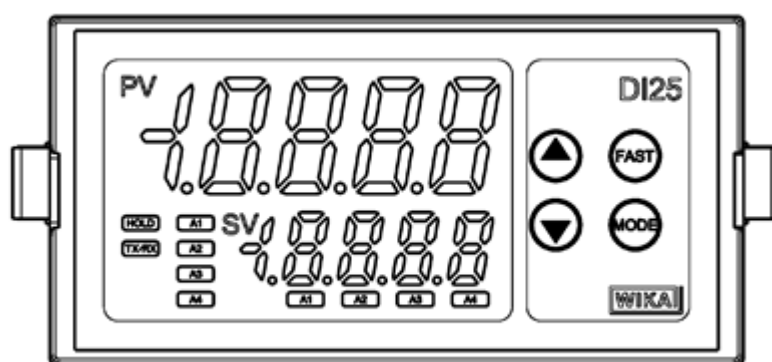


DIGITAL INDICATOR

DI25

Operating instructions




Preface

Thank you for purchasing our digital indicator DI25. This manual contains instructions for the mounting, functions, operations and notes when operating the DI25. To prevent accidents arising from the misuse of this instrument, please ensure the operator receives this manual.

Notes

- This instrument should be used in accordance with the specifications described in the manual.
- If it is not used according to the specifications, it may malfunction or cause a fire.
- Be sure to follow the warnings, cautions and notices. If they are not observed, serious injury or malfunction may occur.
- The contents of this instruction manual are subject to change without notice.
- Care has been taken to ensure that the contents of this instruction manual are correct, but if there are any doubts, mistakes or questions, please inform our sales department.
- Measures must be taken to ensure that the operator cannot touch power terminals or other high voltage sections.
- Any unauthorized transfer or copying of this document, in part or in whole, is prohibited.
- WIKA is not liable for any damage or secondary damage(s) incurred as a result of using this product, including any indirect damage.

Safety precautions (Be sure to read these precautions before using our products.)

The safety precautions are classified into categories: "Warning" and "Caution". Depending on circumstances, procedures indicated by  Caution may result in serious consequences, so be sure to follow the directions for usage.



Warning

Procedures which may lead to dangerous conditions and cause death or serious injury, if not carried out properly.



Caution

Procedures which may lead to dangerous conditions and cause superficial to medium injury or physical damage or may degrade or damage the product, if not carried out properly.



Warning

- To prevent an electrical shock or fire, only WIKA or other qualified service personnel may handle the inner assembly.
- To prevent an electrical shock, fire or damage to the instrument, parts replacement may only be undertaken by WIKA or other qualified service personnel.
- This is an equipment of the emission class A that is intended for operation in industrial environment. It can cause interference under certain circumstances if operated in other environment e.g. residential or commercial area. In this case the user can be asked to take appropriate measures.



Safety precautions

- To ensure safe and correct use, thoroughly read and understand this manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after purpose-of-use consultation with a WIKA service engineer. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as protective equipment against excessive temperature rise, etc. must be installed, as malfunction of this product could result in serious damage to the system or injury to personnel. Proper periodic maintenance is also required.
- This instrument must be used under the conditions and environment described in this manual. WIKA does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual.

Caution with respect to export trade control ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument. In the case of resale, ensure that this instrument is not illegally exported.

1. Installation precautions



Caution

**This instrument is intended to be used under the following environmental conditions (IEC61010-1):
Overvoltage category II, Pollution degree 2**

Ensure the mounting location corresponds to the following conditions:

- A minimum of dust, and an absence of corrosive gases
- No flammable, explosive gases
- No mechanical vibrations or shocks
- No exposure to direct sunlight, an ambient temperature of 0 to 50 °C (32 to 122 °F) that does not change rapidly, and no icing
- An ambient non-condensing humidity of 35 to 85 % RH
- No large capacity electromagnetic switches or cables through which large current is flowing
- No water, oil or chemicals or where the vapors of these substances can come into direct contact with the unit
- Please note that the ambient temperature of this unit – not the ambient temperature of the control panel – must not exceed 50°C (122°F) if mounted through the face of a control panel, otherwise the life of electronic components (especially electrolytic capacitors) may be shortened.

Note • Avoid setting this instrument directly on or near flammable material even though the case of this instrument is made of flame-retardant resin.

2. Wiring precautions



Caution

- Do not leave wire remnants in the instrument, as they could cause a fire or malfunction.
- The terminal block of this instrument is designed to be wired from the upper side. The lead wire must be inserted from the upper side of the terminal, and fastened with the terminal screw.
- Tighten the terminal screw using the specified torque. If excessive force is applied to the screw when tightening, the terminal screw or case may be damaged.
- Do not pull or bend the lead wire on the terminal side when wiring or after wiring, as it could cause malfunction.
- Use a thermocouple and compensating lead wire according to the sensor input specifications of this instrument.
- Use the 3-wire RTD according to the sensor input specifications of this instrument.
- This instrument does not have a built-in power switch, circuit breaker and fuse. It is necessary to install a power switch, circuit breaker and fuse near the instrument. (Recommended fuse: Time-lag fuse, rated voltage 250 V AC, rated current 2 A)
- For a 24 V AC/DC power source, do not confuse polarity when using direct current (DC).
- When using a relay contact output type, externally use a relay according to the capacity of the load to protect the built-in relay contact.
- When wiring, keep input wires (thermocouple, RTD, etc.) away from AC power sources or load wires.
- Do not apply a commercial power source to the sensor which is connected to the input terminal nor allow the power source to come into contact with the sensor.

3. Operation and maintenance precautions



Caution

- Do not touch live terminals. This may cause electrical shock or problems in operation.
- Turn the power supply to the instrument OFF before retightening the terminal or cleaning.
- Working on or touching the terminal with the power switched ON may result in severe injury or death due to electrical shock.
- Use a soft, dry cloth when cleaning the instrument. (Alcohol based substances may tarnish or deface the unit.)
- As the display section is vulnerable, be careful not to put pressure on, scratch or strike it with a hard object.

Further information:

- Internet address: www.wika.de / www.wika.com
- Relevant data sheet: AC 80.02
- Application consultant: Tel.: +49 9372 132-0
Fax: +49 9372 132-406
info@wika.de

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1. Model

1.1 Model

DI25 - M □, □□□□□		Series name: DI25 (W 96 x H 48 x D 100 mm)
Input	M	Multi-function input (*1)
Power supply	H	100 ... 240 V AC
	L	24 V AC/DC
Output options	3AS	3 alarm outputs for process value monitoring (*2)
	P24	Transmitter supply output (DC 24 V max. 30 mA) (*3)
	KB	Terminal cover, color black

(*1) Thermocouple (10 types), RTD (2 types), direct current (2 types) and DC voltage (4 types) can be selected by keypad.

(*2) Alarms A1, A2 and A3 outputs are standard features. Alarm types (4 types for A1, A2, and 5 types for A3 as well as no alarm action) and energized/de-energized can be selected.

(*3) If transmitter supply output (P24 option) is ordered, A2 output cannot be used.

1.2 Product label

Model labels are attached to the case and the inner assembly.

