

**BEFORE USE ....**

Thank you for choosing us. Before use, please check contents of the package you received as outlined below.

If you have any problems or questions with the product, please contact our sales office or representatives.

**■ PACKAGE INCLUDES:**

Digital panel meter (body + mounting bracket × 2).....(1)  
Engineering unit sticker label sheet.....(1)

**■ MODEL NO.**

Confirm Model No. marking on the product to be exactly what you ordered.

**■ INSTRUCTION MANUAL**

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

For detailed explanations to operate this product, please refer to Operating Manual (EM-9537-B), downloadable at our web site.

**POINTS OF CAUTION****■ CONFORMITY WITH EU DIRECTIVES**

- This equipment is suitable for Pollution Degree 2, Measurement Category I (input, transient voltage: 1500V) and Installation Category II (transient voltage: 2500V). Reinforced insulation (input to power: 300V) is maintained. Prior to installation, check that the insulation class of this unit satisfies the system requirements.
- Altitude up to 2000 meters.
- The equipment must be installed such that appropriate clearance and creepage distances are maintained to conform to CE requirements. Failure to observe these requirements may invalidate the CE conformance.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.
- In order to enable the operator to turn off the power input immediately, install a switch or a circuit breaker according to the relevant requirements in IEC 60947-2 and properly indicate it.

**■ POWER INPUT RATING & OPERATIONAL RANGE**

- Locate the power input rating marked on the product and confirm its operational range as indicated below:  
100 – 120V AC rating: 85 – 132V, 47 – 66 Hz, ≤ 2.7VA  
200 – 240V AC rating: 170 – 264V, 47 – 66 Hz, ≤ 3.4VA  
24V DC rating: 24V ±20%, ≤ 1W

**■ GENERAL PRECAUTIONS**

- Before you remove the unit or mount it, turn off the power supply and input signal for safety.
- Be sure to put the terminal cover on while the power is supplied.

**■ ENVIRONMENT**

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -10 to +55°C (14 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.
- Be sure that the ventilation slits are not covered with cables, etc.

**■ WIRING**

- Make sure for safety that only qualified personnel perform the wiring.
- Do not install cables close to noise sources (high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

**■ EX-FACTORY SETTING (/SET)**

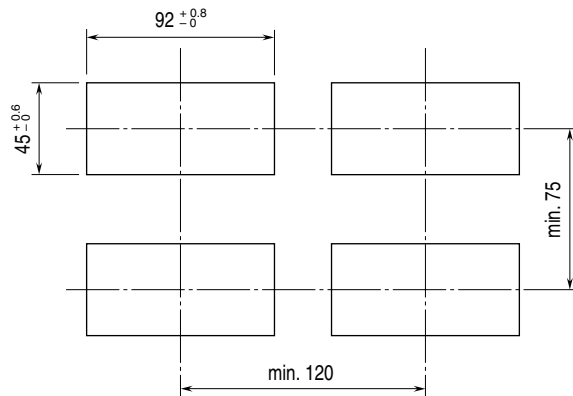
- Activating “initialization” of Display Setting Mode, Ex-factory settings or user’s specified parameters will be deleted and overwritten with the factory default values. Notice that after this, Ex-factory settings will be irrecoverable.

**■ AND ....**

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

## INSTALLATION

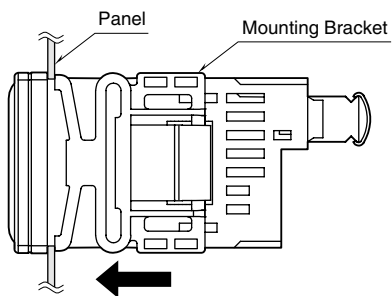
### ■ PANEL CUTOUT unit: mm



Panel thickness: 1.6 to 8.0 mm

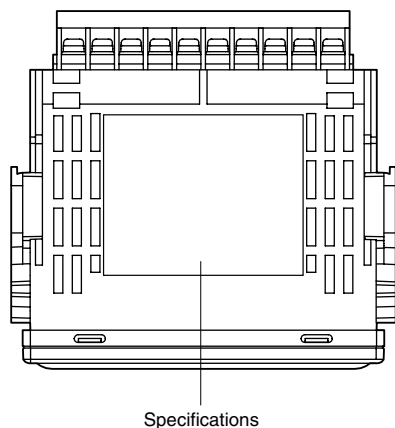
### ■ HOW TO MOUNT THE UNIT ON A PANEL

- 1) Insert the unit into the panel cutout.
- 2) Push the mounting brackets into the grooves on both sides of the rear module, until they hit the panel's rear side.

