MODEL A5000 SERIES INSTRUCTION MANUAL



⚠ Caution

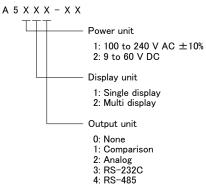
- Do not apply a voltage or current exceeding the maximum allowable value; otherwise, it may damage the equipment.
- (2) Use a power voltage within the operation range; otherwise, it may result in a fire, electrical shock, or malfunction.
- (3) The contents of this manual are subject to change without 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 Watanabe Electric Industry 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.

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 Watanabe Electric Industry 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.



- 5: Comparison and analog
- 6: Comparison, analog, and RS-232C
- 7: Comparison, analog, and RS-485

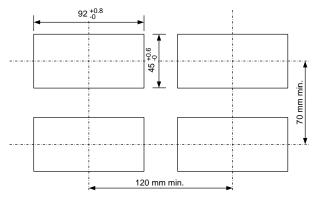
- A 5 X X X X X

 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: ±600 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: 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 gauze input unit (load cell)
 - 18: Process signal measuring unit (4 to 20 mA or 1 to 5 V)

2. Mounting the Product

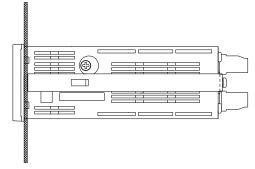
2.1. Dimensions for Cutting Panel

Cut the panel for mounting according to the following dimensions.



2. 2. Mounting the Product to the Panel

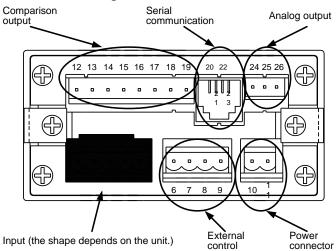
To mount the A5000 to the panel, remove its fittings and insert it through the hole in the front of the panel. From the back of the panel, fix the product to the panel with the fittings.



⚠ Caution

- (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°C.

3. Terminal Arrangement



3. 1. Power



No.	Name	Description
10		Power terminal without polarity for both DC and AC
11		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	сом	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 (±600 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	LO	Negative input terminal
5	LO	ivegative 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 (600 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	LO	Negative input terminal
5	LO	ivegative input terminal

3.3.7. AC Current Measuring Unit (Range 26)



No.	Name	Description
1	HI	Input terminal
2	LO	Input terminal
Appli	cable solde	erless terminals

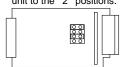


3.3.8. Resistance Measuring Unit



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	сом	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.





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	Α	Resistance sensor wire
2	В	Resistance sensor wire
3	С	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



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

3.3.12. Frequency Measuring Unit (500 Vrms)



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

3.3.13. Strain Gauge Input Unit (Load cell)



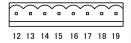
No.	Name	Description	
1	+SIG	Positive input terminal	
2	-SIG	legative input terminal	
3	+EXC	Power output for sensor (positive)	
4	-EXC	Power output for sensor (negative)	
5	СОМ	Common terminal (grounding terminal for input circuit)	

3.3.14. Process Signal Measuring Unit



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	

3.4. Comparison Output



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)	

3.5. Analog Output



No.	Name	Name Description	
24	СОМ	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)	

3.6. Serial Communication



Modular jack:
RJ-14(6P 4C)

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

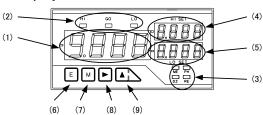
⚠ Caution

- (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.

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.

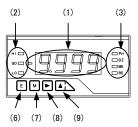
4.1. Multi-display Unit

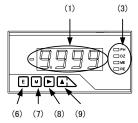


			(6) (7) (8) (9)	
No.	Name		Main Functi	ions
No. Name			During measurement	During parameter setup
(1)	Main display		Indicates the measured value.	IIndicates information on the parameter to be set.
(2)	Judgment indicators	HI	Indicates the result of judgment and turns on if the measured value > HI judgment value. Indicates the result of judgment and turns on if LO judgment value ≦ the measured value ≦ HI judgment value. Indicates the result of judgment and	
			turns on if the measured value < LO judgment value.	
		ME PH	Turns on if "digital zero backup" is on. Turns on if "peak hold/valley hold/peak - valley hold" is on.	
(3)	Function indicators	DZ	Turns on if "digital zero" is on.	
	indicators	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. Pressing the Enter and Increment keys together changes to the maximum/minimum/(maximum-minimum)/input value monitoring mode.	Returns to the measurement mode.
			Switches from the maximum/minimum/(maximum-maximum/minimum/(maximum-minimum)/input value monitoring mode to the comparative judgment reading mode.	

		Pressing the Mode and Enter keys	
		together changes to the parameter	Selects the item to be set.
		setting mode.	
		Pressing the Mode and Shift keys	
(7)	Mode key	together changes to the shift function	
		setup mode.	
		Pressing the Mode and Incremental	
		keys together turns on/off the "Digital	
		zero" indicator.	
		Pressing the Shift and Mode keys	
		together changes to the shift function	
		setup mode.	
		Selects from items in the	
		maximum/minimum/(maximum-	
(8)	Shift key	minimum)/input value monitoring mode.	
		(Hold down the key for about one second.)	
		Pressing the Increment and Mode keys	Changes the value or content
		together turns on/off the "Digital	of a selected digit.
		zero" indicator.	(Increments the value)
		Pressing the Increment and Enter keys	
		changes to the	
(9)	Increment key	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	1

4.2. Single Display Unit



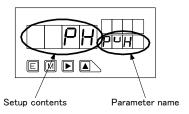


No.	Name		Main Functi	ons
110.	ivaine		During measurement	During parameter setup
			Indicates the measured value.	IIndicates information on the parameter to be set.
(1)	Main display		Indicates information on the item in the maximum/minimum/(maximum-	
			minimum)/input value monitoring mode. Indicates the result of judgment and	
		HI	turns on if the measured value > HI judgment value.	
(2)	Judgment indicators	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	
		PH	judgment value. Turns on if "peak hold/valley hold/peak – valley hold" is on.	
		DZ	Turns on if "digital zero" is on. Flashes when linearization data output values are set.	
(3)	Function	ME		
	indicators	RE	Turns on if remote control is being performed through RS-232C or RS-485 interface. Flashes when linearization data input values are set.	
	Enter key		Pressing the Mode and Enter keys together changes to the parameter setting mode.	Returns to the measurement mode.
(6)			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.	
	Mode key		Pressing the Mode and Enter keys together changes to the parameter setting mode.	Selects the item to be set.
(7)			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.	

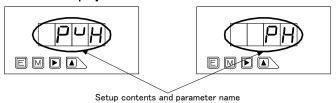
		Pressing the Shift and Mode keys	
		together changes to the shift function	
		setup mode.	
		Holding down the Shift key for about	
(8)	Chica I	one second moves to the HI judgment	
(0)	Shift key	value indicator.	
		Selects from items in the	
		maximum/minimum/(maximum-	
		minimum)/input value monitoring mode.	
		(Hold down the key for about one second.)	
		Pressing the Increment and Mode keys	Changes the value or content
	Increment key	together turns on/off the "Digital	of a selected digit.
		zero" indicator.	(Increments the value)
		Holding down the Increment key for	
		about one second moves to the LO	
		judgment value indicator.	
(9)		Pressing the Increment and Enter keys	
(3)		changes to the	
		maximum/minimum/(maximum-	
		minimum)/input value monitoring mode.	
		Resets the	
		maximum/minimum/(maximum-	
		I t - t t t t t t	
		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.

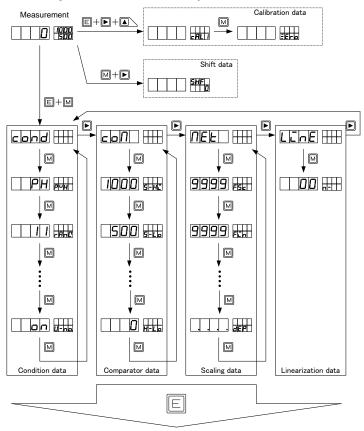
5. 1. 2. Single Display Unit

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



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.)

5.3. Data Lists and Default Settings

		Default	Equipped								Input	unit nu	umber												out ur			er
Indication	Name	value	as	01	02	03	04	05	06	07	08	09	10	- 11	12	13	14	15	16	17	18	0	1	2	3	4 5	j (6
Condition	data																											
PVH	Peak hold setup	PH	0																								I	Т
RANG	Measurement range setup	*1		11	O 15	O 25	O 13	O 15	O 13	O 15	O 25	× 26	O 25	× 26	O 14	ОВ	á G	O 14	0	×	O 2A					Т		T
AVG	Number of averaging	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	×	×	0	0					\top	T	T
MAV	Number of moving averaging setup	OFF	0																				\neg			Т	Т	Т
S.UD	Step wide setup	1	0																								П	П
BLNK	Indication blank setup	OFF	0																					7		\top	T	П
UNIT	Unit setup	С		×	×	×	×	×	×	×	×	×	×	×	×	0	0	×	×	×	X			7		\top	T	
BAUD	Baud rate setup	9600																				×	×	×	0	0 >	× (O
DATA	Data length setup	7																				×	×	×	0	0 >	√ (O
P.BIT	Parity bit setup	Е																				×	×	×	0	0 >	√ (O
S.BIT	Stop bit setup	2																				×	×	×	C	\circ	√ (C
T-	Delimiter setup	CR.LF																				×	×	×	0	0 >	₹ 7	O
ADR	Equipment ID setup	00																				×	×	×	×	0 >	₹	х
A.OUT	Analog output setup	OFF																				×	×	O	×	× (3	O
B.UP	Digital zero backup setup	OFF	0																				J	J		I	I	
LINE	Linearization setup	CLR	Ô																				J	J		ፗ	I	
I.SEL	Input selection	OC		×	×	×	×	×	×	×	X	×	×	×	X	×	×	0	×	×	×		J	J		I	I	
TR T	Tracking zeroing time setup	00		0	0	0	×	×	×	×	×	×	×	×	X	×	×	×	×	0	0		T			T	T	٦
TR V	Tracking zeroing width setup *2	01		0	0	0	×	×	×	×	×	×	×	×	×	×	×	×	×	0	0			7		\top	T	
SNSR	Sensor power setup	5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	0	X			7		\top	T	П
PON	Power-on delay setup	OFF	0																				\neg	\neg		\top	T	Π
PRO	Protect setup	OFF	Ö																				\neg			Т	\top	Т
U-NO.	Unit number Indication setup	ON	Ö																				\neg			Т	\top	
Compara																						•						_
S-HI	HI side judgment value setup	1000																				×	O	×	×	x () ($\overline{\Box}$
S-LO	LO side judgment value setup	500																				×	Ö	×		× (517	Ö
H-HI	HI side hysteresis setup	0																				×	Ö	×		× (Ŏ
H-LO	LO side hysteresis setup	0																				×	Õ	×	×	× (517	Ŏ
Scaling da							•															_					نب	
FSC	Full scale Indication value setup	*1		0	0	0	0	0	0	0	0	0	0	0	0	×	X	×	×	×	0	П	\neg			\top	Т	٦
FIN		*1		9999	9999			9999	9999 O	9999 O		9999 O	9999 O	9999 O	9999 O	×	×	×	×	×	9999		\dashv	4		+	Ļ	_
	Full scale input value setup	Ť		9999	9999	9999	9999	9999	9999	9999	9999	5000	9999	5000	9999						*3	Ш	_			丄	Ļ	
OFS	Offset indication value setup	*1		0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	×	×	×	×	×	0					┸	L	
OIN	Offset input value setup	*1		0	0	0 0	00	00	00	00	<0	00	00	00	o 0	×	×	×	×	×	O *4							
PS	Pre-scaling value setup	1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	0	0	×	X					\perp	丄	
PPR	Frequency division setup	1		×	×	×	×	×	×	×	X	×	×	×	X	×	×	0	0	×	X							
DLHI	Digital limiter HI value setup	9999		0	0	0	×	×	×	×	X	×	×	×	0	0	0	0	0	0	0							
DLLO	Digital limiter LO value setup	-9999		0	0	0	×	×	×	×	X	×	×	×	0	0	0	0	0	0	0	\Box	丄			上	上	
AOHI	Analog output HI indication setup	9999																				×		0		× (0
AOLO	Analog output LO indication setup	0																				×	×	0	×	× (0
DEP	Decimal point position setup	None		0	0	0	0	0	0	0	0	0	0	0	0	×	X	0	0	0	0					\perp	L	
Lineariza	tion data	*5	0																									
Calibratio	n data																											
ZERO	Zero input value *6	0		×	×	×	×	×	×	×	X	×	×	×	X	×	×	×	×	0	×		П			Т	Т	_
SPIN	Span input value *6	2000		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	Ŏ	×		ヿ	T		T	T	П
SPAN	Span indication	9000		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	Ŏ	×		寸			T	T	_
Shift data					•	-	-															Г,						_
SHF	Shift data setup	0	0	i																		П	\neg	Т		т	Т	-
																		_		_		_	_	_	_			_

- Shift data setup

 Cach value in the lower part of a cell in the columns on the right is the default value.

