Technical Information

UTAdvanced UT55A/UT52A Digital Indicating Controller

Parameter Maps and Lists

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UTAdvanced UT55A/UT52A

Introduction

Brief Description of Sheets

This sheet provides a brief description of the following sheets entitled "Names and Functions of Display Parts," "Operation Parameter Map," "Setup Parameter Map," and "List of Parameters."

"**Names and Functions of Display Parts**"
This sheet describes the names and functions of display parts, function of parameter display level, meaning of parameter map symbol and numeric value, parameter display transition and setup operation, and display symbol list.

"**Operation Map (SGL_PRO)**"
This sheet describes the operation parameter map, which can be used as an operation guide.

"**Setup Map (SGL_PRO)**"
This sheet describes the setup parameter map, which can be used as an operation guide.

"**List of Parameters (SGL_PRO)**"
This sheet describes the setting range and initial value of operation parameters and setup parameters. There is a column for user settings.

Parameters in the sheets are displayed when the control mode is set to single loop control (CTLM=SGL) and the parameter display level is set to professional setting mode (LEVL=PRO). Some parameters are not displayed according to model and suffix codes. For details, refer to the User's Manual.

Operation Parameters: Parameters for setting the functions necessary for the operation.
Setup Parameters: Parameters for setting the basic functions of the controller.

Notice

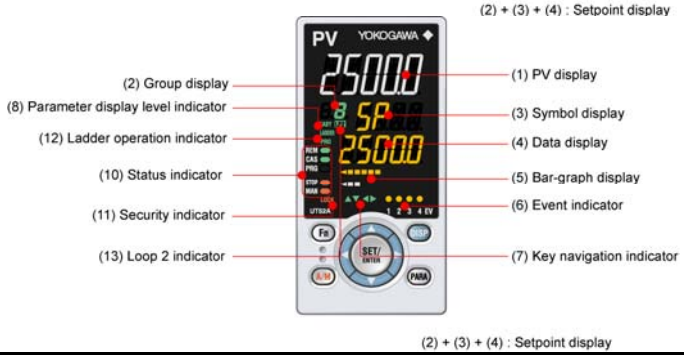
The contents of this manual are subject to change without notice as a result of continuing improvements to the instrument's performance and functions.

UTAdvanced UT55A/UT52A

Names and Functions of Display Parts

UT55A Display Parts

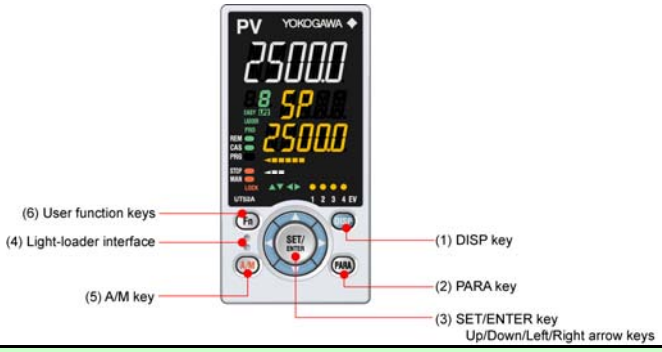
UT52A Display Parts



No. in figure	Name	Description
(1)	PV display (white or red)	Displays PV. Displays an error code if an error occurs. Displays the scrolling guide in the Menu Display and Parameter Setting Display when the guide display ON/OFF is set to ON.
(2)	Group display (green)	Displays a group number (1 to 8, or R) and terminal area (E1 to E4). 1 to 8 represent SP numbers in the Operation Display. R and E1 to E4 are displayed in the Parameter Setting Display.
(3)	Symbol display (orange)	Displays a parameter symbol.
(4)	Data display (orange)	Displays a parameter setpoint and menu symbol.
(5)	Bar-graph display (orange and white)	Displays control output value (OUT) and measured input value (PV). The data to be displayed can be set by the parameter. Initial value: upper bar (deviation), lower bar (control output, internal computed value in Position proportional control); in Heating/cooling control, upper bar (heating-side control output), lower bar (cooling-side control output)
(6)	Event indicator (orange)	UT55A: Lit when the alarms 1 to 8 occur. (Initial value: 1 to 4) UT52A: Lit when the alarms 1 to 4 occur. Event displays other than alarms can be set by the parameter.
(7)	Key navigation indicator (green)	Lit or blinks when the Up/Down or Left/Right arrow key operation is possible.
(8)	Parameter display level indicator (green)	Displays the setting conditions of the parameter display level function. Parameter display level: EASY / PRO Easy setting mode: Lit / Unlit Standard setting mode: Unlit / Unlit Professional setting mode: Unlit / Lit
(9)	Deviation indicator (for UT55A only) (green)	Displays the status of a deviation (PV - SP). ▲ : Lit if a deviation exceeds the deviation display band. ▬ : Lit when a deviation is within the deviation display band. ▼ : Lit if a deviation falls below the deviation display band. The deviation indicator is unlit if the Displays other than the Operation Display or SELECT Display are shown.Deviation display band can be set by the parameter.
(10)	Status indicator (green and red)	Displays the operating conditions and control status. Display / Description REM: Lit when in remote mode (REM). CAS: Lit when in cascade mode (CAS). PRG: Unused STOP: Lit when in stop mode (STOP). MAN: Lit when in manual mode (MAN). Blinks during auto-tuning.
(11)	Security indicator (red)	Lit if a password is set. The setup parameter settings are locked.
(12)	Ladder operation indicator (green)	Lit while the ladder program operation is executed.
(13)	Loop 2 indicator (LP2 lamp) (green)	Lit when the control mode is Cascade control. In the Operation Display, the LP2 lamp is lit while the Loop-2 data is displayed on Setpoint display. In the Parameter Setting Display, the LP2 lamp indicates the loop of displayed menu symbol or parameter symbol. The LP2 lamp is lit while the Loop-2 menu symbol or parameter symbol is displayed.

UT55A Key Parts

UT52A Key Parts



No. in figure	Name	Description
(1)	UT55A: DISPLAY key UT52A: DISP key	Used to switch the Operation Displays. Press the key in the Operation Display to switch the provided Operation Displays. Press the key in the Menu Display or Parameter Setting Display to return to the Operation Display.
(2)	UT55A: PARAMETER key UT52A: PARA key	Hold down the key for 3 seconds to move to the Operation Parameter Setting Display. Hold down the key and the Left arrow key simultaneously for 3 seconds to move to the Setup Parameter Setting Display. Press the key in the Parameter Setting Display to return to the Menu Display. Press the key once to cancel the parameter setting (setpoint is blinking).
(3)	SET/ENTER key Up/Down/ Left/Right arrow keys	**SET/ENTER key** Press the key in the Menu Display to move to the Parameter Setting Display of the Menu. Press the key in the Parameter Setting Display to transfer to the parameter setting mode (setpoint is blinking), and the parameter can be changed. Press the key during parameter setting mode to register the setpoint. **Up/Down/Left/Right arrow keys** Press the Left/Right arrow keys in the Menu Display to switch the Displays. Press the Up/Down/Left/Right arrow keys in the Parameter Setting Display to switch the Displays. Press the Up/Down arrow keys during parameter setting mode (setpoint is blinking) to change a setpoint. Press the Left/Right arrow keys during parameter setting mode (setpoint is blinking) to move between digits according to the parameter.
(4)	Light-loader interface	It is the communication interface to the adapter cable when setting and storing parameters via PC. The LL50A Parameter Setting Software (sold separately) is required.
(5)	A/M key	Used to switch between AUTO and MAN modes. The setting is switched between AUTO and MAN each time the key is pressed. The user can assign a function key.
(6)	User function keys	The UT55A has F1, F2, and Fn keys. The UT52A has only the Fn key. The user can assign a function to the key. The function is set by the parameter.

Brief Description of Parameter Map

The parameter display level is a function to control the parameters to be displayed. The factory setting is LEVL=STD.

The control prevents unintentional change of the function.

The parameter display level is just a function to hide the display so the set function works.

Changing of parameter display level

The parameters to be displayed can be controlled by changing the setting value for setup parameter LEVL.

Parameter Display Level | Setting value

EASY — **EASY** — Symbol

Corresponding parameters are displayedin all modes.

STD — Symbol Symbol

Corresponding parameters are displayed only in Standard setting mode and Professional setting mode.
Parameter display level indicators "EASY" and "PRO" are unlit in Standard setting mode.

PRO — **PRO** — Symbol Symbol Symbol

Corresponding parameters are displayed only in Professional setting mode.

Meaning of Parameter Symbol and Numeric Value

Numeric Value Symbol

↑ ↑

Group Parameter symbol

Group E1: indicates the parameter in E1-terminal area
E2: indicates the parameter in E2-terminal area
E3: indicates the parameter in E3-terminal area
E4: indicates the parameter in E4-terminal area
1 to 8, R: indicate the group numbers

Display may be controlled according to the setting value of the setup parameter and operation status.

Parameter Display Transition and Setup Operation

To move to the Operation Parameter Setting Display

PARAMETER / PARA

Press the key
for 3 seconds.

To move to the Setup Parameter Setting Display

+ PARAMETER / PARA

Press the key
for 3 seconds.

To move to the Operation Display

If you cannot remember how to carry out an operation during setting, press the DISPLAY key or DISP key once. This brings you to the display (Operation Display) that appears at power-on.

DISPLAY DISP

<Operation for Setting>

To select the parameter setting displayed as the initial value, press the Down arrow key to move to the next parameter.

To change and set the parameter setting, press the SET/ENTER key to start the setpoint blinking. The blinking state allows you to make changes (setting mode). Use the Up/Down/Left/Right arrow keys to change the setpoint. Press the SET/ENTER key to register the setting.

The following operating procedure describes an example of setting alarm setpoint (A1). <In case of UT55A>

1. Hold down the PARAMETER key for 3 seconds in the Operation Display to call up the [MODE] Menu Display.

2. Press the Right arrow key to display the [SP] Menu Display.

3. Press the SET/ENTER key to display the [SP] Parameter Setting Display.

4. Press the Down arrow key to display the [A1] Parameter Setting Display.

5. Press the SET/ENTER key to blink the setpoint.

6. Press the Up or Down arrow key to change the setpoint.
(Change the setpoint using the Up/Down arrow keys to increase and decrease the value and the Left/Right arrow keys to move between digits.)

7. Press the SET/ENTER key to register the setpoint (the setpoint stops blinking).

8. Press the PARAMETER key once to return to the Menu Display.
Press the DISPLAY key once to return to the Operation Display.

This completes the setting procedure.

How to Cancel Parameter Setting
To cancel parameter setting when a parameter is being set (setpoint is blinking), press the PARAMETER key once.

How to Set Parameter Setpoint

Numeric Value Setting

1. Display the Parameter Setting Display.

2. Press the SET/ENTER key to move to the setting mode (the setpoint blinks).

3. Press the Left arrow key to move one digit to the left. (Press the Right arrow key to move one digit to the right.)

4. Press the Up or Down arrow key to change the setpoint.
Press the Up arrow key when 9 is displayed to move one digit to the left.
Press the Down arrow key when 0 is displayed to move one digit to the right.

5. Press the SET/ENTER key to register the setpoint.

Selection Data Setting

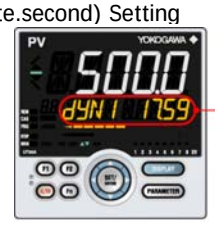
1. Display the Parameter Setting Display.

2. Press the SET/ENTER key to move to the setting mode (the setpoint blinks).

3. Press the Up arrow key to change the setpoint (press the Down arrow key to change the setpoint).

4. Press the SET/ENTER key to register the setpoint.

Time (minute.second) Setting



Example of 17 minutes 59 seconds

1. Display the Parameter Setting Display.

2. Press the SET/ENTER key to move to the setting mode (the setpoint blinks).

3. Press the Left arrow key to move one digit to the left. (press the Right arrow key to move one digit to the right.)

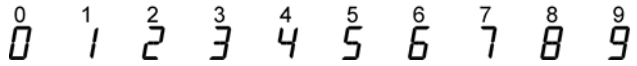
4. Press the Up or Down arrow key to change the setpoint.
Press the Up arrow key when 5 is displayed to move one digit to the left.
Press the Down arrow key when 0 is displayed to move one digit to the right.

5. Press the SET/ENTER key to register the setpoint.

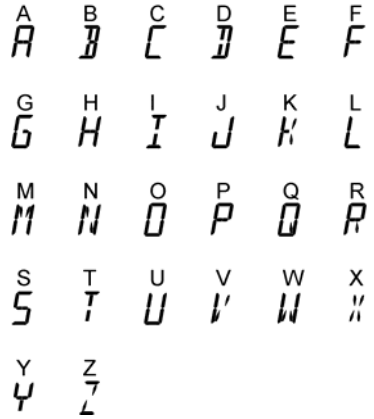
List of Display Symbols

The following shows the parameter symbols, menu symbols, alphanumeric of guide, and symbols which are displayed on the UT55A/UT52A.

