

SC5801 TYPE
DIGITAL CONDUCTIVITY
ANALYZER

SC5802 TYPE
DIGITAL RESISTIVITY
ANALYZER

INSTRUCTION MANUAL

HXPSC5801A02E

HXPSC5802A02E

Thank you for purchasing the model SC5800 digital conductivity
(resistivity) analyzer.

Before using your SC5800 digital analyzer, read this manual so
you can use the analyzer correctly and take full advantage of its
outstanding features.

HXPSC5801A02E / HXPSC5802A02E	PAGE	REV.	DATE	DR.	CHK.	APPD.	DESCRIPTION	CIB.No.
	52	1	01.2.10	Yuki	--	Ogawa		

BE SURE TO OBSERVE THE FOLLOWING WARNINGS
AND THOSE IN THE TEXT IN ORDER TO SECURE
SAFETY IN HANDLING THE INSTRUMENT.



WARNINGS

General

When tampering with wiring or inside the instrument (including removal of a main unit), be sure to disconnect this instrument from the main power source in order to prevent an electric shock.

Protective Grounding

- 1) In order to prevent an electric shock, be sure to provide protective grounding prior to turning on the instrument.
- 2) Do not cut a protective grounding conductor or disconnect protective grounding.

Power Source

- 1) Make sure that the supply voltage for this instrument conforms to the voltage of the supply source.
- 2) Attach a protective cover prior to turning on this instrument.

Working Environment

Do not operate this instrument in the environment where it is exposed to a combustible / explosive / corrosive gas or water / steam.

Input and Output Wiring

Provide input and output wiring after turning off the power.



CAUTIONS

Input and Output Wiring

Do not use empty terminals of the connector for other purposes such as relaying, etc.

Inside of Instrument

Do not touch the switches, etc. inside the instrument. Also, do not replace the main unit or printed circuit boards. When this is neglected, we cannot guarantee functioning of the instrument. Be sure to contact our dealer where you purchased this instrument, or our sales representative.

Transportation

When transporting this instrument or the equipment incorporated, take proper preventive measures so that the door will not be opened, and that the main unit will and that the inner module will be not flied out (Tightening of transportation screws, and so on).

HXPCS5801A02E	3 PAGE	OF	REV.	DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG.No.
			1	10.2.10	Yoshi				

⚠ [CAUTIONS]

Instruction Manual

- 1) Ensure that this instruction manual is delivered to an end user.
- 2) Prior to handling this instrument, be sure to read this manual.
- 3) If you have any questions on this manual or find any errors or omissions in this manual, contact our sales representative.
- 4) After reading this manual, keep it carefully by the instrument.
- 5) When the manual is lost or stained, contact our sales representative.
- 6) When the manual is incorrectly collated or have missing pages, contact our dealer where you purchased this instrument, or our sales representative.

Installation

- 1) When installing this instrument, put on a protective gear such as safety shoes, helmet, etc. for your safety.
- 2) Do not put your foot on the installed instrument or get on it, because it is dangerous.

Maintenance

Only our servicemen or persons authorized by OHKURA are allowed to remove and disassemble the main unit and printed circuit boards.

Disposal

Do not incinerate plastics of maintenance parts and replacement parts.
A harmful gas may be produced.

Cleaning

- 1) Use dry cloth to clean the surface of this instrument.
- 2) Do not use any organic solvent.
- 3) When cleaning the instrument, turn off the power.

Revisions

This instruction manual is subject to change without prior notice.

Evasion of Responsibility and Guarantee

Be sure to observe the cautions in operating, maintaining, and repairing this instrument. We will not be responsible for or guarantee the damages resulting from negligence of them.

How to Read Instruction Manual

- ⚠ **WARNING** : Negligence of this notification could endanger the life of an operator or result in an injury. Be sure to read.
- ⚠ **CAUTION** : Negligence of this notification could damage this instrument. Be sure to read.
- [Note] : Notification required to use this instrument safely and properly.
- [Reference] : Tips for using this instrument.

[Note]

It is prohibited to copy or reproduce this manual without our permission.

CONTENTS

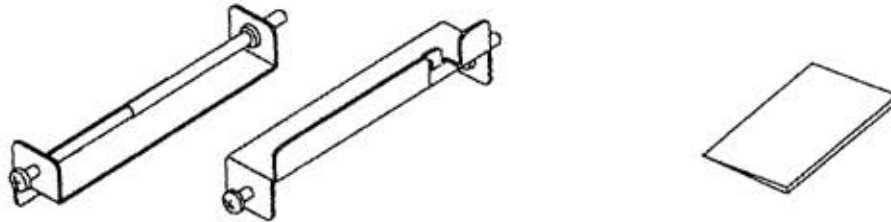
1. UPON RECEIVING THE PRODUCT	4
1-1 Checking the enclosed accessories	4
1-2 Checking the product specifications	5
2. INSTALLATION	6
3. WIRING	7
3-1 Terminal Connection	7
3-2 Connection with the Conductivity Cell	8
3-3 System Constitution	10
4. NAMES AND FUNCTIONS OF EACH PARTS OF THE DISPLAY AND KEYS	11
5. FUNCTIONS OF THE DISPLAY	12
5-1 Mode	12
5-2 Operation Mode	13
5-3 Parameter Mode	17
5-4 Setup Mode	23
5-5 Temperature Compensation	27
6. BEFORE STARTING MEASUREMENT (BASIC SETTING)	28
6-1 Basic Setting Items	28
6-2 CH 1 Setting	29
6-3 CH 2 Setting	30
6-4 Alarm Setting	31
6-5 Error Selection	33
6-6 Range Codes	35
7. CALIBRATION	38
7-1 Display of the Calibration mode	38
7-2 CH 1 Calibration	39
7-3 CH 2 Calibration	45
7-4 Analog Output Calibration	46
7-5 Calibration Data Check	47
8. TROUBLESHOOTING	48
9. SPECIFICATIONS	50

REV.	DATE	DR.	CHK.	APPD.	DESCRIPTION	CHG.No.
1	02.10	Daki	-	Ogawa		
4 PAGE OF						
HXPS5801A02E						

1. UPON RECEIVING THE PRODUCT

1-1 Checking the enclosed accessories

In addition to the SC5800 digital analyzer, the following accessories should be contained in the package. Check if any part is missing or damaged.



Panel mounting bracket (2 pcs)

Instruction manual (this manual)

Fig. 1.1 Accessories

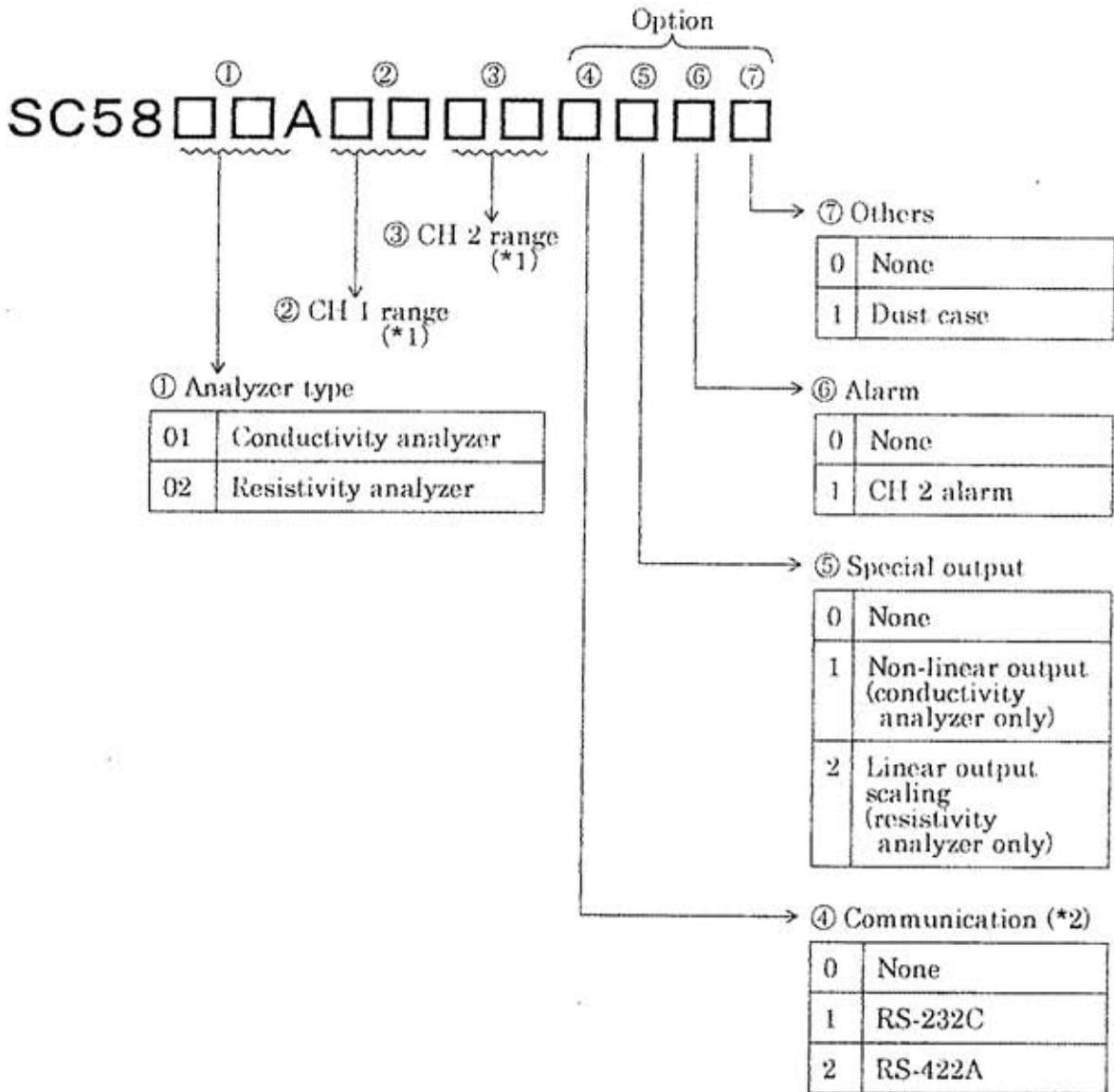
[Note]

The SC5800 digital analyzer has no power ON/OFF switch. Therefore, always turn off the power to the analyzer before exposing the inside circuitry.

HXPSC5801A02E	5 PAGE	REV.	DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG.No.
		1	10.2.15	Shahi	-	Opave		

1-2 Checking the product specifications

Confirm that the model code (MODEL) indicated on the nameplate on the top of the case matches the specifications of your order.



(*1) For the CH 1 and CH 2 range codes, see Section 6.6.

(*2) The following optional modules are necessary for communication:

Communication specifications	Optional module model	Communication cable
RS-232C	ZE7101A0107	HMSU2255B02
RS-422A	ZE7101A0207	HMSU2691B01

HXPSC5801A02E
 02
 6 PAGE
 OF
 1
 W.C.10
 Maki
 DR.
 CHK.
 APP'D.
 Ogasawara
 DESCRIPTION
 CHG.No.

2. INSTALLATION

Prepare the panel shown in Fig. 2.1 and mount the SC5800 digital analyzer on the panel with the panel mounting brackets. Fig. 2.2 shows the external dimensions of the SC5800 digital analyzer.

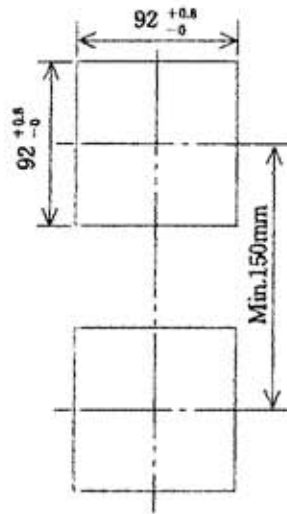


Fig. 2.1 Panel cutout dimensions

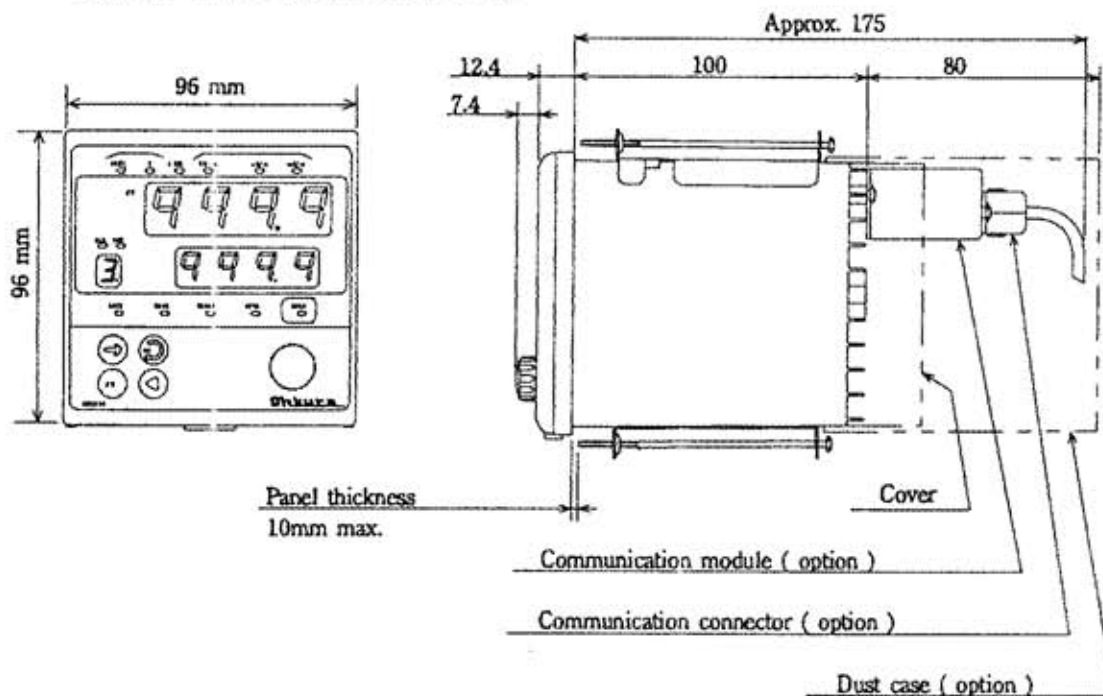


Fig. 2.2 External dimensions

⚠ WARNING

- The case is made of plastic. Be careful not to over tighten a fitting.
- Avoid installing the SC5800 digital analyzer in locations exposed to:
 - * Corrosive gas
 - * Excessive dust
 - * Source of strong high-frequency electromagnetic wave
 - * Strong vibration and impact
 - * High heat

3. WIRING

3-1 Terminal Connection

Wire the cables, as shown in Fig.3.1, Terminal configuration diagram. For how to connect the cable with the cells, see the next page.

