Setting table

Indication	Name	Default value	
Condition data			
PVH	Peak hold setup	PH	
RANG	Measurement range setup	*1	
AVG.	Number of averaging	1	
MAV	Number of moving averaging setup	OFF	
S.UD	Step wide setup	1	
BLNK	Indication blank setup	OFF	
UNIT	Unit setup	C	
BAUD	Baud rate setup	9600	
DATA	Data length setup	7	
P.BIT	Parity bit setup	E	
S.BIT	Stop bit setup	2	
T-	Delimiter setup	CR.LF	
ADR	Equipment ID setup	00	
A.OUT	Analog output setup	OFF	
B.UP	Digital zero backup setup	OFF	
LINE	Linearization setup	CLR	
I.SEL	Input selection	0C	
TR.T	Tracking zeroing time setup	00	
TR.V	Tracking zeroing width setup *2	01	
SNSR	Sensor power setup	10	
P	Power-on delay setup	OFF	
PRO	Protect setup	OFF	
U-NO.	Unit number Indication setup	ON	
Comparator data			
S-HI	HI side judgment value setup	1000	
S-LO	LO side judgment value setup	500	
H-HI	HI side hysteresis setup	0	
H-LO	LO side hysteresis setup	0	

Indication	Name	Default value	
Scaling data			
FSC	Full scale Indication value setup	*1	
FIN	Full scale input value setup	*1	
OFS	Offset indication value setup	*1	
OIN	Offset input value setup	*1	
PS	Pre-scaling value setup	1	
PPR	Frequency division setup	1	
DLHI	Digital limiter HI value setup	9999	
DLLO	Digital limiter LO value setup	-9999	
AOHI	Analog output HI indication setup	9999	
AOLO	Analog output LO indication setup	0	
DEP	Decimal point position setup	None	
Linearization data		*5	
Calibration data			
ZERO	Zero input value *6	0	
SPIN	Span input value *6	2000	
SPAN	Span indication	9000	
Shift data			
SHF	Shift data setup	0	

*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).
*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.
   The shaded parts show the parameters that must be set for each unit.

SENTRONIC AG
Brunnenhof 2
CH - 5420 Ehrendingen
Tel. 056 - 222 38 18   Mail: mailbox@sentronic.com
Fax 056 - 222 10 12   HP: www.sentronic.com
                                     www.sentronic-solutions.ch

(Japanese UW-33846e)

A 5 X X X - X X

MODEL A5000 SERIES INSTRUCTION MANUAL

⚠ Caution

(1) Do not apply a voltage or current exceeding the maximum allowable value; otherwise, it may damage the equipment.
(2) Use a power voltage within the operation range; otherwise, it may result in a fire, electrical shock, or malfunction.
(3) The contents of this manual are subject to change without notice.
(4) 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.
(5) After reading this manual thoroughly, keep it in a convenient place for future reference.
(6) The mark on a label shows the measurement tail range of the input specification of 8.1. clause.
(7) Any parts which are required to be examined or supplied only by the Asahi sales agent or Asahi directly.
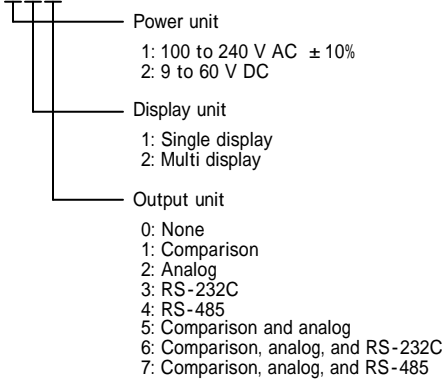
1. Before Using the Product

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

Power unit
1: 100 to 240 V AC ± 10%
2: 9 to 60 V DC

Display unit
1: Single display
2: Multi display

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

A 5 X X X - X X
Input unit
01: DC voltage measuring unit
    (range 11: ± 99.99 mV)
02: DC voltage measuring unit
    (range 12: ± 999.9 mV; range 13: ± 9.999 V)
    (range 14:± 99.99 V; range 15: ± 300.0 V)
03: DC current measuring unit
    (range 23: ± 9.999 mA; range 24: ± 99.99 mA)
    (range 25: ± 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: 300.0 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: 300.0 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 300 Vrms)
17: Strain gauze input unit (load cell)
18: Process signal measuring unit (4 to 20 mA or 1 to 5 V)

2. Mounting the Product

Mounting the A5000 in a Type 1 enclosure. (UL50)

2.1 Dimensions for Cutting Panel

Cut the panel for mounting according to the following dimensions.

92 +0.8 -0
45 +0.6 -0
70 mm min.
120 mm min.
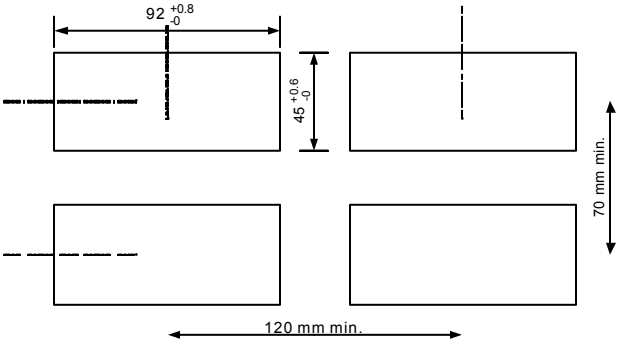
2.2 Mounting the Product to the Panel

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.
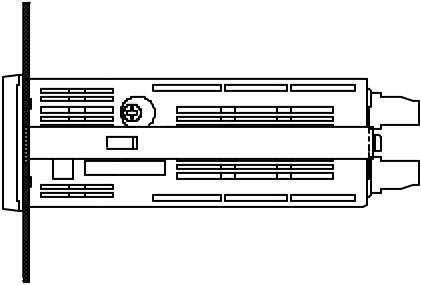
SENTRONIC AG   CH - 5420 Ehrendingen
                     0041 56 222 38 18
                     www.sentronic.com

UW-33847e
October 2005

⚠Caution

(1) 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.