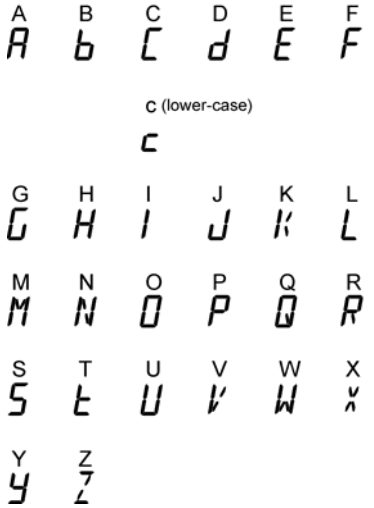
Figure (common to all display area)



PV display (14 segments): Alphabet



Symbol display and Data display (11 segments): Alphabet



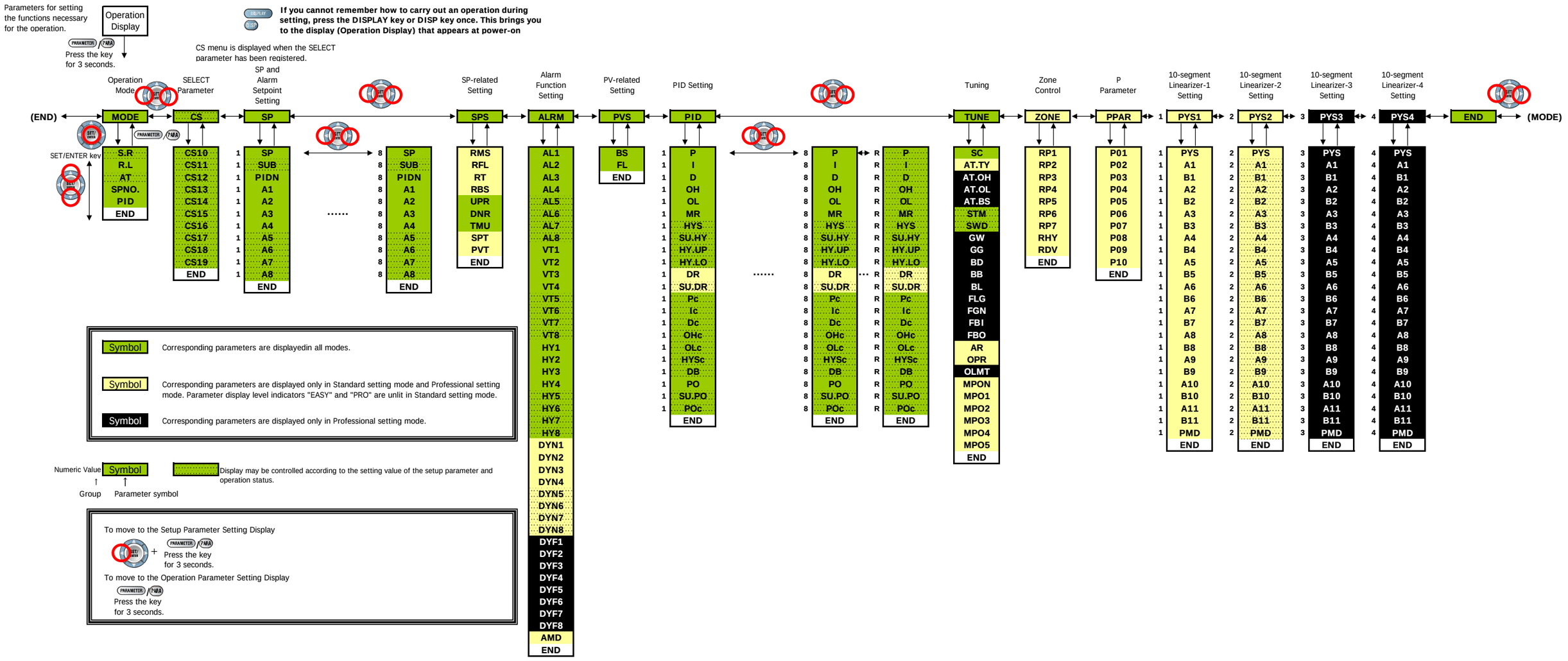
Group display (7 segments): Alphabet

PV display (14 segments): Symbol

UTAdvanced UT55A/UT52A

Operation Parameter Map

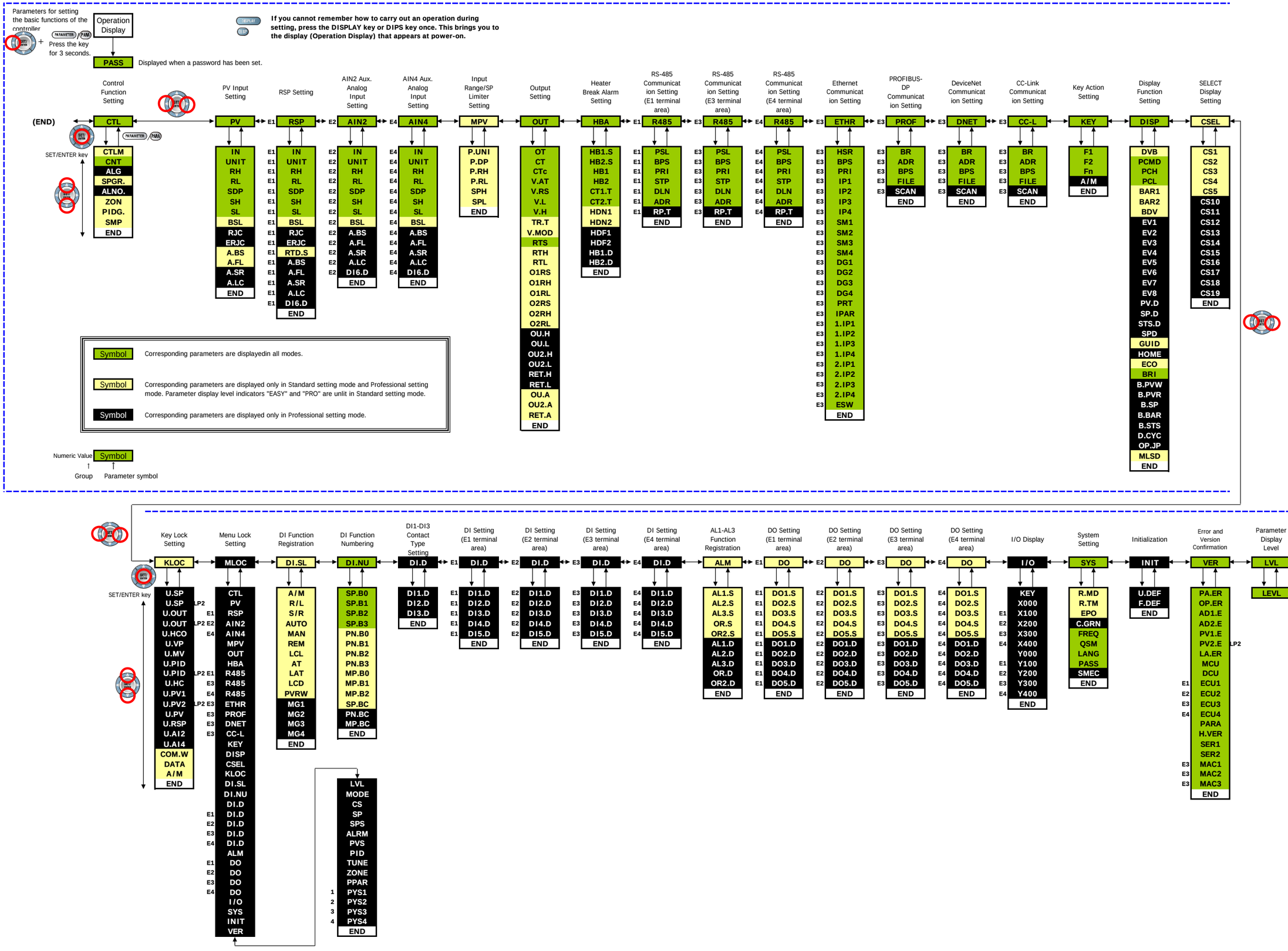
* This parameter map is for the case that the control mode (CTLM) is set to single loop control (SGL). Some parameters are not displayed according to model and suffix codes. For details, refer to the User's Manual.



UTAdvanced UT55A / UT52A

Setup Parameter Map

* This parameter map is for the case that the control mode (CTLM) is set to single loop control (SGL). Some parameters are not displayed according to model and suffix codes. For details, refer to the User's Manual.



UTAdvanced UT55A/UT52A

List of Parameters

* This parameter lists are for the case that the control mode (CTLM) is set to single loop control (SGL). Some parameters are not displayed according to model and suffix codes. For details, refer to the User's Manual.

Operation Parameters

Operation Mode

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
MODE	**S.R**	STOP/RUN switch	EASY	STOP: Stop mode RUN: Run mode Preset output (PO) is generated in STOP mode. Default: Not displayed. STOP/RUN switch is assigned to contact input.	RUN	
	R.L	REMOTE/LOCAL switch	EASY	LCL: Local mode REM: Remote mode Select a remote input method for acquiring the target setpoint from remote input or communication using the parameter RMS.	LCL	
	AT	Auto-tuning switch	EASY	OFF: Disable 1 to 8: Perform auto-tuning. Tuning result is stored in the specified numbered PID. R: Tuning result is stored in the PID for reference deviation.	OFF	
	SPNO.	SP number selection	EASY	1 to 8 (Depends on the setup parameter SPGR. setting.)	1	
	PID	PID number	EASY	The PID group number being selected is displayed. 1 to 8, R: PID group for reference deviation	1	

SELECT Parameter

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
CS	**CS10**	SELECT parameter 10	EASY	Setting range of a registered parameter. See User's Manual.	-	
	CS11	SELECT parameter 11	EASY		-	
	CS12	SELECT parameter 12	EASY		-	
	CS13	SELECT parameter 13	EASY		-	
	CS14	SELECT parameter 14	EASY		-	
	CS15	SELECT parameter 15	EASY		-	
	CS16	SELECT parameter 16	EASY		-	
	CS17	SELECT parameter 17	EASY		-	
	CS18	SELECT parameter 18	EASY		-	
	CS19	SELECT parameter 19	EASY		-	

SP and Alarm Setpoint Setting

						Group 1 (SPNO.=1)	Group 2 (SPNO.=2)	Group 3 (SPNO.=3)	Group 4 (SPNO.=4)	Group 5 (SPNO.=5)	Group 6 (SPNO.=6)	Group 7 (SPNO.=7)	Group 8 (SPNO.=8)
Menu	Symbol	Name	Display level	Setting range	Initial value	User setting	User setting	User setting	User setting	User setting	User setting	User setting	User setting
SP	**SP**	Target setpoint	EASY	0.0 to 100.0% of PV input range (EU) (Setting range: SPL to SPH)	SPL								
	SUB	Sub-target setpoint (in Two-position two-level control)	EASY	Set the offset from SP. -100.0 to 100.0% of PV input range span (EUS)	0.0 % of PV input range span								
	PIDN	PID number selection	EASY	1 to 8 (Depends on the PIDG. setting.)	Same as SP number.								
	A1	Alarm-1 setpoint	EASY	Set a display value of setpoint of PV alarm, SP alarm, deviation alarm, output alarm, or velocity alarm. -19999 to 30000 (Set a value within the input range.) Decimal point position depends on the input type.	0								
	A2	Alarm-2 setpoint	EASY		0								
	A3	Alarm-3 setpoint	EASY		0								
	A4	Alarm-4 setpoint	EASY		0								
	A5	Alarm-5 setpoint	EASY		0								
	A6	Alarm-6 setpoint	EASY		0								
	A7	Alarm-7 setpoint	EASY		0								
	A8	Alarm-8 setpoint	EASY		0								

SP-related Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
SPS	**RMS**	Remote input method	STD	RSP: Via remote (aux. analog) input COM: Via communication	RSP	
	RFL	Remote input filter	STD	OFF, 1 to 120 s	OFF	
	RT	Remote input ratio	STD	0.001 to 9.999	1.000	
	RBS	Remote input bias	STD	-100.0 to 100.0% of PV input range span (EUS)	0.0 % of PV input range span	
	UPR	SP ramp-up rate	EASY	OFF, 0.0 + 1 digit to 100.0% of PV input range span (EUS)	OFF	
	DNR	SP ramp-down rate	EASY		OFF	
	TMU	SP ramp-rate time unit	EASY	HOUR: Ramp-up rate or rampdown rate per hour MIN: Ramp-up rate or ramp-down rate per minute	HOUR	
	SPT	SP tracking selection	STD	OFF, ON	ON	
	PVT	PV tracking selection	STD	OFF, ON	OFF	