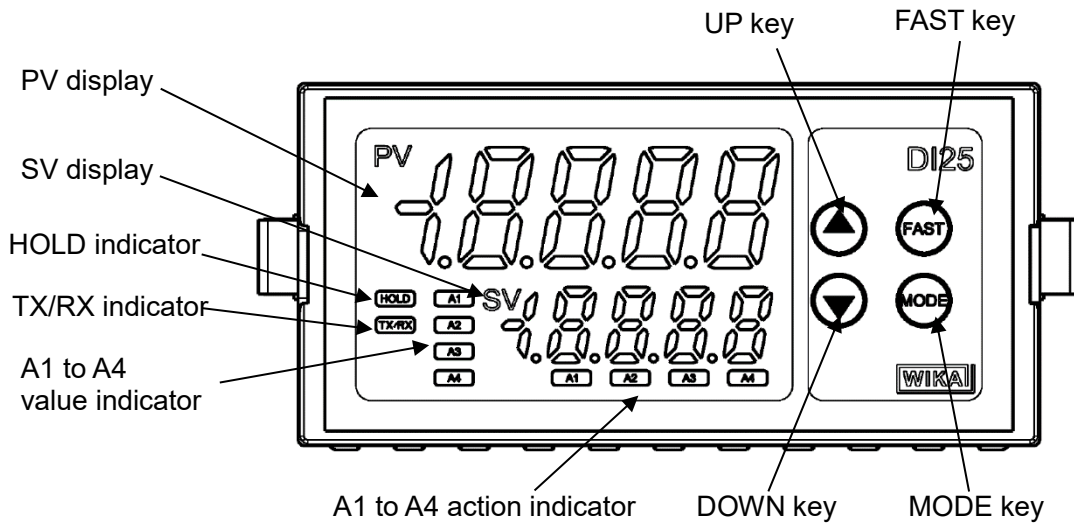
Top of the case



(Fig. 1.2-1)

No.	Description	Example
①	Model	DI25
②	Order code	DI25-M-H3ASKB
③	Signal input	Multi-function
④	Power supply	24 V
⑤	S# serial no.	201841915
⑥	P# product no.	XXXXXXXXX
⑦	Date of manufacture	2018-02

2. Display and Controls



(Fig. 2-1)

Display, indicator

Name	Description
PV display	Indicates PV (process variable) or characters in the setting mode with the red LED.
SV display	Indicates A1/A2/A3 value or the set value in the setting mode with the green LED.
HOLD indicator	When PV is held (HOLD, Peak HOLD, Bottom HOLD), the yellow LED is lit.
A1 value indicator	When A1 value is indicated on the SV display, the green LED is lit.
A2 value indicator	When A2 value is indicated on the SV display, the green LED is lit.
A3 value indicator	When A3 value is indicated on the SV display, the green LED is lit.
A1 action indicator	When A1 output is ON, the red LED is lit. While A1 output is held, the red LED flashes (maintenance mode).
A2 action indicator	When A2 output is ON, the red LED is lit. While A2 output is held, the red LED flashes (maintenance mode).
A3 action indicator	When A3 output is ON, the red LED is lit. While A3 output is held, the red LED flashes (maintenance mode).

Key

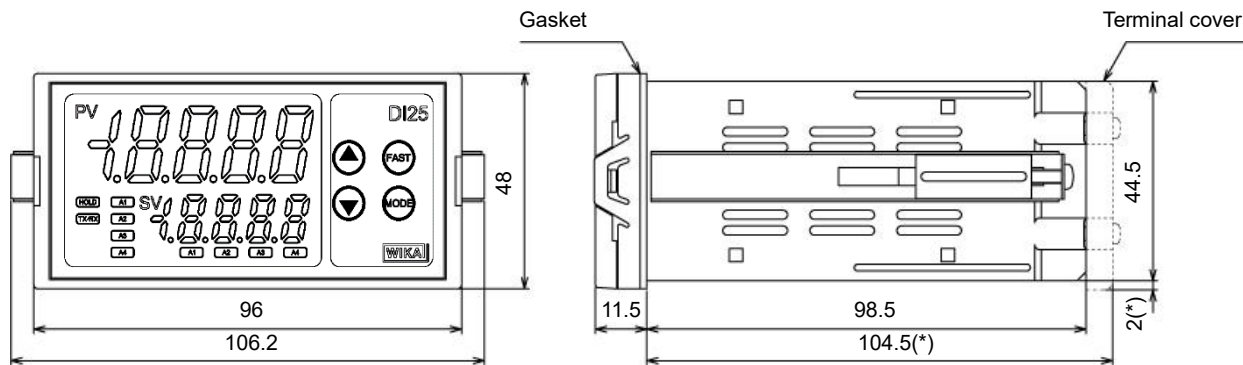
Name	Description
UP key	Increases the numeric value.
FAST key	Makes the set value change faster while pressing the UP/DOWN key and FAST key together.
DOWN key	Decreases the numeric value.
MODE key	Selects the setting mode, and registers the set value.

Notice

When setting the specifications and functions of this instrument, connect mains power cable to terminals 2 and 3 first, then set them referring to "5. Setup" before performing "3. Mounting to the control panel" and "4. Wiring".

3. Control panel mounting

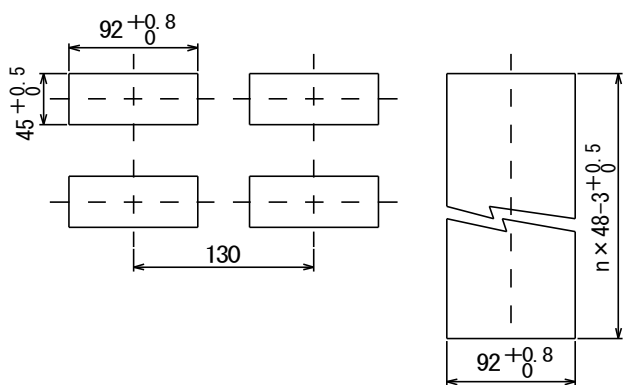
3.1 External dimensions in mm



(Fig. 3.2-1)

(*) When terminal cover is used

3.2 Panel cutout in mm



(Fig. 3.3-1)

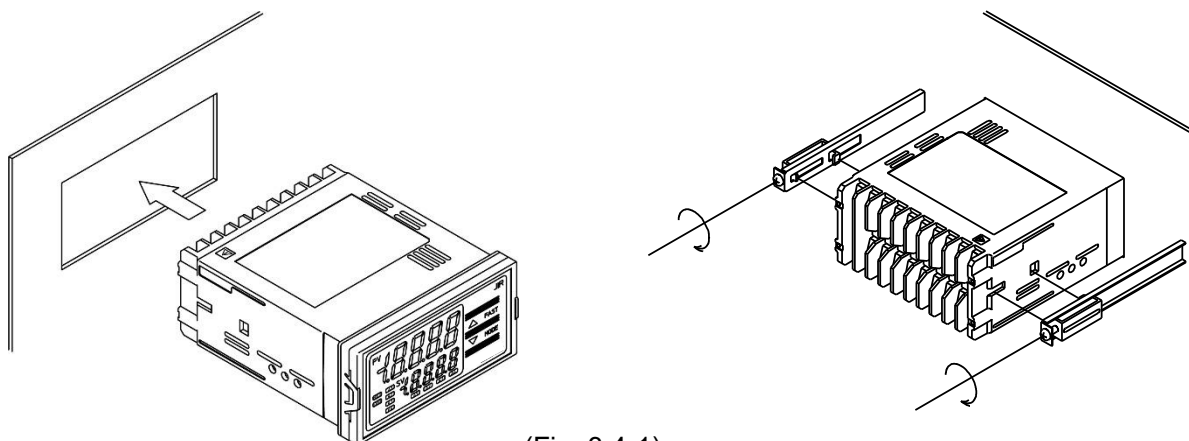
Vertical close mounting
n: Number of mounted units

⚠ Caution: If vertical close mounting is used for the instrument, IP66 may be compromised, and all warranties will be invalidated.

3.3 Mounting the unit

Mount the instrument vertically to the flat, rigid panel to ensure it adheres to the ingress protection (IP66).
Mountable panel thickness: 1 to 8 mm

- (1) Insert the instrument from the front side of the control panel.
- (2) Attach the mounting brackets by the slots on the right and left sides of the case, and secure the instrument in place with the screws.



