SDC35/36 Single Loop Controller **User's Manual** for Installation

Thank you for purchasing the SDC35/36.

Before operating the product described in this user's manual, please take note of the following points regarding safety. Be sure to keep this manual nearby for handy reference.

RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

NOTICE

Be sure that the user receives this manual before the product is used. Copying or duplicating the manual in part or in whole is forbidden. The information and specifications in the manual are subject to change without notice

Considerable effort has been made to ensure that this manual is free from inaccuracies and omissions. If you should find an error or omission, please contact Yamatake Corporation.

In no event is Yamatake Corporation liable to anyone for any indirect, special or consequential damages as a result of using this product.

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This manual explains the handling precautions, mounting, wiring, PV range type, list of parameters and main specifications only. See the separate Installation & Configurations manual listed below for the detail handling procedures and the setting methods, etc. These manuals also contain information on using various functions. Please read if necessary.

SDC35/36 Single Loop Controller User's Manual for

Basic Operations CP-SP-1150E

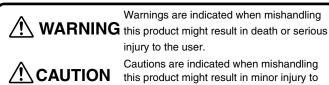
SLP-C35 Smart Loader Package for SDC15/25/26/35/36 Single Loop Controller User's Manual CP-UM-5290E

Unpacking

Check the following i	tems when removing	the SDC35/36	from its package:

Name	Part No.	Q'ty	Remarks
Mounting Bracket	81409654-001	2	
User's Manual	CP-UM-5289E	1	This Manual

SAFETY PRECAUTIONS



the user, or only physical damage to this product

- Note that incorrect wiring of the SDC35/36 can damage the SDC35/36 and lead to other hazards. Check that the SDC35/36 has been correctly wired before turning the power ON.
- Before wiring, or removing/mounting the SDC35/36, be sure to 0 turn the power OFF
- Failure to do so might cause electric shock or faulty operation. Do not touch electrically charged parts such as the power terminals.
- Doing so might cause electric shock.
- Do not disassemble the SDC35/36. Doing so might cause electric shock or faulty operation.

- Use the SDC35/36 within the operating ranges recommended in the specifications (temperature, humidity, voltage, vibration, shock, mounting direction, atmosphere, etc.). Failure to do so might cause fire or faulty operation.
- Do not block ventilation holes.
- Doing so might cause fire or faulty operation.
- Wire the SDC35/36 properly according to predetermined standards. Also wire the SDC35/36 using specified power leads according to recognized installation methods. Failure to do so might cause electric shock, fire or faulty operation
- Do not allow lead clippings, chips or water to enter the controller case. Doing so might cause fire or faulty operation.
- Firmly tighten the terminal screws at the torque listed in the specifications. Insufficient tightening of terminal screws might cause electric shock or fire.
- Do not use unused terminals on the SDC35/36 as relay terminals. Doing so might cause electric shock, fire or faulty operation.
- We recommend attaching the terminal cover (sold separately) after wiring the SDC35/36. Failure to do so might cause electric shock.
- Use the relays within the recommended service life.
- Failure to do so might cause fire or faulty operation. To avoid the risk of fire or device failure, use Yamatake Corporation's SurgeNon if there is a chance of power surges
- caused by lightning. Do not operate the keys with a mechanical pencil or other sharp-
- \bigcirc tipped object. Doing so might cause faulty operation.

Mounting

Location

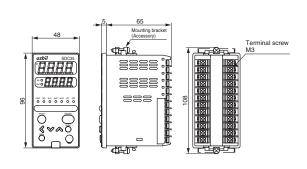
- Install the controller in a location that meets the following criteria:
- Common mode voltages of I/O except power supply and relay contact output: The voltage to ground is 33Vr.m.s max., 46.7V peak max., and 70Vdc max.
- Neither high nor low temperature/humidity.
- No corrosive gases such as sulfide gas.
- Little dust or soot.
- Protected from direct sunlight, wind or rain.
- Little mechanical vibration and shock.
- Not close to a high voltage line, welding machine or other source of electrical noise.
- At least 15 meters away from a high voltage ignition device for a boiler.
- No strong magnetic field.
- No flammable liquid or gas.

Mounting Procedure

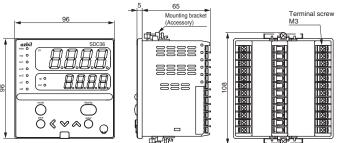
- The mounting must be horizontal within 10 degrees tilted in back side lowering or within 10 degrees tilted in back side rising.
- The mounting panel should be used with a thickness of less than 9 mm of firm board.

External Dimensions

C35



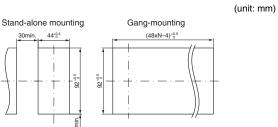
C36



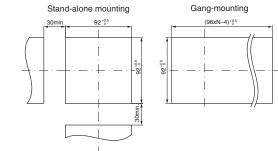
Handling Precautions

To fasten this controller onto the panel, tighten the mounting bracket screws, and then turn one more full turn when there is no play between the bracket and panel. Excessively tightening the screws may deform the controller case.

Panel Cutout Dimensions



• C36



! Handling Precautions

When three or more units are gang-mounted horizontally, the maximum allowable ambient temperature is 40°C.

Wiring

Be sure to provide a switch within operator reach for shutting OFF the main power supply to the controller in the main supply wiring.

Also, in case of AC power supply models, the main supply wiring also requires a time-lagged type (T) fuse (rated current: 0.5A, rated voltage: 250 V). (IEC127) The following table shows the meaning of the symbols in the terminal wiring label on the controller side:

Symbols	Meaning
2	AC power supply
===	DC power supply
A	Caution, electric shock hazard
\wedge	Caution

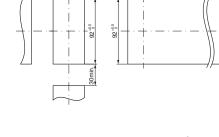
! Handling Precautions

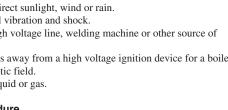
- Before wiring the SDC35/36, verify the controller's model No. and terminal Nos. written on the label on the side of the body. Inspect all wiring once wiring work for the SCD35/36 has been completed.
- · Use M3 crimp-type terminal lugs for wiring to terminal.
- Leave at least 50cm between I/O signal wires and power wires. Do not put them in the same electrical conduit or duct.
 - · Be careful not to allow any crimp-type terminal lugs to touch adiacent terminals.
 - · Prepare a heater current conductor to send a heater current through the current transformer. Do not use a heater current that exceeds the specified
 - permissible current as this may damage the controller. • The current transformer input cannot be used for phase control.

(unit: mm)

(unit: mm)

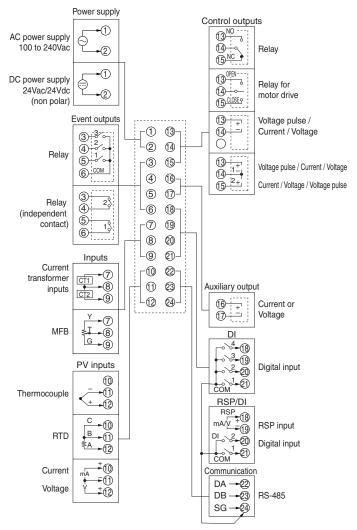
• C35





- · There is no isolation provided between control output 1 and control output 2. Install an isolator as required.
- · Do not connect a terminating resistor to either end of the RS-485 communications line.
- Doing so may interfere with communication.
- When the power supply voltage of the motor which is connected to the motor drive relay output is 100/200Vac, use an auxiliary relay externally.
- Do not wire in the same duct for the motor drive terminals (13),(14),(15) and the MFB input terminals (7),(8), (9) and also do not use 6-core cable. Failure to follow the instruction might cause controller malfunction due to noise during motor startup operation.
- · Regarding a device or equipment which is connected to this controller, use a model to which the basic insulation meeting with the power supply voltage and the maximum operating voltage of the I/O units is provided
- The controller requires maximum 5 seconds to start up once the power is turned ON. The controller can be used once it has started up. However, it is recommended to allow a warm-up time of at least 30 minutes to attain the specified accuracy.

Connection of C35/36



• I/O isolation

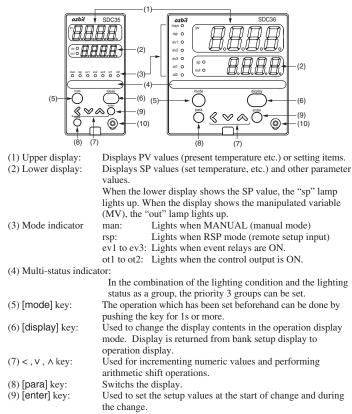
Items surrounded by solid lines are insulated from other signals.

Power supply		Control output 1
PV input Current transfomer input 1 Current transfomer input 2 Motor feedback input Loader communication	Internal circuit	Control output 2 Auxiliary output
Digital input 1 Digital input 2 Digital input 3 Digital input 4 RS-485 communication		Event output 1 (Note 1) Event output 2 (Note 1) Event output 3
RSP input		

Availability of input or output is based on a model number.

Note 1 In case of independent contact, the part between the event output 1 and the event output 2 is isolated.

Part names and functions



(10) Loader connector: Connects to a personal computer by using a dedicated cable supplied with the Smart Loader Package.

PV range table

C01	Sensor	Ra	nge	C01	Sensor	Ra	nge
Set value	type		•	Set value	type		•
1	Κ	-200 to +1200°C	-300 to +2200°F	41	Pt100	-200.0 to +500.0°C	-300 to +900°
2	К	0 to 1200°C	0 to 2200°F	42	JPt100	-200.0 to +500.0°C	-300 to +900°
3	К	0.0 to 800.0°C	0 to 1500°F	43	Pt100	-200.0 to +200.0°C	-300 to +400°
4	Κ	0.0 to 600.0°C	0 to 1100°F	44	JPt100	-200.0 to +200.0°C	-300 to +400°
5	Κ	0.0 to 400.0°C	0 to 700°F	45	Pt100	-100.0 to +300.0°C	-150 to +500°
6	Κ	-200.0 to +400.0°C	-300 to +700°F	46	JPt100	-100.0 to +300.0°C	-150 to +500°
7	Κ	-200.0 to +200.0°C	-300 to +400°F	47	Pt100	-100.0 to +200.0°C	-150 to +400°
8	J	0 to 1200°C	0 to 2200°F	48	JPt100	-100.0 to +200.0°C	-150 to +400°
9	J	0.0 to 800.0°C	0 to 1500°F	49	Pt100	-100.0 to +150.0°C	-150 to +300°
10	J	0.0 to 600.0°C	0 to 1100°F	50	JPt100	-100.0 to +150.0°C	-150 to +300°
11	J	-200.0 to +400.0°C	-300 to +700°F	51	Pt100	-50.0 to +200.0°C	-50 to +400°
12	Е	0.0 to 800.0°C	0 to 1500°F	52	JPt100	-50.0 to +200.0°C	-50 to +400°
13	Е	0.0 to 600.0°C	0 to 1100°F	53	Pt100	-50.0 to +100.0°C	-50 to +200°
14	Т	-200.0 to +400.0°C	-300 to +700°F	54	JPt100	-50.0 to +100.0°C	-50 to +200°
15	R	0 to 1600°C	0 to 3000°F	55	Pt100	-60.0 to +40.0°C	-60 to +100°
16	S	0 to 1600°C	0 to 3000°F	56	JPt100	-60.0 to +40.0°C	-60 to +100°
17	В	0 to 1800°C	0 to 3300°F	57	Pt100	-40.0 to +60.0°C	-40 to +140°
18	Ν	0 to 1300°C	0 to 2300°F	58	JPt100	-40.0 to +60.0°C	-40 to +140°
19	PLII	0 to 1300°C	0 to 2300°F	59	Pt100	-10.00 to +60.00°C	-10 to +140°
20	Wre5-26	0 to 1400°C	0 to 2400°F	60	JPt100	-10.00 to +60.00°C	-10 to +140°
21	Wre5-26	0 to 2300°C	0 to 4200°F	61	Pt100	0.0 to 100.0°C	0 to 200°F
22	Ni-NiMo	0 to 1300°C	0 to 2300°F	62	JPt100	0.0 to 100.0°C	0 to 200°F
23	PR40-20	0 to 1900°C	0 to 3400°F	63	Pt100	0.0 to 200.0°C	0 to 400°F
24	DIN U	-200.0 to +400.0°C	-300 to +700°F	64	JPt100	0.0 to 200.0°C	0 to 400°F
25	DIN L	-100.0 to +800.0°C	-150 to +1500°F	65	Pt100	0.0 to 300.0°C	0 to 500°F
26	Gold iron	0.0K to 360.0K	0 to 360K	66	JPt100	0.0 to 300.0°C	0 to 500°F
	chromel			67	Pt100	0.0 to 500.0°C	0 to 900°F
				68	JPt100	0.0 to 500.0°C	0 to 900°F

