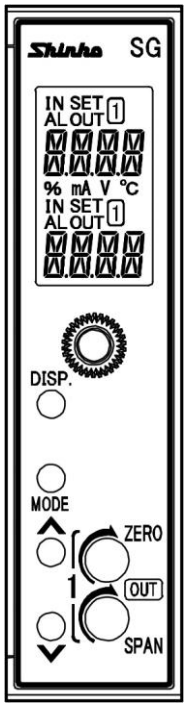
LINEARIZER

SGL

SGLL

INSTRUCTION MANUAL



Shinko

Preface

Thank you for purchasing our SGL and SGLL, Linearizer. This manual contains instructions for the mounting, functions, operations and notes when operating the SGL and SGLL. 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.
- This instrument is designed to be installed on a DIN rail within a control panel. If it is not, measures must be taken to ensure that the operator does not touch power terminals or other high voltage sections.
- Any unauthorized transfer or copying of this document, in part or in whole, is prohibited.
- Shinko Technos Co., Ltd. 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 Shinko or qualified service personnel may handle the inner assembly.
- To prevent an electrical shock, fire, or damage to instrument, parts replacement may only be undertaken by Shinko or qualified service personnel.

⚠ 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 our agency or main office. (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. Shinko Technos Co., Ltd. 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.

■ 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 -10 to 55℃ (14 to 131℉) 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 the vapors of these substances can come into direct contact with the unit.
- When installing this unit within a control panel, please note that ambient temperature of this unit – not the ambient temperature of the control panel – must not exceed 55℃ (131℉). Otherwise the life of electronic components (especially electrolytic capacitor) 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-resistant resin.

■ Wiring Precautions

⚠ Caution

- Do not leave bits of wire in the instrument, because they could cause a fire and malfunction.
- When wiring, use a crimping pliers and a solderless terminal with an insulation sleeve in which an M3 screw fits.
- Tighten the terminal screw using the specified torque. If excessive force is applied to the screw when tightening, the screw or case may be damaged.
- 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 wiring of the AC power source, be sure to use terminals as described in this manual. If the AC power source is connected to incorrect terminals, the unit will be burnt out.
- 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.
- When using DC voltage and current input, do not confuse polarity when wiring.
- Keep the input/output wires and power line separate.

■ Operation and Maintenance Precautions

⚠ Caution

- Do not touch live terminals. This may cause an electrical shock or problems in operation.
- Turn the power supply to the instrument OFF when 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.

Characters used in this manual [: No character is indicated (unlit).]

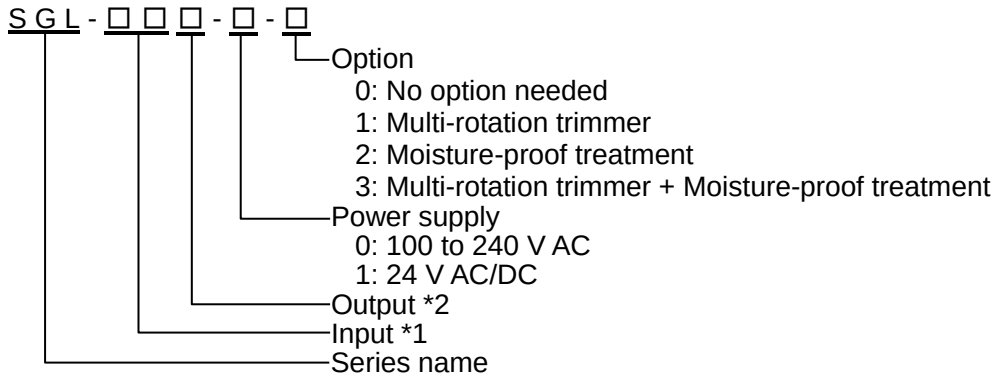
Indication	-1	0	1	2	3	4	5	6	7	8	9	°C	°F
Number, ℃/℉	-1	0	1	2	3	4	5	6	7	8	9	°C	°F
Indication	A	b	C	d	E	F	G	H	I	J	K	L	M
Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
Indication	N	o	P	Q	R	S	T	U	V	W	X	Y	Z
Alphabet	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Contents

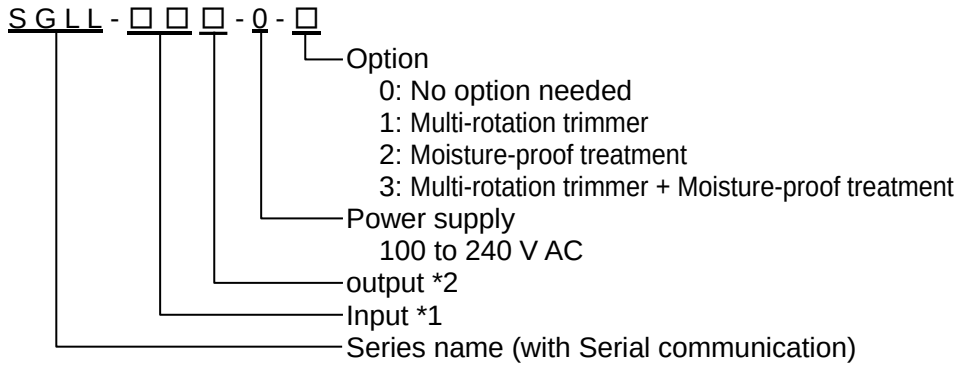
1. Model

1.1 Model name

SGL



SGLL



***1: Input**

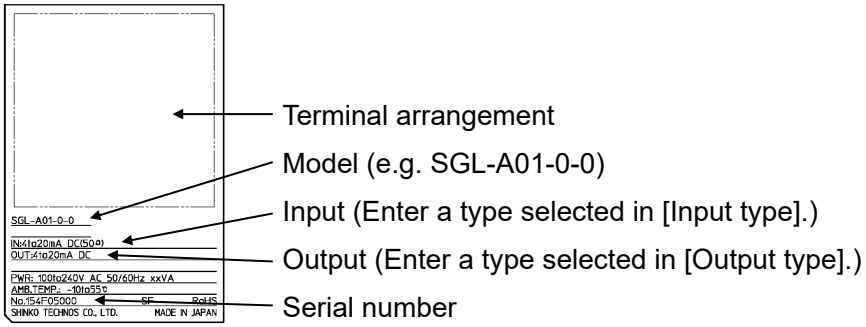
Code	Input Type		Code	Input Type	
A0	**Direct current**	4 to 20 mA (Built-in 50 Ω shunt resistor)	V0	**DC voltage**	0 to 10 mV (1 MΩ input resistance)
A1		4 to 20 mA (250 Ω shunt resistor)	V1		0 to 50 mV (1 MΩ input resistance)
A2		4 to 20 mA (50 Ω shunt resistor)	V2		0 to 60 mV (1 MΩ input resistance)
A3		0 to 20 mA (250 Ω shunt resistor)	V3		0 to 100 mV (1 MΩ input resistance)
A4		0 to 16 mA (62.5 Ω shunt resistor)	V4		0 to 1 V (1 MΩ input resistance)
A5		2 to 10 mA (250 Ω shunt resistor)	V5		0 to 5 V (1 MΩ input resistance)
A6		0 to 10 mA (100 Ω shunt resistor)	V6		1 to 5 V (1 MΩ input resistance)
A7		1 to 5 mA (100 Ω shunt resistor)	V7		-5 to 5 V (1 MΩ input resistance)
A8		0 to 1 mA (1000 Ω shunt resistor)	V8		0 to 10 V (1 MΩ input resistance)
A9		10 to 50 mA (10 Ω shunt resistor)	V9		-10 to 10 V (1 MΩ input resistance)

*2: Output

Code	Output Type		Code	Output Type	
1	Current output	4 to 20 mA	A	Voltage output	0 to 10 mV
2		0 to 20 mA	B		0 to 100 mV
3		0 to 16 mA	C		0 to 1 V
4		2 to 10 mA	D		0 to 5 V
5		0 to 10 mA	E		1 to 5 V
			F		0 to 10 V
			G		-5 to 5 V

1.2 How to Read the Model Label

The model label is attached to the right side of the case.