 Tracking zero width setup parameter is not indicated if the tracking time is set to OFF(0).

 5000 for 1 V range and 2000 for 2 A range

 Linearization data are not set up for the default values.

 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.

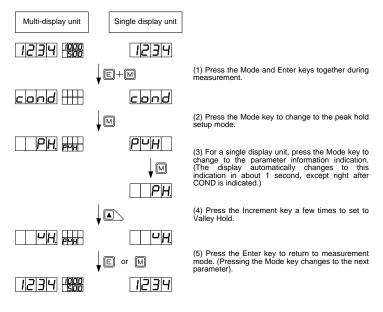
5.4. Information on Each Parameter

Indication	Name	Setup options	Default value
Condition of	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/O-1(0 to 17)/0-10(0 to 107)/1-5(1 to 57)/4-20(4 to 20mA)	OFF
LINE		OFF/ON OFF/ON	
	Linearization setup		CLR
I.SEL TR T	Input selection	OC (open collector)/LGC (logic)/MAG (magnet)	O.C
	Tracking zeroing time setup	00 to 99	
TR V	Tracking zeroing width setup *2	00 to 99	01
SNSR	Sensor power setup	10(10V)/5(5V)	5
PON	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
omparato			
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
caling dat			
FSC	Full scale indication value setup	-9999 to 9999	
FIN	Full scale input value setup	*In the case of AC input, please use it by "+" setting by all means.	*1
OFS	Offset indication value setup	It is not displayed normally when I use it by "-" setting.	
OIN	Offset input value setup		
PS	Pre-scaling value 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
inearizatio		*2	*2
alibration		4	- 2
		0.200 4- 0.000	0.000
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

5. 4. 1Method of Setting Condition Data

This section shows a typical example of setting the peak hold parameter.

The same method applies to other parameters.



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.

HI side judgment value : 900 HI side hysteresis value : 200 LO side judgment value LO side hysteresis value: 150 Indicated value HI side judgment value 1000 900 HI side hysteresis range 500 150 LO side hysteresis 300 range LO side judgment value 0 GO GO LO Judgment Multi-display unit Single display unit 1234 1888 1234 (1) Press the Mode and Enter keys together during E+M measurement. cond ## cond (2) Press the Shift key a few times to display the comparator data menu. clon IIII coN (3) Press the Mode key a few times to display the parameter to be set. M 1.000 st-HE 5|-HL (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.) \downarrow (M) 1.000 (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. 09.00 s-HC 09.00 (6) Press the Enter key to return to the measurement mode (Pressing the Mode key changes to the next parameter).

Note: The setup conditions are HI side judgment value > LO side judgment value, HI side judgment value 3 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.

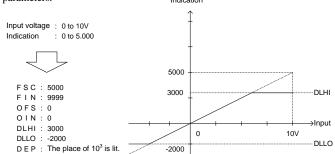
5.4.3 Method of Setting Scaling Data

E or M

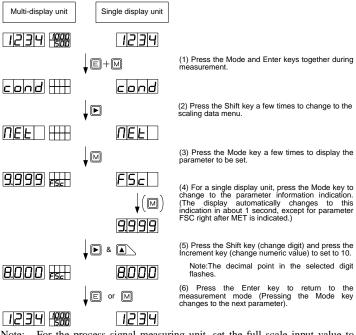
1234

1234 188

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. Indication



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 DLLO setpoint are not indicated).

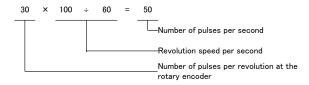


Note: For the process signal measuring unit, set the full scale input value to 5.000 for the 1 V range and to 20.00 for the 2 A range, and set the offset input value to 1.000 for the 1 V range and to 4.00 for the 2 A range.

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

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.

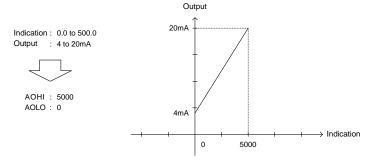


(2) Since the number of pulses determined in (1) is 50 per second (50 Hz), set the range to range 11(for how to set the range, see the section on setting condition data).

(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 101 digit(100.0 is is indicated 50 Hz input).

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.)



Note1: 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).

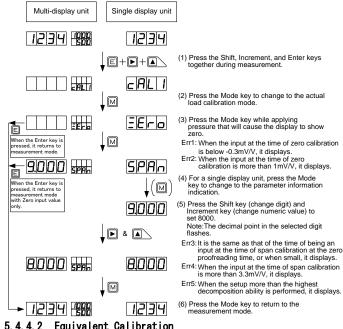
Note2: The analog signal out of the setting range cannot be accurately output.

5.4.4 Method of Setting Calibration Data

5. 4. 4. 1 Actual Load Calibration

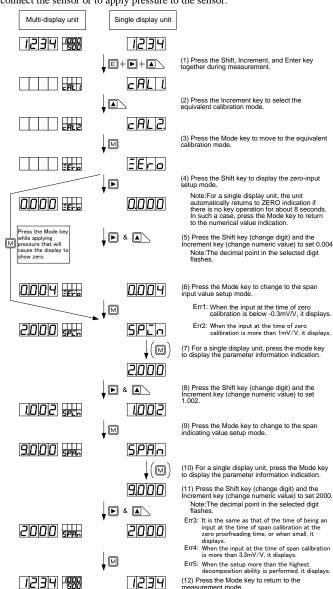
meter

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



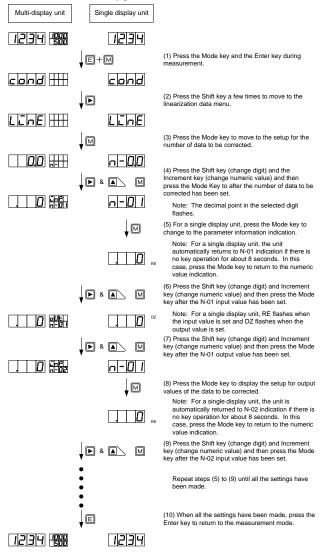
5.4.4.2 Equivalent Calibration

Equivalent calibration means that calibration is carried out according to the connect the sensor or to apply pressure to the sensor.



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 Thus, the Digital Zero function can be used to reset the measuring unit. indication when there is no input signal at all.

Note that, the on/off control of the Digital Zero function can be achieved by 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.

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

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)

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

Input circuit: Single ended type

Operating system : $\Delta \Sigma$ conversion

Maximum sampling rate : 12.5 times per second

Noise rejection ratio : NMR (normal mode rejection) 50 dB or more (50 or 60 Hz)

8.1.2 DC Voltage Measuring Unit (ranges 12 to 15)

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
12	±999.9mV		100 μ V	About 100M Ω	±100V	
13	±9.999V	Offset: ±9999 Full scale: 0 to ±9999	1mV	About 1MΩ	±250V	±(0.1% of FS)
14	±99.99V		10mV	About 10MΩ	±250V	
15	±600V		100mV	About 10MΩ	±600V	±(0.15% of FS)

Input circuit: Single ended type

Operating system : $\Delta~\Sigma~$ conversion Maximum sampling rate : 12.5 times per second

Noise rejection ratio: NMR (normal mode rejection) 50 dB or more (50 or 60 Hz)

8.1.3 DC Current Measuring Unit

Rang	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
23	±9.999mA		1 μ Α	About 10Ω	±100mA	±(0.2% of FS)
24	±99.99mA	Offset: ±9999 Full scale: 0 to ±9999	10 μ A	About 1Ω	±500mA	±(0.2% 01 F3)
25	±999.9mA		100 μ A	About 0.1 Ω	±3A	±(0.3% of FS)

Input circuit: Single ended type

Operating system : $\Delta \Sigma$ conversion Maximum sampling rate : 12.5 times per second

Noise rejection ratio: NMR (normal mode rejection) 50 dB or more (50 or 60 Hz)

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

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

Input circuit : Single ended type Operating system : Δ Σ conversion Maximum sampling rate : 12.5 times per second Frequency range : 40 Hz to 1 kHz Response speed : About 1 second Dead zone : 0 to 99 digits

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
14	99.99∨	Offset : ±9999 Full scale : 0 to ±9999	10mV	1ΜΩ	250V	±(0.2% of FS +10digit)
15	600V		100mV	or more	600V	±(0.3% of FS +10digit)

Input circuit: Single ended type Operating system : Δ Σ conversion Maximum sampling rate : 12.5 times per second

Frequency range: 40 Hz to 1 kHz Response speed: About 1 second Dead zone: 0 to 99 digits

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
11	99.99mV		10 μ V		±100V	
12	999.9mV	Offset : ±9999 Full scale : 0 to ±9999	100 μ V	1MΩ or more	±100√	±(0.2% of FS +20digit)
13	9.999∨		1mV		±250V	

Input circuit : Single ended type

Operating system : Δ Σ 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 accuracy applied to a sine wave that equals or exceeds 5% of the measurement range. *"0" may not be displayed infrequently under the influence of the DC cut

condenser of the input part when turning on the power with no signal, but it is not trouble.

It normally operates if the signal in measurement range is given.

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
14	99.99∨	Offset : ±9999 Full scale : 0 to ±9999	10mV	1ΜΩ	250V	±(0.2% of FS +20digit)
15	600V		100mV	or more	600V	±(0.3% of FS +20digit)

Input circuit: Single ended type

Input circuit: Single ended type Operating system: $\Delta \Sigma$ 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 accuracy amplied to a sine wave that equals or exceptions of the control of the state of

*The accuracy applied to a sine wave that equals or exceeds 5% of the measurement range.

*"0" may not be displayed infrequently under the influence of the DC cut condenser of the input part when turning on the power with no signal, but it is not trouble.

It normally operates if the signal in measurement range is given.

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

Range	Measurement range	Indication	Highest resolution	Input impedance	Maximum permissible input	Accuracy
23	9.999mA		1μΑ	About 10Ω	100mA	
24	99.99mA	Offset: ±9999 Full scale: 0 to ±9999	10 μ A	About 1Ω	500mA	\pm (0.5% of FS +10digit)
25	999.9mA		100 μ A	About 0.10	3A	

Input circuit : Single ended type Operating system : Δ Σ 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

8.1.9 AC Current Measuring Unit (average value detection: range

26)

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 isoration type

Input circuit. Of Isoration type
Operating system: Δ Σ 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

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

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

Input circuit: Single ended type Operating system: $\Delta \Sigma$ 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 accuracy applied to a sine wave that equals or exceeds 5% of the measurement range.

*"0" may not be displayed infrequently under the influence of the DC cut condenser of the input part when turning on the power with no signal, but it is not

It normally operates if the signal in measurement range is given.

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

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 isoration type

Input circuit: C1 isoration type
Operating system: Δ Σ 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

*The accuracy applied to a sine wave that equals or exceeds 5% of the measurement range.

*"0" may not be displayed infrequently under the influence of the DC cut condenser of the input part when turning on the power with no signal, but it is not

It normally operates if the signal in measurement range is given.

8.1.12 Resistance Measuring Unit

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

Input circuit : Single ended type Operating system : Δ Σ 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

8. 1. 13 Temperature Measuring Unit (TC)

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

Input circuit : Single ended type Operating system : Δ Σ conversion Maximum sampling rate : 6.25 times per second

Cold junction compensation error : $\pm 2^{\circ}$ C(at 10 through 40°C) Internal resistance of sensor : $50^{\circ}\Omega$ or less Linearizer : Digital linearizer Burnout alarm : It blinks by —— display.