Handling Precautions

 The accuracy is ±0.1%FS±1 digit, and ±0.2%FS±1 digit for a negative area of the thermocouple

The accuracy varies according to the

range. The accuracy of the No.17 (sensor type B) is $\pm 4.0\%$ FS for a range of 260° C or less, $\pm 0.4\%$ FS for 260 to 800°C and $\pm 0.2\%$ FS for 800 to 1800°C. The PV values under 20°C are not shown. The accuracy of the No.15 (sensor type

The accuracy of the No.15 (sensor type 90 4 to 20mAR) or No.16 (sensor type S) is ±0.2%FS for a range of 100°C or less, and ±0.15%FS for 100 to 1600°C. The accuracy of the No.23 (sensor type PR40-20) is ±2.5%FS for 0 to of 300°C, and ±1.5%FS for 300 to 800°C, ±0.5%FS for 800 to of 1900°C. The accuracy of the No.26 (sensor type gold iron chromel) is ±1.5K. The accuracy of the No.55 to 62 and 81 are ±0.15%FS for each ranges. The accuracy of the No.19 (sensor type PLII) in the range of 0 to 32°F does not meet the indication accuracy. The ranges with a decimal point show figures under decimal point.

Input type

0 to 1V

1 to 5V

0 to 5V

0 to 10V

0 to 20mA

88

89

82 -10 to +10mV point position can be

83 0 to 100mV changed variably in a range

81 0. to 10mV

Range

The scaling and the decim

of -1999 to +9999.

Setting the PV range type

The following shows the flow of key operation

power is turne The mode indicators are lit sequentially form the left during a period of 5 to 6 sec after the power has been turned ON while both the upper display and lower display are OFE When all mode indicators have been lit, the display is changed to the operation display. 84400 No key operation for lo key operation fo ess the display or Press the of Press the or key. 🕙 ke Bank setup display 8888 '8888. 8888 Mode bank selecti Press the o key. PV / SP display display Press the PV range type s Press the or key 8888 888 8.888 1888 8888 SP bank selection Press the Orkey. Press the Orkey. Other banks (Operat the [para], [A] and [v keys repeatedly.] ess the O key. Press the o Press the o

Keep the O key pressed for 2 seconds or longe

There are the standard type and special type in the data setup method. Here, the method is explained in the standard type.

Setting example of the PV range type

Display the *CO*? on the upper display in the bank setup mode for the setup bank. When the [enter] key is pressed, the numerical value on the lower display will start to flash. Move the digit or increase/decrease the numeric value by pressing the $[<] [V] [\Lambda]$ keys. When the [enter] key is pressed at the desired numeric value, the flashing will stop and the data will be set.

Setting example of the SP1

Display the 5P - i on the upper display in the bank setup mode of the setup bank. When the [enter] key is pressed, the numerical value on the lower display will start to flash. Move the digit or increase/decrease the numeric value by pressing the [<] [V] [Λ] keys.

When the [enter] key is pressed at the desired numeric value, the flashing will stop and the data will be set.

For the details of the handling and setting method, refer to the following manual: Single Loop Controller SDC35/36 User's Manual "Installation & Configurations" CP-SP-1150E

Alarm code table

This table shows the alarm display and measures for the abnormal operation of this controller.

Alarm code	e Failure name	Cause	Corrective action
RLO I	PV input failure (over range)	Sensor line break, incorrect wiring, incorrect PV range type setting	Checking wiring or reset PV range type
RLO2	PV input failure (under range)	Sensor line break, incorrect wiring, incorrect PV range type setting	
RLO3	CJ failure failure	Terminal temperature is faulty (thermocouple).	Checking the ambient temperature.
	PV input failure	Sensor line break, incorrect wiring (RTD)	Checking wiring.
RLO5	RSP input failure (Over range) (Displays in RSP mode)	Sensor line break, incorrect wiring, incorrect RSP range setting	Checking wiring or reset RSP range code.
RL06	RSP input failure (Under range) (Displays in RSP mode)	Sensor line break, incorrect wiring, incorrect RSP range setting	Checking wiring or reset RSP range code.
RLOT	MFB input failure	Motor line break, incorrect wiring	Checking wiring or confirm the MFB input.
RL 10	Motor adjustment failure	Motor line break, incorrect wiring, motor power supply failure.	Checking wiring, confirm the motor power supply, reset.
RLII	CT input failure (over-range) (CT input 1 or 2,or both)	A current exceeding the upper limit of the display range was measured. The number of CT turns or the number of CT power wire loops is incorrectly set, or wiring is incorrect.	Use a CT with the correct number of turns for the display range, reset the number of CT turns, reset the number of CT power wire loops, and/or check the wiring,
RL10	A/D conversion failure	Defective A/D converter	Replace unit.
<i>RL</i> 95	Parameter failure	Power turned OFF during fixing data Data corrupted due to noise, etc.	Re-start the system. Reset data or replace unit. (AL95/97: setting
<i>RL</i> 96	Adjustment data	Power turned OFF during fixing data Data corrupted due to noise, etc.	data, AL96/98: tuning data)
<i>RL</i> 97	Parameter failure (RAM area)	Data corrupted due to noise, etc.	
RL98	Adjustment data failure (RAM area)	Data corrupted due to noise, etc.	
<i>RL99</i>	ROM failure	ROM (memory) error	Re-start the system. Replace unit.

Maintenance

 Cleaning
 : When wiping out the SDC35/36, use the soft and dried cloth.

 Parts replacement
 : Do not replace the parts.

 Fuse replacement
 : On AC models, when replacing the fuse for the power, make sure that the replacement fuse complies with applicable standards. Use a

that the replacement fuse complies with applicable standards. Use a time lag fuse (T) compliant with IEC127 and rated at 250V, 0.5A.

Model selection table

Basic model N C35 C36

Note 1

Note 3

				1-						
Basic del No.	Mounting	Control output	PV input	Power supply	Option 1	Option 2	Additions 1	Additions 2	Specifi	cations
35									48X96 size model	
36									96X96 size model	
	Т								Panel mounting typ	e
									Control output 1	Control output 2
		R0							Relay contact output NO	Relay contact output NC
(No	te 3)	R1							Relay contact output	Relay contact output
•	,								for motor drive	for motor drive
									OPEN side	CLOSE side
		V0							Voltage pulse output (for SSR drive)	—
		VC							Voltage pulse output (for SSR drive)	Current output
		VD							Voltage pulse output (for SSR drive)	Voltage output
		VV							Voltage pulse output (for SSR drive)	Voltage pulse output (for SSR drive)
		C0							Current output	_
		CC							Current output	Current output
		CD							Current output	Voltage output
		DO							Voltage output	_
		DD							Voltage output	Voltage output
		-	U						Universal	
				Α					AC model (100 to 2	240Vac) 50/60Hz
				D					DC model (24Vac/2	24Vdc)
					1				Event relay output	3 points
					2				Event relay output	
									Auxiliary output (cu	
					3				Event relay output	
		/	Viata O	、 、	4				Auxiliary output (vo	
			Note 3	,					Event output: 2 poi contact)	
		1)	Note 3)	5				Event output: 2 poi contact) Auxiliary output (cu	
		0	Note 3	`	6				Event output: 2 poi	
		(i	NOLE 3)	0				contact)	nis (independent
									Auxiliary output (vo	ltage output)
						0			_	.
			۸)	lote 1,2	2)	1			Current transforme Digital input: 4 poin	
			(N	lote 1,2	2)	2			Current transforme Digital input: 4 point communication	r input: 2 points
			(N	lote 1,2	2)	3			Current transforme	r input: 2 points
									Digital input: 2 poin	its, RSP input
			(N	lote 1,2	2)	4			Current transforme Digital input: 2 poin 485 communication	its, RSP input, RS-
							0		No additional treat	
							D		Inspection certifica	
							Т		Tropicalization trea	
te 1.			sforme	er is so	d		ĸ		Anti-sulfide treatme	
separately. te 2. When the control output is R1, the						В		Tropicalization trea	tment applied and	
	current applied	. MFB	input i	s appli	əd.		L		Inspection certificat Anti-sulfide treatme	ent applied and
te 3.	Can no	t be se	lected	for DC	; model		Y		Inspection certificat Complying with the	
							r		certification	naceaunity
								0	IP65 inapplicable	

Specifications

PV Inputs	
Thermocouple:	K,J,E,T,R,S,B,N (JIS C1602-1995)
-	PL II (Engelhard Industries Data (ITS90))
	WRe5-26 (ASTM E988-96(Reapproved 2002))
	Ni-NiMo (ASTM E1751-00)
	PR40-20 (Johnson Matthey Data)
	DIN U,DIN L (DIN 43710-1985)
	Gold iron chromel (Hayashidenko Data)
Resistance temperature detector	(RTD):
1	Pt100 (JIS C1604-1997)
	JPt100 (JIS C1604-1989)
DC voltage:	0 to 10mV , -10 to $+10\text{mV}$, 0 to 100mV , 0 to 1V ,
8	1 to 5V, 0 to 5V, 0 to 10V
DC current:	0 to 20mA, 4 to 20mA
Sampling cycle:	100ms
Indication accuracy:	±0.1%FS±1digit,
2	±0.2%FS±1digit for a negative area of the thermocouple
	(at ambient temperature $23\pm2^{\circ}$ C)
Cold junction compensation acc	
5 1	$\pm 0.5\%$ (at ambient temperature $23\pm 2^{\circ}$ C)
	$\pm 1.0\%$ (at ambient temperature 15 to 35°C)
	$\pm 1.5\%$ (at ambient temperature 0 to 15 or 35 to 50°C)
Cold junction compensation me	thod:
5 1	The compensation in the controller or the compensation
	at the outside of the controller (0°C only) can be selected.
Digital input	
Input type:	Dry contact or open collector
Allowable ON contact resistance:	Max.250Ω
Allowable OFF contact resistance:	Min.100k Ω
Allowable ON residual voltage:	Max.1.0V
Terminal current (ON):	Approx.7.5mA (in case of short circuit).
	Approx.5.0mA (in case of contact resistance 250Ω)
Minimum hold time:	200ms or more
Current transformer input	
Number of input points:	2 points
Input object:	Current transformer with 100 to 4,000 turns
* v	(availability is by 100-turn units)