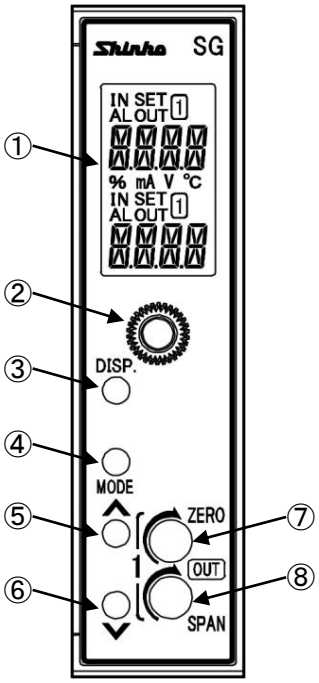


(Fig. 1.2-1)

2. Name and Functions

2.1 Front Panel

SGL, SGLL

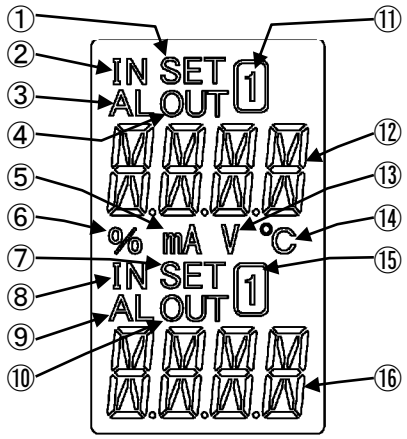


(Fig. 2.1-1)

①	**Display section**	Indicates setting contents, input value, output value, etc.
②	**Mounting screw**	Used for fixing the instrument to the socket or removal from it.
③	**DISP key**	Switches the displays, and moves to the next setting item. Releases the lock status of the DISP key by pressing for 3 seconds.
④	**MODE key**	Selects either a setting mode or a display mode. Shifts the digit for the Custom Display. Enters the setting mode by pressing and holding for 5 seconds.
⑤	**Up key**	Increases the numerical value. Contents of Multi-Display A and B can be changed alternately when Default Display is RUN display mode 1, 2 and 3.
⑥	**DOWN key**	Decreases the numerical value. Enters Manual mode by pressing for 3 seconds.
⑦	**Output Zero**	Adjusts the value of Output Zero.
⑧	**Output Span**	Adjusts the value of Output Span.

2.2 Display Section

SGL, SGLL



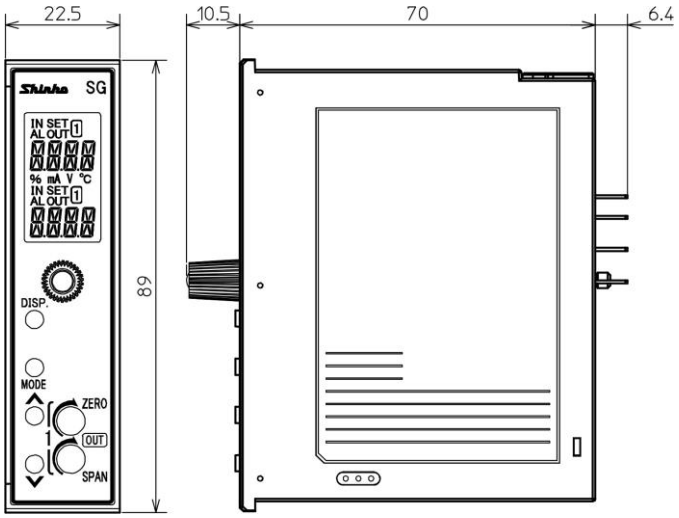
(Fig. 2.2-1)

①	**Setting display indicator A**	Lights up in Manual mode.
②	**Input indicator A**	Lights up when Multi-Display A indicates an input value.
③	**Alarm indicator A**	Lights up if an input error or input disconnection occurs while Multi-Display A indicates an input value. Lights up if an input error or input disconnection occurs in the following mode: Custom display mode1, 2, 3, Unlit display mode, Model display mode
④	**Output indicator A**	Lights up when Multi-Display A indicates an output value.
⑤	**mA indicator**	Lights up when mA is selected in [Indication unit].
⑥	**% indicator**	Lights up in Manual mode or when % is selected in [Indication unit].
⑦	**Setting display indicator B**	Lights up for the setting display.
⑧	**Input indicator B**	Lights up when Multi-Display B indicates an input value.
⑨	**Alarm indicator B**	Lights up if an input error or input disconnection occurs while Multi-Display B indicates an input value. Lights up if an input error or input disconnection occurs in Unlit display mode.
⑩	**Output indicator B**	Lights up when Multi-Display B indicates an output value.
⑪	**1 indicator A**	Lights up in Manual mode or when Multi-Display A indicates an output value.
⑫	**Multi-Display A**	Indicates the following in accordance with the display indication: Input value, output value, custom characters, setting item
⑬	**V indicator**	Lights up when V is selected in [Indication unit].
⑭	**°C indicator**	Lights up when °C is selected in [Indication unit].
⑮	**1 indicator B**	Lights up when Multi-Display B indicates an output value.
⑯	**Multi-Display B**	Indicates the following in accordance with the display indication: Input value, output value, custom characters, setting value

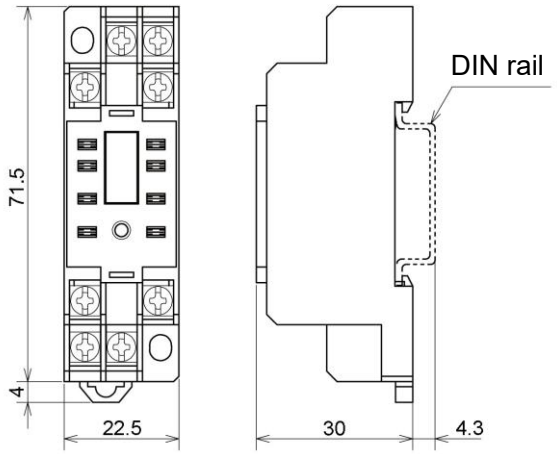
Output indicators A and B, Alarm indicators A and B: Red
Other indicators: White

3. Mounting

3.1 External Dimensions (Scale: mm)



8P socket



(Fig. 3.1-1)

3.2 Mounting to, and Removal from the DIN Rail

⚠ Caution

- Mount the DIN rail horizontally.
- To remove the socket, a flat blade screwdriver is required.
  Never turn the screwdriver when inserting it into the Lock lever. If excessive power is applied to the lever, it may break.
- If the instrument is mounted in a position susceptible to vibration or shock, mount commercially available fastening plates at both ends of the instrument.

Recommended Fastening Plate

Manufacturer	Model
Omron Corporation	End plate PFP-M
IDEC Corporation	Fastening plate BNL6
Panasonic Electric Works Co., Ltd.	Fastening plate ATA4806

Mounting to the DIN rail (Fig. 3.2-1)

① Separate the instrument from the socket by loosening the mounting screw on the front panel.

② Make sure the lock lever of the socket is located in the lower part of the socket. Hook the upper side of the socket onto the DIN rail, and fit the lower part of the socket onto the DIN rail (A clicking sound should be heard when done properly).

⚠ Caution

- Before inserting the instrument to the socket, make sure the cable is wired properly. (Refer to “4. Wiring”.)
- When inserting or removing the socket, make sure the socket is oriented vertically. If force is applied in any other direction than vertically, a malfunction may occur.
- If the mounting screw is fastened too tightly, a malfunction may occur.

③ Insert the SGL into the socket.

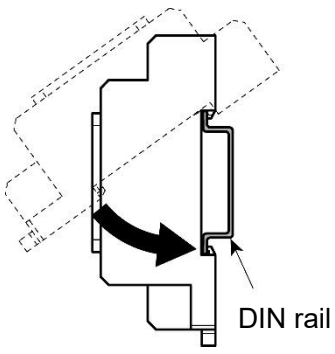
④ Fasten the mounting screw by turning it clockwise, to secure the SGL onto the socket. Tighten the screw lightly.

Removal from the DIN rail (Fig. 3.2-2)

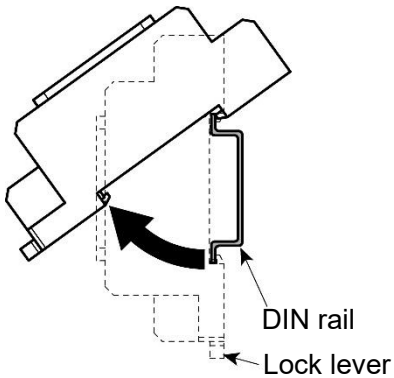
① Turn the power to the instrument OFF.

② Separate the instrument from the socket by loosening the mounting screw on the front panel.

③ Insert a flat blade screwdriver into the Lock lever (lower part of the socket), and remove the socket from the DIN rail while pulling the lever down.



