Ramp/Soak Controller

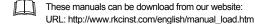
PF900/PF901

Installation Manual

Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place the manual in a convenient location for easy reference.

This manual describes the handling precautions, mounting, wiring and specifications only. For the basic operations, refer to Quick Operation Manual (IMR02L02-E□). For detailed handling procedures and various function settings, please refer to the following separate manuals

- PF900/PF901 Quick Operation Manual (IMR02L02-E□)
- PF900/PF901 Instruction Manual (IMR02L03-E□)



■ Product Check

PF900/PF901 Installation Manual (IMR02L01-E2)1	
PF900/PF901 Quick Operation Manual (IMR02L02-ED)	
Mounting bracket (with screw)4	
Case rubber packing (KFB900-36 <1>)1	

Optional (Sold separately)

Terminal cover (KFB400-511)	2
Front cover (KF9-35)	1

■ Safety Precautions



WARNING

- An external protection device must be installed if failure of this instrument could result in damage to the instrument, equipment or injury to personnel.
- All wiring must be completed before power is turned on to prevent electric shock, fire or damage to instrument and equipment.
- This instrument must be used in accordance with the specifications to prevent fire or damage to instrument and equipment.
- This instrument is not intended for use in locations subject to flammable or explosive gases.
- Do not touch high-voltage connections such as power supply terminals, etc. to avoid electric shock
- RKC is not responsible if this instrument is repaired, modified or disassembled by other than factory-approved personnel. Malfunction can occur and warranty is void under these conditions.

CAUTION

- This product is intended for use with industrial machines, test and measuring equipment. (It is not designed for use with medical equipment and nuclear energy.)
- This is a Class A instrument. In a domestic environment, this instrument may cause radio interference, in which case the user may be required to take additional measures.
- This instrument is protected from electric shock by reinforced insulation. Provide reinforced insulation between the wire for the input signal and the wires for instrument power supply, source of power and loads.
- Be sure to provide an appropriate surge control circuit respectively for the following: If input/output or signal lines within the building are longer than 30 meters If input/output or signal lines leave the building, regardless the length.
- This instrument is designed for installation in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock by operating personnel.
- All precautions described in this manual should be taken to avoid damage to the instrument or equipment.
- All wiring must be in accordance with local codes and regulations
- To prevent instrument damage or failure, protect the power line and the input/output lines from high currents with a protection device such as fuse, circuit breaker, etc.
- Prevent metal fragments or lead wire scraps from falling inside instrument case to avoid electric shock, fire or malfunction.
- Tighten each terminal screw to the specified torque found in the manual to avoid electric shock, fire or malfunction.
- For proper operation of this instrument, provide adequate ventilation for heat dispensation.
- Do not connect wires to unused terminals as this will interfere with proper operation of the instrument.
- Turn off the power supply before cleaning the instrument.
- Do not use a volatile solvent such as paint thinner to clean the instrument. Deformation or discoloration will occur. Use a soft, dry cloth to remove stains from the instrument.
- To avoid damage to instrument display, do not rub with an abrasive material or push front panel with a hard object.
- When high alarm with hold action/re-hold action is used for Event function, alarm does not turn on while hold action is in operation. Take measures to prevent overheating which may occur if the control device fails.

NOTICE

- This manual assumes that the reader has a fundamental knowledge of the principles of electricity, process control, computer technology and communications.
- The figures, diagrams and numeric values used in this manual are only for purpose of
- RKC is not responsible for any damage or injury that is caused as a result of using this instrument, instrument failure or indirect damage. • RKC is not responsible for any damage and/or injury resulting from the use of instruments
- made by imitating this instrument • Periodic maintenance is required for safe and proper operation of this instrument. Some components have a limited service life, or characteristics that change over time
- Every effort has been made to ensure accuracy of all information contained herein. RKC makes no warranty expressed or implied, with respect to the accuracy of the information. The information in this manual is subject to change without prior notice
- No portion of this document may be reprinted, modified, copied, transmitted, digitized, stored, processed or retrieved through any mechanical, electronic, optical or other means without prior written approval from RKC.

1. MOUNTING



WARNING

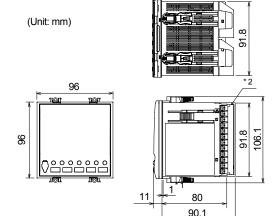
To prevent electric shock or instrument failure, always turn off the power before mounting or removing the instrument.

1.1 Mounting Cautions =

- (1) This instrument is intended to be used under the following environmental conditions. (IEC61010-1) [OVERVOLTAGE CATEGORY II, POLLUTION DEGREE 2]
- (2) Use this instrument within the following environment conditions:
- Allowable ambient temperature: −10 to +55 °C
- Allowable ambient humidity: 5 to 95 % RH
- (Absolute humidity: MAX. W. C 29 g/m³ dry air at 101.3 kPa)
- Installation environment conditions: Indoor use Altitude up to 2000 m
- (3) Avoid the following conditions when selecting the mounting location:
- · Rapid changes in ambient temperature which may cause condensation.
- Corrosive or inflammable gases.
- Direct vibration or shock to the mainframe.
- Water oil chemicals vapor or steam splashes.
- Excessive dust, salt or iron particles.
- Excessive induction noise, static electricity, magnetic fields or noise.
- Direct air flow from an air conditioner.
- Exposure to direct sunlight.
- · Excessive heat accumulation.
- (4) Mount this instrument in the panel considering the following conditions:
- Provide adequate ventilation space so that heat does not build up.
- · Do not mount this instrument directly above equipment that generates large amount of heat (heaters, transformers, semi-conductor functional devices, large-wattage resistors.)
- If the ambient temperature rises above 55 °C, cool this instrument with a forced air fan cooler, etc. Cooled air should not blow directly on this instrument.
- In order to improve safety and the immunity to withstand noise, mount this instrument as far away as possible from high voltage equipment, power lines, and rotating machinery. High voltage equipment: Do not mount within the same panel.
 - Power lines: Separate at least 200 mm Rotating machinery: Separate as far as possible
- Mount this instrument in the horizontal direction for panel. If you did installation except a horizontal direction, this causes malfunction.
- (5) If this instrument is permanently connected to equipment, it is important to include a switch or circuit-breaker into the installation. This should be in close proximity to the equipment and within easy reach of the operator. It should be marked as the disconnecting device for the equipment.