(Fig. 3.4-1)



Caution

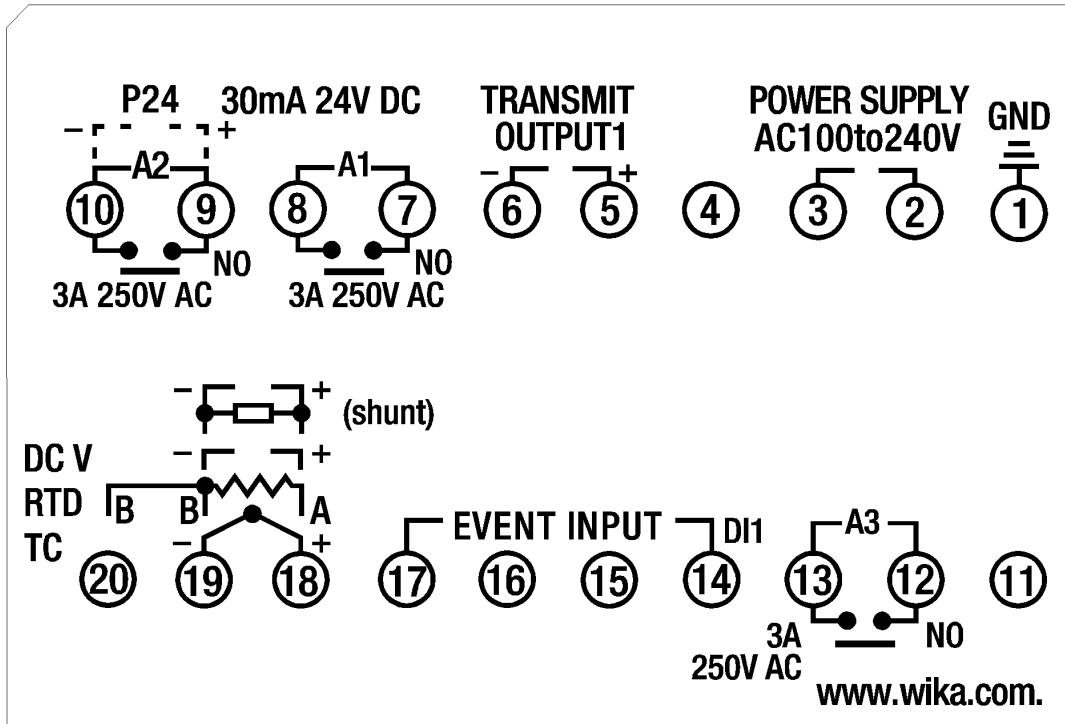
As the case of the DI25 is made of resin, do not use excessive force while tightening screws, or the mounting brackets or case could be damaged. 0.12 Nm of torque is recommended.

4. Wiring

Warning

Turn the power supply to the instrument off before wiring or checking. Working on or touching the terminal with the power switched on may result in severe injury or death due to electrical shock.

4.1 Terminal arrangement



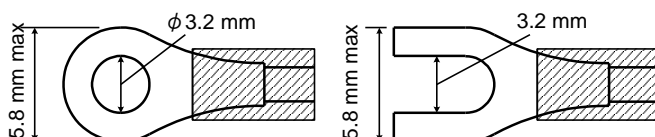
(Fig. 4.1-1)

Terminal name	Description
GND	Ground terminal
PWR	Power supply
TRANSMIT OUTPUT1	Transmission output 1
A1	A1 output
A2	A2 output
A3	A3 output
EVENT INPUT	Event input
TC	Thermocouple input
RTD	RTD input
DC	Direct current input, DC voltage input For direct current input (externally mounted 50 Ω shunt resistor), connect a 50 Ω shunt resistor (sold separately) between input terminals.
P24	Insulated power output 24 V (P24 option)

4.2 Lead wire solderless terminal

Use a solderless terminal with an insulation sleeve in which an M3 screw fits as shown below.

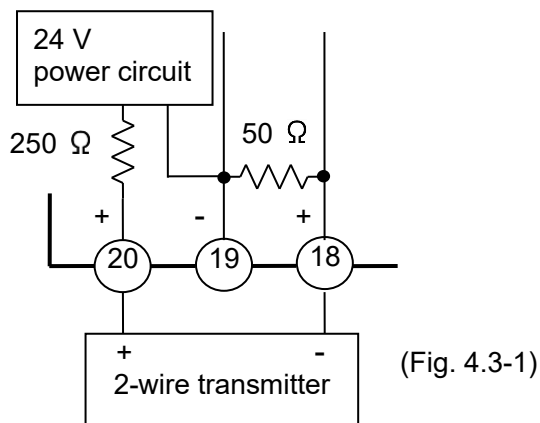
0.63 Nm of torque is recommended.



(Fig. 4.2-1)

4.3 Using as a current loop supply

Refer to the following wiring example.



5. Setup

After power is turned ON, the input characters and temperature unit will be indicated on the PV display, and the input range high limit (for thermocouple, RTD input) or scaling high limit (for direct current, DC voltage input) will be indicated on the SV display for approx. 3 sec. (Table 5-1).

During this time, all outputs and LED indicators are in an OFF status. Operation will then start, indicating the PV (process variable) on the PV display, and A1, A2, A3 value on the SV display.

(Table 5-1)

Sensor input	PV display (°C)	SV display	PV display (°F)	SV display
K	600C	1370	600F	2500
	60.C	4000	60.F	7500
J	000C	1000	000F	1800
R	000C	1760	000F	3200
S	400C	1760	400F	3200
B	600C	1820	600F	3300
E	000C	0800	000F	1500
T	00.C	4000	00.F	7500
N	000C	1300	000F	2300
PL-II	PL2C	1390	PL2F	2500
C (W/Re5-26)	000C	2315	000F	4200
Pt100	00.C	8500	00.F	10000
JPt100	000C	5000	000F	9000
Pt100	00.C	0850	00.F	1500
JPt100	000C	0500	000F	0900
4-20 mA DC (*1)(*2)	420A			
0-20 mA DC (*1)(*2)	020A			
0-1 V DC (*1)	001B			
0-5 V DC (*1)	005B	Scaling high limit value		
1-5 V DC (*1)	105B			
0-10 V DC (*1)	010B			
4-20 mA DC (*1)(*3)	420I			
0-20 mA DC (*1)(*3)	020I			

(*1) Input range and decimal point place can be selected.

(*2) Connect a 50 Ω shunt resistor (sold separately) between input terminals.

(*3) Has a built-in 50 Ω shunt resistor.

5.1 Registering the selected item or value

- To increase or decrease the numeric value, use the UP or DOWN key.
 - To make the set value change faster, press and hold the UP/DOWN key and FAST key together.
 - Select an setting item with the UP or DOWN key.
- Register the setting item or value using the MODE key.

5.2 Alarm setting mode

If the **MODE key** is pressed in PV/SV display mode, the unit will move to alarm setting mode.

Character factory default	Setting item, function, setting range
A1□□ □□□□	A1 value <ul style="list-style-type: none"> • Sets A1 output action point, refer to (table 5.2-1). • Not available if no alarm action is selected in [A1 type]
A2□□ □□□□	A2 value <ul style="list-style-type: none"> • Sets A2 output action point, refer to (table 5.2-1). • Not available if no alarm action is selected in [A2 type] • Not available if insulated power output (P24 option) is ordered.
A3□□ □□□□	A3 value <ul style="list-style-type: none"> • Sets A3 output action point, refer to (table 5.2-1). • Not available if no alarm action or High/Low limit range alarm is selected in [A3 type]

(Table 5.2-1)

Alarm type	Setting range
High limit alarm	Input range low limit to input range high limit (*1)
Low limit alarm	Input range low limit to input range high limit (*1)
High limit with standby alarm	Input range low limit to input range high limit (*1)
Low limit with standby alarm	Input range low limit to input range high limit (*1)


- The placement of the decimal point follows the selection or input range.

(*1) For DC current and DC voltage input: setting range is [scaling low limit to scaling high limit].

5.3 Auxiliary function setting mode 1

To enter auxiliary function setting mode 1, press and hold the **DOWN key** and **MODE key** (in that order) together for approx. 3 seconds in PV/SV display mode.

Character factory default	Setting item, function, setting range
Lock ----	Set value lock <ul style="list-style-type: none"> • Locks the set values to prevent setting errors. • The setting item to be locked depends on the selection. • ---- (Unlock): All set values can be changed. Lock 1 (Lock 1): None of the set values can be changed. Lock 2 (Lock 2): Only alarm setting mode (p.11) can be changed. Lock 3 (Lock 3): All set values – except the input type (p.14) – can be changed. <p>However, changed values revert to their previous value after power is turned off because they are not saved in the non-volatile IC memory. Do not change any setting items in auxiliary function setting mode 2 (pp.11 - 18). If any item is changed in auxiliary function setting mode 2, it will affect the alarm value (A1 value – A3 value).</p>
Cor□ 1000	Sensor correction coefficient <ul style="list-style-type: none"> • Sets sensor correction coefficient = slope of input value from a sensor. • PV after sensor correction= Current PV x (sensor correction coefficient) + (sensor correction value) <p>Refer to 'input value correction' (p. 12), Setting range: -10.000 to 10.000</p>

Character factory default	Setting item, function, setting range
	<p>Sensor correction</p> <ul style="list-style-type: none"> This corrects the input value from the sensor. When a sensor cannot be set at the exact location where measurement is desired, the sensor-measured temperature may deviate from the temperature in the measurement location. When using multiple indicators, sometimes the measured temperatures do not match due to differences in sensor accuracy or installation site. In such a case, the temperature in the installation site can be adjusted to the desired temperature by adjusting the sensor input value. PV after sensor correction = Current PV x (sensor correction coefficient) + (sensor correction value) Refer to 'input value correction' (p.12). Setting range: -1000.0 to 1000.0°C (°F) Direct current, DC voltage input: -10000 to 10000 (The placement of the decimal point follows the selection.)