(Fig. 3.2-1)



(Fig. 3.2-2)

4. Wiring

⚠ Warning

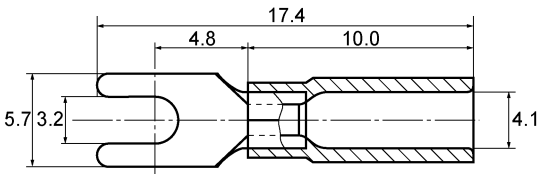
Turn the power supply to the instrument off before wiring or checking. Working on or touching the terminal with the power switched on may result in severe injury or death due to electrical shock.

4.1 Lead Wire Solderless Terminal

Use a solderless terminal with an insulation sleeve in which an M3 screw fits as shown below. **The torque should be 0.63 N•m.**

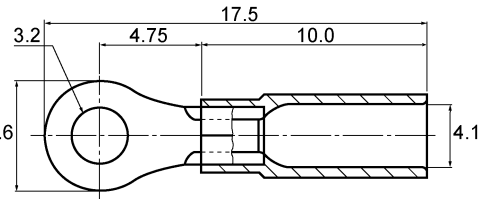
Solderless Terminal	Manufacturer	Model
Y-type	Nichifu Terminal Industries Co., Ltd.	TMEV1.25Y-3
	Japan Solderless Terminal MFG Co., Ltd.	VD1.25-B3A
Ring-type	Nichifu Terminal Industries Co., Ltd.	TMEV1.25-3
	Japan Solderless Terminal MFG Co., Ltd.	V1.25-3

Y-type(Scale: mm)



(Fig. 4.1-1)

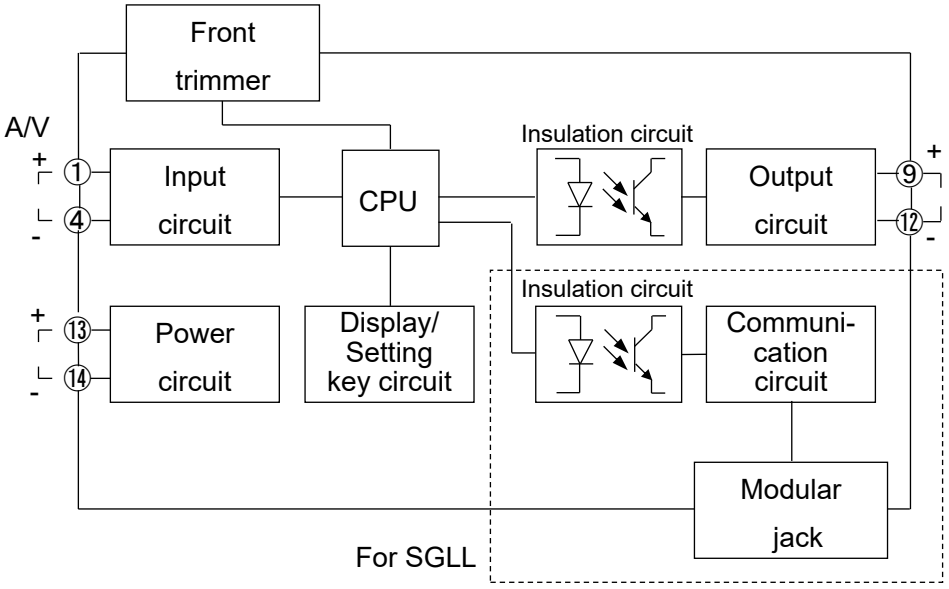
Ring-type(Scale: mm)



(Fig. 4.1-2)

4.2 Circuit Configuration

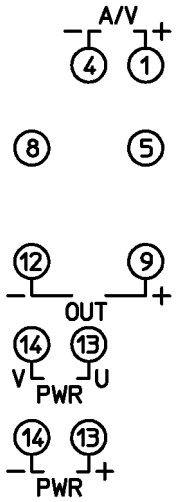
SGL, SGLL



(Fig. 4.2-1)

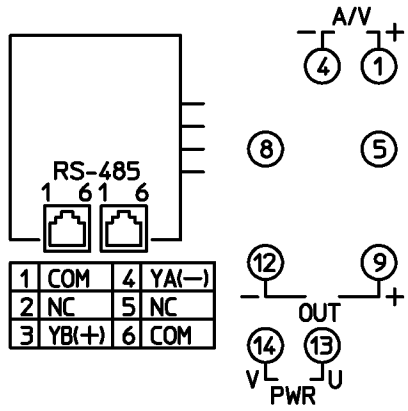
4.3 Terminal Arrangement

SGL



(Fig. 4.3-1)

SGLL



(Fig. 4.3-2)

PWR	Power supply 100 to 240 V AC or 24 V AC/DC (for SGL)
OUT	Output
A	Direct current input
V	DC voltage input
RS-485	Serial communication (for SGLL)

4.4 Wiring

⚠ Warning

• For 100 to 240 V AC, if the AC power source is connected to incorrect terminals, the instrument will be burnt out.

(1) Power Source Wiring

SGL: Use terminals ⑬, ⑭ for the power supply to the instrument.
For 24 V DC, use terminals ⑬(+), ⑭(-) for the power supply to the instrument.

SGLL: Use terminals ⑬, ⑭ for the power supply to the instrument.

(2) Output Wiring

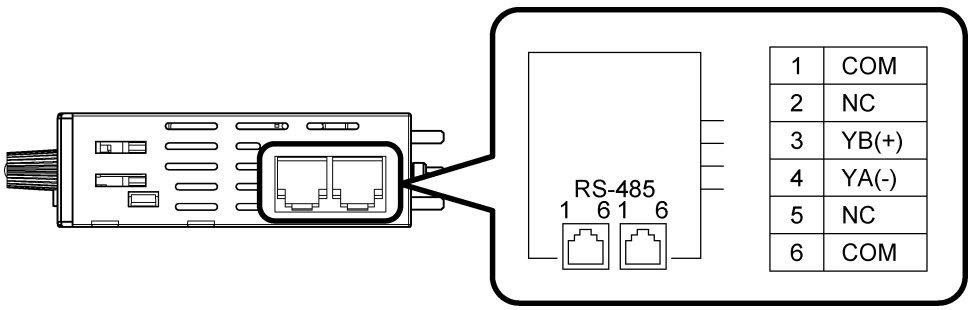
Use terminals ⑨(+), ⑫(-) for the output wiring.

(3) Input Wiring

Use terminals ①, ④ for the input wiring.