Alarm Function Setting

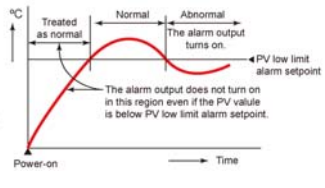
Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
ALRM	**AL1**	Alarm-1 type	EASY	Set a 5-digit value in the following order. [Alarm type: 2 digits (see below)] + [Without (0) or With (1) Stand-by action] + [Energized (0) or De-energized (1)] + [Latch action (0/1/2/3/4)] Alarm type: 2 digits 00: Disable 01: PV high limit 02: PV low limit 03: SP high limit 04: SP low limit 05: Deviation high limit 06: Deviation low limit 07: Deviation high and low limits 08: Deviation within high and low limits 09: Target SP high limit 10: Target SP low limit 11: Target SP deviation high limit 12: Target SP deviation low limit 13: Target SP deviation high and low limits 14: Target SP deviation within high and low limits 15: OUT high limit 16: OUT low limit 17: Cooling-side OUT high limit 18: Cooling-side OUT low limit 19: Analog input PV high limit 20: Analog input PV low limit 21: Analog input RSP high limit 22: Analog input RSP low limit 23: Analog input AIN2 high limit 24: Analog input AIN2 low limit 25: Analog input AIN4 high limit 26: Analog input AIN4 low limit 27: Feedback input high limit 28: Feedback input low limit 29: PV velocity 30: Fault diagnosis 31: FAIL	PV high limit (01) Without Standby action (0) Energized (0) Latch action (0)	
	AL2	Alarm-2 type	EASY		PV low limit (02) Without Standby action (0) Energized (0) Latch action (0)	
	AL3	Alarm-3 type	EASY		PV high limit (01) Without Standby action (0) Energized (0) Latch action (0)	
	AL4	Alarm-4 type	EASY		PV low limit (02) Without Standby action (0) Energized (0) Latch action (0)	
	AL5	Alarm-5 type	EASY		PV high limit (01) Without Standby action (0) Energized (0) Latch action (0)	
	AL6	Alarm-6 type	EASY		PV low limit (02) Without Standby action (0) Energized (0) Latch action (0)	
	AL7	Alarm-7 type	EASY		PV high limit (01) Without Standby action (0) Energized (0) Latch action (0)	
	AL8	Alarm-8 type	EASY		PV low limit (02) Without Standby action (0) Energized (0) Latch action (0)	
	VT1	PV velocity alarm time setpoint 1	EASY	0.01 to 99.59 (minute.second)	1.00	
	VT2	PV velocity alarm time setpoint 2	EASY		1.00	
	VT3	PV velocity alarm time setpoint 3	EASY		1.00	
	VT4	PV velocity alarm time setpoint 4	EASY		1.00	
	VT5	PV velocity alarm time setpoint 5	EASY		1.00	
	VT6	PV velocity alarm time setpoint 6	EASY		1.00	
	VT7	PV velocity alarm time setpoint 7	EASY		1.00	
	VT8	PV velocity alarm time setpoint 8	EASY		1.00	
	HY1	Alarm-1 hysteresis	EASY	Set a display value of setpoint of hysteresis. -19999 to 30000 (Set a value within the input range.) Decimal point position depends on the input type. When the decimal point position for the input type is set to "1", the initial value of the hysteresis is "1.0".	10	
	HY2	Alarm-2 hysteresis	EASY		10	
	HY3	Alarm-3 hysteresis	EASY		10	
	HY4	Alarm-4 hysteresis	EASY		10	
	HY5	Alarm-5 hysteresis	EASY		10	
	HY6	Alarm-6 hysteresis	EASY		10	
	HY7	Alarm-7 hysteresis	EASY		10	
	HY8	Alarm-8 hysteresis	EASY		10	
	DYN1	Alarm-1 On-delay timer	STD	0.00 to 99.59 (minute.second)	0.00	
	DYN2	Alarm-2 On-delay timer	STD		0.00	
	DYN3	Alarm-3 On-delay timer	STD		0.00	
	DYN4	Alarm-4 On-delay timer	STD		0.00	
	DYN5	Alarm-5 On-delay timer	STD		0.00	
	DYN6	Alarm-6 On-delay timer	STD		0.00	
	DYN7	Alarm-7 On-delay timer	STD		0.00	
	DYN8	Alarm-8 On-delay timer	STD		0.00	
	DYF1	Alarm-1 Off-delay timer	PRO	0.00 to 99.59 (minute.second)	0.00	
	DYF2	Alarm-2 Off-delay timer	PRO		0.00	
	DYF3	Alarm-3 Off-delay timer	PRO		0.00	
	DYF4	Alarm-4 Off-delay timer	PRO		0.00	
	DYF5	Alarm-5 Off-delay timer	PRO		0.00	
	DYF6	Alarm-6 Off-delay timer	PRO		0.00	
	DYF7	Alarm-7 Off-delay timer	PRO		0.00	
	DYF8	Alarm-8 Off-delay timer	PRO		0.00	
	AMD	Alarm mode	STD	0: Always active 1: Not active in STOP mode 2: Not active in STOP or MAN mode	0	

Alarm Type (Alarm Setpoint)	Alarm Action (Energized)	Alarm Action (De-energized)
No alarm (00)	-	-
PV high limit (01) Analog input PV high limit (19) Analog input RSP high limit (21) Analog input AIN2 high limit (23) Analog input AIN4 high limit (25)	Hysteresis; Open (unlit); Closed (lit); PV, RSP, AIN2 or AIN4; Alarm setpoint	Hysteresis; Closed (unlit); Open (lit); PV, RSP, AIN2 or AIN4; Alarm setpoint
PV low limit (02) Analog input PV low limit (20) Analog input RSP low limit (22) Analog input AIN2 low limit (24) Analog input AIN4 low limit (26)	Hysteresis; Closed (lit); Open (unlit); Alarm setpoint; PV, RSP, AIN2 or AIN4	Hysteresis; Open (lit); Closed (unlit); Alarm setpoint; PV, RSP, AIN2 or AIN4
SP high limit (03) Target SP high limit (09)	Hysteresis; Open (unlit); Closed (lit); SP or Target SP; Alarm setpoint	Hysteresis; Closed (unlit); Open (lit); SP or Target SP; Alarm setpoint
SP low limit (04) Target SP low limit (10)	Hysteresis; Closed (lit); Open (unlit); Alarm setpoint; SP or Target SP	Hysteresis; Open (lit); Closed (unlit); Alarm setpoint; SP or Target SP
Deviation high limit (05) Target SP deviation high limit (11)	Hysteresis; Open (unlit); Closed (lit); PV; Deviation setpoint; SP or Target SP; ⊕	Hysteresis; Closed (unlit); Open (lit); PV; Deviation setpoint; SP or Target SP; ⊕
Deviation low limit (06) Target SP deviation low limit (12)	Hysteresis; Closed (lit); Open (unlit); Deviation setpoint; PV; ⊖ SP or Target SP	Hysteresis; Open (lit); Closed (unlit); Deviation setpoint; PV; ⊖ SP or Target SP
Deviation high and low limits (07) Target SP deviation high and low limits (13)	Hysteresis Hysteresis; Closed (lit); Open (unlit); Closed (lit); Deviation setpoint; PV; SP or Target SP	Hysteresis Hysteresis; Open (lit); Closed (unlit); Open (lit); Deviation setpoint; PV; SP or Target SP
Deviation within high and low limits (08) Target SP deviation within high and low limits (14)	Hysteresis Hysteresis; Open (unlit); Closed (lit); Open (unlit); Deviation setpoint; PV; SP or Target SP	Hysteresis Hysteresis; Closed (unlit); Open (lit); Closed (unlit); Deviation setpoint; PV; SP or Target SP
Control output high limit (15) Cooling-side control output high limit (17)	Hysteresis; Open (unlit); Closed (lit); Output; Alarm setpoint	Hysteresis; Closed (unlit); Open (lit); Output; Alarm setpoint
Control output low limit (16) Cooling-side control output low limit (18)	Hysteresis; Closed (lit); Open (unlit); Alarm setpoint; Output	Hysteresis; Open (lit); Closed (unlit); Alarm setpoint; Output
Feedback input high limit (27)	Fault diagnosis alarm (30) Burnout of PV input, RSP remote input, or AIN2/AIN4 auxiliary analog input. ADC failure, RJC error.	
Feedback input low limit (28)	FAIL (31) For the factory default, the contact output is turned ON in normal operation, OFF at the time of FAIL. Control output: OFF or 0%, Alarm output: OFF	
PV velocity (29)		

Note 1: "Open/closed" shows status of relay contact, and "lit/unlit" shows status of EV (event) lamp.
Note 2: ⊕ Positive setpoint, ⊖ Negative setpoint

Setting Display of Alarm Type

Stand-by Action



PV-related Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PVS	**BS**	PV input bias	EASY	-100.0 to 100.0% of PV input range span (EUS)	0.0 % of PV input range span	
	FL	PV input filter	EASY	OFF, 1 to 120 s	OFF	

PID Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	Group 1 (PIDN=1)	Group 2 (PIDN=2)	Group 3 (PIDN=3)	Group 4 (PIDN=4)	Group 5 (PIDN=5)	Group 6 (PIDN=6)	Group 7 (PIDN=7)	Group 8 (PIDN=8)
						User setting	User setting	User setting	User setting	User setting	User setting	User setting	User setting
PID	**P**	Proportional band Heating-side proportional band (in Heating/cooling control)	EASY	0.0 to 999.9% When 0.0% is set, it operates as 0.1%. Heating-side ON/OFF control applies when 0.0% in Heating/cooling control	5.0%								
	I	Integral time Heating-side integral time (in Heating/cooling control)	EASY	OFF: Disable 1 to 6000 s	240 s								
	D	Derivative time Heating-side derivative time (in Heating/cooling control)	EASY	OFF: Disable 1 to 6000 s	60 s								
	OH	Control output high limit Heating-side control output high limit (in Heating/cooling control)	EASY	-4.9 to 105.0%, (OL<OH) In Heating/cooling control: 0.1 to 105.0% (OL<OH)	100.0%								
	OL	Control output low limit Heating-side control output low limit (in Heating/cooling control)	EASY	-5.0 to 104.9%, (OL<OH), SD:Tight shut In Heating/cooling control: 0.0 to 104.9% (OL<OH)	0.0%								
	MR	Manual reset	EASY	Enabled when integral time is OFF. The manual reset value equals the output value when PV = SP. -5.0 to 105.0%	50.0%								
	HYS	Hysteresis (in ON/OFF control, Position proportional control, or Two-position two-level control) Heating-side ON/OFF control hysteresis (in Heating/cooling control)	EASY	In ON/OFF control or Two-position two-level control: 0.0 to 100.0% of PV input range span (EUS) In Heating/cooling control or Position proportional control: 0.0 to 100.0%	In ON/OFF control or Two-position two-level control: 0.5 % of PV input range span In Heating/cooling control or Position proportional control: 0.5 %								
	SU.HY	Sub-hysteresis (in Two-position two-level control)	EASY	0.0 to 100.0% of PV input range span (EUS)	0.5 % of PV input range span								
	HY.UP	Upper-side hysteresis (in ON/OFF control)	EASY	0.0 to 100.0% of PV input range span (EUS)	0.5 % of PV input range span								
	HY.LO	Lower-side hysteresis (in ON/OFF control)	EASY		0.5 % of PV input range span								
	DR	Direct/reverse action switch	STD	RVS: Reverse action, DIR: Direct action	RVS								
	SU.DR	Sub-direct/reverse action switch (in Two-position two-level control)	STD		DIR								
	Pc	Cooling-side proportional band	EASY	0.0 to 999.9% (Cooling-side ON/OFF control applies when 0.0% in Heating/cooling control)	5.0%								
	Ic	Cooling-side integral time	EASY	OFF: Disable 1 to 6000 s	240 s								
	Dc	Cooling-side derivative time	EASY	OFF: Disable 1 to 6000 s	60 s								
	OHc	Cooling-side control output high limit	EASY	0.1 to 105.0%, (OLc<OHc)	100.0%								
	OLc	Cooling-side control output low limit	EASY	0.0 to 104.9%, (OLc<OHc)	0.0%								
	HYSc	Cooling-side ON/OFF control hysteresis	EASY	0.0 to 100.0%	0.5%								
	DB	Output dead band (in Heating/cooling control or Position proportional control)	EASY	In Heating/cooling control: -100.0 to 50.0% In Position proportional control: 1.0 to 10.0%	3.0%								
	PO	Preset output Heating-side preset output (in Heating/cooling control)	EASY	-5.0 to 105.0%	0.0%								
	SU.PO	Sub-preset output (in Two-position two-level control)	EASY	0%, 100%	0%								
	POc	Cooling-side preset output	EASY	-5.0 to 105.0%	0.0%								

