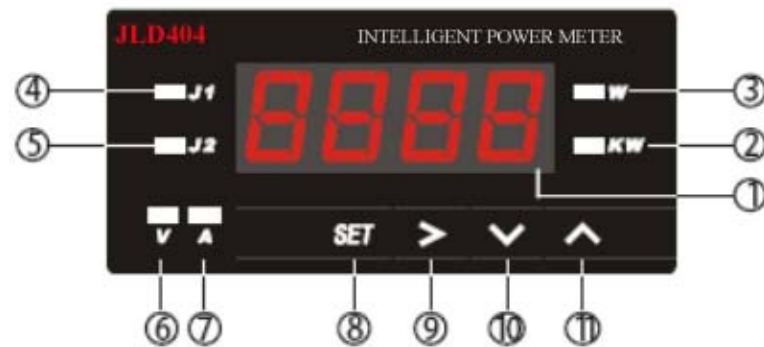
## Features

- AC Voltage input: 0~400V
- AC current input: 0.1A, 1A, 2.5A, 5A
- Auto range switching: -1999W ~ 9999KW
- Digital noise filtration
- Two alarm output; Alarm or Control can be accomplished
- 0-20mA analogy data output (optional)

## 1) Specification

- Operating voltage: AC/DC 85V ~ 360V (<<3Watt)
- Accuracy: 0.5
- Frequency response: 30~400Hz
- Overload: "EEEE"
- Expandable(AC transformer C.T., programmable)
- Power display: -1999 ~ 9999KW
- DC Accuracy: +/- 1%
- LED Display: Power (Blue/0.56")
- Temperature: 0~ +50°C
- Humidity: <<85% RH
- Relay: AC220V/3A
- Relay Life Span: 10^5
- Dimension: 96\*48\*82(mm), Mounting hole: 92\*44(mm)

## 2) Panel



- (1) Display
- (2) KiloWatt indicator
- (3) Watt indicator
- (4) J1 alarm indicator
- (5) J2 alarm indicator
- (6) Voltage indicator
- (7) Current indicator
- (8) Set/Confirm
- (9) Selection key
- (10) decrement/parameter up
- (11) Increment/parameter down

Note: 6 and 7 may not be available for some model

## 3) Key setting

### Setting

- Press **SET** to enter programming mode
- Input Password using **>**, **<**, **↵**
- Press **<**, **↵** to set parameters
- Press **SET** to save change



Symbol	Parameter	Description	Range	Default	Remark
I-Sn	I-Sn	Current range	5A, 2.5A 1A, 0.1A	5A	
PtCP	PtCP	V multiplier	0-9999	0001	Product of PtCP and CtCP can not over 1,000,000
CtCP	CtCP	A multiplier	0-9999	0001	
Pty	Pty	Unit	W, KW	W	
End	End	Exit			

- \*1. Current Input (I-Sn): 4 Input range Default: 5A
- \*2. Voltage multiplier (PtCP). Ratio of Primary and Secondary CT. Example: 6000V/500V, the setting is 12
- \*3. Current multiplier (CtCP). Ratio of CT (current transformer) Example: 100A:5A, the setting is 20
- \*4. Power unit (Pty): W or KW. Default is W, will auto switch to KW if over the limit. But it will not switch to W if pre-set to KW manually

(B) Power Alarm Parameters( Press **SET**, enter password "0001")

Symbol	Parameter	Description	Range	Default
AH1	AH1	Relay J1 latched	19999 ~ 9999	10
AL1	AL1	Relay J1 unlatched		20
AH2	AH2	Relay J2 latched		30
AL2	AL2	Relay J2 unlatched		40
End	End	Exit		

Note: The position of the decimal point change automatically when displaying the power.

To setup the alarm value or the decimal position:

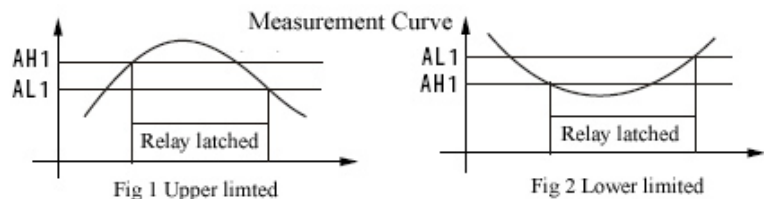
Press **>**, decimal point blink, press **<** or **↵** to set the value

### \*7 Alarm/relay(J1,J2) operation

AH1 & AH2 are the latched value, where AL1 & AL2 unlatched value

1. Set AH1=AL1(AH2=AL2), relay disable
2. Set AH1>AL1(AH2>AL2), when measured value  $\geq$  AH1, the relay will latch; when AL1  $\geq$  measured value, relay unlatched. This is for 'upper limited' configuration. See Fig 1.
3. Set AH1<AL1(AH2<AL2), when AH1  $\geq$  measured value, the relay will latch; when measured value  $\geq$  AH1, the relay unlatched. This is for the "lower limited" configuration. See Fig 2





4.