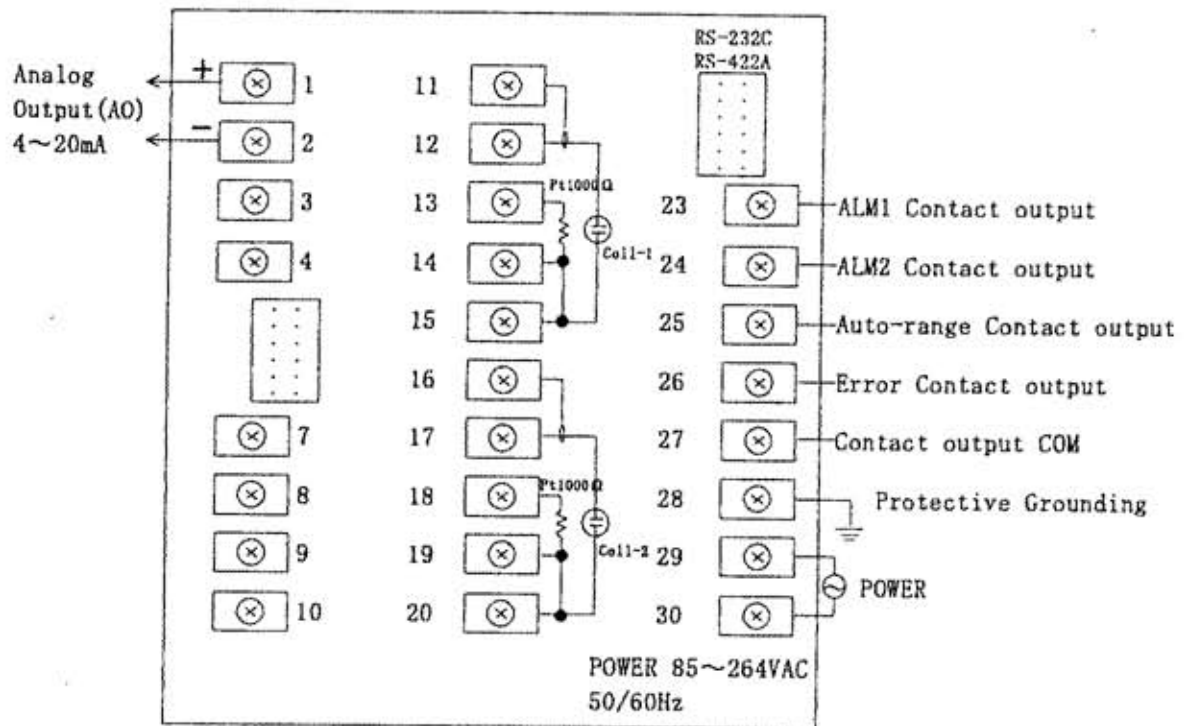


Fig. 3.1 Terminal configuration diagram

⚠ WARNING

- To connect the conductivity cell to the SC5800 digital analyzer, use a cable dedicated for that purpose.
The maximum cable length is 100 m. (OHKURA Model WPSN040A000001A)
- If you plan to use an already existing cable, contact your OHKURA salesperson.
- Use a shielded wire for a signal line (AO, communication, etc.) and keep it as away as possible from electric power lines.
- Use press-fitting terminals having a width of 3.5 mm.
- Do not power on the analyzer until wiring is completed.
- Do not use an unconnected terminal as other purpose.

HXPSC5801A02E
PAGE 8
REV. DATE 10.2.10
CHK. APPD. *Ogawa*

3-2 Connection with the Conductivity Cell

CAUTION

To connect the conductivity cell, use a shielded cable.
 The line resistance of the extension cable may cause a measurement error.
 See Section 5.3.3, Cable length compensation.

(1) When using a dedicated cable

Connect the SC5800 digital analyzer with the conductivity cells as shown in Figure 4.

[Note]

The cells that can be connected with the SC5800 digital analyzer are CI10□5□□ and CI355□□. WPSN040A000001A (4-cores shielded cable) is provided as an extension cable dedicated for this connection.

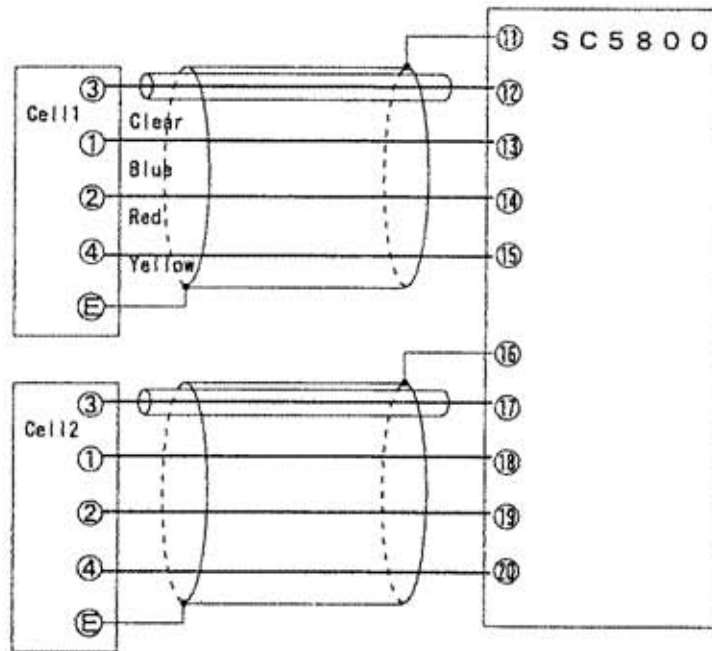


Fig. 3.2 Connection with the conductivity cells
 (when using WPSN040A000001A)

REV.	1	DATE	00.2.10	CHK.	---	APPD.	Ogawa	DESCRIPTION	CHG.No.
	1		00.2.10		---		Ogawa		
9 PAGE	OF								
HXPSC5801A02E									

(2) When using an already existing cable

The OHKURA cables, IPS0245A1500 (3-cores shielded cable) and HPSN014A0001 (5-cores shielded cable), can be used. However, in this case, additional work such as replacing the packing must be performed. For details, refer to the instruction manual for the conductivity cells.

When using an IPS0245A1500 cable, connect it as shown in Fig. 3.3. Connect a jumper between terminals 14 and 15, and 19 and 20, of SC5800.

To use an HPSN014A0001 cable, cut off the unnecessary wire to prevent a possible short-circuit.

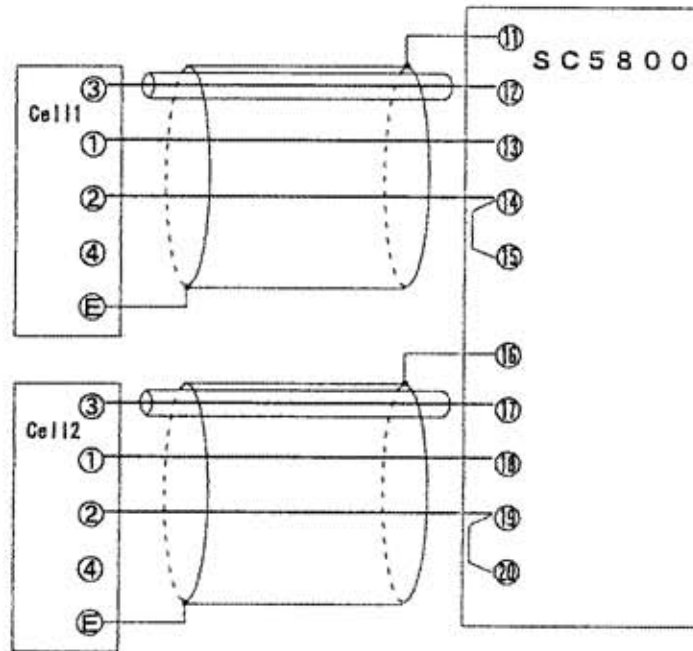


Fig. 3.3 Connection with the conductivity cells (when using IPS0245A1500)

HXPSC5801A02E		10	OF
1	100.2.10	Nishi	
CRG.	APFD.	GR.	GR.
—	Open	—	—
DESIGNER'S SIGNATURE			
CIRCUIT			
DATE			
DRAWN			
CHECKED			
APPROVED			

3-3 System Constitution

CAUTION
 The cells that can be connected are CI10□5□□ and CI355□□.
 For details about CI cells, refer to the spec sheet and instruction manual for CI cells.

