

8.1.15 Frequency Measuring Unit (open collector, logic, and magnet)

Range	Measurement range	Indication	Highest resolution	Input impedance	Accuracy
11	0.1 to 200Hz	Prescale: 0.001 to 5 Frequency division: 1 to 100	0.1Hz	1~10s	±(0.2% of FS)
12	1 to 2000Hz		1Hz	1s	
13	0.01 to 20kHz		10Hz	100ms	
14	0.1 to 200kHz		100Hz	100ms	

Input type	Input voltage level	Maximum permissible input
Open collector	LO: 1 V or less (5 V: 2.2 k Ω pull up)	30V
Logic	LO: 1 V or less, HI: 2.5 to 15 V	15V
Magnet	0.3 to 30Vp-p	15V

Duty ratio: 50%

8.1.16 Frequency Measuring Unit (500 Vrms)

Range	Measurement range	Indication	Highest resolution	Indication updating-time interval	Accuracy
11	0.1 to 200Hz	Prescale: 0.001 to 5 Frequency division: 1 to 100	0.1Hz	1 to 10s	±(0.2% of FS)
12	1 to 2000Hz		1Hz	1s	
13	0.01 to 20kHz		10Hz	100ms	
14	0.1 to 200kHz		100Hz	100ms	

Input type	Input voltage level	Maximum permissible input
Voltage	50 to 500Vrms	500V

Duty ratio: 50%

8.1.17 Strain Gage Unit

Sensor power	Zero adjusting range	Span adjusting range	Highest resolution	Accuracy
5V	-0.3 to +2mV/V	1 to 3mV/V	0.5 μ V/digit	±(0.1% of FS + 2digit)
10V			1 μ V/digit	

Input circuit: Single ended type
Operating system: $\Delta\Sigma$ conversion
Maximum sampling rate: 12.5 times per second

Applicable sensor: 350 Ω
Sensor power: 5 V \pm 5% (within 15 mA) or 10 V \pm 5% (within 30 mA)

8.1.18 Process Signal Measuring Unit

Range	Measurement range	Indication	Input impedance	Maximum permissible input	Accuracy
1V	1 to 5V	Offset: \pm 9999	About 1 M Ω	\pm 100V	±(0.2% of FS)
2A	4 to 20mA	Full scale: 0 to \pm 9999	About 10 Ω	\pm 100mA	

Input circuit: Single ended type
Operating system: $\Delta\Sigma$ conversion
Maximum sampling rate: 12.5 times per second
Noise rejection ratio: NMR 50 dB or more (50 Hz or 60 Hz)

8.2 Common Specifications

Display: 7-segment LED display (character height: 14.2 mm on main display and 8 mm on sub-display)
Polarity indication: Automatically indicated when the calculated result is negative.
Indication range: -9999 to 9999
Over-range alarm: OL or -OL for input signals outside the indication range
Decimal point: Can be set at an arbitrary digit.
Zero indication: Leading zero suppression
External control: HOLD, PH, DZ (reset for frequency measuring unit)
Operating temperature and humidity range: 0 to 50°C, 35 to 83% RH (non-condensing)
Storage temperature and humidity range: -10 to 70°C, 60% RH or less
Power supply: 100 to 240 V AC \pm 10% for AC power supply unit
9 to 50 V DC for DC power supply unit
Power consumption: Approx. 5 W
External dimensions: 96 mm (W) x 48 mm (H) x 146.5 mm (D)
Weight: Approx. 450 g
Note: Depth (D) denotes the maximum value.
Withstand voltage: 2000 V AC for 1 min. between power terminals and input terminal, and between power terminals and each output terminal (AC power supply)
Withstand voltage: 500 V DC for 1 min. between power terminals and input terminal, and between power terminals and each output terminal (DC power supply)
Withstand voltage: 500 V DC for 1 min. between input terminal and each output terminal, and between analog output terminal and communication terminals
2000 V AC for 1 min. between case and each terminal (common to both AC and DC supply)
Insulation resistance: 100 M Ω between the above terminals when 500 V DC is applied

8.3 Output Specifications

8.3.1 Output for Comparison

Conditions for comparison	Judgment result
Indicated value > Upper limit judgment value	H
Low or limit judgment value \leq indicated value \leq Upper limit judgment	GO
Low or limit judgment value > indicated value	LO

Control system: Micro computer operating system
Judgment value setup range: -9999 to 9999
Hysteresis: Can be set in the range of 1 to 999 digits for each judgment value
Operating speed: Depends on the sampling rate.
Output method: Relay contact output (Make and break contacts for HI and LO and make contacts for GO)
Output rating: 240 V AC, 8 A (resistive load) and 30 V DC, 8 A (resistive load)

8.3.2 Analog Output

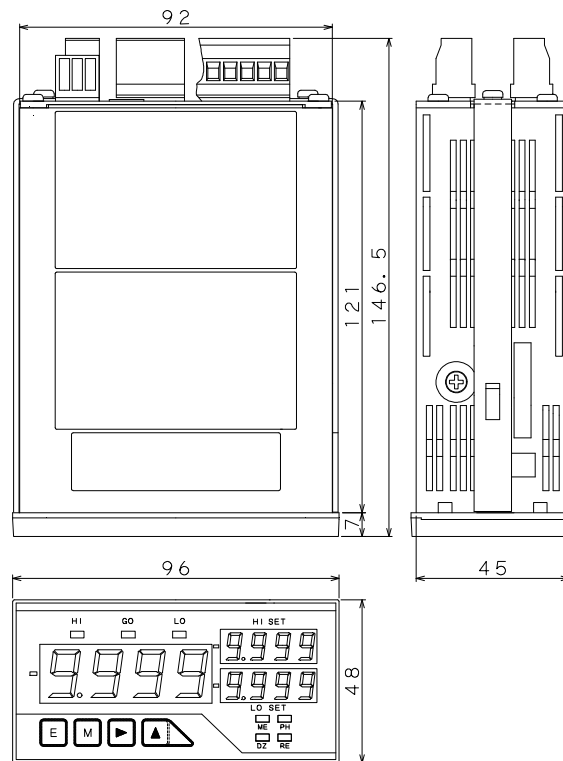
Output type	Load resistance	Accuracy	Ripple
0 to 1V	10 k Ω or more	±(0.5% of FS)	±50mVpp
0 to 10V	10 k Ω or more		
1 to 5V	10 k Ω or more		
4 to 20mA	550 Ω or less		±25mVpp

