

INSTRUCTION MANUAL

DEVIATION ALARM SETTER

SDDV-105

Introduction

Thank you for your purchase of our product.

Please read this instruction manual carefully before installation, wiring, and using this product.

Please keep you in custody at hand to be found any time after it was read.

Please ask supplier if you lost or damage this instruction manual.

<Attention>

When there are suspicious point and omission in this instruction manual, please connect with supplier.

Safety consideration

This instruction manual is the contents which are necessary in order to use product justly safely.

Please read the text after understanding the next contents (display / graphic symbol).

And please look after the items mentioned.



DANGER

If a user does the wrong handling, there is danger of death and serious injury.



WARNING

If a user does the wrong handling, there is possibility of death and serious injury.



ATTENTION

If a user does the wrong handling, there is possibility to suffer a injury.

- We do not carry liability on our back on the damage that occurred with the next condition. (An earthquake, A fire except we responsibility, An accident except we responsibility, The wrong handling, Use with an abnormal condition.)
- On the damage that they produced from malfunction by a combination with the connection device which we do not participate in, we do not carry responsibility on our back.



DANGER

- Please do not disassemble, remodeling and repair this product by oneself.
Please connect with selling agent when it broke down.
- Please do not get this product wet with water or seawater. This product can cause the generation of heat, ignition, and trouble. When this product got by mistake wet with water, please stop use promptly.
- Please do not connect metals except wiring (wire) to a terminal of this product (metal portion).
If the metals touches a terminal, wiring short-circuits and can cause the generation of heat / ignition.
- Please do not work to in the place where there are an inflammable object and medicine and gas.
If the wiring short-circuits, electric spark catches fire to a medicine and gas, and there can be a thing causing a fire.



WARNING

- Please connect auxiliary supply and input of designation to this product.
If the connects auxiliary supply and input of designation outside, this product causes trouble and ignition.
- IF the dust sticks to a terminal of this product, please wipe off a terminal after cutting off this product.
- If the generated of emits smoke and bad smells from this product, please do the next work.
 - (1) Please stop use of this product.
 - (2) Please inform selling agent of abnormality.



ATTENTION

- Please do not use and storage at the place becoming a high temperature and high humidity.
Working temperature, humidity and storage temperature are designated to this product.
If the environment except designation, this product can cause trouble.
- Please do not touch a terminal (metal portion) during operation.
- Please do not goes down and bend forcibly of electric wiring. Damage of code causes the generation of heat and a burn.
And a device can break down by poor contact.
- Please do not touch a device, with the condition that a hand got wet.

Other precaution

- Don't mount or storage this unit in the following environments.
The place where corrosive gas ⁽¹⁾ is generated, and remain behind, the place dusty place, the place subjected to vibrations or shocks, the place subjected to influence of external magnetic field ⁽²⁾.
Note ⁽¹⁾ Corrosive gas = Sulfur dioxide SO₂ / Hydrogen sulfide H₂S / etc.
Note ⁽²⁾ Large current bus / saturable reactor / etc.
- Please do cleaning of this product by the next point. Wipe off the surface of the unit with a dry soft cloth.
There can be a case except it, a thing having wound forward. And a letter of name-plate can disappear.
Please do not use solvent, cleaner, alcohol, chemical for cleaning.
- This product does not use a mercury part and a nickel-cadmium battery.
- The discarded product. If the burns up this product, it gives bad influence to environment.

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1. Product explanatory

1.1 Outline

This product is the alarm setter of small plug-in structure.

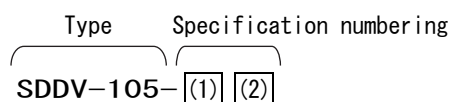
As input the two DC signal, to measure the deviation and the deviation of each individual input between the input, by comparing it with the pre-set value, and outputs the excess or deficiency in the contact signal. Since this product is software compatible form, it can be set in the real scale of the full scale of input in accordance with the process amount. In addition, each set value (operating value, the moving average constant, such as contact delay) can also be freely set change.

Input (real scale) and, each set value is displayed in 4-digit LCD (backlit).

1.2 Features

- Setting accuracy is $\pm 0.5\%$ (% for input span). Display accuracy is $\pm 0.5\% \pm 1$ digit (% for input span).
- Withstand voltage AC2000V design. (Between input, output, auxiliary supply, case.)
- Display and setting of real scale by LCD can hold in front key switch. They respond to a scaling change too.
- Setting by non-volatile RAM, it will be a power outage guarantee.
- The reduction of internal heat generation, has improved the reliability.
- Backlight is lit at the time of key switch operation. Backlight to key switch operation end after 30 seconds will turn off.

1.3 Type composition



(1) Input (Input resistance)		(2) Auxiliary supply
A4 DC0 - 100mV (About 1M Ω)	C3 DC0 - 1mA (About 100 Ω)	1 AC100V ($\pm 15\%$) 50/60Hz
A5 DC0 - 1V (About 1M Ω)	C4 DC0 - 5mA (About 100 Ω)	2 AC110V ($\pm 15\%$) 50/60Hz
A6 DC0 - 5V (About 1M Ω)	C5 DC0 - 10mA (About 100 Ω)	5 DC24V ($\pm 15\%$)
A7 DC0 - 10V (About 1M Ω)	C6 DC0 - 16mA (About 100 Ω)	6 DC48V ($\pm 15\%$)
A8 DC1 - 5V (About 1M Ω)	C7 DC4 - 20mA (About 100 Ω)	7 DC110V (+30%, -20%)
00 Others		8 DC100V (+43%, -12%)
		0 Others (AC200V and 220V cannot be produced.)

2. Specification

2.1 Specification

Item	Specification
Input production range	Voltage input DC50mV to 60V
	Current input DC100μA to 100mA
Burden	AC power supply : 4.5VA, DC power supply : 4.5W
Weight	Approx. 380g
Outside color	Case, socket : Black (Munsell N1.5) Name plate : Gray
Operation temperature, humidity range	0 to 55°C, 30 to 85% RH (Non condensing)
Storage temperature range	-25 to +70°C

2.2 Actuating of output contact

① At auxiliary supply OFF or relay non-excitation : Relay b contact ON, Monitor lamp OFF.