(2) The A5000 does not have a power switch, and will thus be immediately ready for operation upon connecting it to a power supply.

(3) If the product is installed inside other equipment, provide sufficient heat dissipation to ensure that the temperature inside the equipment does not exceed 50 .

3. Terminal Arrangement

Comparison output / Serial communication / Analog output

Input (the shape depends on the unit.) / External control / Power connector

3.1 Power

No.	Name	Description
10	POWER	Power terminal without polarity for both DC and AC
11	POWER	Power terminal without polarity for both DC and AC

3.2 External Controls

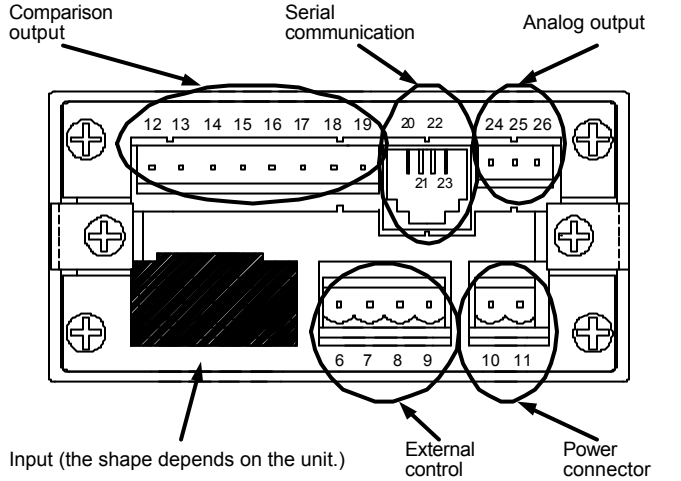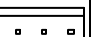| No.	Name	Description
6	HOLD	Control for hold function. Enabled when short-circuited or at the same potential as COM.
7	DZ	Control for digital zero function. Enabled when short-circuited or at the same potential as COM.
8	PH	Control for peak hold function. Enabled when short-circuited or at the same potential as COM.
9	COM	Common for all external control terminals.

3.3 Input Signals

3.3.1 DC Voltage Measuring Unit (Range 11)

No.	Name	Description
1	HI	Positive input terminal
2	NC	Do not connect this terminal.
3	LO	Negative input terminal

3.3.2 DC Voltage Measuring Unit (Range 12)

No.	Name	Description
1	12	Positive input terminal for range 12 (± 999.9 mV)
2	13	Positive input terminal for range 13 (± 9.999 V)
3	14	Positive input terminal for range 14 (± 99.99 V)
4	15	Positive input terminal for range 15 (± 300 V)
5	LO	Negative input terminal

3.3.3 DC Current Measuring Unit

No.	Name	Description
1	23	Positive input terminal for range 23 (± 9.999 mA)
2	24	Positive input terminal for range 24 (± 99.99 mA)
3	25	Positive input terminal for range 25 (± 999.9 mA)
4		
5	LO	Negative input terminal

3.3.4 AC Voltage Measuring Unit (Ranges 11 to 13)

No.	Name	Description
1	11-12	Positive input terminal for ranges 11 (99.99 mV) and 12 (999.9 mV)
2	13	Positive input terminal for range 13 (9.999 V)
3	LO	Common input terminal

3.3.5 AC Voltage Measuring Unit (Ranges 14 and 15)

No.	Name	Description
1	14	Positive input terminal for range 14 (99.99 V)
2	15	Positive input terminal for range 15 (300 V)
3	LO	Common input terminal

3.3.6 AC Current Measuring Unit (Ranges 23 to 25)

No.	Name	Description
1	23	Positive input terminal for range 23 (9.999 mA)
2	24	Positive input terminal for range 24 (99.99 mA)
3	25	Positive input terminal for range 25 (999.9 mA)
4		
5	LO	Negative input terminal
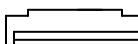
3.3.7 AC Current Measuring Unit (Range 26)

No.	Name	Description
1	HI	Input terminal
2	LO	Input terminal

Applicable solderless terminals

3.3.8 Resistance Measuring Unit

No.	Name	Description
1	HI	Input terminal for all ranges
2	LO	Input terminal for all ranges
3	+S	Constant current for four-wire resistance measurement(positive)
4	-S	Constant current for four-wire resistance measurement(negative)
5	LO	Common terminal (grounding terminal for input circuit)

Set to the 4-wire system when shipped.
When changing to the 2-wire system, locate the ST1 socket on the resistance measurement unit to the "2" positions.

ST1
4-wire
2-wire
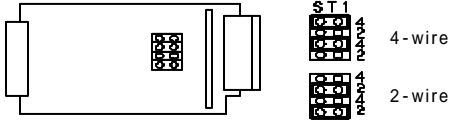
8.1.8 AC Current Measuring Unit (average value detection: ranges 23 to 25)

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

Note: The ripple ratings for the 4-20 mA output are when the load resistance of 250 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