Note: The ripple ratings for the 4-20 mA output are when the load resistance of 250 Ω and the output current of 20 mA are applied.
Conversion system: PWM conversion
Resolution: Equivalent to 13 bits
Scaling: Digital scaling
Response speed: About 0.5 second

8.3.3 Communicating Function

	RS-232C	RS-485
Synchronization system		Start and stop synchronization
Communication system	Full duplex	Two-wire half duplex (polling selecting system)
Communication rate	36400bps/19200bps/9600bps/4800bps/2400bps	
Start bit	1bit	
Data length	7 bits/8 bits	
Error detection		Even parity/odd parity/non-parity
Stop bit		BCC (block check character) check sum
Character code		1 bit/2 bits
Communication control procedure		ASCII code
Signal name used	TXD, RXD, SG	No procedure
Number of connectable units	1	1 Up to 31 meters
Line length	15m	Up to 500 m (total)
Delimiter		CR+LF/CR

8.4 External Dimensions



9. Warranty and After-service

9.1 Warranty

The warranty period shall be one year from the date of delivery. Any failure that arises during this period and the cause thereof is judged to be obviously attributable to Asahi Keiki Co., Ltd. shall be remedied at no cost.

9.2 After-service

This product is manufactured, tested, inspected, and then shipped under stringent quality control. Should the product fail, however, contact (or send the product to) your vendor or Asahi Keiki directly. (It is advisable that you send a memo describing the failure in as much detail as possible along with the product returned.)

For details on the handling of A5000 meters, either purchase the optional "A5000 User's Manual" or download it from Asahi Keiki's Web site.

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Homepage <http://www.asahiikeiki.co.jp>

A5000 Series of Unit Meters (UU-33330)



Caution

- Do not apply a voltage or current exceeding the maximum allowable value; otherwise, it may damage the equipment.
- Use a power voltage within the operation range; otherwise, it may result in a fire, electrical shock, or malfunction.
- The contents of this manual are subject to change without notice.
- Although the contents of this manual have been prepared with extra care, if you have any questions, or find errors or missing information, contact the sales agent from which you purchased the product or Asahi Keiki Co., Ltd.
- After reading this manual thoroughly, keep it in a convenient place for future reference.

1. Before Using the Product

Thank you for purchasing the A5000 series. This manual should be passed on to the person who operates the product. Examine the product for damage caused by transportation or any other defects. If you find any damage or defects, contact the sales agent from which you purchased the product or Asahi Keiki Co., Ltd.

1.1 Model Codes

The model lineup of the A5000 series is shown below. Check that the model code and specifications of your product match those you specified when ordering.

A 5 X X X - X X

Input unit

- 01: DC voltage measuring unit (range 11: \pm 99.99 mV)
- 02: DC voltage measuring unit (range 12: \pm 999.9 mV; range 13: \pm 9.999 mV; range 14: \pm 99.99 mV; range 15: \pm 9.999 mV)
- 03: DC current measuring unit (range 23: \pm 9.999 mA; range 24: \pm 99.99 mA; range 25: \pm 999.9 mA)
- 04: AC voltage measuring unit (average rms) (range 11: 99.99 mV; range 12: 999.9 mV; range 13: 9.999 V)
- 05: AC voltage measuring unit (average rms) (range 14: 99.99 V; range 15: 600 V)
- 06: AC voltage measuring unit (true rms) (range 11: 99.99 mV; range 12: 999.9 mV; range 13: 9.999 V)
- 07: AC voltage measuring unit (true rms) (range 14: 99.99 V; range 15: 600 V)
- 08: AC current measuring unit (average rms) (range 23: 9.999 mA; range 24: 99.99 mA; range 25: 999.9 mA)
- 09: AC current measuring unit (average rms) (range 26: 5 A)
- 10: AC current measuring unit (true rms) (range 23: 9.999 mA; range 24: 99.99 mA; range 25: 999.9 mA)
- 11: AC current measuring unit (true rms) (range 26: 5 A)
- 12: Resistance measuring unit
- 13: Temperature measuring unit (TC)
- 14: Temperature measuring unit (RTD)
- 15: Frequency measuring unit (inputs: open collector, logic, and magnet)
- 16: Frequency measuring unit (input: 50 to 500 Vrms)
- 17: Strain gauge input unit (load cell)
- 18: Process signal measuring unit (4 to 20 mA or 1 to 5 V)

Output unit

- 0: None
- 1: Comparison
- 2: Analog
- 3: RS-232C
- 4: RS-485
- 5: Comparison and analog
- 6: Comparison, analog, and RS-232C
- 7: Comparison, analog, and RS-485