Tuning

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
TUNE	**SC**	Super function	EASY	OFF: Disable 1: Overshoot suppressing function (normal mode) 2: Hunting suppressing function (stable mode) Enables to answer the wider characteristic changes compared with response mode. 3: Hunting suppressing function (response mode) Enables quick follow-up and short converging time of PV for the changed SP. 4: Overshoot suppressing function (strong suppressing mode)	OFF	
	AT.TY	Auto-tuning type	STD	0: Normal 1: Stability	0	
	AT.OH	Output high limit in auto-tuning	PRO	-5.0 to 105.0% (Disabled in Heating/cooling control)	100.0%	
	AT.OL	Output low limit in auto-tuning	PRO		0.0%	
	AT.BS	SP bias in autotuning	PRO	-100.0 to 100.0% of PV input range span (EUS)	0.0 % of PV input range span	
	STM	Sample PI sampled time	EASY	0 to 9999 s	60 s	
	SWD	Sample PI control time span	EASY	0 to 9999 s	30 s	
	GW	Non-linear control gap width	PRO	OFF, 0.0%+1digit to 50.0% of PV input range span (EUS)	OFF	
	GG	Non-linear control gain	PRO	0.001 to 1.000	1.000	
	BD	Batch PID deviation setpoint	PRO	0.0 to 100.0% of PV input range span (EUS)	0.0% of PV input range span	
	BB	Batch PID bias	PRO	0.0 to 100.0%	0.0%	
	BL	Batch PID lock-up width	PRO	0.0 to 100.0% of PV input range span (EUS)	0.0% of PV input range span	
	FLG	Feedforward firstorder lag time constant	PRO	OFF, 1 to 120 s	OFF	
	FGN	Feedforward gain	PRO	-9.999 to 9.999	1.000	
	FBI	Feedforward input bias	PRO	-100.0 to 100.0%	0.0%	
	FBO	Feedforward output bias	PRO	-999.9 to 999.9%	0.0%	
	AR	Anti-reset windup (excess integration prevention)	STD	AUTO, 50.0 to 200.0%	AUTO	
	OPR	Output velocity limiter	STD	OFF: Disable 0.1 to 100.0%/s	OFF	
	OLMT	Output limiter switch	PRO	OFF: Disable output limiter in MAN mode ON: Enable output limiter in MAN mode	ON	
	MPON	Manual preset output number selection	STD	OFF: Hold the control output in AUTO mode (bumpless) 1: Use manual preset output 1 (output bump) 2: Use manual preset output 2 (output bump) 3: Use manual preset output 3 (output bump) 4: Use manual preset output 4 (output bump) 5: Use manual preset output 5 (output bump)	OFF	
	MPO1	Manual preset output 1	STD	-5.0 to 105.0%	0.0%	
	MPO2	Manual preset output 2	STD		0.0%	
	MPO3	Manual preset output 3	STD		0.0%	
	MPO4	Manual preset output 4	STD		0.0%	
	MPO5	Manual preset output 5	STD		0.0%	

Zone Control

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
ZONE	**RP1**	Reference point 1	STD	0.0 to 100.0% of PV input range (EU) (RP1 ≤ RP2 ≤ RP3 ≤ RP4 ≤ RP5 ≤ RP6 ≤ RP7)	100.0 % of PV input range	
	RP2	Reference point 2	STD		100.0 % of PV input range	
	RP3	Reference point 3	STD		100.0 % of PV input range	
	RP4	Reference point 4	STD		100.0 % of PV input range	
	RP5	Reference point 5	STD		100.0 % of PV input range	
	RP6	Reference point 6	STD		100.0 % of PV input range	
	RP7	Reference point 7	STD		100.0 % of PV input range	
	RHY	Zone PID switching hysteresis	STD	0.0 to 10.0% of PV input range span (EUS)	0.5 % of PV input range span	
	RDV	Reference deviation	STD	OFF: Disable 0.0 + 1 digit to 100.0% of PV input range span (EUS)	OFF	

P Parameter

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PPAR	**P01**	P01 Parameter	STD	-19999 to 30000 (Set a decimal point position using LL50A Parameter Setting Software.)	0	
	P02	P02 Parameter	STD		0	
	P03	P03 Parameter	STD		0	
	P04	P04 Parameter	STD		0	
	P05	P05 Parameter	STD		0	
	P06	P06 Parameter	STD		0	
	P07	P07 Parameter	STD		0	
	P08	P08 Parameter	STD		0	
	P09	P09 Parameter	STD		0	
	P10	P10 Parameter	STD		0	

10-segment Linearizer-1 Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PYS1	**PYS**	10-segment linearizer-1 selection	STD	OFF: Disable PV: PV analog input RSP: RSP analog input AIN2: AIN2 analog input AIN4: AIN4 analog input PVIN: PV input OUT: OUT analog output OUT2: OUT2 analog output RET: RET analog output	PV (CTLM: SGL)	
	A1	10-segment linearizer-1 input 1	STD	10-segment linearizer input -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0% 10-segment linearizer output 10-segment linearizer bias: -66.7 to 105.0% of input range span (EUS) 10-segment linearizer approximation: -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0%	0.0%	
	B1	10-segment linearizer-1 output 1	STD		0.0%	
	A2	10-segment linearizer-1 input 2	STD		0.0%	
	B2	10-segment linearizer-1 output 2	STD		0.0%	
	A3	10-segment linearizer-1 input 3	STD		0.0%	
	B3	10-segment linearizer-1 output 3	STD		0.0%	
	A4	10-segment linearizer-1 input 4	STD		0.0%	
	B4	10-segment linearizer-1 output 4	STD		0.0%	
	A5	10-segment linearizer-1 input 5	STD		0.0%	
	B5	10-segment linearizer-1 output 5	STD		0.0%	
	A6	10-segment linearizer-1 input 6	STD		0.0%	
	B6	10-segment linearizer-1 output 6	STD		0.0%	
	A7	10-segment linearizer-1 input 7	STD		0.0%	
	B7	10-segment linearizer-1 output 7	STD		0.0%	
	A8	10-segment linearizer-1 input 8	STD		0.0%	
	B8	10-segment linearizer-1 output 8	STD		0.0%	
	A9	10-segment linearizer-1 input 9	STD		0.0%	
	B9	10-segment linearizer-1 output 9	STD		0.0%	
	A10	10-segment linearizer-1 input 10	STD		0.0%	
	B10	10-segment linearizer-1 output 10	STD		0.0%	
	A11	10-segment linearizer-1 input 11	STD		0.0%	
	B11	10-segment linearizer-1 output 11	STD		0.0%	
	PMD	10-segment linearizer mode	STD	0: 10-segment linearizer bias 1: 10-segment linearizer approximation	0	

10-segment Linearizer-2 Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PYS2	**PYS**	10-segment linearizer-2 selection	STD	OFF: Disable PV: PV analog input RSP: RSP analog input AIN2: AIN2 analog input AIN4: AIN4 analog input PVIN: PV input OUT: OUT analog output OUT2: OUT2 analog output RET: RET analog output	OFF	
	A1	10-segment linearizer-2 input 1	STD	10-segment linearizer input -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0% 10-segment linearizer output 10-segment linearizer bias: -66.7 to 105.0% of input range span (EUS) 10-segment linearizer approximation: -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0%	0.0%	
	B1	10-segment linearizer-2 output 1	STD		0.0%	
	A2	10-segment linearizer-2 input 2	STD		0.0%	
	B2	10-segment linearizer-2 output 2	STD		0.0%	
	A3	10-segment linearizer-2 input 3	STD		0.0%	
	B3	10-segment linearizer-2 output 3	STD		0.0%	
	A4	10-segment linearizer-2 input 4	STD		0.0%	
	B4	10-segment linearizer-2 output 4	STD		0.0%	
	A5	10-segment linearizer-2 input 5	STD		0.0%	
	B5	10-segment linearizer-2 output 5	STD		0.0%	
	A6	10-segment linearizer-2 input 6	STD		0.0%	
	B6	10-segment linearizer-2 output 6	STD		0.0%	
	A7	10-segment linearizer-2 input 7	STD		0.0%	
	B7	10-segment linearizer-2 output 7	STD		0.0%	
	A8	10-segment linearizer-2 input 8	STD		0.0%	
	B8	10-segment linearizer-2 output 8	STD		0.0%	
	A9	10-segment linearizer-2 input 9	STD		0.0%	
	B9	10-segment linearizer-2 output 9	STD		0.0%	
	A10	10-segment linearizer-2 input 10	STD		0.0%	
	B10	10-segment linearizer-2 output 10	STD		0.0%	
	A11	10-segment linearizer-2 input 11	STD		0.0%	
	B11	10-segment linearizer-2 output 11	STD		0.0%	
	PMD	10-segment linearizer-2 mode	STD	0: 10-segment linearizer bias 1: 10-segment linearizer approximation	0	

10-segment Linearizer-3 Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PYS3	**PYS**	10-segment linearizer-3 selection	PRO	OFF: Disable PV: PV analog input RSP: RSP analog input AIN2: AIN2 analog input AIN4: AIN4 analog input PVIN: PV input OUT: OUT analog output OUT2: OUT2 analog output RET: RET analog output	OFF	
	A1	10-segment linearizer-3 input 1	PRO	10-segment linearizer input -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0% 10-segment linearizer output 10-segment linearizer bias: -66.7 to 105.0% of input range span (EUS) 10-segment linearizer approximation: -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0%	0.0%	
	B1	10-segment linearizer-3 output 1	PRO		0.0%	
	A2	10-segment linearizer-3 input 2	PRO		0.0%	
	B2	10-segment linearizer-3 output 2	PRO		0.0%	
	A3	10-segment linearizer-3 input 3	PRO		0.0%	
	B3	10-segment linearizer-3 output 3	PRO		0.0%	
	A4	10-segment linearizer-3 input 4	PRO		0.0%	
	B4	10-segment linearizer-3 output 4	PRO		0.0%	
	A5	10-segment linearizer-3 input 5	PRO		0.0%	
	B5	10-segment linearizer-3 output 5	PRO		0.0%	
	A6	10-segment linearizer-3 input 6	PRO		0.0%	
	B6	10-segment linearizer-3 output 6	PRO		0.0%	
	A7	10-segment linearizer-3 input 7	PRO		0.0%	
	B7	10-segment linearizer-3 output 7	PRO		0.0%	
	A8	10-segment linearizer-3 input 8	PRO		0.0%	
	B8	10-segment linearizer-3 output 8	PRO		0.0%	
	A9	10-segment linearizer-3 input 9	PRO		0.0%	
	B9	10-segment linearizer-3 output 9	PRO		0.0%	
	A10	10-segment linearizer-3 input 10	PRO		0.0%	
	B10	10-segment linearizer-3 output 10	PRO		0.0%	
	A11	10-segment linearizer-3 input 11	PRO		0.0%	
	B11	10-segment linearizer-3 output 11	PRO		0.0%	
	PMD	10-segment linearizer-3 mode	PRO	0: 10-segment linearizer bias 1: 10-segment linearizer approximation	0	

10-segment Linearizer-4 Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PYS4	**PYS**	10-segment linearizer-4 selection	PRO	OFF: Disable PV: PV analog input RSP: RSP analog input AIN2: AIN2 analog input AIN4: AIN4 analog input PVIN: PV input OUT: OUT analog output OUT2: OUT2 analog output RET: RET analog output	OFF	
	A1	10-segment linearizer-4 input 1	PRO	10-segment linearizer input -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0% 10-segment linearizer output 10-segment linearizer bias: -66.7 to 105.0% of input range span (EUS) 10-segment linearizer approximation: -66.7 to 105.0% of input range (EU) Output linearizer: -5.0 to 105.0%	0.0%	
	B1	10-segment linearizer-4 output 1	PRO		0.0%	
	A2	10-segment linearizer-4 input 2	PRO		0.0%	
	B2	10-segment linearizer-4 output 2	PRO		0.0%	
	A3	10-segment linearizer-4 input 3	PRO		0.0%	
	B3	10-segment linearizer-4 output 3	PRO		0.0%	
	A4	10-segment linearizer-4 input 4	PRO		0.0%	
	B4	10-segment linearizer-4 output 4	PRO		0.0%	
	A5	10-segment linearizer-4 input 5	PRO		0.0%	
	B5	10-segment linearizer-4 output 5	PRO		0.0%	
	A6	10-segment linearizer-4 input 6	PRO		0.0%	
	B6	10-segment linearizer-4 output 6	PRO		0.0%	
	A7	10-segment linearizer-4 input 7	PRO		0.0%	
	B7	10-segment linearizer-4 output 7	PRO		0.0%	
	A8	10-segment linearizer-4 input 8	PRO		0.0%	
	B8	10-segment linearizer-4 output 8	PRO		0.0%	
	A9	10-segment linearizer-4 input 9	PRO		0.0%	
	B9	10-segment linearizer-4 output 9	PRO		0.0%	
	A10	10-segment linearizer-4 input 10	PRO		0.0%	
	B10	10-segment linearizer-4 output 10	PRO		0.0%	
	A11	10-segment linearizer-4 input 11	PRO		0.0%	
	B11	10-segment linearizer-4 output 11	PRO		0.0%	
	PMD	10-segment linearizer-4 mode	PRO	0: 10-segment linearizer bias 1: 10-segment linearizer approximation	0	

Setup Parameters

Control Function Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
CTL	**CTLM**	Control mode	STD	SGL: Single-loop control CAS1: Cascade primary-loop control CAS2: Cascade secondary-loop control CAS: Cascade control BUM: Loop control for backup PVSW: Loop control with PV switching PVSEL: Loop control with PV autoselector PVHD: Loop control with PV-hold function * When using the ladder program, the control mode cannot be changed.	SGL	
	CNT	Control type	EASY	PID: PID control ONOF: ON/OFF control (1 point of hysteresis) ONOF2: ON/OFF control (2 points of hysteresis) 2P2L: Two-position two-level control H/C: Heating/cooling control S-PI: Sample PI control BATCH: Batch PID control FFPID: Feedforward control	Standard type: PID Heating/cooling type: H/C	
	ALG	PID control mode	PRO	0: Standard PID control mode 1: Fixed-point control mode	0	
	SPGR.	Number of SP groups	STD	1 to 8	8	
	ALNO.	Number of alarms	PRO	1 to 8	4	
	ZON	Zone PID selection	STD	0: SP group number selection 1 1: Zone PID selection (selection by PV) 2: Zone PID selection (selection by target SP) 3: SP group number selection 2 4: Zone PID selection (selection by SP)	0	
	PIDG.	Number of PID groups	STD	1 to 8	8	
	SMP	Input sampling period (control period)	STD	50: 50 ms (Note) 100: 100 ms 200: 200 ms	100	

Note: Available when the control mode is not Cascade control (CTLM ≠CAS) and the following functions are not used: "SUPER" function, "SUPER 2" function.