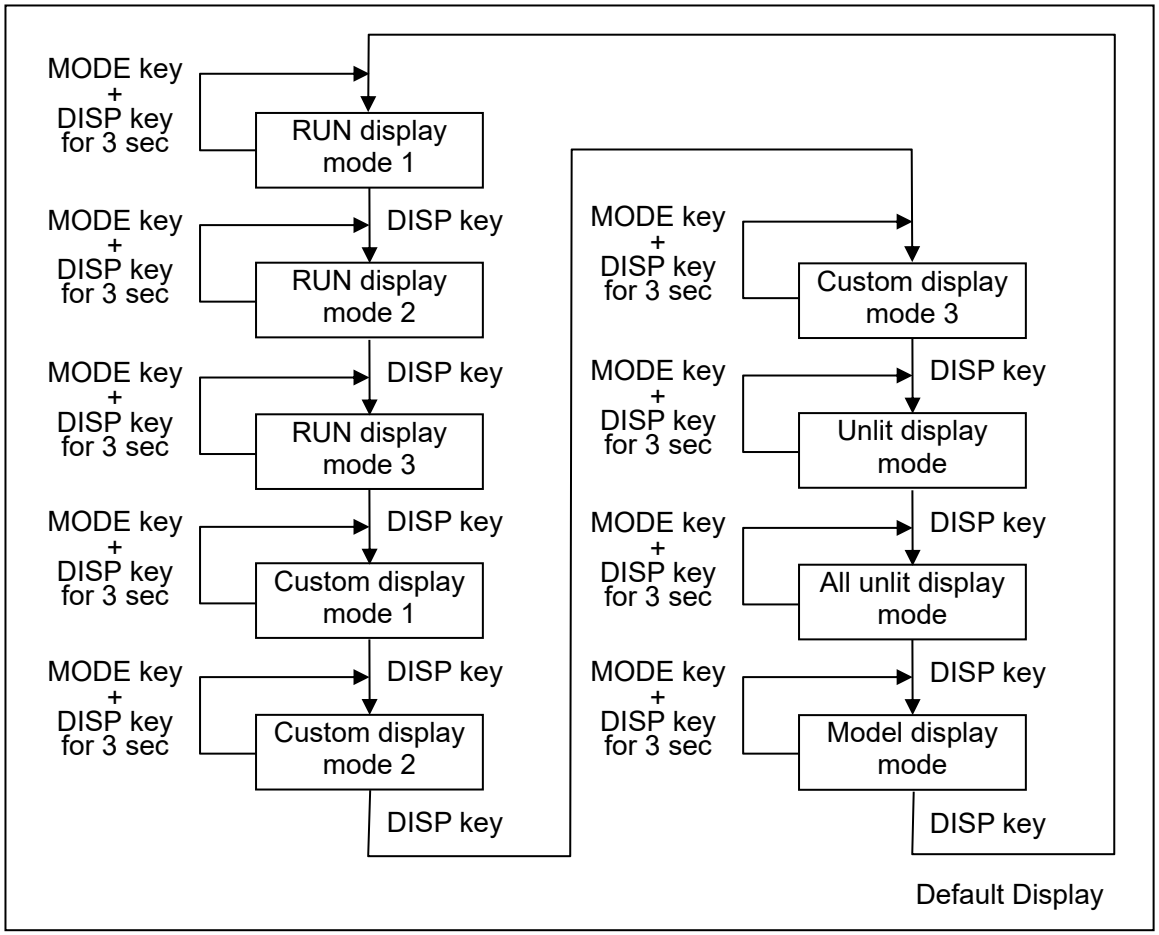
(4) Communication Wiring

For the SGLL, connect the SGLL to SGLL using the provided cable.



(Fig. 4.4-1)

5. Display Mode



Default Display: If the MODE and DISP keys (in that order) are pressed together for approx. 3 seconds in any display mode, the display mode will become the Default Display.
Once the Default Display is set, the DISP key will be in lock status.
If the DISP key is pressed for approx. 3 seconds on the Default Display, the key lock status will be cancelled.
If the DISP key is pressed while the DISP key is in lock status, Multi-Display A indicates LOCK.

RUN display mode 1: Multi-Display A indicates an input value, and Multi-Display B indicates the output value.

RUN display mode 2: Multi-Display A indicates an input value, and Multi-Display B is unlit.

RUN display mode 3: Multi-Display A is unlit, and Multi-Display B indicates the output value.
The Alarm indicator A will light up if it is under the conditions of lighting. The Alarm indicator B will light up if it is under the conditions of lighting.

Custom display mode 1: Multi-Display A indicates characters set in [Multi-Display A]. Multi-Display B indicates characters set in [Multi-Display B].
The Alarm indicator A will light up if it is under the conditions of lighting.

Custom display mode 2: Multi-Display A indicates an input value. Multi-Display B indicates characters set in [Multi-Display B].
The Alarm indicator A will light up if it is under the conditions of lighting.

Custom display mode 3: Multi-Display A indicates an output value. Multi-Display B indicates characters set in [Multi-Display B].
The Alarm indicator A will light up if it is under the conditions of lighting.

Unlit display mode: Multi-Display A and B are unlit, and the Input indicator A lights up.
The Alarm indicator A will light up if it is under the conditions of lighting.

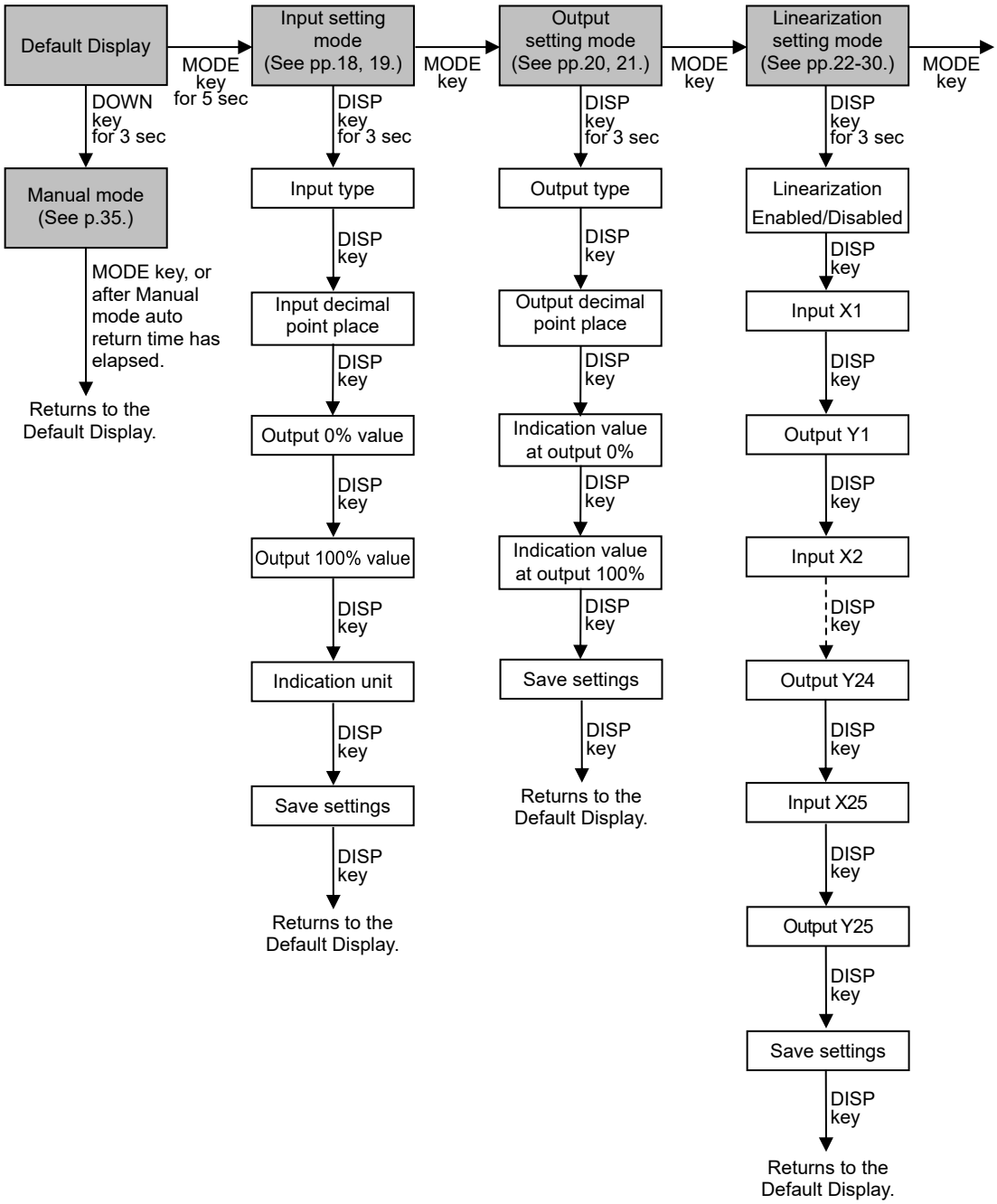
All unlit display mode: All displays and indicators are unlit.
Alarm indicator A and B do not light up even if they are under the conditions of lighting.