8.1.14 Temperature Measuring Unit (RTD)

Range	Input sensor	Indication	Highest resolution	Accuracy
PA	ΡΤ100Ω	-100.0 to 199.9°C	0.1°C	±(0.15% of FS)
JPA	JPt100Ω	(-148.0 to 391.8° F)	(0.1° F)	±(0.15% 01 1 3)
РВ	ΡΤ100Ω	−100 to 600°C	1°C (1° F)	±(0.3% of FS)
JPB	JPt100Ω	(-148 to 1112° F)		±(0.5% 01 F3)

Input circuit: Single ended type

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

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

Range	Measurement range	Indication	Highest resolution	Renewal time of a display	Accuracy
11	0.1 to 200Hz		0.1Hz	10s	
12	1 to 2000Hz	Pre-scale : 0.001 to 5	1Hz	1s	±(0,2% of FS)
13	0.01 to 20kHz	Frequency division : 1 to 100	10Hz	100ms	±(0.2% 01 F3)
14	0.1 to 200kHz		100Hz	100ms	

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

Duty ratio: 50%

8.1.16 Frequency Measuring Unit (500 Vrms)

Range	Measurement range	Indication	Highest resolution	Renewal time of a display	Accuracy
11	0.1 to 200Hz		0.1Hz	10s	
12	1 to 2000Hz	Pre-scale : 0.001 to 5 Frequency division : 1 to 100	1Hz	1s	±(0.2% of FS)
13	0.01 to 20kHz		10Hz	100ms	±(0.2% 01 F3)
14	0.1 to 200kHz		100Hz	10ms	

Input type	Input voltage lebel	Maximum permissible input
Voltage	50 to 500Vrms	500Vrms

Duty ratio: 50%

8.1.17 Strain Gage Unit

Sensor	Zero adjusting range	Span adjusting range	Measurement range	Highest resolution	Accuracy
5V	-0.3 to +1mV/V	1 to 3mV/V	0 to 3mV/V	$0.5\mu\mathrm{V/digit}$	±(0.1% of FS +2digit)
10V	-0.3 to +1111V/V	1 to Silly/V	o to silly/v	1 μ V/digit	土(0.1% 01 F3 +2digit/

Input circuit : Single ended type

Maximum sampling rate : 12.5 times per second Noise rejection ratio : NMR (normal mode rejection) 50 dB or more (50 or 60 Hz)

8.1.18 Process Signal Measuring Unit

Range	Measurement range	Indication	Input impedance	Maximum permissible input	Accuracy
1V	1 to 5V	Offset : ±9999	About 100M Ω	±100V	±(0.2% of FS)
2A	4 to 20mA	Full scale : 0 to ±9999	About 10 Ω	±100mA	±(0.2% 61 F3)

Input circuit: Single ended type

Operating system : Δ Σ conversion Maximum sampling rate : 12.5 times per second

Noise rejection ratio: NMR (normal mode rejection) 50 dB or more (50 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 indicayion range

Decimal point : Can be set at an arbitrary digit. Zero indication : Leading aero 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 : 100 to 240V AC $\pm 10\%$ for AC power supply unit Power supply

9 to 60 V DC for DC power supply unit

Power consumption: 7VA max. (AC power supply)

7W max. (DC power supply)

External dimensions: 96 mm (W) × 48 mm (H) × 146.5 mm (D)

Note: Depth (D) denotes the maximum value.

Weight : 450g

Withstand voltage : 2000V AC for 1 min. between power terminals and input

terminal, and between power terminals and each output

terminal (AC power supply)

Withstand voltage : 500V DC for 1 min. between power terminals and input

terminal, and between power terminals and each output

terminal (DC power supply)

Withstand voltage : $500V\ DC$ for 1 min. between input terminal and each output

terminal, and between analog output terminal and

communication terminals

2000 V AC for 1min between ccase and each output terminal

(common to both AC and DC supply)

Insulation resistance : 100 M Ω between the abbove terminals when 500 V DC is

applied

Conformity standard : EN61326-1 EMI : Class A EMS : Industrial locations

EN61010-1 (Transducer is applied to standard by the input and output signal line length less than 30m.)

EN50581

It applies only to the product with which CE mark is

indicated on the label.

Grounding environment: Category II, Pollution degree 2

Altitude · 2000m max

Fuse : K19372 1.0A (DC power supply)

Output Specifications

8.3.1 Output for Comparison

Conditions for comparison	Judgment result
Indicated value > Upper limit judgment value	HI
Lower limit judgment value \leqq Indicated value \leqq 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)

8.3.2 Analog Output

Output type	Load resistance	Accuracy	Ripple
0 to 1V	10kΩ or more		
0 to 10V	10kΩ or more	±(0.5% of FS)	$\pm 50 \mathrm{mVp-p}$
1 to 5V	10kΩ or more	±(0.5% of FS)	
4 to 20mA	550Ω or less		±25mVp-p

Note: The ripple ratings for the 4–20 mA output are when the load resistance of 250 Ω_{\rm} and the output current of 20 mA are applied.

Conversion system : PWM conversion

Resoluton : Equivalent to 13 bits

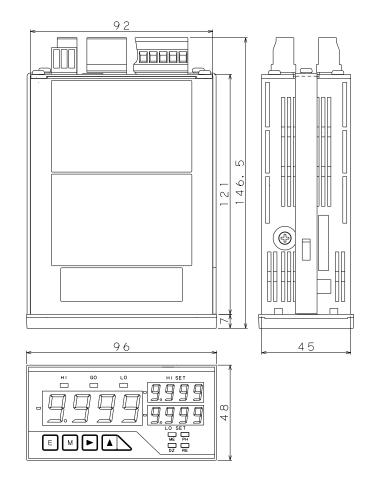
Scaling : Digital scaling

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 halt duplex (Polling selecting system)					
Communication rate	38400bps/19200bps/9600bps/4800bps/2400bps					
Start bit		1 bit				
Data length		7bit/8bit				
Error detection		Even parity/ odd parity/ non-parity				
	BCC (block, check, and character check sum)					
Stop bit	1bit/2bit					
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 500m (total) In EN/IEC conformity, it is under 30m.				
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 Watanabe Electric Industry 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 Watanabe Electric Industry directly. (It is advisable that you send a memo describing the failure in as much detail as possible along with the product returned.)

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	С	
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	ос	
TR T	Tracking zeroing time setup	00	
TR V	Tracking zeroing width setup *2	01	
SNSR	Sensor power setup	5	
PON	Power-on delay setup	OFF	
PRO	Protect setup	OFF	
U-NO.	Unit number Indication setup	ON	
Comparato	or 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 dat		14.40	
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	
Linearizati	on data	*5	
Calibration	ı 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.

*When the power turns on while pressing all the keys (Enter, Mode, Shift and Increment), and held pressed until LEDs are all lit, then all data initializes to the default settings.

watanabe

WATANABE ELECTRIC INDUSTRY CO., LTD.

6-16-19, Jingumae, Shibuya-ku, Tokyo 150-0001, Japan

Phone: (81)3-3400-6141

Homepage http://www.watanabe-electric.co.jp/en/

A5000 Series

Communication Functions User's Manual

1. Overview

This manual explains the specifications of the communication functions provided by the A5000 series of digital panelmeters. It also explains how to handle the A5000 series.

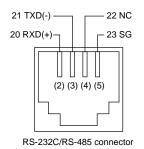
2. Specifications

	RS-232C	RS-485				
	(Compatible with EIA RS-232C)	(Compatible with EIA RS-485)				
Synchronization	Start-stop					
Communication method	Full-duplex	Two-wire half-duplex (polling/selecting)				
Transmission rate	2400, 4800, 960	00, 19200, 38400 bps				
Number of start bits		1bit				
Data length	7 b	ts / 8 bits				
Error detection	Even parity, odd parity, or no parity					
	Block check character (BCC) checksum					
Number of stop bits	1 b	ts / 2 bits				
Character code		ASCII				
Transmission control procedure	Non-	procedural				
Signal name used	TXD, RXD, SG	Non-inverting (+), inverting (-)				
Number of units that can be connected	1	31 for meters				
Transmission line length	15 m	500 m max. (overall length)				
Delimiter	CF	R+LF/CR				

3. Terminal Assignments and Connection Method

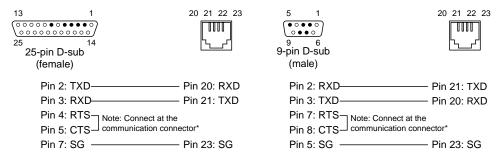
The communication connector of the A5000 series is a modular jack RJ-14(6P4C) compatible with the FCC68 standard. Use a modular plug RJ-14(6P4C) also compatible with the FCC68 standard when connecting the panelmeter.

3.1. Terminal Assignments



Terminal No.	Name	Description
20	RXD(+)	RS-232C: Receive Data terminal; RS-485: Non-inverting output
21	TXD(-)	RS-232C: Transmit Data terminal; RS-485: Inverting output
22	NC	Do not connect.
23	SG	Common terminal for the communication functions

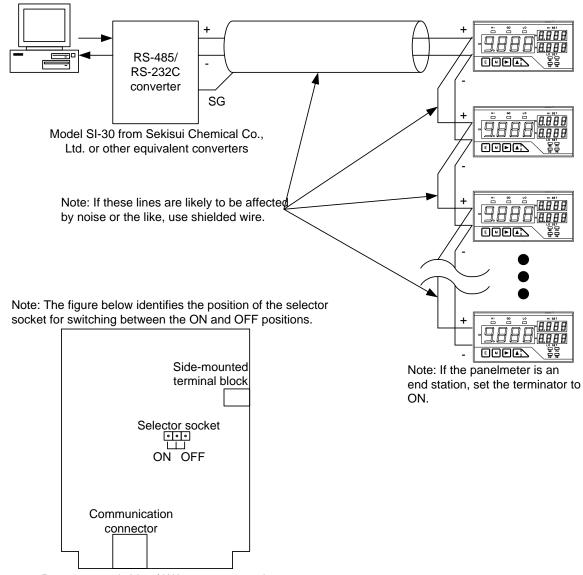
3.2. Example of RS-232C Connection



Note: The above-illustrated connection of the CTS and RTS terminals on the host side is only a typical example for hardware control. Consult your system designer for further details on how to cope with the terminals.

3.3. Example of RS-485 Connection

If the panelmeter is positioned to be an end station as the result of an RS-485 connection, set the terminator to ON by using the selector socket in the A5000 output unit.



Parts-mounted side of WA5000 output unit

4. Communication Function Parameters

The baud rate, data length, parity bit, stop bit, delimiter, and device ID (RS-485 only) are the user-selectable parameters of the communication functions provided by the A5000 panelmeter. For details on how to set the parameters, see the user's manual of the A5000 main unit.

5. RS-485 Transmission/Reception Formats

5.1. Establishing and Releasing the Communication Link

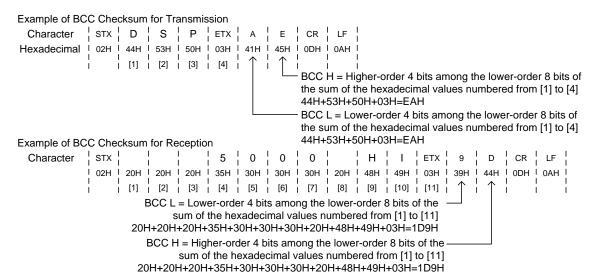
Function	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 Char. Length	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Char Length
Establishment of communication link	ENG. 0 1 CR LF 3	ACK 0 1 CR LF 3
	Note: Set a two-digit number as the device ID (00 is void).	(Normal response)
		Note: The response time is 40 ms maximum.
		(No response is made if the device ID is wrong.)
Release of communication link	EOTCR LF	
	Note: Communication is still possible when another device ID is specified without releasing	(No response is made for release.)
	the communication link.	Note: The response time is 20 ms maximum.

5.2. Available Control Codes

Control Code	Hexadecimal	Name	Description
STX	02H	Start of Text	Marks the starting point of text.
ETX	03H	End of Text	Marks the ending point of text.
EOT	04H	End of Transmission	Marks the end of transmission.
ENQ	05H	Enquiry	Denotes an enquiry.
ACK	06H	Acknowledge	Denotes an affirmative reply.

5.3. BCC Checksum

As a means of error detection, a block check character (BCC) checksum is added to the RS-485 communication function of the A5000 panelmeter. See the following illustrations for details on the transmission and reception formats (which are as illustrated in the table of communication commands in Section6 for the RS-232C communication function).