② At relay excitation : Relay a contact ON, Monitor lamp ON

Output mode setting	Relay and monitor indicator active state	
	▽ Detection value setting → deviation	
Excitation	Monitor lamp	Turn OFF ●
	Relay	Non-excitation
Non-excitation	Monitor lamp	Turn ON ○
	Relay	Excitation

● Alarm output state

State	Auxiliary supply OFF or relay non-excitation	Relay excitation
Alarm output	<p>Terminal No. 10 9 11</p>	<p>Terminal No. 10 9 11</p>

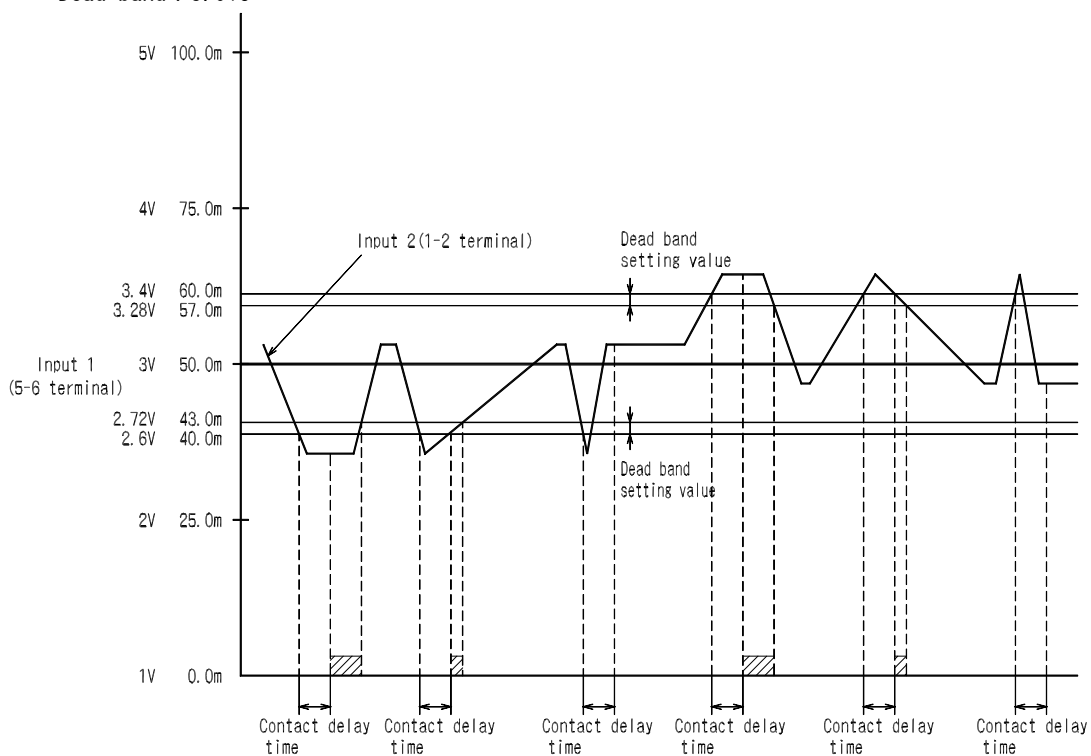
2.3 Relay actuating explanatory

An example) Input 1 (Terminal No. 5-6) 3V applied

Scaling : 0.0 - 100.0m

Deviation setting : 10.0m

Dead band : 3.0%

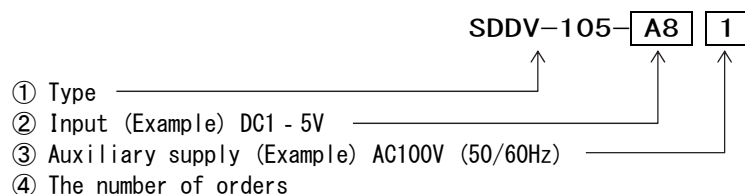


3. Specification at a designate matter at order and product shipment

3.1 Designate matter at order

It do a order case and designate next ① to ④.

(About specification numbering of input and auxiliary supply, Give Sub-Section 1.3 reference.)



3.2 Specification at product shipment (Product shipping it in shipment setting.)

Item		Setting range	Setting value at shipment
Instrumentation display (Display for 0.0 - 100.0% of input span)	INPUT1 (Reference input)	-9999 to 9999 -99.9 to 999.9 -9.99 to 99.99 0.000 to 9.999	0.0 - 100.0 (Decimal point is voluntarily possible setting)
	INPUT2 (Measurement input)		
Input interval deviation display. (Input2 - Input1)		For instrumentation display setting	0.0 - 100.0
Unit display		m, Tpm	m
Input interval deviation operating value. (Moving average operation, real scale.)		It is 4% or more to the full scale of a measurement real scale. (Less than 4% cannot be set up)	10.0
Individual input deviation-operating value. (Instantaneous operation, real scale.)			30.0
Dead band (Percent for input span)	At input interval deviation	0.5 to 50%	3.0%
Output mode		Excitation, Non-excitation	Excitation
Contact delay time (C.D.)	At input interval deviation	10 to 30s	1s
	At individual input deviation		1s
Starting delay time (S.D.)		1 to 30s	5s
Calibration (Percent for input span)	BIAS	-9.99 to 9.99%	0.00
	SPAN	-9.99 to 9.99%	0.00
Sampling time (s)		1 to 30s	1s
Data sampling number (N)		1 to 8	8

Blackout protection of setting value. Setting value is preserve for blackout.

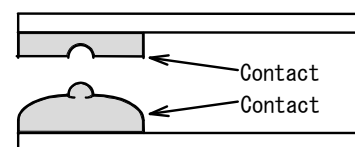
4. Performance

Item		Specification
Setting accuracy		$\pm 0.5\%$ (% for input span)
Display accuracy		$\pm 0.5\% \pm 1$ digit (% for input span)
Repeatability of operating point		$\pm 0.25\%$ (% for input span)
Operating time	Input interval deviation operating	When data sampling number (N) is an odd number. $C.D. + S(N/2 \pm 0.5) + t1s$ When data sampling number (N) is an even number. $C.D. + S(N/2 \pm 1) + t1s$ (C.D.=Contact delay, S=Sampling time, $t1$ =Operation processing time + Relay time)
	Individual input deviation operating	C.D. + 1 ± 0.5 second to S+C.D. + 1 ± 0.5 second
Reset time	Input interval deviation operating	When data sampling number (N) is an odd number. $S(N/2 \pm 0.5) + t1s$ When data sampling number (N) is an even number. $S(N/2 \pm 1) + t1s$ (S=Sampling time, $t1$ =Operation processing time + Relay time)
	Individual input deviation operating	1 ± 0.5 second to S + 1 ± 0.5 second
Influence of temperature		$23 \pm 10^\circ\text{C} \pm 0.25\%$ $23 \pm 20^\circ\text{C} \pm 0.5\%$
Response speed (MAX.)		About 6.5 seconds. When 90% of setting value give step transform into 110%. S(Sampling time)=1 second N(Data sampling number)=8 piece C.D.(Contact delay time)=1 second $t1$ (Operation processing time + Relay time)=0.5 second
Instantaneous over load	Input	2 times 10 seconds, 1.2 times continuation of rated voltage. 10 times 5 seconds, 1.2 times continuation of rated current.
	Auxiliary supply	1.5 times 10 seconds, 1.2 times continuation of rated voltage.
Insulation resistance		Between electric circuit and a case.
		Mutual interval of input, output, auxiliary supply terminal,
		Between inputs.
Withstand voltage		Between electric circuit and a case.
		Mutual interval of input, output, auxiliary supply terminal,
		Between inputs.
Impulse withstand voltage		Between electric circuit and a case. 5kV 1.2/50 μ s Positive negative polarity for each 3 times.
Contact capacity		Maximum switching connected load, AC120V, 1A ($\cos \phi = 1$), DC125V, 150mA (Resistance load) Minimum switching connected load, DC5V, 10mA
Materials of case		Case : Flame resistance ABS resin. Name plate : Polyester film. Socket : PBT resin containing glass.

● About transposition of contact.