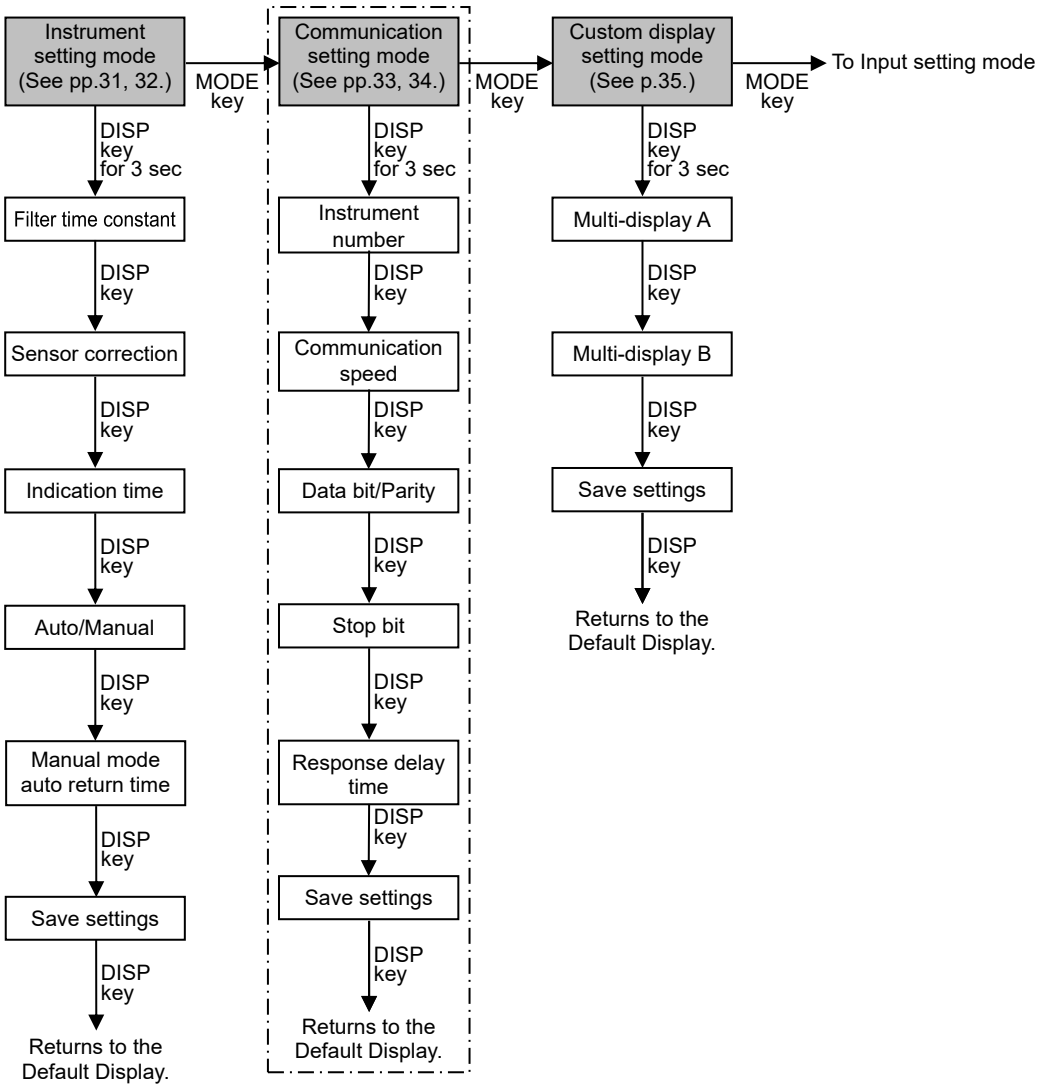
Model display mode: Multi-Display A indicates a model name, and Multi-Display B indicates an input and output code.
The Alarm indicator A will light up if it is under the conditions of lighting.

6. Setting Mode

6.1 Display Transition in Setting Mode

- Available only for the SGLL.
- If the MODE key is pressed and held down for approx. 5 seconds in each setting mode, the unit will move to the Default Display.




Instrument setting mode (See pp.31, 32.)
MODE key
Communication setting mode (See pp.33, 34.)
MODE key
Custom display setting mode (See p.35.)
MODE key
To Input setting mode
DISP key for 3 sec
Filter time constant
DISP key
Sensor correction
DISP key
Indication time
DISP key
Auto/Manual
DISP key
Manual mode auto return time
DISP key
Save settings
DISP key
Returns to the Default Display.
DISP key for 3 sec
Instrument number
DISP key
Communication speed
DISP key
Data bit/Parity
DISP key
Stop bit
DISP key
Response delay time
DISP key
Save settings
DISP key
Returns to the Default Display.
DISP key for 3 sec
Multi-display A
DISP key
Multi-display B
DISP key
Save settings
DISP key
Returns to the Default Display.

6.2 Input Setting Mode

Input type

Selects an input type.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
4 to 20 mA Built-in 50 Ω shunt resistor	SENS	42.0A	4 to 20 mA Built-in 50 Ω shunt resistor SENS 42.0A
4 to 20 mA Externally mounted 250 Ω shunt resistor		42.0A	
4 to 20 mA Externally mounted 50 Ω shunt resistor		42.0A	
0 to 20 mA		020A	
0 to 16 mA		016A	
2 to 10 mA		210A	
0 to 10 mA		010A	
1 to 5 mA		105A	
0 to 1 mA		001A	
10 to 50 mA		050	
0 to 10 mV		010MV	
0 to 50 mV		050MV	
0 to 60 mV		060MV	
0 to 100 mV		100MV	
0 to 1 V		001V	
0 to 5 V		005V	
1 to 5 V		105V	
-5 to 5 V		-55V	
0 to 10 V		010V	
-10 to 10 V		-10V	

Input Decimal Point Place

Selects the decimal point place for input value indication.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
No decimal point	dP..	...0	2 digits after decimal point * dP.. .00
1 digit after decimal point		..00	
2 digits after decimal point		.000	
3 digits after decimal point		0000	

* Factory default will be '1 digit after decimal point' if the following input types are selected:

0 to 10 mV, 0 to 50 mV, 0 to 60 mV, 0 to 100 mV, -5 to 5 V, -10 to 10 V

Output 0% Value

Sets an input value (indicated on the display) at the time of output 0%.
Values change in accordance with the input type.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Low limit of each input type to Output 100% value	SEL0	Set value	4.00 * SEL0 4.00

* If [-5 to 5 V] is selected in [Input type], the factory default value will be -50.0.

Output 100% Value

Sets an input value (indicated on the display) at the time of output 100%.
Values change in accordance with the input type.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to High limit of each input type	SEL1	Set value	20.00 * SEL1 20.00

* If '-5 to 5 V' is selected in [Input type], the factory default value will be 50.0.

Indication Unit

Selects the unit for indication.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
No unit	UNIT	NONE	No unit UNIT NONE
%		PER	
mA		MA	
V		VOLT	
°C		DEG	

Save Settings

Selects whether the settings are saved (registered) or not.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Save	SAVE	YES	Save SAVE YES
Not save		NO	

6.3 Output Setting Mode

Output Type

Selects an output type.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
4 to 20 mA	oUTA	4 20A	4 to 20 mA oUTA 4 20A
0 to 20 mA		0 20A	
0 to 16 mA		0 16A	
2 to 10 mA		2 10A	
0 to 10 mA		0 10A	
0 to 10 mV		0 10mV	
0 to 100 mV		0 100mV	
0 to 1 V		0 1.0V	
0 to 5 V		0 5.0V	
1 to 5 V		1 5.0V	
0 to 10 V		0 10.0V	
-5 to 5 V		-5 5.0V	

Output Decimal Point Place

Selects a decimal point place for output value indication.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
No decimal point	dPnt	0000	2 digits after decimal point * dPnt 0.00
1 digit after decimal point		000.0	
2 digits after decimal point		00.00	
3 digits after decimal point		0.000	

* The factory default value will be ‘1 digit after decimal point’ when the following type is selected in [Output type]:
0 to 10 mV, 0 to 100 mV, -5 to 5 V

Indication Value at Output 0%

Sets an indication value at the time of output 0%.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
-1999 to Indication value at output 100%	oSCA	Set value	4.00 oSCA 4.00

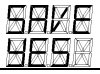
Indication Value at Output 100%

Sets an indication value at the time of output 100%.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Indication value at output 0% to 9999		Set value	20.00 

Save Settings

Selects whether the settings are saved (registered) or not

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Save			Save 
Not save			

6.4 Linearization Setting Mode

Linearization Enabled/Disabled

Selects the Linearization function Enabled or Disabled.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Enabled	LNRS	USED	Disabled LNRS NONE
Disabled		NONE	

Input X1

Sets Input X1 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP01	Set value	Output 0% value XP01 Set value

Output Y1

Sets Output Y1 corresponding to Input X1 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP01	Set value	0.0% YP01 0.0

Input X2

Sets Input X2 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP02	Set value	Output 0% value XP02 Set value

Output Y2

Sets Output Y2 corresponding to Input X2 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP02	Set value	0.0% YP02 0.0

Input X3

Sets Input X3 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP03	Set value	Output 0% value XP03 Set value

Output Y3

Sets Output Y3 corresponding to Input X3 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP03	Set value	0.0% YP03 0000

Input X4

Sets Input X4 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP04	Set value	Output 0% value XP04 Set value

Output Y4

Sets Output Y4 corresponding to Input X4 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP04	Set value	0.0% YP04 0000

Input X5

Sets Input X5 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP05	Set value	Output 0% value XP05 Set value

Output Y5

Sets Output Y5 corresponding to Input X5 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP05	Set value	0.0% YP05 0000

Input X6

Sets Input X6 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP06	Set value	Output 0% value XP06 Set value