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

	RS-232C	RS-485
Synchronization system	Start and stop synchronization	
Communication system	Full duplex	Two-wire half duplex (Polling selecting system)
Communication rate	38400bps/19200bps/9600bps/4800bps/2400bps	
Start bit	1bit	
Data length	7 bits/8 bits	
Error detection	Even parity/odd parity/non-parity	
	BCC (block, check, and character) check sum	
Stop bit	1 bit/2 bits	
Character code	ASCII code	
Communication control procedure	No procedure	
Signal name used	TXD,RXD,SG	Non-inversion (+) and inversion (-)
Number of connectable units	1	1 Up to 31 meters
Line length	15m	Up to 500 m (total) In EN/IEC conformity, it is under 30m
Delimiter	CR+LF/CR	
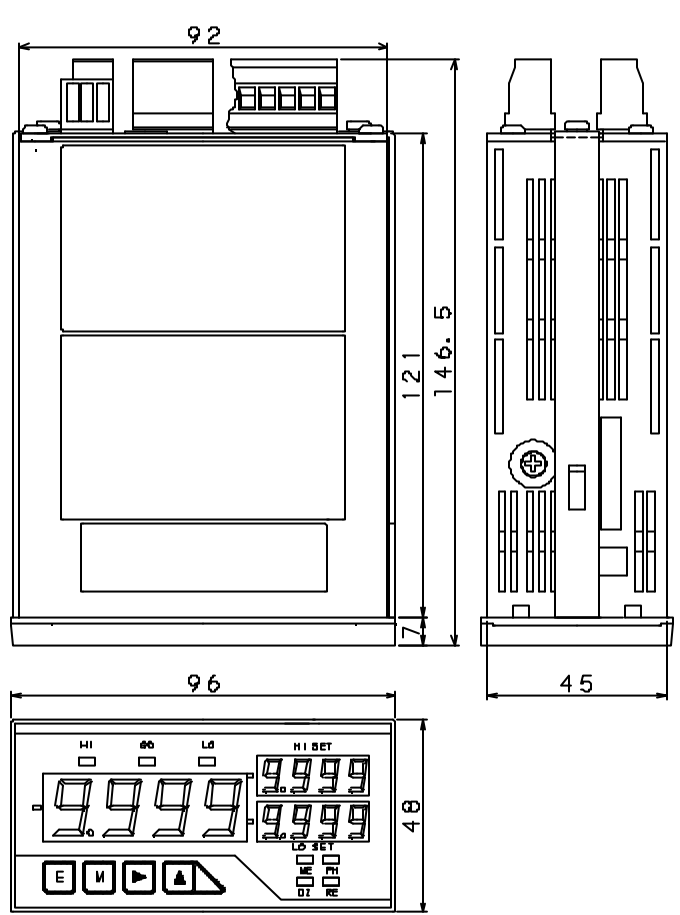
26)

8.1.10 AC Current Measuring Unit (true rms value: ranges 23 to 25)
8.1.11 AC Current Measuring Unit (true rms value: range 26)
8.1.12 Resistance Measuring Unit
8.1.13 Temperature Measuring Unit (TC)
8.1.14 Temperature Measuring Unit (RTD)
8.1.15 Frequency Measuring Unit (open collector, logic, and magnet)
8.1.16 Frequency Measuring Unit (300 Vrms)
8.1.17 Strain Gage Unit
8.1.18 Process Signal Measuring Unit
8.2 Common Specifications
8.3 Output Specifications
8.3.1 Output for Comparison
8.3.2 Analog Output
8.3.3 Communicating Function
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.)

8.1.2 DC Voltage Measuring Unit (ranges 12 to 15)

Range	Input sensor	Indication	Highest resolution	Accuracy
PA	PT100	-100.0 to 199.9 (-148.0 to 391.8° F)	0.1 (0.1° F)	± (0.15% of FS)
JPA	JPt100			
PB	PT100	-100 to 600 (-148 to 1112° F)	1 (1° F)	± (0.3% of FS)
JPB	JPt100			

Input circuit : Single ended type
Operating system: conversion
Maximum sampling rate : 12.5 times per second
Current through RTD : About 1 mA
External resistance : 10 or less per wire
Linearizer : Digital linearizer
Burnout alarm : It blinks by - - - - display.

8.1.3 DC Current Measuring Unit

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

Input type	Input voltage lebel	Maximum permissible input
Open collector	LO : 1V or less (5V : 4.7k pull up)	30V
Logic	LO : 1V or less, HI : 2.5 to 15V	15V
Magnet	0.3 to 30V p-p	

Duty ratio : 50%

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

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

Input type	Input voltage lebel	Maximum permissible input
Voltage	50 to 300Vrms	300Vrms

Duty ratio : 50%

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

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

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

---

14 and 15)

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 , 35 to 83%RH (non-condensing)
Storage temperature and humidity range : -10 to 70 , 60%RH or less
Power supply : 100 to 240 V AC ± 10% for AC power supply unit 9 to 50 V DC for DC power supply unit
Power consumption : 7VA max. (AC power supply) 7Wmax. (DC power supply)
External dimensions : 96 mm (W) x 48 mm (H) x 146.5 mm (D) Note: Depth (D) denotes the maximum value.
Weight : 450g
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 VAC for 1 min between case and each output terminal (common to both AC and DC supply)
Insulation resistance : 100 M between the above terminals when 500 V DC is applied
Conformity standard : EN61000-6-2, EN50081-2, IEC1010-1
It applies only to the product with which CE mark is indicated on the label.
E247481
Grounding environment : Category Pollution degree 2
Altitude : 2000 m max
Fuse : TR5 372 0.2A (AC power supply)
IP 399-1.0A (DC power supply)
Fuses Not replaceable by the operator.

8.1.6 AC Voltage Measuring Unit (true rms value: ranges 11 to 13)
8.1.7 AC Voltage Measuring Unit (true rms value: ranges 14 and 15)

Conditions for comparison	Judgment result
Indicated value Upper limit judgment value	HI
Lower limit judgment value Indicated value Upper limit judgment value	GO
Lower 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)
Mechanical life : 20,000,000 times or more
Electric life : 100,000 times or more (Resistance load)

3.3.9 Temperature Measuring Unit (TC)

No.	Name	Description
1	+	Positive terminal for thermocouple
2	NC	Do not connect this terminal.
3	-	Negative terminal for thermocouple

3.3.10 Temperature Measuring Unit (RTD)

Connection of three-wire sensor

No.	Name	Description
1	A	Resistance sensor wire
2	B	Resistance sensor wire
3	C	Elimination of wire resistance

When A or B is disconnection, it is displayed as OL, and when C is disconnection, it is displayed as - - - -.

The analog output at the time of a burnout becomes + side at the time of A or B disconnection, and is set to 0V or 1V, and 4mA at the time of C disconnection.