### (III) Analog output (Press , enter code: 0042)

(note: this function does not apply to all model. It's optional)

#### 1) Table of transmission parameters

Symbol	Parameter	Description	Range	Default	Note
	Obty	Output mode	0-20/ 0-10/ 4-20	4-20	*1
	obH	Upper limit	00.00 ~ 99.99	99.99	*2
	obL	Lower limit	00.00 ~ 99.99	20.00	*3
	End	Exit			

2) Procedures of setting up Transmission is similar to the measurement setup

#### 3) Parameters definition:








\*1 Transmission mode(obty): Output selection either in 0-20mA, 4-20mA, or 4-20mA

\*2 Transmission lower limit(obL): output is either in 0mA or 4mA

\*3 Transmission upper limit(obH): output is 20mA(or10mA).

Resolution varies depends on the obH setting.

#### Setup Procedures:

- 1) Press  to enter the programming stage
- 2) Use    to enter password
- 3) Use   to set value
- 4) Press  to confirm and save

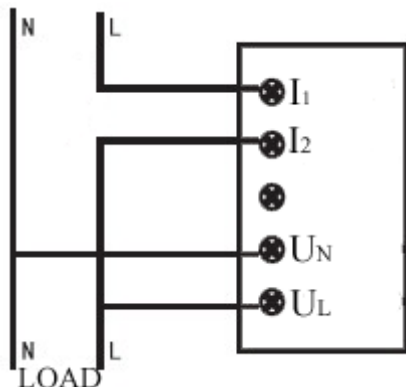


Fig 4 Basic connection without a C.T. (5A max)

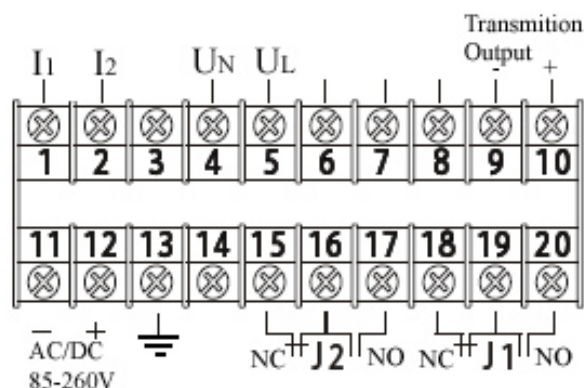


Fig 5. Back plate

I1, I2 is load current (series input). Without an external CT, it supports 5A max (see Fig 4). To measure over 5A, a CT is required. I1 & I2 also serves as input for the CT. See Fig6.

UN,UL is load voltage input. If "-" sign happen, either reverse the I1 and I2 or Un, UL will take care the issue.

Example: A customer want to measure AC 6KV, 100A load. Condition: 6KV/100V voltage CT and 100A/5A current CT provided. If power output go over 500KW (upper limit), or go below 100W (lower limit), alarm set off. Then output 0-600KW as analog signal through the 4-20mA data output. Default operating voltage is AC 220V

- 1) When power go over 110W, relay J1 latched to set off alarm
- 2) Convert 0-100W to 4~20mA for transmission output
- 3) Power is DC24V

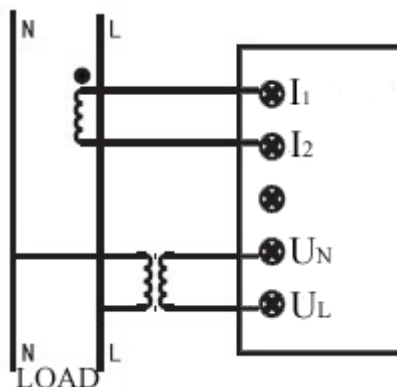


Fig 6

#### Setup:

1)Enter password: 0089

Current mode: I-Sn = 5A

Unit: Pty= KW

V. Multiplier: PtCP= 0060

I. Multiplier: CtCP = 0020

2) Enter password: 0001, alarm setting

Set power upper limit latched value(AH1)= 500.0;

Set power upper limit unlatched value(AL1) = 490.0;

Set power lower limit latched (AH2) = 0.100;

Set power lower limit unlatched value (AL2) = 0.090;

(AH2=AL2, disable J2)

3) Enter password: 0042 (Analog output setup)

Set obty = 4~20mA, set obL = 0000, set obH= 600.0;

End

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