Input value correction

Input value can be corrected in [sensor correction coefficient] and [sensor correction].

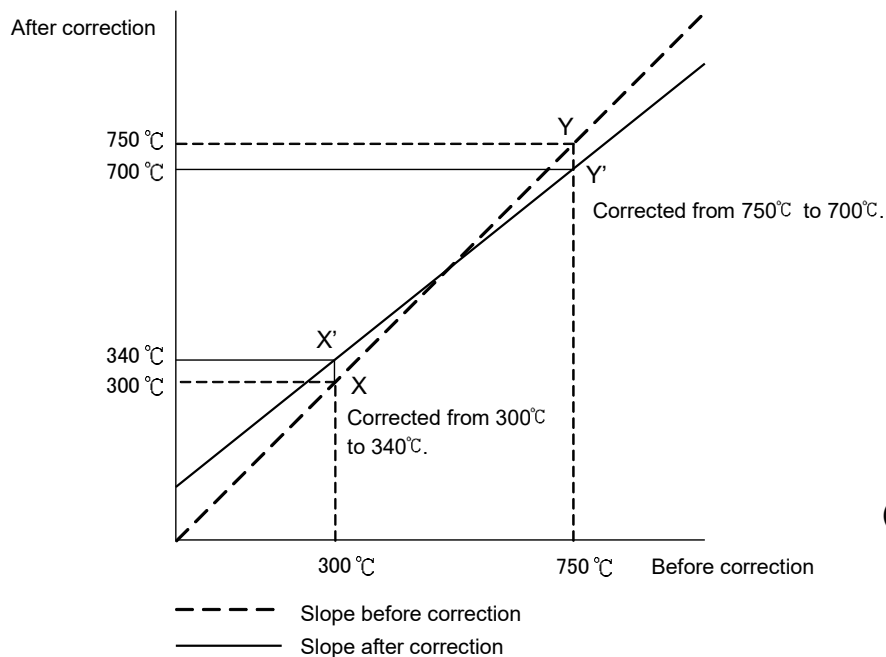
In [sensor correction coefficient], set the slope of temperature change.

In [sensor correction], set the difference between temperatures before correction and after correction.

PV after input correction is expressed by the following formula.

PV after input correction = current PV x sensor correction coefficient + (sensor correction value)

The following shows an example of input value correction using 'sensor correction coefficient' and 'sensor correction value'.



(Fig. 5.3-1)

- Select any 2 points of PV to be corrected, and determine the PV after correction.
 PV before correction: 300°C → PV after correction: 340°C
 PV before correction: 750°C → PV after correction: 700°C
- Calculate sensor correction coefficient from step (1).
 $(Y' - X') / (Y - X) = (700 - 340) / (750 - 300) = 0.8$
- Enter a PV value of 300°C using an mV generator or dial resistor.
- Set step (2) value as a sensor correction coefficient.
- Read the PV. 240°C will be indicated.
- Calculate the sensor correction value. Calculate the difference between 'PV after correction' and Step (5) PV.
 $340°C - 240°C = 100°C$

- (7) Set step (6) value as a sensor correction value.
- (8) Enter an electromotive force or resistance value equivalent to 750°C using an mV generator or dial resistor.
- (9) Read the PV, and confirm that 700°C is indicated.

5.4 Auxiliary function setting mode 2

To enter auxiliary function setting mode 2, press and hold the **UP**, **DOWN** and **MODE** keys (in that order) together for approx. 3 seconds in PV/SV display mode.

Character factory default	Setting item, function, setting range			
4E n 4 E □ □ □	Input type			
	<ul style="list-style-type: none"> The input type can be selected from thermocouple (10 types), RTD (2 types), DC current (2 types) and DC voltage (4 types), and the unit °C/°F can be selected as well. When changing the input from DC voltage to other inputs, remove the sensor connected to this instrument first, then change the input. If the input is changed with the sensor connected, the input circuit may break. 			
	(Table 5.4-1)			
	Character	Input range	Character	Input range
	E □ □ □	K -200 to 1370°C	E □ □ F	K -320 to 2500°F
	E □ . □	K -200.0 to 400.0°C	E □ . F	K -200.0 to 750.0°F
	J □ □ □	J -200 to 1000°C	J □ □ F	J -320 to 1800°F
	r □ □ □	R 0 to 1760°C	r □ □ F	R 0 to 3200°F
	4 □ □ □	S 0 to 1760°C	4 □ □ F	S 0 to 3200°F
	b □ □ □	B 0 to 1820°C	b □ □ F	B 0 to 3300°F
	E □ □ □	E -200 to 800°C	E □ □ F	E -320 to 1500°F
	T □ . □	T -200.0 to 400.0°C	T □ . F	T -200.0 to 750.0°F
	n □ □ □	N -200 to 1300°C	n □ □ F	N -320 to 2300°F
	PL 2 □	PL-II 0 to 1390°C	PL 2 F	PL-II 0 to 2500°F
	c □ □ □	C(W/Re5-26) 0 to 2315°C	c □ □ F	C(W/Re5-26) 0 to 4200°F
	Pt □ . □	Pt100 -200.0 to 850.0°C	Pt □ . F	Pt100 -200.0 to 1000.0°F
	JPt □ . □	JPt100 -200.0 to 500.0°C	JPt □ . F	JPt100 -200.0 to 900.0°F
	Pt □ □	Pt100 -200 to 850°C	Pt □ □ F	Pt100 -300 to 1500°F
	JPt □ □	JPt100 -200 to 500°C	JPt □ □ F	JPt100 -300 to 900°F
	4 2 0 A	4 to 20 mA DC -2000 to 10000 (Externally mounted 50 Ω shunt resistor)		
0 2 0 A	0 to 20 mA DC -2000 to 10000 (Externally mounted 50 Ω shunt resistor)			
0 □ 1 V	0 to 1 V DC -2000 to 10000			
0 □ 5 V	0 to 5 V DC -2000 to 10000			
1 □ 5 V	1 to 5 V DC -2000 to 10000			
0 1 0 V	0 to 10 V DC -2000 to 10000			
4 2 0 I	4 to 20 mA DC -2000 to 10000 (Built-in 50 Ω shunt resistor)			
0 2 0 I	0 to 20 mA DC -2000 to 10000 (Built-in 50 Ω shunt resistor)			

Character factory default	Setting item, function, setting range
4FLH 10000	Scaling high limit <ul style="list-style-type: none"> • Sets scaling high limit value. • Available when DC current or DC voltage input is selected in [Input type]. • Setting range: Scaling low limit to Input range high limit (the placement of the decimal point follows the selection or input range.)
4FL L -2000	Scaling low limit <ul style="list-style-type: none"> • Sets scaling low limit value. • Available when DC current or DC voltage input is selected in [Input type]. • Setting range: Input range low limit to scaling high limit (the placement of the decimal point follows the selection or input range.)
2P□□ □□□□	Decimal point place <ul style="list-style-type: none"> • Selects decimal point place. • Available when direct current or DC voltage input is selected in [Input type]. <p>□□□□ : No decimal point □□□□ : 1 digit after decimal point □□□□ : 2 digits after decimal point □□□□ : 3 digits after decimal point</p>
FILT □□□□	PV filter time constant <ul style="list-style-type: none"> • Sets PV filter time constant. If the value is set too large, it affects alarm action due to the delay of response. • Setting range: 0.0 to 10.0 sec
ALIF ----	A1 type <ul style="list-style-type: none"> • Selects an A1 type. See section 7.1 (p.20). • If A1 type is changed, A1 value will default to 0 (0.0). • ---- : No alarm action • H□□□ : High limit alarm • L□□□ : Low limit alarm • H□□□ : High limit with standby alarm • L□□□ : Low limit with standby alarm
AL2F ----	A2 type <ul style="list-style-type: none"> • Selects an A2 type. See section 7.1 (p.20). • Not available when insulated power output (P24 option) is ordered. • If A2 type is changed, A2 value will default to 0 (0.0). • ---- : No alarm action • H□□□ : High limit alarm • L□□□ : Low limit alarm • H□□□ : High limit with standby alarm • L□□□ : Low limit with standby alarm
AL3F ----	A3 type <ul style="list-style-type: none"> • Selects an A3 type. See section 7.1 (p.20). • If A3 type is changed, A3 value will default to 0 (0.0). • ---- : No alarm action • H□□□ : High limit alarm • L□□□ : Low limit alarm • H□□□ : High limit with standby alarm • L□□□ : Low limit with standby alarm • H□□□ : High/Low limit range alarm [See Section 7.2 (p.21).]