Optional unit Model No.: QN206A (800 turns, hole diameter: 5.8mm) Optional unit Model No.: QN212A (800 turns, hole diameter: 12mm) Current measurement 0.4Aac (800 turns, 1 time) lower limit: Formula; Number of turns \div (2000 x number of power wire loops) Current measurement 50.0Aac (800 turns, 1 time) Formula; Number of turns ÷ (16 x number of power upper limit: wire loops) Allowable measured 70.0Aac (800 turns, 1 time) current Formula; Number of turns \div (16 x number of power wire loops) x 1.4 Display range lower 0.0Aac Display range upper 70.0Aac (800 turns, 1 time) Formula; Number of turns \div (16 x number of power wire loops) x 1.4 ±5%FS Display accuracy: Display resolution:Motor feedback potentiom 0.1Aac input (R1 model) 100 to 2500Ω Allowable resistance Detection of line break: Displays AL07 RSP input linear 0 to 20mA/4 to 20mA or linear 0 to 5V/1 to 5V/ Input type: 0 to 10V Sampling cycle: 100ms Indication accuracy: Operation at input break: $\pm 0.1\%$ FS ± 1 digit (at ambient temperature 23 ± 2 °C) Downscale + AL06 • Control outputs Relay output NO side 250Vac/30Vdc, 3A (resistive load) NC side 250Vac/30Vdc, 1A (resistive load) NO side Min. 50,000 operations NC side Min. 100,000 operations Contact rating: Life: Min. switching specifications: 5V, 10 Min. open time / close times: 250ms • Motor drive relay output (R1 model) 5V, 100mA 250ms Output rating: 250Vac 8A (resistive load) Min. 120,000 operations 24Vdc, 40mA Min. switching specifications Voltage pulse output (for SSR drive) Open circuit voltage: 19Vdct Internal resistance: $82\Omega\pm0$ 19Vdc±15% 82Ω±0.5% Allowable current: Min OFF time / ON time: Max. 24mAdc Ims when the time proportional cycle time is less than 10s. 250ms when the time proportional cycle time is more than 10s. · Current output Output type: Allowable load resistance: 0 to 20mAdc or 4 to 20mAdc Max.600 Ω ±0.1%FS (at ambient temperature 23±2°C) Output accuracy: ±1%FS at 0 to 1mA · Voltage output 0 to 5Vdc/1 to 5V or 0 to 10V Output type: Allowable load resistance: Min. 1000Ω $\pm 0.1\%$ FS (at ambient temperature 23 ± 2 °C) $\pm 1\%$ FS at 0 to 0.05V Output accuracy Auxiliary output Current output Output type: Allowable load resistance: 0 to 20mAdc or 4 to 20mAdc $\pm 0.1\%$ FS at 0 to 1mA Output accuracy: · Voltage output 0 to 5V/1 to 5Vdc or 0 to 10Vdc Min. 1000 Ω ±0.1%FS (at ambient temperature 23±2°C) ±1%FS at 0 to 0.05V Output type: Allowable load resistance: Output accuracy • Event relay outputs (ev1 to 3) 250Vac/30Vdc 2A (resistive load) Output rating: Min. 100,000 operations 5V, 10mA (reference value) Life: Min. switching specifications: RS-485 communication Transmission line: Transmission speed: 3-wire system 4800, 9600, 19200, 38400bps Communication protocol: CPL and MODBUS conforming Do not connect a terminating resistor. Terminating resistor: Environmental conditions Operating conditions Ambient temperature: 0 to 50°C (Gang-mounting: 0 to 40°C) 10 to 90%RH (non condensing) Ambient humidity: Rated power supply voltage: AC model 100 to 240Vac, 50/60Hz DC model 24Vac 50/60Hz 24Vdc Power supply voltage range: AC model 85 to 264Vac, 50/60Hz 24Z DC model 21.6 to 26.4Vac 50/60±2Hz, 21.6 to 26.4Vdc · Transport conditions -20 to +70°C Ambient temperature: Ambient humidity: 10 to 95%RH (non condensing) Other specifications Max. 12VA for AC model Max. 12VA for DC model at 24Vac Power consumption: Max. 8W for DC model at 24Vdc Max. 20ms (AC model) Non-detected power failure time: No power failure allowed (DC model) Altitude 2000m or less C35 Approx.250g (with mounting bracket) Mass: C36 Approx.300g (with mounting bracket) Terminal screw tightening torque: 0.4 to 0.6N·m Applicable standards: EN61010-1, El EN61010-1, EN61326 Category II (IEC60364-4-443, IEC60664-1) Overvoltage category: Allowable pollution degree: Pollution degree 2

Accessories and optional parts

Name	Model No.
Mounting bracket	81409654-001(Accessory)
Current transformer	QN206A(5.8mm hole dia.) / QN212A(12mm hole dia.)
Hard cover	81446915-001(for C35) / 81446916-001(for C36)
Soft cover	81441121-001(for C35) / 81441122-001(for C36)
Terminal cover	81446912-001(for C35) / 81446913-001(for C36)

SDC35/36 List of Parameters [List of Operation Displays] Operation Displays Display Contents Upper display: PV SP (Target value) SP low limit (C07) to SP high limit (C08) Lower display: SP LSP No. (1st digit: Value at the right end digit) 1 to LSP system group (C30 Max. 8) Display example) ower display: Setting is disabled. Upper display: The distinction by step No., ramp-up, ramp-down or soak is displayed at the side location of [St.]. Lower display: Displayed by the unit (either one of 0.1s, min.s, or h.min) based on the step operation time unit (C33) Step operation remaining time (Display example Lower display: Step remaining U. is, min.s, or n.min) based on the st time unit (C33). -10.0 to +110.0% Setting is disabled in AUTO mode. (Numeric value does not flash.) Setting is enabled in MANUAL mode. (Numeric value flashed) Upper display: PV MV (Manipulate Lower display: MV Variable) Numeric value flashes.) Heat MV HEBH Setting is disabled -10.0 to +110.0% Variable) Cool MV (Manipulated Variable) MFB (Motor Setting is disabled -10.0 to +110.0% opening For estimation, displayed by flashing in 0.1 to 100.0% Setting is disabled. Except for 0: During execution of AT (Value is decreased.) 0: Completion of AT Setting is disabled. edback value) AT progress display (1st digit = Numeric value Upper display: P\ splay example at right end digit) CT (Current Setting is disabled. transformer) current value 1 CT (Current Setting is disabled. transformer current value 2 Internal event 1 Setting range is different depending on the internal event operation type. -1999 to +9999U: Except below. 0 to 9999U: Setting value is an absolute value. -199.9 to +999.9%: For MV. Internal event 1 Internal event 1 sub-setting E I. 56 -199.9 to +999.9%: For MV. Setting is disabled. Upper display: The distinction by ON delay or OFF delay is displayed at the side location of [t1.]. Lower display: Displayed by the unit (either one of 0.1s, s, or min) based on the internal event 1 delay time unit (E1. the 3rd digit of C3). Setting range is different depending on the internal event operation type. -1999 to +9999U: Except below. 0 to 9999U: Setting value is an absolute value. -199.9 to +999.9%: For MV. Setting isabled. (Display example) Timer remaining time 1 Internal event 2 nain setting E2. 55 Internal event 2 sub-setting -199.9 to +999.9%; for MV. Setting is disabled. Upper display: The distinction by ON delay or OFF delay is displayed at the side location of [12.]. Lower display: Displayed by the unit (either one of 0.1s, s, or min) based on the internal event 2 delay time unit (E2. the 3rd digit of C3). E2. ____ (Display example) Timer remainin time 2 Setting range is different depending on the internal event operation type. -1999 to +9999U: Except below. nternal event 3

ain setting

Internal event 3 sub-setting

[List of Parameter Setting Displays]

node selection

PID group No. SP of LSP1 group to SP of LSP8

PID group No. (for LSP1 to 8)

Ramp (for LSP1 to 8)

(for LSP1 to 8)

AUTO/MANUAL MUTO/MANUAL RULA RULNREADY Mode selection RULNREADY Mode selection rUn : RULN mode mode selection rUn : RULN mode LSP/RSP LSP : LSP mode

c58 · BSP mode

Setting is disabled.

nin.)

Bank selection: hode

Timer remaind time 3

E3. Sb

Display example)

Mode bank

Display

SP bank

Displa

5P-1 5P-8 P.A 1

Pid. 8 r ňP. 1 r ňP. 8

ЫЛ. 1 ЫЛ. 8

to

Bank selection: 5P

dait

0: Display in basic/standard/high function, User level details 1: Display in standard/high function, 2: Display in high function.

Initial value may vary depending on model No.

Event bank

Initial value

0

User level

0

0

0

0

0

0

0

Initial value User level

AUTO

RUN

LSF

AT Stop

Latch

ontinue OFF

- 1999 to -8999U: Except below. 0 to 9999U: Setting value is an absolute value. -199.9 to +999.9%: For MV. Setting is disabled. Upper display: The distinction by ON delay or OFF delay is displayed at the side location of [13.]. Lower display: Displayed by the unit (either one of 0.1s, s, or min) based on the internal event 3 delay time unit(E3. the 3rd digit of C3).