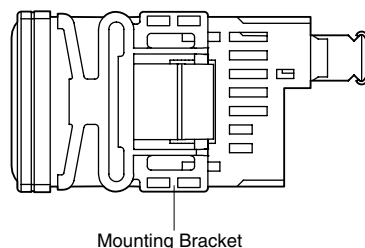


## COMPONENT IDENTIFICATION

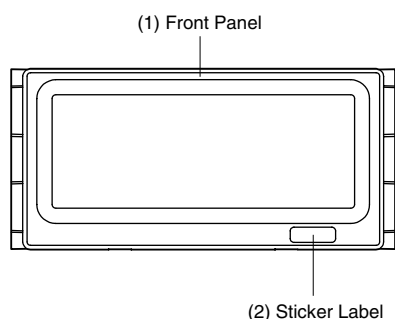
### ■ TOP VIEW



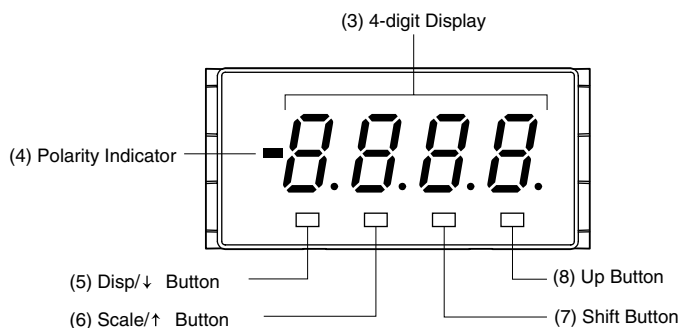
### ■ SIDE VIEW



### ■ FRONT VIEW



### • Front View without the Front Panel

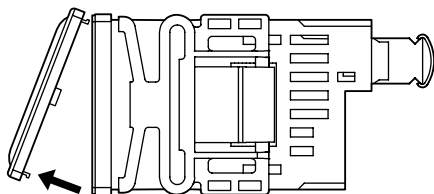


### ■ FUNCTION TABLE

No.	COMPONENT	FUNCTIONS
(1)	Front panel	Removed at configuration.
(2)	Sticker label	Engineering unit label position
(3)	4-digit display	4-digit LED display. Range: 0 to 9999 (not including decimal point)
(4)	Polarity indicator	Turns on when negative value is displayed.
(5)	Disp/↓ button	Used to move on to the display setting modes, to shift through setting items in each setting mode, or shift through display digits in each setting item.
(6)	Scale/↑ button	Used to move on to the scaling setting modes, to shift through setting items in each setting mode, or shift through display digits in each setting item.
(7)	Shift button	Used to move on to the setting standby status.
(8)	Up button	Used to select setting value.

### ■ HOW TO REMOVE THE FRONT PANEL AT CONFIGURATION

Hold up the front panel and remove it from downside.



### ■ HOW TO MOUNT THE FRONT PANEL

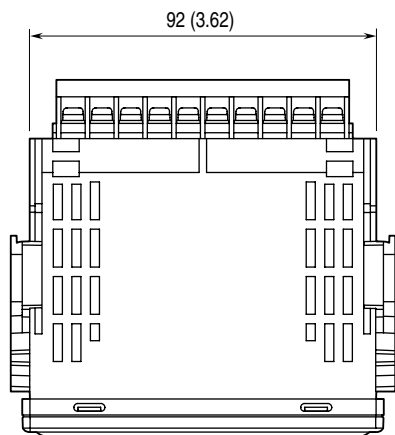
- 1) Insert the front panel hook into the case upside slots of the unit.
- 2) Push the front panel hook into the case downside slots of the unit.

## TERMINAL CONNECTIONS

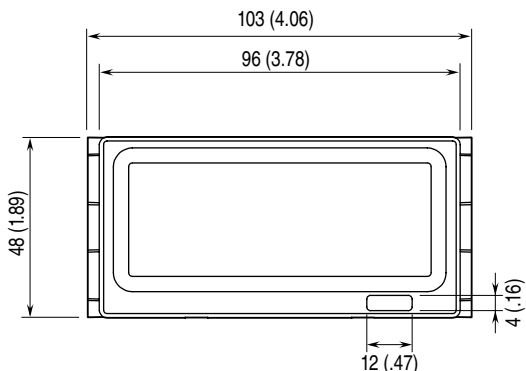
Connect the unit as in the diagram below or refer to the connection diagram on the top of the unit.