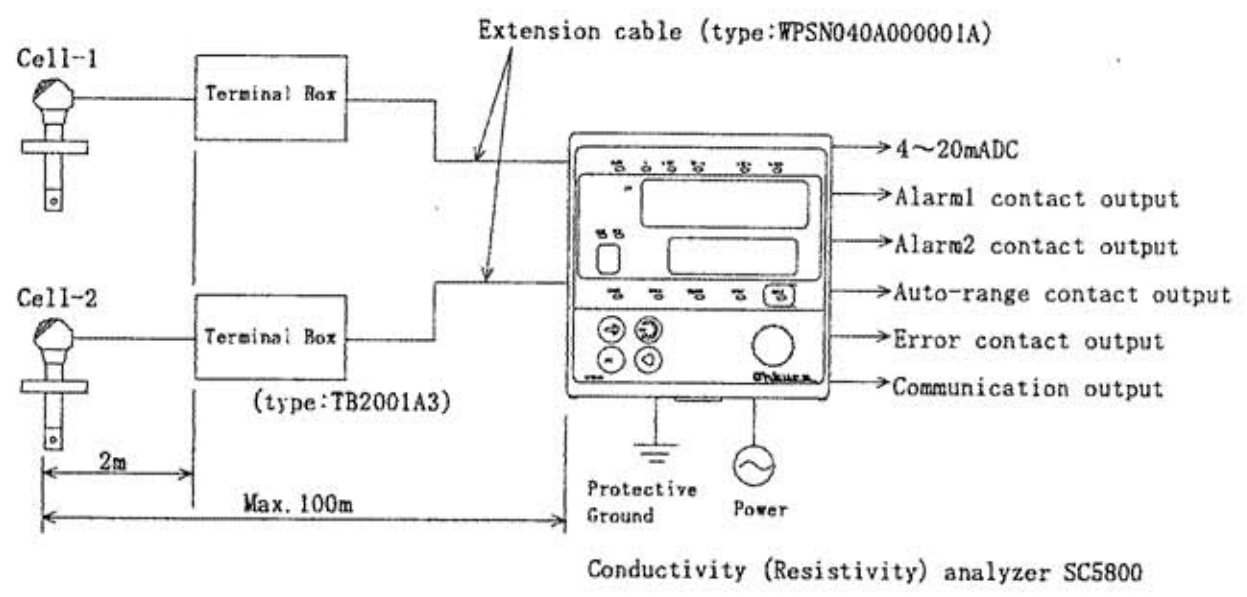


Fig. 3.4 System Constitution

HXPSC5801A02E	// PAGE	REV.	DATE	DR.	CHK.	APPT'D.	DESCRIPTION	CHG.No.
		1	10.2.10	Nishi	--	Osawa		
02A02E	OF							

4. NAMES AND FUNCTIONS OF EACH PARTS OF THE DISPLAY AND KEYS

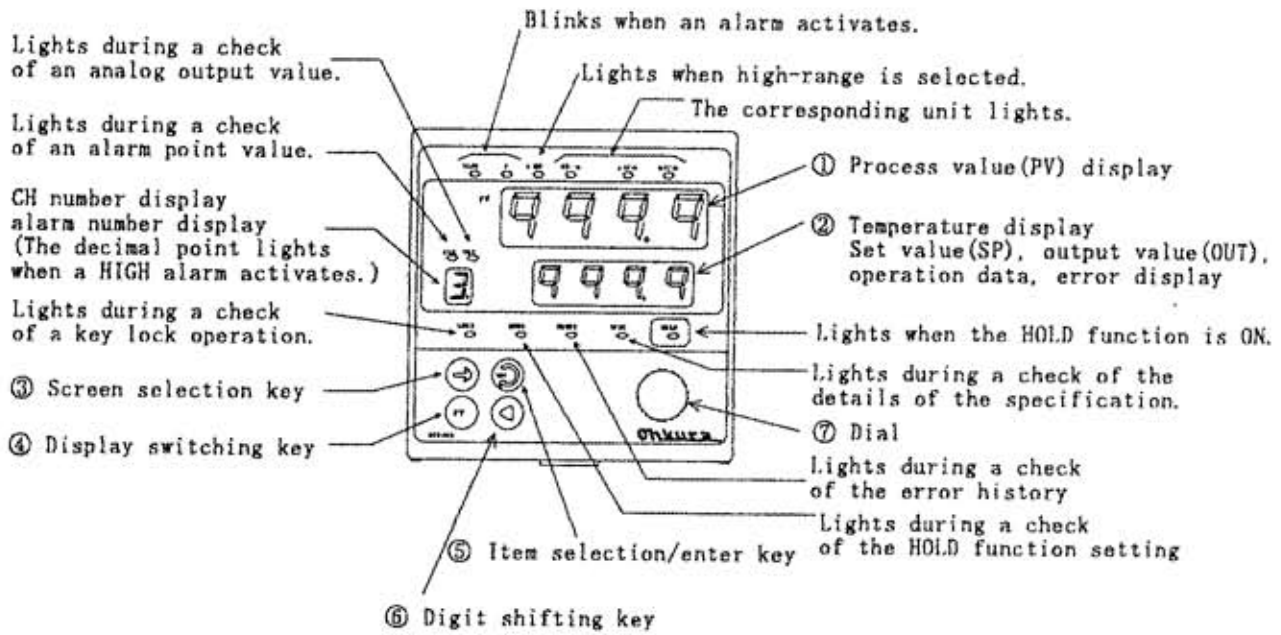


Fig. 4.1 Names and functions of each parts of the display and keys

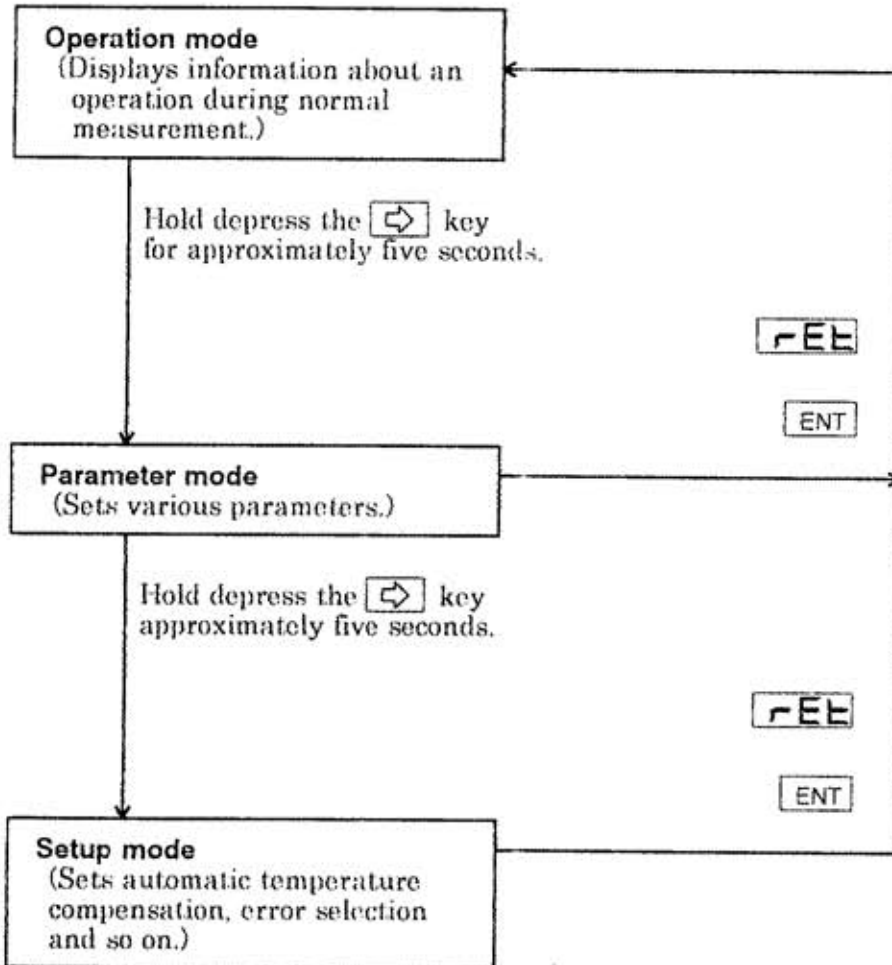
No.	Name	Function
①	Process value (PV) display	Displays a process value in the operation mode. Displays each item in the parameter mode or setup mode.
②	Temperature display Set value (SP), output value (OUT), operation data, error display	Normally, it displays the temperature. However, it may also display a set value (SP), an output value (OUT), operation data, an error and other information according to the key operation.
③	Screen selection key	Selects the screen to be displayed.
④	Display switching key	Switches the displayed measured value (PV) between CH 1 ↔ CH 2 each time the [PV] key is pressed.
⑤	Item selection/enter key	Selects various items for setting. Confirms all changes made since the last entry.
⑥	Digit shifting key	Allows the previous setting to be changed. Selects the digit where a value is input.
⑦	Dial for setting values and items	A set value is selected with this dial.

HXPSC5801A02E 12 PAGE OF
 REV. DATE DR. CHK. APP'D. CHONO. DESCRIPTION
 1 10.2.10 Jaki - Javan

5. FUNCTIONS OF THE DISPLAY

5-1 Mode

The display consists of the following three modes:



100817-02
12.2.10

CRGNo.

DESCRIPTION

APPTD.

CHK.

DR.

DATE

REV.

1

10.2.10

Stabil

Open

OF

13

PAGE

01

02

A02E

HXPSC58

02

01

02

A02E

HXPSC58

02

01

02

A02E

HXPSC58

02

01

02

A02E

HXPSC58

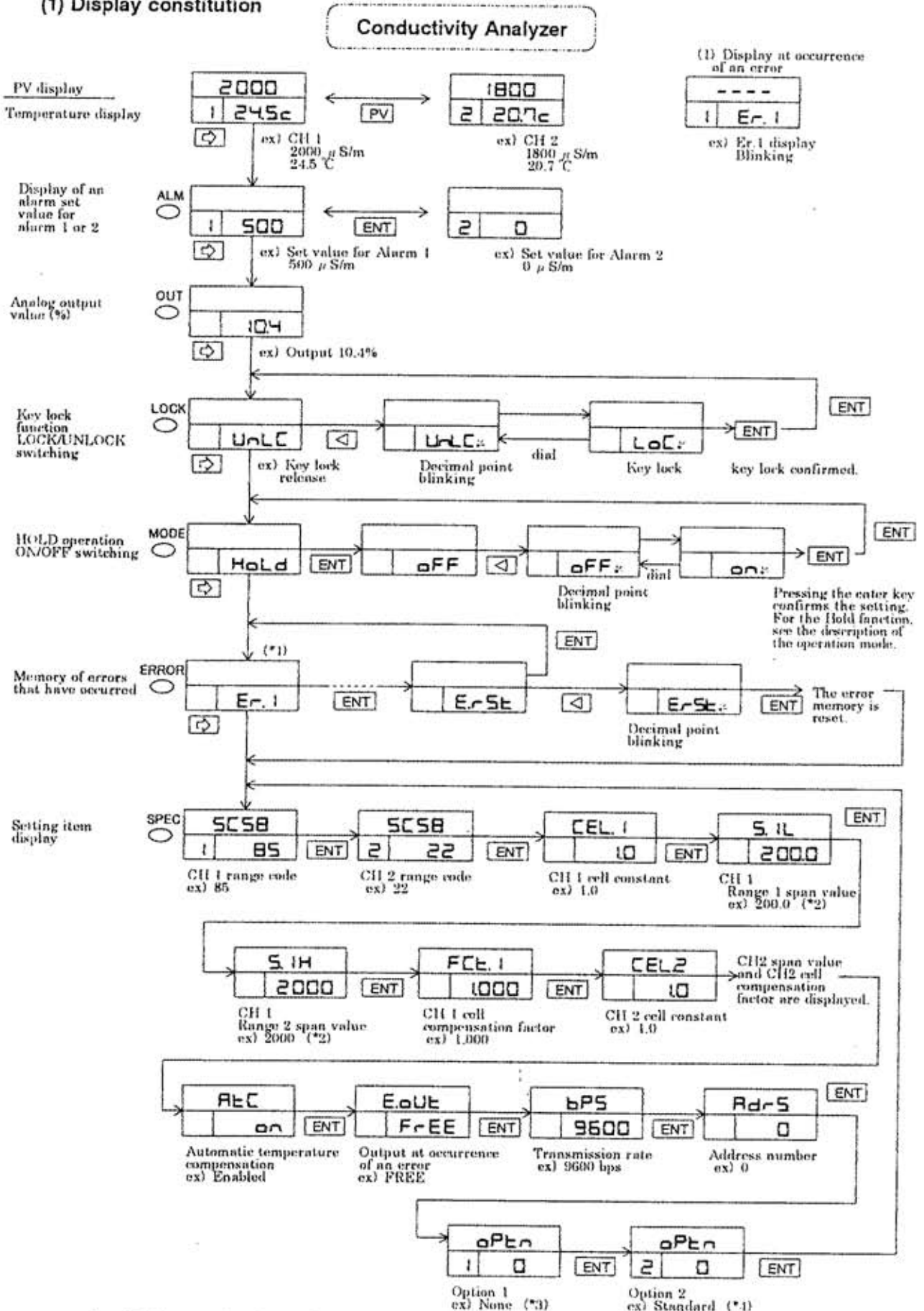
02

01

02

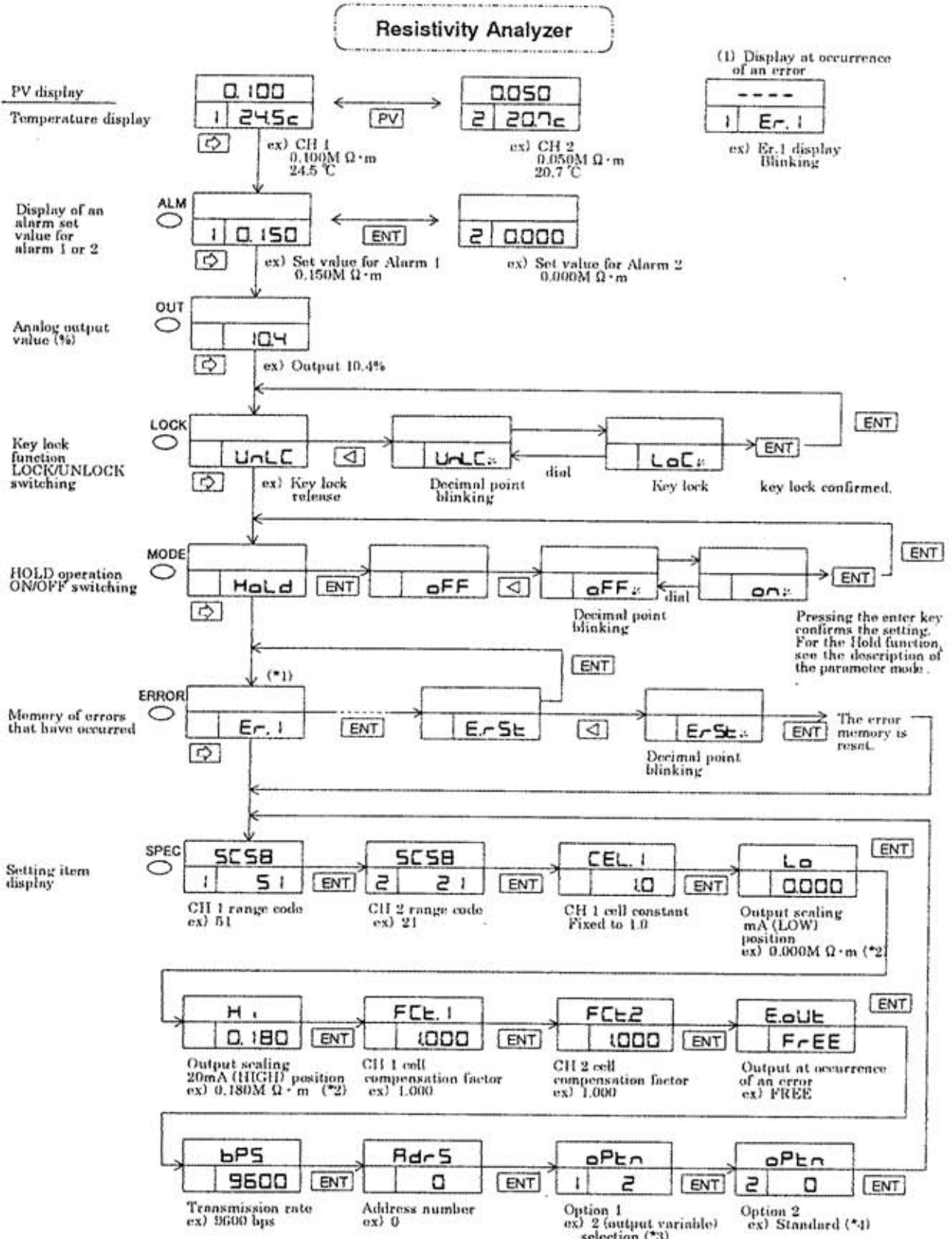
5-2 Operation Mode

(1) Display constitution



*1: Nothing is displayed if no errors have occurred.
 *2: For a fixed range, SPn. 1 is displayed.
 *3: Information about the specifications of format code option ⑤ is displayed.
 *4: Information about the specifications of format code option ⑥ is displayed.

HXPSC5801A02E 02 OF 14 PAGE 1002.10
 REV. DATE D.R. CHK. APP'D. 1002.10
 DESCRIPTION CHG.No.




- *1: Nothing is displayed if no errors have occurred.
- *2: This is displayed only when the output scaling function (option) is selected.
- *3: Information about the specifications of format code option ⑤ is displayed.
- *4: Information about the specifications of format code option ⑥ is displayed.

HXPSC5801A02E OF 15 PAGE
 REV. DATE DR. CHK. APPD.
 1 00.2.10 Jshiki
 CHG.No. DESCRIPTION

(2) Display functions (conductivity analyzer and resistivity analyzer.)

[Note]

- [C]: Displayed only for conductivity analyzer.
 [R]: Displayed only for resistivity analyzer.

No.	Function	Display example	Explanation
①	Display at error occurrence	Err. 2.1	When an error has occurred, the error display (lower LED display), contact closes at error occurrence and analog output are performed according to the values set in the setup mode. However, if the error is corrected, these actions are automatically reset to the normal actions.
②	Alarm (ALM)	The ALM 1 and ALM 2 lamps blink.	<p>An alarm is issued according to the following values set in the parameter mode:</p> <ul style="list-style-type: none"> • Alarm type (H, L) • Set value • Hysteresis width • ON delay time <p>The alarms are issued as follows:</p> <ul style="list-style-type: none"> • ALM 1 and ALM 2 lamps blink. • Alarm contact closes ON.
③	Key lock function (LOCK)	LOC	No change can be made to various settings. Pressing the  key displays Err. The settings can be checked.
④	HOLD function (HOLD)	HOLD on	<p>If the HOLD function is turned ON, the outputs are held according to the setting made in the parameter mode and the HOLD lamp lights.</p> <p>Output {</p> <ul style="list-style-type: none"> Analog output Alarm contacts and lamp blinks Error contact <p>The PV display value is not held.</p>
⑤	Error memory (ERROR)	Err. 1 St	An error occurrence memory can be checked by selecting the error group. Selecting error reset erases the memory.
⑥	Display of set items (SPEC)	SCSB	The CH 1 range code is displayed.
		RSRSB	The CH 2 range code is displayed.
		CEL. 1	The CH 1 cell constant is displayed.