Display unit

- 1: Single display
- 2: Multi display

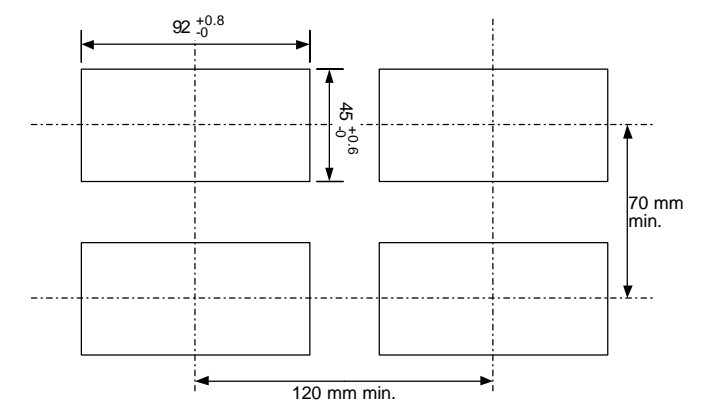
Power unit

- 1: 100 to 240 V AC \pm 10%
- 2: 9 to 60 V DC

2. Mounting the Product

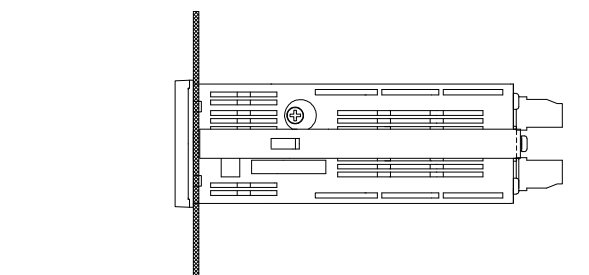
2.1 Dimensions for Cutting Panel

Cut the panel for mounting according to the following dimensions.



2.2 Mounting the Product to the Panel

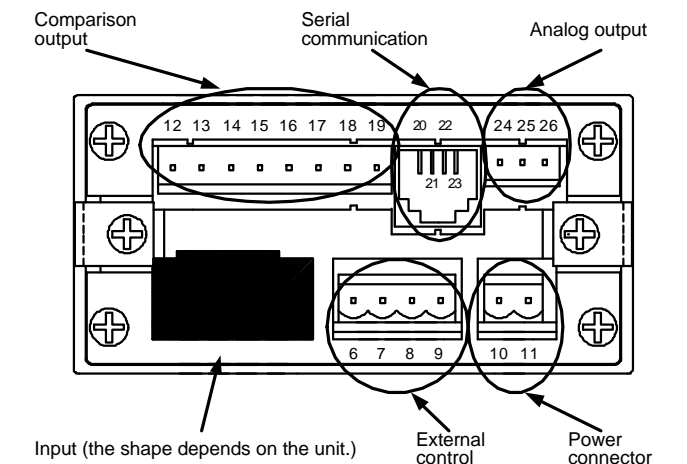
To mount the A5000 to the panel, remove its fittings and insert it through the hole in the front of the panel. From the back of the panel, fix the product to the panel with the fittings.



Caution

- Mount the product to a panel that is strong enough to hold the product. If the panel is not strong enough or the product is not fixed tightly, it may fall down and cause injury.
- The A5000 does not have a power switch, and will thus be immediately ready for operation upon connecting it to a power supply.
- If the product is installed inside other equipment, provide sufficient heat dissipation to ensure that the temperature inside the equipment does not exceed 50°C.

3. Terminal Arrangement



3.1 Power



Table with 3 columns: Terminal No., Name, Description. Rows for terminals 10 and 11, both labeled POWER.

3.2 External Controls

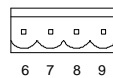


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 6 (HOLD), 7 (DZ), 8 (PH), and 9 (COM).

3.3 Input Signals

3.3.1 DC Voltage Measuring Unit (Range 11)

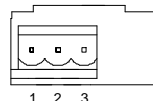


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (HI), 2 (NC), and 3 (LO).

3.3.2 DC Voltage Measuring Unit (Range 12)

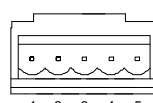


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (12), 2 (13), 3 (14), 4 (15), and 5 (LO).

3.3.3 DC Current Measuring Unit

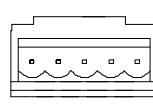


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (23), 2 (24), 3 (25), 4 (LO), and 5 (LO).

3.3.4 AC Voltage Measuring Unit (Ranges 11 to 13)

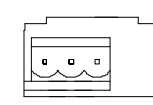


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (11-12), 2 (13), and 3 (LO).

3.3.5 AC Voltage Measuring Unit (Ranges 14 and 15)

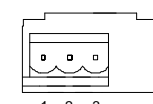


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (14), 2 (15), and 3 (LO).

3.3.6 AC Current Measuring Unit (Ranges 23 to 25)

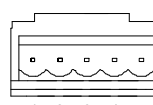


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (23), 2 (24), 3 (25), 4 (LO), and 5 (LO).

3.3.7 AC Current Measuring Unit (Range 26)

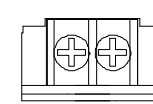
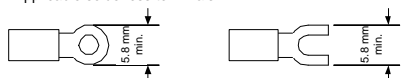


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (HI) and 2 (LO).

Applicable solderless terminals



3.3.8 Resistance Measuring Unit

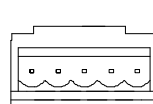


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (HI), 2 (LO), 3 (+S), 4 (-S), and 5 (COM).

3.3.9 Temperature Measuring Unit (TC)

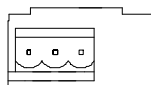


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (+), 2 (NC), and 3 (-).

3.3.10 Temperature Measuring Unit (RTD)

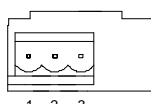
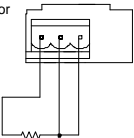


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (A), 2 (B), and 3 (C).

Connection of three-wire sensor



3.3.11 Frequency Measuring Unit (Open collector, logic, and magnet)

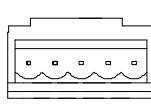


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (HI), 2 (LO), 3 (+15 V), 4 (0 V), and 5 (COM).