### EXTERNAL DIMENSIONS unit: mm (inch)

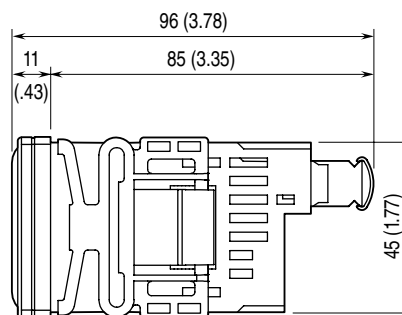
#### TOP VIEW



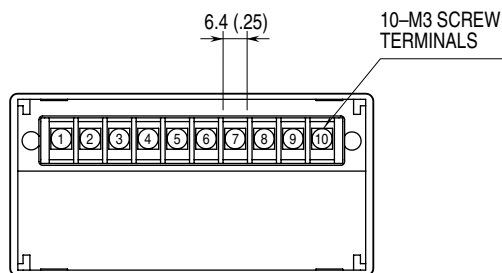
#### FRONT VIEW



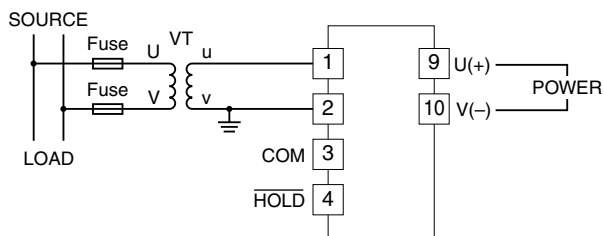
#### SIDE VIEW



#### REAR VIEW



#### CONNECTION DIAGRAM



## WIRING INSTRUCTIONS

### SCREW TERMINAL

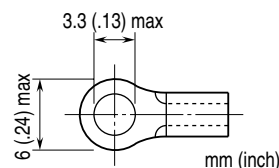
Torque: 0.6 N·m

### SOLDERLESS TERMINAL

Refer to the drawing below for recommended ring tongue terminal size. Spade tongue type is also applicable.

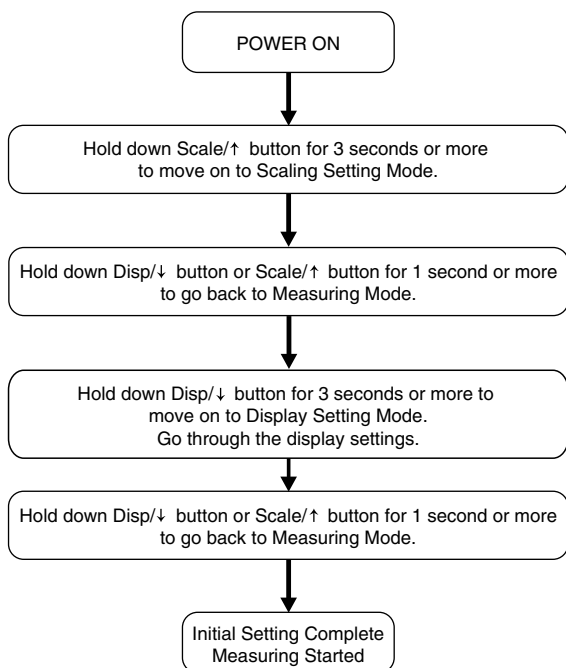
Applicable wire size: 0.25 to 1.65 mm<sup>2</sup> (AWG 22 to 16)

