

## AE500



## General Description

The AE500 is a powerful digital indicator with up to four (4) alarms. The AE500 has various options such as digital communications, analog retransmission output, waterproof, and power supply for LED drive of SP400/SP500. In combination with the input selector SP400/500, a maximum 16 points of input can be connected to one AE500. The AE500 matches the physical appearance of the CB series (CB100/400/500/700/900, CB103/403/903).

## Features

- ☆ Bright, easy-to-read LED displays (20mm high)
- ☆ Digital communications
- ☆ Up to 4 alarms
- ☆ Analog retransmission output
- ☆ SP500 input selector

### Bright, Easy-To-Read LED Displays

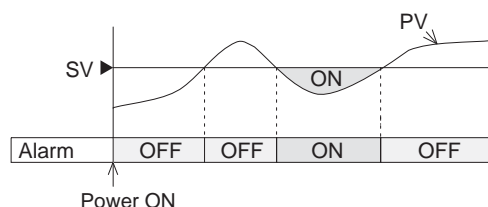
Very clear and easy-to-read large LED display (20mm high).



### Up to 4 Alarms (Optional)

The AE500 is available with up to 4 alarms. Each alarm is available with hold-function which suppresses alarm activation upon start-up until the measured value has entered the non-alarm range.

Example : Low alarm with hold

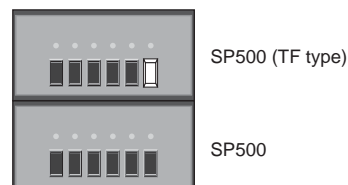


### Analog Retransmission Output (Optional)

The measured value can be transmitted by 0-20mA or 4-20mA.

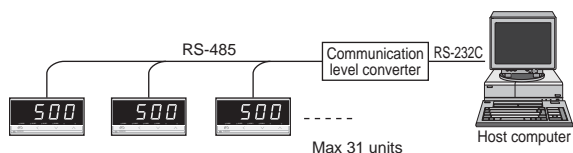
### SP500 Input Selector Unit

The SP500 is an input selector unit with 6 inputs (standard) or 5 inputs (transfer type). SP400 is a vertical 1/8 DIN, and SP500 is a horizontal 1/8 DIN type. Maximum 3 units can be connected by using transfer type SP500 with 5 inputs.



### Digital Communications (Optional)

The AE500 offers an optional RS-485 communications interface for networking to computers, PLCs and SCADA software in your plant. Up to 31 units can be interfaced on one RS-485 communication line.





## Specifications

### Input

#### Input

- a) Thermocouple : K, J, R, S, B, E, T, N (JIS/IEC), PLII (NBS)  
W5Re/W26Re (ASTM), U, L (DIN)
- Influence of external resistance : Approx.  $0.2\mu\text{V}/\Omega$
  - Input break action : Up-scale (Alarm output is ON.)
- b) RTD : Pt100 (JIS/IEC), JPt100 (JIS)
- Influence of input lead resistance : Approx.  $0.01[\%/\Omega]$  of reading
  - Maximum  $10\Omega$  per wire
  - Input break action : Up-scale (Alarm output is ON.)
  - Input short circuit action : Down scale (Alarm output is ON.)
- c) DC voltage : 0 to 5V, 1 to 5V
- Input break action : Down-scale (Alarm output is ON.)  
When "0 to 5V" input, value around zero.
- d) DC current : 0 to 20mA, 4 to 20mA
- For DC current input, connect a  $250\Omega$  resistor to the input terminals.
  - Input break action : Down-scale (Alarm output is ON.)  
When "0 to 20mA" input, value displayed will be around zero.

#### Sampling time

0.5 sec

#### PV bias

Temperature input : -1999 (-199.9) to 9999 (999.9)°C[°F]  
DC voltage, DC current : - span to +span

### Performance

#### Measuring accuracy

- a) Thermocouple
- ±(0.3% of reading + 1 digit) or ±2°C (4°F) whichever is larger
  - Accuracy is not guaranteed between 0 and 399°C (0 and 749°F) for type R, S and B.
  - Accuracy is not guaranteed between -199.9 and -100.0°C (-199.9 and -158.0°F) for type T and U.
- b) RTD
- ±(0.3% of reading + 1 digit) or ±0.8°C (1.6°F) whichever is larger
- c) DC voltage and DC current
- ±(0.3% of span + 1 digit)

#### Insulation resistance

More than  $20\text{M}\Omega$  (500V DC) between measured terminals and ground  
More than  $20\text{M}\Omega$  (500V DC) between power terminals and ground

#### Dielectric strength

1000V AC for one minute between measured terminals and ground  
1500V AC for one minute between power terminals and ground

### Alarms

(Optional)

#### Alarms

- Number of outputs : 4 points  
Alarm type : Process High, Low
- Hold action can be programmed.
- Differential gap : 0 to 100°C or 0.0 to 100.0°C (Temperature input)
- 0.0 to 10.0% (Voltage, current input)

#### Alarm Output

Alarm 1, 2 : Relay output, Form A contact 250V AC 1A (resistive load)  
Alarm 3, 4 : Relay output, Form A contact 250V AC 3A (resistive load)

### Power supply for LED of SP500

(Optional)

- Output : 12V DC, +1V, -2V  
Number of link : Up to 2 with TF and 1 without TF.  
(TF : Transfer switch type)

•This option is not available when alarm 4 output is specified.