HXPSC5801A02E 16 PAGE OF
 REV. DATE 002.10 1/01
 DR. 1/01
 CHK. 1/01
 APPD. 1/01
 DESCRIPTION
 CRG.No.


[Note]

- C: Displayed only for conductivity analyzer.
 R: Displayed only for resistivity analyzer.

No.	Function	Display example	Explanation				
⑥	Display of set items (SPEC)	S IL <input type="checkbox"/> C	△ This is displayed when the 2-range automatic switching function of the conductivity analyzer is selected. The span value of CH 1 range 1 is displayed.				
		S IH <input type="checkbox"/> C	△ This is displayed when the 2-range automatic by select function of the conductivity analyzer is selected. The span value of CH 1 range 2 is displayed.				
		SPn 1 <input type="checkbox"/> C	△ This is displayed when the CH 1 fixed range is selected. The CH 1 span value is displayed.				
		Lo <input type="checkbox"/> R	△ This is displayed when the output scaling (option) function is selected. The value set for the output scaling at the 4-mA (LOW) position is displayed.				
		H . <input type="checkbox"/> R	△ This is displayed when the output scaling function (option) is selected. The value set for the output scaling at the 20-mA (HIGH) position is displayed.				
		FCE 1	The compensation factor of the CH 1 cell set in the parameter mode is displayed.				
		<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>1</td></tr> <tr><td>2</td></tr> <tr><td>3</td></tr> <tr><td>4</td></tr> </table> <input type="checkbox"/> C	1	2	3	4	The cell constant, span value and cell compensation factor of CH 2 are displayed. They are not displayed if CH 2 is not used.
		1					
		2					
		3					
		4					
		AEC <input type="checkbox"/> C	The status of the automatic temperature compensation function selected in the setup mode is displayed.				
EoUt	The analog output value at occurrence of an error, which is set in the parameter mode, is displayed.						
bPS	The transmission rate set in the parameter mode is displayed.						
Adr S	The address set in the parameter mode is displayed.						
<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>0</td></tr> <tr><td>1</td></tr> <tr><td>2</td></tr> </table> <input type="checkbox"/> C	0	1	2	The selection of option 1 (special output specifications) is displayed. <input type="checkbox"/> 0: None <input type="checkbox"/> 1: Non-linear output. <input type="checkbox"/> 2: Linear output scaling			
0							
1							
2							
<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>0</td></tr> <tr><td>1</td></tr> <tr><td>2</td></tr> </table> <input type="checkbox"/> C	0	1	2	The selection of option 2 (alarm special specifications) is displayed. <input type="checkbox"/> 0: Standard <input type="checkbox"/> 1: CH 2 Alarm			
0							
1							
2							

5-3 Parameter Mode

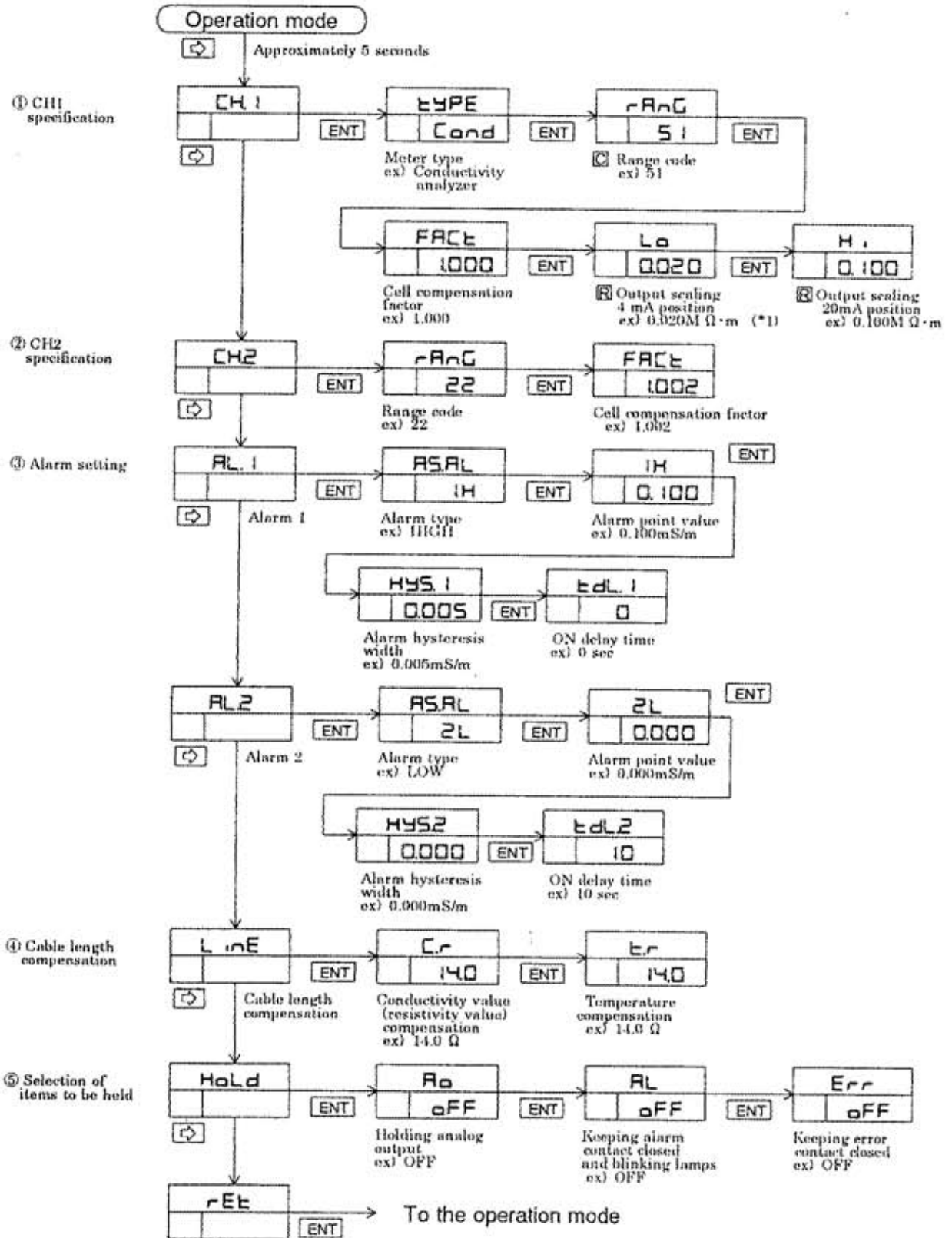
(1) Display constitution

Hold depress the  key for approximately five seconds in the operation mode, then the mode is changed to the parameter mode.

[Note]

C: Displayed only for conductivity analyzer.

R: Displayed only for resistivity analyzer.



*1: Output scaling is an option of the resistivity analyzer.

REV.	DATE	DR.	CHK.	APPD.	DESCRIPTION	CRG.No.
1	100.2.10	Nishii	-	grain		
18 PAGE	HXPSC5801A02E					

[Method for changing the setting]

Pressing the \triangleleft key places the analyzer in the change enabled status and causes the displayed decimal point or number to blink. Use the \triangleleft key to shift the digit to be changed (This is unnecessary for the ON/OFF setting). Use the dial to change the setting. Use the **ENT** key to confirm the setting.

(2) Display functions**[Note]**

C: Displayed only for conductivity analyzer.
R: Displayed only for resistivity analyzer.

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
①	CH 1 specifications	CH 1	Sets the CH 1 specifications.		
	Analyzer type	TYPE	Displays the type of analyzer. (It cannot be changed.)	Cond: Conductivity analyzer RES: Resistivity analyzer	This has already been set in accordance with the order specifications.
	Range code	RANG	Sets the range code of the measurement range.	51 ~ 96	This is set according to the order specifications. If not specified, it is set to 1.
	Cell compensation factor	FACT	Sets the compensation factor of a cell.	Indicated on the side of each cell. 0.950 ~ 1.050	1.000
	Output scaling 4-mA position R	Lo	Sets the output scaling value for the 4-mA (LOW) position. \triangle Output scaling is an optional function.	0.000 ~ (Value set for the 20-mA position -0.050)	0.000
	Output scaling 20-mA position R	Hi	Sets the output scaling value for the 20-mA (HIGH) position. \triangle Output scaling is an optional function.	(Value set for the 4-mA position +0.050 ~ 0.200)	0.200

CRG.No.

DESCRIPTION

CHK. APP'D.

CHK.

DR.

REV. DATE

1

OF

19

PAGE

01

02

A02E

HXPSC58

[Note]
 C: Displayed only for conductivity analyzer.
 R: Displayed only for resistivity analyzer.

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
②	CH 2 specifications	CH2	Sets the CH 2 specifications.		
	Range code	rRnG	Sets the range code of the measurement range.		This is set according to the order specifications. If not specified, it is set to 0.
	Cell compensation factor	FACt	Sets the compensation factor of a cell.	Indicated on the side of each cell.	1.000
③	Alarm setting	AL 1 AL 2	Sets the items related to the action of alarms 1 and 2. △ The alarm corresponds only to CH 1.		
	Alarm type	ASAL H L	Selects the alarm type. H: Alarm activates if the PV exceeds the set value. L: Alarm activates if the PV is equal to or less than the set value.		Alarm 1 : H Alarm 2 : L
	Set value for alarm	H. L. RH. RL	Sets the value at which the alarm activates.	C: 0 to span value of the selected range (span value of range 1 when two ranges are used.) R: 0.000 ~ 0.200	C { H: Span value of range 1 L: Value 0 R H: 0.200 L: 0.000

HXPSC5801A02E 20 PAGE OF
 REV. DATE 00.2.10
 CHK. APPTD. *Qyama*
 DESCRIPTION
 CHG.No.

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
③	Hysteresis width	HYS. 1 HYS2	Sets the hysteresis width of an alarm.	<input type="checkbox"/> : 0 to span value of the selected range (span value of range 1 when two ranges are used.) <input type="checkbox"/> : 0.000 ~ 0.200	Alarms 1 and 2 : Value 0 for the selected range.
	ON delay time	EdL. 1 EdL2	Set the ON delay time (action delay time) of an alarm.	0 ~ 600 sec	Alarms 1 and 2 0 sec
④	Cable length compensation	L nE	In some selected ranges, the line resistance of an extension cable may cause a measurement error. Enter the resistance corresponding to the cable length. (For details, see Section 5-3 (3).)		
	Line resistance (for conductivity or resistivity compensation)	Cr	Enter the resistance that compensates for the cable length in the conductivity (resistivity) measurement. (Enter 0 Ω if no compensation is necessary.)	0.0 ~ 50.0 (unit: Ω)	0.0 Ω
	Line resistance (for temperature compensation)	Er	Enter the resistance that compensates for the cable length in the temperature measurement when a 3-cores shielded cable is used. The input value should be the same resistance as for Cr. (Enter 0 Ω if no compensation is necessary.)	0.0 ~ 50.0 (unit: Ω)	0.0 Ω

REV. DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG. NO.
1	00.2.10	Staki	—	Cr	
PAGE 21 OF					
HXPSC5801A02E					

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
⑤	Selection of items to be held	HoLd	Selects the items to be held if the HOLD function is set to ON in the operation mode.		
	Holding of analog output	Ro	(Action performed when the HOLD function is ON) The analog output is held at the value it had immediately before the HOLD function was set to ON.	oN : The action described at left are performed when the HOLD function is ON.	oN
	Holding of alarm contact and lamp lighting	AL	(Action performed when the HOLD function is ON) The alarm contact and lamps are held at the statuses they had immediately before the HOLD function was set to ON.	oFF : The action described at left are not performed even when the HOLD function is ON.	oFF
	Holding of error contact	Err	(Action performed when the HOLD function is ON) The error output contact is held at the status it had immediately before the HOLD function was set to ON.		oFF

HXPSC5801A02E 22 PAGE 22 OF
 REV. DATE 1 00.2.10
 DR. Lohli
 CHK. APP'D. *gawa*
 DESCRIPTION
 CRG.No.
 子機動作モード

(3) Cable length Display configuration

In some selected ranges, the line resistance of an extension cable may cause an error.

The equivalent input resistance is from 500 Ω to infinite for range codes 58, 70, 81 and 92. For example, if you use a 50-m length of dedicated cable (WPSN040A000001A), 7.5 Ω must be added to the measured value as the line resistance (table below).

The SC5800 digital analyzer displays and outputs this resistance as the input value which causes an error. In this example, the resistance can be compensated for by entering 7.5 Ω to **Cr** in **Line** as the line resistance.


It is best to actually measure the resistance of the cable being used, and enter the measured value. The table below lists typical resistances at various cable lengths.