3.3.12 Frequency Measuring Unit (500 Vrms)

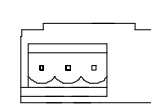


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (HI), 2 (NC), and 3 (LO).

3.3.13 Strain Gauge Input Unit (Load cell)

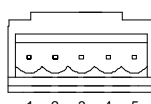


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (+SIG), 2 (-SIG), 3 (+EXC), 4 (-EXC), and 5 (COM).

3.3.14 Process Signal Measuring Unit

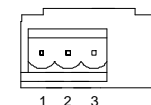


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 1 (V-IN), 2 (A-IN), and 3 (LO).

3.4 Comparison Output

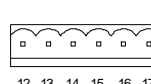


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 12 (LO-b), 13 (LO-c), 14 (LO-a), 15 (GO-c), 16 (GO-a), 17 (HI-b), 18 (HI-c), and 19 (HI-a).

3.5 Analog Output

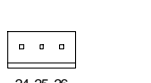


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 24 (COM), 25 (A-OUT), and 26 (V-OUT).

3.6 Serial Communication

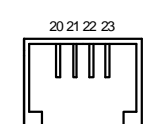
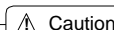


Table with 3 columns: Terminal No., Name, Description. Rows for terminals 20 (RXD+), 21 (TXD-), 22 (NC), and 23 (SG).



- Caution instructions: (1) Use 12 to 28 AWG wire for power, input... (2) Tighten the screws for the power, input... (3) Use 16 to 28 AWG wire for the analog output connector. (4) Tighten the screws of analog output connector to a torque of 0.22 to 0.25 Nm.

7. Output Function

7.1 Comparison Output Function

The A5000 series of unit meters is designed so that the two judgment values HI and LO can be set for the measured (indicated) value to provide the results of judgment as relay contact output.

7.2 Analog Output Function

The A5000 series of unit meters can output an analog signal for an indicated value (when the meter is equipped with an analog output unit). There are four output ranges, 0 to 1 V/0 to 10 V/1 to 5 V/4 to 20 mA, from which a selection can be made using the condition data.

7.3 RS-485 Interface Function

The A5000 series can be equipped with an RS-485 interface (when the meter is provided with an RS-485 unit). For details on the RS-485 function, see the separate manual on communication functions.

7.4 RS-232C Interface Function

The A5000 series can be equipped with an RS-232C interface (when the meter is provided with an RS-232C unit). For details on the RS-232C function, see the separate manual on communication functions.

8. Specifications and External Dimensions

8.1 Input Specifications

8.1.1 DC Voltage Measuring Unit (range 11)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for range 11.

8.1.2 DC Voltage Measuring Unit (ranges 12 to 15)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 12, 13, 14, and 15.

8.1.3 DC Current Measuring Unit

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 23, 24, and 25.

8.1.4 AC Voltage Measuring Unit (average value detection: ranges 11 to 13)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 11, 12, and 13.

8.1.5 AC Voltage Measuring Unit (average value detection: ranges 14 and 15)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 14 and 15.

8.1.6 AC Voltage Measuring Unit (true rms value: ranges 11 to 13)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 11, 12, and 13.

8.1.7 AC Voltage Measuring Unit (true rms value: ranges 14 and 15)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 14 and 15.

Input circuit: Single ended type. Response speed: About 1 second. Operating system ΔΣ conversion. Crest factor: 4:1 at full scale. Maximum sampling rate: 12.5 times per second. Dead zone: 0 to 99 digits. Frequency range: 40 Hz to 1 kHz.

8.1.8 AC Current Measuring Unit (average value detection: ranges 23 to 25)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 23, 24, and 25.

Input circuit: Single ended type. Response speed: About 1 second. Operating system ΔΣ conversion. Crest factor: 4:1 at full scale. Maximum sampling rate: 12.5 times per second. Dead zone: 0 to 99 digits. Frequency range: 40 Hz to 1 kHz.

8.1.9 AC Current Measuring Unit (average value detection: range 26)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for range 26.

Input circuit: CT isolation type. Response speed: 50 Hz or 60 Hz. Operating system ΔΣ conversion. Crest factor: 4:1 at full scale. Maximum sampling rate: 12.5 times per second. Dead zone: 0 to 99 digits.

8.1.10 AC Current Measuring Unit (true rms value: ranges 23 to 25)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for ranges 23, 24, and 25.

Input circuit: Single ended type. Response speed: About 1 second. Operating system ΔΣ conversion. Crest factor: 4:1 at full scale. Maximum sampling rate: 12.5 times per second. Dead zone: 0 to 99 digits. Frequency range: 40 Hz to 1 kHz.

8.1.11 AC Current Measuring Unit (true rms value: range 26)

Table with 7 columns: Range, Measurement range, Indication, Highest resolution, Input impedance, Maximum permissible input, Accuracy. Rows for range 26.

Input circuit: CT isolation type. Response speed: About 1 second. Operating system ΔΣ conversion. Crest factor: 4:1 at full scale. Maximum sampling rate: 12.5 times per second. Dead zone: 0 to 99 digits. Frequency range: 50 Hz or 60 Hz.

8.1.12 Resistance Measuring Unit

Table with 6 columns: Range, Input sensor, Indication, Highest resolution, Maximum permissible input, Accuracy. Rows for ranges KA, KB, J, T, S, R, and B.

Input circuit: Single ended type. Measuring system: Two-wire system or four-wire system (internal socket change-over). Operating system ΔΣ conversion. Linearity: Digital linearizer. Maximum sampling rate: 12.5 times per second. Open-circuit voltage: About 5 V. Burnout alarm: N/A. Cold junction compensation error: ±1°C (at 10 through 40°C).