Contents

Content

0 to 9999 (The decimal point position is determined

by the PV decimal point position and the SP ramp 0.0 to 999.9 (when step operation time unit is 0.1s.) 0 to 9999 (when step operation time unit is 1s or

1 to 8 SP low limit (C07) to SP high limit (C08)

0

0

0

0

0

0

0

0

User level

0

Bank selection: Eu

Display	Item	Contents	Initial	User
			value	level
El to	Internal event 1 to	-1999 to +9999	0	0
E8	8, main setting	The decimal point position varies by meeting the		
E1.55 to	Internal event 1 to	internal event operation type.	0	0
E8. Sb	8, sub-setting	0 to 9999 for some operation type.		
EI. HY to	Internal event 1 to	0 to 9999	5	0
E8. HY	8, hysteresis	The decimal point position varies by meeting the		
		internal event operation type.		
El.on to	Internal event 1 to	0.0 to 999.9	0	2
E8. on	8, ON delay	(For the delay time unit 0.1s)		
El. oF to	Internal event 1 to	0 to 9999	0	2
E8. oF	8, OFF delay	(Except for the delay time unit 0.1s)		

PID bank

Bank selection: Pld

Display	Item	Contents	Initial	User
P-1 to P-8	Proportional band (PID1 to 8 group)	0.1 to 999.9%	5.0	0
/-/ to /-8	Integration time (PID1 to 8 group)	0 to 9999s or 0.0 to 999.9s (0: No integral control action)	120	0
d-1 to d-8	Derivative time (PID1 to 8 group)	0 to 9999s or 0.0 to 999.9s (0: No derivative control action)	30	0
rE-1 to rE-8	Manual reset (PID1 to 8 group)	-10.0 to +110.0%	50.0	0
oL-1 to oL-8	MV low limit (PID1 to 8 group)	-10.0 to +110.0%	0.0	1
oH-1 to oH-8	MV high limit (PID1 to 8group)	-10.0 to +110.0%	100.0	1
P-1C to P-8C	Cool-side proportional band (PID1 to 8 group)	0.1 to 999.9%	5.0	0
1-10 to 1-80	Cool-side integration time (PID1 to 8 group)	0 to 9999s or 0.0 to 999.9s (0: No integral control action)	120	0
d-10 to d-80	Cool-side derivative time (PID1 to 8 group)	0 to 9999s or 0.0 to 999.9s (0: No derivative control action)	30	0
oL1C to oL8C	Cool-side MV low limit (PID1 to 8 group)	-10.0 to +110.0%	0.0	1
₀Н.1С to ₀Н.8С	Cool-side MV high limit (PID1 to 8 group)	-10.0 to +110.0%	100.0	1

Parameter bank Bank selection: P8-8

Display	Item	Contents	Initial value	User level
(Erl	Control method	0: ON/OFF control 1: PID fixed	0 or 1	0
Rt. ol	MV low limit at AT	-10.0 to +110.0%	0.0	0
RE, oH	MV high limit at AT	-10.0 to +110.0%	100.0	0
dIFF	ON/OFF control differential	0 to 9999U	5	0
0885	ON/OFF control operating point offset	-1999 to 9999U	0	2
FL	PV filter	0.0 to 120.0s	0.0	0
rR	PV ratio	0.001 to 9.999	1.000	1
57	PV bias	-1999 to +9999U	0	0
FL2	RSP filter	0.0 to 120.0s	0.0	0
r R 2	RSP ratio	0.001 to 9.999	1.000	1
675	RSP bias	-1999 to +9999U	0	0
CYU	Time proportional cycle unit 1	0: 1s unit 1: 0.5s fixed (Cycle time is disabled.) 2: 0.2s fixed (Cycle time is disabled.) 3: 0.1s fixed (Cycle time is disabled.)	0	2
CA	Time proportional cycle1	5 to 120s (*1) 1 to 120s (*2)	10 or 2	0
CANS	Time proportional cycle unit 2	0: 1s unit 1: 0.5s fixed (Cycle time is disabled.) 2: 0.2s fixed (Cycle time is disabled.) 3: 0.1s fixed (Cycle time is disabled.)	0	2
CAS	Time proportional cycle 2	5 to 120s (*1) 1 to 120s (*2)	10 or 2	0
EP. ES	Time proportional operation type	0: Controllability aiming type 1: Actuator life aiming type (Only one ON/OFF operation within time proportional cycle time)	0 or 1	2
oUEL	MV variation limit	0.0 to 999.9%/s (0.0: No limit)	0.0	2
SPU	SP ramp-up	0.0 to 999.9U (0.0: No ramp)	0.0	2
SPd	SP ramp-down	1	0.0	2

*1 When the output includes the relay ouput.*2 When the output does not include the relay output.

Extension tuning bank

Bank selection: Et

Display	Item	Contents	Initial value	User level
RE. E9	AT type	 Normal (Standard control characteristicis) Immediate response (Control characteristicis immediately responding to the external disturbance.) Stable (Control characteristics with less up/down function of PV) 	1	0
dF. bd	Just-FiTTER setting band	0.00 to 10.00	0.30	2
SP. 19	SP lag constant	0.0 to 999.9	0.0	2
RE-P	AT proportional band tuning factor	0.00 to 99.99	1.00	2
RE-1	AT integration time tuning factor	0.00 to 99.99	1.00	2
RE-d	AT derivative time tuning factor	0.00 to 99.99	(Note)	2
CEr.R	Control algorithm	0: PID (conventional PID) 1: RationaLOOP (high performance type)	0	1
dF. ου	Just-FiTTER overshoot suppression factor	0 to 100	0	1

(Note) Position proportional control model: 0.00, Nonposition propor. types: 1.00

Zone bank Bank selection: 200E

Display	Item	Contents	Initial	User	Remarks
			value	level	
Zn-1	Zone1	-1999 to +9999U	9999U	2	Displayed when the
20-5	Zone2		9999U	2	zone PID operation
20-3	Zone3]	9999U	2	is used (C24≠0).
20-4	Zone4		9999U	2	1
20-5	Zone5]	9999U	2]
20-6	Zone6		9999U	2	1
20-7	Zone7]	9999U	2	1
Za dE	Zone hysteresis	0 to 9999	511	2	

[List of Setup Setting Displays]

Setup bank

Bank selection: 520P

Dalik Sei	ection: Scur			
Display	Item	Contents	Initial value	User level
C 0 1	PV input range	Thermocouple: 1 to 26	88	0
	type	RTD: 41 to 68 DC current/voltage: 81 to 84, 86 to 90		
C 02	Temperature unit	0: Centigrade (°C)	0	0
C 03	Cold junction	1: Fahrenheit (°F) 0: Cold junction compensation is performed. (Internal)	0	2
	compensation (T/C)	1: Cold junction compensation is not performed. (External)		
C 04	Decimal point	0: No decimal point	0	0
	position	1: One digit after decimal point 2: Two digits after decimal point		
		3: Three digits after decimal point (Select '0' or '1' for the thermocouple/RTD range		
		with decimal point)		
C 05	PV range low limit	When the PV input range type is thermocouple or RTD, the setting is disabled although range low limit is	0	0
		displayed1999 to +9999U when the PV input range type is DC voltage/current.		
C 06	PV range high limit	When the PV input range type is thermocouple or	1000	0
		RTD, the setting is disabled although range high limit is displayed. –1999 to +9999U when the PV input		
C 07	SP low limit	range type is DC voltage/current. PV input range low limit to PV input range high limit	0	1
08	SP high limit	PV input lange low limit to PV input lange high limit	1000	1
09	Squarer root	0.0 to 100.0%	0.0	2
C 10	extraction dropout	(0.0: No square root extraction) 0: 4 to 20mA	0	0
C 10	RSP range type	1: 0 to 20mA	0	0
		2: 0 to 5V 3: 1 to 5V		
		4: 0 to 10V		
CHI	RSP range low limit	-1999 to +9999U	0	0
C 12	RSP range high		1000	0
CN	limit Control action	0: Heat control (reverse action)	0	0
	(direct/reverse)	1: Cool control (direct action)		-
C 15	Selection of MV at PV alarm	0: Control operation is continued. 1: MV at PV alarm occurrence is outputted.	0	2
C 16	occurrence MV at PV alarm	-10.0 to +110.0%	0.0	2
L 10	occurrence	-10.0 to +110.0%	0.0	2
c n	MV at READY (at heat-side for	-10.0 to +110.0%	0.0	1
	heat/cool control)			
C 18	MV at READY (at cool-side)	-10.0 to +110.0%	0.0	1
C 19	Operation at	0: Bump-less	0	1
C 20	MANUAL change Preset MANUAL	1: Preset -10.0 to +110.0%	0.0 or	1
C 2 I	value PID operation	(Used even at MANUAL mode when power is ON.) 0: Automatic	50.0 0	2
	initialization	1: Not initialized	0	2
	function selection	 Initialized (when SP value different from current value is inputted.) 		
C 22	PID operation	-10.0 to +110.0%	0.0 or	2
C 23	initial MV Control parameter	0: No decimal point	50.0 0	2
	decimal point	 One digit after decimal point (Decimal point of integration time or derivative time) 		
C 24	Zone PID action	0: Disabled	0	2
	selection	1: Selection by SP 2: Selection by PV		
C 26	Heat/cool control	0: Disabled.	0	0
C 27	selection Heat/cool selection	1: Enabled. 0: Normal	0	1
6.30		1: Energy saving		
(28 (29	Dead zone Heat/cool control	-100.0 to +100.0%	0.0	0
	selection point			
C 30	LSP setting system	1 to 8	1	0
631	SP ramp type	0: Standard	0	2
		1: Multi-ramp 2: Step operation. Step is stopped when power is		
		re-supplied. (READY)		
		 Step operation. Step is recovered when power is re-supplied. 		
C 32	SP ramp unit	0: 0.1U/s 1: 0.1U/min	1	2
		2: 0.1U/h		
C 33	Step operation time unit	0: 0.1s 1: 1s (Displayed in min.s in console.)	0	2
		2: 1min (Displayed in h.min in console.)		
C 34	Step operation PV start	0: Disabled. 1: Enabled.	0	2
C 35	Step operation	0: Stop (Not looped.)	0	2
	loop	1: Looped. 2: Final step continued. (Not looped.)		
C 36	CT1 operation type	0: Heater burnout detection 1: Current value measurement	0	0
C 37	CT1 output	0: Control output 1	0	0
		1: Control output 2 2: Event output 1		
		3: Event output 2 4: Event output 3		
C 38	CT1 measurement	4: Event output 3 30 to 300ms	30	0
(39	wait time CT2 operation	Same as CT1.	0	0
	type			Ŭ