6. Communication Commands

Function	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	18 19 20 21 22 23 Char Length	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Char.
Measured value and comparison	D. S. P. CR. LF.	3	5 0 0 0 H I CR LF	Ona.
esults response			(+ reading, w/o decimal point)	
		:::::	- 5 0 0 0 H I CR LF	
			(- reading, w/o decimal point)	
			5 0 0 . 0 HICRLF	
	1::::::::::::::::::::::::::::::::::::::		(+ reading, w/ decimal point)	
			< = 9 8 0 0 H I CR LF	
		:::::	(+ overrange reading, w/o decimal point)	
			< = - 9 8 0 . 0 H I CR LF	
			(- overrange reading, w/ decimal point)	
		:::::	P:H: :5:0:0:0: :H::CR:LF: : : : : : :	
			(peak hold reading, w/o decimal point)	
Measured value response	M E S CR LF	3	5 0 0 0 CR LF	
		: : : : :	(+ reading, w/o decimal point)	
			- 5 0 0 0 CR LF	
			(- reading, w/ decimal point):	
		: : : : :	< = : 9:8:0:0: : : : : : : : : : : : : : : : :	
			(+ overrange reading, w/o decimal point) < = - 9 8 0 0 0 CR LF	
			< = - 9 8 0 . 0 CR LF	
	: : : : : : : : : : : : : : : : : : :	: : : : :	(- overrange reading, w/ decimal point)	
			All responses are the fixed length of 12 characters.	
Comparison results response	J G M CR LF	3	H I CR LF	
		: : : : :	(In HI, a judgment result is.)	
			G O CR LF	
		:::::	(In GO, a judgment result is.) L O CR, LF	
			(In LO, a judgment result is.)	
			All responses are the fixed length of 15 characters.	
Hold remote control response	S.T.H.CR.LF	3	S T A R T CRLF	
iola remote control response	3 THICKLE		(Response with the status of the hold function being set to OFF by remote	
		:::::	(response with the status of the hold function being set to OTT by remote	
			control):	
			(Response with the status of the hold function being set to ON by remote control)	
		:::::		
Hold terminal response	E S A CR LF	3	S T A R T CRLF	
			(Response with the OFF status of the hold function)	
		: : : : :	H:O:L:D: :CR:LF: : : : : : : : : : : : : : : : : : :	
			(Response with the ON status of the hold function)	
Hold remote control	S.T.H. S.CR.LF.	5	Y E S CRLF	
noid remote control	(Sets the hold function to OFF.)	::::: °	':-:3: : ! ON, LF: : : : : : : : :	
	S T H H CR LF	5	Y E S CR LF	
	(Sets the hold function to ON.)	:::::		
			: : : : : : : : : : : : : : :	
Frigger input	T CR LF	1 1 1 1 1 1	5 0 0 . 0 H I CR LF	
			(+ reading, w/ decimal point)	
	: : : : : : : : : : : : : : : : : : :		Note: The response is the same as that of "DSP".	
Hold remote control cancellation	1			
	E C M CD IE			
	E S M CR LF	3	Y E S CR LF	
Digital zero remote control response	E S M CR LF	3	D Z R O F F CR LF	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by	
	<u> </u>		D Z R II O F F CR LF (Response with the status of the digital zero function being set to OFF by	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control): D Z R 1 1 0 0 0 CR LF	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control)	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control)	
Digital zero remote control response	D Z R CR LF	3	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON.	
	<u> </u>		D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R O F F CR LF	
Digital zero remote control response	D Z R CR LF	3	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R 0 F F CR LF (Response with the OFF status of the digital zero function)	
Digital zero remote control response	D Z R CR LF	3	D Z R O F F CR LF (Response with the Status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R 0 F F CR LF (Response with the OFF status of the digital zero function)	
Digital zero remote control response	D Z R CR LF	3	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R O F F CR LF (Response with the OFF status of the digital zero function) D Z R O N CR LF (Response with the OFF status of the digital zero function)	
Digital zero remote control response	D Z R CR LF E Z A CR LF D Z R O N CR LF	3	D Z R O F F CR LF (Response with the Status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R 0 F F CR LF (Response with the OFF status of the digital zero function)	
Digital zero remote control response	D Z R CR LF E Z A CR LF D Z R O N CR LF (Sels the digital zero function to ON.)	3	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R O F F CR LF (Response with the OFF status of the digital zero function) D Z R O N CR LF (Response with the OFF status of the digital zero function) Y E S CR LF	
Digital zero remote control response	D Z R CR LF E Z A CR LF D Z R O N CR LF Cests the digital zero function to ON.) D Z R O F F CR LF	3	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R O F F CR LF (Response with the OFF status of the digital zero function) D Z R O N CR LF (Response with the OFF status of the digital zero function)	
Digital zero remote control response	D Z R CR LF E Z A CR LF D Z R O N CR LF (Sets the digital zero function to ON.) D Z Z R O F F CR LF (Sets the digital zero function to OFF.)	3 3 6 7	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z I R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z I R O F F CR LF (Response with the OFF status of the digital zero function) D Z I R O N CR LF (Response with the OFF status of the digital zero function) Y E S CR LF Y E S CR LF	
Digital zero remote control response	D Z R CR LF E Z A CR LF D Z R O N CR LF (Sets the digital zero function to ON.) D Z R O F F CR LF (Sets the digital zero function to OFF.) D Z R 1 0 0 0 CR LF	3	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z R 1 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z R O F F CR LF (Response with the OFF status of the digital zero function) D Z R O N CR LF (Response with the OFF status of the digital zero function) Y E S CR LF	
Digital zero remote control response	D Z R CR LF E Z A CR LF D Z R O N CR LF (Sets the digital zero function to ON.) D Z Z R O F F CR LF (Sets the digital zero function to OFF.)	3 3 6 7	D Z R O F F CR LF (Response with the status of the digital zero function being set to OFF by remote control) D Z I R 1 0 0 0 CR LF (Response with the status of the digital zero function being set to ON by remote control) Note: The main unit responds with the reading when the digital zero function is set to ON. D Z I R O F F CR LF (Response with the OFF status of the digital zero function) D Z I R O N CR LF (Response with the OFF status of the digital zero function) Y E S CR LF Y E S CR LF	

Function	1 2 3	4 5 6	7 8 9	10 11 12	13, 14	15 16	17 18	19 20	21 2	23	Char. Length		har. Length
Peak hold remote control response	P V H	CF LF	$ \cdot \cdot $	11°		[ĺ	3	P V H P H - O F F CF LF (Response with the status of the peak hold function being set to OFF by	10
			1							i l		remote control)	10
			1									(Response with the status of the valley hold function being set to OFF by remote control)	
			1	11			1 1			ļ		PIVIHI PIVI-IOIFIFICFILFI I I I I I I	10
			i i i	i i			ii		i i			(Response with the status of the peak/valley hold function being set to OFF by remote control)	
	1111		1	11	İ		-		11	i l		P V H P P H - O N CF LF P P R C O N CF LF P P P R C O N D N CF LF P P P P P P P P P P P P P P P P P P	9
			1									remote control PV H V H - O N CF LF	9
			1	1 1			1 1			ļ		(Response with the status of the valley hold function being set to ON by	J
			1	11				l l				remote control PV H P V - O N CF LF	9
			1	11	İ		i i	İ		ļ		(Response with the status of the peak/valley hold function being set to ON by remote control)	
Peak hold terminal response	E P A	CF LF	1								3	PIVIHI OFFICIFIC IIIIIIIIIIIIIIIIIIIIIIIIIIII	7
			1 1 1	11						ļ		(Response with the OFF status of the peak hold function)	6
			1 1 1	11			1 1			i l		(Response with the ON status of the peak hold function)	
Peak hold type setting	P V H	P H C ne peak holdi)	R LP	i i		i i i	i i	İ	i i	ļ	6	Y E S CR LP	5
	P V H	V H C	FILF I	11			-				6	Y E S C CF LF I I I I I I I I I I I I	5
	P V H	P V C	R LF								6	Y E S CR LF	5
Peak hold remote control		e peak/valley h		11						ļ	6	Y E S CR LA I I I I I I I I I I I I I I I I I I	5
. can note terrote control	(Sets the p	peak hold funct	ion to ON)										
		O F peak hold func		, 							7	Y E S	5
Peak hold value response	P V D	CF LF	1								3	P H 5 0 0 . 0 CF LF	10
	$[\ \ \]$		$ \cdot $									(Response with the peak hold value)	10
												(Response with the valley hold value) PV 6 0 0 0 CF LF	10
			1 1 1	i i			l i	İ	Ιİ	i l		(Response with the peak/valley hold values)	
Peak hold value clear	P C L (Clears the	P H C peak hold val	F¶ILF[i ue.)	11			-		\mathbb{H}		6	Y E S CALA	5
	P C L	V H C	F LF								6	Y 티 S 다하나하	5
	P C L	PVC	R LFI	11						ļ	6	Y E S CR LA	5
Peak hold remote control cancellation	(Clears the	peak/valley h	old values.)	1 1	1		ii	i	1 1	i	3		5
Comparison output remote control		CR LF	: : :	::				-	::		3	R L Y O F F CR LF	7
response			1 1 1							:		(Response with the status of the comparison output being set to OFF by remote control): R ! L Y H CR LF	
			1 1 1							:		remote control) R L Y H I CR LF (Response with the status of the comparison output being set to ON for HI by	6
										:		remote control): R L L Y : G O CR LF	6
			1 1 1							:		(Response with the status of the comparison output being set to ON for GO by	ь
												remote control) R L Y L O CR LF	6
										:		(Response with the status of the comparison output being set to ON for LO by remote control)	
Comparison output remote control	RLY	ніс	R LF							:	6	Y E S CR LF	5
	(Sets to ON	for HI.) G O C	R LF							:	6	Y E S CR LF	5
	(Sets to ON		1 1 1							:	6	Y E S CR:LF	5
	(Sets to ON	for LO.)	1 1 1										
		O F F nparison outpu									7	Y E S CR:LF	5
Comparison output remote control	R C M	CR LF									3	Y E S CR LF	5
cancellation Remote control response	R E A	CR LF	1 	++				\Box	: 	:	3	N O ? CR LF	5
										:		(Response with the status of every function not being remote-controlled) S:T:H:CR:LF:	3
										:		(Response with the status of the hold function being remote-controlled) P V H CR LF	3
												(Response with the status of the peak hold function being remote-controlled):	3
										:		D Z R CR LF (Response with the status of the digital zero function being remote-controlled)	
												R L Y CR LF (Response with the status of the comparison output function being	3
										:		remote-controlled) Note: The main unit responds with the statuses of functions by separating	
MANAGEM ATAN AND		OF LE	+ + +	+ +				_			•	them with delimiters if multiple functions are being remote-controlled.	
MAX/MIN/(MAX-MIN) value response	M A X	CF LF		11							3	M A X 5 0 0 . 0 CF LF (Response with a MAX value)	10
				j j		 				i		M I N I - 1 1 0 0 0 CF LF	10
			+ $+$ $+$					l				MI - I MI I 6 0 0 . 0 CF LF (Response with a (MAX-MIN) value)	10
												Note: The main unit responds with these values at one time by separating them	
MAX/MIN/(MAX-MIN) value clear	M	MAG									6	with delimiters Y E S CR LF	5
wazzwiew(waz-wiin) value clear	(Clears the	MAX value.)	1 ! !										
	(Clears the	M I C e MIN value.)	i i i	11							6	Y E S CF LF	5
1	LMICLL	ММС	did i	1 1									5
	(Clears the	(MAX-MIN) va	alue)	i i	1		- 1	1	i i	¦	6	Y E S CH LA I I I I I I I I I I I I I I I I I I	5