8.1.13 Temperature Measuring Unit (TC)

Table with 6 columns: Range, Input sensor, Indication, Highest resolution, Accuracy. Rows for ranges PA, JPA, PB, and JPB.

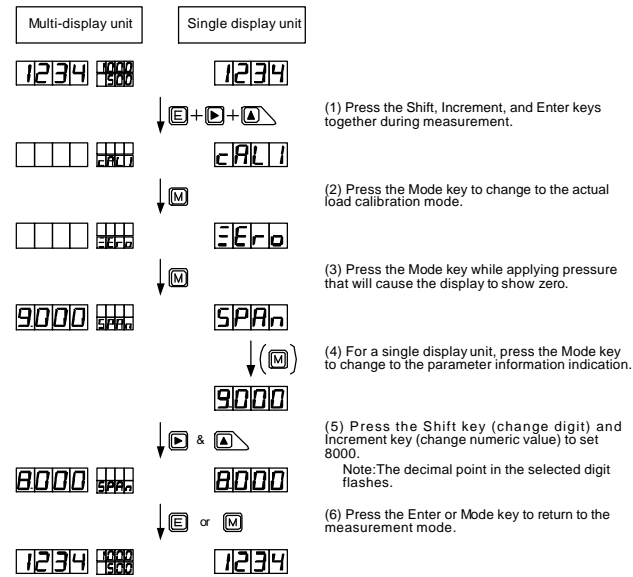
Input circuit: Single ended type. External resistance: 10Ω or less per wire. Operating system ΔΣ conversion. Linearity: Digital linearizer. Maximum sampling rate: 12.5 times per second. Burnout alarm: N/A. Current through RTD: About 1 mA.

8.1.14 Temperature Measuring Unit (RTD)

5.4.4 Method of Setting Calibration Data

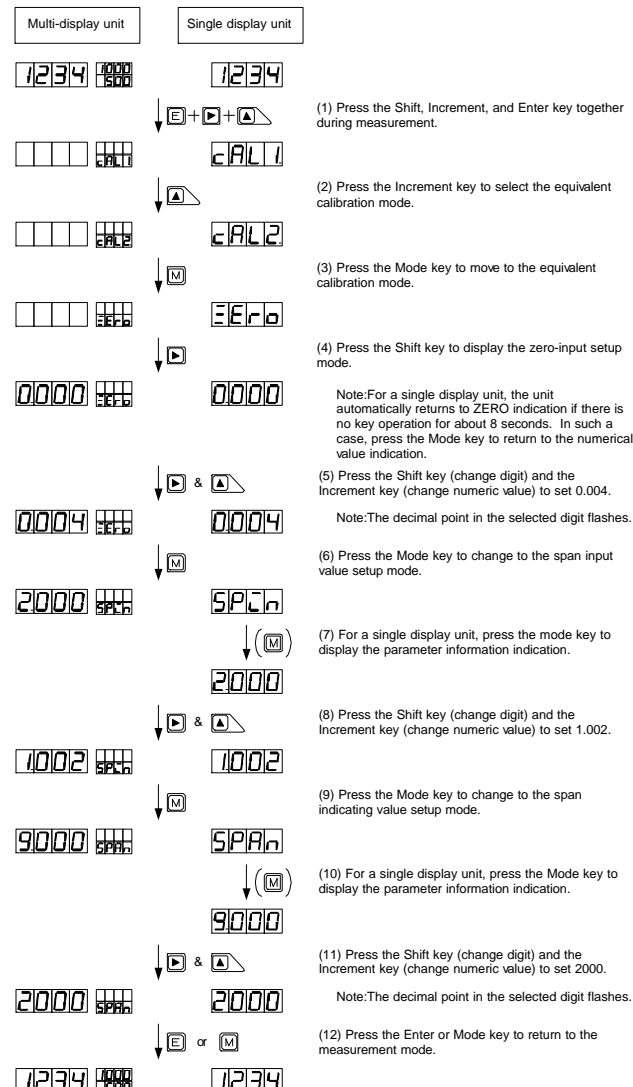
5.4.4.1 Actual Load Calibration

Actual load calibration means that calibration is carried out by applying actually measured pressure to a sensor such as a load cell connected to the meter.



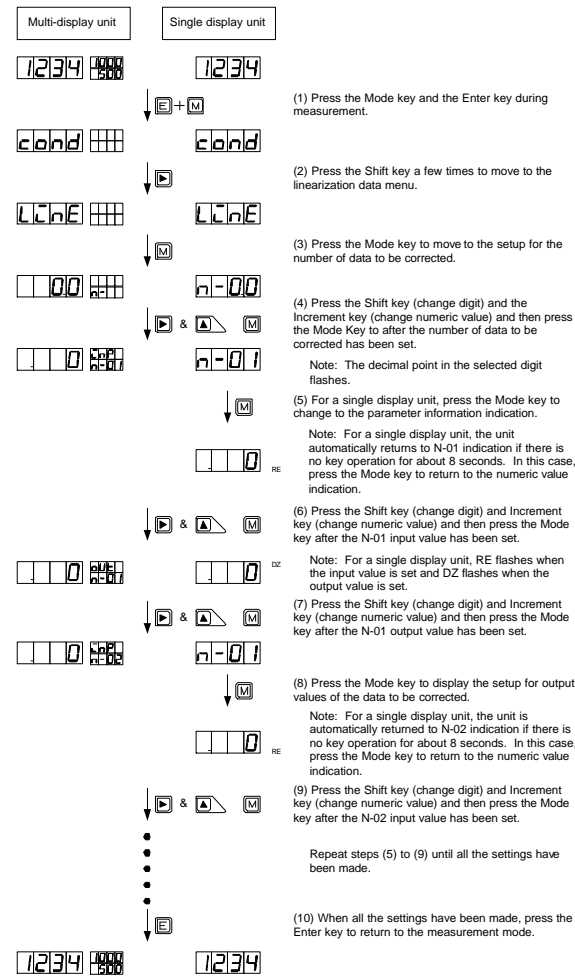
5.4.4.2 Equivalent Calibration

Equivalent calibration means that calibration is carried out according to the ratings (specifications) of such a sensor as a load cell. It is not necessary to connect the sensor or to apply pressure to the sensor.