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CP-UM-5289E

C40 C12 cutput Same as C11. B0 0 C42 Crite neasurement Same as C11. B0 0 C42 Crite neasurement Same as C11. B0 0 C42 Crite neasurement Same as C11. B0 0 C44 Crite neasurement Same as C11. B0 0 C442 Criter output 1 0 0 C443 Criter output F. M We for heat/coll control 0 0 C444 Criter output F. M F. M F. M F. M 0 0 0 C445 Criter output F. M F. M F. M 0	Display	Item	Contents	Initial value	User level
wait image Current output: 1 = 0 = 200, A =					
nnge 1: 4 to 2mÅ 2: 0: 80 cm/s 1: 4 to 2mÅ 2: 0: 80 cm/s 1: 4 to 2mÅ 2: 0: 80 cm/s C'19 Corteo ougut 1: 4 to 2mÅ 2: 0: 80 cm/s 0 0 0 C'19 Corteo ougut 1: 4 to 2mÅ 3: 0: 10 cm/s 0 0 0 C'19 Corteo ougut 1: 4 to 2mÅ 3: 0: 10 cm/s 0 0 0 C'19 Corteo ougut 1: 1: 10 cm/s 1: 10 cm/s 0 0 0 C'19 Corteo ougut 1: 1: 10 cm/s 1: 10 cm/s 0 0 0 C'11 Corteo ougut 1: 10 cm/s 1: 10 cm/s 1: 10 cm/s 0 0 0 C'14 Corteo ougut 1: 10 cm/s 1:		wait time			-
Control output 1 to 5 yr 5 0 to 10 w Control output 1 theat MV (nearbinol control) 2 0 to 10 w 0 1 Heat MV (nearbinol control) 2 0 to 10 w 0 1 Heat MV (nearbinol control) 2 0 to 10 w 0 1 Heat MV (nearbinol control) 2 0 to 10 montrol 2 0 to 10 mo			1: 4 to 2mA	'	
C49 Control output hype 3: 0 to 10V 0 C493 Control output hype 1: Heal MV (neutrocal control) is PV is PC (neutrocal control) is PV is PC (neutrocal control) is PV is PC (neutrocal control) is PC (neutrocal contr			Continuous voltage output:		
type 1: Heat MV (for heat/col control) 2 2 Control output 4: PV before ratio bas filter 5: SP Control output 5: Deviation (PV-SP) 7 Control output 5: PV 10000 CVF Control output			2: 0 to 5V		
2: Cool W (for headcool control) 2: Cool W (for headcool control) 2: PV 4: PV 4: PV 4: PV 4: PV 5: SP Controm value bas filter 5: PV 4: PV 7: CT Controm value 0: PV 0: PV 0: PV 7: CT Controm value 0: PV 0: PV 0: PV 7: CT Controm value 0: PV 0: PV 0: PV 7: CT Controm value 0: PV 0: PV 0: PV 7: Control value 0: PV 0: PV 0: PV 7: Control value 0: PV 0: PV 0: PV 7: Control value 0: PV 0: PV 0: PV 7: Control value 0: PV 0: PV 0: PV 7: Control value 0: PV 0: PV 0: PV 7: Control value 0: Di Se89 0: Di Se89 0: Di Se89 7: Control value 0: Di Se89 0: Di Se89 0: Di Se89 7: Control value 0: Di Se89 0: Di Se89 0: Di Se89 7: Control value 0: Di Se89 0: Di Se89 0: Di Se89	(43		0: MV	0	0
5: SP Sector 1 0: SP Sector 1 0: SP Sector 0: SP Sector 1 0: SP Sector 1< SP Sector 1 0: SP Sector			2: Cool MV (for heat/cool control)		
P: CT1 current value B: CT2			5: SP		
B B MEB (Including estimation MFB) (1) SP-MV Image (Including estimation MFB) (1) SP-MV Image (Including estimation MFB) (1) SP-MV CVF Control output 1 (1) SP-MV 100 989 00.0 0 CVF Control output 1 (1) SP-MV 100 989 100.0 0 CVF Control output 1 (1) Sume as control output 2 (1) SP-MV 1 0 CVF Control output 2 (1) SP-MV -1998 hor -9999 (1) Red control output 2 (1) Red control output 1 (1) Red control output 2 (1) Red control output 2 (1) Red control output 1 (1) Red control red control output 1 (1) Red control red control out			7: CT1 current value		
CV9 Control output 1 11: PV-MV 0 0 CV9 Control output 1 (The detama point position and unit may vary depending on the control output 1 type is 10 or 11.) 100.0 0 CV9 Control output 1 0 0.9999 200.0 0 CV9 Control output 1 0 0.9999 200.0 0 CV9 Control output 2 Same as control output 1 type is 10 or 11.) 1 0 CV9 Control output 2 -1996 to -9909 0 0 0 CV9 Control output 2 -1996 to -9009 0 0 0 0 CV9 Control output 2 -1996 to -9009 0 0 0 0 CV9 Control output 2 1 -998 to -909 0 0 0 CV9 Control output 1 -1 1 0 0 0 CV9 Control output 2 Control output 1 1 0 0 0 CV9 Control output 1			9: MFB (Including estimation MFB)		
scaling own imit control output 1 (The decimal point position and unit may vary depending on the control output 1 type) 1000 0 249 Control output 1 0 4969 200 0 247 Control output 2 Same as control output 1 type is 10 or 11.) 200 0 248 Control output 2 Same as control output 1 1 0 0 248 Control output 2 Same as control output 2 type. 1000 0 253 Control output 2 Control output 2 1000 0 254 Control output 2 Same as control output 2 type. 1000 0 254 Audiary output easing low limit 10 0 0 0 255 Audiary output easing low limit 10 0 0 0 0 255 Audiary output easing low limit 0 0 0 0 0 0 258 Position easing low limit 0 0 0 0 0 0 258 Position eontori long ato 0 0	F 107	-	11: PV+MV		
sealing high influe 1 0 1 1 248 Control output 1 0 0 0 247 Control output 2 1 0 0 248 Control output 2 3 0 249 Control output 2 -1999 to -9999 3 0 250 Control output 2 -1999 to -9999 1000 0 251 Control output 2 -1999 to -9999 1000 0 252 Auxiliary output 1 -1999 to -9999 3 0 0 253 Auxiliary output 1 -1999 to -9999 3 0 0 253 Auxiliary output 1 -1999 to -9999 1000 0 0 254 Auxiliary output 1 0 9999 1000 0 0 255 Auxiliary output 1 0 9999 1000 0 0 256 Muxiliary output 1 0 10 0 0 0 256 Position autput 1 <td< td=""><td></td><td>scaling low limit</td><td>(The decimal point position and unit may vary</td><td></td><td>-</td></td<>		scaling low limit	(The decimal point position and unit may vary		-
MV satisfies is individing (Available when control output 1 type is 10 or 11.) Control output 2 C478 Control output 2 Same as control output 1. 1 0 C478 Control output 2 -1996 to -9609 3 0 C479 Control output 2 -1996 to -9609 1000 0 C57 Control output 2 -1996 to -9609 1000 0 C57 Control output 2 0 to 9999 30 0 0 C57 Axaliary output 10 to 9999 3 0 0 0 C57 Axaliary output 10 to 9999 1000 0 0 0 C57 Axaliary output 10 to 9999 1000 0 0 0 C57 Axaliary output 10 to 9999 1000 0 0 0 C57 Axaliary output 10 to 9999 1000 0 0 0 C57 Proportional association axaliary output 1. 10 to 9990 1000 0 0 0 C57		scaling high limit			-
ringe type ringe type result 3 0 2 99 Control output 2 scaling jup intrat -1999 to -9999 (The decimal post postion and unit may vary depending on the control output 2 type is 10 or 11.) 1000 0 2 53 Control output 2 weakeb também deni when control output 2 type is 10 or 11.) 1 0 0 2 53 Axoliary output weakeb também deni denimal post postion and unit may vary depending on the axoliary output type.) 100 0 0 2 54 Axoliary output weakeb também denima		MV scalable bandwidth	(Available when control output 1 type is 10 or 11.)		
type		range type	Same as control output 1.		-
scaling low limit Check depending on the control output 2 type.) 1000 0 551 Control output 2 0 to 9999 1000 0 552 Auxiliary output Same as control output 1 1 0 0 553 Auxiliary output Same as control output 1. 1 0 0 554 Auxiliary output 1999 to +9999 1000 0 0 555 Auxiliary output 1999 to +9999 1000 0 0 555 Auxiliary output 1999 to +9099 1000 0 0 556 Auxiliary output 1999 to +9099 1000 0 0 557 Auxiliary output 109990 1000 0 0 557 Auxiliary output 109990 1000 0 0 558 Position proportional to the Stantaed position control (HFB disabled) + selecton to trob trol (HFB disabled) + selecton to trob trol (HFB di				3	0
253 Control output 2 scaling high limit W scalabe bandwise August output S33 Control output 2 (Availabe when control output 2 type is 10 or 11.) 1000 0 254 Auxiliary output Availary output S33 19999 3 0 255 Auxiliary output S33 1990 to -9999 3 0 257 Auxiliary output Same as control output 1. 1 0 0 257 Auxiliary output scaling high limit 1999 to -9999 1000 0 255 Auxiliary output scaling high limit 0 1999 to -9999 1000 0 256 Auxiliary output scaling high limit 0 0 0 0 0 257 Position propriorinal control dual Zone 0 0 0 0 0 258 Position propriorinal control luning start 0 0 0 0 0 0 258 Position proportional control luning start 0 0 0 0 0 258 Position proportional luni- control luning start 0 0 0 0 0		Control output 2 scaling low limit	(The decimal point position and unit may vary		-
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position adjustment at power supply ON position 2 58 Position 0.5 to 25.0% 2 59 Position 0.5 to 25.0% 2 59 Position 0.5 to 25.0% 2 50 Position 0.5 to 25.0% 2 50 Position 0.5 to 25.0% proportional control long ife 0.5 top 2 50 Position 0.5 top proportional full- control lung start 0 0 2 52 Position 0 to 9999 3000 0 2 54 Position 0 to 9999 3000 0 2 54 Position 0 to 9999 3000 0 2 54 Position 0 to 9999 3000 0 2 55 Station address 0 to 127 0 0 2 55 Station address 10 to 240.0s 0 0 2 565 Station address 0 to 127 0 0 2 565 Station address 0 to 127 0 0 2 57 Data format		control method	2: Estimated position control (MFB disabled)		
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proportional control fung start1: Start1C & 1Position proportional full- open tuning value0 to 999930000C & 2Position proportional full- open tuning value0 to 999930000C & 3Position proportional full- open tuning value0 to 999930000C & 4Position proportional full- open tuning value0: OPL00C & 4Communication type0: OPL 1: MODBUS ASCII format 2: MODBUS ASCII format00C & 5Station address0: OPL 1: 9600bps00C & 5Transmission speed0: D127 1: 9600bps00C & 5Transmission 1: 9600bps2: 12200bps00C & 6Transmission (parity)1: Odd parity 1: Odd parity 2: No parity000C & 5Data format (parity)1: Odd parity 1: Ddd parity 2: No parity000C & 7Mode key function1: to 250ms321C & 71Key operation modelype0: Standard type022C & 72Mode display setup0: Standard type100C & 71Key operation modelype0: Standard type102C & 71Key operation modelype0: Standard type102C & 71Key operation modelype0: Standard type102C & 71Key operation modelype0:	C 50	control long life			0
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close tuning value0 to 9999300002 62Position proportional full- open tuning value0 to 9999300002 63Position proportional full- open tuning open tuning open tuning open tuning5.0 to 240.0s30.002 647Communication type0. CPL 1. MODBUS ASCII format 2. MODBUS ASCII format 2. MODBUS RTU format002 65Station address pseed0. 10 127 (Communication is disabled when "0" is set.)002 65Transmission speed0. 4800bps 2. 19200bps202 67Data format (data (parity)0. 7bit 1. 8bit102 68Data format (data (parity)0. For parity 1. Sold parity002 68Data format (stop immer sponse time0. 5tandard type 1. Spoil parity002 71Key operation function0. Standard type 1. Spoil parity002 72Mode key function0. Standard type 1. Special type102 73Mode display setup0. Ital/OMANUAL selection 2. RUVIREADY selection 3. A T Stop/Statt 4. LSP group selection 3. Cata T Stop/Statt 4. Stabled, 1. Stabled Bit 1. RUNREADY display 0. Disabled, 1. 4: Enabled Bit 3. Topolisati 0. Disabled, 1. 4: Enabled Bit 4. Do latches 6. LSP/RSP selection 3. Cisabled, 1. 4: Enabled Bit 3. Communication D11 ON/OFF display 0. Disabled, 1. 4: Enabled Bit 4. Do latches 6. Disabled, 1. 4: Enabled Bit 3. Topolisati 0. Disabled, 1. 4: Enabled Bit 4. Do latches Bit 4. Do latches 6. Disabled,	661	Position	0 to 9999	1000	0
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2: No parity 0 2: Seq Data format (stop 0: 1bit 0 0: 1: 2bits 0 2: 70 Communication minimum response time 110 250ms 2: 71 Key operation 0: Standard type 1: Special type 0 2 2: 72 Mode Key 0: Invalid 1: AUTO/MANUAL selection 1 0 2: RUN/READY selection 2: Start Stop/Start 1 4: LSP group selection 5: Release of all DO latches 6: LSP/RSP selection 5: Release of all DO latches 6: LSP/RSP selection 2: Invalid 2: Invalid Whether the mode bank setup display is enabled or disabled is determined by the sum of the following weighting: 255 1 0: Disabled, +1: Enabled Bit 1: RUN/READY display 0: Disabled, +1: Enabled 0: Disabled, +2: Enabled Bit 2: LSP/RSP display 0: Disabled, Bit 3: AT stop/start display 0: Disabled, +3: Enabled Bit 3: Communication DI NO/OFF display 0: Disabled, HS: Enabled Bit 3: DO	C 68	Data format	0: Even parity	0	0
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6: LSP/RSP selection 73 Mode display setup Whether the mode bank setup display is enabled or disabled is determined by the sum of the following weighting: 255 Bit 0: AUTO/MANUAL display 0: Disabled, +1: Enabled 255 Disabled, +1: Enabled Bit 1: RUNREADY display 0: Disabled, +1: Enabled Bit 2: LSP/RSP display 0: Disabled, +4: Enabled Bit 3: AT stop/start display 0: Disabled, +4: Enabled Bit 3: AT stop/start display 0: Disabled, +4: Enabled Bit 3: AT stop/start display 0: Disabled, +4: Enabled Bit 3: AT stop/start display 0: Disabled, +4: Enabled Bit 3: Communication DI1 ON/OFF display 0: Disabled, +32: Enabled Bit 5: Communication DI 10/NOFF display 0: Disabled, +32: Enabled Dits: Communication DI 10/NOFF display			4: LSP group selection		
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Bit Č. AUTO/MANUAL display 0: Disabled, +1: Enabled Bit 1: RUN/READY display 0: Disabled, +2: Enabled Bit 2: LSP/RSP display 0: Disabled, +4: Enabled Bit 3: AT stop/start display 0: Disabled, +8: Enabled Bit 4: DO latch release 0: Disabled, +6: Enabled Bit 5: Communication DI1 ON/OFF display 0: Disabled, +32: Enabled Other invalid setup: 0, +64, +128			disabled is determined by the sum of the following		
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Other invalid setup: 0, +64, +128			Bit 5: Communication DI1 ON/OFF display 0: Disabled, +32: Enabled		
			Other invalid setup: 0, +64, +128		