Character factory default	Setting item, function, setting range
<p>A1L\bar{a} no\bar{a}L</p>	<p>A1 Energized/De-energized</p> <ul style="list-style-type: none"> • Selects A1 Energized/De-energized. Not available if no alarm action is selected in [A1 type]. • When [A1 Energized] is selected, A1 output (terminals 7, 8) is conducted (ON) while A1 action indicator is lit. A1 output is not conducted (OFF) while A1 action indicator is unlit. <p>When [A1 De-energized] is selected, A1 output (terminals 7, 8) is not conducted (OFF) while A1 action indicator is lit. A1 output is conducted (ON) while A1 action indicator is unlit.</p> <p>A1 output will be substituted by A2, A3 or A4 output. A1 output terminals will be substituted by A2, A3 or A4 output terminals as follows.</p> <p>A2 output terminals: 9, 10 A3 output terminals: 12, 13 A4 output terminals: 15, 16</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="518 770 949 1122"> <p>High limit alarm (Energized)</p> <p>(Fig. 5.4-1)</p> </div> <div data-bbox="1002 770 1433 1122"> <p>High limit alarm (De-energized)</p> <p>(Fig. 5.4-2)</p> </div> </div> <p>no\bar{a}L : Energized rE\bar{a}L : De-energized</p>
<p>A2L\bar{a} no\bar{a}L</p>	<p>A2 Energized/De-energized</p> <ul style="list-style-type: none"> • Selects A2 Energized/De-energized. Not available if no alarm action is selected in [A2 type]. • Not available if insulated power output (P24 option) is ordered. • no\bar{a}L : Energized rE\bar{a}L : De-energized
<p>A3L\bar{a} no\bar{a}L</p>	<p>A3 Energized/De-energized</p> <ul style="list-style-type: none"> • Selects A3 Energized/De-energized. Not available if no alarm action or high/low limit range alarm is selected in [A3 type]. • no\bar{a}L : Energized rE\bar{a}L : De-energized
<p>A1HY □□ 10</p>	<p>A1 hysteresis</p> <ul style="list-style-type: none"> • Sets A1 hysteresis. • Not available if no alarm action is selected in [A1 type]. • Setting range: 0.1 to 100.0°C (°F) DC current, DC voltage input: 1 to 1000 (the placement of the decimal point follows the selection.)
<p>A2HY □□ 10</p>	<p>A2 hysteresis</p> <ul style="list-style-type: none"> • Sets A2 hysteresis. • Not available if no alarm action is selected in [A2 type]. Not available if insulated power output (P24 option) is ordered. • Setting range: 0.1 to 100.0°C (°F) DC current, DC voltage input: 1 to 1000 (the placement of the decimal point follows the selection.)

Character factory default	Setting item, function, setting range										
A3H4 00 10	A3 hysteresis <ul style="list-style-type: none"> • Sets A3 hysteresis. • Not available if no alarm action or high/low limit range alarm is selected in [A3 type]. • Setting range: 0.1 to 100.0°C (°F) DC current, DC voltage input: 1 to 1000 (the placement of the decimal point follows the selection.) 										
A1d4 0000	A1 delay time <ul style="list-style-type: none"> • Sets A1 action delay time. When setting time has elapsed after the input enters the alarm output range, the alarm is activated. Not available if No alarm action is selected in [A1 type]. • Setting range: 0 to 9999 seconds 										
A2d4 0000	A2 delay time <ul style="list-style-type: none"> • Sets A2 action delay time. When setting time has elapsed after the input enters the alarm output range, the alarm is activated. • Not available if no alarm action is selected in [A2 type]. Not available if the insulated power output (P24 option) is ordered. • Setting range: 0 to 9999 seconds 										
A3d4 0000	A3 delay time <ul style="list-style-type: none"> • Sets A3 action delay time. When setting time has elapsed after the input enters the alarm output range, the alarm is activated. • Not available if no alarm action or high/low limit range alarm is selected in [A3 type]. • Setting range: 0 to 9999 seconds 										
F r H 1 1370	Transmission output 1 high limit <ul style="list-style-type: none"> • Sets the transmission output 1 high limit value. <p>Standard</p> <table border="1" data-bbox="555 1167 1393 1211"> <tr> <td>4-20 mA DC</td> <td>Equals 20 mA DC output.</td> </tr> </table> <p>Optional</p> <table border="1" data-bbox="555 1249 1393 1417"> <tr> <td>0-20 mA DC</td> <td>Equals 20 mA DC output.</td> </tr> <tr> <td>0-1 V DC</td> <td>Equals 1 V DC output.</td> </tr> <tr> <td>0-5 V DC, 1-5V DC</td> <td>Equals 5 V DC output.</td> </tr> <tr> <td>0-10 V DC</td> <td>Equals 10 V DC output.</td> </tr> </table> <ul style="list-style-type: none"> • Setting range: transmission output 1 low limit to Input range high limit (the placement of the decimal point follows the selection or input range.) 	4-20 mA DC	Equals 20 mA DC output.	0-20 mA DC	Equals 20 mA DC output.	0-1 V DC	Equals 1 V DC output.	0-5 V DC, 1-5V DC	Equals 5 V DC output.	0-10 V DC	Equals 10 V DC output.
4-20 mA DC	Equals 20 mA DC output.										
0-20 mA DC	Equals 20 mA DC output.										
0-1 V DC	Equals 1 V DC output.										
0-5 V DC, 1-5V DC	Equals 5 V DC output.										
0-10 V DC	Equals 10 V DC output.										
F r L 1 -200	Transmission output 1 low limit <ul style="list-style-type: none"> • Sets the transmission output 1 low limit value. <p>Standard</p> <table border="1" data-bbox="555 1592 1469 1637"> <tr> <td>4-20 mA DC</td> <td>Equals 4 mA DC output.</td> </tr> </table> <p>Optional</p> <table border="1" data-bbox="555 1675 1469 1843"> <tr> <td>0-20 mA DC</td> <td>Equals 0 mA DC output.</td> </tr> <tr> <td>0-1 V DC, 0-5 V DC, 0-10 V DC</td> <td>Equals 0 V DC output.</td> </tr> <tr> <td>1-5 V DC</td> <td>Equals 1 V DC output.</td> </tr> </table> <ul style="list-style-type: none"> • Setting range: input range low limit to transmission output 1 high limit (the placement of the decimal point follows the selection or input range.) 	4-20 mA DC	Equals 4 mA DC output.	0-20 mA DC	Equals 0 mA DC output.	0-1 V DC, 0-5 V DC, 0-10 V DC	Equals 0 V DC output.	1-5 V DC	Equals 1 V DC output.		
4-20 mA DC	Equals 4 mA DC output.										
0-20 mA DC	Equals 0 mA DC output.										
0-1 V DC, 0-5 V DC, 0-10 V DC	Equals 0 V DC output.										
1-5 V DC	Equals 1 V DC output.										