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

No.	Name	Description
1	HI	Positive input terminal
2	LO	Negative input terminal
3	+15V	Power output for sensor (positive)
4	0V	Power output for sensor (negative)
5	COM	Common terminal (grounding terminal for input circuit)

No.	Name	Description
1	HI	Input terminal
2	NC	Do not connect this terminal.
3	LO	Input terminal

3.3.12 Frequency Measuring Unit (300 Vrms)

No.	Name	Description
1	+SIG	Positive input terminal
2	-SIG	Negative input terminal
3	+EXC	Power output for sensor (positive)
4	-EXC	Power output for sensor (negative)
5	COM	Common terminal (grounding terminal for input circuit)

3.3.13 Strain Gauge Input Unit (Load cell)

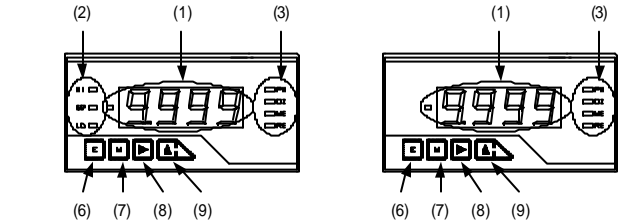| No.	Name	Description
1	V-IN	Positive input terminal for 1 to 5 V range
2	A-IN	Positive input terminal for 4 to 20 mA range
3	LO	Negative input terminal

3.3.14 Process Signal Measuring Unit

No.	Name	Description
12	LO-b	LO output terminal (b contact)
13	LO-c	Common terminal for LO output
14	LO-a	LO output terminal (a contact)
15	GO-c	Common terminal for GO output
16	GO-a	GO output terminal (a contact)
17	HI-b	HI output terminal (b contact)
18	HI-c	Common terminal for HI output
19	HI-a	HI output terminal (a contact)

3.4 Comparison Output

No.	Name	Description
24	COM	Common terminal for analog output
25	A-OUT	Current output terminal (4 to 20 mA)
26	V-OUT	Voltage output terminal (1 to 5 V, 0 to 1 V, and 0 to 10 V)

3.5 Analog Output

No.	Name	Description
20	RXD(+)	RS-232C: transmission; RS-485: Non-reverse output
21	TXD(-)	RS-232C: reception; RS-485: Reverse output
22	NC	Do not connect this terminal.
23	SG	Common terminal for communications

⚠ Caution

(1) Use 12 to 28 AWG wire for the power, input (except for range 26), external control, and comparison output connectors.
(2) Tighten the screws for the power, input (except for range 26), external control, and comparison output connectors to a torque of 0.5 to 0.6 Nm.
(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.
(5) Each wiring except a power supply is given as under full-length 30m. If 30m is exceeded, it will become out of the scope of EN/IEC standard.

3.6 Serial Communication
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.

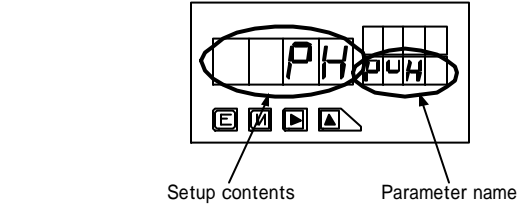| No.	Name		Main Functions	
			During measurement	During parameter setup
(1)	Main display		Indicates the measured value.	Indicates information on the parameter to be set.
(2)	Judgment indicators	HI	Indicates the result of judgment and turns on if the measured value > HI judgment value.	
		GO	Indicates 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.	
(5)	Sub-display 2		Indicates the LO side judgment value. Indicates information on the item in the maximum/minimum/(maximum-minimum)/input value monitoring mode.	Indicates the item to be set.
(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-maximum/ minimum)/(maximum-minimum)/input value monitoring mode to the comparative judgment reading mode.	

(continued key functions)

| (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 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.)	

4.1 Multi-display Unit

(2) (1) (3)   (1) (3)

(6) (7) (8) (9)   (6) (7) (8) (9)

No.	Name	Main Functions	
		During measurement	During parameter setup
(1)	Main display	Indicates the measured value. Indicates information on the item in the maximum/minimum/(maximum-minimum)/input value monitoring mode.	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. Turns on if "digital zero backup" is on.	
		RE — Turns on if remote control is being performed through RS-232C or RS-485 interface. Flashes when linearization data input values are set.	
(6)	Enter key	Pressing the Mode and Enter 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.	

(continued key functions, right column)

(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	Selects from items in the maximum/minimum/(maximum-minimum)/input value monitoring mode. (Hold down the key for about one second.)	
		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 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

5. Parameter Setup

5.1 Differences between Display Units

PH   PUH

Setup contents   Parameter name

5.1.1 Multi-display Unit

PUH   PH

Setup contents and parameter name
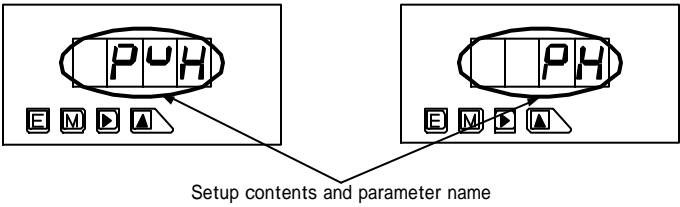
Note: Pressing the Mode key displays the next parameter.

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.

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meter is provided with an RS-485 unit). For details on the RS-485 function,

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
11	99.99mV	Offset: ± 9999 Full scale: 0 to ± 9999	1μV	1M or more	± 100V	± (0.2%of FS +10digit)
12	999.9mV		100μV			
13	9.999V		1mV		± 250V	

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

see the separate manual on communication functions.

7.4 RS-232C Interface Function

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
14	99.99V	Offset: ± 9999 Full scale: 0 to ± 9999	10mV	1M or more	250V	± (0.2%of FS +10digit)
15	300.0V		100mV		300V	± (0.3%of FS +10digit)

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

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
11	99.99mV	Offset: ± 9999 Full scale: 0 to ± 9999	1μV	1M or more	± 100V	± (0.2%of FS +20digit)
12	999.9mV		100μV			
13	9.999V		1mV		± 250V	

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

function, see the separate manual on communication functions.