There is a move of contact in continuous current connected load make and break and the irregularities complete and there may be the thing that contacts does not return.

The thing that a part of contact misses this by arc heat and evaporated from plus pole to minus pole contact is the thing that it does adhesion volume.



<Measures> Give each armature relay by all means in limit of rated load use.


5. Setting and display

In front key switch of this product, can be viewed by input value. And allows display and set the setting value. Method of operation, please refer to the 5.4 to 5.5 of the manual. In addition, for the set value and display value, please refer to the following "setting value and display value List".

<Notes> Please operate at a moderate force without applying excessive force to the key switch.

If you press the key switch in excessive force, there is a possibility that affect the display becomes a stress on the front plate.

5.1 Setting value and indicated value table

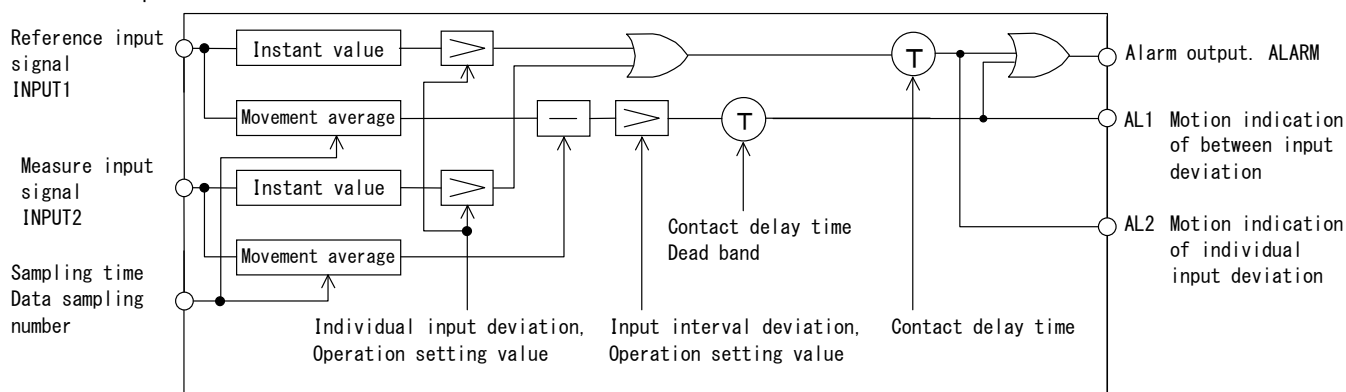
Setting item		LCD display mark	Indicated value / setting value	Setting value and setting range (Digit)
Input display	Input1	1	Indicated value	Real scale 4 digit
	Input2	2	Indicated value	Real scale 4 digit
Input scaling	Maximum	MAX.	Indicated value / setting value	Real scale 4 digit
	Minimum	MIN.	Indicated value / setting value	Real scale 4 digit
Input1 calibration	SPAN	CSPN1	Indicated value / setting value	-9.99 to 9.99% (% for input span)
	BIAS	CBIS1	Indicated value / setting value	-9.99 to 9.99% (% for input span)
Input2 calibration	SPAN	CSPN2	Indicated value / setting value	-9.99 to 9.99% (% for input span)
	BIAS	CBIS2	Indicated value / setting value	-9.99 to 9.99% (% for input span)
Input interval deviation display (Input2 - Input1)			Indicated value	Real scale 4 digit
Unit display		UNIT	Indicated value / setting value	m, Tpm
Input interval deviation operating value display		COMP1	Indicated value / setting value	Real scale 4 digit
Individual input deviation operating value display		COMP2	Indicated value / setting value	Real scale 4 digit
Dead band (% for input span)	At input interval deviation	D. B. 1	Indicated value / setting value	0.5 to 50.0% (% for input span)
Output mode		EXMOD	Indicated value / setting value	Excitation, Non-excitation
Contact delay time (C. D.)	At input interval deviation	C. D. 1	Indicated value / setting value	0 to 30s
	At individual input deviation	C. D. 2	Indicated value / setting value	0 to 30s
Starting delay time (S. D.)		S. D.	Indicated value / setting value	1 to 30s
Sampling time (s)		SAMP1	Indicated value / setting value	1 to 30s
Data sampling number (N)		SAMP2	Indicated value / setting value	1 to 8

5.2 About error message

LCD indication mark	Indication description
SET Err 1	It displays, when set up exceeding the setting range.
SET Err 2	It displays, when set up exceeding the setting range of an input scaling value, at the time of the deviation operation value between inputs, and an individual input deviation operation value setup.
SET Err 3	It displays, when less than 4% of an input scaling value is set up at the time of the deviation operation value between inputs, and an individual input deviation operation value setup.

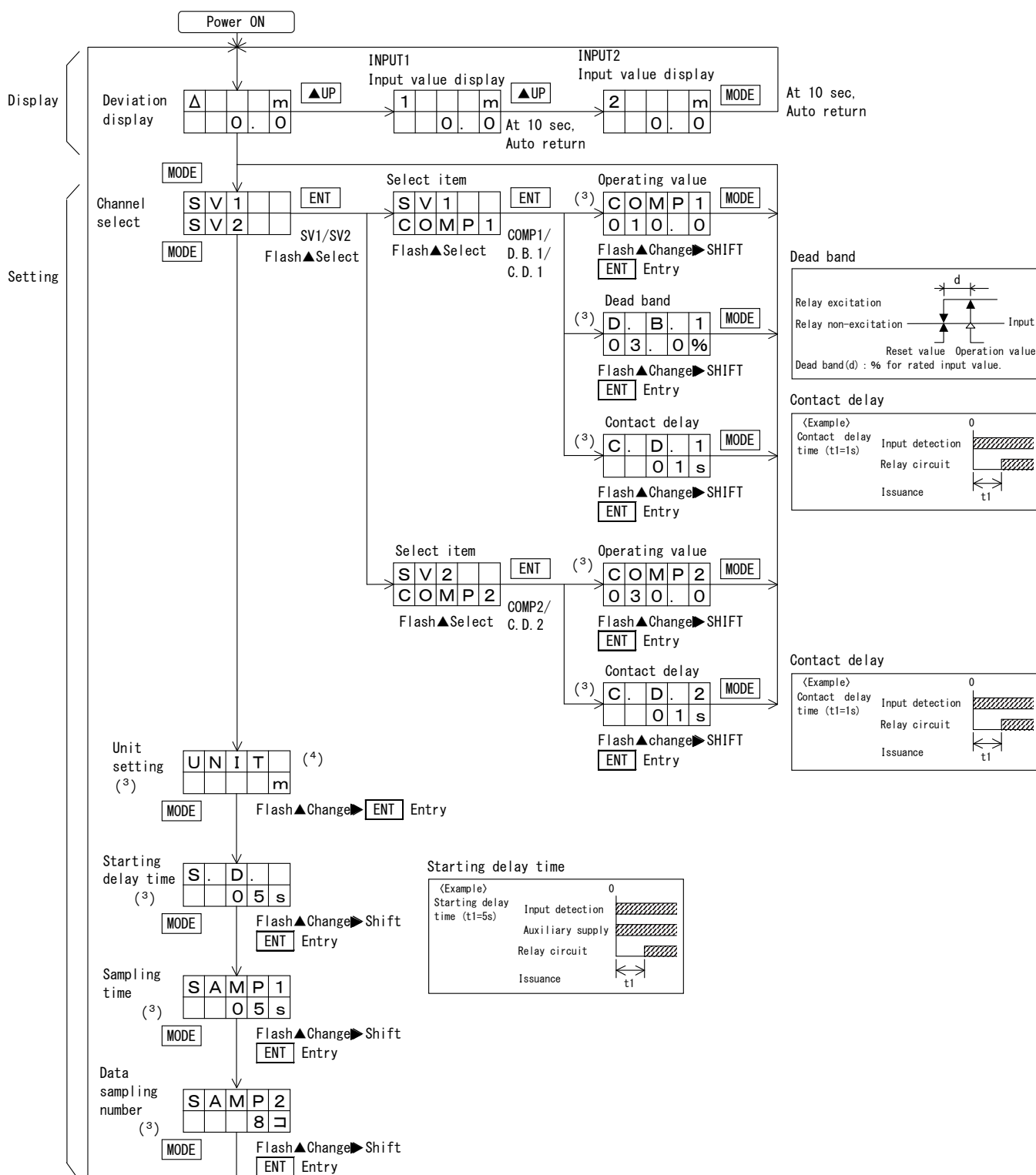
Data of range outside is cancel and they indicate current data.