Function	1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Char. Lengtl	nth 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Char. Le
Range response (except for thermometers)	R N G CR LF	3	R A N G E 1 2 CR LF 8
thermometers)			(Response with the status of range 12 being selected) RI AI NI GI EI 2 4 CR LF
			(Response with the status of range 24 being selected) R A N G E 2 A CF LF 8
			(Response with the status of range 2A being selected)
			NI OI ? CR LF 5 (Response with the status of no range being selected)
			Note: The response varies depending on the input unit or the status of range
Donato de la companya della companya della companya de la companya de la companya della companya			selection (8 characters max.).
Range response (thermometers)	RINIG CFILF	3	K A CF LF 2 (Response with the status of range KA being selected)
			K B CF LF 2 (Response with the status of range KB being selected)
			J C L
			(Response with the status of range J being selected) T CF LF 1 1
			(Response with the status of range T being selected)
			R CR LF 1 1 (Response with the status of range R being selected)
			S CF LF 1 (Response with the status of range S being selected)
			B C L
			(Response with the status of range B being selected) P. A. CR. LP. 2
			PI Å CR LF I I I I I I 2 (Response with the status of range PA being selected) PI BI CR LF I I I I I I 2
			(Response with the status of range PB being selected)
			J PI A CF LF 3 (Response with the status of range JPA being selected)
			J P B C L L A 3
			(Response with the status of range JPB being selected)
Range setting	RINIG 1 2 CF LF (Sets to range 12.	6	Y E S CR LF S S S S S S S S S S S S S S S S S S
	(Sets to range 12. R N G 2 4 CR LF (Sets to range 24	6	Y E S CF LF Note: The main unit switches to the range immediately after the setting 5
	(Sets to range 24.) RINI GI 2 A CR LF	6	Y E S I CRILH I I I I I I I I I
	R N G 1 2 A CR LF (Sets to range 2A) R N G K A CR LF	6	Note: The main unit switches to the range immediately after the setting Y E S CR LF
	(Sets to range KA)		Note: The main unit switches to the range immediately after the setting.
	RINIGI T CFLF (Sets to range T.)	5	Y E S CR LF Note: The main unit switches to the range immediately after the setting
	(Sets to range T.) R N G J P B CR LF	7	Note: The main unit switches to the range immediately after the setting: Value Va
	Note: The command varies depending on the input unit or the range of interest		N O
Averaging frequency response	A V G CR LF	3	(Response when a nonexistent range is set.) A V G 1 CF LF 6
3g		_	(Response with the status of the averaging frequency being once.)
			A V G 8 0 CF LF 6 (Response with the status of the averaging frequency being 80 times.)
Averaging frequency setting	A V G 1 CF LF	5	Y E S CR LF 5
	(Sets the averaging frequency to once.	6	YI EI SI I CRILFI I I I I I I I I 5
	(Sets the averaging frequency to 80 times.)	0	Note: The main unit switches to the frequency immediately after the setting.
Moving average calculation frequency response	M A V CR LF I I I I I I I I I I I I I I I I I I	3	MI AI VI I OI FI FI CFI LFI I I I I I I I I I I I I I I I I I
I requested toopering			M A V O N = 4 CF LF
			(Response with the status of the moving average calculation frequency being 4 times.
			M A V O N = 1 6 CF LF I I I I I
			(Response with the status of the moving average calculation frequency being 16 times.)
Moving average calculation	M A V 4 CR LF	5	Y E S CR LP 3
from consulting	(Sets the moving average calculation frequency to 4 times.)		
frequency setting	MIAIVI I 1 6 CHIH I I I I I I I I I I I I I I I I I	6	VIEN CHIE
requerity setting	M A V 1 1 6 CF LF 1 1 1 1 (Sets the moving average calculation frequency to 16 times)	6	Y E S C C LF 3
rrequency setting	MIAIVI 11 6 CF LF I I I I I I I I I I I I I I I	6 5	Y E S CF LF 3 Y E S CF LF 3 Note: The main unit switches to the OFF status immediately after the setting.
Step width response	M A V 1 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 0 CF LF 1	-	Y E S CF LF 3 Note: The main unit switches to the OFF status immediately after the setting.
	M A V 1 1 6 CR LF 1 (Sets the moving average calculation frequency to 16 times) M A V 0 CF LF 1 (Cancels moving average calculation (OFF).)	5	Y E S CF LF Note: The main unit switches to the OFF status immediately after the setting. S : W D : 1 CR LF 6 (Response with the status of the step width being 1.) S : W D : 1 0 CR LF 7
Step width response	M A V 1 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 0 CR LF (Cancels moving average calculation (OFF).)	5	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF: 6 (Response with the status of the step width being 1.): 7 (Response with the status of the step width being 10.)
	M A V 1 1 6 CR LF	5	Y E S CF LF Note: The main unit switches to the OFF status immediately after the setting. S : W D : 1 CR LF 6 (Response with the status of the step width being 1.) S : W D : 1 0 CR LF 7
Step width response	M A V 1 6 CR LF	5	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF: 6 (Response with the status of the step width being 1.): S: W: D: 1.0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5
Step width response	M A V 1 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 1 0 CR LF	5 3 5	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR:LF: 6 (Response with the status of the step width being 1.): S: W: D: 1: 0 CR:LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR:LF: 5 Note: The main unit switches to the setpoint immediately after the setting.
Step width response Step width setting	M A V 1 6 CR LF	5 3 5 6	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF: 6 (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: 2 CR: LF: CR: LF: CR: LF: 17 (Response with the status of the baud rate being 19200 pps, data length being 7
Step width response Step width setting Communication function parameter	M A V 1 6 CR LF	5 3 5 6	Note: The main unit switches to the OFF status immediately after the setting. S: W:D: 1 CR:LF: 6 (Response with the status of the step width being 1.); S: W:D: 1:0 CR:LF: 7 (Response with the status of the step width being 10.) Y:E:S: CR:LF: 5 Y:E:S: CR:LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:7:E:-2: CR:LF:CR:LF: 17 (Response with the status of the baud rate being 19200 pps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9:6:0:0:8:N:1:-CR:LF: 13
Step width response Step width setting Communication function parameter	M A V 1 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 0 0 CR LF	5 3 5 6	V E S CR LF CR LF CR L
Step width response Step width setting Communication function parameter response	M A V 1 6 CR LF	5 3 5 6	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.): S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: - E: - 2: CR: / L: F: CR: LF: 17 (Response with the status of the baud rate being 1920 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF.) 9: 6: 0: 0: 8: N: 1: - C: R: CR: LF: 13 (Response with the status of the baud rate being 1920 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.)
Step width response Step width setting Communication function parameter	M A V 1 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 1 0 CR LF (Cancels moving average calculation (OFF).) S W D CR LF S W D 1 CR LF (Sets the step width to 1) S W D 1 0 CR LF (Sets step width to 10.) R S - CR LF R S - 1 9 2 0 0 7 - E 2 - C R / L F CR LF (Sets the baud rate to 19200 bps, data length to 7 bits, parity to even, number of stop bits to	5 3 5 6 3	Note: The main unit switches to the OFF status immediately after the setting. S : W : D : 1 CR: LF 6 (Response with the status of the step width being 1.): S : W : D : 1 : 0 : CR: LF 7 (Response with the status of the step width being 10.) Y : E : S : CR: LF 5 5 7 7 7 7 7 7 7 7
Step width response Step width setting Communication function parameter response Communication function parameter	M A V 1 6 CR LF	5 3 5 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF: 6 (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: 2: CR: Z: LF: CR: LF: 17 (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF: 13 (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3
Step width response Step width setting Communication function parameter response Communication function parameter	M A V 1 6 CR LF	5 6 3 21	Note: The main unit switches to the OFF status immediately after the setting. S: W:D: 1 CR:LF: 6 (Response with the status of the step width being 1.): S: W:D: 1 0 CR:LF: 7 (Response with the status of the step width being 10.) Y:E:S: CR:LF: 5 Y:E:S: CR:LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:0:7:E:2:C:R; LF:CR:LF: 17 (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF:) 9:6:0:0:8:N:1:C:R:CR:LF: 13 (Response with the status of the baud rate being 9600 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y:E:S: CR:LF: 3
Step width response Step width setting Communication function parameter response Communication function parameter	M A V 1 6 CR LF	5 6 3 21	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: - E: 2: C: R: / L: F: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: - E: 2: C: R: / L: F: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: - E: 2: C: R: / L: F: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 0: 0: 0: 0: 7: - E: 2: C: R: / L: F: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 3: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0:
Step width response Step width setting Communication function parameter response Communication function parameter setting	M A V 1 6 CR LF	5 3 5 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: 2: C: R: LF: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: 2: C: R: LF: CR: LF: 17 (Response with the status of the baud rate being 19200 pp., data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF: 9: 6: 0: 0: 8: N: 1: -C: R: CR: LF: 13 (Response with the status of the baud rate being 9600 bps. data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Note: The main unit switches to the setpoints immediately after the setting.
Step width response Step width setting Communication function parameter response Communication function parameter setting	M A V 1 6 CR LF	5 3 5 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W:D: 1 CR:LF: 6 (Response with the status of the step width being 1.); S: W:D: 1:0 CR:LF: 7 (Response with the status of the step width being 10.) Y:E:S: CR:LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:7 - E: -2: CR:LF: 17 (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9:6:0:0:8:N:1:-1:CR:CR:LF: 13 (Response with the status of the baud rate being 99000 bps, data length being 8 bits, parity being onen, number of stop bits being 1, and delimiter being CR+LF.) Y:E:S: CR:LF: 3 Y:E:S: CR:LF: 3 Note: The main unit switches to the setpoints immediately after the setting. 2:(Response with the status of the baud rate being 9600 bps, data length being 8 bits, parity being nonen, number of stop bits being 1, and delimiter being CR.) S: CR:LF: 3 Y:E:S: CR:LF: 3 Note: The main unit switches to the setpoints immediately after the setting. 2:(Response with the status of the device ID being 90)
Step width response Step width setting Communication function parameter response Communication function parameter setting	M A V 1 6 CR LF	5 3 5 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: -2 CR: LF: CR: LF: TR: LF: CR: LF: CR: LF: CR: LF: LF: CR: LF: LF: CR: LF: LF: LF: LF: LF: LF: LF: LF: LF: LF
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3 6 6 6 6	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.): S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: -2: CR: LF: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: -2: CR: LF: CR: LF: 17 (Response with the status of the baud rate being 1920 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9: 6: 0: 0: 8: N: 1: -CR: CR: LF: 13 (Response with the status of the baud rate being 990 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 O: 1: CR: LF: 2 (Response with the status of the device ID being 91): 9: 0 CR: LF: (Response with the status of the device ID being 99): Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1 1 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0 7 7 - E - 2 CR: LF: CR: LF: CR: LF: TR: LF: CR: LF: TR: LF: CR: LF
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W:D: 1 CR:LF (Response with the status of the step width being 1.); S: W:D: 1 0 CR:LF (Response with the status of the step width being 10.) Y:E:S: CR:LF Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:0:7:E:2:CR:LF Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:0:7:E:2:CR:LF Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:0:7:E:2:CR:LF Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:0:7:E:2:CR:LF Note: The main unit switches to the setpoint immediately after the setting. 1:9:2:0:0:7:E:2:CR:LF Note: The main unit switches to the setpoint immediately after the setting. 1:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: 2: C: R: / L: F: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: 2: C: R: / L: F: CR: LF Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9: 6: 0: 0 - 8: N: 1 - C: R: CR: LF: 13 (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 2 (Response with the status of the device ID being 01); 9: 9: CR: LF: 5 Y: E: S: CR: LF X: CR: LF
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: 2: CR: LF: CR: LF: TR: LF: CR: LF: CR: LF: Response with the status of the baud rate being 19200 tps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF: 13 (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR-LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoints immediately after the setting. 2 (Response with the status of the device ID being 01) 9: 9: CR: LF: 5 Y: E: S: CR: LF: 5 A: 0: U: T: 0: F: F: CR: LF: 5 A: 0: U: T: 0: F: F: CR: LF: 5 (Response with the status of the analog output type being 0-F:) 0: -1: CR: LF: 3 (Response with the status of the analog output type being 0-F:) 0: -1: CR: LF: 4 (Response with the status of the analog output type being 0-10 V.)
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.) S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7: -E: 2: CR: LF: CR: LF: CR: LF: CR: LF: (Response with the status of the baud rate being 19200 pps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF:) 9: 6: 0: 0: 8: N: 1: -CR: CR: LF: 13 (Response with the status of the baud rate being 9600 bps, data length being 8 bits, parity being even, number of stop bits being 1, and delimiter being CR+LF:) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 O: 1: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 7 (Response with the status of the analog output type being 0-F:) 0: -1: 0: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 3
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: 2: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: -2: CR: LF: CR: LF Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR: LF: 9: 6: 0: 0 - 8: N: 1 - C: R: CR: LF: 13 (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being once, number of stop bits being 1, and delimiter being CR: XY: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 5 Y: E: S: CR: LF: 5 A: O: U: T: O: F: F: CR: LF: 5 A: O: U: T: O: F: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: CR: LF: 3 Response with the status of the analog output type being O-1 V.): 0: -1: 0: CR: LF: 3 (Response with the status of the analog output type being O-1 V.): 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.): 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.): 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.): 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.): 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.): 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-10 V.): 1: 5: CR: LF: 4
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: -2: CR: LF: CR: LF: CR: LF: (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF.) 9: 6: 0: 0: 8: N: 1: -CR: CR: LF: (Response with the status of the baud rate being 19200 bps, data length being 8 bits, parity being even, number of stop bits being 1, and delimiter being CR-LF.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 2 (Response with the status of the device ID being 01): 9: 9: CR: LF: (Response with the status of the device ID being 99): 7 Y: E: S: CR: LF: 5 A: O: U: T: O: F: F: CR: LF: 5 A: O: U: T: O: F: F: CR: LF: 5 A: O: U: T: O: CR: LF: 3 Response with the status of the analog output type being 0-F: 0: 0: -1: 0: CR: LF: (Response with the status of the analog output type being 0-10 V.) 1: S: CR: LF: (Response with the status of the analog output type being 0-10 V.) 1: S: CR: LF: (Response with the status of the analog output type being 0-5 V.); 0: -1: 0: CR: LF: (Response with the status of the analog output type being 0-20 mA.) 4: -2: 0: CR: LF: (Response with the status of the analog output type being 0-20 mA.)
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: 2: CR: Z: LF: CR: LF: 17 (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF: 9 6: 0: 0: 8: N: 1: CR: LF: (Response with the status of the baud rate being 19200 bps, data length being 8 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF: 13 (Response with the status of the baud rate being 9600 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 Response with the status of the analog output type being 0-F: 0: 1: CR: LF: 3 Response with the status of the analog output type being 0-10 V.) 1: 5: CR: LF: 3 Response with the status of the analog output type being 0-20 mA.) 4: 1: 0: CR: LF: (Response with the status of the analog output type being 0-20 mA.) 4: 1: 0: CR: LF: (Response with the status of the analog output type being 0-20 mA.) 7: CR: LF: (Response with the status of the analog output type being 0-20 mA.) 8: CR: LF: LF: CR: LF: LF: CR
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3 6 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: 2: C: R: / L: F: CR: LF (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9: 6: 0: 0 - 8: N: 1 - C: R: CR: LF (Response with the status of the baud rate being 19200 bps, data length being 8 bits, parity being even, number of stop bits being 1, and delimiter being CR+LF.) 7: E: S: CR: LF Note: The main unit switches to the setpoints immediately after the setting. 2: CR: LF: 3 Y: E: S: CR: LF Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 3 Y: E: S: CR: LF Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 5 Y: E: S: CR: LF Y: E: S: CR: LF Y: E: S: CR: LF A: 0: U: T: O: F: F: CR: LF Y: E: S: CR: LF A: 0: U: T: O: F: CR: LF (Response with the status of the device ID being 99): Y: E: S: CR: LF Y: E: S: CR: LF A: 0: U: T: O: F: CR: LF (Response with the status of the analog output type being O-10 V.) 1: 5: CR: LF: 3 Response with the status of the analog output type being 0-10 V.) 1: 5: CR: LF: 4 Response with the status of the analog output type being 0-20 mA.) 4: 1: 2: 0: CR: LF: 4 Response with the status of the analog output type being 0-20 mA.) 4: CR: CR: LF: 5 Response with the status of the analog output type being 0-20 mA.) 5: CR: LF: CR: LF: 5 Response with the status of the analog output type being 0-20 mA.) 7: CR: LF: CR: LF: 5 Response with the status of the analog output type being 0-20 mA.) 8: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR: LF: CR:
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3 6 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: 2: CR: LF: CR: LF (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF.) 9: 6: 0: 0: 8: N: 1: -CR: CR: LF (Response with the status of the baud rate being 19200 bps, data length being 8 bits, parity being even, number of stop bits being 1, and delimiter being CR-LF.) Y: E: S: CR: LF Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF (Response with the status of the device ID being 01) 9: 9: CR: LF (Response with the status of the device ID being 99) Y: E: S: CR: LF Y: E: S: CR: LF Y: E: S: CR: LF A: O: U: T: O: F: F: CR: LF (Response with the status of the analog output type being 0-10 V.) 1: 5: CR: LF (Response with the status of the analog output type being 0-10 V.) 1: 5: CR: LF (Response with the status of the analog output type being 0-5 V.) 0: 1: 0: CR: LF (Response with the status of the analog output type being 0-20 mA.) 4: 2: 0: CR: LF (Response with the status of the analog output type being 0-20 mA.) 4: 2: 0: CR: LF (Response with the status of the analog output type being 0-20 mA.) 7: E: S: CR: LF (Response with the status of the analog output type being 0-20 mA.) 8: CR: LF (Response with the status of the analog output type being 0-20 mA.) 9: CR: LF (Response with the status of the analog output type being 0-20 mA.) 1: 5: CR: LF (Response with the status of the analog output type being 0-20 mA.) 1: 5: CR: LF (Response with the status of the analog output type being 0-20 mA.) 1: 5: CR: LF (Response with the status of the analog output type being 0-20 mA.) 1: 5: CR: LF (Response with the status of t
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 1 6 CR LF (Sets the moving average calculation (CFF).) S W D CR LF S W D 1 CR LF S W D 1 1 CR LF (Sets the step width to 1). S W D 1 1 0 CR LF (Sets the step width to 10.) R S CR LF R S - 1 9 2 0 0 7 - E 2 C R / L F CR LF (Sets the baud rate to 1920 bps, data length to 7 bits, parity to even, number of stop bits to 2, and delimiter to CR+LF) R S - 9 6 0 0 - 7 - E 1 - C R CR LF (Sets the baud rate to 19600 bps, data length to 8 bits, parity to none, number of stop bits to 1, and delimiter to CR.) A D R CR LF A D R CR LF (Sets the device ID to 01). A D R 9 9 CR LF (Sets the device ID to 01). A D R 9 9 CR LF (Sets the analog output type to OFF). A O P O F F CR LF (Sets the analog output type to OFF). A O P O T I CR LF (Sets the analog output type to OFF).	5 3 5 6 3 21 17 3 6 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.) S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0 0: 7 - E: 2: CR: Z: LF: CR: LF: TR: LF: CR: LF
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3 6 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: T CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: CR: LF
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF	5 3 5 6 3 21 17 3 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF: 7 (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF: 7 (Response with the status of the step width being 1.); Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: -2: C: R: / L: F: CR: LF: 7 (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9: 6: 0: 0: 8: N: 1: -1: R: CR: LF: 13 (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being onen, number of stop bits being 1, and delimiter being CR+LF.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 5 X: CR: LF: 5 A: 0: U: T: 0: F: F: CR: LF: 5 A: 0: U: T: 0: F: F: CR: LF: 5 A: 0: CR: LF: 3 (Response with the status of the analog output type being 0-FF.) 0: -1: CR: LF: 3 (Response with the status of the analog output type being 0-10.) 1: 5: CR: LF: 3 (Response with the status of the analog output type being 0-20 mA.) 4: -2: 0: CR: LF: 5 (Response with the status of the analog output unit being not installed.) 7: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 X: CR:
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 0 Cf LF (Cancels moving average calculation (OFF).) S: W D CR: LF S: W D 1 CR: LF S: W D 1 CR: LF (Sets the step width to 1). S: W D 1 1 CR: LF (Sets step width to 10.) R: S - CR: LF R: S - CR: LF R: S - CR: LF R: S - 1 9 2 0 0 0 - 7 - E 2 - 2 - C R / L F CR: LF (Sets the baud rate to 19200 bps, data length to 7 bits, parity to even, number of stop bits to 2, and delimiter to CR-LF.) R: S - 9 6 0 0 - 7 - E 1 - C R CR: LF (Sets the baud rate to 19600 bps, data length to 8 bits, parity to none, number of stop bits to 1, and delimiter to CR.) A D R CR: LF A D R CR: LF (Sets the device ID to 01). A D R 9 9 CR: LF (Sets the device ID to 01). A D R 9 9 CR: LF (Sets the analog output type to 0-10 V). A O P 0 - 1 CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 S CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 S CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 S CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 S CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 S CR: LF (Sets the analog output type to 0-10 V). A O P 1 - 1 S CR: LF (Sets the analog output type to 0-10 V).	5 3 5 6 3 21 17 3 6 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.) S: W: D: 1 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: 2: CR: LF: LF: CR: LF: Response with the status of the baud rate being 19200 pps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF.) 9: 6: 0: 0: 8: N: 1: -CR: CR: LF: 13 (Response with the status of the baud rate being 9800 bps, data length being 8 bits, parity being even, number of stop bits being 1, and delimiter being CR+LF.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: F: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: O: U: T: O: CR: LF: 5 A: CR: LF: 5 A: CR: LF:
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 0 CR LF (Cancels moving average calculation (OFF).) S W D CR LF S W D 1 CR LF (Sets the step width to 1). S W D 1 1 0 CR LF (Sets the step width to 10.) R S CR CR LF R S - 1 9 2 0 0 7 7 - E 2 2 - C R / L F CR LF (Sets the baud rate to 19200 bps, data length to 7 bits, parity to even, number of stop bits to 2, and delimiter to CR+LF) R S - 9 6 0 0 - 7 - E 1 - C R CR LF (Sets the baud rate to 9600 bps, data length to 8 bits, parity to none, number of stop bits to 1, and delimiter to CR.) A D R CR LF A D R CR LF (Sets the device [P 0 95.) A D R 9 9 CR LF (Sets the device [P 0 95.) (Sets the analog output type to -1 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.)	5 3 5 6 3 21 17 3 6 6 3 7 7 7 8 7 8	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: T: CR: LF: 7 (Response with the status of the step width being 1.); S: W: D: 1: 0 : CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 (Response with the status of the baud rate being 19:200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF: 13 (Response with the status of the baud rate being 96:00 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR-LF: 13 Y: E: S: CR: LF: 3 V: E: S: CR: LF: 3 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 7 X: C
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF (Sets the moving average calculation (OFF).) (Cancels moving average calculation (OFF).) (Cancels moving average calculation (OFF).) S W D CR LF (Sets the step width to 1). S W D 1 CR LF (Sets the step width to 1). S W D 1 0 CR LF (Sets step width to 10.) R S CR LF (Sets the baud rate to 19200 bps, data length to 7 bits, parity to even, number of stop bits to 2, and delimiter to CR+LF.) R S S Sets the baud rate to 9600 bps, data length to 8 bits, parity to even, number of stop bits to 1, and delimiter to CR-LF. (Sets the baud rate to 9600 bps, data length to 8 bits, parity to none, number of stop bits to 1, and delimiter to CR.) A D R 0 1 CR LF (Sets the device ID to 01). A D R 9 9 CR LF (Sets the device ID to 01). A D R 9 9 CR LF (Sets the analog output type to 0-10 V.) A O P 0 1 1 CR LF (Sets the analog output type to 0-10 V.) A O P 0 1 5 CR LF (Sets the analog output type to 1-5 V.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF	5 3 5 6 3 21 17 3 6 6 6 3	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: T: CR: LF: 7 (Response with the status of the step width being 1.); S: W: D: 1: 0 : CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 (Response with the status of the baud rate being 19200 bp, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF: 9 9: 6: 0: 0: -8: N: 1: -C: R: CR: LF: 13 (Response with the status of the baud rate being 9600 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 3: CR: LF: 3 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 A: 0: U: T: 0: CR: LF: 5 A: 0: U: T: 0: CR: LF: 7 (Response with the status of the analog output type being 0-FF.) 0: -1: CR: LF: 7 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 7 (Response with the status of the analog output type being 0-20 mA.) 4 4: 2: 0: CR: LF: 7 (Response with the status of the analog output type being 0-20 mA.) 4 4: 2: 0: CR: LF: 7 X: E: S: CR: LF: 5 X: E: CR: LF: 5 X:
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF (Sets the moving average calculation frequency to 16 times) M A V 0 CR LF (Cancels moving average calculation (OFF).) S W D CR LF S W D 1 CR LF (Sets the step width to 1). S W D 1 1 0 CR LF (Sets the step width to 10.) R S CR CR LF R S - 1 9 2 0 0 7 7 - E 2 2 - C R / L F CR LF (Sets the baud rate to 19200 bps, data length to 7 bits, parity to even, number of stop bits to 2, and delimiter to CR+LF) R S - 9 6 0 0 - 7 - E 1 - C R CR LF (Sets the baud rate to 9600 bps, data length to 8 bits, parity to none, number of stop bits to 1, and delimiter to CR.) A D R CR LF A D R CR LF (Sets the device [P 0 95.) A D R 9 9 CR LF (Sets the device [P 0 95.) (Sets the analog output type to -1 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 1-5 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.) A O P 0 - 1 2 CR LF (Sets the analog output type to 0-10 V.)	5 3 5 6 3 21 17 3 6 6 3 7 7 7 8 7 8	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: 1 CR: LF (Response with the status of the step width being 1.); S: W: D: 1: 0 CR: LF (Response with the status of the step width being 10.) Y: E: S: CR: LF Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7 - E: -2: CR: Z: LF: CR: LF: (Response with the status of the baud rate being 19200 bps, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR-LF: 9: 9: 6: 0: 0: 8: N: 1: -2: RC: LF: (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being even, number of stop bits being 1, and delimiter being CR-LF: (Response with the status of the baud rate being 9900 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoints immediately after the setting. 2 (Response with the status of the device ID being 01): 9: 9: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y: E: S: CR: LF: 5 Y
Step width response Step width setting Communication function parameter response Communication function parameter setting Device ID response Device ID setting Analog output type response	M A V 1 6 CR LF (Sets the moving average calculation (OFF).) (Cancels moving average calculation (OFF).) (Cancels moving average calculation (OFF).) S W D CR LF (Sets the step width to 1). S W D 1 CR LF (Sets the step width to 1). S W D 1 0 CR LF (Sets step width to 10.) R S CR LF (Sets the baud rate to 19200 bps, data length to 7 bits, parity to even, number of stop bits to 2, and delimiter to CR+LF.) R S S Sets the baud rate to 9600 bps, data length to 8 bits, parity to even, number of stop bits to 1, and delimiter to CR-LF. (Sets the baud rate to 9600 bps, data length to 8 bits, parity to none, number of stop bits to 1, and delimiter to CR.) A D R 0 1 CR LF (Sets the device ID to 01). A D R 9 9 CR LF (Sets the device ID to 01). A D R 9 9 CR LF (Sets the analog output type to 0-10 V.) A O P 0 1 1 CR LF (Sets the analog output type to 0-10 V.) A O P 0 1 5 CR LF (Sets the analog output type to 1-5 V.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF (Sets the analog output type to 0-20 mA.) A O P 0 2 0 CR LF	5 3 5 6 3 21 17 3 6 6 3 7 7 7 8 7 8	Note: The main unit switches to the OFF status immediately after the setting. S: W: D: T: CR: LF: 7 (Response with the status of the step width being 1.); S: W: D: 1: 0 : CR: LF: 7 (Response with the status of the step width being 10.) Y: E: S: CR: LF: 5 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 Note: The main unit switches to the setpoint immediately after the setting. 1: 9: 2: 0: 0: 7: -E: -2: C: R: L: F: CR: LF: 7 (Response with the status of the baud rate being 19200 bp, data length being 7 bits, parity being even, number of stop bits being 2, and delimiter being CR+LF: 9 9: 6: 0: 0: -8: N: 1: -C: R: CR: LF: 13 (Response with the status of the baud rate being 9600 bps, data length being 8 bits, parity being none, number of stop bits being 1, and delimiter being CR.) Y: E: S: CR: LF: 3 Y: E: S: CR: LF: 3 3: CR: LF: 3 Note: The main unit switches to the setpoints immediately after the setting. 0: 1: CR: LF: 3 X: CR: LF: 3 X: CR: LF: 5 X: CR: LF: 5 X: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 A: 0: U: T: 0: F: CR: LF: 5 A: 0: U: T: 0: CR: LF: 5 A: 0: U: T: 0: CR: LF: 7 (Response with the status of the analog output type being 0-FF.) 0: -1: CR: LF: 7 (Response with the status of the analog output type being 0-10 V.) 1: -5: CR: LF: 7 (Response with the status of the analog output type being 0-20 mA.) 4 4: 2: 0: CR: LF: 7 (Response with the status of the analog output type being 0-20 mA.) 4 4: 2: 0: CR: LF: 7 X: E: S: CR: LF: 5 X: E: CR: LF: 5 X:

Function				
Digital zero backup status response	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 B D Z CR LF	Char. Length	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 B D Z O N CR LF	Char. Len
Digital Zero backup status response		3	(Response with the status of digital zero backup being ON.)	ľ
			B D Z O F F CR LF	7
			(Response with the status of digital zero backup being OFF.)	
Digital zero backup control	B D Z O N CR LF (Sets digital zero backup to ON.)	6	Y E S CR LF	5
	B; D; Z; ; O; F; F; CR; LF;	7	Y E S CR.LF	5
	(Sets digital zero backup to OFF.)			
Digital zero data save command	S A V CR LF	3	Y E S CRLF	5
			N O ? CR LF	5
			(Response with the status of digital zero backup being OFF.)	J
Input selection response	I S E L CR LF	4	O . C CR LF	3
			(Response with the status of the input selection option being "open collector.") L O G CR LF	3
			(Response with the status of the input selection option being "logic.")	3
			M:A:G:CR:LF: : : : : : : : : : : : : : : : : : :	3
			(Response with the status of the input selection option being "magnet.") N O ? CR LF	5
			(Response with the status of the frequency measurement unit not being	
			installed.)	
Input selection setting	I S E L O C CRLF	8	Y:E:S: CR:LF: : : : : : : : : : : : : : : : : : :	5
	(Sets the input selection option to "open collector.") I S E L L O G CR LF	8	Y E S CR LF	5
	(Sets the input selection option to "logic.")			
	I S E L M A G CR LF (Sets the input selection option to "magnet."):	8	Y E S CR'LF	5
	(octs the impact selection option to imagnet.)		N O ? CR.LF.	5
			(Response with the status of the frequency measurement unit not being	
Tracking zero response	T R K CR LF	3	installed.) O N T = 1 W = 1 CR LF	10
		-	(Response with the status of the tracking zero time being 1 and tracking zero	
			width being 1.) O N T = 9 9 W = 9 9 CR LF	12
			(Response with the status of the tracking zero time being 99 and tracking zero	12
			width being 99.) T R K O F F CR LF	_
			T R K O F F CR LF (Response with the status of the tracking zero function being set to OFF.)	7
Trooking zors setting	T P V T - 1 CP IF	7	Y E S CR LF	_
Tracking zero setting	T R K T = 1 CR LF (Sets the tracking zero time to 1.)	′	I L 3 ON LF	5
	T R K T = 9 9 CR LF	8	Y E S CR.LF	5
	(Sets the tracking zero time to 99.) T R K W = 1 CR LF	7	Y E S CRLF	5
	(Sets the tracking zero width to 1 digit.)			
	T R K W = 9 9 CR LF	8	Y E S CR LF	5
	(Sets the tracking zero width to 99 digits.)	7	Y E S CR:LF:	5
1-	(Sets the tracking zero function to OFF.)			
Sensor power supply response	S N S R CR LF	4	S.N.S.R. 1.0 CR.LF. (Response with the status of sensor power supply being set to 10 V.)	7
			(Response with the status of sensor power supply being set to 10 V.) S N S R 5 CR LF	6
			(Response with the status of sensor power supply being set to 5 V.)	
Sensor power supply setting	S N S R 1 0 CR LF	7	Y E S CR LF	5
	(Sets the sensor power supply to 10 V.) S N S R 5 CR LF	6	Y E S CR LF	5
	(Sets the sensor power supply to 5 V.)	U		5
Power-on delay time response	P O N CR LF	3	PON OFFCRIF	7
			(Response with the status of the power-on delay function being set to OFF.) PON 1 CR LF	5
			(Response with the status of the power-on delay function being set to 1 sec.)	
			(Response with the status of the power-on delay function being set to 1 sec.) PON 3 0 CR LF	6
			(Response with the status of the power-on delay function being set to 30 sec.)	
Power-on delay time setting	PON 1 CRLF	5	Y E S CR LF	5
	(Sets the power-on delay function to 1 sec.)	6	Y E S CRLF	5
	(Sets the power-on delay function to 30 sec.)		Y E S CR LF	
	P O N 0 CR LF (Sets the power-on delay function to OFF.)	5	Y E S CR LF	5
Protection response	(Sets the power-on delay function to OFF.) P R O CR LF	3	PROOFFCRLF	7
			(Response with the status of the protection function being set to OFF.)	
			P R O O N CR LF (Response with the status of the protection function being set to ON.)	6
Barton di anno di anno di anno di anno di anno di anno di anno di anno di anno di anno di anno di anno di anno		-		
Protection setting	P R O O F F CR LF (Sets the protection function to OFF.)	7	Y E S CRLF	
	P R O O N CR LF	6	Y E S CR LF	
Unit according	(Sets the protection function to ON.)	^	1 1 1 7 0 0 0 0 0 0 0 0 0 0	
Unit number response	U: N: O:CR:LF:	3	I - 1 7 7 , O - 6 CR LF (Response with the status of the input unit being strain gauge measurement	8
			and the output unit being a combination of comparison output, analog output and	
			RS-232C.)	8
			(Response with the status of the input unit being DC voltage measurement (11	Ů
			ranges) and the output unit being RS-232C.)	
Key operation prohibition response	IK E V COLE:	3	K E Y O F F CR LF (Response with the status of the key operation prohibition function being set to	7
	K E Y CR LF			
	" : - 1 CN CT		OFF.) K E Y O N CR LF	6
	N C		OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to	6
		-	OFF) K : E Y Y O N CR: LF: (Response with the status of the key operation prohibition function being set to ON.)	
Key operation prohibition setting	K.E.Y. O.F.F.CR.LF.	7	OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to	6 5
Key operation prohibition setting	K:E:Y: O:F:F:CR: LF: (Sets the key operation prohibition function to OFF.) K:E:Y: O:N:CR: LF:	7	OFF) K : E Y Y O N CR: LF: (Response with the status of the key operation prohibition function being set to ON.)	
	K E Y O F F CR LF: (Sets the key operation prohibition function to OFF.) K E Y O N CR: LF: (Sets the key operation prohibition function to ON.)	6	OFF) K : E Y O N : CR: LF: (Response with the status of the key operation prohibition function being set to ON.) Y : E : S CR: LF: Y : E : S CR: LF:	5 5
Key operation prohibition setting Comparator data response	K. E. Y. O. F. F. CR. LF. (Sets the key operation prohibition function to OFF.) K. E. Y. O. N. CR. LF. (Sets the key operation prohibition function to ON.) C. O. M. CR. LF. Note: The set fign of the main unit changes to COM the moment if receives a COM command.		OFF) K : E Y O N : CR: LF: (Response with the status of the key operation prohibition function being set to ON.) Y : E : S CR: LF: Y : E : S CR: LF: S : H : I 0 0 0 CR: LF: (Response with the HI-side judgment value.):	5
	K E Y O F F ; CR: LF: (Sets the key operation prohibition function to OFF.) K E Y O N : CR: LF: (Sets the key operation prohibition function to ON.) C O M : CR: LF: Note: The reading of the main unit changes to COM the moment it receives a COM command. N : CR: LF:	6	OFF) K : E : Y : O : N : CR: LF: (Response with the status of the key operation prohibition function being set to ON.) Y : E : S : CR: LF: Y : E : S : CR: LF: S : H : I : O : O : CR: LF: (Response with the HI-side judgment value.): S : L : O : 5 : O : O : CR: LF:	5 5
	K E Y O F F CR LF: (Sets the key operation prohibition function to OFF.) K E Y O N CR LF: (Sets the key operation prohibition function to ON.) C O M CR LF: Note: The reading of the main unit changes to COM the moment it receives a COM command. N : CR LF:	6 3 1	OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to ON.) Y E S CR LF Y E S CR LF Y E S CR LF S H I O O CR LF (Response with the HI-side judgment value.) S L O 5 O CR LF (Response with the LO-side judgment value.)	5 5 10 10
	K E Y O F F ; CR: LF: (Sets the key operation prohibition function to OFF.) K E Y O N : CR: LF: (Sets the key operation prohibition function to ON.) C O M : CR: LF: Note: The reading of the main unit changes to COM the moment it receives a COM command. N : CR: LF:	6	OFF	5 5
	K E Y O F F CR LF: (Sets the key operation prohibition function to OFF.) K E Y O N CR LF: (Sets the key operation prohibition function to ON.) C O M CR LF: Note: The reading of the main unit changes to COM the moment it receives a COM command. N : CR LF:	6 3 1	OFF	5 5 10 10
	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR LF (Sets the key operation prohibition function to ON.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N CR LF N CR LF	6 3 1 1	OFF	5 5 10 10
	K : E : Y : O : F : F : CR: LF : (Sets the key operation prohibition function to OFF.) K : E : Y : O : N : CR: LF : (Sets the key operation prohibition function to ON.) C : O : M : CR: LF : Note: The reading of the main unit changes to COM the moment it receives a COM command. N : CR: LF : N : CR: LF : N : CR: LF : R : CR: LF : Note: The main unit returns to measurement operation upon an R command	6 3 1 1	OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to ON.) Y E S CR LF Y E S CR LF S H I 1 0 0 0 CR LF (Response with the H-side judgment value.) S - L O 5 0 0 CR LF (Response with the LO-side judgment value.) H : H I 0 CR LF (Response with the LO-side judgment value.) H : L O (Response with the LO-side judgment value.) H : L O (Response with the LO-side judgment value.) Y E S S CR LF	5 5 10 10 10
	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR: LF (Sets the key operation prohibition function to ON.) C O M CR: LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N CR: LF N CR: LF R CR: LF	6 3 1 1	OFF	5 5 10 10 10
Comparator data response Comparator data setting	K E Y O F F ; CR; LF (Sets the key operation prohibition function to OFF.) K E Y O N ; CR; LF (Sets the key operation prohibition function to ON.) C O M ; CR; LF (Note: The reading of the main unit changes to COM the moment it receives a COM command. N ; CR; LF (N ; CR;	6 3 1 1	OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to ON.) Y E S CR LF Y E S CR LF S H I 1 0 0 0 CR LF (Response with the H-side judgment value.) S - L O 5 0 0 CR LF (Response with the LO-side judgment value.) H : H I 0 CR LF (Response with the LO-side judgment value.) H : L O (Response with the LO-side judgment value.) H : L O (Response with the LO-side judgment value.) Y E S S CR LF	5 5 10 10 10
Comparator data response Comparator data setting Note: This example shows a case	K: E: Y: O: F: F: CR: LF: (Sets the key operation prohibition function to OFF.): K: E: Y: O: N: CR: LF: (Sets the key operation prohibition function to ON.) C: O: M: CR: LF: Note: The reading of the main unit changes to COM the moment it receives a COM command. N: CR: LF: N: CR: LF: N: CR: LF: N: CR: LF: Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C: O: M: CR: LF: Note: The reading of the main unit changes to COM the moment it receives a COM command.	6 3 1 1 1 1 1 3	OFF	5 5 10 10 10 10 5
Comparator data response Comparator data setting	K E Y O F F; CR; LF; (Sets the key operation prohibition function to OFF.) K E Y O N CR; LF (Sets the key operation prohibition function to ON.) C: O M; CR; LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N : CR; LF N : CR; LF N : CR; LF R : CR; LF R : CR; LF R : CR; LF CO M : CR; LF Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C: O M : CR; LF Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 : O : O : O : CR; LF; Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 : O : O : O : CR; LF; Note: The reading of the main unit changes to COM the moment it receives a COM command.	6 3 1 1 1	OFF K E Y O N CR LF (Response with the status of the key operation prohibition function being set to ON.) Y E S CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF CR LF	5 5 10 10 10 10
Comparator data response Comparator data setting Note: This example shows a case where S-HI is set to 8000 and S-LO	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR LF (Sets the key operation prohibition function to ON.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N CR LF N CR LF N CR LF R CR LF R CR LF R CR LF Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command.	6 3 1 1 1 1 1 3	OFF	5 5 10 10 10 10 5
Comparator data response Comparator data setting Note: This example shows a case where S-HI is set to 8000 and S-LO	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR LF (Sets the key operation prohibition function to ON.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N CR LF N CR LF R CR LF Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 O 1 O 1 CR LF (Sets the HI-side judgment value to 8000.) N CR LF	6 3 1 1 1 1 3 4	OFF	5 5 10 10 10 10 5 10
Comparator data response Comparator data setting Note: This example shows a case where S-HI is set to 8000 and S-LO	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR LF Sets the key operation prohibition function to ON) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N CR LF N CR LF N CR LF R CR LF Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 0 0 0 CR LF (Sets the HI-side judgment value to 8000.) N CR LF (Sets the HI-side judgment value to 4000.)	6 3 1 1 1 1 3 4 1 4	OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to ON.) Y E S CR LF Y E S CR LF Y E S CR LF S H I O O CR LF (Response with the HI-side judgment value.) S L O S O CR LF (Response with the LO-side judgment value.) H H I CRESPONSE with the HI-side hysteresis.) H L O O O CR LF (Response with the HI-side hysteresis.) Y E S CR LF S H I I O O O CR LF S H I I S O O O CR LF S H I B O O O CR LF S H I B O O O CR LF S H I O CR LF	5 5 10 10 10 10 5 10 10 10
Comparator data response Comparator data setting Note: This example shows a case where S-HI is set to 8000 and S-LO	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR LF (Sets the key operation prohibition function to ON.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N 'CR' LF N 'CR' LF N 'CR' LF Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C O M 'CR' LF Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 CR' LF Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 O O O O CR' LF (Sets the HI-side judgment value to 8000.) N 'CR' LF (Sets the LI-side judgment value to 8000.) N 'CR' LF (Sets the LO-side judgment value to 4000.)	6 3 1 1 1 1 3 4	OFF	5 5 10 10 10 10 5 10 10
Comparator data response Comparator data setting Note: This example shows a case where S-HI is set to 8000 and S-LO	K E Y O F F CR LF (Sets the key operation prohibition function to OFF.) K E Y O N CR LF Sets the key operation prohibition function to ON) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. N CR LF N CR LF N CR LF R CR LF Note: The main unit returns to measurement operation upon an R command (or returns to the HI-side judgment value if an N command is sent.) C O M CR LF Note: The reading of the main unit changes to COM the moment it receives a COM command. 8 0 0 0 CR LF (Sets the HI-side judgment value to 8000.) N CR LF (Sets the HI-side judgment value to 4000.)	6 3 1 1 1 1 3 4 1 4	OFF) K E Y O N CR LF (Response with the status of the key operation prohibition function being set to ON.) Y E S CR LF Y E S CR LF Y E S CR LF S H I O O CR LF (Response with the HI-side judgment value.) S L O S O CR LF (Response with the LO-side judgment value.) H H I CRESPONSE with the HI-side hysteresis.) H L O O O CR LF (Response with the HI-side hysteresis.) Y E S CR LF S H I I O O O CR LF S H I I S O O O CR LF S H I B O O O CR LF S H I B O O O CR LF S H I O CR LF	5 5 10 10 10 10 5 10 10 10