Character factory default	Setting item, function, setting range
<p><i>HoLd</i> <i>HoLd</i></p>	<p>Event input function</p> <ul style="list-style-type: none"> • Selects event input function. • <i>HoLd</i> (HOLD): PV at the given time is held and indicated by closing event input terminals (14, 17). The HOLD function is cancelled by opening the event input terminals (14, 17). • <i>P_H</i> (Peak HOLD): The updated maximum PV is indicated by closing event input terminals (14, 17). The Peak HOLD function is cancelled by opening the event input terminals (14, 17). • <i>b_H</i> (Bottom HOLD): The updated minimum PV is indicated by closing event input terminals (14, 17). The Bottom HOLD function is cancelled by opening event input terminals (14, 17). • <i>HLd 1</i> (Alarm HOLD 1): If any of [A1 HOLD function] to [A3 HOLD function] is set to “Enabled”, and if the alarm is ON, the alarm will be maintained by closing event input terminals (14, 17). The Alarm HOLD function will be cancelled by opening event input terminals (14, 17). While the Event input terminals (14, 17) are open, the Alarm HOLD function will be disabled. • <i>HLd 2</i> (Alarm HOLD 2): If any of [A1 HOLD function] to [A3 HOLD function] is set to “Enabled”, and if the alarm is ON, the alarm will be maintained by opening the event input terminals (14, 17). The Alarm HOLD function will be cancelled by closing event input terminals (14, 17). While the event input terminals (14, 17) are closed, the Alarm HOLD function will be disabled.
<p><i>A1Hd</i> <i>nonE</i></p>	<p>A1 HOLD function</p> <ul style="list-style-type: none"> • Enables/Disables the A1 HOLD function. Not available if no alarm action is selected in [A1 type]. • If A1 HOLD function is set to “Enabled”, and if the alarm is ON, the alarm output ON status will be maintained until the following is conducted. • The FAST key is pressed for approx. 3 seconds and power is turned OFF. • The HOLD is cancelled by the event input function. During A1 HOLD, the A1 action indicator flashes. • <i>nonE</i>: Disabled <i>HoLd</i>: Enabled
<p><i>A2Hd</i> <i>nonE</i></p>	<p>A2 HOLD function</p> <ul style="list-style-type: none"> • Enables/Disables the A2 HOLD function. Not available if no alarm action is selected in [A2 type]. Not available if insulated power output (P24 option) is ordered. • If A2 HOLD function is set to “Enabled”, and if the alarm is ON, the alarm output ON status will be maintained until the following is conducted. • The FAST key is pressed for approx. 3 seconds and power is turned OFF. • The HOLD is cancelled by the event input function. During A2 HOLD, the A2 action indicator flashes. • <i>nonE</i>: Disabled <i>HoLd</i>: Enabled
<p><i>A3Hd</i> <i>nonE</i></p>	<p>A3 HOLD function</p> <ul style="list-style-type: none"> • Enables/Disables the A3 HOLD function. Not available if no alarm action or high/low limit range alarm is selected in [A3 type]. • If A3 HOLD function is set to “Enabled”, and if the alarm is ON, the alarm output ON status will be maintained until the following is conducted.

Character factory default	Setting item, function, setting range
	<ul style="list-style-type: none"> The FAST key is pressed for approx. 3 seconds. The power is turned OFF. The HOLD is cancelled by the event input function. During A3 HOLD, the A3 action indicator flashes. <i>nonE</i> : Disabled <i>Hold</i> : Enabled
<i>root</i> <i>nonE</i>	Square root function <ul style="list-style-type: none"> Enables/Disables the square root extraction function. Indication value or square root extraction value is expressed by the formula below. $PV' = \sqrt{PV}$ PV': Indication value, square root extraction value PV: Process variable <ul style="list-style-type: none"> <i>nonE</i>: Disabled <i>USE</i>: Enabled
<i>LcUF</i> <input type="checkbox"/> 10	Low level cutoff <ul style="list-style-type: none"> Sets the low level cutoff value. When PV input is near 0 (zero), the result of square root extraction changes considerably with only a very small change of input. In this case, the PV is forced to become 0 (zero). If PV input is lower than the low level cutoff value, the PV will become 0. Setting range: 0.0 to 25.0% of input range <p>(e.g.) Input: 4-20 mA DC, Scaling range: 0-100 Low level cutoff: 1.0% In this case, PV becomes 0 if it is lower than 1.0%.</p> <p>Indication value</p> <p>100</p> <p>10</p> <p>0</p> <p>4 20 Input (mA)</p> <p>1.0% of input range (4.16 mA)</p> <p>(Fig. 5.4-3)</p>

5.5 Maintenance mode

To enter maintenance mode, press the **UP** and **FAST** keys (in that order) together for approx. 5 seconds in PV/SV display mode. If the unit enters maintenance mode, all outputs are forced to turn OFF.

Character factory default	Setting item, function, setting range
<i>FOR1</i> <input type="checkbox"/> OFF	A1 output ON/OFF <ul style="list-style-type: none"> A1 output can be turned ON by the UP key, and OFF by the DOWN key. Not available if no alarm action is selected in [A1 type]. <input type="checkbox"/> OFF: Output OFF <input type="checkbox"/> ON: Output ON
<i>FOR2</i> <input type="checkbox"/> OFF	A2 output ON/OFF <ul style="list-style-type: none"> A2 output can be turned ON by the UP key, and OFF by the DOWN key. Not available if no alarm action is selected in [A2 type]. Not available if insulated power output (P24 option) is ordered. <input type="checkbox"/> OFF: Output OFF <input type="checkbox"/> ON: Output ON
<i>FOR3</i> <input type="checkbox"/> OFF	A3 output ON/OFF <ul style="list-style-type: none"> A3 output can be turned ON by the UP key, and OFF by the DOWN key. Not available if No alarm action or High/Low limit range alarm is selected in [A3 type]. <input type="checkbox"/> OFF: Output OFF <input type="checkbox"/> ON: Output ON
<i>TRF1</i> <input type="checkbox"/> 00	Transmission output 1 manual output <ul style="list-style-type: none"> Sets output amount of transmission output 1. Setting range: 0.0 to 100.0%

6. Operation

6.1 Operation

After the DI25 is mounted to the control panel and wiring is completed, operate the unit following the procedure below.

- (1) Turn the power supply to the DI25 ON. For approximate 3 sec after the power is switched ON, the input characters and the temperature unit are indicated on the PV Display, and input range high limit (thermocouple, RTD input) or scaling high limit (direct current, DC voltage input) is indicated on the SV display. See (Table 5-1) (p.10).
During this time, all outputs and LED indicators are in an OFF status. After that, indication starts, indicating PV on the PV display, and A1, A2 or A3 value on the SV display.
- (2) Enter each set value, referring to section "5. Setup".

6.2 Switching SV display indication

To change indication on the SV display, press the UP and MODE keys (in that order) together in the PV/SV display mode. The next alarm value (of the currently indicated A1-A3 value) will be displayed.

If the UP and MODE keys (in that order) are pressed together at [A3 value indication], the unit reverts to [A1 value indication].

Indication	Setting item, function
PV A1 value	A1 value indication Indicates A1 value on the SV display, and the A1 value indicator is lit. Not available if no alarm action is selected in [A1 type].
PV A2 value	A2 value indication Indicates A2 value on the SV display, and the A2 value indicator is lit. Not available if no alarm action is selected in [A2 type]. Not available if insulated power output (P24 option) is ordered.
PV A3 value	A3 value indication Indicates A3 value on the SV display, and the A3 value indicator is lit. Not available if no alarm action or high/low limit range alarm is selected in [A3 type].

6.3 How to use the alarm output

(e.g.) To use A1 output, follow the procedure below.

1. Select an A1 type in [A1 type] (p.14) in auxiliary function setting mode 2.
2. Set the following items in auxiliary function setting mode 2 if required:
A1 Energized/De-energized (p.15), A1 hysteresis (p.15), A1 delay time (p.16), A1 HOLD function (p.17)
3. Set the A1 value in [A1 value (p.14)] in alarm setting mode.
A1 output settings are complete. The same applies to A2 and A3 output.

6.4 How to use the event input function

(e.g.) To use Peak HOLD of the event input function, follow the procedure below.

1. Select Peak HOLD in [event input function (p.17)] in auxiliary function setting mode 2.
2. The updated maximum PV is indicated by closing event input terminals (14, 17).
The Peak HOLD function is cancelled by opening event input terminals (14, 17).