Recommended manufacturer: Japan Solderless Terminal MFG.Co.Ltd, Nichifu Co.,Ltd



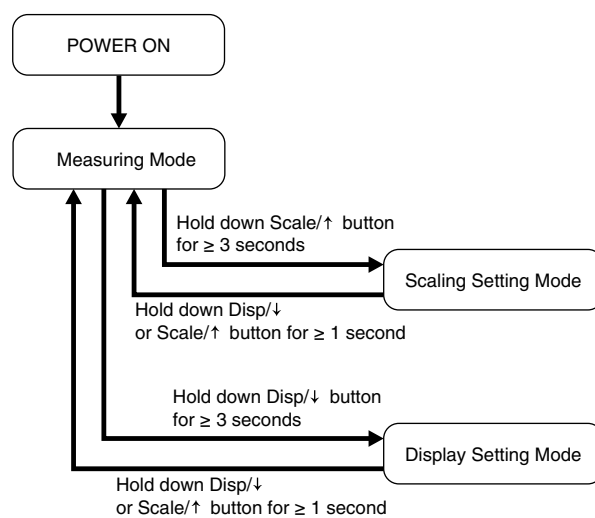
## SETTING PROCEDURE

### ■ INITIAL SETTING FLOWCHART



Note: For AC Voltmeter, the initial setting is not necessary.

### ■ GENERAL SETTING FLOWCHART



■ OPERATIONS IN SETTING MODES

• Display

The display shows the setting items while the panel meter is in the setting mode.

• Shifting through setting parameters

In any setting mode, pressing Disp/↓ button shifts one parameter to the next.

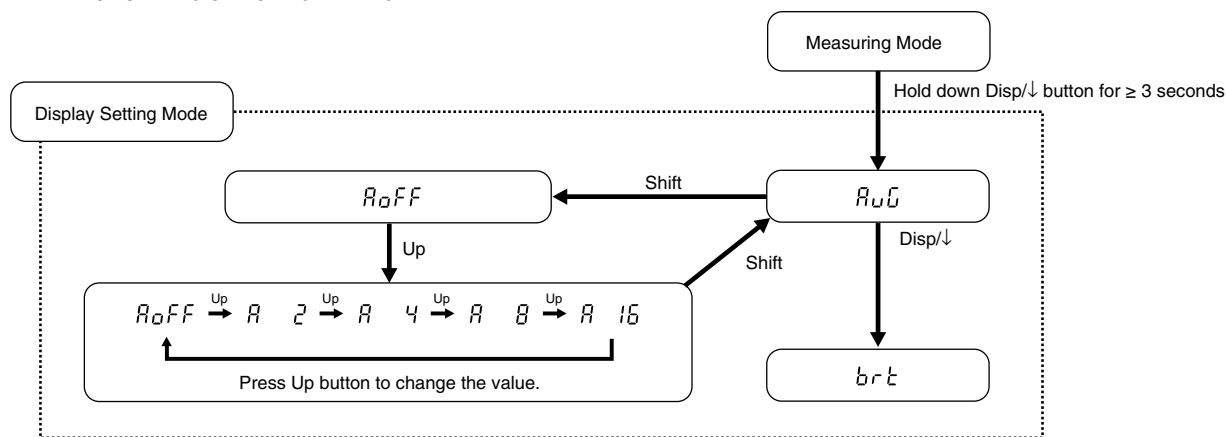
Pressing Scale/↑ button shifts one to the previous.

While the display shows the setting items, pressing no button for more than one minute causes the panel meter shifted into the measuring mode.