Cable type	Cable length [m]									
	10	20	30	40	50	60	70	80	90	100
WPSN040A000001A	1.5 Ω	3.0 Ω	4.5 Ω	6.0 Ω	7.5 Ω	9.0 Ω	10.5 Ω	12.0 Ω	13.5 Ω	15.0 Ω
IPS0245A1500	1.0 Ω	2.0 Ω	3.0 Ω	4.0 Ω	5.0 Ω	6.0 Ω	7.0 Ω	8.0 Ω	9.0 Ω	10.0 Ω
HPSN014A0001	0.9 Ω	1.8 Ω	2.7 Ω	3.5 Ω	4.4 Ω	5.3 Ω	6.2 Ω	7.1 Ω	8.0 Ω	8.9 Ω

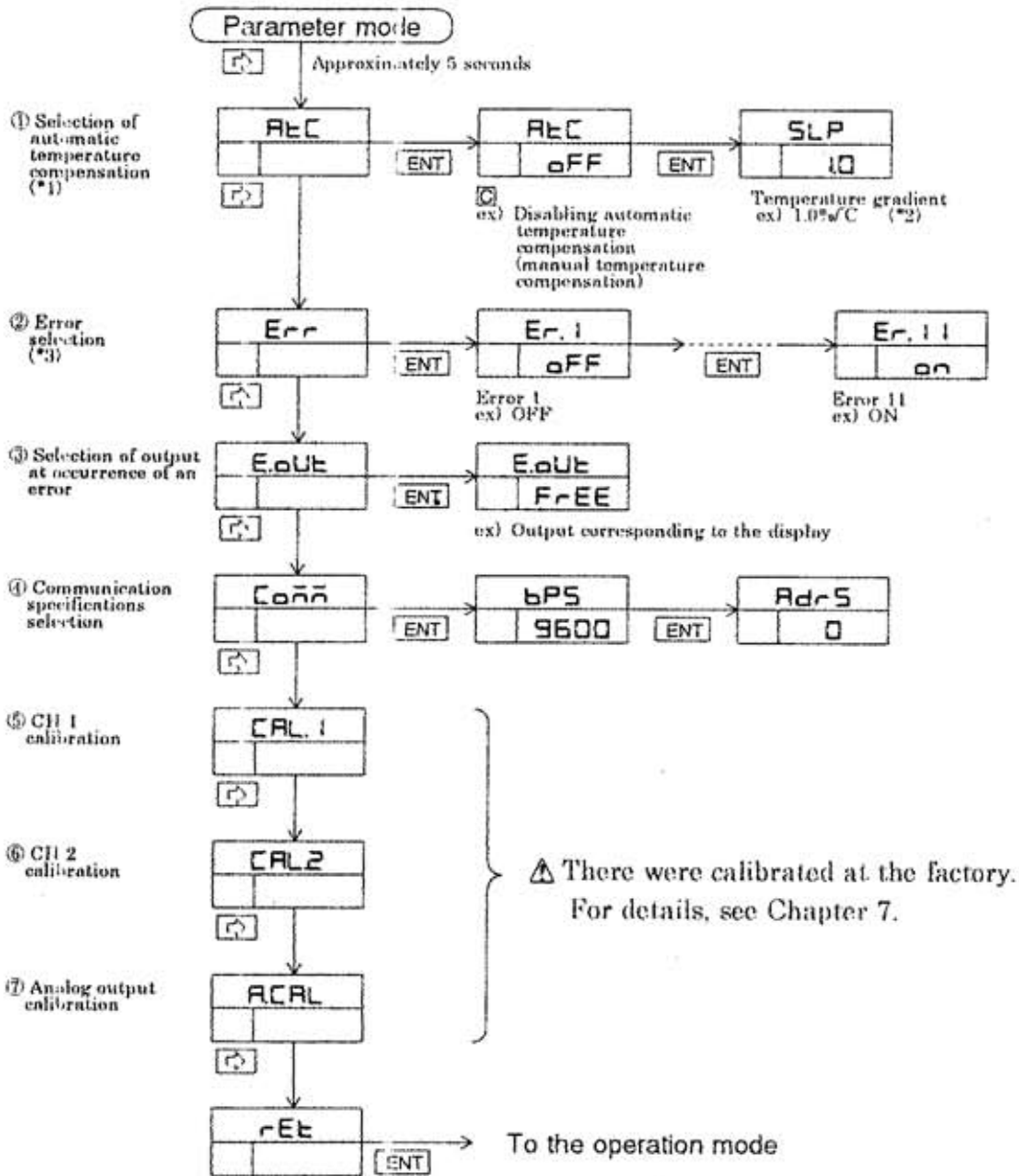
HXPSC5801A02E 23 PAGE OF
 REV. 1 DATE 02.10 DR. Nishi
 APPD. Gama
 CHK. —
 DESCRIPTION
 CHG.No.

5-4 Setup Mode

(1) Display

Hold depress the  key for approximately five seconds in the operation mode, then the mode is changed to the parameter mode.

[Note] : Displayed only for conductivity analyzer.



- *1 The automatic temperature compensation function cannot be disabled for the resistivity analyzer.
- *2 This is not displayed for automatic temperature compensation.
- *3 Errors 9 and 10 are disabled in the SC5800 analyzer.

HXPSC5801A02E OF 24 PAGE
 REV. DATE DR. DR. APP'D. CHG.No. DESCRIPTION
 1 00.02.10 Saha
 CHG.No.

[Method for changing the setting]

Pressing the \leftarrow key places the analyzer in the change enabled status and causes the displayed decimal point or number to blink. Use the \leftarrow key to shift the digit to be changed (This is unnecessary for the ON/OFF setting). Use the dial to change the setting. Use the **ENT** key to confirm the setting.

(2) Details of each function**[Note]**

C : Displayed only for conductivity analyzer,

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
①	Automatic temperature compensation	AEC C	<p>The resistivity analyzer can select automatic temperature compensation only.</p> <p>Selects automatic temperature compensation or manual temperature compensation.</p> <p>When automatic temperature compensation is enabled : The input value is compensated for with temperature in the range of 0 to 100 °C.</p> <p>When automatic temperature compensation is disabled (manual temperature compensation): The conductivity is compensated for with a temperature gradient.</p>	<p>ON: Automatic temperature compensation enabled</p> <p>OFF: Automatic temperature compensation disabled (manual temperature compensation)</p>	ON
	Temperature gradient	SLP	<p>Δ This is not displayed when automatic temperature compensation is enabled. This should be set for manual temperature compensation.</p> <p>Enter a proportional constant for performing temperature compensation.</p>	0.0 ~ 5.0%/°C	0.0%/°C

HXPC5801A02E
 PAGE 2 OF 2
 REV. DATE 1/10/2010
 DR. Inhi
 CHK. APP'D. Green
 DESCRIPTION
 CHG.No.

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
②	Error selection	Err	For error 1 to 11, selects whether they should be displayed and their contacts should be closed. Error 9 and 10 are disabled in the SC5800 analyzer.		
	Error 1	Er.1	PV unusual (HIGH): This error occurs when the measured CH 1 value is excessively high for the range.	ON: Error No. displayed. Error output via contact OFF: Disabled	For all the items OFF
	Error 2	Er.2	PV unusual (LOW): This error occurs when the measured CH 1 value is zero or less.		
	Error 3	Er.3	Temperature unusual (HIGH): This error occurs when the CH 1 temperature is 150 °C or higher.		
	Error 4	Er.4	Temperature unusual (LOW): This error occurs when the CH 1 temperature is -25 °C or lower.		
	Error 5	Er.5	PV unusual (HIGH): This error occurs when the measured CH 2 value is excessively high for the range.		
	Error 6	Er.6	PV unusual (LOW): This error occurs when the measured CH 2 value is zero or less.		
	Error 7	Er.7	Temperature unusual (HIGH): This error occurs when the CH 2 temperature is 150 °C or higher.		
	Error 8	Er.8	Temperature unusual (LOW): This error occurs when the CH 2 temperature is -25 °C or lower.		
	Error 11	Er.11	This error occurs when E ² PROM DATA is unusual.		

REV. DATE		DR.	CHK.	APPD.	DESCRIPTION	CHGNO.
1	00.2.10	Shiki	—	Ogami		
PAGE		OF				
HXPCS801A02E		2				

No.	Function	Display example	Explanation	Setting range and items	Factory-setting
③	Selection of output at occurrence of an error	E.oUt	Selects the analog output value at occurrence of an error.	FrEE : The current with the value displayed is output. H : 20mA is output regardless of the value displayed. Lo : 4 mA is output regardless of the value displayed.	FrEE
④	Communication specifications selection	Coññ	Sets the transmission rate and address.		
	Transmission rate	bPS	Selects the transmission rate.	9600,4800,2400,1200,600,300 bps	9600
	Address	AdRS	Selects the address. △ Set the address to "0" for RS-232C.	0 ~ 31	0
⑤	CH 1 calibration	CAL.1	Calibrates CH 1.	For details, see Chapter 7.	
⑥	CH 2 calibration	CAL2	Calibrates CH 2.	For details, see Chapter 7.	
⑦	Analog output calibration	ACAL	Calibrates the analog output.	For details, see Chapter 7.	

REV. DATE	DR.	CHK.	APP'D.
1	00.2.10	—	gama
DESCRIPTION			
CHG.No.			
DATE			
PAGE 27 OF			
HXPSC5801A02E			

5-5 Temperature Compensation

In the liquid conductivity (resistivity) measurement, since the dissociation constant of the salts and water contained in the measurement liquid varies depending on the temperature of the measurement liquid, the conductivity (resistivity) will also vary. This will cause a measurement error. Therefore, it is necessary to convert the measured value into the equivalent value at the reference temperature before any value can be displayed or output.

Where the concentration of the contained salts is relatively high, the water dissociation has little influence on the conductivity (resistivity). However, in the pure water range, pure-water temperature compensation is required as well as salt-temperature compensation.

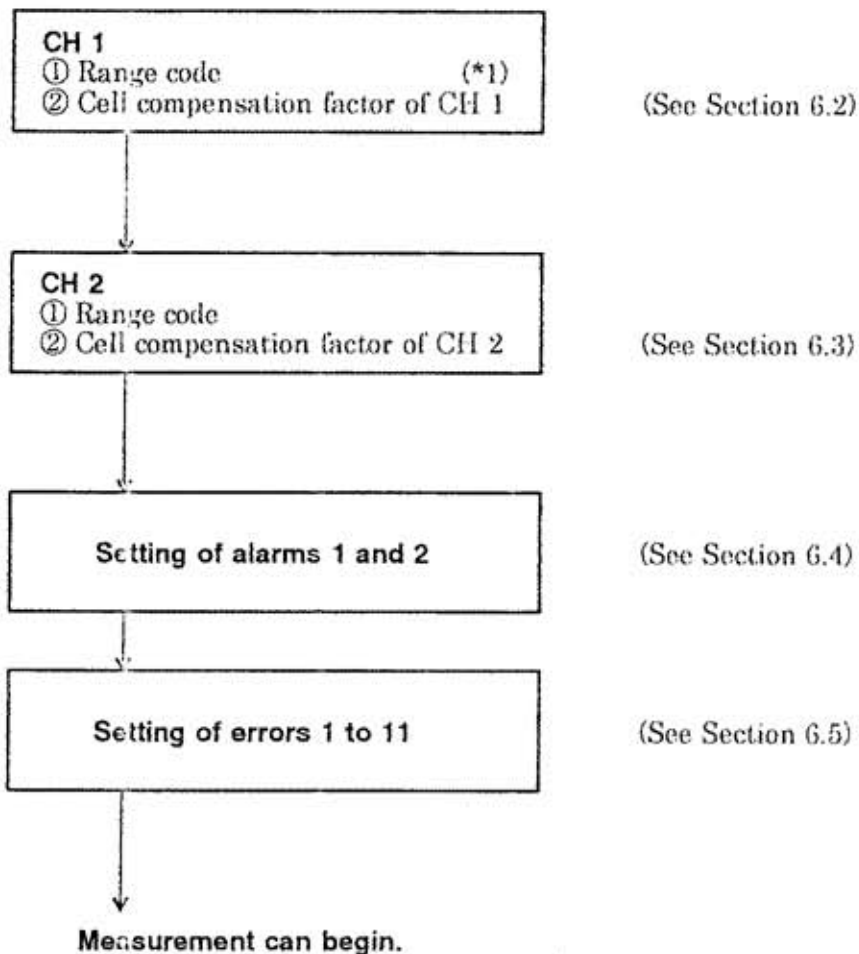
The SC5800 digital analyzer measures the temperature of the measurement liquid using a Pt 1000 temperature element, performs high-precision temperature compensation by microcomputer processing in all the measurement ranges, and displays and outputs the conductivity (resistivity) obtained by converting the measured value into the equivalent value at 25 °C.

HXPSC5801A02E	PAGE	28	OF	REV.	DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHGNG.
				1	10.2.10	Nishi	—	<i>gman</i>		

6. BEFORE STARTING MEASUREMENT (BASIC SETTING)

6-1 Basic Setting Items

The following items are set in the parameter mode and setup mode. For details, see Section 6.2 and subsequent sections.



*1: The CH 1 range code is fixed to "51" for resistivity analyzer.
For the details of the range codes, see Section 6.6.

HXPSC5801A02E		PAGE 29		OF	
REV.	DATE	D.R.	CHK.	APP'D.	DESCRIPTION
1	10.2.10	Refli	-	Opawa	
CRO.No.					
止目録行・表紙					

6-2 CH 1 Setting

(1) Enter range code of the CH 1.

[Note]

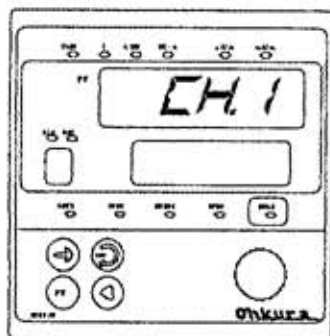
If the CH 1 range code is changed, the alarm point values will change as shown below. So, always set again the values after changing the CH 1 range code.



Alarm 1 HIGH; span value of the specified code

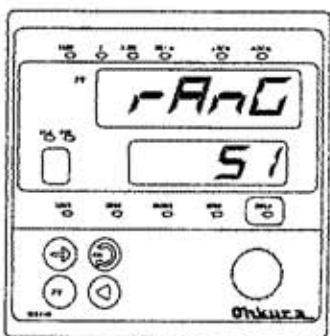
(Span value of range 1 for 2-range automatic select)


Alarm 2 LOW; 0.