Output Y6

Sets Output Y6 corresponding to Input X6 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP06	Set value	0.0% YP06 00.0

Input X7

Sets Input X7 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP07	Set value	Output 0% value XP07 Set value

Output Y7

Sets Output Y7 corresponding to Input X7 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP07	Set value	0.0% YP07 00.0

Input X8

Sets Input X8 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP08	Set value	Output 0% value XP08 Set value

Output Y8

Sets Output Y8 corresponding to Input X8 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP08	Set value	0.0% YP08 00.0

Input X9

Sets Input X9 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP09	Set value	Output 0% value XP09 Set value

Output Y9

Sets Output Y9 corresponding to Input X9 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP09	Set value	0.0% YP09 00.0

Input X10

Sets Input X10 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP10	Set value	Output 0% value XP10 Set value

Output Y10

Sets Output Y10 corresponding to Input X10 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP10	Set value	0.0% YP10 00.0

Input X11

Sets Input X11 for linearization.。

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP11	Set value	Output 0% value XP11 Set value

Output Y11

Sets Output Y11 corresponding to Input X11 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP11	Set value	0.0% YP11 00.0

Input X12

Sets Input X12 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP12	Set value	Output 0% value XP12 Set value

Output Y12

Sets Output Y12 corresponding to Input X12 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP12	Set value	0.0% YP12 00.0

Input X13

Sets Input X13 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP13	Set value	Output 0% value XP13 Set value

Output Y13

Sets Output Y13 corresponding to Input X13 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP13	Set value	0.0% YP13 00.0

Input X14

Sets Input X14 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP14	Set value	Output 0% value XP14 Set value

Output Y14

Sets Output Y14 corresponding to Input X14 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP14	Set value	0.0% YP14 00.0

Input X15

Sets Input X15 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP15	Set value	Output 0% value XP15 Set value

Output Y15

Sets Output Y15 corresponding to Input X15 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP15	Set value	0.0% YP15 00.0

Input X16

Sets Input X16 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP16	Set value	Output 0% value XP16 Set value

Output Y16

Sets Output Y16 corresponding to Input X16 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP16	Set value	0.0% YP16 00.0

Input X17

Sets Input X17 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP17	Set value	Output 0% value XP17 Set value

Output Y17

Sets Output Y17 corresponding to Input X17 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP17	Set value	0.0% YP17 00.0

Input X18

Sets Input X18 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP18	Set value	Output 0% value XP18 Set value

Output Y18

Sets Output Y18 corresponding to Input X18 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP18	Set value	0.0% YP18 00.0

Input X19

Sets Input X19 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP19	Set value	Output 0% value XP19 Set value

Output Y19

Sets Output Y19 corresponding to Input X19 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP19	Set value	0.0% YP19 00.0

Input X20

Sets Input X20 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP20	Set value	Output 0% value XP20 Set value

Output Y20

Sets Output Y20 corresponding to Input X20 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP20	Set value	0.0% YP20 00.0

Input X21

Sets Input X21 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	X021	Set value	Output 0% value X021 Set value

Output Y21

Sets Output Y21 corresponding to Input X21 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	Y021	Set value	0.0% Y021 00.0

Input X22

Sets Input X22 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	X022	Set value	Output 0% value X022 Set value

Output Y22

Sets Output Y22 corresponding to Input X22 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	Y022	Set value	0.0% Y022 00.0

Input X23

Sets Input X23 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	X023	Set value	Output 0% value X023 Set value

Output Y23

Sets Output Y23 corresponding to Input X23 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	Y023	Set value	0.0% Y023 00.0

Input X24

Sets Input X24 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP24	Set value	Output 0% value XP24 Set value

Output Y24

Sets Output Y24 corresponding to Input X24 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP24	Set value	0.0% YP24 00.0

Input X25

Sets Input X25 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Output 0% value to Output 100% value	XP25	Set value	Output 0% value XP25 Set value

Output Y25

Sets Output Y25 corresponding to Input X25 for linearization.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 100.0%	YP25	Set value	0.0% YP25 00.0

Save Settings

Selects whether the settings are saved (registered) or not

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Save	SAVE	YES	Save SAVE YES
Not save		NO	

6.5 Instrument Setting Mode

Filter Time Constant

Sets the input filter time constant.

Input fluctuation due to noise can be decreased.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0.0 to 10.0 seconds	FILT	Set value	0.0 seconds FILT 0.0

Sensor Correction

Sets the sensor correction value.

Input value = Current input value + (Sensor correction value)

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
-1000 to 1000 *	SCOR	Set value	0 SCOR 0

* The placement of the decimal point follows the selection.

Indication Time

Sets duration from no operation until indication (of Multi-Display A, Multi-Display B, and each action indicator) turns off.

They remain lit during setting mode or in the event of an input error or input disconnection.

When set to 00.00, they remain lit.

After indication time has elapsed, if any key is pressed while they are unlit, indication will light up again.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
00 : 00 to 60 : 00 (Minutes : Seconds) 00 : 00 ..... Continuous 00 : 01 to 60 : 00 . Indication time	DIMC	Set value	30 : 00 (Minutes : Seconds) DIMC 30.00

Auto/Manual

If AUTO is selected, the output value will be output corresponding to the input value.

When MANUAL is selected, the unit can enter Manual mode. The output value set in Manual mode will be output.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Auto	MARS	AUTO	Manual MARS MANU
Manual		MANU	

Manual Mode Auto Return Time

Sets duration from manual mode until the unit automatically returns to the Default Display.

If set to 0 (zero), auto return will not occur.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0 to 60 minutes	MODE	Set value	30 minutes MODE 30

Save Settings

Selects whether the settings are saved (registered) or not.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Save	SAVE	YES	Save SAVE YES
Not save		NO	

6.6 Communication Setting Mode

Available only for the SGLL.

Instrument Number

Sets an instrument number.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
1 to 247	CMNO	Set value	1 CMNO 0001

Communication Speed

Selects the communication speed.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
9600 bps	CMSP	0096	38400 bps CMSP 0384
19200 bps		0192	
38400 bps		0384	

Data bit/Parity

Selects data bit and parity.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
8 bits/No parity	CMPE	8NON	8 bits/Odd CMPE 8odd
8 bits/Even		8EVN	
8 bits/Odd		8odd	

Stop Bit

Selects the stop bit.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
1 bit	CMSE	0001	1 bit CMSE 0001
2 bits		0002	

Response Delay Time

Response from the instrument can be delayed after receiving command from the host computer.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
0 to 1000 ms	CMDY	Set value	10 ms CMDY 0010

Save Settings

Selects whether the settings are saved (registered) or not

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Save	SAVE	YES	Save SAVE YES
Not save		NO	

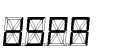
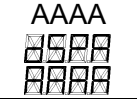
6.7 Custom Display Setting Mode

Customizes characters to be indicated on the Multi-Display A and B*.
Use alphanumeric characters and symbols.
(e.g.) FLOW, TEMP, No.1, No.2
* Number of characters which can be indicated differs depending on the display mode.
Refer to Section 'エラー! 参照元が見つかりません。' (pp.14, 15).
- If Custom display mode 1 is selected:
  Up to 8 characters can be displayed in total for both Multi-Display A and B.
- If any of Custom display mode 2 to 3 is selected:
  Up to 4 characters can be displayed on the Multi-Display B.

Can be set from the thousands digit of the display.
Digits can be selected with the MODE key.

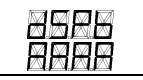
Multi-Display A

Characters for the Multi-Display A can be customized.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
A to Z, 0 to 9, /, –, . , (Blank)		Set value	AAAA 

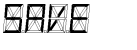
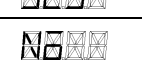
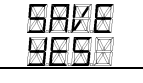
Multi-Display B

Characters for the Multi-Display B can be customized.

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
A to Z, 0 to 9, /, –, . , (Blank)		Set value	AAAA 

Save Settings

Selects whether the settings are saved (registered) or not

Setting Range	Indication		Factory Default
	Multi-Display A	Multi-Display B	
Save			Save 
Not save			

6.8 Manual Mode

If MANUAL is selected in [Auto/Manual] in Instrument setting mode, press the DOWN key on the Default Display for approx. 3 seconds. The unit will enter Manual mode.
At this time, Multi-Display A flashes the output value.
The output value can be set by the UP or DOWN key.
The output value will be lit while setting.
By pressing the MODE key in Manual mode, or after Manual mode auto return time has elapsed, the unit returns to the Default Display, and outputs the value corresponding to the input value.