PV Input Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PV	**IN**	PV input type	EASY	OFF: Disable K1: -270.0 to 1370.0 (°C) / -450.0 to 2500.0 (°F) K2: -270.0 to 1000.0 (°C) / -450.0 to 2300.0 (°F) K3: -200.0 to 500.0 (°C) / -200.0 to 1000.0 (°F) J: -200.0 to 1200.0 (°C) / -300.0 to 2300.0 (°F) T1: -270.0 to 400.0 (°C) / -450.0 to 750.0 (°F) T2: 0.0 to 400.0 (°C) / -200.0 to 750.0 (°F) B: 0.0 to 1800.0 (°C) / 32 to 3300 (°F) S: 0.0 to 1700.0 (°C) / 32 to 3100 (°F) R: 0.0 to 1700.0 (°C) / 32 to 3100 (°F) N: -200.0 to 1300.0 (°C) / -300.0 to 2400.0 (°F) E: -270.0 to 1000.0 (°C) / -450.0 to 1800.0 (°F) L: -200.0 to 900.0 (°C) / -300.0 to 1600.0 (°F) U1: -200.0 to 400.0 (°C) / -300.0 to 750.0 (°F) U2: 0.0 to 400.0 (°C) / -200.0 to 1000.0 (°F) W: 0.0 to 2300.0 (°C) / 32 to 4200 (°F) PL2: 0.0 to 1390.0 (°C) / 32.0 to 2500.0 (°F) P2040: 0.0 to 1900.0 (°C) / 32 to 3400 (°F) WRE: 0.0 to 2000.0 (°C) / 32 to 3600 (°F) JPT1: -200.0 to 500.0 (°C) / -300.0 to 1000.0 (°F) JPT2: -150.00 to 150.00 (°C) / -200.0 to 300.0 (°F) PT1: -200.0 to 850.0 (°C) / -300.0 to 1560.0 (°F) PT2: -200.0 to 500.0 (°C) / -300.0 to 1000.0 (°F) PT3: -150.00 to 150.00 (°C) / -200.0 to 300.0 (°F) 0.4-2V: 0.400 to 2.000 V 1-5V: 1.000 to 5.000 V 4-20: 4.00 to 20.00 mA 0-2V: 0.000 to 2.000 V 0-10V: 0.00 to 10.00 V 0-20: 0.00 to 20.00 mA -1020: -10.00 to 20.00 mV 0-100: 0.0 to 100.0 mV Note: W: W-5% Re/W-26% Re (Hoskins Mfg. Co.), ASTM E988 WRE: W97Re3-W75Re25	OFF	
	UNIT	PV input unit	EASY	-: No unit C: Degree Celsius -: No unit --: No unit ---: No unit F: Degree Fahrenheit	C	
	RH	Maximum value of PV input range	EASY	Depends on the input type. - For temperature input - Set the temperature range that is actually controlled. (RL<RH) - For voltage / current input - Set the range of a voltage / current signal that is applied. The scale across which the voltage / current signal is actually controlled should be set using the maximum value of input scale (SH) and minimum value of input scale (SL). (Input is always 0% when RL = RH.)	Depends on the input type	
	RL	Minimum value of PV input range	EASY		Depends on the input type	
	SDP	PV input scale decimal point position	EASY	0: No decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places	Depends on the input type	
	SH	Maximum value of PV input scale	EASY	-19999 to 30000, (SL<SH), | SH - SL | ≤ 30000	Depends on the input type	
	SL	Minimum value of PV input scale	EASY		Depends on the input type	
	BSL	PV input burnout action	STD	OFF: Disable UP: Upscale DOWN: Downscale	Depends on the input type	
	RJC	PV input reference junction compensation	PRO	OFF: RJC OFF ON: RJC ON	ON	
	ERJC	PV input external RJC setpoint	PRO	-10.0 to 60.0 (°C)	0.0	
	A.BS	PV analog input bias	STD	-100.0 to 100.0% of PV input range span (EUS)	0.0 % of PV input range span	
	A.FL	PV analog input filter	STD	OFF, 1 to 120 s	OFF	
	A.SR	PV analog input square root extraction	PRO	OFF: No square root extraction. 1: Compute the square root. (The slope equals “1.”) 2: Compute the square root. (The slope equals “0.”)	OFF	
	A.LC	PV analog input low signal cutoff	PRO	0.0 to 5.0%	1.0%	

RSP Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
RSP	**IN**	RSP remote input type	EASY	0.4-2V: 0.400 to 2.000 V 1-5V: 1.000 to 5.000 V 0-2V: 0.000 to 2.000 V 0-10V: 0.00 to 10.00 V 0-125: 0.000 to 1.250 V For option /DR, RSP remote input type is same as PV input type.	1-5V	
	UNIT	RSP remote input unit	EASY	-: No unit C: Degree Celsius -: No unit --: No unit ---: No unit F: Degree Fahrenheit	C	
	RH	Maximum value of RSP remote input range	EASY	Depends on the input type. - For temperature input (with /DR option) - Set the temperature range that is actually controlled. (RL<RH) - For voltage / current (with /DR option) input - Set the range of a voltage / current signal that is applied. The scale across which the voltage / current signal is actually controlled should be set using the maximum value of input scale (SH) and minimum value of input scale (SL). (Input is always 0% when RL = RH.)	Depends on the input type	
	RL	Minimum value of RSP remote input range	EASY		Depends on the input type	
	SDP	RSP remote input scale decimal point position	EASY	0: No decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places	Depends on the input type	
	SH	Maximum value of RSP remote input scale	EASY	-19999 to 30000, (SL<SH), | SH - SL | ≤ 30000	Depends on the input type	
	SL	Minimum value of RSP remote input scale	EASY		Depends on the input type	
	BSL	RSP remote input burnout action	STD	OFF: Disable UP: Upscale DOWN: Downscale	Depends on the input type	
	RJC	RSP remote input reference junction compensation (for /DR option)	PRO	OFF: RJC OFF ON: RJC ON	ON	
	ERJC	RSP remote input external RJC setpoint (for /DR option)	PRO	-10.0 to 60.0 (°C)	0.0	
	RTD.S	RTD wiring system	STD	3-W: 3-wire system, 4-W: 4-wire system	3-W	
	A.BS	RSP aux. analog input bias	PRO	-100.0 to 100.0% of RSP input range span (EUS)	0.0 % of RSP input range span	
	A.FL	RSP aux. analog input filter	PRO	OFF, 1 to 120 s	OFF	
	A.SR	RSP aux. analog input square root extraction	PRO	OFF: No square root extraction. 1: Compute the square root. (The slope equals “1.”) 2: Compute the square root. (The slope equals “0.”)	OFF	
	A.LC	RSP aux. analog input low signal cutoff	PRO	0.0 to 5.0%	1.0%	
	DI6.D	DI16 contact type	PRO	0: The assigned function is enabled when the contact is closed. 1: The assigned function is enabled when the contact is opened.	0	

When each parameter is displayed, the terminal area (E1) is displayed on Group display.

AIN2 Aux. Analog Input Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
AIN2	**IN**	AIN2 aux. analog input type	EASY	0.4-2V: 0.400 to 2.000 V 1-5V: 1.000 to 5.000 V 0-2V: 0.000 to 2.000 V 0-10V: 0.00 to 10.00 V 0-125: 0.000 to 1.250 V	1-5V	
	UNIT	AIN2 aux. analog input unit	EASY	-: No unit C: Degree Celsius -: No unit --: No unit ---: No unit F: Degree Fahrenheit	C	
	RH	Maximum value of AIN2 aux. analog input range	EASY	Depends on the input type. Set the range of a voltage signal that is applied. The scale across which the voltage signal is actually controlled should be set using the maximum value of input scale (SH) and minimum value of input scale (SL). (Input is always 0% when RL = RH.)	Depends on the input type	
	RL	Minimum value of AIN2 aux. analog input range	EASY		Depends on the input type	
	SDP	AIN2 aux. analog input scale decimal point position	EASY	0: No decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places	Depends on the input type	
	SH	Maximum value of AIN2 aux. analog input scale	EASY	-19999 to 30000, (SL<SH), | SH - SL | ≤ 30000	Depends on the input type	
	SL	Minimum value of AIN2 aux. analog input scale	EASY		Depends on the input type	
	BSL	AIN2 aux. analog input burnout action	STD	OFF: Disable UP: Upscale DOWN: Downscale	Depends on the input type	
	A.BS	AIN2 aux. analog input bias	PRO	-100.0 to 100.0% of AIN2 input range span (EUS)	0.0 % of AIN2 input range span	
	A.FL	AIN2 aux. analog input filter	PRO	OFF, 1 to 120 s	OFF	
	A.SR	AIN2 aux. analog input square root extraction	PRO	OFF: No square root extraction. 1: Compute the square root. (The slope equals “1.”) 2: Compute the square root. (The slope equals “0.”)	OFF	
	A.LC	AIN2 aux. analog input low signal cutoff	PRO	0.0 to 5.0%	1.0%	
	DI6.D	DI26 contact type	PRO	0: The assigned function is enabled when the contact is closed. 1: The assigned function is enabled when the contact is opened.	0	

When each parameter is displayed, the terminal area (E2) is displayed on Group display.

AIN4 Aux. Analog Input Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
AIN4	**IN**	AIN4 aux. analog input type	EASY	0.4-2V: 0.400 to 2.000 V 1-5V: 1.000 to 5.000 V 0-2V: 0.000 to 2.000 V 0-10V: 0.00 to 10.00 V 0-125: 0.000 to 1.250 V	1-5V	
	UNIT	AIN4 aux. analog input unit	EASY	-: No unit C: Degree Celsius -: No unit --: No unit ---: No unit F: Degree Fahrenheit	C	
	RH	Maximum value of AIN4 aux. analog input range	EASY	Depends on the input type. Set the range of a voltage signal that is applied. The scale across which the voltage signal is actually controlled should be set using the maximum value of input scale (SH) and minimum value of input scale (SL). (Input is always 0% when RL = RH.)	Depends on the input type	
	RL	Minimum value of AIN4 aux. analog input range	EASY		Depends on the input type	
	SDP	AIN4 aux. analog input scale decimal point position	EASY	0: No decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places	Depends on the input type	
	SH	Maximum value of AIN4 aux. analog input scale	EASY	-19999 to 30000, (SL<SH), | SH - SL | ≤ 30000	Depends on the input type	
	SL	Minimum value of AIN4 aux. analog input scale	EASY		Depends on the input type	
	BSL	AIN4 aux. analog input burnout action	STD	OFF: Disable UP: Upscale DOWN: Downscale	Depends on the input type	
	A.BS	AIN4 aux. analog input bias	PRO	-100.0 to 100.0% of AIN4 input range span (EUS)	0.0 % of AIN4 input range span	
	A.FL	AIN4 aux. analog input filter	PRO	OFF, 1 to 120 s	OFF	
	A.SR	AIN4 aux. analog input square root extraction	PRO	OFF: No square root extraction. 1: Compute the square root. (The slope equals “1.”) 2: Compute the square root. (The slope equals “0.”)	OFF	
	A.LC	AIN4 aux. analog input low signal cutoff	PRO	0.0 to 5.0%	1.0%	
	DI6.D	DI46 contact type	PRO	0: The assigned function is enabled when the contact is closed. 1: The assigned function is enabled when the contact is opened.	0	

When each parameter is displayed, the terminal area (E4) is displayed on Group display.