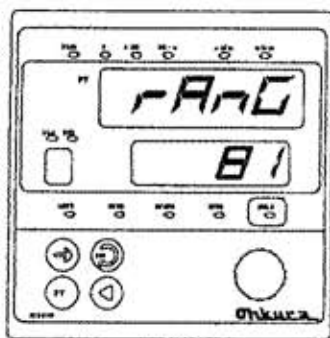
The hysteresis width and ON delay time are set to 0 for Alarm 1 and Alarm 2.




Hold depress the  key for approximately five seconds to enter the parameter mode from the operation mode. Keep pressing the  key until CH 1 is displayed.

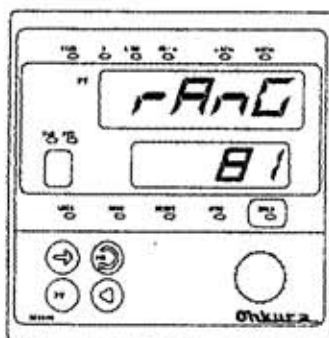



Keep pressing the  key until rANG is displayed.



Select the change enabled status (the decimal point will blink) by the  key. Select the range code using the dial.

⚠ For the range codes, see the range code table in Section 6.6.



Press the  key to confirm the selection.

HXPSC5801A02E	REV. DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG.No.
	1	00.2.10	Nahin	-		

(2) Enter the cell compensation factor of the CH 1 conductivity cell.

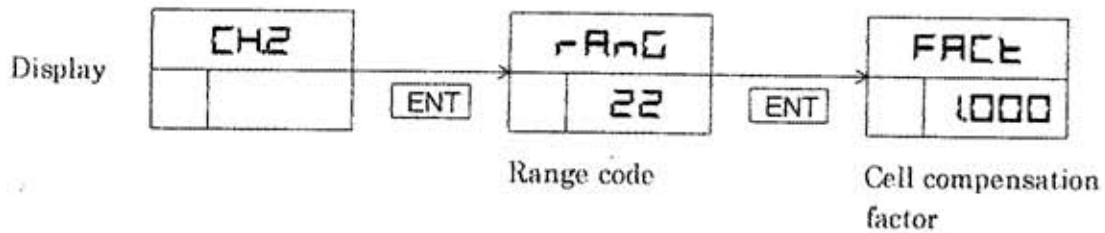


- Use the key to select **CH 1** in the parameter mode.
- Use the key to select **FACT**.
- Use the key to select the change enabled status. (The decimal point blinks.)
- Use the dial to enter the cell compensation factor of the cell.
(To shift the digit, press the key.)
- Press the key to confirm selection.

[Note]

Enter the cell compensation factor to compensate for the error caused by the cell constant. The cell compensation factor is indicated on the nameplate of each cell as "FACT □□□□."

6-3 CH 2 Setting



(1) Select the CH 2 range code and the cell compensation factor of the conductivity cell.

- Use the key to select **CH2** in the parameter mode.
- Follow the procedure described in items (1) and (2) of the CH 1 selection.

HXPSC5801A02E	REV. DATE	D.R.	CHK.	APPD.	DESCRIPTION	CHC No.
02	00.02.10	Lab	-	Spencer		
31 PAGE	1	OF				

6-4 Alarm Setting

[Note]

If the CH 1 range code is changed, the alarm point values will change as shown below.
So, always set again the values after changing the CH 1 range code.

Alarm 1: HIGH; Span value of the specified code

(Span value of range 1 for 2-range automatic select.)

Alarm 2: LOW; 0.

The hysteresis width and ON delay time are set to 0 for Alarm 1 and Alarm 2.

(1) Details of alarms

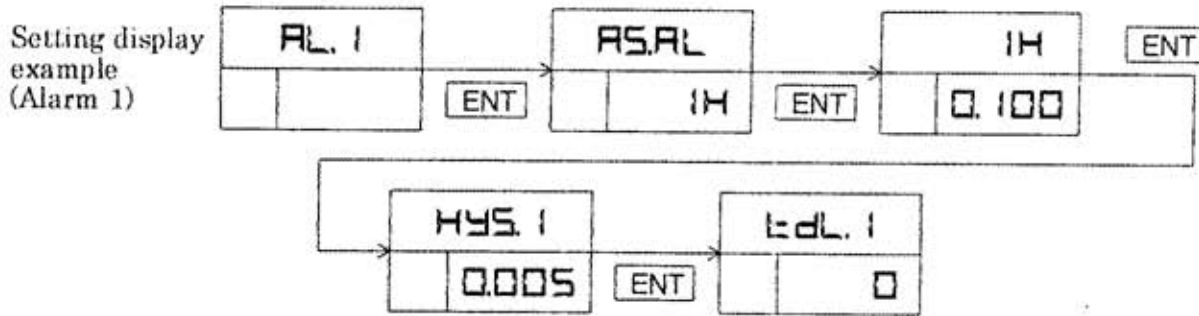
[Note]

C: Displayed only for conductivity analyzer.

R: Displayed only for resistivity analyzer.

Function	Display example	Explanation	Setting range and items	Factory-setting
Alarm setting	AL1 AL2	Sets the items related to the action of alarms 1 and 2. △ The alarm corresponds only to CH 1.		
Alarm type	ASAL H L	Selects the alarm type. H: Alarm activates if the PV exceeds the alarm point value. L: Alarm activates if the PV is equal to or less than the alarm point value.		Alarm 1 : H Alarm 2 : L
Alarm point value	H L	Sets a value at which the alarm activates H: Alarm 1 is issued as HIGH alarm. L: Alarm 2 is issued as LOW alarm.	C 0 to span value of the selects range (span value of range 1 when two ranges are used) R 0.000 ~ 0.200	C H: Span value of range 1 L: Value 0 R H: 0.200 L: 0.000
Hysteresis width	HYS H L	Sets the hysteresis width of an alarm.	C 0 to span value of the selects range (span value of range 1 when two ranges are used) R 0.000 ~ 0.200	Alarm 1 and 2 : Value 0 for the selected range
ON delay time	EDL1 EDL2	Sets the ON delay time (action delay time) of an alarm.	0 ~ 600 sec	Alarm 1 and 2 0 sec

(2) Setting procedure



- Use the key to select Alarm 1 (AL. 1) in the parameter mode.
- Use the key to select the function items.
- Use the key to select the change enabled status.
- Use the dial to select a function.
- Use the key to confirm selection.
- Use the key to select Alarm 2 (AL. 2) in the parameter mode.


[Note] Set other items in the same way as for Alarm 1.

REV.	DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG.No.
1	10.2.10	Sahil	—	Opawa		


HXPSC5801A02E 33 PAGE OF





6-5 Error Selection

Select whether the error is displayed and whether the contacts are closed at error occurrence (ON or OFF).

- Hold depress the  key for approximately five seconds to enter the setup mode from the parameter mode.

[Note]

Hold depress the  key for 10 seconds to enter the setup mode from the operation mode.

- Use the  key to select **Err.**
- Use the  key to select errors 1 to 11.
- Use the  key to set the change enabled status, and use the dial to select whether the error action is to be turned ON or OFF.
- Press the  at **Err** displayed, and confirm the selection you made.

Function	Display example	Explanation	Setting range and items	Factory-setting
Error selection	Err	For errors 1 to 11, selects whether they should be displayed and their contacts should be closed.		
Error 1	Er. 1	PV unusual (HIGH) This error occurs when the measured CH 1 value is excessively high for the range.	ON: Error No. displayed Contact closes at error occurrence OFF: Disabled	For all the items OFF
Error 2	Er. 2	PV unusual (LOW) This error occurs when the measured CH 1 value is zero or less.		
Error 3	Er. 3	Temperature unusual (HIGH) This error occurs when the CH 1 temperature is 150 °C or higher.		
Error 4	Er. 4	Temperature unusual (LOW) This error occurs when the CH 1 temperature is -25 °C or lower.		

HXPSC5801A02E 34 PAGE OF
 REV. DATE DR. CHK. APP'D. DESCRIPT I O N CHG.No.
 1 00.2.10 Maki - Green

6. BEFORE STARTING MEASUREMENT (BASIC SETTING)

Function	Display example	Explanation	Setting range and items	Factory-setting
Error 5	Er. 5	PV unusual (HIGH) This error occurs when the measured CH 2 value is excessively high for the range.	ON : Error No. displayed Contact closes at error occurrence OFF : Disabled	For all the items ON
Error 6	Er. 6	PV unusual (LOW) This error occurs when the measured CH 2 value is zero or less.		
Error 7	Er. 7	Temperature unusual (HIGH) This error occurs when the CH 2 temperature is 150 °C or higher.		
Error 8	Er. 8	Temperature unusual (LOW) This error occurs when the CH 2 temperature is -25 °C or lower.		
Error 11	Er. 11	This error occurs when E2PROM DATA is unusual.		

[Note]

Errors 9 and 10 are disabled in the SC5800 analyzer.

The conditions in which **Er. 1**, **Er. 2**, **Er. 5** and **Er. 6** occur vary depending on the selected range.

If CH 2 is not used, **Er. 5** to **Er. 8** are not displayed.

HXPSC5801A02E
 35 PAGE OF
 REV. DATE DE. CHK. APP'D.
 1 00.2.10 *Shoji*
 CHG No.
 DESCRIPTION
 正誤修正
 1

6-6 Range Codes

(1) CH 1 range code table <<Conductivity analyzer>>

Range code	Cell constant	Range	unit	Over Range	Range switching	
51	1m ⁻¹	0.00 ~ 10.00	μS/m	~ 20.00	Fixed	
52		0.00 ~ 20.0		~ 50.0		
53		0.0 ~ 50.0		~ 100.0		
54		0.0 ~ 100.0		~ 200.0		
55		0.0 ~ 200		~ 500		
56		0 ~ 500		~ 1000		
57		0 ~ 1000		~ 2000		
58		0 ~ 2000		~ 5000		
59		0.00 ~ 10.00 / 0.0 ~ 100.0		~ 200.0		2-range auto- matic switching (auto-range)
60		0.00 ~ 20.0 / 0.0 ~ 200.0		~ 500.0		
61	0.0 ~ 50.0 / 0 ~ 500	~ 1000				
62	0.0 ~ 100.0 / 0 ~ 1000	~ 2000				
63	0.0 ~ 200 / 0 ~ 2000	~ 5000				
64	10m ⁻¹	0.000 ~ 0.200	mS/m	~ 0.500	Fixed	
65		0.000 ~ 0.500		~ 1.000		
66		0.000 ~ 1.000		~ 2.000		
67		0.000 ~ 2.00		~ 5.00		
68		0.00 ~ 5.00		~ 10.00		
69		0.00 ~ 10.00		~ 20.00		
70		0.00 ~ 20.0		~ 50.0		
71		0.000 ~ 0.200 / 0.000 ~ 2.00		~ 5.00		2-range auto- matic switching (auto-range)
72		0.000 ~ 0.500 / 0.00 ~ 5.00		~ 10.00		
73		0.000 ~ 1.000 / 0.00 ~ 10.00		~ 20.00		
74	0.00 ~ 2.00 / 0.00 ~ 20.00	~ 50.00				
75	100m ⁻¹	0.000 ~ 2.00	mS/m	~ 5.00	Fixed	
76		0.00 ~ 5.00		~ 10.00		
77		0.00 ~ 10.00		~ 20.00		
78		0.00 ~ 20.0		~ 50.0		
79		0.0 ~ 50.0		~ 100.0		
80		0.0 ~ 100.0		~ 200.0		
81		0.0 ~ 200		~ 500.0		
82		0.000 ~ 2.00 / 0.00 ~ 20.00		~ 50.00		2-range auto- matic switching (auto-range)
83		0.00 ~ 5.00 / 0.0 ~ 50.0		~ 100.0		
84		0.00 ~ 10.00 / 0.0 ~ 100.0		~ 200.0		
85	0.00 ~ 20.0 / 0.0 ~ 200.0	~ 500.0				

<to next page>

HXPSC5801A02E
 36 PAGE OF
 REV. DATE 10.2.10
 DR. Defhi
 CHK. -
 APPT. Open
 DESCRIPTION
 CHC.No.
 上海銀行・株式会社

6. BEFORE STARTING MEASUREMENT (BASIC SETTING)

Range code	Cell constant	Range	unit	Over Range	Range switching	
86	1000m ⁻¹	0.00 ~ 20.0	mS/m	~ 50.0	Fixed	
87		0.00 ~ 50.0		~ 100.0		
88		0.0 ~ 100.0		~ 200.0		
89		0.0 ~ 200		~ 500		
90		0 ~ 500		~ 1000		
91		0 ~ 1000		~ 2000		
92		0 ~ 2000		~ 5000		
93		0.00 ~ 20.0 / 0.0 ~ 200.0		~ 500.0		2-range auto-matic switching (auto-range)
94		0.00 ~ 50.0 / 0 ~ 500		~ 1000		
95		0.0 ~ 100.0 / 0 ~ 1000		~ 2000		
96	0.0 ~ 200 / 0 ~ 2000	~ 5000				

[Note]

The over-range is function that the digital display is displayed correspond to input vary, even if the conductivity is over the selected measurement range. within the restricted area. For the area of over-range, see the range code table. The analog output is not vary 20mA.

(2) CH 2 range code table <<Conductivity analyzer>>

Range code	Cell constant	Range	unit
20	—	Not use channel 2	
21	1m ⁻¹	0.0 ~ 50.0	μS/m
22		0.0 ~ 200.0	
23		0 ~ 1000	
24		0 ~ 2000	
25	10m ⁻¹	0.000 ~ 0.500	mS/m
26		0.000 ~ 2.000	
27		0.00 ~ 10.00	
28		0.00 ~ 20.00	
29	100m ⁻¹	0.00 ~ 5.00	mS/m
30		0.00 ~ 20.00	
31		0.0 ~ 100.0	
32		0.0 ~ 200.0	
33	1000m ⁻¹	0.0 ~ 50.0	mS/m
34		0.0 ~ 200.0	
35		0 ~ 1000	
36		0 ~ 2000	

HXPSC5801A02E 37 PAGE OF
 REV. 1 DATE 002.10 DR. Infici
 CHK. APPD. Gawa
 DESCRIPTION
 CHG.NG.