7. Alarm action

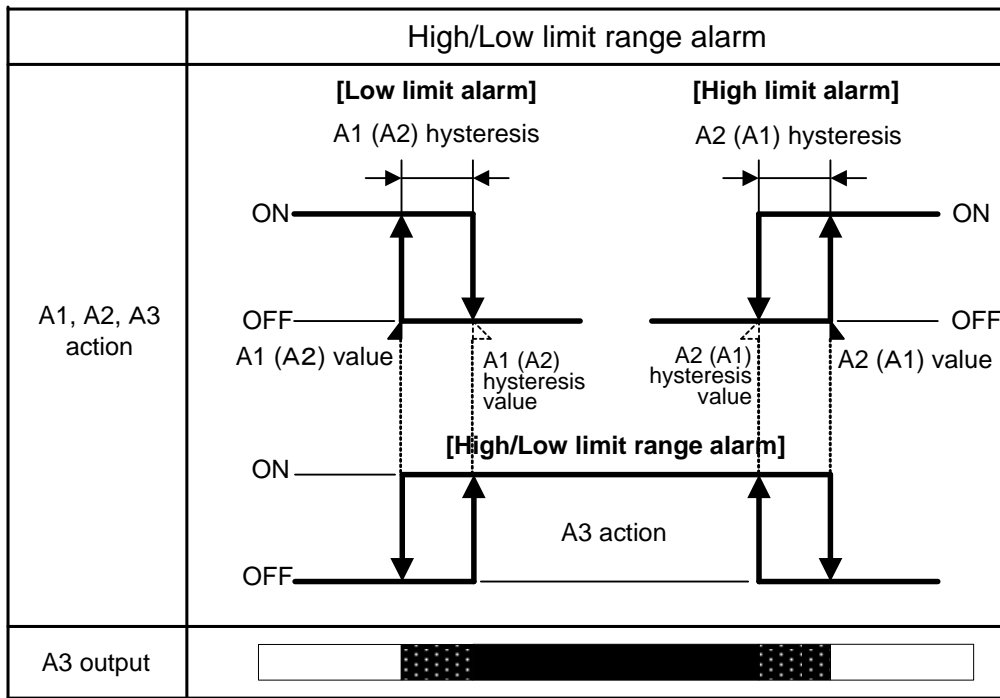
7.1 High limit alarm, low limit alarm

	High limit alarm	Low limit alarm
A1 action		
A1 output		
	High limit with standby alarm	Low limit with standby alarm
A1 action		
A1 output		

- : A1 output terminals (7, 8) ON
- : A1 output terminals (7, 8) ON or OFF
- : A1 output terminals (7, 8) OFF
- : A1 output is in standby.

- The following terminal numbers are used for respective alarm outputs.
 A2 output terminals: 9, 10
 A3 output terminals: 12, 13
 A4 output terminals: 15, 16
- A1, A2, A3 action indicator is lit when each output terminals are ON.
 A1, A2, A3 action indicator is turned off when its output terminals are OFF.

7.2 A3 High/Low limit range alarm action



A1 output terminals (7, 8): OFF, A2 output terminals (9, 10): OFF, A3 output terminals (12, 13): ON

A1 output terminals (7, 8), A2 output terminals (9, 10)
A3 output terminals (12, 13): ON or OFF

A1 output terminals (7, 8): ON, A2 output terminals (9, 10): ON,
A3 output terminals (12, 13): OFF

A3 High/Low limit range alarm action is determined by setting A1 value and A2 value.

A3 is activated (ON) when both A1 and A2 are OFF – by combining A1 High limit alarm (or high limit with standby alarm) and A2 Low limit alarm (or Low limit with standby alarm) and vice versa.

When standby function, hysteresis or delay time for A1 and A2 are set, check the below A3 action.

Please note the following:

- If A1 or A2 with standby alarm is selected, A3 is turned ON while A1 or A2 is in standby.
- If A1 or A2 hysteresis increases, A3 ON span decreases.
- When A1 or A2 delay time (setting time) increases, A3 ON time increases.
- If A1 or A2 delay time (setting time) is set, while A1 or A2 delay time is working (when power to the instrument is turned ON), A3 is turned ON.

8. Specifications

Dimensions	96 x 48 x 100 mm (W x H x D)
Mounting	Flush (mountable panel thickness: 1 to 8 mm)
Material	Case: Polycarbonate, color: black
Ingress protection	Front: IP66, back: IP00
Setting method	Input system using membrane sheet key
Display	PV display: red LED 4½-digits, character size, 16 x 7.2 mm (H x W) SV display: green LED 4½-digits, character size, 10 x 4.8 mm (H x W)
Power consumption	max. 10 VA
Ambient temperature	0 to 50°C (32 to 122°F)
Ambient humidity	35 to 85 %RH (non-condensing)
Weight	Approx. 300 g

Standard functions

A1 output A2 output A3 output	Action	ON/OFF action
	Hysteresis	0.1 to 100.0°C (°F) DC current, DC voltage input: 1 to 1000
	Alarm HOLD function	Enables/Disables the Alarm HOLD function. If Alarm HOLD function is set to “Enabled”, and if the alarm is ON, the alarm output ON status will be maintained until the following is conducted. <ul style="list-style-type: none"> The FAST key is pressed for approx. 3 seconds. The power is turned OFF. The HOLD is cancelled by the Event input function. During Alarm HOLD, corresponding alarm action indicator flashes.
	Output	Relay contact 1a Control capacity: 3 A 250 V AC (resistive load) Electrical life: 100,000 cycles
Transmission output 1	Converting the PV to analog signal every 125 ms, outputs the value in direct current. (Unaffected by the HOLD function) (When using the Transmission output 1 value as an input for other instruments, check that the input impedance of these instruments is smaller than the maximum load resistance of Transmission output 1.)	
	Resolution	12000
	Direct current	4 to 20 mA DC (Load resistance: max. 550 Ω)
	Output accuracy	Within ± 0.3% of transmission output span
	Response time	400 ms + Input sampling period (0%→90%)

Insulation, dielectric strength

Circuit insulation configuration	
Insulation resistance	10 MΩ or more, at 500 V DC
Dielectric strength	Input terminal and ground terminal: 1.5 kV AC for 1 minute Input terminal and power terminal: 1.5 kV AC for 1 minute Power terminal and ground terminal: 1.5 kV AC for 1 minute Output terminal and ground terminal: 1.5 kV AC for 1 minute Output terminal and power terminal: 1.5 kV AC for 1 minute (Output terminals: A1, A2, A3 output terminals, Transmission output 1 terminals)

Attached function



Burnout	When the thermocouple or RTD input is burnt out, the PV Display flashes																																																																											
Input error indication	<table border="1"> <thead> <tr> <th>Indication</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td> flashes.</td> <td>Overscale: Measured value has exceeded indication range high limit.</td> </tr> <tr> <td> flashes.</td> <td>Underscale: Measured value has dropped below indication range low limit.</td> </tr> </tbody> </table>	Indication	Contents	flashes.	Overscale: Measured value has exceeded indication range high limit.	flashes.	Underscale: Measured value has dropped below indication range low limit.																																																																					
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Set value lock	Locks the set values to prevent setting errors. (p.11)																																																																											
Sensor correction coefficient	Sets slope of input value from a sensor.																																																																											
Sensor correction	Corrects the input value from a sensor. (p.11)																																																																											

Power failure countermeasure	The setting data is backed up in the non-volatile IC memory.
Self-diagnosis	The CPU is monitored by a watchdog timer, and if an abnormal status is found on the CPU, the DI25 is switched to warm-up status.
Automatic cold junction temp. compensation	This detects the temperature at the connecting terminal between the thermocouple and the instrument, and always maintains it at the same status as if the reference junction location temperature was at 0°C (32°F).
Event input function	Selects event input function from 3 types of HOLD function and 2 types of alarm HOLD function.

For further specifications see WIKA data sheet AC 80.02.