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
14	99.99V	Offset: ± 9999 Full scale: 0 to ± 9999	10mV	1M or more	250V	± (0.2%of FS +20digit)
15	300.0V		100mV		300V	± (0.3%of FS +20digit)

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

8. Specifications and External Dimensions

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
23	9.999mA	Offset: ± 9999 Full scale: 0 to ± 9999	1μA	About 10	100mA	± (0.5%of FS +10digit)
24	99.99mA		10μA	About 1	500mA	
25	999.9mA		100μA	About 0.1	3A	

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

8.1 Input Specifications

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
26	5A	Offset: ± 9999 Full scale: 0 to ± 9999	1mA	(CT)	8A	± (0.5%of FS +10digit)

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
23	9.999mA	Offset: ± 9999 Full scale: 0 to ± 9999	1μA	About 10	100mA	± (0.5%of FS +20digit)
24	99.99mA		10μA	About 1	500mA	
25	999.9mA		100μA	About 0.1	3A	

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
26	5A	Offset: ± 9999 Full scale: 0 to ± 9999	1mA	(CT)	8A	± (0.5%of FS +20digit)

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

8.1.1 DC Voltage Measuring Unit (range 11)

Range	Measurement range	Indication	Highest resolution	Circuit current	Accuracy
11	99.99	Offset: ± 9999 Full scale: 0 to 9999	10m	About 5mA	± (0.2%of FS)
12	999.9		100m	About 500μA	
13	9.999k		1	About 50μA	
14	99.99k		10	About 5μA	

Input circuit : Single ended type
Operating system : conversion
Maximum sampling rate : 12.5 times per second
Measuring system : Two-wire system or four-wire system (internal socket change-over)
Open-circuit voltage : About 5 V

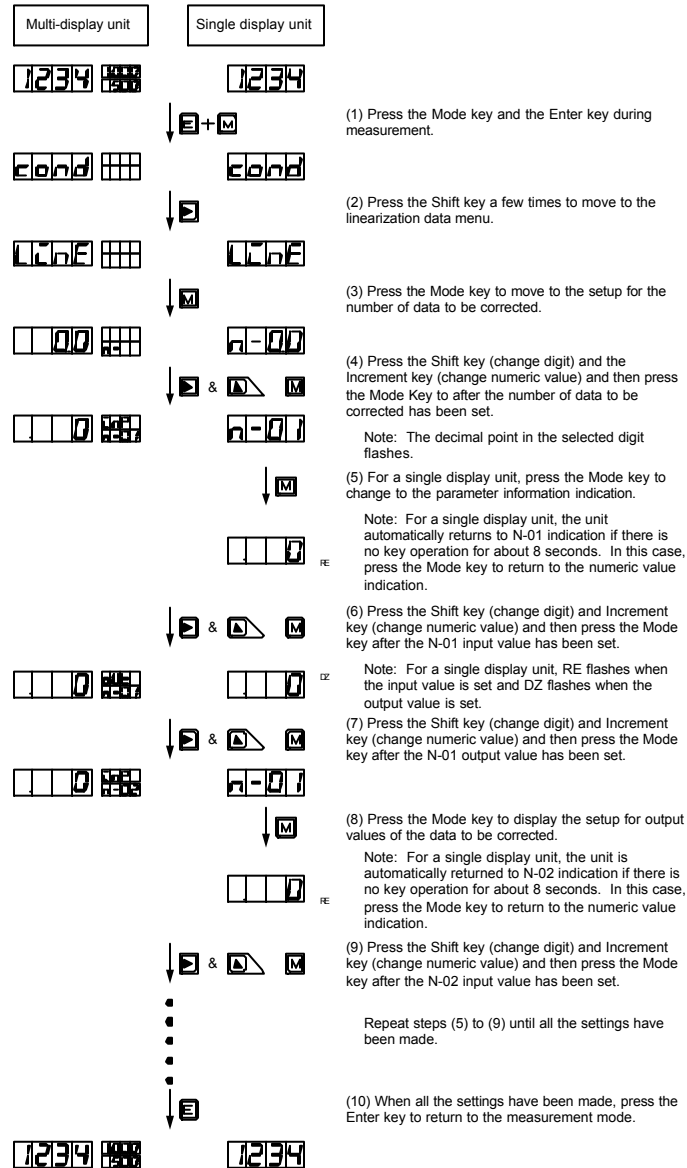| Range	Input sensor	Indication	Highest resolution	Accuracy
KA	K	-50.0 to 199.9 (-58.0 to 391.8° F)	0.1 (0.1° F)	± (0.5%of FS)
KB	K	-50 to 1200 (-58 to 2192° F)		± (0.2%of FS)
J	J	-50 to 1000 (-58 to 1832° F)		
T	T	-50 to 400 (-58 to 752° F)		± (0.6%of FS)
S	S	0 to 1700 (32 to 3092° F)	1 (1° F)	
R	R	-10 to 1700 (14 to 3092° F)		± (0.4%of FS)
B	B	100 to 1800 (212 to 3272° F)		± (0.4%of FS) Note : The accuracy of range B is applicable to temperatures of 500 or more.

Input circuit : Single ended type
Operating system : conversion
Maximum sampling rate : 6.25 times per second
Cold junction compensation error : ± 2 (at 10 through 40)
Internal resistance of sensor : 50 or less
Linearizer : Digital linearizer
Burnout alarm : It blinks by - - - - display.

output.

5.8 Method of Setting Calibration Data

5.8.1 Actual Load Calibration

Actual load calibration means that calibration is carried out by applying actually

Multi-display unit	Single display unit

(1) Press the Mode key and the Enter key during measurement.

(2) Press the Shift key a few times to move to the linearization data menu.

(3) Press the Mode key to move to the setup for the number of data to be corrected.

(4) Press the Shift key (change digit) and the Increment key (change numeric value) and then press the Mode Key to after the number of data to be corrected has been set.

Note: The decimal point in the selected digit flashes.

(5) For a single display unit, press the Mode key to change to the parameter information indication.

Note: For a single display unit, the unit automatically returns to N-01 indication if there is no key operation for about 8 seconds. In this case, press the Mode key to return to the numeric value indication.

(6) Press the Shift key (change digit) and Increment key (change numeric value) and then press the Mode key after the N-01 input value has been set.

Note: For a single display unit, RE flashes when the input value is set and DZ flashes when the output value is set.