7. Adjustment

Performs the output zero and span adjustments.
For this instrument, the output adjustment has already been completed when shipped.
If the instrument is used with the ordered Input/Output spec, the adjustment is not required.
However, for calibration, or for the fine adjustment of the SGL to which any equipment is connected, perform the adjustment.

Connect a voltage current generator to the input terminals of this instrument.
Connect a digital multimeter to the output terminals.

7.1 Basic Operation of Adjustment

For adjustment, use the following trimmers on the front panel.
Output Zero: Adjusts the value of Output Zero.
Output Span: Adjusts the value of Output Span.

7.2 Adjustment

Perform adjustment as follows.

7.2.1 Output Adjustment

The following outlines the procedure for Output adjustment.

① Enter the value corresponding to output 0%, and adjust the value using the 'Output Zero' trimmer while viewing the output value (on the digital multimeter).
② Enter the value corresponding to output 100%, and adjust the value using the 'Output Span' trimmer while viewing the output value (on the digital multimeter).
③ Enter the value corresponding to output 0% again, and confirm the output value (on the digital multimeter).
④ If the value corresponding to output 0% is not at 0%, repeat steps ① to ③ again.

8. Operation

8.1 Indication after Power-on

After the power is turned on, the instrument is switched to warm-up status for 3 seconds. Multi-Display A indicates a model name, and Multi-Display B indicates the input code and output code.

(e.g.) SGL-A01-0-0
Multi-Display A: SGL
Multi-Display B: A0

For the output, the output value corresponding to input 0% will be output.

8.2 Operation

After warm-up status, the unit enters display mode.
The input signal selected in [Input type] will be converted to the output selected in [Output type].

8.2.1 Input Indication Range

The input value is indicated within the following range:

[Input range low limit + Input span x 10%] to
[Input range high limit + Input span x 10%]

For a value lower than (and including) -2000, the minus (-) sign and the input value are indicated alternately. For a value higher than (and including) 10000, the lower 4 digits will flash. (The placement of the decimal point follows the selection.)
When exceeding the indication range, ---- will flash.
When dropping below the indication range, ---- will flash.

8.2.2 Output Indication Range

The output value is indicated within the following range:

[Indication value at output 0% – (Indication value at output 100% – Indication value at output 0%) ×10%] to
[Indication value at output 100% + (Indication value at output 100% – Indication value at output 0%) ×10%]

For a value lower than (and including) -2000, the minus (-) sign and the output value are indicated alternately. For a value higher than (and including) 10000, the lower 4 digits will flash. (The placement of the decimal point follows the selection.)

8.2.3 Input Disconnection Status

If input is disconnected, the input status will become as follows.

Input Range	Input Status
4 to 20 mA Built-in 50 Ω shunt resistor	Equals 0 mA input.
4 to 20 mA Externally mounted 250 Ω shunt resistor	Equals 0 mA input.
4 to 20 mA Externally mounted 50 Ω shunt resistor	Equals 0 mA input.
0 to 20 mA	Equals 0 mA input.
0 to 16 mA	Equals 0 mA input.
2 to 10 mA	Equals 0 mA input.
0 to 10 mA	Equals 0 mA input.
1 to 5 mA	Equals 0 mA input.
0 to 1 mA	Equals 0 mA input.
10 to 50 mA	Equals 0 mA input.
0 to 10 mV	Overscale *
0 to 50 mV	Overscale *
0 to 60 mV	Overscale *
0 to 100 mV	Overscale *
0 to 1 V	Overscale *
0 to 5 V	Equals 0 V input.
1 to 5 V	Equals 0 V input.
-5 to 5 V	Equals 0 V input.
0 to 10 V	Equals 0 V input.
-10 to 10 V	Equals 0 V input.

* For the overscale status, the Alarm indicator lights up, and ⊠⊠⊠⊠ flashes as an input value.

8.2.4 Indication Time Setting

After preset indication time has elapsed, Multi-Display A, Multi-Display B and each action indicator are turned OFF.

They will light up again if any key is pressed.

They remain lit during setting mode or in the event of an input error or input disconnection.

If the indication time is set to 00:00, they will remain lit.

8.2.5 Linearization Function

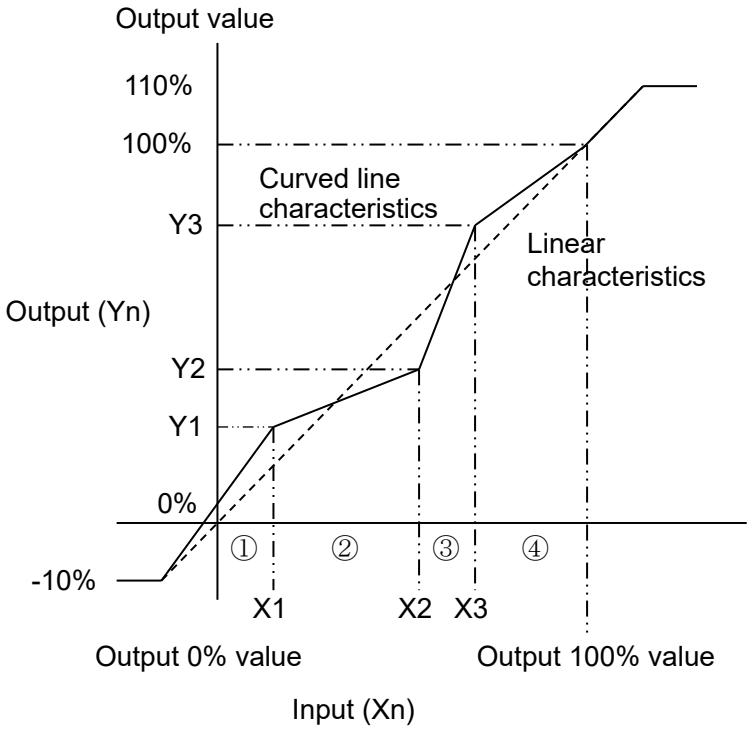
By setting up to 25 points of input and output, the ratio of input and output can be changed.

One point consists of one pair of input and output.

Plots points starting from the smallest input value (X1, Y1), (X2, Y2) … (Xn, Yn) in numerical order.

(n: Numbers from 1 to 25)

However, if Disabled is selected in [Linearization Enabled/Disabled], the linearization function will be disabled.



(1) If input is lower than X1

Outputs linearly between -10% and Y1.

(2) In the case of X1≦Input value < X2

Outputs linearly between Y1≦Output value<Y2.

(3) In the case of X2≦Input value<X3

Outputs linearly between Y2≦Output value<Y3.

(4) For other inputs which follow the above, outputs linearly under the same conditions as steps (2) and (3), depending on points.

Outputs linearly between the last Xn and 110%.

If Xn and Xn+1 are set to the same value under the above conditions, this is considered as no setting, and for settings after Xn+1, the linearization function will be invalidated.

If the same values exist from X1 to Xn, only the smallest “n” will be effective.

9. Specifications

Input Specifications

Direct current input

Input Range	Shunt Resistor	Indication Resolution
4 to 20 mA DC	50 Ω *	1
	250 Ω	1
	50 Ω	1
0 to 20 mA DC	250 Ω	1
0 to 16 mA DC	62.5 Ω	1
2 to 10 mA DC	250 Ω	1
0 to 10 mA DC	100 Ω	1
1 to 5 mA DC	100 Ω	1
0 to 1 mA DC	1000 Ω	1
10 to 50 mA DC	10 Ω	1

* Built-in shunt resistor

DC voltage input

Input Range	Shunt Resistor	Indication Resolution
0 to 10 mV	1 MΩ	1
0 to 50 mV		1
0 to 60 mV		1
0 to 100 mV		1
0 to 1 V		1
0 to 5 V		1
1 to 5 V		1
-5 to 5 V		1
0 to 10 V		1
-10 to 10 V		1

Output Specifications

Direct current

Output Range	Allowable Load Resistance	Zero Adjustment Range	Span Adjustment Range
4 to 20 mA	750 Ω max.	-5 to 5%	95 to 105%
0 to 20 mA *	750 Ω max.		
0 to 16 mA *	900 Ω max.		
2 to 10 mA	1500 Ω max.		
0 to 10 mA *	1500 Ω max.		