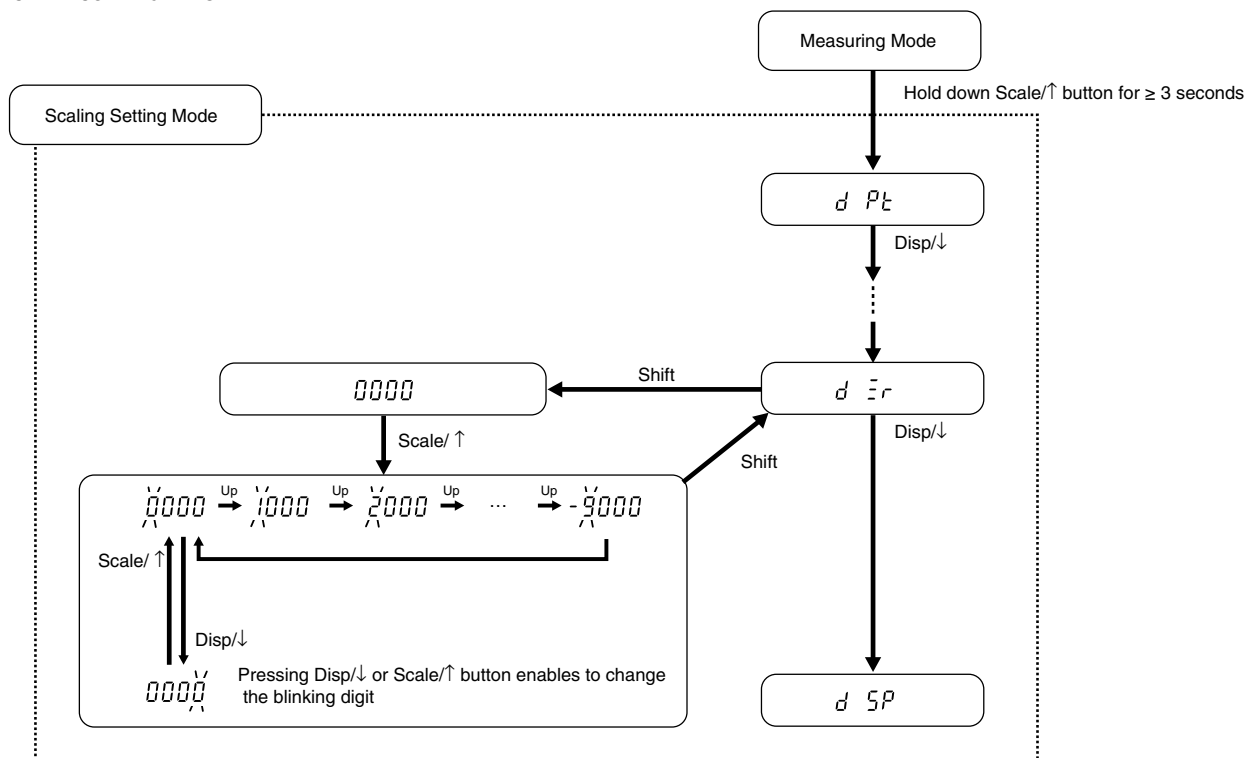
• Changing parameters

- 1) Pressing Shift button while setting item is indicated on the display shifts the panel meter into the setting standby mode. Current parameter is shown on the display.
- 2) Pressing Scale/↑ button while current parameter is shown on the display enables to start blinking the digit to which you can apply changes. (\*Only for changing numerical value, for other setting items this procedure is not available)
- 3) Press Up button to change the blinking value. (Blinking is only for setting numerical value)
- 4) Pressing Disp/↓ button when setting numerical value enables to move the digit you need to change to left. Pressing Scale/↑ button enables to move the digit you need to change to right.
- 5) Press Shift button to apply the new value and setting item is shown on the display.
- 6) While setting is performing, pressing no button for more than one minute causes the new value is ignored and setting item shown on the display.