	Function		ar. Length	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Char. Length
	Scaling data response	M E T CRLF F F Note: The reading of the main unit changes to MET the moment it receives an MET command.	3	F S C 9 9 9 9 CR LF 10 (Response with a full-scale reading.)
		N CR LF	1	F N 9 9 9 CR LF 10
		N CR LF	1	(Response with a full-scale input value.) O F S 0 0 CR LF 10
		N CR LF	1	(Response with an offset reading.)
				(Response with an offset input value.)
		N CR LF	1	D L H I I 9 9 9 9 CRLF 10 (Response with the HI value of the digital limiter.)
		N CR LF	1	D L L L O
		N CR LF	1	A O H I 9 9 9 9 CR LF 10
		N CR LF	1	(Response with the HI reading of the analog output.) A O L O D D D D D D D D D D D D D D D D D
		N CR LF		(Response with the LO reading of the analog output.)
			1	(Response with the position of the decimal point.)
		R [CR LF]	1	Y E S CR LF 5
		the response with the full-scale reading if an N command is sent.)		
	Scaling data setting Note: This example shows a case	M E T CR LF Note: The reading of the main unit changes to MET the moment it receives an MET command.	3	F S C 9 9 9 9 CR LF 10
	where FSC is set to 8000 and OFS	8 0 0 0 CR LF	4	F S C 8 0 0 0 CR LF 10
	to 20.	(Sets the full-scale reading to 8000.) N CR LF	1	F I N 9 9 9 9 CR LF 10
		N CR LF	1	0 F S 0 CRLF 10
			•	
		2 0 CR LF	2	0 F S 2 0 CR LF 10
		R CR LF	1	Y E S CR LF 5
		up to that moment and then returns to measurement operation.		E r r o r CR LF 6
<u> </u>	Linearization function status		3	(Response when a value outside the setpoint range is input.) L I I N O F F CR LF 7
Ī	response		-	(Response with the status of the linearization function being set to OFF.)
Ī				L I N O N CR LF
Ī				L I N C L R CR LF 7 (Response with the status of the linearization function being cleared.)
Ī	Linearization function status setting	L I N O F F CR LF	7	Y E S CRILF 5
		(Sets the linearization function to an OFF status.)		Y E S CR LF 5
		L I I N O N CR LF O Status.)	6	
		L I N C L R CR LF I I CSets the linearization function to a cleared status.)	7	Y E S CR LF 5
				N O 7 CR LF 5 (Response with the status of the linearization function being cleared.)
				Note: Since the linearization data are all cleared when the linearization function
				is cleared, the main unit does not accept either a LIN ON or LIN OFF command. (Set the linearization function status after setting the linearization data again.)
	Response for number of linearization	L N O CR LF	3	L N O 0 0 CR LF 6
	correction data items			(Response with the status of the linearization function being cleared.) L N O 0 2 CR LF 6
				(Response with the status of the number of linearization correction data items being 02.)
				L N O 1 6 CR LF 6
				(Response with the status of the number of linearization correction data items being 16.)
	Setting for number of linearization	L N O 0 2 CR LF	6	Y E S CR LF 5
	correction data items	(Sets the number of linearization correction data items to 02.) L N O 1 6 CR LF	6	Y E S CRLF 5
		(Sets the number of linearization correction data items to 16.)	Ü	
				E r r o r CR LF
				Note: Set the number of linearization correction data items after setting linearization data.)
	Linearization data response	L N D 0 1 CR LF	6	L N D 0 1
		Note: A reading can be made from any of the data items 01 to 16. Note: The reading of the main unit changes to LINE the moment it receives an LND XX		(Response with the input value of linearization data N-01.)
		command. N CR LF	1	L N D 0 1 0 = 0 0 CRLF 14
		N CRULF		(Response with the output value of linearization data N-01.) L N D 0 2 I = 0 CR LF 14
			1	(Response with the input value of linearization data N-02.)
		N CR LF	1	L N D O O O O O O O O O O O O O O O O O O
		N CR LF	1	L N D 0 3 1 1 = 1 0 CR LF 14
		• 11 11 11 11 11 11 11 11 11 11 11 11 11		• 11 11 11 11 11 11 11 11 11 11 11 11 11
		N CR LF	1	L N D 1 6 I I = 1 0 CR LF 14 (Response with the input value of linearization data N-16.)
		N CR LF	1	L N D 1 6 0 = 0 CR LF 14
		R CR LF	1	(Response with the output value of linearization data N-16.)
		Note: The main unit returns to measurement operation upon an R command (or returns to the response with the input value of linearization data N-01 if an N command is sent.)		
	Linearization data setting	L N D 0 1 CRLF	6	L N D 0 1 1 1 = 0 0 CRLF 14
	y	Note: Setting can be made from any of the data items 01 to 16.		
		command.		
		-	4	L N D 0 1 1 1 = - 1 0 0 0 0 CR LF 14
		N CR LF	1	L N D 0 1 0 = 0 14 14
Ī		- 9 0 0 CR LF	1	L N D 0 1 0 = - 9 0 0 CR LF 14
Ī		(Sets the output value of linearization data N-01 to -900.)	1	L N D 0 2 I = 0 CR LF 14
Ī		- 5 0 0 0 CR LF	1	L N D 0 2 I = - 5 0 0 CR LF 14
Ī		(Sets the input value of linearization data N-02 to -500.)		
Ī		N CRULF	1	L N D 0 2 0 = 0 14
Ī		- 6 0 0 0 CR LF	1	L N D 0 2 0 = -6 0 0 0 CR LF 14
Ī				
Ī				
Ī		R CR LF Note: If an R command is sent after setting required data, the main unit saves data provided	1	Y E S CRLF 5
Ī		up to that point and then returns to measurement operation.		E r r o r CRLF 6
		<u> </u>		(Response when a value outside the setpoint range is input.)