* 0 mA or less: Out of base accuracy

DC voltage

Output Range	Allowable Load Resistance	Zero Adjustment Range	Span Adjustment Range
0 to 10 mV *	10 kΩ min.	-5 to 5%	95 to 105%
0 to 100 mV *	100 kΩ min.		
0 to 1 V *	1000 Ω min.		
0 to 5 V *	5000 Ω min.		
1 to 5 V	5000 Ω min.		
0 to 10 V *	10 kΩ min.		
-5 to 5 V	10 kΩ min.		

* 0 V or less: Out of base accuracy

Performance

Base accuracy (at 25°C)	±0.1% of each input span
Temperature coefficient	±0.015 %/°C 0 to 10 mV output: ±0.02 %/°C
Response time	500 ms max. (0→90%)
Indication update cycle	125 ms
Indication accuracy	Base accuracy±1 digit
Insulation resistance	100 MΩ minimum, at 500 V DC
Dielectric strength	2.0 kV AC for 1 minute

General Structure

Dimensions	22.5 x 89 x 70 mm (W x H x D)
Weight	Approx. 77 g
Mounting method	DIN rail
Case	Flame-resistant resin, Color: Black
Front panel	Polycarbonate

Installation Specifications

Power supply	100 to 240 V AC 50/60 Hz 24 V AC/DC 50/60 Hz
Allowable voltage range	100 to 240 V AC: 85 to 264 V AC 24 V AC/DC: 20 to 28 V AC/DC
Power consumption	100 to 240 V AC: Approx. 9 VA max. (SGLL: Approx. 10 VA max.) 24 V AC: Approx. 6 VA max. 24 V DC: Approx. 3 W max.
Ambient temperature	-10 to 55°C (Non-condensing, no icing)
Ambient humidity	35 to 85 %RH (Non-condensing)

Serial Communication (for SGLL)

Operation from an external computer	Reading and setting of various set values Reading of the input value and action status Function change
Communication line	EIA RS-485
Communication method	Half-duplex communication
Communication speed	9600, 19200, 38400 bps (Selectable by keypad) (Factory default: 38400 bps)
Synchronization method	Start-stop synchronization
Communication protocol	Modbus RTU
Start bit	1 bit
Data bit	8 bits
Parity	Even/Odd/No parity (Selectable by keypad) (Factory default: Odd)
Stop bit	1 bit or 2 bits (Selectable by keypad) (Factory default: 1 bit)
Response delay time	Response from the instrument can be delayed after receiving command from the host computer. 0 to 1000 ms (Factory default: 10 ms)

Standard Function

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 occurs, the instrument is switched to warm-up status, turning all outputs OFF.

10. Troubleshooting

10.1 Indication

Problem	Possible Cause	Solution
Multi-Display A or B flashes RRRR or LLLL when it indicates an input value.	The sensor may be disconnected.	Replace with a new sensor.
	Check whether the sensor is securely mounted to the input terminals of this instrument.	Connect the sensor terminals to the instrument input terminals securely.
	Check the input signal source.	Ensure that the input signal source works normally.
Multi-Display A or B is irregular or unstable when it indicates an input value.	Check whether sensor input is correct.	Select the same sensor type as that of currently used sensor.
	Sensor correction value is unsuitable.	Set it to a suitable value.
	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.
Displays and indicators are unlit. If any key is pressed, they will light up.	The Indication Time (p.31) is set to any value other than 00 : 00. (Factory default is 30 : 00.)	To indicate continuously, set the Indication Time (p.31) to “00 : 00”.

10.2 Key Operation

Problem	Possible Cause	Solution
If the DISP key is pressed, Multi-Display A shows LOCK, and the display mode cannot be switched.	The DISP key is in locked status.	Press the DISP key for approx. 3 seconds to release the key lock.

10.3 Operation

Problem	Possible Cause	Solution
When Multi-Display A or B indicates an input value, the input value does not change.	The sensor may be out of order.	Replace with the new sensor.
	Check whether input and output wires are securely connected to the I/O terminals of the instrument.	Ensure that input and output wires are securely connected to the I/O terminals of the instrument.
	Check whether the wiring of input and output are correct.	Wire them correctly.
No output	Selections in [Output type (p.20)] may be incorrect.	Make a correct selection in [Output type (p.20)].

11. Character Table

Please use the following factory default values for your reference.

Display mode

Setting Item	Multi-Display A	Multi-Display B	Data
Default display mode	Follows currently indicated display mode.		
RUN display mode 1	Input value	Output value	
RUN display mode 2	Input value	Unlit	
RUN display mode 3	Unlit	Output value	
Custom display mode 1	AAAA	AAAA	
Custom display mode 2	Input value	AAAA	
Custom display mode 3	Output value	AAAA	
Unlit display mode	Unlit (Input indicator A lit)	Unlit	
All unlit display mode	Unlit	Unlit	
Model display mode	Model	Input, Output codes	

Setting mode

Setting Item	Multi-Display A	Multi-Display B	Data
Input setting mode	INPT	Unlit	
Output setting mode	OUTP	Unlit	
Linearization setting mode	LINR	Unlit	
Instrument setting mode	FNCT	Unlit	
Communication setting mode	COMM	Unlit	
Custom display setting mode	CUST	Unlit	

Input setting mode

Setting Item	Multi-Display A	Multi-Display B	Data
Input type	SENS	4-20A	
Input decimal point place	dP	0.00	
Output 0% value	SCLL	4.00	
Output 100% value	SCLH	20.00	
Indication unit	UNIT	NONE	
Save settings	SAVE	YES	

Output setting mode

Setting Item	Multi-Display A	Multi-Display B	Data
Output type	OTYP	4-20A	
Output decimal point place	dP	0.00	
Indication at output 0%	OSZP	4.00	
Indication at output 100%	OSSP	20.00	
Save settings	SAVE	YES	

Linearization setting mode

Setting Item	Multi-Display A	Multi-Display B	Data
Linearization Enabled/Disabled	LNRS	NONE	
Input X1	XP01	Output 0% value	

Setting Item	Multi-Display A	Multi-Display B	Data
Output Y1			
Input X2		Output 0% value	
Output Y2			
Input X3		Output 0% value	
Output Y3			
Input X4		Output 0% value	
Output Y4			
Input X5		Output 0% value	
Output Y5			
Input X6		Output 0% value	
Output Y6			
Input X7		Output 0% value	
Output Y7			
Input X8		Output 0% value	
Output Y8			
Input X9		Output 0% value	
Output Y9			
Input X10		Output 0% value	
Output Y10			
Input X11		Output 0% value	
Output Y11			
Input X12		Output 0% value	
Output Y12			
Input X13		Output 0% value	
Output Y13			
Input X14		Output 0% value	
Output Y14			
Input X15		Output 0% value	
Output Y15			
Input X16		Output 0% value	
Output Y16			
Input X17		Output 0% value	
Output Y17			
Input X18		Output 0% value	
Output Y18			
Input X19		Output 0% value	
Output Y19			
Input X20		Output 0% value	
Output Y20			
Input X21		Output 0% value	
Output Y21			
Input X22		Output 0% value	
Output Y22			
Input X23		Output 0% value	

Setting Item	Multi-Display A	Multi-Display B	Data
Output Y23	YP23	00.0	
Input X24	XP24	Output 0% value	
Output Y24	YP24	00.0	
Input X25	XP25	Output 0% value	
Output Y25	YP25	00.0	
Save settings	SAVE	YES	

Instrument setting mode

Setting Item	Multi-Display A	Multi-Display B	Data
Filter time constant	FILE	00.0	
Sensor correction	SOFS	0000	
Indication time	LIME	3000	
Auto/Manual	MARS	MANU	
Manual mode auto return time	MOFF	030	
Save settings	SAVE	YES	

Communication setting mode (for SGLL)

Setting Item	Multi-Display A	Multi-Display B	Data
Instrument number	CMNO	0001	
Communication speed	CMSP	9384	
Data bit/Parity	CMPE	8odd	
Stop bit	CMSE	0001	
Response delay time	CMdY	0010	
Save settings	SAVE	YES	

Custom display setting mode

Setting Item	Multi-Display A	Multi-Display B	Data
Multi-Display A	dSPA	AAAA	
Multi-Display B	dSPb	AAAA	
Save settings	SAVE	YES	

***** Inquiries *****

For any inquiries about this unit, please contact our agency or the vendor where you purchased the unit after checking the following.

[Example]

- Model ---------- SGL-A01-0-0
- Serial number ---------- 154F05000

In addition to the above, please let us know the details of the malfunction, or discrepancy, and the operating conditions.

SHINKO TECHNOS CO., LTD.

OVERSEAS DIVISION

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No.SGL11E5 2023.04