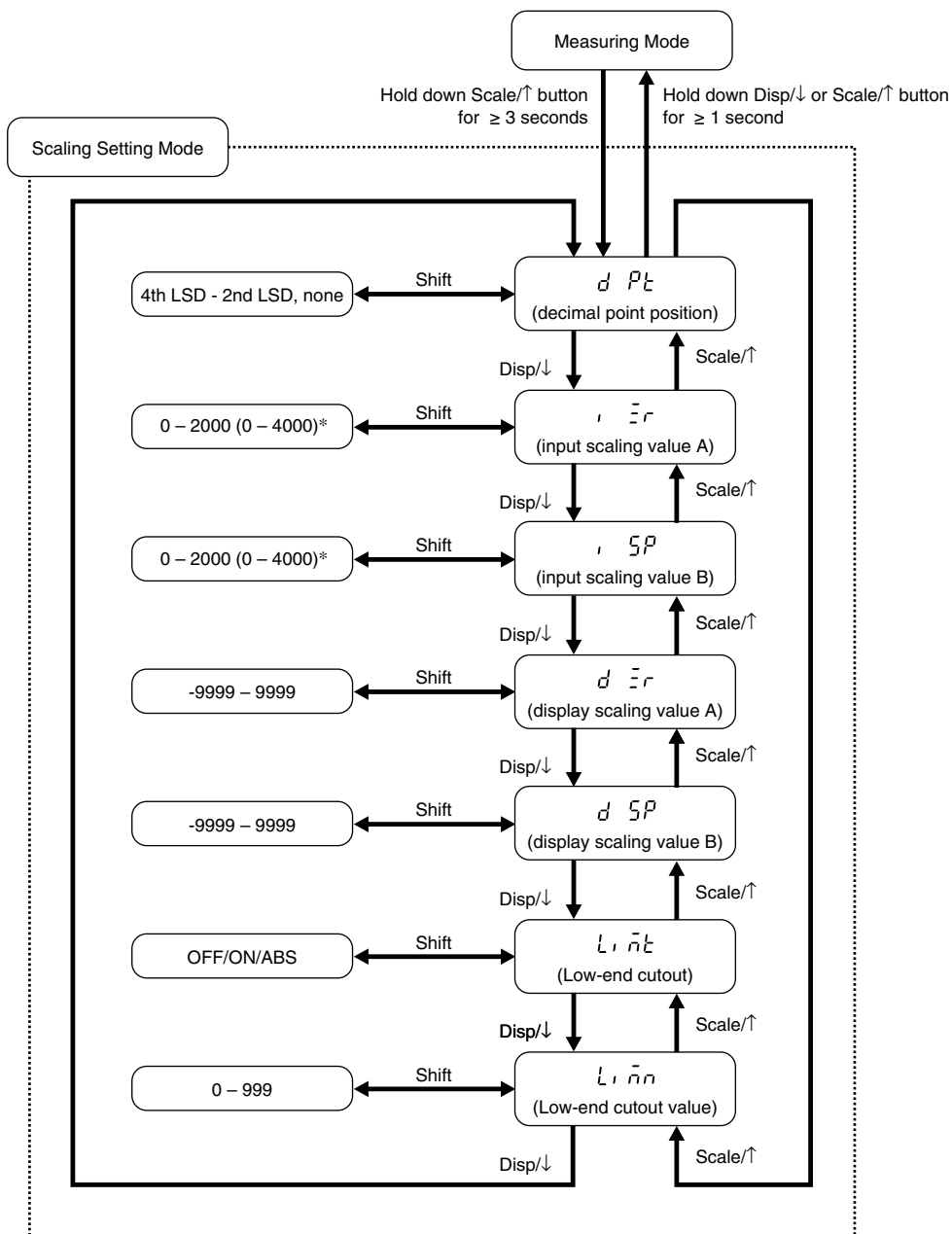
■ EXAMPLE OF SETTING OF MOVING AVERAGE



■ DISPLAY SCALING VALUE A



■ SCALING SETTING MODE



\*Only for input code 'V5'

## • PARAMETER LIST

PARAMETER	ITEM DISPLAY	DISPLAY	FUNCTION	INPUT CODE	DEFAULT VALUE
Decimal Point Position	$d \dot{P}t$	4th LSD – 2nd LSD, none	Decimal point position	V1	8888
				V2	8888
				V3	8888
				V4	8888
				V5	8888
Input Scaling Value A	$i \dot{S}r$	0000 – 2000 (0000 – 4000)*1	Input value to be set as Zero in the measurement range	V1	0000
				V2	0000
				V3	0000
				V4	0000
				V5	0000
Input Scaling Value B	$i \dot{S}P$	0000 – 2000 (0000 – 4000)*1	Input value to be set as Full Scale in the measurement range	V1	2000
				V2	2000
				V3	2000
				V4	2000
				V5	4000
Display Scaling Value A	$d \dot{S}r$	-9999 – 9999	Display value for input scaling value A	V1	0000
				V2	0000
				V3	0000
				V4	0000
				V5	0000
Display Scaling Value B	$d \dot{S}P$	-9999 – 9999	Display value for input scaling value B	V1	2000
				V2	2000
				V3	2000
				V4	2000
				V5	4000
Low-end cutout *2	$L \dot{i} \dot{n}t$	OFF	Low-end cutout OFF	-	OFF
		ON	Low-end cutout ON		
		ABS	Absolute value low-end cutout ON		
Low-end cutout value *2	$L \dot{i} \dot{n}n$	000 – 999	Low-end cutout value setting	-	000

\*1. Only for input code 'V5'

\*2. Input signal less than the preset cutout value is forcibly cut to display scaling value "zero".

Use when minus value is not required. Lower 3 digits of displayed value are set regardless of decimal point position.

Note: With the low-end cutout or absolute value low-end cutout set to ON, the low-end cutout value setting is valid.

### • Input scaling

Zero and full scale of input range can be re-configured to user's desired value by entering parameters.

When initialization of setting is executed, these data is lost and return to the default value.