(7) Press the Shift key (change digit) and Increment key (change numeric value) and then press the Mode key after the N-01 output value has been set.

(8) Press the Mode key to display the setup for output values of the data to be corrected.

Note: For a single display unit, the unit is automatically returned to N-02 indication if there is no key operation for about 8 seconds. In this case, press the Mode key to return to the numeric value indication.

(9) Press the Shift key (change digit) and Increment key (change numeric value) and then press the Mode key after the N-02 input value has been set.

Repeat steps (5) to (9) until all the settings have been made.

(10) When all the settings have been made, press the Enter key to return to the measurement mode.

measured pressure to a sensor such as a load cell connected to the meter.

5.8.2 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.

5.9 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.

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. (This function is effective when the meter is equipped with a comparison output unit.) For details on the contact ratings and other specifications, refer to the section "Output Specifications."

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. In addition, the analog output of the A5000 series allows for arbitrary output scaling. This scaling can be achieved by setting the indication value for an output of the maximum scale value (20 mA for 4–20 mA output range) in the AOHI parameter of the scaling data.

7.3 RS-485 Interface Function

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
11	± 99.99mV	Offset : ± 9999 Full scale : 0 to 9999	10μ V	About 100M	± 100V	± (0.1%of FS)

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
12	± 999.9mV		100μ V	About 100M	± 100V	
13	± 9.999V	Offset : ± 9999 Full scale : 0 to 9999	1mV	About 1M	± 250V	± (0.1%of FS)
14	± 99.99V		10mV	About 10M	± 250V	
15	± 300.0V		100mV	About 10M	± 300V	± (0.15%of FS)

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

The A5000 series can be equipped with an RS-485 interface (when the

| Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
23	± 9.999mA		1μ A	About 10	± 100mA	± (0.2%of FS)
24	± 99.99mA	Offset : ± 9999 Full scale : 0 to 9999	10μ A	About 1	± 500mA	
25	± 999.9mA		100μ A	About 0.1	± 3A	± (0.3%of FS)

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

Note 3: If there is no key operation for about 8 seconds with the parameter
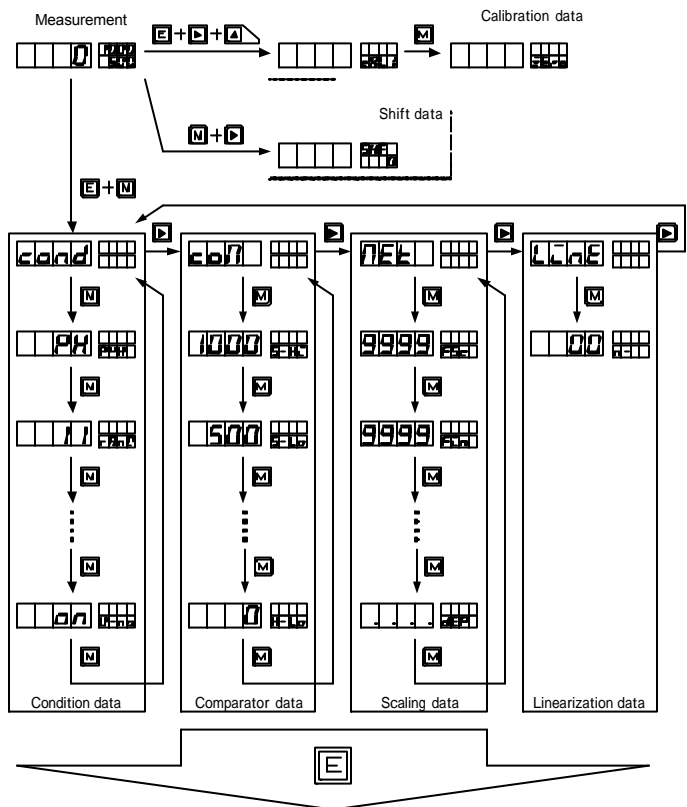
Pressing the ENTER key saves the data and returns to the measurement mode.

(Data are backed up with EEPROM even when the power is turned off.)

information indication shown, the display returns to the parameter

Indication	Name	Default value	Equipped as	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	C	1	2	3	4	5	6	7
Condition data																												
PVH	Peak hold setup	PH																											
RANG	Measurement range setup	*1		× 11	15	25	13	15	13	15	× 25	26	25	× 26	14	B	JPB	14	14		2A								
AVG	Number of averaging	1																											
MAV	Number of moving averaging setup	OFF																											
S.UD	Step wide setup	1																											
BLNK	Indication blank setup	OFF																											
UNIT	Unit setup	C		×	×	×	×	×	×	×	×	×	×	×	×														
BAUD	Baud rate setup	9600																				×	×	×	×	×			
DATA	Data length setup	7																				×	×	×	×	×			
P.BIT	Parity bit setup	E																				×	×	×	×	×			
S.BIT	Stop bit setup	2																				×	×	×	×	×			
T-	Delimiter setup	CR.LF																				×	×	×	×	×			
ADR	Equipment ID setup	00																				×	×	×	×	×			
A.OUT	Analog output setup	OFF																					×	×	×	×			
B.UP	Digital zero backup setup	OFF																											
LINE	Linearization setup	CLR																											
I.SEL	Input selection	OC		×	×																								
TR.T	Tracking zeroing time setup	OFF		×	×																								
TR.V	Tracking zeroing width setup *2	01		×	×																								
SNSR	Sensor power setup	5		×	×	×	×	×	×	×	×	×	×	×															
P	Power- on delay setup	OFF																											
PRO	Protect setup	OFF																											
U- NO.	Unit number indication setup	ON																											
Comparator data																													
S- HI	HI side judgment value setup	1000																					×		×	×	×		
S- LO	LO side judgment value setup	500																					×		×	×	×		
H-HI	HI side hysteresis setup	C																					×		×	×	×		
H-LO	LO side hysteresis setup	C																					×		×	×	×		
Scaling data																													
FSC	Full scale indication value setup	*1		9999	9999	9999	9999	9999	9999	9999	9999	9999	9999	9999	9999	×	×	×	×		9999								
FIN	Full scale input value setup	*1		9999	9999	9999	9999	9999	9999	9999	9999	5000	9999	5000	9999	×	×	×	×		*3								
OFS	Offset indication value setup	*1		C	C	C	C	C	C	C	C	C	C	C	C	×	×	×	×		C							
OIN	Offset input value setup	*1		O	O	O	O	O	O	O	O	O	O	O	O	×	×	×	×		*4							
PS	Pre- scaling value setup	1		×	×	×	×	×	×	×	×	×	×	×	×														
PPR	Frequency division setup	1		×	×	×	×	×	×	×	×	×	×	×	×														
DLHI	Digital limiter HI value setup	9999		×	×	×	×	×	×	×	×	×	×	×	×														
DLLO	Digital limiter LO value setup	- 9999		×	×	×	×	×	×	×	×	×	×	×	×														
AOHI	Analog output HI indication setup	9999																					×	×	×	×			
AOLC	Analog output LO indication setup	C																					×	×	×	×			
DEP	Decimal point position setup	None																					×	×	×	×			
Linearization data			*5																											
Calibration data																														
ZERO	Zero input value *6	O		×	×	×	×	×	×	×	×	×	×	×	×														
SPIN	Span input value *6	2000		×	×	×	×	×	×	×	×	×	×	×	×														
SPAN	Span indication	9000		×	×	×	×	×	×	×	×	×	×	×	×														
Shift data																													
SHF	Shift data setup	O																											