5.4.5 Method of Setting Linearization Data

The linearization function means a function that changes the slope of straight lines in the relationship between the input and indication by correcting the relations at arbitrary points. Linearization data are set using the input value (indicated value before correction) and the output value (indicated value after correction) at each arbitrary point.



Note: The setup conditions are N-1 < N-2 ... N-15 < N-16.

6. Control Functions

6.1 Hold Function

The Hold function temporarily retains the indication. The hold function is enabled by shortcircuiting the HOLD and COM terminals or setting both terminals to the same voltage level. As a result the display unit retains the indication given at that moment.

6.2 Digital Zero Function

The Digital Zero function zeros the indication given at an arbitrary timing. Thereafter, the function shows the amount of change from the point of zeroing. However, this function serves as an indication resetting function for a frequency measuring unit. Thus, the Digital Zero function can be used to reset the indication when there is no input signal at all.

Note that, the on/off control of the Digital Zero function can be achieved by means of terminal control or front panel keys. In the case of terminal control, the Digital Zero function is turned on by shortcircuiting the DZ and COM terminals or setting both terminals to the same voltage level. The indication at that moment is zeroed. In the case of control with the front panel keys, hold down the Mode key and press the Increment key for about 1 second to zero the indication at that moment.

Note: Operation with the control terminals takes priority over operation with the front panel keys. The Digital Zero function is disabled if the control terminals are made to go through the off-on-off sequence with the function enabled by means of the front panel keys.

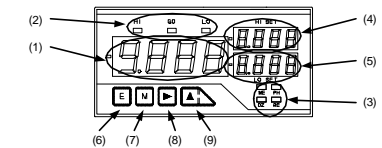
6.3 Peak Hold Function

The Peak Hold function retains one of the maximum (peak hold)/minimum (valley hold)/maximum - minimum (peak-valley hold) values and provides output for that value. Selection from these values is made using the condition data. The peak hold function is enabled by shortcircuiting the PH and COM terminals or setting both terminals to the same voltage level.

4. Components and their Functions

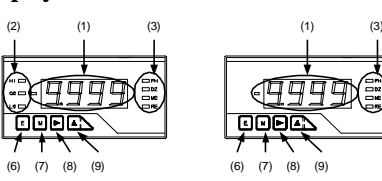
The front panel design of the A5000 series of unit meters differs depending on the display unit selected. The names and functions of each unit are as shown below.

4.1 Multi-display Unit



No.	Name	Main Functions	
		During measurement	During parameter setup
(1)	Main display	Indicates the measured value.	Indicates information on the parameter to be set.
(2)	Judgment indicators	HI	Indicates the result of judgment and turns on if the measured value > HI judgment value.
		GO	Indicates the result of judgment and turns on if LO judgment value ≤ the measured value ≤ HI judgment value.
		LO	Indicates the result of judgment and turns on if the measured value < LO judgment value.
(3)	Function indicators	ME	Turns on if "digital zero backup" is on.
		PH	Turns on if "peak hold/valley hold/peak - valley hold" is on.
		DZ	Turns on if "digital zero" is on.
		RE	Turns on if remote control is being performed through RS-232C or RS-485 interface.
(4)	Sub-display 1	Indicates the HI side judgment value.	Indicates the item in the maximum/minimum/(maximum-minimum)/input value monitoring mode.
		Indicates the LO side judgment value.	Indicates information on the item in the maximum/minimum/(maximum-minimum)/input value monitoring mode.
(5)	Sub-display 2	Indicates information on the item in the maximum/minimum/(maximum-minimum)/input value monitoring mode.	Indicates the item to be set.
		Indicates the LO side judgment value.	Indicates information on the item in the maximum/minimum/(maximum-minimum)/input value monitoring mode.
(6)	Enter key	Pressing the Enter and Mode keys together changes to the parameter setting mode.	Returns to the measurement mode.
		Pressing the Enter and Increment keys together changes to the maximum/minimum/(maximum-minimum)/input value monitoring mode.	Switches from the maximum/minimum/(maximum-minimum)/input value monitoring mode to the comparative judgment reading mode.
(7)	Mode key	Pressing the Mode and Enter keys together changes to the parameter setting mode.	Selects the item to be set.
		Pressing the Mode and Shift keys together changes to the shift function setup mode.	Pressing the Mode and Incremental keys together turns on/off the "Digital zero" indicator.
(8)	Shift key	Pressing the Shift and Enter keys together changes to the parameter checking mode. (Comparator data can be set.)	Changes the digit to be set.
		Pressing the Shift and Mode keys together changes to the shift function setup mode.	Selects from items in the maximum/minimum/(maximum-minimum)/input value monitoring mode. (Hold down the key for about one second.)
(9)	Increment key	Pressing the Increment and Mode keys together turns on/off the "Digital zero" indicator.	Changes the value or content of a selected digit. (Increments the value)
		Pressing the Increment and Enter keys together changes to the maximum/minimum/(maximum-minimum)/input value monitoring mode.	Resets the maximum/minimum/(maximum-minimum)/input value monitoring mode. (Hold down the key for about one second.)