5.3 Soft composition



5.4 Display and configuration procedure flow

5.4.1 Display setting mode



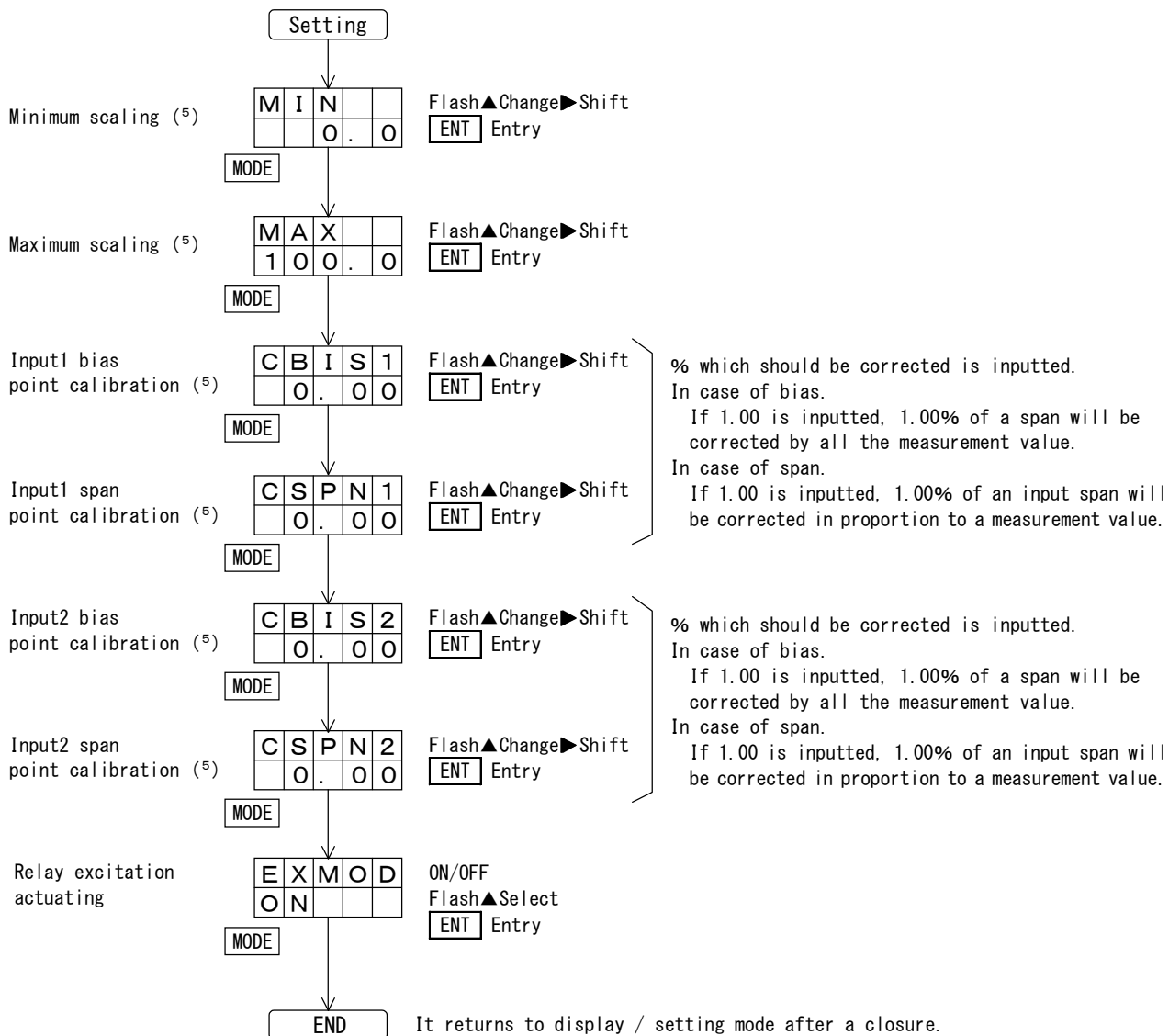
Note(3) A numeric value change, don't have MEAS⇔SET switch in case of MEAS side.

Note(4) If you do not have the unit you wish to use, please use a combination of "no unit" setting and seal (accessory).

5.4.2 Function setting mode

They push MODE + ▲ UP with display, Setting mode more than 3 seconds and they shift to function setting mode.

An example) 0 - 100.0%


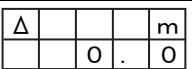
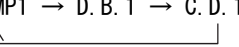
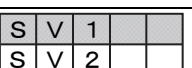
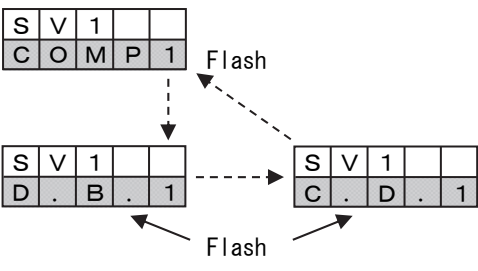
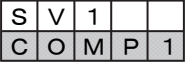

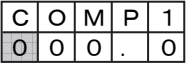
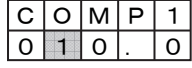

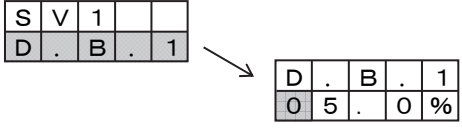
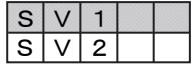
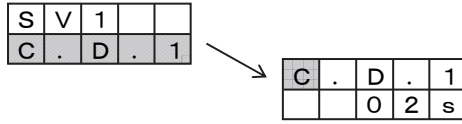


Note(5) A numeric value change, don't have MEAS⇌SET switch in case of MEAS side.