Input Scaling Value A: Input value for zero point

(Input scaling value A < Input scaling value B)

Enter the value you want to set to zero in the measurement range.

Input Scaling Value B: Input value for full scale point

Enter the value you want to set to full scale in the measurement range.

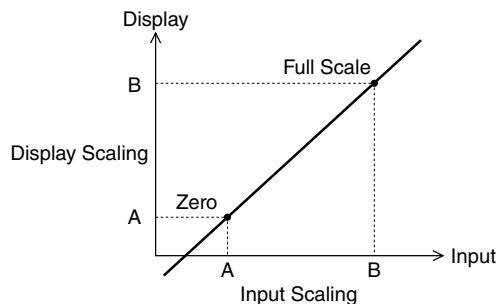
### • Display scaling

Display Scaling Value A: Display value for Input Scaling Value A

Display Scaling Value B: Display value for Input Scaling Value B

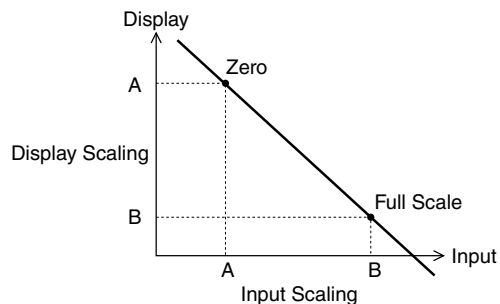
### • Normal Scaling

The display value increases when the input signal increases.



### • Inverted Scaling

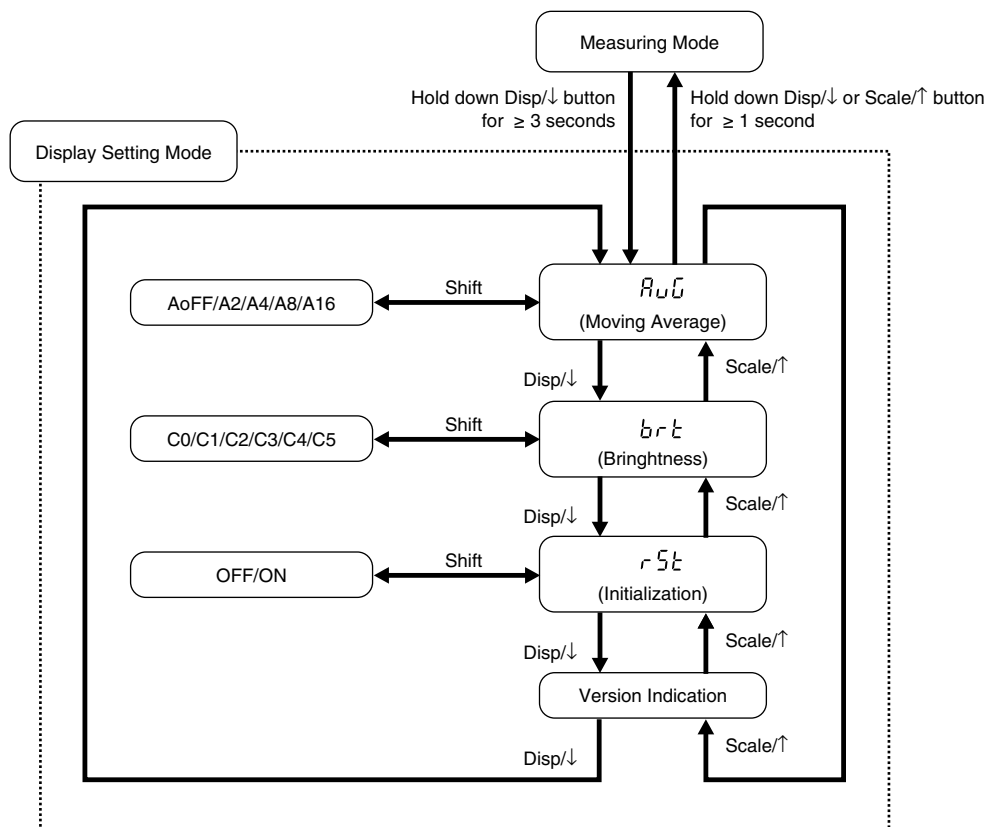
The display value decreases when the input signal increases.



Decimal point position: Decimal point position is specified independently from the scaling. When you set the display scaling, include zeros for fractions.