	Function	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Char, Length	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Char. Length
	Calibration data response	C A L 2 CR LF	4	Z E R O 0 . 0 0 0 m V / V CR LF	15
		Note: The reading of the main unit changes to CAL2 the moment it receives a CAL2		(Response with a zero input value.)	
		command. J	1	S P I N 2 . 0 0 0 m V / V CR LF	15
				(Response with a span input value.)	
		N CR LF	1	S P A N 9 0 0 CR LF	10
		R CR LF	1	(Response with a span reading.)	5
		Note: The main unit returns to measurement operation upon an R command (or returns to			
		the zero point input value response if an N command is sent.)			
	Calibration data setting	C A L 1 CR LF	4	ZEROCRIF	4
	(Calibration with actual load)				
		N CR LF	1	Z E R O CR LF S P A N 9 0 0 0 CR LF	4 10
		Note: The main unit moves to the setting of a span reading if a J command is sent.)		(Response when zero calibration is executed correctly and a transition is made	
				to span calibration.)	_
				E r r r l o r l X CR LF l l l l l l l l l l l l l l l l l l	7
				Note: Apply an input signal within the zero adjustment range (±0.3 mV/V and re-	
				send the N command.	
		5 0 0 0 CR LF	4	S P A N 5 0 0 0 CR LF	10
		(Sets the span reading to 5000.)	-		10
					_
		N CR LF (Executes span calibration.)	1	Y E S CRLF (Response when span calibration is executed correctly.)	5
				Note: The main unit automatically returns to measurement operation when span	
				calibration is executed correctly.)	_
				E r r o r X CR LF	7 10
				(Response when an input signal that is outside the zero adjustment range or	
				contains a gain error is applied.)	
				Note: The main unit returns to the setting of a span reading. Note: Check the applied input signal level or span reading and set the calibration	
				data again.	
		R CR LF Note: If an R command is sent during setting, the main unit saves data provided up to that	1	Y E S CR LF	5
		moment and then returns to measurement operation (span reading is not saved, however).			
	Calibration data setting		4	Z E R O 0 . 0 0 0 m V / V CRLF	15
	(Equivalent calibration)		·		
		0 0 0 4 CR LF	4	Z E R O 0 . 0 0 4 m V / V CR LF	15
		(Sets the zero input value to 0.004 mV/V.) N CR LF	1	S P I N 2 . 0 0 0 m V / V CR LF	15
		(Executes zero calibration.)		(Response when zero calibration is executed correctly and a transition is made	
				to span input value setting.) E r r o r X CR LF	
				Z E R O 0 . 0 0 0 m V / V CR LF	15
				(Response when a value outside the zero adjustment range is set.)	
				Note: Resend a value within the zero adjustment range (±0.3 mV/V).	
		1 5 0 2 CR LF	4	S P I N 1 . 5 0 2 m V / V CR LF	15
		(Sets the span input value to 1.502 mV/V.)	1	S P A N 9 0 0 0 CR LF	10
		5 0 0 0 0 CR LF	4	S P A N 5 0 0 0 CR LF	10
		N CRILF	1	Y E S CR LF	5
		(Executes span calibration.)		(Response when span calibration is executed correctly.)	
				Note: The main unit automatically returns to measurement operation when span calibration is executed correctly.)	
				E r r o r I X CR LF I I I I I I I I	7
				S P I N 2 . 0 0 0 m V / V CR LF (Response when a value that contains a gain error or is outside the range is set.)	15
1				Note: The main unit returns to span input value setting.	
	Common response			Y E S CR LF	5
1				(Normal response)	-
1				N O ?	5
1				E r r o r CR LF	6
1				(Response to out-of-range data or data that do not meet setting conditions.)	7
1				E R R R O R A CRLF R R CREATER REPORT	1
				Note: Under normal conditions, this response is made only once.	
1				Note: ERROR B to ERROR F are available as the response commands for acknowledgment.	
				Note: If a response to the ERROR X command is received, execute the same	
				processing once again. If the panelmeter still does not recover, turn off the	
				panelmeter once and then turn it on again.	
	Response in case of data failure in the			D A T A L O S T L C O N D CRLF (Response in case of condition data failure.)	14
	internal memory Note: Under normal conditions, this			Note: Set the condition data again.	
	response is made only once.			D A T A L O S T C O M CR LF	13
				(Response in case of comparator data failure.) Note: Set the comparator data again.	
				DATA LOST METCRLF	13
1				(Response in case of scaling data failure.)	
Ц	L			Note: Set the scaling data again.	

WATANABE ELECTRIC INDUSTRY CO., LTD.

6-16-19, Jingumae, Shibuya-ku, Tokyo 150-0001, Japan

Phone: (81)3-3400-6141

 ${\bf Homepage\ http://www.watanabe-electric.co.jp/en/}$