### Communications

(Optional)

- a) Communication method : RS-485 (2-wire)  
b) Communication speed : 2400, 4800, 9600, 19200 BPS  
c) Bit format
- |              |                             |
|--------------|-----------------------------|
| Start bit :  | 1                           |
| Data bit :   | 7 or 8                      |
| Parity bit : | Even, odd or without parity |
| Stop bit :   | 1 or 2                      |
- d) Communication code : ASCII(JIS) 7-bit code  
e) Maximum connection : 31 ( Address can be set from 0 to 99.)

### Analog outputs

(Optional)

- a) Number of outputs : 1 point  
b) Output signal : 0 to 20 mA DC, 4 to 20 mA DC  
(Load resistance : Less than  $600\Omega$ )
- c) Output scaling : Available for High and Low limit.  
d) Output resolution : More than 10 bits
- This option is not available when alarm 3 is specified.

### Waterproof/Dustproof

(Optional)

- Waterproof/dustproof protection : IP65
- Waterproof/dustproof protection only effective from the front in panel mounted installations.
  - Waterproof/dustproof protection is not available for close vertical mounting installations.

### General specifications

#### Supply voltage

- a) 85 to 264V AC (Including supply voltage variation)  
[Rating : 100 to 240V AC] (50/60Hz common)  
b) 21.6 to 26.4V AC (Including supply voltage variation)  
[Rating : 24V AC] (50/60Hz common)  
c) 21.6 to 26.4V DC (Ripple rate 10% p-p or less) [Rating : 24V DC]

#### Power consumption

- Less than 10VA for standard AC type  
Less than 5VA for 24V AC type  
Less than 160mA for 24V DC type

#### Power Failure Effect

Not affected by power failure shorter than 20msec, otherwise reset to the initial state.

**Operating environments** : 0 to 50°C [32 to 122°F] , 45 to 85% RH

**Memory backup** : Backed up by non-volatile memory.  
Data retaining period : Approx. 10 years  
Number of writing : Approx. 1,000,000 times

#### Net weight

Approx. 250g

#### External dimensions (W x H x D)

96 x 48 x 100mm

### Compliance with standards

- CE Mark
- UL/cUL Recognized

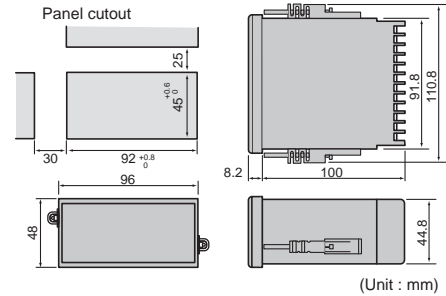
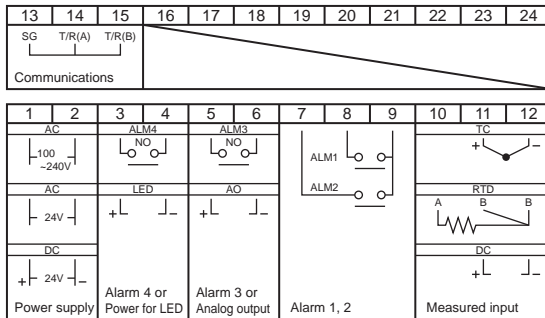
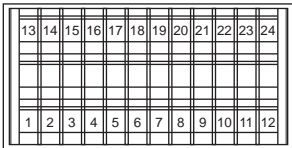




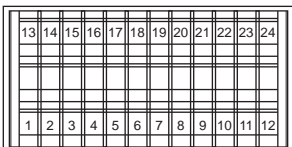
# Panel Mounting Type Indicator AE500

## External Dimensions and Rear Terminals

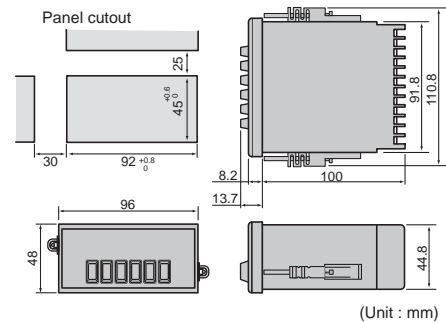
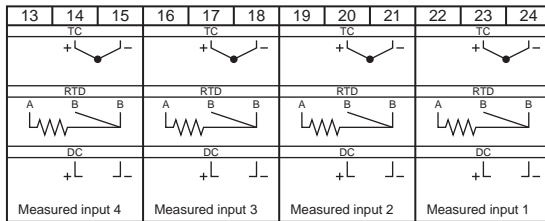
### AE500



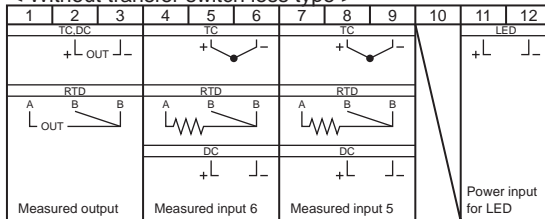
### SP500



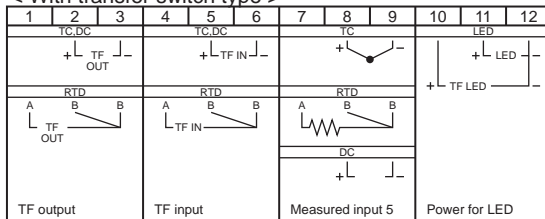
SP500



#### < Without transfer switch less type >

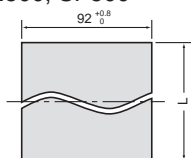


#### < With transfer switch type >



### Panel cutout for closely contacted mounting

AE500, SP500



$$L = (48 \times n - 3) \pm 0.6$$

n : Number of units (2 ≤ n ≤ 6)