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C Disabled, -4: Enabled Bis AT program display Image: Comparison of Compar			0: Disabled, +2: Enabled		
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46:Undefined 47:Mode key function selection status 47:Mode key function selection status 47:Mode key function selection status 48:Event output 1 status 49:Control output 1 status 48:Event output 1 status 1 2:82 MS indicating lamp ON status (1st priority) 1:Slow flashing 2: times flashing 4: Left - Flight 5: Flight - Left 6: Flight to left going and returning 7: Deviation OK 8: Deviation graph 9: MV graph 10: Heat-side MV graph 11: Cool-side MV graph 12: MFB graph 13: DI monitor 14: Internal event monitor 14: Internal event monitor 44 2:83 MS indicating lamp ON status (2nd priority) Same as MS indicating lamp ON condition (2nd priority) 44 2:84 MS indicating lamp ON condition (2nd priority) Same as MS indicating lamp ON status (1st priority) 6 2:85 MS indicating lamp ON condition (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2:86 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2:87 MS indicating lamp ON status (3rd priority) 0 to 15 (0 at power supply ON.) 0 2 2:88 Special function range 0 to 15 (0 at power supply ON.) 0 2 2:89 Zener barrier adjustment 0 to 15 (0 at power supply ON.) 0 2			43:Undefined 44:Alarm		
48:Event output 1 status 49:Control output 1 status 49:Control output 1 status 2 82 MS indicating (amp ON status (1st priority) 0: Lit 1: Slow flashing 3: Fast flashing 4: Left → Right 5: Right → Left 1 2 3 Fast flashing 7: Deviation OK 8: Deviation Graph 9: MV graph 10: Heat-side MV graph 11: Cool-side MV graph 11: Cool-side MV graph 13: DI monitor 14: Internal contact monitor 15: Internal event monitor 44 2 2 83 MS indicating (and priority) Same as MS indicating lamp ON condition (2nd priority) Same as MS indicating lamp ON status (1st priority) 6 2 2 85 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON condition (1st priority) 1 2 2 86 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 6 2 2 87 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2 2 88 Special function range O to 15 (0 at power supply ON.) 0 2 2 2 89 Zener barrier adjustment 0 to 19999U 5 2 2 2 89 Zener barrier adjustment 0 to 15 (0 at power supply ON.) 0 2 2 2 89 Zener barrier adjustment <td></td> <td></td> <td>46:Undefined</td> <td></td> <td></td>			46:Undefined		
2.82 MS indicating lamp ON status (1st priority) 0: Lit 1: Slow flashing 2: 2 times flashing 3: Fast flashing 3: Fast flashing 4: Left -> Right 5: Right -> Left 6: Right +> Left 9: MV graph 10: Heat-side MV graph 11: Cool-side MV graph 11: Cool-side MV graph 12: MFB graph 12: MFB graph 13: DI monitor 14: Internal event monitor 14: Internal event monitor 15: Internal event monitor 15: Internal event monitor 16: Same as MS indicating lamp ON condition (2nd priority) 44 2 2.83 MS indicating lamp ON status (2nd priority) Same as MS indicating lamp ON status (1st priority) 6 2 2.85 MS indicating lamp ON status (2nd priority) Same as MS indicating lamp ON status (1st priority) 1 2 2.86 MS indicating lamp ON status (2nd priority) Same as MS indicating lamp ON status (1st priority) 1 2 2.87 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2 2.87 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2 2.88 Special function range 0 to 15 (0 at power supply ON.) 0 2 2 2.89 Zener barrier adjustment 0: to 15 (0 at power supply ON.) 0 2 2 2.89 Zener barrier adjustment 0: turns 1 <t< td=""><td></td><td></td><td>48:Event output 1 status</td><td></td><td></td></t<>			48:Event output 1 status		
(1st priority) 2: 2 imes flashing 3: Fast flashing 3: Fast flashing 4: Let -> Right 5: Right > Left 5: Right > Left 6: Right > Left 6: Right > Left 9: MV graph 10: Heat-side MV graph 10: Heat-side MV graph 11: Cool-side MV graph 11: Cool-side MV graph 12: MFB graph 13: DI monitor 14: Internal contact monitor 14: Internal contact monitor 15: Internal event monitor 15: Internal schedular provide monitor 16: St Internal contact monitor 14: Internal contact monitor 16: St Internal contact monitor 14: Internal contact monitor 16: St Internal contact monitor 14: Internal contact monitor 17: Internal contact monitor 14: Internal contact monitor 18: ON condition 14: Internal contact monitor 19: Internal contact monitor 1 19: Internal contact monitor 1 10: ON status Same as MS indicating lamp ON condition 11: Its priority) 1 12: 88 MS indicating Iamp ON status Same as MS indicating lamp ON status (1st priority) 10: 88 Special function <	C 82		0: Lit	1	2
4: Left → Riphi 5: Ripht → Left 6: Right → Left 6: Ng aph 10: Heat-side MV graph 11: Cool-side MV graph 12: MFB graph 13: Di monitor 14: Internal contact monitor 15: Internal event monitor 16: Internal event monitor 17: Internal event monitor 18: Indicating Iamp ON condition (2nd priority) 2: 85 MS indicating Iamp ON status (3rd priority) 2: 85 MS indicating Iamp ON status (3rd priority) 2: 85 MS indicating Iamp ON status (3rd priority) 2: 86 MS indicating Iamp ON status (3rd priority) 2: 87 MS indicating Iamp deviation			2: 2 times flashing		
6: Right to left going and returning 7: Deviation OK 8: Deviation graph 9: MV graph 10: Heat-side MV graph 11: Cool-side MV graph 12: MFB graph 13: DI monitor 14: Internal contact monitor 15: Internal event monitor 16: Right Heat-side MV graph 17: Cool-side MV graph 18: DI monitor 19: Internal event monitor 16: Internal event monitor (2nd priority) 2 84 MS indicating lamp ON status (2nd priority) 2 85 MS indicating lamp ON condition (1st priority) 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 5 6 7 6 7 6 7 8 <t< td=""><td></td><td></td><td>4: Left → Right</td><td></td><td></td></t<>			4: Left → Right		
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11: Cool-side MV graph 12: MFB graph 13: DI monitor 14: Internal contact monitor 15: Internal event monitor 16: Internal event monitor 17: Cool-side MV graph 18: DI monitor 19: Internal event monitor 19: Internal event monitor 11: Cool-side MV graph 12: MFB graph 13: DI monitor 14: Internal event monitor 11: Cool-side MV graph 12: MFB graph 13: DI monitor 14: Internal event monitor 15: Internal event monitor 16: Applicating Iamp ON condition Iamp ON status (3rd priority) 11: Cool-side MS indicating lamp ON condition Iamp ON status (3rd priority) 11: Cool-side MS indicating lamp ON status (1st priority) 11: Cool-side MS indicating lamp ON status 11: Cool-side MS indicati			9: MV graph		
13: DI monitor 14: Internal contact monitor 14: Internal contact monitor 15: Internal event monitor 15: Internal event monitor 16: Internal event monitor 16: Internal event monitor 16: Internal event monitor 16: Internal event monitor 16: Internal event monitor 17: Difference Same as MS indicating lamp ON condition (2nd priority) 44 2 18: Or MS indicating lamp ON status (2nd priority) Same as MS indicating lamp ON status (1st priority) 6 2 18: Difference MS indicating lamp ON condition (3rd priority) Same as MS indicating lamp ON condition 1 2 19: Set MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2 10: Set MS indicating lamp deviation Same as MS indicating lamp ON status (1st priority) 9 2 10: Set MS indicating lamp deviation Same as MS indicating lamp ON status (1st priority) 9 2 10: Set MS indicating lamp deviation 0 to 9999U 5 2 10: As power supply ON.) 0 2 2 10: As power supply ON.) 0 2 2 10: As power supply ON.) </td <td></td> <td></td> <td>11: Cool-side MV graph</td> <td></td> <td></td>			11: Cool-side MV graph		
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£ 84 MS indicating lamp ON status (2nd priority) Same as MS indicating lamp ON status (1st priority) (and priority) 6 2 £ 85 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON condition (1st priority) 1 2 £ 86 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON condition (1st priority) 1 2 £ 87 MS indicating lamp ON status (3rd priority) Same as MS indicating lamp ON status (1st priority) 9 2 £ 87 MS indicating lamp deviation range 0 to 9999U 5 2 £ 88 Special function adjustment 0 to 15 0 2 £ 89 Zener barrier adjustment Numerical value inputting manually is disabled to 0: turns 0.000 2 £ 90 CT1 number of winding 0: turns 1 2		lamp ON condition			_
	C 84	MS indicating lamp ON status	Same as MS indicating lamp ON status (1st priority)	6	2
(3rd priority)	C 85	MS indicating	Same as MS indicating lamp ON condition	1	2
Iamp ON status (3rd priority) Image of the status of the sta	r oc	(3rd priority)			
£ 87 MS indicating lamp deviation range 0 to 9999U 5 2 £ 88 Special function (0 at power supply ON.) 0 2 £ 89 Zener barrier adjustment Rewriting by adjustment is enabled. Numerical value inputting manually is disabled 0.00 2 £ 90 CT1 number of winding 0 : turns 1 to 40: Setting value multiplied by one hundred becomes number of winding. 8 2 £ 91 CT1 number of 0 : time 0 : time 1 2	. 00	lamp ON status	same as the indicating lamp ON status (1st priority)	э	2
range range £ 88 Special function (0 at power supply ON.) 0 2 £ 89 Zener barrier adjustment Rewriting by adjustment is enabled. Numerical value inputting manually is disabled 0.00 2 £ 90 CT1 number of winding 0: turns 1 to 40: Setting value multiplied by one hundred becomes number of winding. 8 2	C 87	MS indicating	0 to 9999U	5	2
Image: Constraint of the second sec	C 88	range		0	2
C 90 CT1 number of winding 0: turns 1 to 40: Setting value multiplied by one hundred becomes number of winding. 8 2 C 91 CT1 number of 0: time 0: turns 1 2		Zener barrier	(0 at power supply ON.) Rewriting by adjustment is enabled.		
becomes number of winding. C91 CT1 number of 0: 1time 1 2	C 90	CT1 number of	0: turns	8	2
	ro(-	becomes number of winding.	4	0
					2