5.5 Display and configuration procedure

5.5.1 Display setting mode

They show operation procedure from initial value at shipment. A switch is made into the SET side.

No.	Item	Operation	Display
1	Auxiliary supply applied.	A switch is made into the SET side.  MEAS/SET	 Input value display In setting, it is at the case of shipment.
2	Deviation setting item select.	The MODE key is pressed once and it is made the display of the right figure. The ENT key is pressed and SV1 is selected. (The item which is indicating by flashing is selected.) It is operation contents selection at the UP key. Whenever it presses a key, operation contents change. COMP1 → D.B.1 → C.D.1  It enters by the ENT key.	 SV 1 Flash indication 
3	Operation value setting of SV1 <NOTE> In case setting of 0 - 100.0m, Establish it in digit of less than 0 - 100.0m. Above men timed range outside is cancel they push ENT key and they rise with current setting value.	 COMP1 Flash. It enters by the ENT key. It is number change of a digit at the UP key. Whenever it presses a key, a number progresses. 0 → 1 → 2 → ----- → 9 → (-)  It is number change of a digit at the UP key. A digit shifts to the right by the SHIFT key. It enters by the ENT key after all digit end. (If the ENT key is not pressed, the number setting will become null and void and will serve as the conventional set value.)	 The present set value is displayed. Flash. Setting of repetition each digit data. (1) Movement of decimal point cannot be performed. (2) Minus display setting cannot be performed. An example) 10.0m  Setting value 10.0
4	Dead band setting of SV1	The MODE key is pressed and it returns to a deviation setting item. Please press the UP key and give operation contents as D.B.1. Setting in a similar way No.3 of the former section. It enters by the ENT key after all digit end. ↑ It surely performs.	 SV 1 Flash display 
5	Contact delay setting of SV1	The MODE key is pressed and it returns to a deviation setting item. Please press the UP key and give operation contents as C.D.1. Setting in a similar way No.3 of the former section. It enters by the ENT key after all digit end. ↑ It surely performs.	 SV 1 Flash display 

Please refer to the set value of 7-page the 5.1 section, and an indicated value list about a display symbol.


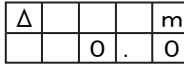
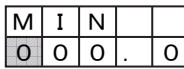

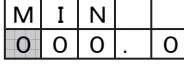

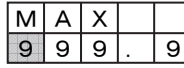
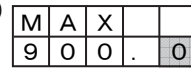
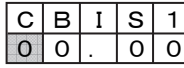
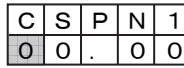
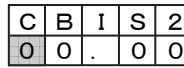
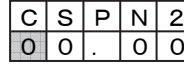

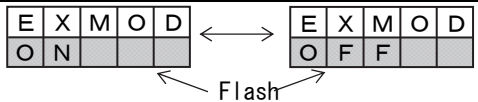
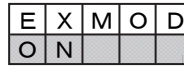

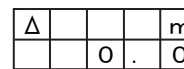
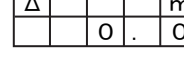
No.	Item	Operation	Display																		
6	Operating value setting of SV2	The MODE key is pressed and then it is made the display of the right figure. Please select the UP key SV2.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>V</td><td>1</td><td></td><td></td></tr> <tr><td>S</td><td>V</td><td>2</td><td></td><td></td></tr> </table> SV2 Flash display	S	V	1			S	V	2										
		S	V	1																	
S	V	2																			
Setting in a similar way No.2 of the former section. It is made the item of COMP2. It enters by the ENT key after all digit end. ↑ It surely performs.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>V</td><td>2</td><td></td><td></td></tr> <tr><td>C</td><td>O</td><td>M</td><td>P</td><td>2</td></tr> </table> → <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>C</td><td>O</td><td>M</td><td>P</td><td>2</td></tr> <tr><td>3</td><td>0</td><td>0</td><td>.</td><td>0</td></tr> </table>	S	V	2			C	O	M	P	2	C	O	M	P	2	3	0	0	.	0
S	V	2																			
C	O	M	P	2																	
C	O	M	P	2																	
3	0	0	.	0																	
7	Contact delay setting of SV2	The MODE key is pressed and it returns to a deviation setting item. Please press the UP key and give operation contents as C.D.2.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>V</td><td>1</td><td></td><td></td></tr> <tr><td>S</td><td>V</td><td>2</td><td></td><td></td></tr> </table> SV2 Flash display	S	V	1			S	V	2										
		S	V	1																	
S	V	2																			
Setting in a similar way No.3 of the former section. It enters by the ENT key after all digit end. ↑ It surely performs.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>V</td><td>2</td><td></td><td></td></tr> <tr><td>C</td><td>.</td><td>D</td><td>.</td><td>2</td></tr> </table> → <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>C</td><td>.</td><td>D</td><td>.</td><td>2</td></tr> <tr><td></td><td></td><td>0</td><td>2</td><td>s</td></tr> </table>	S	V	2			C	.	D	.	2	C	.	D	.	2			0	2	s
S	V	2																			
C	.	D	.	2																	
C	.	D	.	2																	
		0	2	s																	
8	Setting of display unit.	The MODE key is pressed and it is made the display of the right figure.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>U</td><td>N</td><td>I</td><td>T</td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td>m</td></tr> </table> m Flash display	U	N	I	T						m								
		U	N	I	T																
				m																	
The unit is changed by the UP key. m → Tpm → With no unit ↑ Whenever it presses a key, data change. It enters by the ENT key after all digit end. ↑ It surely performs.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>U</td><td>N</td><td>I</td><td>T</td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td>m</td></tr> </table> Flash ↓ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>U</td><td>N</td><td>I</td><td>T</td><td></td></tr> <tr><td></td><td></td><td>T</td><td>P</td><td>m</td></tr> </table> Flash	U	N	I	T						m	U	N	I	T				T	P	m
U	N	I	T																		
				m																	
U	N	I	T																		
		T	P	m																	
9	Starting delay setting.	The MODE key is pressed and it is made the display of the right figure.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>.</td><td>D</td><td>.</td><td></td></tr> <tr><td></td><td></td><td>0</td><td>5</td><td>s</td></tr> </table> Flash of top digit.	S	.	D	.				0	5	s								
		S	.	D	.																
				0	5	s															
It is digit number change at the UP key. Whenever it presses a key, a number progresses. 0 → 1 → 2 → ----- → 8 → 9 ↑	} Setting each digit data repeatedly.																				
It is number change of a digit at the UP key. A digit shifts to the right by the SHIFT key. It enters by the ENT key after all digit end. ↑ It surely performs.		An example) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>.</td><td>D</td><td>.</td><td></td></tr> <tr><td></td><td></td><td>0</td><td>5</td><td>s</td></tr> </table> Setting value 5s	S	.	D	.				0	5	s									
S	.	D	.																		
		0	5	s																	

Please refer to the set value of 7-page the 5.1 section, and an indicated value list about a display symbol.