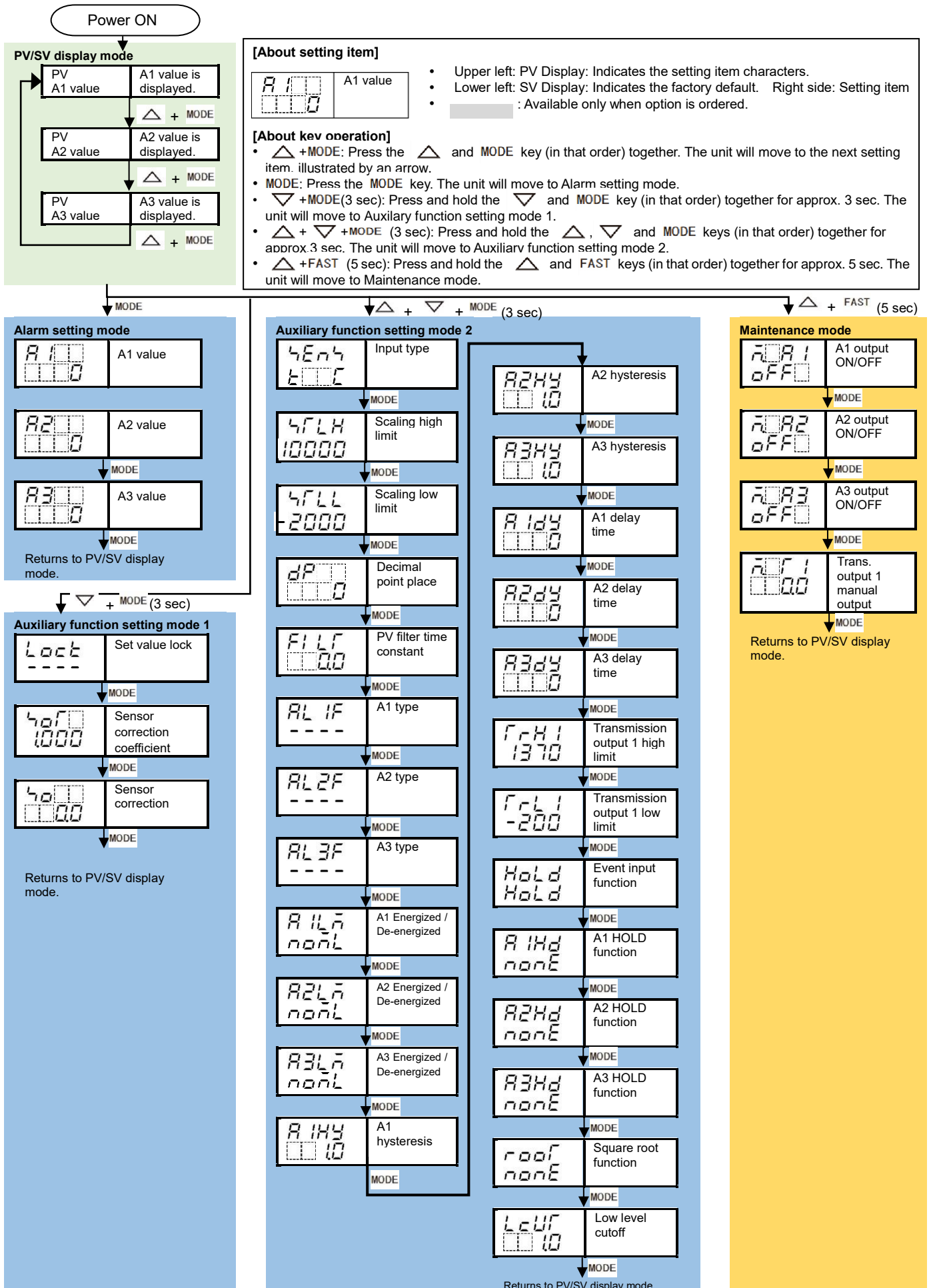
9. Troubleshooting

If any malfunction occurs, refer to the following items after checking that power is being supplied to the DI25.

Problem	Possible cause	Solution
The PV display indicates <i>Err 1</i> .	Internal memory is defective.	Contact us or our agency in your region.
The PV display indicates 	Burnout of thermocouple, RTD or disconnection of DC voltage (0 to 1 V DC)	<p>Replace each sensor.</p> <p>How to check whether the sensor is burnt out</p> <p>[Thermocouple] If the input terminals of the instrument are shorted, and if a value around room temperature is indicated, the instrument is likely to be operating normally, however, the sensor may be burnt out.</p> <p>[RTD] If approx. 100 Ω resistance is connected to the input terminals between A-B of the instrument and between B-B is shorted, and if a value around 0°C (32°F) is indicated, the instrument is likely to be operating normally, however, the sensor may be burnt out.</p> <p>[DC voltage (0 to 1 V DC)] If the input terminals of the instrument are shorted, and if a scaling low limit value is indicated, the instrument is likely to be operating normally, however, the signal wire may be disconnected.</p>
	Check whether the input terminals of thermocouple, RTD or DC voltage (0 to 1 V DC) are securely connected to the instrument input terminals.	Connect the sensor terminals to the instrument input terminals securely.
The PV display flashes 	Check whether input signal wire for DC voltage (1 to 5 V DC) or direct current (4 to 20 mA DC) is disconnected.	<p>How to check whether the input signal wire is disconnected</p> <p>[DC voltage (1 to 5 V DC)] If the input to the input terminals of the instrument is 1 V DC and if a scaling low limit value is indicated, the instrument is likely to be operating normally, however, the signal wire may be disconnected.</p> <p>[Direct current (4 to 20 mA DC)] If the input to the input terminals of the instrument is 4 mA DC and if a scaling low limit value is indicated, the instrument is likely to be operating normally, however, the signal wire may be disconnected.</p>
	Check whether input signal wire for DC voltage (1 to 5 V DC) or DC current (4 to 20 mA DC) is securely connected to the instrument input terminals.	Ensure that the input signal wire is securely connected to the instrument input terminals.
	Check if polarity of thermocouple or compensating lead wire is correct. Check whether codes (A, B, B) of RTD agree with the instrument terminals.	Wire them correctly.

Problem	Possible cause	Solution
The PV display keeps indicating the value set in [Scaling low limit].	Check whether the input signal wires of DC voltage (0 to 5 V DC, 0 to 10 V DC) and direct current (0 to 20 mA DC) is disconnected.	<p>How to check whether the input signal wire is disconnected</p> <p>[DC voltage (0 to 5 V DC, 0 to 10 V DC)] If the input to the input terminal of this instrument is 1 V DC, and if a value corresponding to 1 V DC is indicated, the instrument is likely to be operating normally, however, the input signal wire may be disconnected.</p> <p>[Direct current (0 to 20 mA DC)] If the input to the input terminal of this instrument is 4 mA DC, and if a value (converted value from scaling high, low limit setting) corresponding to 4 mA DC is indicated, the instrument is likely to be operating normally, however, the input signal wire may be disconnected.</p>
	Check whether the input terminals of DC voltage (0 to 5 V DC, 0 to 10 V DC) or direct current (0 to 20 mA DC) are securely connected to the instrument input terminals.	Connect the input terminals of DC voltage and current to the input terminals of this instrument securely.
The indication of PV display is irregular or unstable.	Check whether sensor input or temperature unit (°C or °F) is correct.	Select the sensor input and temperature unit (°C or °F) correctly.
	Sensor correction coefficient or Sensor correction value is unsuitable.	Set them to suitable values.
	Check whether the sensor specification is correct.	Use a sensor with appropriate specifications.
	AC leaks into the sensor circuit.	Use an ungrounded type sensor.
	There may be equipment that interferes with or makes noise near the instrument.	Keep the instrument clear of any potentially disruptive equipment.
Values on the PV display do not change.	Terminals 14 and 17 are closed, and the HOLD function is working.	Cancel the HOLD function by opening terminals 14 and 17.
Even if the UP key or DOWN key is pressed, values do not change.	Set value lock (Lock 1 or Lock 2) is selected.	Release the lock in [Set value lock].

10. Flow diagram for the programming levels



11. Dismounting, return and disposal

11.1 Dismounting



Danger

Danger to life caused by electric current

Upon contact with live parts, there is a direct danger to life.

- The dismounting of the instrument may only be carried out by skilled personnel.
- Only dismount the universal controller once the system has been isolated from power.



Warning

Physical injury

When dismounting, there is a danger from aggressive media and high pressures.

- Observe the information in the material safety data sheet for the corresponding medium.
- Only disconnect the universal controller once the system has been depressurized!

11.2 Return

Strictly observe the following when shipping the instrument:

All instruments delivered to WIKA must be free from any kind of hazardous substances (acids, bases, solutions, etc.) and must therefore be cleaned before being returned. When returning the instrument, use the original packaging or a suitable transport packaging.

To avoid damage:

1. Wrap the instrument in an antistatic plastic film.
2. Place the instrument, along with shock-absorbent material, in the packaging. Place shock-absorbent material evenly on all sides of the transport packaging.
3. If possible, place a bag containing a desiccant inside the packaging.
4. Label the shipment as carriage of a highly sensitive measuring instrument.

Information on returns can be found under the heading "Service" on our local website.

11.3 Disposal

Incorrect disposal can put the environment at risk.

Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.



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