(1) CH 1 range code table <<Resistivity analyzer>>

Range code	Cell constant	Range	unit	Range switching
51	$1m^{-1}$	0.000 ~ 0.200	M $\Omega \cdot m$	Fixed

(2) CH 2 range code table <<Resistivity analyzer>>

Range code	Cell constant	Range	unit
20	—	Not use channel 2	—
21	$1m^{-1}$	0.000 ~ 0.200	M $\Omega \cdot m$

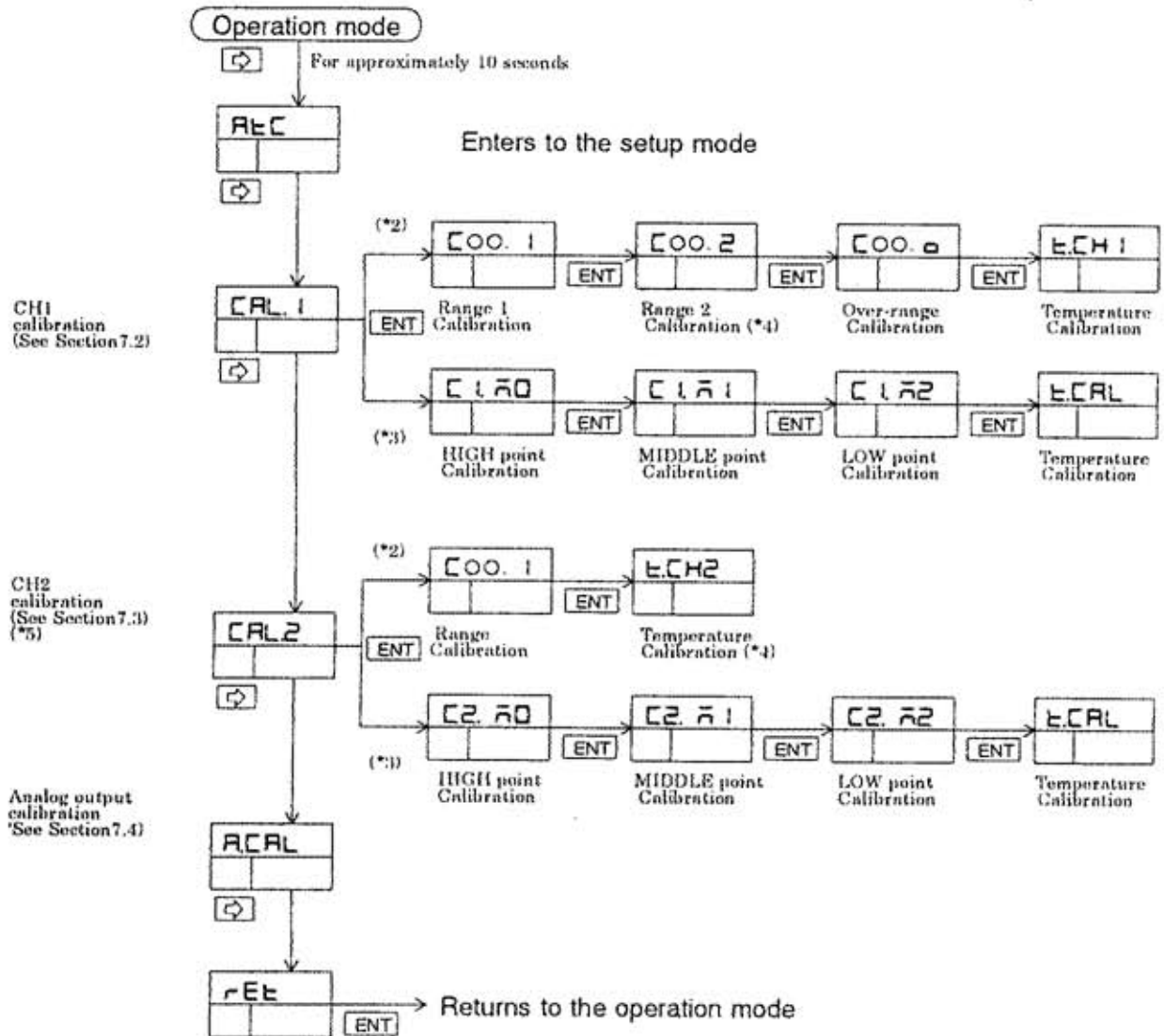
REV.	DATE	DE.	CHK.	APP'D.	DESCRIPTION	CHG.No.
1	'00.2.10	Nishi	—	Izawa		
PAGE 38 OF						
HXPCS5801A02E						

7. CALIBRATION

[Note]

The display and output must be calibrated during inspection.
 Before beginning calibration, select the range code to be calibrated in the parameter mode.
 The calibration operation requires two decade resistance boxes.

7-1 Display of the Calibration Mode



- *1: 00: Range code
- *2: For conductivity analyzer
- *3: For resistivity analyzer
- *4: Applies when the 2-range automatic switch function is selected in the conductivity analyzer.
- *5: Applies when the range code is other than 0 when CH 2 is selected.

REV. DATE	DR.	CHK.	APP'D.	DESCRIPTION
1	00.2.10	Johari	Open	
CHRG. No.				
39 PAGE				
OF				
HXPSC5801A02E				

7-2 CH 1 Calibration

Calibration CH 1 to meet the specifications shown in the table below:

<<Conductivity analyzer>>

Display	Explanation	Item to be referenced
E.CH 1	Temperature calibration	See item (1).
□.□□. 1 (*1)	Zero-span calibration of range 1 or zero-span calibration of the fixed range.	See item (2).
□.□□. 2 (*1)	Zero-span calibration of range 2 ⚠ This operation is performed only when the 2-range automatic switch function is selected.	See item (3).
□.□□. □ (*1)	Zero-span calibration of the over-range	See item (4).

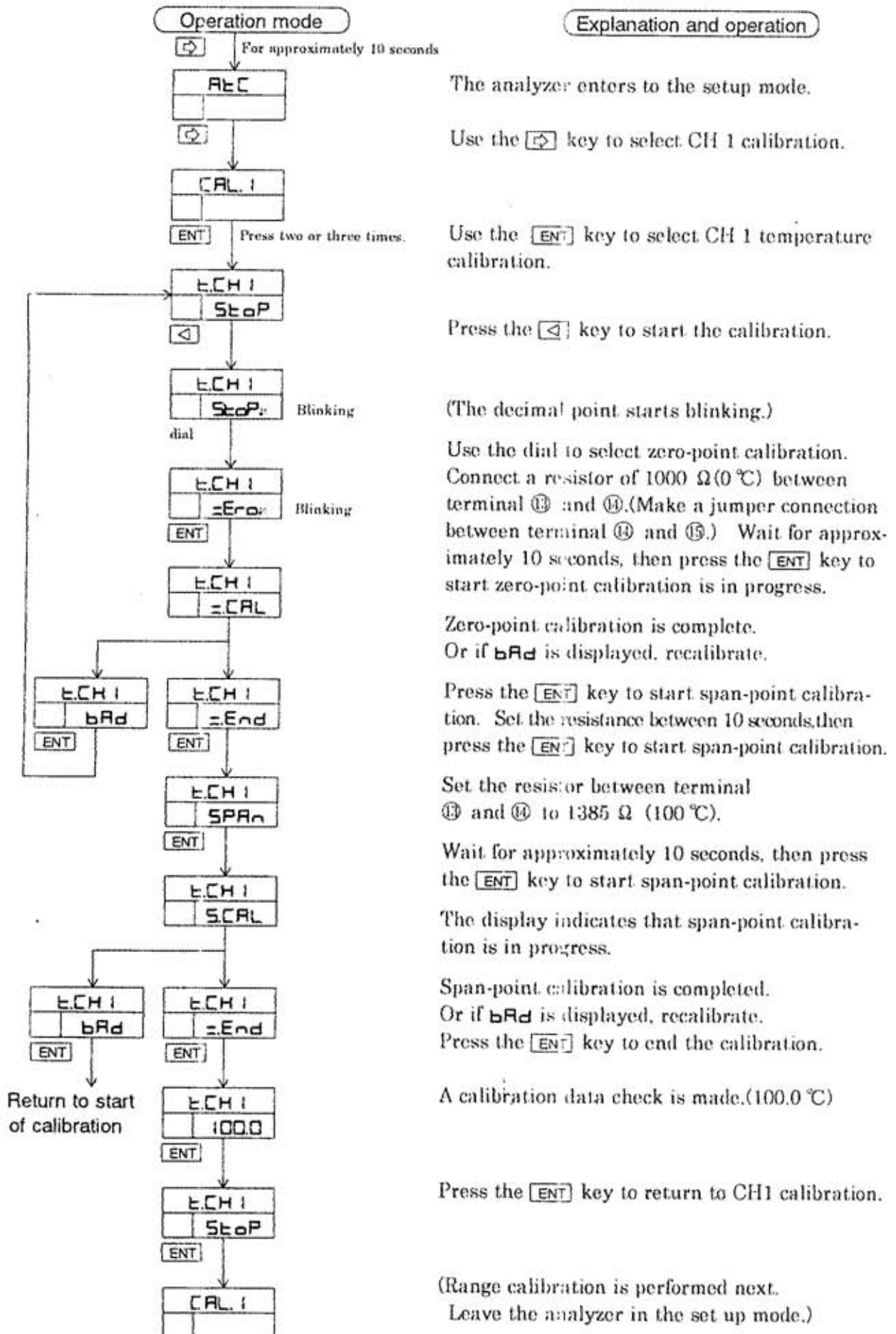
*1:□□: The range code is displayed.

<<Resistivity analyzer>>

Display	Explanation	Item to be referenced
E.CAL	Temperature calibration	See item(1).
□.□. 510 □.□. 511 □.□. 512	Span calibration of the range	See item(5).

HXPSC5801A02E 02	REV. DATE	1	00.2.10	DR.	Naoki	CHK.	-	APP'D.	Spencer	DESCRIPTION	7-2 CH 1 Calibration
	CHG.No.										

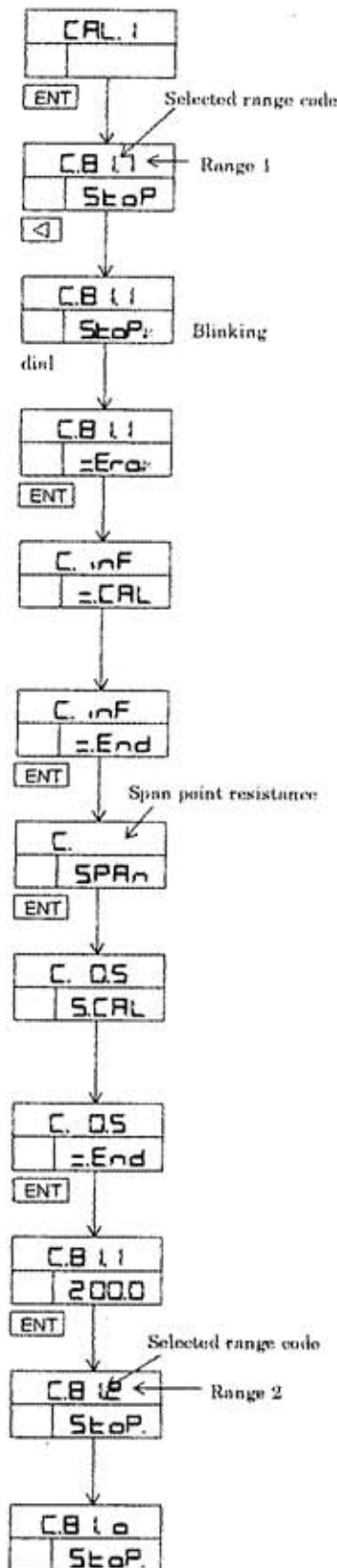
(1) CH 1 temperature calibration



(2) Zero-span calibration of range 1 (conductivity analyzer)

[Note]

To perform a range calibration, connect a 1097.3 Ω resistor (equivalent to the resistance of Pt1000 at 25 °C) between terminal ⑬ and ⑭, and make a jumper connection between terminal ⑭ and ⑮.



Use the key to select range 1 calibration from the CH 1 calibration menu in the setup mode.

Press the key to start the calibration.

(The decimal point starts blinking.)

Use the dial to select zero-point calibration.

Open the circuit between terminal ⑫ and ⑮ (infinity).

Wait for approximately 10 seconds, then press the key to start zero-point calibration.

The display indicates that zero-point calibration is in progress.

Zero-point calibration is complete.

Press the key to start span-point calibration.

The resistance (in k Ω) at the span point corresponding to the selected range code is displayed. (Example: 0.5 for 500 Ω)

Apply the displayed resistance between terminal ⑫ and ⑮. Wait for approximately 10 seconds, then press the key to start span-point calibration.

The display indicates that span-point calibration is in progress.

Span-point calibration is complete.

Check the calibration data. (ex. 200.0mS/m)

Press the key to start zero span-point calibration of range 2. (If the fixed range was selected, over-range calibration starts.)

Zero-span calibration of the over-range.

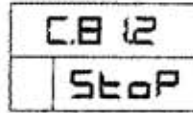
Or

REV.	DATE	DE.	CHK.	APPD.	DESCRIPTION	CHG.No.
1	00.2.10	Shiki	-	Shiki		
PAGE 42 OF						
HXPSC5801A02E						

(3) Zero-span calibration of CH 1 range 2 (conductivity analyzer)

[Note]

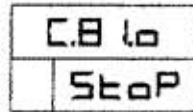
This calibration is performed only when the 2-range automatic switch function is selected. This is not displayed when the fixed range is selected.



Calibration display

Follow the procedure described for zero-span calibration for range 1 and perform calibration.

(4) CH 1 over-range calibration (conductivity analyzer)



Calibration display

Follow the procedure described for zero-span calibration for range 1 and perform CH 1 over-range calibration.