No.	Item	Operation	Display										
10	Sampling time setting.	The MODE key is pressed and it is made the display of the right figure.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>A</td><td>M</td><td>P</td><td>1</td></tr> <tr><td></td><td></td><td>0</td><td>1</td><td>s</td></tr> </table> Flash of top digit.	S	A	M	P	1			0	1	s
		S	A	M	P	1							
				0	1	s							
		It is number change of a digit at the UP key. Whenever it presses a key, a number progresses. 0 → 1 → 2 → ----- → 9 → (-) ↑	} Setting each digit data repeatedly.										
It is number change of a digit at the UP key. A digit shifts to the right by the SHIFT key.													
It enters by the ENT key after all digit end. ↑ It surely performs.	An example) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>A</td><td>M</td><td>P</td><td>1</td></tr> <tr><td></td><td></td><td>0</td><td>1</td><td>s</td></tr> </table> Setting value 1s	S	A	M	P	1			0	1	s		
S	A	M	P	1									
		0	1	s									
11	Data sampling number setting.	The MODE key is pressed and it is made the display of the right figure.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>A</td><td>M</td><td>P</td><td>2</td></tr> <tr><td></td><td></td><td></td><td>1</td><td>□</td></tr> </table> Flash of top digit.	S	A	M	P	2				1	□
		S	A	M	P	2							
					1	□							
		It is number change of a digit at the UP key. Whenever it presses a key, a number progresses. 0 → 1 → 2 → ----- → 8 → 9 ↑	} Setting each digit data repeatedly.										
		It is number change of a digit at the UP key. A digit shifts to the right by the SHIFT key.											
It enters by the ENT key after all digit end. ↑ It surely performs.	An example) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>S</td><td>A</td><td>M</td><td>P</td><td>2</td></tr> <tr><td></td><td></td><td></td><td>8</td><td>□</td></tr> </table> Setting value 8	S	A	M	P	2				8	□		
S	A	M	P	2									
			8	□									
A switch is made into the MEAS side. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>■</td></tr> </table> MEAS/SET The MODE key is pressed and it returns to measurement/display mode.	■	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>Δ</td><td></td><td></td><td></td><td>m</td></tr> <tr><td></td><td></td><td>0</td><td>.</td><td>0</td></tr> </table>	Δ				m			0	.	0	
■													
Δ				m									
		0	.	0									

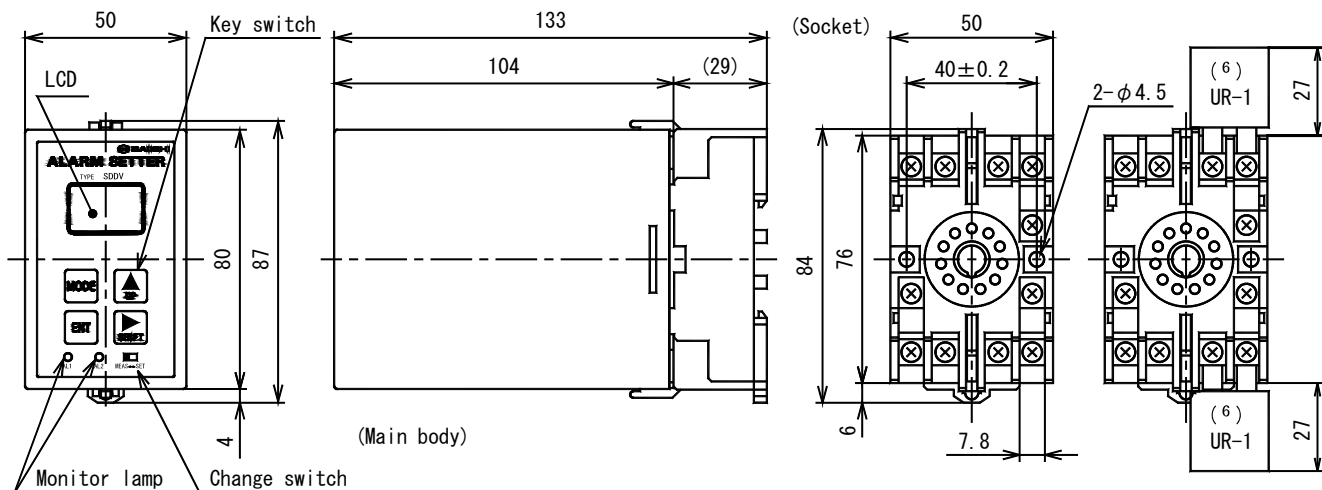
Please refer to the set value of 7-page the 5.1 section, and an indicated value list about a display symbol.

5.5.2 Function setting mode

No.	Item	Operation	Display
1	Auxiliary supply applied.	A switch is made into the SET side.  MEAS/SET	 Deviation value display.
2	It changes into functional setting mode from display setting mode.	MODE and the UP key are pressed 3 seconds more than simultaneously.	
3	Setting of the minimum value of the measuring display range.	A switch is made into the SET side.  MEAS/SET	 Flash of top digit.
		It is number change of a digit at the UP key. Whenever it presses a key, a number progresses. 0 → 1 → 2 → ----- → 8 → 9 	Setting of repetition each digit data. (1) Movement of decimal point cannot be performed. (2) Minus display setting cannot be performed.
		It is number change of a digit at the UP key. A digit shifts to the right by the SHIFT key. It enters by the ENT key after all digit end. ↑ It surely performs.	
4	Setting of the maximum value of the measuring display range.	The MODE key is pressed and it is made the item of MAX.	 Flash of top digit.
		Setting in a similar way No.3 of the former section.	(Example)  Setting of the maximum value is 900.0
5	Measurement input calibration bias setting	The MODE key is pressed and it is made the item of CBIS1.	 Flash of top digit.
		Setting in a similar way No.3 of the former section.	
6	Measurement input calibration span setting	The MODE key is pressed and it is made the item of CSPN1.	 Flash of top digit.
		Setting in a similar way No.3 of the former section.	
7	Reference input calibration bias setting	The MODE key is pressed and it is made the item of CBIS2.	 Flash of top digit.
		Setting in a similar way No.3 of the former section.	
8	Reference input calibration span setting.	The MODE key is pressed and it is made the item of CSPN2.	 Flash of top digit.
		Setting in a similar way No.3 of the former section.	
9	Excitation operation setting of alarm. (ON Excitation OFF ... Non-excitation)	The MODE key is pressed and it is made the display of the right figure.	 ON flash display
		It is channel selection at the UP key, it changes, whenever it presses a key. ON⇔OFF	
		The ENT key is pressed and ON is selected.	 ON display
10	Closing (It returns to an input display.)	A switch is made into the MEAS side.  MEAS/SET	 Deviation display
		The MODE key is pressed and it returns to measurement/display mode.	