## ■ DISPLAY SETTING MODE



### • PARAMETER LIST

PARAMETER	ITEM DISPLAY	DISPLAY	FUNCTION	DEFAULT VALUE
Moving Average	RUG	RoFF	No moving averaging	RoFF
		R 2	Moving average with 2 samples	
		R 4	Moving average with 4 samples	
		R 8	Moving average with 8 samples	
		R 16	Moving average with 16 samples	
Brightness	brt	[ 0	Brightness level 0 (dark)	[ 5
		[ 1	Brightness level 1	
		[ 2	Brightness level 2	
		[ 3	Brightness level 3	
		[ 4	Brightness level 4	
		[ 5	Brightness level 5 (bright)	
Initialization	rst	oFF	Non-initialization	oFF
		oN	Initialize settings (change to factory settings) *1	
Version Indication	-	-	Version number, indication only	-

\*1. While "on" is shown, pressing Shift button initializes settings.

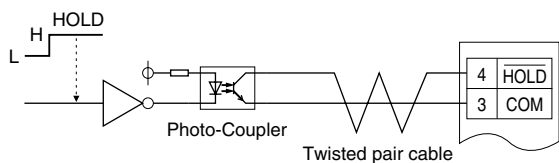
When initialization of setting is executed, existing each parameter settings are lost and return to default value. Be aware that settings does not return to the ex-factory settings specified by /SET option.

## DISPLAY HOLD COMMAND

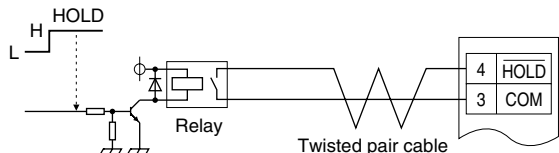
Displayed value is held with an external HOLD command input. Connect the contacts across  $\overline{\text{HOLD}}$  to COM. (Isolate with photo-coupler or relay as terminals 3 and 4 are not isolated to input signal, terminals 1 and 2.)

### • WIRING EXAMPLES

(a) Photo-Coupler



(b) Relay

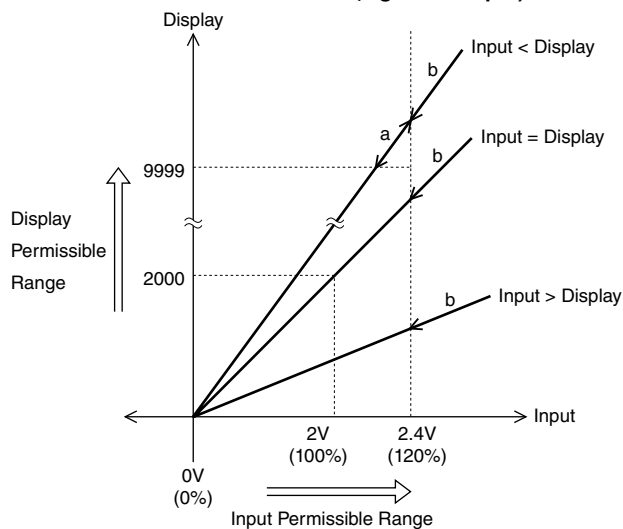


## ERROR MESSAGES

DISPLAY	ERROR MESSAGE	WHAT TO DO
S.E.R.R. blinking	The input signal is out of the permissible range.	Set the input signal within the permissible range.
E.r.r. blinking	Setting for input scaling is invalid.	Set correct value for input scaling value A, B.
-9999 or 9999 blinking	The value after scaling is out of the permissible display range.	Set the input signal within the permissible range.

Note: While an external HOLD command is input, the display keeps the value at the HOLD command turning on, even though the input is out of range.

### ■ INPUT AND ERROR CORRELATION (e.g. 0 - 2V input)



a: 9999 blinking

If the value to display after scaling is out of the permissible range, the maximum (9999) or minimum (-9999) value is blinking.

b: S.ERR blinking

If the input signal is out of the permissible range, the indicator will blink "S.ERR".

## CHARACTER SET

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
0	1	2	3	4	5	6	7	8	9	A	b	c	d	e	f	g	h	,	u	p	L	n	n	o	p	q	r	s	t	u	v	w	x	y	z

## LIGHTNING SURGE PROTECTION

We offer a series of lightning surge protectors for protection against induced lightning surges. Please contact us to choose appropriate models.