Display	Item	Contents	Initial value	User level
(92	CT2 number of winding	0: 800 turns 1 to 40: Setting value multiplied by one hundred becomes number of winding.	8	2
(93	CT2 number of power wire loops	0: 1time 1 to 6: number of times	1	2

Event assignment bank Bank selection: EuCF

Display	Item	Contents	Initial value	User level
E I, C I to E 8, C I	Operation type of internal event 1 to 8 Configuration 1 Operation type	C: No event (P high limit 2: PV low limit 2: PV low limit 2: PV low limit 3: PV high/low limit 4: Deviation high limit 5: Deviation low limit 6: Deviation high/low limit 7: Deviation high/low limit 7: Deviation high/low limit 1: Se high/low limit 1: SP high/low limit 1: CT heater short-circuit 1: CT heater short-circuit 1: CT heater short-circuit 1: CT heater short-circuit 2: Loop diagnosis 2 2: Loop diagnosis 3 2: Aiarm (status) 2: KRAP(status) 2: Gastus) 2: During AT execution (status) 2: Control direct action (status) 3: During motor opening estimation (status) 3: The high/low limit	0	0
E I. C2 to E8. C2	Internal event 1 to 8 Configuration 2 1st digit:	Digits are called as 1st digit, 2nd digit, 3rd digit and 4th digit from the right end digit. 0: Direct	0000	0
	Direct /Reverse 2nd digit: Stand-by	1: Reverse 0: None 1: Standby 2: Standby + Standby at SP change	0	
	3rd digit: EVENT state at READY	0: Continue 1: Forced OFF	0	
	4th digit: Undefined	0	0	
E4.C3 to E8.C3	Internal event 1 to 8 Configuration 3	Digits are called as 1st digit, 2nd digit, 3rd digit and 4th digit from the right end digit.	0000	2
	1st digit: Alarm OR	0: No event 1: Alarm direct + OR operation 2: Alarm direct + AND operation 3: Alarm reverse + OR operation 4: Alarm reverse + AND operation	0	
	2nd digit: Special OFF	0: As normal execution 1: Event OFF at the event setting value (main)=0	0	
	3rd digit: Delay time unit	0: 0.1s 1: 1s 2: 1min	0	
	4th digit: Undefined	0	0	

■ DI assignment bank Bank selection: &

Display Internal contact 1 0: No function value linear d11, 1 to 5 Internal contact 1 0: No function 0 0 0 d15, 1 to 5 Internal contact 1 1: LSP group selection (0/+1) 0 0 0 d15, 1 Operation type 3: LSP group selection (0/+2) 3: LSP group selection (0/+4) 0 0 0 3: LSP group selection (0/+4) 5: PID group selection (0/+4) 0 0 0 0 6: PID group selection (0/+4) 7: RUN/READY selection 0 0 0 0 9: LSP/RSP selection 10: AT Stop/Start 11: Invalid	Display	Item	Contents	Initial	User
d! i, i to Internal contact 1 0: No function 0 0 d'5, i 0 0 1: LSP group selection (0/+1) 0 0 d'5, i 0 0 1: LSP group selection (0/+2) 0 0 0 3: LSP group selection (0/+4) 3: LSP group selection (0/+4) 0 0 0 0 5: PID group selection (0/+4) 5: PID group selection (0/+4) 7: RUN/READY selection 0 0 0 6: PID group selection (0/+4) 7: RUN/READY selection 0 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 16: F	Display	item	Contents		
d/5.1 to 5 i: LSP group selection (0/+1) 2: USP group selection (0/+2) 3: LSP group selection (0/+4) 4: PID group selection (0/+4) 4: PID group selection (0/+4) 4: PID group selection (0/+4) 5: PID group selection (0/+4) 5: PID group selection (0/+4) 6: PID group selection (0/+4) 6: PID group selection (0/+4) 7: RUN/READY selection 8: AUTO/MANUAL selection 8: AUTO/MANUAL selection 9: LSP/RSP selection 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Function 1 ((A and B) or (C and D)) 2: Function 2 ((A or B) and (C or D)) 2: Surtoin 3 (A or B or C or D) 2: Function 2 ((A or B) and (C or D))					
Öperation type 2: LSP group selection (0/+2) 3: LSP group selection (0/+4) 4: PID group selection (0/+1) 5: PID group selection (0/+4) 6: PID group selection (0/+4) 7: RUN/READY selection 8: AUTO/MANUAL selection 9: LSP/RSP selection 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/oposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) 11: Function 1 (A and B) or (C and D)) 2: Function 1 (A or B) or (C or D)) 2: Function 2 (A or B) and (C or D))				0	0
dill 2: LSP group selection (0/+4) 4: PID group selection (0/+1) 5: PID group selection (0/+2) 6: PID group selection (0/+4) 7: RUNREADY selection 8: AUTO/MANUAL selection 9: LSP/RSP selection 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No hold/Hold) 17: Function 1 ((A and B) or (C and D)) 19: Function 1 (A or B or C D) 20: Step hold (N or D) 20: Function 2 (A or B) and (C or D) 3	diS. l				
4: PID group selection (0/-1) 5: PID group selection (0/-4) 6: PID group selection (0/-4) 7: RUNPEADY selection 0: LSP/RSP selection 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: -PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) 15: PU maximum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) 11: Function 1 ((A and B) or (C and D)) 11: Function 1 ((A or B) and (C or D)) 12: Function 2 ((A or B) or O D)		Operation type			
dill, 2 to Internal contact 1 0 2 dill, 2 to Internal contact 1 0 2 input bit operation 12: Function 2 (Å or B) or C D)) 0 2			3: LSP group selection (0/+4)		
6: PID group selection (0/-4) 7: RUN/READY selection 8: AUTO/MANUAL selection 9: LSP/RSP selection 10: LSP/RSP selection 11: Invalid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No advance/Advance) 20: Disabled. (Input of default) 0 dif. 2< to			4: PID group selection (0/+1)		
f: RUV/READY selection 8: AUTO/MANUAL selection 9: LSP/RSP selection 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) at: Function 1 ((A and B) or (C and D)) Input bit operation 2: Function 2 ((A or B) and (C or D)) St Function 3 (A or B or C on D)			5: PID group selection (0/+2)		
8: AUTO/MANUAL selection 9: LSP/RSP selection 10: AT Stop/Start 11: Invaid 12: Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) d5: 2 to 5 Internal contact 1 0: Disabled, (Input of default) 0 2: Function 1 (A or B) or (C and D)) Input bit operation 2: Function 2 (A or B) S: Function 3 (A or B or C or D)			6: PID group selection (0/+4)		
9: LSP/RSP selection 10: AT Stop/Start 11: Invalid 12: Control action direct/reverse selection (As per setting/oposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) cf1.2 to Internal contact 1 0: Disabled, (Input of default) 0 26/5.2 Input bit operation 2 (A or B) and (C or D)) 19: Function 1 (A or B) and (C or D)			7: RUN/READY selection		
dif. 2 to dif. 2 to internal contact 1 to internal contact 1 to dif. 2 to internal contact 1 to internal contact to <			8: AUTO/MANUAL selection		
dill.2 to Internal contact 0 2 dill.2 to Internal contact (No-hold/Hold) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 20: Step hold (No advance)Advance) 20: Step hold (No hold/Hold) 0 2 2 36: 5. 2 10: Disabled. (Input of default) 0 2 2 36: 5. 2 10: Disabled. (Input of (A or B) or (C and D)) 11: Function 1 ((A and B) or (C and D)) 12: Function 2 ((A or B) and (C or D)) 31: Function 2 ((A or B) and (C or D)) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Function 3 (A or B or C or D) 31: Funchor B or C or D) <t< td=""><td></td><td></td><td>9: LSP/RSP selection</td><td></td><td></td></t<>			9: LSP/RSP selection		
d?l.2 Control action direct/reverse selection (As per setting/opposite operation of setting) 13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) d?l.2 to 5 input bit operation 1 0 2: Function 2 ((A or B) and (C or D)) 2: Function 2 (A or B)			10: AT Stop/Start		
dif. 2 to Internal contact 1 0 2 dif. 2 to Internal contact 1 0 2 2 dif. 2 to Internal contact 1 0 2 1 Function 2 (A or B) or D)) 1 0 2 dif. 2 to Internal contact 1 0 1 0 2 1 5 Function 2 (A or B) or C on D)) 1 0 2 1			11: Invalid		
dif. 2 to Internal contact 1 0 2 dif. 2 to Internal contact 1 0 2 2 dif. 2 to Internal contact 1 0 2 1 Function 2 (A or B) or D)) 1 0 2 dif. 2 to Internal contact 1 0 1 0 2 1 5 Function 2 (A or B) or C on D)) 1 0 2 1			12: Control action direct/reverse selection (As per		
13: SP ramp Enabled/Disabled 14: PV Hold (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) 61: I, 2 to Internal contact 1 0: Disabled. (Input of default) 0 20: Step hold (No advance/Advance) 20: Step hold (No hold/Hold) 15: Function 1 ((A and B) or (C and D)) 16: Function 1 (A or B or C or D) Step noted (No ro D)					
d14: PV Hoid (No-hold/Hold) 15: PV maximum value hold (No-hold/Hold) 16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No-hold/Hold) d1: 2 d5: 2 internal contact 1 0: Disabled. (Input of default) 0 2: Function 1 (A and B) or (C and D)) input bit operation 2: Function 2 (A or B) and (C or D)					
df1.2 to Internal contact 1 0 2 df1.2 to Internal contact 1 0 2 2 df1.2 to Internal contact 1 0 2 2 df5.2 to Internal contact 1 0 2 2 df5.2 to Internal contact 1 0 2 2 df5.2 to Step hold (Na hold/Hold) 0 2					
d16: PV minimum value hold (No-hold/Hold) 17: Timer Stop/Start 18: Release of all DO latches (Continue/Release) 19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) d11, 2 d15, 2 to 5 Input bit operation 2 Input bit operation 3: Function 2 ((A or B) and (C or D)) 3: Function 2 (A or B or D)					
d11, 2 to Internal contact 1 10<					
18: Release of all DO latches (Continue/Release) 19: Advance (No advance) 20: Step hold (No hold/Hold) 2 dl1. 2 to Internal contact 1 0: Disabled. (Input of default) 1: Function 1 ((A and B) or (C and D)) 1: Function 2 ((A or B) and (C or D)) 3: Function 3 (A or B or C or D) 0 2					
19: Advance (No advance/Advance) 20: Step hold (No hold/Hold) d71, 2 to Internal contact 1 0: Disabled. (Input of default) 0 2 d75, 2 to 5 1: Function 1 ((A and B) or (C and D))) 0 2 2 d75, 2 to 5 1: Function 1 ((A or B) and (C or D)) 3: Function 3 ((A or B or C or D) 3: Function 3 (A or B or C or D)					
20: Step hold (No hold/Hold) 2 d*1. 2 to Internal contact 1 0: Disabled. (Input of default) 0 2 d*5. 2 to 5 1: Function 1 ((A and B) or (C and D)) 0 2 input bit operation 2: Function 1 ((A or B) and (C or D)) 2: Function 2 ((A or B or C or D)) 0 2					
of I, 2 to Internal contact 1 0: Disabled. (Input of default) 0 2 d/5, 2 to 5 1: Function 1 ((A and B) or (C and D)) 0 2 Input bit operation 2: Function 2 ((A or B) and (C or D)) 3: Function 3 ((A or B or C or D) 0 2					
d/5. 2 to 5 1: Function 1 ((A and B) or (C and D)) Input bit operation 2: Function 2 ((A or B) and (C or D)) S: Function 3 (A or B or C or D)				•	•
Input bit operation 2 : Function 2 ((A or B) and (C or D)) 3: Function 3 (A or B or C or D)				U	2
3: Function 3 (A or B or C or D)	0i). C				
		Input bit operation			
4: Function 4 (A and B and C and D)					
			 Function 4 (A and B and C and D) 		