Input Range/SP Limiter Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
MPV	**P.UNI**	Control PV input unit	STD	-: No unit C: Degree Celsius -: No unit --: No unit ---: No unit F: Degree Fahrenheit	Same as PV input unit	
	P.DP	Control PV input decimal point position	STD	0: No decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places	Depends on the input type	
	P.RH	Maximum value of control PV input range	STD	-19999 to 30000, (P.RL<P.RH), | P.RH - P.RL | ≤ 30000	Depends on the input type	
	P.RL	Minimum value of control PV input range	STD		Depends on the input type	
	SPH	SP high limit	STD	0.0 to 100.0% of PV input range (EU), (SPL<SPH)	100.0 % of PV input range	
	SPL	SP low limit	STD		0.0 % of PV input range	

Output Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
OUT	**OT**	Output type selection	EASY	Control output or Heating-side control output (Lower two digits) 00: OFF 01: OUT terminals (voltage pulse) 02: OUT terminals (current) 03: OUT terminals (relay/triac) 04: OUT2 terminals (voltage pulse) 05: OUT2 terminals (current) 06: OUT2 terminals (relay/triac) Cooling-side control output (Upper two digits) 00: OFF 01: OUT terminals (voltage pulse) 02: OUT terminals (current) 03: OUT terminals (relay/triac) 04: OUT2 terminals (voltage pulse) 05: OUT2 terminals (current) 06: OUT2 terminals (relay/triac)	Standard type: 00.03 Heating/cooling type: 06.03	
	CT	Control output cycle time Heating-side control output cycle time (in Heating/cooling control)	EASY	0.5 to 1000.0 s	30.0 s	
	CTc	Cooling-side control output cycle time	EASY		30.0 s	
	V.AT	Automatic valve position adjustment	EASY	OFF: Stop automatic adjustment ON: Start automatic adjustment	OFF	
	V.RS	Valve position setting reset	EASY	Setting V.RS to ON resets the valve adjustment settings and causes the indication “V.RS” to blink.	OFF	
	V.L	Fully-closed valve position setting	EASY	Pressing the SET/ENTER key with valve position set to the fullyclosed position by Down arrow key causes the adjusted value to be stored. When V.L adjustment is complete, V.L stops blinking.	-	
	V.H	Fully-open valve position setting	EASY	Pressing the SET/ENTER key with valve position set to the fullyopened position by Up arrow key causes the adjusted value to be stored. When V.H adjustment is complete, V.H stops blinking.	-	
	TR.T	Valve traveling time	STD	5 to 300 s	60 s	
	V.MOD	Valve adjusting mode	STD	0: Valve position feedback type 1: Valve position feedback type (moves to the estimating type if a feedback input error or break occurs.) 2: Valve position estimating type	0	
	RTS	Retransmission output type of RET	EASY	OFF: Disable PV1: PV SP1: SP OUT1: OUT (Valve opening: 0 to 100 % in Position proportional control) LPS: 15 V DC loop power supply PV2: Loop-2 PV SP2: Loop-2 SP OUT2: Loop-2 OUT TSP1: Target SP HOUT1: Heating-side OUT COUT1: Cooling-side OUT MV1: Position proportional output internal computed value) TSP2: Loop-2 target SP HOUT2: Loop-2 heating-side OUT COUT2: Loop-2 cooling-side OUT MV2: Loop-2 position proportional output (internal computed value) PV: PV terminals analog input RSP: RSP terminals analog input AIN2: AIN2 terminals analog input AIN4: AIN4 terminals analog input Loop-2 setting values are unavailable in Single-loop control.	PV1	
	RTH	Maximum value of retransmission output scale of RET	STD	When RTS = PV1, SP1, PV2, SP2, TSP1, TSP2, PV, RSP, AIN2, or AIN4, RTL + 1 digit to 30000 -19999 to RTH - 1 digit Decimal point position: When RTS=PV1, SP1, or TSP1, decimal point position is same as that of PV input. When RTS=PV2, SP2, or TSP2, decimal point position is same as that of RSP input. When RTS=PV, decimal point position is same as that of PV input scale. When RTS=RSP, decimal point position is same as that of RSP input scale. When RTS=AIN2, decimal point position is same as that of AIN2 scale. When RTS=AIN4, decimal point position is same as that of AIN4 scale.	100 % of PV input range	
	RTL	Minimum value of retransmission output scale of RET	STD		0 % of PV input range	
	O1RS	Retransmission output type of OUT current output	STD	Same as RTS	OFF	
	O1RH	Maximum value of retransmission output scale of OUT current output	STD	When O1RS = PV1, SP1, PV2, SP2, TSP1, TSP2, PV, RSP, AIN2, or AIN4, O1RL + 1 digit to 30000 -19999 to O1RH - 1 digit Decimal point position: When O1RS=PV1, SP1, or TSP1, decimal point position is same as that of PV input. When O1RS =PV2, SP2, or TSP2, decimal point position is same as that of RSP input. When O1RS =PV, decimal point position is same as that of PV input scale. When O1RS =RSP, decimal point position is same as that of RSP input scale. When O1RS =AIN2, decimal point position is same as that of AIN2 scale. When O1RS =AIN4, decimal point position is same as that of AIN4 scale.	-	
	O1RL	Minimum value of retransmission output scale of OUT current output	STD		-	
	O2RS	Retransmission output type of OUT2 current output	STD	Same as RTS	OFF	
	O2RH	Maximum value of retransmission output scale of OUT2 current output	STD	When O2RS = PV1, SP1, PV2, SP2, TSP1, TSP2, PV, RSP, AIN2, or AIN4, O2RL + 1 digit to 30000 -19999 to O2RH - 1 digit Decimal point position: When O2RS=PV1, SP1, or TSP1, decimal point position is same as that of PV input. When O2RS =PV2, SP2, or TSP2, decimal point position is same as that of RSP input. When O2RS =PV, decimal point position is same as that of PV input scale. When O2RS =RSP, decimal point position is same as that of RSP input scale. When O2RS =AIN2, decimal point position is same as that of AIN2 scale. When O2RS =AIN4, decimal point position is same as that of AIN4 scale.	-	
	O2RL	Minimum value of retransmission output scale of OUT2 current output	STD		-	
	OU.H	100% segmental point of OUT current output	PRO	-100.0 to 200.0%	100.0%	
	OU.L	0% segmental point of OUT current output	PRO		0.0%	
	OU2.H	100% segmental point of OUT2 current output	PRO		100.0%	
	OU2.L	0% segmental point of OUT2 current output	PRO		0.0%	
	RET.H	100% segmental point of RET current output	PRO		100.0%	
	RET.L	0% segmental point of RET current output	PRO		0.0%	
	OU.A	OUT current output range	STD	4-20: 4 to 20 mA 0-20: 0 to 20 mA 20-4: 20 to 4 mA 20-0: 20 to 0 mA	4-20	
	OU2.A	OUT2 current output range	STD		4-20	
	RET.A	RET current output range	STD		4-20	

Heater Break Alarm Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
HBA	**HB1.S**	Heater break alarm-1 function selection	EASY	0: Heater current measurement 1: Heater break alarm	1	
	HB2.S	Heater break alarm-2 function selection	EASY		1	
	HB1	Heater break alarm-1 current setpoint	EASY	OFF, 0.1 to 300.0 Arms	OFF	
	HB2	Heater break alarm-2 current setpoint	EASY		OFF	
	CT1.T	CT1 coil winding number ratio	EASY	1 to 3300	800	
	CT2.T	CT2 coil winding number ratio	EASY		800	
	HDN1	Heater break alarm-1 Ondelay timer	STD	0.00 to 99.59 (minute.second)	0.00	
	HDN2	Heater break alarm-2 Ondelay timer	STD		0.00	
	HDF1	Heater break alarm-1 Offdelay timer	PRO		0.00	
	HDF2	Heater break alarm-2 Offdelay timer	PRO		0.00	
	HB1.D	Heater break alarm-1 contact type	PRO	CLS: When the event occurs, the contact is closed. OPN: When the event occurs, the contact is opened.	CLS	
	HB2.D	Heater break alarm-2 contact type	PRO		CLS	

RS-485 Communication Setting

						(E1 terminal area)	(E3 terminal area)	(E4 terminal area)
Menu	Symbol	Name	Display level	Setting range	Initial value	User setting	User setting	User setting
R485	**PSL**	Protocol selection	EASY	PCL: PC link communication PCLSM: PC link communication (with checksum) LADR: Ladder communication CO-M: Coordinated master station CO-S: Coordinated slave station MBASC: Modbus (ASCII) MBRTU: Modbus (RTU) CO-S1: Coordinated slave station (Loop-1 mode) CO-S2: Coordinated slave station (Loop-2 mode) P-P: Peer-to-peer communication	MBRTU			
	BPS	Baud rate	EASY	600: 600 bps 1200: 1200 bps 2400: 2400 bps 4800: 4800 bps 9600: 9600 bps 19200: 19.2k bps 38400: 38.4k bps (except for communication of E4 terminal area)	19200			
	PRI	Parity	EASY	NONE: None EVEN: Even ODD: Odd	EVEN			
	STP	Stop bit	EASY	1: 1 bit, 2: 2 bits	1			
	DLN	Data length	EASY	7: 7 bits, 8: 8 bits	8			
	ADR	Address	EASY	1 to 99	1			
	RP.T	Minimum response time	PRO	0 to 10 (x10ms)	0			

Ethernet Communication Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
ETHR	**HSR**	High-speed response mode	EASY	OFF, 1 to 8	1	
	BPS	Baud rate	EASY	9600: 9600 bps 19200: 19.2k bps 38400: 38.4k bps	38400	
	PRI	Parity	EASY	NONE: None EVEN: Even ODD: Odd	EVEN	
	IP1	IP address 1	EASY	0 to 255	192	
	IP2	IP address 2	EASY	0 to 255	168	
	IP3	IP address 3	EASY	0 to 255	1	
	IP4	IP address 4	EASY	0 to 255	1	
	SM1	Subnet mask 1	EASY	0 to 255	255	
	SM2	Subnet mask 2	EASY	0 to 255	255	
	SM3	Subnet mask 3	EASY	0 to 255	255	
	SM4	Subnet mask 4	EASY	0 to 255	0	
	DG1	Default gateway 1	EASY	0 to 255	0	
	DG2	Default gateway 2	EASY	0 to 255	0	
	DG3	Default gateway 3	EASY	0 to 255	0	
	DG4	Default gateway 4	EASY	0 to 255	0	
	PRT	Port number	EASY	502, 1024 to 65535	502	
	IPAR	IP access restriction	EASY	OFF: Disable, ON: Enable	OFF	
	1.IP1	Permitted IP address 1-1	EASY	0 to 255	255	
	1.IP2	Permitted IP address 1-2	EASY	0 to 255	255	
	1.IP3	Permitted IP address 1-3	EASY	0 to 255	255	
	1.IP4	Permitted IP address 1-4	EASY	0 to 255	255	
	2.IP1	Permitted IP address 2-1	EASY	0 to 255	255	
	2.IP2	Permitted IP address 2-2	EASY	0 to 255	255	
	2.IP3	Permitted IP address 2-3	EASY	0 to 255	255	
	2.IP4	Permitted IP address 2-4	EASY	0 to 255	255	
	ESW	Ethernet setting switch	EASY	OFF, ON Setting this parameter to “ON” enables the Ethernet communication parameter settings. * The parameter ESW automatically returns to “OFF” after “ON” is set.	OFF	

When each parameter is displayed, the terminal area (E3) is displayed on Group display.

PROFIBUS-DP Communication Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
PROF	**BR**	Baud rate	EASY	9.6K: 9.6k bps 19.2K: 19.2k bps 93.75K: 93.75k bps 187.5K: 187.5k bps 0.5M: 0.5M bps 1.5M: 1.5M bps 3M: 3M bps 6M: 6M bps 12M: 12M bps AUTO	AUTO	
	ADR	Address	EASY	0 to 125	3	
	BPS	Baud rate	EASY	9600: 9600 bps 19200: 19.2k bps 38400: 38.4k bps	38400	
	FILE	Profile number	EASY	0 to 5	0	
	SCAN	Automatic rescan time	PRO	OFF 1M: 1 minute 10M: 10 minutes 30M: 30 minutes 60M: 60 minutes	OFF	

When each parameter is displayed, the terminal area (E3) is displayed on Group display.

DeviceNet Communication Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
DNET	**BR**	Baud rate	EASY	125K: 125k bps 250K: 250k bps 500K: 500k bps	125K	
	ADR	Address	EASY	0 to 63	63	
	BPS	Baud rate	EASY	9600: 9600 bps 19200: 19.2k bps 38400: 38.4k bps	38400	
	FILE	Profile number	EASY	0 to 5	0	
	SCAN	Automatic rescan time	PRO	OFF 1M: 1 minute 10M: 10 minutes 30M: 30 minutes 60M: 60 minutes	OFF	

When each parameter is displayed, the terminal area (E3) is displayed on Group display.

CC-Link Communication Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
CC-L	**BR**	Baud rate	EASY	156K: 156k bps 625K: 625k bps 2.5M: 2.5M bps 5M: 5M bps 10M: 10M bps	10M	
	ADR	Address	EASY	1 to 64	1	
	BPS	Baud rate	EASY	9600: 9600 bps 19200: 19.2k bps 38400: 38.4k bps	38400	
	FILE	Profile number	EASY	0 to 5 (0, 1: Ver.1.10) (2 to 5: Ver.2.00)	0	
	SCAN	Automatic rescan time	PRO	OFF 1M: 1 minute 10M: 10 minutes 30M: 30 minutes 60M: 60 minutes	OFF	

When each parameter is displayed, the terminal area (E3) is displayed on Group display.