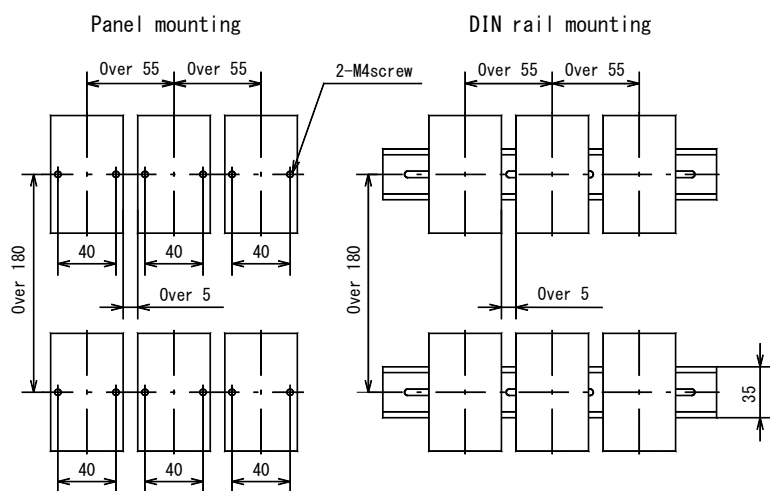
6. The establishment

6.1 Dimensions diagram (Unit mm)



Note⁽⁶⁾ Match UR-1 with alarm setter of current input a group. When opening measures of case that thing of hot line change alarm setter in current input are necessary, they connect with socket and they convert UR-1 into voltage signal and use it. (UR-1, resistance value designate)

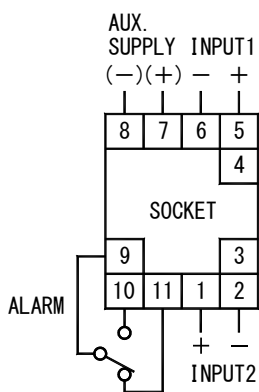
6.2 Installation dimensions plan (Unit mm)



Tighten torque of installation screw, M4 : 1.08 to 1.47N·m

- Please consider radiation of heat by pneumatic natural convection and establish interval.
- When using cable conduit for electric wiring, keep it apart from each other than main frame more than 20mm.
- When using the DIN rail, please use the 35mm rail of DIN standard.

6.3 Electric wiring (Wiring diagram)



Electric wiring refer to wiring diagram.
Polarity of () in case of DC auxiliary supply.
Tighten torque of terminal screw. M3.5 : 0.7 to 0.9N·m.

<Attention>

Operation put auxiliary supply and input in is danger. They intercept the cause by all means and work. When a hand touch terminal at the cleaning time and inspection in a state get wet, they get shocked. Do not make announcement. It may become burnout accident by an electric wiring difference of auxiliary supply and input. Pay attention to electric wiring. Inspection at the place that there are inflammable and an inflammable medicine and gas in to environment is danger too.

6.4 Precaution in the establishment

- Mounting state

Especially restriction does not have a mounting position. Mounting instruction can select 35mm width DIN rail mounting and screw mounting. Please get mounting with M4 screw. (But a screw is not attached. And give a binding fast torque of a screw as 1.08 to 1.47N·m)

Should establish of side-by-side mutual mount space 5mm over. Top and bottom space considers wiring and space radiation of heat, and please establishes space more than 100mm.

- Electric wiring state.

Please separate wiring of an input and an output and carry out consideration to a noise. And, please separate from a wire with the power line used as the source of a noise and steep voltage, and current as much as possible. Especially, please use shielding wire in the remarkable environment of a noise.

- Environment condition.

- (1) Ambient air temperature, humidity range.

Please give the ambient temperature and humidity under each device operation as the following range.

Temperature : 0 to 55°C, Humidity : 30 to 85% RH (Non condensing)

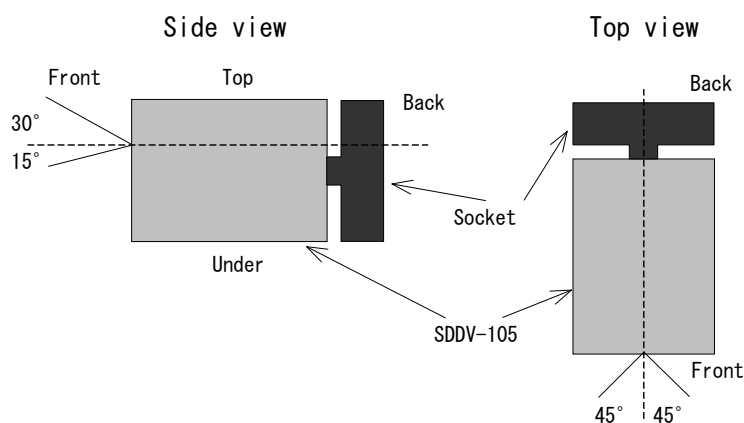
- (2) Environment ambient atmosphere.

The case has sealing construction. However, when you use it in an environment with much dust, please be careful. And, please consult on the occasion of use in the environment of corrosive gas (hydrogen sulfide (H₂S) chlorine (Cl)).

6.5 LCD visual angle range.

Contrast transform into LCD by an angle examines.

Install diagram most suitable panel location after reference.



7. Check

7.1 Acceptance inspection

When they put acceptance inspection into effect, put below into effect after reference.

- (1) Construction

Dimension, installation dimensions and check of outward appearance refers to dimensions diagram.

- (2) Performance

They put 15 minutes warm-up into effect after auxiliary supply input applied and carry out performance inspection.

Performance inspection refers to a calibration way of Sub-Section 8.2 and come into effect.

7.2 Periodical inspection

Please carry out the following item if needed.

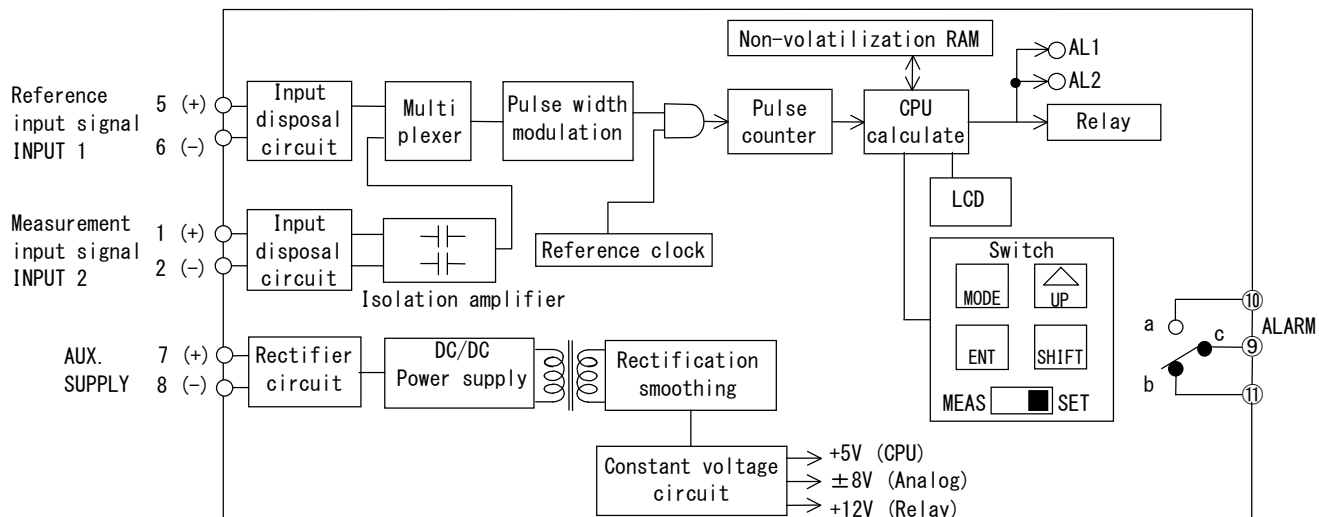
- (1) Each set value is checked.