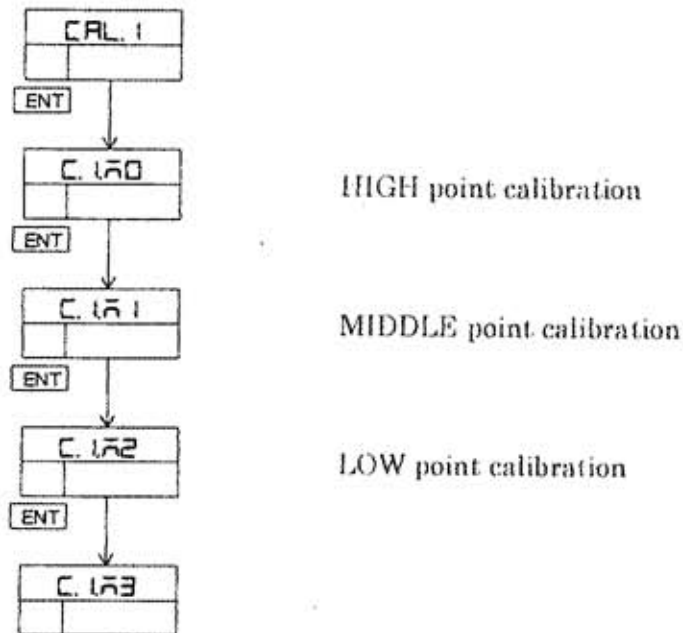
HXPC5801A02E	43	PAGE	REV.	DATE	DR.	CHK.	APPR.	DESCRIPTION	CHG.No.
			1	10.2.10	Valij	-	Green		
02									

(5) Zero-span calibration of resistivity analyzer

⚠ CAUTION

1. A resistivity analyzer has three calibration points (HIGH, MIDDLE, LOW). All three points require span calibration.
2. To perform range calibration, connect a 1097.3 Ω resistor (equivalent to the resistance of Pt 1000 at 25 $^{\circ}\text{C}$), between terminal ⑬ and ⑭, and make a jumper connection between terminal ⑬ and ⑮.

① Calibration screen



② Input resistance for calibration

The input resistance at each point is shown below. Apply the resistance between terminal ⑬ and ⑮.

Calibration screen	Calibration point	Input resistance
C. 1.00	HIGH point	430.2k Ω
C. 1.01	MIDDLE point	141.6k Ω
C. 1.02	LOW point	48.5k Ω

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

品質保証部
品質保証課

HXPSC5801A02E
02

PAGE
44

REV. DATE DR. APP'D.
1 00.2.10 Nishi
— gawa

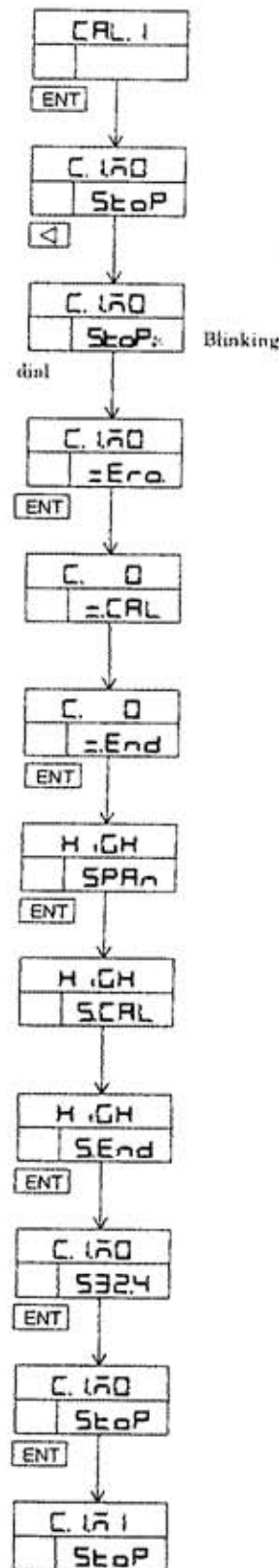
CHG.No.

DESCRIPTION

③ Calibration procedure

The procedure for HIGH-point calibration is shown below.

For MIDDLE-point and LOW-point calibration, enter the corresponding resistance, then follow the procedure described for HIGH-point calibration.



Select HIGH-point calibration.

Press the \leftarrow key to start the calibration.
(The decimal point starts blinking.)

Use the dial to select zero-point calibration. Make a jumper connection between terminal ⑫ and ⑮.

Wait for approximately 10 seconds, then press the ENT key.

The display indicates that zero-point calibration is in progress.

Zero-point calibration is complete.

Span-point calibration is started.

Apply a resistance of $430.2\text{k}\ \Omega$ between terminal ⑫ and ⑮.

Wait for approximately 10 seconds, then press the ENT key.

Span-point calibration is in progress.

Span-point calibration is complete.

The display does not show calibration data.

HIGH-point calibration is complete.

MIDDLE-point calibration starts.

Enter the corresponding resistance, then calibrate the MIDDLE-point and LOW-point by following the procedure described above.

REV. DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG.No.
1	002.10				
OF					
45 PAGE					
HXPSC5801A02E					

7-3 CH 2 Calibration

Perform CH 2 temperature calibration and zero-span calibration of the range.
Both the conductivity analyzer and resistivity analyzer require CH 2 calibration.

Display	Explanation
E.CH 2	Temperature calibration See item (1) in Section 7.2 and perform calibration by following the described procedure.
E.OO	Range zero-span calibration For the conductivity analyzer, see item (2) in Section 7.2.
E.RAO	For the resistivity analyzer, see item (5) in Section 7.2.

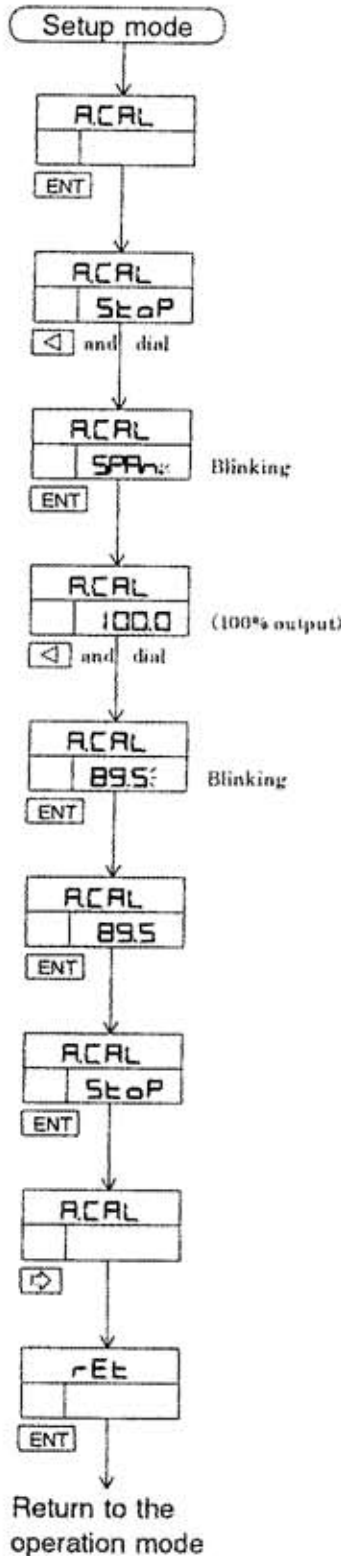
REV. DATE		DR.	CHK.	APP'D.	DESCRIPTION	CHG.No.
1	10/2/10	Saki	-	gamm		
HXPSC5801A02E		46 PAGE				
02		OF				

7-4 Analog Output Calibration

[Note]

Calibrate the span value only.

The connection status of each input pin from ① to ② can be disregarded.



Connect the ammeter between terminal ① and ②.

Use the **ENT** key to select analog-output calibration.

Press the **<** key to start the calibration.

Use the dial to select span point calibration.

Press the **ENT** key to generate span-point analog output.

Set the output to 20 mA with the dial, then measure the output with the ammeter. (Use the **<** key to select the dial to be changed, then rotate the dial to select a numeric value.)

Press the **ENT** key when the output is set to 20mA.

Analog output calibration is performed.

Calibration is completed.

When the calibration completes, the display returns to ACAL in the setup mode.

Calibration is now complete.

Use the **↵** key to select **rEt** (return) and press the **ENT** key to return to the operation mode.

REV. PAGE	OF	REV. DATE	DR.	CHK.	APP'D.	DESCRIPTION	CHG.NO.
1	47	10.2.10	Salii	-	Guan		
HXPCS5801A02E							

7-5 Calibration Data Check

When calibration is complete, perform the following operation to check the calibration data. If the precision of the displayed value is not within $\pm 0.4\%$, re-calibration should be performed.

(1) Conductivity analyzer

Specify zero-and span-point resistance as a resistance between terminal ⑫ and ⑬ and check the displayed value.

Zero point : Open the circuit between the two terminal.

Span point : Specify the resistance used for calibration.

(The input resistance and displayed conductivity vary with the selected range.)

(2) Resistivity analyzer

Specify the resistances listed below as a resistance between terminal ⑬ and ⑭ (temperature input), and between terminal ⑫ and ⑬:

Input terminal	Input		Display	
	⑬ and ⑭ (temperature input)	⑫ and ⑬ (resistance)	Temperature	Resistivity
Input resistance	1097.3 Ω	Jumper-connection	25 $^{\circ}\text{C}$	0.000M $\Omega\cdot\text{m}$
	1097.3 Ω	182.515k Ω	25 $^{\circ}\text{C}$	0.182M $\Omega\cdot\text{m}$
	1194 Ω	58.711k Ω	50 $^{\circ}\text{C}$	0.182M $\Omega\cdot\text{m}$
	1308.9 Ω	21.314k Ω	80 $^{\circ}\text{C}$	0.182M $\Omega\cdot\text{m}$

REV.	DATE	DE.	CHK.	APP'D.	DESCRIPTION	CRG.No.
1	02.10	(Sahi)	--	Grave		
HXPSC5801A02E 02 08 PAGE OF						

8. TROUBLESHOOTING

If the SC5800 digital analyzer does not work properly, take the appropriate action shown in the table below.

If the problem appears to be serious, contact the shop at which you purchase the product or an OHKURA salesperson.

Problem	Cause	Corrective action
When a key is pressed, "Err" is displayed and no setting can be made.	"The key lock is set to "LoC"	Release the key lock (UnLC) on the operation mode.
The PV display is unusual.	The range setting is incorrect.	Select the appropriate range.
	The terminal connection is incorrect.	Wire correctly.
	Calibration is not performed correctly.	Recalibrate.
	The cable-length compensation is incorrect.	Enter values correctly.
The alarms do not activate correctly.	An incorrect alarm type is selected.	Select a correct alarm.
	The ON delay time is too long.	Set a correct delay time.
	The hysteresis width is too wide.	Set a correct hysteresis width.
The PV display is unstable	Program error	Turn the power off, then turn it on again.
The PV display is set to "-----"	The range exceeds the over-range or is greater than or equal to 0.200M $\Omega \cdot m$.	Select a correct range.
	Er1 or Er5 condition	Check the wiring. Check the cell.

HXPSC5801A02E 49 PAGE OF
 REV. DATE DE. CHK. APPD. DESCRIPTION CHG.No.
 1 02.10 Jshu
 Ogram
 12.1

Problem	Cause	Corrective action
Err display cannot be cleared.		
1 or 5 cannot be cleared.	Measurement range is incorrect.	Select a correct range.
	The cable is short-circuited	Wire correctly.
2 or 6 cannot be cleared.	Measurement range is incorrect	Select a correct range.
	The cell is open.	Wire correctly.
	The cable is disconnected.	Wire correctly.
	The cell is not in the measurement liquid. (The sample liquid is not flowing.)	Secure a flow rate that puts the cell in the measurement liquid.
3 or 7 cannot be cleared.	The temperature of the measurement liquid is too high. The sensor is open.	Adjust the temperature so that it is within the specified range. Replace the cell or check wiring.
4 or 8 cannot be cleared.	The temperature of the measurement liquid is too low. The sensor is short-circuited.	Adjust the temperature so that it is within the specified range. Replace the cell or check wiring.
Communication error	Refer to the operation manual for communication.	

HXPSC5801A02E		PAGE 50		OF	
REV.	DATE	DR.	CHK.	APP'D.	DESCRIPTION
1	02.2.10	Shiki	-	gamm	
CRG.No.					
<div style="float: right; border: 1px solid black; padding: 2px;"> 12.2.10 12.2.10 </div>					

9. SPECIFICATIONS

Number of measurement points	: 2
Output range	: Cell constant 1m^{-1} 0 to 10, 20, 50, 100, 200, 500, 1000, 2000 $\mu\text{S/m}$: Cell constant 10m^{-1} 0 to 0.2, 0.5, 1, 2, 5, 10, 20 mS/m : Cell constant 100m^{-1} 0 to 2, 5, 10, 20, 50, 100, 200 mS/m : Cell constant 1000m^{-1} 0 to 20, 50, 100, 200, 500, 1000, 2000 mS/m : Cell constant 1m^{-1} 0 to 0.200 $\text{M}\Omega \cdot \text{m}$
Display	: 4-digit 7-segment LED Process value and set value
Linearity	: $\pm 0.4\% \pm 2$ digits (last digit)
Reproducibility	: $\pm 0.2\% \pm 1$ digits (last digit)
Output	: 4 to 20 mA DC isolated output (load resistance; 550 Ω max.)
Range select	: Code specified from the range code Output of range selection Low range ; OFF High range ; ON Contact rated ; 250 VAC, 0.5 A (resistive load)
Alarm	: Number of alarm points ; 2 Range ; Full scale of the selected range Activation ; Form A-contact (normally open) Contact rated ; 250 VAC, 0.5 A (resistive load) Hysteresis ; 0-100% adjustable within the selected range Alarm ON delay timer ; 0 to 600 sec. The alarm corresponds only to CH 1
Output hold function	: Items to be held 1) Analog output 2) Alarm output and display 3) Error output and display Operation When the HOLD function is ON

HXPSC5801A02E	51 PAGE	REV.	DATE	DR.	CHK.	APP'D.	DESCRIPTION	CRG.No.	ELEVATION	12.2.13
		1	'00.2.10	Abhi	--	gagan				