*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.
The shaded parts show the parameters that must be set for each unit.

name indication.

5.2 Moving to the Parameter Setup Mode
5.3 Data Lists and Default Settings

Indication	Name	Setup options	Default value
Condition data			
PVH	Peak hold setup	PH (peak hold)/VH (valley hold)/PVH (peak-valley hold)	PH
RANG	Measurement range setup	*1	*1
AVG	Number of averaging operations setup	1/2/4/8/10/20/40/80	1
MAV	Number of moving average operations setup	OFF/2/4/8/16/32	OFF
S.UD	Step width setup	1(1digit)/2(2digit)/5(5digit)/0(10digit)	1
BLNK	Indication blank setup	OFF/B-3/B-2/B-1/ON	OFF
UNIT	Unit setup	C/F	C
BAUD	Baud rate setup	9600/4800/2400/384(38400)/192(19200)	9600
DATA	Data length setup	7(7bit)/8(8bit)	7bit
P.BIT	Parity bit setup	E (even number), O (odd number), N (none)	E
S.BIT	Stop bit setup	2(2bit)/1(1bit)	2
T-	Delimiter setup	CR.LF(CR+LF)/CR	CRLF
ADR	Equipment ID setup	01 to 99	00
A.OUT	Analog output setup	OFF/0-1(0 to 1V)/0-10(0 to 10V)/1-5(1 to 5V)/4-20(4 to 20mA)	OFF
B.UP	Digital zero backup setup	OFF/ON	OFF
LINE	Linearization setup	OFF/ON	CLR
I.SEL	Input selection	OC (open collector)/LGC (logic)/MAG (magnet)	O.C
TR T	Tracking zeroing time setup	00 to 99	00
TR V	Tracking zeroing width setup *2	00 to 99	01
SNSR	Sensor power setup	10(10V)/5(5V)	5
P	Power on delay time setup	OFF/ON	OFF
PRO	Protect setup	OFF/1 to 30	OFF
U.NO.	Unit number indication setup	OFF/ON	ON
Comparator data			
S-HI	HI side judgment value setup	-9999 to 9999	1000
S-LO	LO side judgment value setup	-9999 to 9999	500
H-HI	HI side hysteresis setup	0 to 999	0
H-LO	LO side hysteresis setup	0 to 999	0
Scaling data			
FSC	Full scale indication value setup	-9999 to 9999	*1
FIN	Full scale input value setup	-9999 to 9999	*1
OIN	Offset indication value setup	-9999 to 9999	*1
OFS	Offset input value setup	-9999 to 9999	*1
PS	Pre-scaling setup	0.001 to 5.000	1.000
PPR	Frequency division setup	1 to 100	1
DLHI	Digital limiter HI value setup	-9999 to 9999	9999
DLLO	Digital limiter LO value setup	-9999 to 9999	-9999
AOHI	Analog output HI indication setup	-9999 to 9999	9999
AOLO	Analog output LO indication setup	-9999 to 9999	0
DEP	Decimal point indication position setup	None/place of 10^0/place of 10^1/place of 10^2/place of 10^3	None
Linearization data			
		*2	*2
Calibration data			
ZERO	Zero input value	-0.300 to 2.000	0.000
SPIN	Span input value	1.000 to 3.000	2.000
SPAN	Span indication	0 to 9999	9000

Multi-display unit / Single display unit

(1) Press the Mode and Enter keys together during measurement.

(2) Press the Mode key to change to the peak hold setup mode.

(3) For a single display unit, press the Mode key to change to the parameter information indication. (The display automatically changes to this indication in about 1 second, except right after COND is indicated.)

(4) Press the Increment key a few times to set to Valley Hold.

(5) Press the Enter key to return to measurement mode. (Pressing the Mode key changes to the next parameter.)

5.4 Information on Each Parameter
5.5 Method of Setting Condition Data

HI side judgment value : 900
HI side hysteresis value : 200
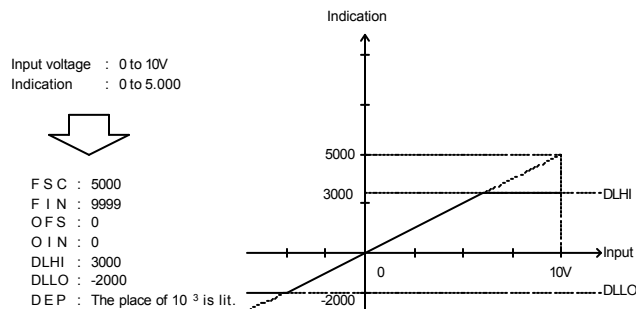LO side judgment value : 300
LO side hysteresis value : 150

Multi-display unit / Single display unit

(1) Press the Mode and Enter keys together during measurement.