Key Action Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
KEY	**F1**	User function key-1 action setting	EASY	OFF: Disable A/M: AUTO/MAN switch C/A/M: CAS/AUTO/MAN switch R/L1: REM/LCL switch R/L2: Loop-2 REM/LCL switch S/R: STOP/RUN switch CAS: Switch to CAS AUTO: Switch to AUTO MAN: Switch to MAN REM1: Switch to REM LCL1: Switch to LCL REM2: Switch to Loop-2 REM LCL2: Switch to Loop-2 LCL STOP: Switch to STOP RUN: Switch to RUN AT: Auto-tuning LTUP: LCD brightness UP LTDN: LCD brightness DOWN BRI: Adjust LCD brightness LCD: LCD backlight ON/OFF switch LAT: Latch release PID: PID tuning switch Loop-2 setting values are unavalable in Single-loop control.	OFF	
	F2	User function key-2 action setting	EASY		OFF	
	Fn	User function key-n action setting	EASY		PID	
	A/M	A/M key action setting	PRO	OFF: Disable A/M: AUTO/MAN switch C/A/M: CAS/AUTO/MAN switch R/L1: REM/LCL switch R/L2: Loop-2 REM/LCL switch S/R: STOP/RUN switch CAS: Switch to CAS AUTO: Switch to AUTO MAN: Switch to MAN	A/M	

Display Function Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
DISP	**DVB**	Deviation display band	STD	0.0 to 100.0% of PV input range span (EUS)	1.0 % of PV input range span	
	PCMD	Active color PV display switch	EASY	0: Fixed in white 1: Fixed in red 2: Link to alarm 1 (Alarm OFF: white, Alarm ON: red) 3: Link to alarm 1 (Alarm OFF: red, Alarm ON: white) 4: Link to alarm 1 or 2 (Alarm OFF: white, Alarm ON: red) 5: Link to alarm 1 or 2 (Alarm OFF: red, Alarm ON: white) 6: PV limit (Within range: white, Out of range: red) 7: PV limit (Within range: red, Out of range: white) 8: SP deviation (Within deviation: white, Out of deviation: red) 9: SP deviation (Within deviation: red, Out of deviation: white) 10: Link to DI (ON: red, OFF: white)	0	
	PCH	PV color change high limit	EASY	Set a display value when in PV limit or SP deviation. -19999 to 30000 (Set a value within the input range.) Decimal point position depends on the input type.	0	
	PCL	PV color change low limit	EASY		0	
	BAR1	Upper bar-graph display registration	STD	0: Disable 1: OUT, Heating-side OUT, Internal value in Position proportional control 2: Cooling-side OUT 3: PV 4: SP 5: Deviation 6: Loop-2 OUT, Loop-2 heatingside OUT 7: Loop-2 cooling-side OUT 8: Loop-2 PV 9: Loop-2 SP 10: Loop-2 deviation 11 to 16: Disable 17: Feedback input (valve opening) 18: PV terminals analog input 19: RSP terminals analog input 20: AIN2 terminals analog input 21: AIN4 terminals analog input	5 (Heating/cooling type: 1)	
	BAR2	Lower bar-graph display registration	STD		1 (Heating/cooling type: 2) (Position proportional type: 17)	
	BDV	Bar-graph deviation display band	STD	0.0 to 100.0% of PV input range span (EUS)	10.0 % of PV input range span	
	EV1	EV1 display condition registration	PRO	Setting range: 4001 to 6304 OFF: Disable 4321: Link to alarm 1 (Lit when the alarm occurs) 4322: Link to alarm 2 (Lit when the alarm occurs) 4323: Link to alarm 3 (Lit when the alarm occurs) 4325: Link to alarm 4 (Lit when the alarm occurs) 4326: Link to alarm 5 (Lit when the alarm occurs) 4327: Link to alarm 6 (Lit when the alarm occurs) 4329: Link to alarm 7 (Lit when the alarm occurs) 4330: Link to alarm 8 (Lit when the alarm occurs) 4337: Link to Loop-2 alarm 1 (Lit when the alarm occurs) 4338: Link to Loop-2 alarm 2 (Lit when the alarm occurs) 4339: Link to Loop-2 alarm 3 (Lit when the alarm occurs) 4341: Link to Loop-2 alarm 4 (Lit when the alarm occurs) 4342: Link to Loop-2 alarm 5 (Lit when the alarm occurs) 4343: Link to Loop-2 alarm 6 (Lit when the alarm occurs) 4345: Link to Loop-2 alarm 7 (Lit when the alarm occurs) 4346: Link to Loop-2 alarm 8 (Lit when the alarm occurs) 4529: Heater break alarm 1 (Lit when the alarm occurs) 4530: Heater break alarm 2 (Lit when the alarm occurs) 5025 to 5027: Link to DI1-DI3 (Lit when the contact is closed) 5041 to 5046: Link to DI11-DI16 (E1-terminal area) (Lit when the contact is closed) 5057 to 5062: Link to DI21-DI26 (E2-terminal area) (Lit when the contact is closed) 5073 to 5077: Link to DI31-DI35 (E3-terminal area) (Lit when the contact is closed) 5089 to 5094: Link to DI41-DI46 (E4-terminal area) (Lit when the contact is closed) 5153 to 5155: Link to AL1-AL3 (Lit when the contact is closed) 5169 to 5173: Link to DO11-DO15 (E1-terminal area) (Lit when the contact is closed) 5185 to 5189: Link to DO21-DO25 (E2-terminal area) (Lit when the contact is closed) 5201 to 5205: Link to DO31-DO35 (E3-terminal area) (Lit when the contact is closed) 5217 to 5221: Link to DO41-DO45 (E4-terminal area) (Lit when the contact is closed) For other functions, see the UTAdvanced Series Communication Interface User's Manual.	4321	
	EV2	EV2 display condition registration	PRO		4322	
	EV3	EV3 display condition registration	PRO		4323	
	EV4	EV4 display condition registration	PRO		4325	
	EV5	EV5 display condition registration	PRO		4326	
	EV6	EV6 display condition registration	PRO		4327	
	EV7	EV7 display condition registration	PRO		4329	
	EV8	EV8 display condition registration	PRO		4230	
	PV.D	PV display area ON/OFF	PRO	OFF: Nondisplay, ON: Display	ON	
	SP.D	Setpoint display area ON/OFF	PRO		ON	
	STS.D	Status display area ON/OFF	PRO		ON	
	SPD	Scroll speed	PRO	(Slow) 1 to 8 (Quick)	4	
	GUID	Guide display ON/OFF	STD	OFF: Nondisplay ON: Display	ON	
	HOME	Home Operation Display setting	PRO	SP1: SP Display SP2: Loop-2 SP Display OUT1: OUT Display OUT2: Loop-2 OUT Display HCO: Heating/cooling OUT Display VP: Valve Position Display MV: Position Proportional Computation Output Display PID1: PID Number Display PID2: Loop-2 PID Number Display HC1: Heater Break Alarm-1 Current Display HC2: Heater Break Alarm-2 Current Display PV1: PV2/PV1 Display PV2: PV1/PV2 Display PV: PV Analog Input Display RSP: RSP Analog Input Display AIN2: AIN2 Analog Input Display AIN4: AIN4 Analog Input Display CS1 to CS5: SELECT Display 1 to 5	SP1	
	ECO	Economy mode	STD	OFF: Disable 1: Economy mode ON (All indications except PV display OFF) 2: Economy mode ON (All indications OFF) 3: Brightness 10 % (All indications)	OFF	
	BRI	Brightness	EASY	(Dark) 1 to 5 (Bright)	3	
	B.PVW	White brightness adjustment of PV display	PRO	Adjusts the white brightness of PV display. (Dark) -4 to 4 (Bright)	0	
	B.PVR	Red brightness adjustment of PV display	PRO	Adjusts the red brightness of PV display. (Dark) -4 to 4 (Bright)	0	
	B.SP	Brightness adjustment of Setpoint display	PRO	Adjusts the brightness of SP display. (Dark) -4 to 4 (Bright)	0	
	B.BAR	Brightness adjustment of Bargraph display	PRO	Adjusts the brightness of Bargraph display. (Dark) -4 to 4 (Bright)	0	
	B.STS	Brightness adjustment of Status indicator	PRO	Adjusts the brightness of Status indicator. (Dark) -4 to 4 (Bright)	0	
	D.CYC	Display update cycle	PRO	1: 100 ms 2: 200 ms 3: 500 ms 4: 1 s 5: 2 s	2	
	OP.JP	Autoreturn to operation display	PRO	Automatically returned to the Operation Display when there has been no keystroke operation for 5 minutes. OFF, ON	ON	
	MLSD	Least significant digital mask of PV display	STD	OFF: With least significant digit ON: Without least significant digit	OFF	

SELECT Display Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
CSEL	**CS1**	SELECT Display-1 registration	STD	OFF, 2301 to 5000 For the D register number, see the UTAdvanced Series Communication Interface User's Manual Main registration parameters - Group 1 (SPNO.=1) Alarm-1 setpoint (A1): 2504, Alarm-2 setpoint (A2): 2505, Alarm-3 setpoint (A3): 2506, Alarm-4 setpoint (A4): 2507, Control output high limit (OH): 3004, Control output low limit (OL): 3005, Cooling-side control output high limit (OHc): 3016, Cooling-side control output low limit (OLc): 3017 - Group 2 (SPNO.=2) Alarm-1 setpoint (A1): 2524, Alarm-2 setpoint (A2): 2525, Alarm-3 setpoint (A3): 2526, Alarm-4 setpoint (A4): 2527, Control output high limit (OH): 3054, Control output low limit (OL): 3055, Cooling-side control output high limit (OHc): 3066, Cooling-side control output low limit (OLc): 3067 - Group 3 (SPNO.=3) Alarm-1 setpoint (A1): 2544, Alarm-2 setpoint (A2): 2545, Alarm-3 setpoint (A3): 2546, Alarm-4 setpoint (A4): 2547, Control output high limit (OH): 3104, Control output low limit (OL): 3105, Cooling-side control output high limit (OHc): 3116, Cooling-side control output low limit (OLc): 3117 - Group 4 (SPNO.=4) Alarm-1 setpoint (A1): 2564, Alarm-2 setpoint (A2): 2565, Alarm-3 setpoint (A3): 2566, Alarm-4 setpoint (A4): 2567, Control output high limit (OH): 3154, Control output low limit (OL): 3155, Cooling-side control output high limit (OHc): 3166, Cooling-side control output low limit (OLc): 3167 SP ramp-up rate (UPR): 2705, SP ramp-down rate (DNR): 2706 Remote input ratio (RT): 2703	OFF	
	CS2	SELECT Display-2 registration	STD		OFF	
	CS3	SELECT Display-3 registration	STD		OFF	
	CS4	SELECT Display-4 registration	STD		OFF	
	CS5	SELECT Display-5 registration	STD		OFF	
	CS10	SELECT parameter-10 registration	PRO		OFF	
	CS11	SELECT parameter-11 registration	PRO		OFF	
	CS12	SELECT parameter-12 registration	PRO		OFF	
	CS13	SELECT parameter-13 registration	PRO		OFF	
	CS14	SELECT parameter-14 registration	PRO		OFF	
	CS15	SELECT parameter-15 registration	PRO		OFF	
	CS16	SELECT parameter-16 registration	PRO		OFF	
	CS17	SELECT parameter-17 registration	PRO		OFF	
	CS18	SELECT parameter-18 registration	PRO		OFF	
	CS19	SELECT parameter-19 registration	PRO		OFF	

Key Lock Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
KLOC	**U.SP**	SP Display lock	PRO	OFF: Display ON: Nondisplay	OFF	
	U.OUT	OUT Display lock	PRO		OFF (Cascade control: ON)	
	U.HCO	Heating/cooling OUT Display lock	PRO		OFF	
	U.VP	Valve Position Display lock	PRO		OFF	
	U.MV	Position Proportional Computation Output Display lock	PRO		ON	
	U.PID	PID Number Display lock	PRO		ON	
	U.HC	Heater Break Alarm Current Value Display lock	PRO		OFF	
	U.PV1	PV2/PV1 Display lock	PRO		OFF	
	U.PV2	PV1/PV2 Display lock	PRO		OFF	
	U.PV	PV Analog Input Display lock	PRO		ON (Loop control with PV switching and Loop control with PV autoselector: OFF)	
	U.RSP	RSP Analog Input Display lock	PRO		ON (Loop control with PV switching and Loop control with PV autoselector: OFF)	
	U.AI2	AIN2 Analog Input Display lock	PRO		ON (Loop control with PV auto-selector: OFF)	
	U.AI4	AIN4 Analog Input Display lock	PRO		ON (Loop control with PV auto-selector: OFF)	
	COM.W	Communication write enable/disable	STD	OFF: Enable, ON: Disable	OFF	
	DATA	Front panel parameter data key lock	STD	OFF: Unlock ON: Lock	OFF	
	A/M	Front panel A/M key lock	STD		OFF	

The following parameters are also displayed for secondary loop. (the LP2 lamp is lit)
• Parameter: U.SP, U.OUT, U.PID