4.2 Single Display Unit

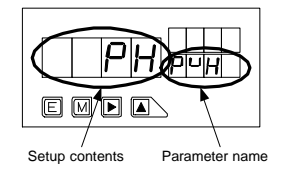


No.	Name	Main functions	
		During measurement	During parameter setup
(1)	Main display	Indicates the measured value.	Indicates information on the parameter to be set.
(2)	Judgment indicators	HI	Indicates the result of judgment and turns on if the measured value > HI judgment value.
		GO	Indicates the result of judgment and turns on if LO judgment value ≤ the measured value ≤ HI judgment value.
		LO	Indicates the result of judgment and turns on if the measured value < LO judgment value.
(3)	Function indicators	PH	Turns on if "peak hold/valley hold/peak - valley hold" is on.
		DZ	Turns on if "digital zero" is on.
		ME	Flashes when linearization data output values are set.
		RE	Turns on if remote control is being performed through RS-232C or RS-485 interface.
(6)	Enter key	Pressing the Mode and Enter keys together changes to the parameter setting mode.	Returns to the measurement mode.
		Pressing the Increment and Enter keys together changes to the maximum/minimum/(maximum-minimum)/input value monitoring mode.	Switches from the maximum/minimum/(maximum-minimum)/input value monitoring mode to the comparative judgment reading mode.
(7)	Mode key	Pressing the Mode and Enter keys together changes to the parameter setting mode.	Selects the item to be set.
		Pressing the Shift and Mode keys together changes to the shift function setup mode.	Pressing the Increment and Mode keys together turns on/off the "Digital zero" indicator.
(8)	Shift key	Pressing the Shift and Enter keys together changes to the parameter checking mode. (Comparator data can be set.)	Changes the digit to be set.
		Pressing the Shift and Mode keys together changes to the shift function setup mode.	Holding down the Shift key for about one second moves to the HI judgment value indicator.
(9)	Increment key	Pressing the Increment and Mode keys together turns on/off the "Digital zero" indicator.	Changes the value or content of a selected digit. (Increments the value)
		Holding down the Increment key for about one second moves to the LO judgment value indicator.	Pressing the Increment and Enter keys together changes to the maximum/minimum/(maximum-minimum)/input value monitoring mode.
		Resets the maximum/minimum/(maximum-minimum)/input value monitoring mode. (Hold down the key for about one second.)	

5. Parameter Setup

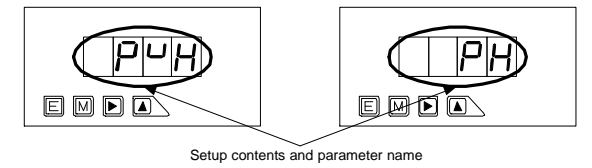
5.1 Differences between Display Units

5.1.1 Multi-display Unit



Note: Pressing the Mode key displays the next parameter.

5.1.2 Single Display Unit

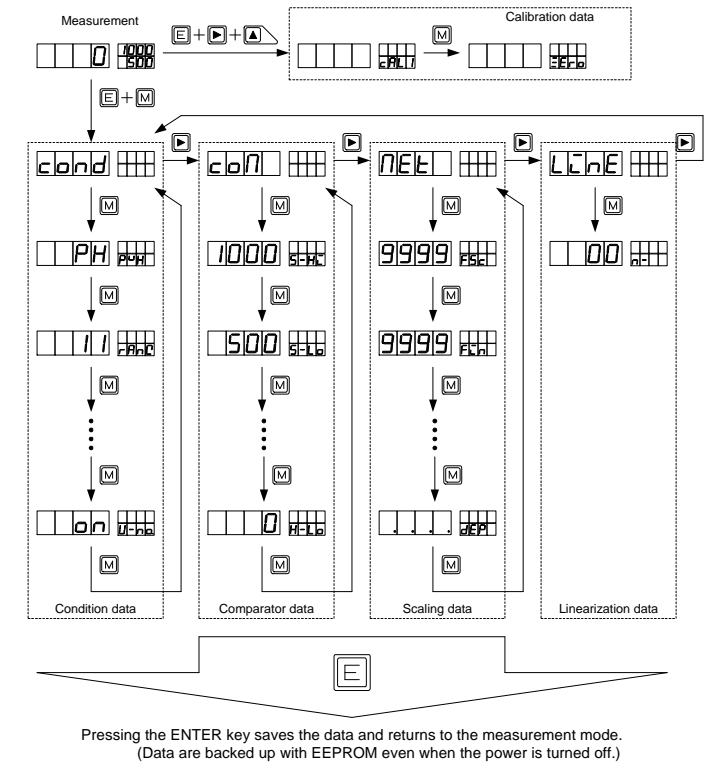


Note 1: Pressing the mode key with the parameter name shown changes the display to the parameter information indication. If there is no key operation for about one second when the parameter name is shown, the display automatically changes to the parameter information indication (however, this change does not automatically occur for parameters PH/S-HI/FSC, etc., right after COND/COM/MET is indicated).

Note 2: Pressing the Mode key when the parameter information indication is shown results in the next parameter being displayed.

Note 3: If there is no key operation for about 8 seconds with the parameter information indication shown, the display returns to the parameter name indication.

5.2 Moving to the Parameter Setup Mode



5.3 Data Lists and Default Settings

Table with columns for Indication, Name, Default value, Equipped as, Input unit number (01-18), and Output unit number (0-7). Rows include Condition data (PH, RANG, AVG, etc.), Comparator data (S-HI, S-LO, etc.), and Scaling data (FSC, FIN, OFS, etc.).

*1 Each value in the lower part of a cell in the columns on the right is the default value.
*2 Tracking zero width setup parameter is not indicated if the tracking time is set to OFF(0).
*3 5000 for 1 V range and 2000 for 2 A range
*4 1000 for 1 V range and 400 for 2 A range
*5 Linearization data are not set up for the default values.
*6 This value is not indicated if calibration is done using an actual load.