(2) Press the Shift key a few times to display the comparator data menu.

(3) Press the Mode key a few times to display the parameter to be set.

(4) For a single display unit, press the Mode key to change to the parameter information indication. (The display automatically changes to this indication in about 1 second, except for parameter S-HI right after COM is indicated.)

(5) Press the Shift key (change digit) and press the Increment key (change numeric value) to set to 10.
Note: The decimal point in the selected digit flashes.

(6) Press the Enter key to return to the measurement mode (Pressing the Mode key changes to the next parameter).

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

5.6 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.

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

5.7 Method of Setting Scaling Data

This section explains comparator data and shows a typical example of

Input voltage : 0 to 10V
Indication : 0 to 5.000

F S C : 5000
F I N : 9999
O F S : 0
O I N : 0
DLHI : 3000
DLLO : -2000
D E P : The place of 10^3 is lit.

Multi-display unit / Single display unit

(1) Press the Mode and Enter keys together during measurement.

(2) Press the Shift key a few times to change to the scaling data menu.

(3) Press the Mode key a few times to display the parameter to be set.

(4) For a single display unit, press the Mode key to change to the parameter information indication. (The display automatically changes to this indication in about 1 second, except for parameter FSC right after MET is indicated.)

(5) Press the Shift key (change digit) and press the Increment key (change numeric value) to set to 10.
Note: The decimal point in the selected digit flashes.

(6) Press the Enter key to return to the measurement mode (Pressing the Mode key changes to the next parameter).

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 that the value set in the DLHI parameter are input (for DLLO parameter, values smaller than the value for an output current of 4 mA in the AOLO parameter (for 4-20 mA output).

Determining the revolution speed (rpm) using the rotary encoder set to 30 pulses per minute:

(1) Determine the measurement range by calculating the maximum frequency. The figure below shows an example where the revolution rises to a maximum speed of about 100 rpm.

$$30 \times 100 \div 60 = 50$$
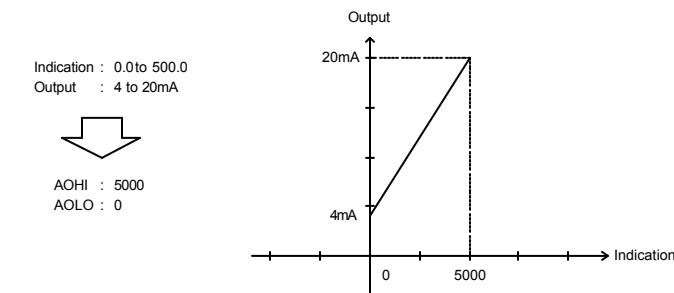
— Number of pulses per second
— Revolution speed per second
— Number of pulses per revolution at the rotary encoder

(2) Since the number of pulses determined in (1) is 50 per second (50 Hz), set the range to range 11 (for how to set the range, see the section on setting condition data).

(3) The display unit shows 500 if 50 Hz pulse input is measured under range 11 (when PS=1 and PPR=1 by default). Therefore, the parameters should be set as PS=2 and PPR=1 so that the decimal point is positioned in the 10^1 digit (100.0 is indicated 50 Hz input).

DLLO setpoint are not indicated).

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).

Indication : 0.0 to 500.0
Output : 4 to 20mA

AOHI : 5000
AOLO : 0

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

Note1: For analog output scaling, set the indication value for an output current of 20 mA in the AOHI parameter and set the indication

Multi-display unit / Single display unit

(1) Press the Shift, Increment, and Enter keys together during measurement.

(2) Press the Mode key to change to the actual load calibration mode.

(3) Press the Mode key while applying pressure that will cause the display to show zero.

Err1: When the input at the time of zero calibration is below -0.3mV/V, it displays.
Err2: When the input at the time of zero calibration is more than 1mV/V, it displays.

(4) For a single display unit, press the Mode key to change to the parameter information indication.

(5) Press the Shift key (change digit) and Increment key (change numeric value) to set 8000.
Note: The decimal point in the selected digit flashes.
Err3: It is the same as that of the time of being an input at the time of span calibration at the zero proofreading time, or when small, it displays.
Err4: When the input at the time of span calibration is more than 3.3mV/V, it displays.
Err5: When the setup more than the highest decomposition ability is performed, it displays.

(6) Press the Mode key to return to the measurement mode.

value for an output current Of 4 mA in the AOLO parameter (for 4-20 mA output).

Note2: The analog signal out of the setting range cannot be accurately

Multi-display unit / Single display unit

(1) Press the Shift, Increment, and Enter key together during measurement.

(2) Press the Increment key to select the equivalent calibration mode.

(3) Press the Mode key to move to the equivalent calibration mode.

(4) Press the Shift key to display the zero-input setup mode.
Note: For a single display unit, the unit automatically returns to ZERO indication if there is no key operation for about 8 seconds. In such a case, press the Mode key to return to the numerical value indication.

(5) Press the Shift key (change digit) and the Increment key (change numeric value) to set 0.004.
Note: The decimal point in the selected digit flashes.

(6) Press the Mode key to change to the span input value setup mode.

Err1: When the input at the time of zero calibration is below -0.3mV/V, it displays.
Err2: When the input at the time of zero calibration is more than 1mV/V, it displays.

(7) For a single display unit, press the mode key to display the parameter information indication.

(8) Press the Shift key (change digit) and the Increment key (change numeric value) to set 1.002.

(9) Press the Mode key to change to the span indicating value setup mode.

(10) For a single display unit, press the Mode key to display the parameter information indication.

(11) Press the Shift key (change digit) and the Increment key (change numeric value) to set 2000.
Note: The decimal point in the selected digit flashes.

Err3: It is the same as that of the time of being an input at the time of span calibration at the zero proofreading time, or when small, it displays.
Err4: When the input at the time of span calibration is more than 3.3mV/V, it displays.
Err5: When the setup more than the highest decomposition ability is performed, it displays.

(12) Press the Mode key to return to the measurement mode.