Menu Lock Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
MLOC	**CTL**	[CTL] menu lock	PRO	OFF: Display ON: Nondisplay	OFF	
	PV	[PV] menu lock	PRO		OFF	
	RSP	[RSP] menu lock	PRO		OFF	
	AIN2	[AIN2] menu lock	PRO		OFF	
	AIN4	[AIN4] menu lock	PRO		OFF	
	MPV	[MPV] menu lock	PRO		OFF	
	OUT	[OUT] menu lock	PRO		OFF	
	HBA	[HBA] menu lock	PRO		OFF	
	R485	[R485] menu lock	PRO		OFF	
	ETHR	[ETHR] menu lock	PRO		OFF	
	PROF	[PROF] menu lock	PRO		OFF	
	DNET	[DNET] menu lock	PRO		OFF	
	CC-L	[CC-L] menu lock	PRO		OFF	
	KEY	[KEY] menu lock	PRO		OFF	
	DISP	[DISP] menu lock	PRO		OFF	
	CSEL	[CSEL] menu lock	PRO		OFF	
	KLOC	[KLOC] menu lock	PRO		OFF	
	DI.SL	[DI.SL] menu lock	PRO		OFF	
	DI.NU	[DI.NU] menu lock	PRO		OFF	
	DI.D	[DI.D] menu lock	PRO		OFF	
	ALM	[ALM] menu lock	PRO		OFF	
	DO	[DO] menu lock	PRO		OFF	
	I/O	[I/O] menu lock	PRO		OFF	
	SYS	[SYS] menu lock	PRO		OFF	
	INIT	[INIT] menu lock	PRO		OFF	
	VER	[VER] menu lock	PRO		OFF	
	LVL	[LVL] menu lock	PRO		OFF	
	MODE	[MODE] menu lock	PRO	OFF: Display ON: Nondisplay	OFF	
	CS	[CS] menu lock	PRO		OFF	
	SP	[SP] menu lock	PRO		OFF	
	SPS	[SPS] menu lock	PRO		OFF	
	ALRM	[ALRM] menu lock	PRO		OFF	
	PVS	[PVS] menu lock	PRO		OFF	
	PID	[PID] menu lock	PRO		OFF	
	TUNE	[TUNE] menu lock	PRO		OFF	
	ZONE	[ZONE] menu lock	PRO		OFF	
	PPAR	[PPAR] menu lock	PRO		OFF	
	PYS1	[PYS1] menu lock	PRO		OFF	
	PYS2	[PYS2] menu lock	PRO		OFF	
	PYS3	[PYS3] menu lock	PRO		OFF	
	PYS4	[PYS4] menu lock	PRO		OFF	

When each parameter is displayed, the terminal area (E1 to E4) is displayed on Group display.
• Parameter: RSP, AIN2, AIN4, R485, ETHR, PROF, DNET, CC-L, DI.D, DO

DI Function Registration

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
DI.SL	**A/M**	AUTO/MAN switch	STD	Set an I relay number of contact input. Set "OFF" to disable the function. Standard terminals DI1: 5025, DI2: 5026, DI3: 5027 E1-terminal area DI11: 5041, DI12: 5042, DI13: 5043, DI14: 5044, DI15: 5045, DI16: 5046 E2 -terminal area DI21: 5057, DI22: 5058, DI23: 5059, DI24: 5060, DI25: 5061, DI26: 5062 E3-terminal area DI31: 5073, DI32: 5074, DI33: 5075, DI34: 5076, DI35: 5077 E4-terminal area DI41: 5089, DI42: 5090, DI43: 5091, DI44: 5092, DI45: 5093, DI46: 5094	5025	
	R/L	REMOTE/LOCAL switch	STD		5046	
	S/R	STOP/RUN switch	STD		5026	
	AUTO	Switch to AUTO	STD		OFF	
	MAN	Switch to MAN	STD		OFF	
	REM	Switch to REMOTE	STD		OFF	
	LCL	Switch to LOCAL	STD		OFF	
	AT	Auto-tuning START/STOP switch	STD		OFF	
	TRK	Output tracking switch	PRO		OFF	
	SW	PV switch	PRO		OFF	
	PVHD	PV hold	PRO		OFF	
	CTOA	CAS to AUTO switch	PRO		OFF	
	LAT	Latch release	STD		OFF	
	LCD	LCD backlight ON/OFF switch	STD		OFF	
	PVRW	PV red/white switch	STD		OFF	
	MG1	Message display interruption 1	PRO		OFF	
	MG2	Message display interruption 2	PRO		OFF	
	MG3	Message display interruption 3	PRO		OFF	
	MG4	Message display interruption 4	PRO		OFF	

DI Function Numbering

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
DI.NU	**SP.B0**	Bit-0 of SP number	EASY	Set an I relay number of contact input. Set "OFF" to disable the function. Standard terminals DI1: 5025, DI2: 5026, DI3: 5027 E1-terminal area DI11: 5041, DI12: 5042, DI13: 5043, DI14: 5044, DI15: 5045, DI16: 5046 E2 -terminal area DI21: 5057, DI22: 5058, DI23: 5059, DI24: 5060, DI25: 5061, DI26: 5062 E3-terminal area DI31: 5073, DI32: 5074, DI33: 5075, DI34: 5076, DI35: 5077 E4-terminal area DI41: 5089, DI42: 5090, DI43: 5091, DI44: 5092, DI45: 5093, DI46: 5094	OFF	
	SP.B1	Bit-1 of SP number	EASY		OFF	
	SP.B2	Bit-2 of SP number	EASY		OFF	
	SP.B3	Bit-3 of SP number	EASY		OFF	
	PN.B0	Bit-0 of PID number	STD		OFF	
	PN.B1	Bit-1 of PID number	STD		OFF	
	PN.B2	Bit-2 of PID number	STD		OFF	
	PN.B3	Bit-3 of PID number	STD		OFF	
	MP.B0	Bit-0 of manual preset output number	STD		OFF	
	MP.B1	Bit-1 of manual preset output number	STD		OFF	
	MP.B2	Bit-2 of manual preset output number	STD		OFF	
	SP.BC	Bit changing method of SP number	STD	0: Status switch 1 1: Status switch 2	0	
	PN.BC	Bit changing method of PID number	PRO		0	
	MP.BC	Bit changing method of manual preset output number	PRO		0	

DI1-DI3 Contact Type Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
DI.D	**DI1.D**	DI1 contact type	PRO	0: The assigned function is enabled when the contact input is closed. 1: The assigned function is enabled when the contact input is opened.	0	
	DI2.D	DI2 contact type	PRO		0	
	DI3.D	DI3 contact type	PRO		0	

DI Setting

						(E1 terminal area) (DI11-DI15)	(E2 terminal area) (DI21-DI25)	(E3 terminal area) (DI31-DI35)	(E4 terminal area) (DI41-DI45)
Menu	Symbol	Name	Display level	Setting range	Initial value	User setting	User setting	User setting	User setting
DI.D	**DI1.D**	DIn1 contact type	PRO	0: The assigned function is enabled when the contact input is closed. 1: The assigned function is enabled when the contact input is opened.	0				
	DI2.D	DIn2 contact type	PRO		0				
	DI3.D	DIn3 contact type	PRO		0				
	DI4.D	DIn4 contact type	PRO		0				
	DI5.D	DIn5 contact type	PRO		0				

n: Terminal area number (1 to 4)

AL1-AL3 Function Registration

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
ALM	**AL1.S**	AL1 function selection	STD	Set an I relay number. Setting range: 4001 to 6000 No function: OFF Alarm 1: 4353 Alarm 2: 4354 Alarm 3: 4355 Alarm 4: 4357 Alarm 5: 4358 Alarm 6: 4359 Alarm 7: 4361 Alarm 8: 4362 AUTO (ON) / MAN (OFF) status: 4193 REM (ON) / LCL (OFF) status: 4194 STOP (ON) / RUN (OFF) status: 4195 Output tracking (ON) switching signal: 4201 FAIL (Normally ON) output: 4256	4353	
	AL2.S	AL2 function selection	STD		4354	
	AL3.S	AL3 function selection	STD		4355	
	OR.S	OUT relay function selection	STD		OFF	
	OR2.S	OUT2 relay function selection	STD		OFF	
	AL1.D	AL1 contact type	PRO	0: When the event of assigned function occurs, the contact output is closed. 1: When the event of assigned function occurs, the contact output is opened.	0	
	AL2.D	AL2 contact type	PRO		0	
	AL3.D	AL3 contact type	PRO		0	
	OR.D	OUT relay contact type	PRO	0: When the event of assigned function occurs, the contact output is closed. 1: When the event of assigned function occurs, the contact output is opened.	0	
	OR2.D	OUT2 relay contact type	PRO		0	

DO Setting

						(E1 terminal area) (DO11-DO15)	(E2 terminal area) (DO21-DO25)	(E3 terminal area) (DO31-DO35)	(E4 terminal area) (DO41-DO45)
Menu	Symbol	Name	Display level	Setting range	Initial value	User setting	User setting	User setting	User setting
DO	**DO1.S**	DOn1 function selection	STD	Same as AL1.S. Initial value of E1 and E3 teminal area All DO settings are OFF. Initial value of E2 terminal area DO1.S: 4357, DO2.S: 4358, DO3.S: 4359, DO4.S: 4361, DO5.S: 4362	See left				
	DO2.S	DOn2 function selection	STD		See left				
	DO3.S	DOn3 function selection	STD		See left				
	DO4.S	DOn4 function selection	STD		See left				
	DO5.S	DOn5 function selection	STD		See left				
	DO1.D	DOn1 contact type	PRO	0: When the event of assigned function occurs, the contact output is closed. 1: When the event of assigned function occurs, the contact output is opened.	0				
	DO2.D	DOn2 contact type	PRO		0				
	DO3.D	DOn3 contact type	PRO		0				
	DO4.D	DOn4 contact type	PRO		0				
	DO5.D	DOn5 contact type	PRO		0				

n: Terminal area number (1 to 4)

I/O Display

Menu	Symbol	Name	Display level	Setting range
I/O	**KEY**	Key status	PRO	Read only See User's Manual.
	X000	DI1-DI3 status (equipped as standard)	PRO	
	X100	DI11-DI16 status (E1-terminal area)	PRO	
	X200	DI21-DI26 status (E2-terminal area)	PRO	
	X300	DI31-DI35 status (E3-terminal area)	PRO	
	X400	DI41-DI46 status (E4-terminal area)	PRO	
	Y000	AL1-AL3 status (equipped as standard)	PRO	
	Y100	DO11-DO15 status (E1-terminal area)	PRO	
	Y200	DO21-DO25 status (E2-terminal area)	PRO	
	Y300	DO31-DO35 status (E3-terminal area)	PRO	
	Y400	DO41-DO45 status (E4-terminal area)	PRO	

System Setting

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
SYS	**R.MD**	Restart mode	STD	CONT: Continue action set before power failure. MAN: Start from MAN. AUTO: Start from AUTO.	CONT	
	R.TM	Restart timer	STD	0 to 10 s * Set time between power on and the instant where controller starts computation.	0	
	EPO	Input error preset output	STD	0: Preset output 1: 0% output 2: 100% output	0	
	C.GRN	Response as GREEN Series	PRO	OFF: Works as UT55A/UT52A in communication of device information response or broadcasting. ON: Works as GREEN Series in communication of device information response or broadcasting.	OFF	
	FREQ	Power frequency	EASY	AUTO, 60: 60 Hz, 50: 50 Hz	AUTO	
	QSM	Quick setting mode	EASY	OFF: Disable ON: Enable	ON	
	LANG	Guide display language	EASY	ENG: English FRA: French GER: German SPA: Spanish	Depends on the Model and Suffix Codes	
	PASS	Password setting	EASY	0 (No password) to 65535 Once a password is set, you can no longer choose not to set a password.	0	
	SMEC	Sampling period error counter	PRO	0 to 65535 (display only)	0 when power is turned on.	

Initialization

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
INIT	**U.DEF**	Initialization to user default value	PRO	12345: Initialization, automatically returned to "0" after initialization.	0	
	F.DEF	Initialization to factory default value	PRO	-12345: Initialization, automatically returned to "0" after initialization.	0	

Error and Version Confirmation

Menu	Symbol	Name	Display level	Setting range
VER	**PA.ER**	Parameter error status	EASY	Read only See User's Manual
	OP.ER	Option error status	EASY	
	AD1.E	A/D converter error status 1	EASY	
	AD2.E	A/D converter error status 2	EASY	
	PV1.E	Loop-1 PV input error status	EASY	
	PV2.E	Loop-2 PV input error status	EASY	
	LA.ER	Ladder error status	EASY	
	MCU	MCU version	EASY	
	DCU	DCU version	EASY	
	ECU1	ECU-1 version	EASY	
	ECU2	ECU-2 version	EASY	
	ECU3	ECU-3 version	EASY	
	ECU4	ECU-4 version	EASY	
	PARA	Parameter version	EASY	
	H.VER	Product version	EASY	
	SER1	Serial number 1	EASY	
	SER2	Serial number 2	EASY	
	MAC1	MAC address 1	EASY	
	MAC2	MAC address 2	EASY	
	MAC3	MAC address 3	EASY	

When the following parameters are displayed, the terminal area (E1 to E4) is displayed on Group display.
• Parameter: ECU1, ECU2, ECU3, ECU4, MAC1, MAC2 and MAC3

Parameter Display Level

Menu	Symbol	Name	Display level	Setting range	Initial value	User setting
LVL	**LEVL**	Parameter display level	EASY	EASY: Easy setting mode STD: Standard setting mode PRO: Professional setting mode	STD	