- (2) The accuracy test of indicated value : An input is made into two to five points, and tests indicated value.

- (3) Alarm output operation and setting accuracy : It tests that ON/OFF operation is normal. And, the accuracy of an operating value and a resetting value (dead band) is tested.

8. Block diagram and principle

8.1 Block diagram



8.2 Principle

DC input signal of 2 is select in turn by multi plectra and they are input into pulse width modulation circuit. They are have reference clock the signaling that was set up as pulse width modulation counting and they read it and they are crowd by CPU. They detect input interval deviation of signaling of 2 crowd in a reading in CPU. They let armature relay and LED work by comparing with operating value. Input signal is indicate by liquid crystal display department 4 digit in true scale. Operating value and a delay timer can establish it in switch.

9. Maintenance and calibration

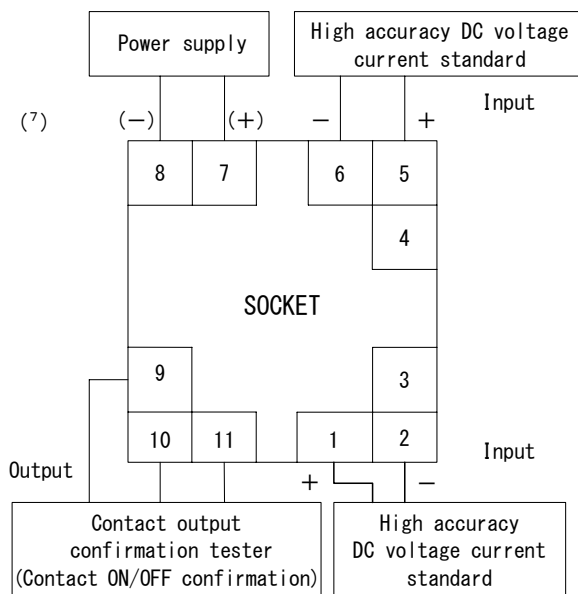
9.1 Inspection

- They especially do not need to do inspection every day. Pay attention to a following thing regularly.
- (1) Is there not main frame and socket association abnormality ? (Is lock perfection ?)
 - (2) Is there not electric wiring and looseness of installation screw ?
 - (3) When they take away it dust stick to case.

9.2 Calibration

Proofreading hold in calibration circuit of diagram.

- (1) They set up as auxiliary supply after applied 15 minutes warm-up.
- (2) When they set up as the input that is equivalent to minimum display applied, they establish minimum display and setting value CBIS1 / CBIS2 that it seem to become once again.
- (3) When they set up as the input that is equivalent to maximum display applied, they establish maximum display and setting value CSPN1 / CSPN2 that it seem to become once again. They identify that upper account of it once again and they are calibration closing if display fit each other. Refer to calibration setting of Sub-Section 5.5 still about setting of setting value CBIS1 / CBIS2 and CSPN1 / CSPN2.
- (4) Enforce confirmation of operating value, resetting value, dead band.



Note(7) Polarity of () is the DC auxiliary supply time.

9.3 Trouble shooting

Abnormal phenomenon	Estimate cause	Solution method.
Not output	Auxiliary supply input is non-applied.	Confirmation of auxiliary supplies input. Auxiliary supply applied.
	An alarm setter's failure	Repair of an alarm setter
	Can't connect input.	Confirmation of input connection.
	Input of abnormality	Confirmation of input value.
	Error of setting.	Confirmation of setting value.
	Can't connect output.	Confirmation of connection.
	Auxiliary supply is low voltage.	Confirmation of auxiliary supplies voltage.
Display abnormality. (Large error)	Auxiliary supply voltage of normal range outside.	Confirmation of auxiliary supplies voltage. It does normal within the limits.
	Input abnormality.	Confirmation of input value. It does normal input value.
	Mistake of setting.	Confirmation of setting value.
	An alarm setter's failure	Repair of an alarm setter
Display error. (Small error)	Secular change of input instrumentation.	Re-calibration of display. (Reference to Sub-Section 9.2)
Setting is impossible.	Error of setting way.	They refer Sub-Section 5.5 and identify it once again.
	An alarm setter's failure	Repair of an alarm setter

9.4 Maintenance

- (1) Please do not make a wiring change of the input and auxiliary supply in an energization.
- (2) In case you check in an energization, a human body should touch neither an input nor a control auxiliary supply terminal.
- (3) Please check a connection diagram, in case you check the voltage of input, and auxiliary supply.
- (4) If a name plate is wiped with solvents (an alcohol, etc.), a display way may disappear. Please give care as a wiping with dry cloth grade in the dry cloth.

9.5 Storage

- (1) Please avoid storage in the next space. Low temperature, high temperature, high humidity, and sunny place.
- (2) The aluminum electrolytic capacitor is used for a product. Please do the energization of the power supply within one year after shipment.

9.6 Countermeasures against troubles

As our principle, we recall product in question and repair it. If judged as product failure, have a contact with us or sales agent for repairing work (Also have a contact with us or sales agent for specification change). Product failure which we are not responsible for (When responsibility in manufacturing process is not recognized, when product is disassembled/remodeled, in case of false operation by customer, etc.) is beyond our warranty.

10. About unit symbol seal

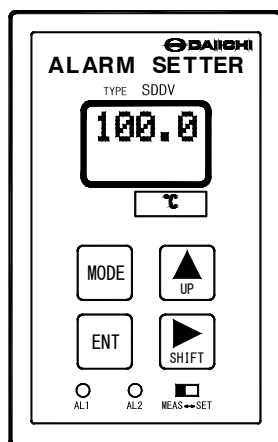
If there is no unit to be desired, set the unit display to "no unit" in the setting change mode and use the seal (accessory) in combination.

- Unit symbol sheet (Accessory)

A	Hz	LEAD	m ³ /min	N·m	μS	kW	x10
mA	J	m	m ³ /h	Pa	S/m	MW	x100
kA	kJ	μm	m ³ /d	hPa	μS/cm	W·h	x1000
cosφ	MJ	mm	DLM	kPa	t	kWh	x10000
cosθ	L	cm	ELm	MPa	t/h	%	n
g	mL	m ³	APm	PaG	t/min	%RH	μ
mg	kL	m/s	OPm	pH	V	°C	m
kg	L/s	m/h	SPm	ppb	mV	°	e
g/L	L/min	mm/h	TPm	ppm	kV	φ	h
mg/L	mL/min	m/min	YPm	rpm	var	Ω	k
mg/h	L/h	mm/min	min	s	kvar	[normal]	M
kg/h	kL/h	m/s ²	min ⁻¹	s ⁻¹	Mvar	(ntp)	G
kg/min	LAG	m ³ /s	N	S	W		K

If there is no unit symbol you want to use in the above sheet, by specifying the unit symbol at the time of ordering, we will paste the desired unit symbol sticker on the product and ship it. (option)

- Example of sticking a seal



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Revision D, DATE : October 19, 2017