5.4 Information on Each Parameter

Table with columns for Indication, Name, Setup options, and Default value. Rows include Condition data (PH, RANG, etc.), Comparator data (S-HI, S-LO, etc.), Scaling data (FSC, FIN, etc.), and Calibration data (ZERO, SPIN, SPAN).

5.4.1 Method of Setting Condition Data

This section shows a typical example of setting the peak hold parameter. The same method applies to other parameters.

Diagram showing the steps to set the peak hold parameter. It includes a multi-display unit and a single display unit, with key presses (E+M, M, A, E) and resulting display changes from '1234' to 'PH'.

5.4.2 Method of Setting Comparator Data

This section explains comparator data and shows a typical example of setting the HI side judgment value. The same method applies to all other parameters.

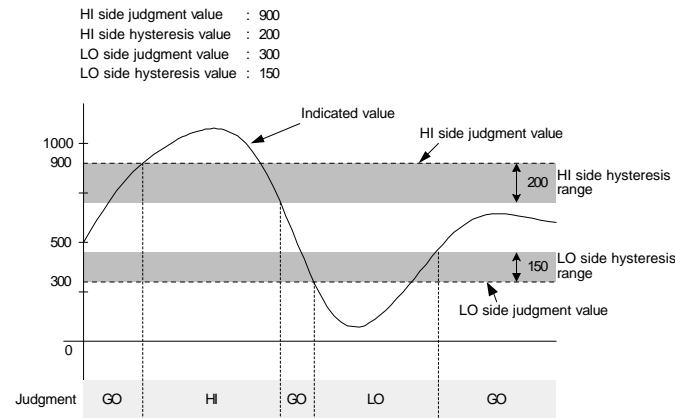
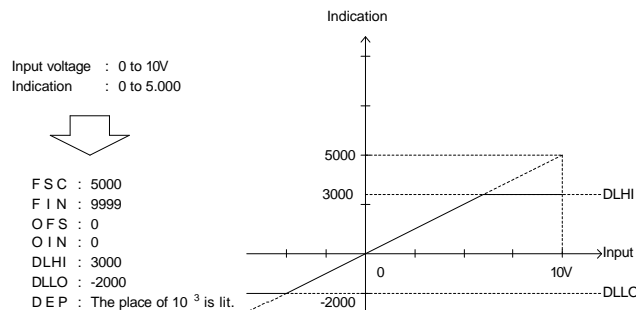


Diagram showing the steps to set comparator data. It includes a multi-display unit and a single display unit, with key presses (E+M, M, A, E) and resulting display changes from '1234' to 'S-HI' and '1000'.

Note: The setup conditions are HI side judgment value > LO side judgment value, HI side judgment value ≥ LO side judgment value + LO side hysteresis. If these conditions are not satisfied, an error indication appears and the display returns to the HI side judgment value setup.

5.4.3 Method of Setting Scaling Data

This section explains comparator data and shows a typical example of setting the full scale indication parameter. The same method applies to all other parameters.

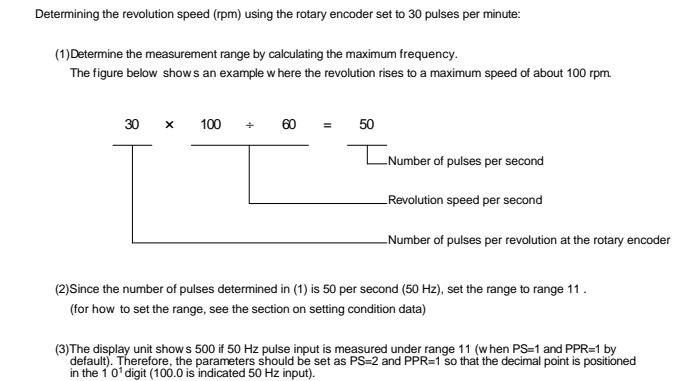


Note: For the Digital limiter, values larger than the DLHI setpoint are not indicated even if signals greater than the value set in the DLHI parameter are input (for DLLO parameter, values smaller than the DLLO setpoint are not indicated).

Diagram showing the steps to set scaling data. It includes a multi-display unit and a single display unit, with key presses (E+M, M, A, E) and resulting display changes from '1234' to 'FSC' and '5000'.

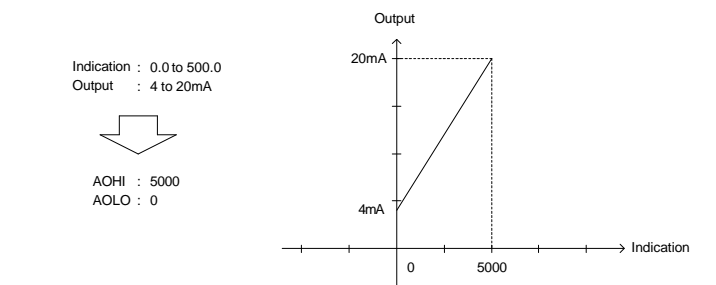
Note: For the process signal measuring unit, set the full scale input value to 5.000 for the 1 V range and to 20.00 for the 2 A range, and set the offset input value to 1.000 for the 1 V range and to 4.00 for the 2 A range.

The following explains the frequency measuring unit. (The same method applies to the full scale indication parameter.)



Note: For the frequency measuring unit, set the relationship between the input and indication using the PS and PPR parameters (parameters of FSC, FIN, OFS, and OIN are not indicated).

The following explains the scaling of analog output (The same method applies to the full scale indication parameter.)



Note: For analog output scaling, set the indication value for an output current of 20 mA in the AOHI parameter and set the indication value for an output current of 4 mA in the AOLO parameter (for 4-20 mA output).