Display	Item	Contents	Initial value	User level
di I. 3 to di 5. 3	Internal contact 1 to 5 Input assignment A	0: Normally open (OFF, 0) 1: Normally close (ON, 1) 2: D11 3: D12 4: D13 5: D14 6: to 9: Undefined 10: Internal event 1	2 to 5 or 0	2
dii, Ч to di5, Ч	Internal contact 1 to 5 Input assignment B	11: Internal event 2 12: Internal event 3 13: Internal event 4 14: Internal event 5 15: Internal event 6 16: Internal event 7 17: Internal event 8	0	2
៩) 1, 5 to ៩) 5, 5	Internal contact 1 to 5 Input assignment C	18: Communication DI1 19: Communication DI2 20: Communication DI3 21: Communication DI4 22: MANUAL mode 23: READY mode 24: RSP mode 25: During AT execution 26: During SP ramp	0	2
di I. 6 to di 5. 6	Internal contact 1 to 5 Input assignment D	27: Undefined 28: Alarm is enabled. 29: PV alarm is enabled. 30: Undefined 31: Mode key function selection status 32: Event output 1 status 33: Control output 1 status	0	2
df1; 7 to df5; 7	Internal contact 1 to 5 Polarity A to D Tst digit: Polarity A (Polarity of input assignment A) 2nd digit: Polarity B (Polarity of input assignment B) 3rd digit: Polarity C (Polarity of input assignment C) (Polarity of input assignment D)	Digits are called as 1st digit, 2nd digit, 3rd digit and 4th digit from the right end digit. 0: Direct 1: Reverse	00000 0 0 0	2
di 1.8 to di 5.8	Internal contact 1 to 5 Polarity	0: Direct 1: Reverse	0	2
di 1.9 to di 5.9	Internal contact 1 to 5 Internal event No.assignment	0: Every internal event 1 to 8: Internal event numbers	0	2

■ DO assignment bank Bank selection: do

Display	Item	Contents	Initial value	User level
σΕ (to σΕ2. (Ευ (to Ευ3. (Control output 1 to 2, event output 1 to 3 Operation type	0: Input of default 1: MV1 (DNOFF control output, time proportional output, heat-side proportional output of heat/cool control) 2: MV2 (cool-side proportional output of heat/cool control) 3: Function 1 ((A and B) or (C and D)) 4: Function 2 ((A or B) and (C or D)) 5: Function 3 (A or B or C or D) 6: Function 4 (A and B and C and D)	0	2
οξί, 2 to οξ2, 2 Ευί, 2 to Ευί, 2	Control output 1 to 2, event output 1 to 3 Output assignment A	0: Normally open (OFF, 0) 1: Normally close (ON, 1) 2: Internal event 1 3: Internal event 2 4: Internal event 3 5: Internal event 4 6: Internal event 5 7: Internal event 6 8: Internal event 7 9: Internal event 8	14 to 15 or 2 to 4	2
αξί, 3 to αξ2, 3 Ευί, 3 to Ευί, 3	Control output 1 to 2, event output 1 to 3 Output assignment B	10 to 13: Undefined 14: MV1 15: MV2 16 to 17: Undefined 18: D11 19: D12 20: D13 21: D14 22 to 25: Undefined 26: Internal contact 1	0	2
οΕί.Υ to οΕζ.Υ Ευί.Υ to Ευί.Υ	Control output 1 to 2, event output 1 to 3 Output assignment C	27: Internal contact 2 28: Internal contact 3 29: Internal contact 4 30: Internal contact 5 31: to 33: Undefined 34: Communication DI1 35: Communication DI2 36: Communication DI4 37: Communication DI4 38: MANUAL mode	0	2
οεί, 5 to οεε, 5 Ευί, 5 to Ευί, 5	Control output 1 to 2, event output 1 to 3 Output assignment D	39: READY mode 40: RSP mode 41: During AT execution 42: During SP ramp 43: Undefined 44: Alarm is enabled. 45: PV alarm is enabled. 46: Undefined 47: Mode key function selection status 48: Event output 1 status 49: Control output 1 status	0	2

Dis	play	Item	Contents	Initial value	User level
o£ 1, 6 o£2, 6 Eu 1, 6 Eu 3, 6	to to	Control output 1 to 2, event output 1 to 3 Polality A to D	Digits are called as 1st digit, 2nd digit, 3rd digit and 4th digit from the right end digit.	0000	2
		1st digit: Polarity A 2nd digit: Polarity B 3rd digit: Polarity C 4th digit: Polarity D	0: Direct 1: Reverse	0 0 0 0	
oE 1, 7 oE2, 7 Eu 1, 7 Eu 3, 7	to to	Control output 1 to 2, event output 1 to 3 Polarity	0: Direct 1: Reverse	0	2
o£1,8 o£2,8 Eu1,8 Eu3,8	to to	Control output 1 to 2, event output 1 to 3 Latch	0: Disabled 1: Enabled (Latch at ON) 2: Enabled (Latch at OFF, except at the time of initialization after power ON)	0	2

■ User function bank Bank selection: *UF*

Display	Item	Contents	Initial value	User level
UF - 1	User function definition 1	This is the display in upper display. The setup exception is as follows:		1
UF-2	User function definition 2	P: Yet to be registered. P: Proportional band of the PID group in use I: Integration time of the PID group in use		1
UF-3	User function definition 3	d^{-} : Derivative time of the PID group in use FE^{-} : Manual reset of the PID group in use		1
UF-4	User function definition 4	oL^{-} : MV low limit of the PID group in use oH^{-} : MV high limit of the PID group in use P^{-} , ζ : Cool-side proportional band of the PID		1
UF-5	User function definition 5	group in use /{ : Cool-side integration time of the PID group		1
UF-6	User function definition 6	in use d - 1 : Cool-side derivative time of the PID group		1
UF-7	User function definition 7	in use oL_C : Cool-side MV low limit of the PID group in use		1
UF-8	User function definition 8	oHC : Cool-side of MV high limit of the PID group in use		1

■ Lock bank Bank selection: LoC

Display	Item	Contents	Initial value	User level
LoC	Key lock	 All settings are enabled. Mode, event, operation display, SP, UF, lock, manual MV, and mode key can be set. Operation display, SP, UF, lock, manual MV, and mode key can be set. UF, lock, manual MV, and mode key can be set. 	0	0
<i>C.</i> LοC	Communication lock	0: RS-485 communication read/write is enabled. 1: RS-485 communication read/write is disabled.	0	2
L. LoC	Loader lock	0: Loader communication read/write is enabled. 1: Loader communication read/write is disabled.	0	2
PR55	Password display	0 to 15 5: Password 1A to 2B display	0	0
PS (R	Password 1A	0000 to FFFF (hexadecimal value)	0000	0
PS2R	Password 2A	0000 to FFFF (hexadecimal value)	0000	0
PS 16	Password 1B	0000 to FFFF (hexadecimal value)	0000	0
P526	Password 2B	0000 to FFFF (hexadecimal value)	0000	0

■ Instrument information bank Bank selection: は

Display	Item	Contents	Initial value	User level
1601	ROM ID	2 fixed	—	2
1905	ROM version 1	XX. XX (2 digits after decimal point)	-	2
1803	ROM version 2	XX. XX (2 digits after decimal point)	—	2
1604	SLP support Information		-	2
1805	EST support version		-	2
1806	Manufacturing date code (year)	Year-2000. Ex.: "3" means the year 2003.	-	2
1807	Manufacturing date code (month, day)	Month + Day ÷ 100 Ex.: "12.01" means the 1st day of December	_	2
1808	Serial No.		-	2

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Specifications are subject to change without notice.

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