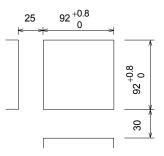
1.2 Dimensions

■ External dimensions



- *1 Case rubber packing
- *2 Terminal cover KFB400-511 (optional) [sold separately]

■ Panel cutout



Panel thickness: 1 to 10 mm

To keep the instrument as waterproof as possible, make sure that the panel surface has no burr or distortion where the hole is to be cut out.

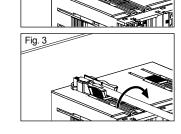
Fig. 1

Fig. 2

1.3 Procedures of Mounting and Removing

Mounting procedures

- 1. Prepare the panel cutout as specified in 1.2 Dimensions
- 2. Set the water/dustproof rubber packing on the case from the back side of the instrument. Insert the instrument through the panel cutout.
- 3. Insert the mounting bracket into the mounting groove of the instrument. (Fig. 1)
- 4. Push the mounting bracket forward until the bracket is firmly secured to the panel.
- 5. Only turn one full revolution after the screw touches the panel. (Fig. 3)
- If the screw has been rotated too tight, the screw may turn idle. In such a case, loosen the screw once and tighten it again until the instrument is firmly fixed.
- 6. The other mounting bracket should be installed the same way described in 3.

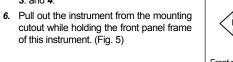


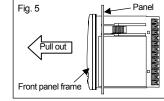
The front of the instrument conforms to IP55 when mounted on the panel. For effective waterproof/dustproof, the gasket must be securely placed between instrument and panel without any gap. If gasket is damaged, please contact RKC sales office or the agent.

Fig. 4

■ Removal procedures

- 1. Turn the power OFF.
- Remove the wiring.
- 3. Loosen the screw of the mounting bracket.
- 4. Remove the mounting bracket by pulling up (①) and forward (②) while holding the rear. (Fig. 4)
- 5. The other mounting bracket should be removed in the same way as described in 3. and 4.





Use long-nose pliers to remove mounting brackets from the instrument that is installed in a narrow place or installed tightly in a vertical position.



2. WIRING



WARNING

To prevent electric shock or instrument failure, do not turn on the power until all wiring is completed. Make sure that the wiring is correct before applying power to the instrument.

2.1 Wiring Cautions

- For thermocouple input, use the appropriate compensation wire.
- For RTD input, use low resistance lead wire with no difference in resistance between the three lead wires.
- To avoid noise induction, keep input signal wire away from instrument power line, load lines and power lines of other electric equipment.
- If there is electrical noise in the vicinity of the instrument that could affect operation, use a noise filter.
- Shorten the distance between the twisted power supply wire pitches to achieve the most effective noise reduction.
- Always install the noise filter on a grounded panel. Minimize the wiring distance between the noise filter output and the instrument power supply terminals to achieve the most effective noise reduction.
- Do not connect fuses or switches to the noise filter output wiring as this will reduce the effectiveness of the noise filter
- Allow approximately 5 seconds for contact output when the instrument is turned on. Use a delay relay when the output line is used for an external interlock
- Power supply wiring must be twisted and have a low voltage drop.
- For an instrument with 24 V power supply, supply power from a SELV circuit.
- A suitable power supply should be considered in end-use equipment. The power supply must be in compliance with a limited-energy circuits (maximum available current of 8 A).
- This instrument is not furnished with a power supply switch or fuse. If a fuse or power supply switch is required, install close to the instrument. Recommended fuse rating: Rated voltage 250 V, Rated current 1 A Fuse type: Time-lag fuse

Fig. 6

ф 5.0

5.9 MAX

5.6 mm.

φ 3.2 MIN

Use the solderless terminal appropriate to the screw size.

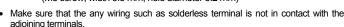
 $M3 \times 7$ (with 5.8×5.8 square washer) Recommended tightening torque: 0.4 N·m (4 kgf·cm)

Applicable wire:

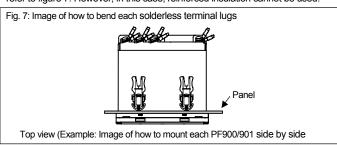
Solid/twisted wire of 0.25 to 1.65 mm2 Specified dimension: Refer to fig. 6

Specified solderless terminals: Manufactured by J.S.T MFG CO., LTD.

Circular terminal with isolation V1.25-MS3 (M3 screw, width 5.5 mm, hole diameter 3.2 mm)

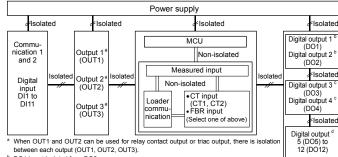


· Up to two solderless terminal lugs can be connected to one terminal screw, then refer to figure 7. However, in this case, reinforced insulation cannot be used.



If solderless terminal lugs other than the recommended dimensions are used, terminal screws may not tightened. In that case, bend each solderless terminal lug before wiring. If the terminal screw is forcibly tightened, it may

For isolated device input/output blocks, refer to the following:



- DO1 is not isolated from DO2
- Digital outputs (DO5 to DO12) are not isolated

2.2 Terminal Configuration

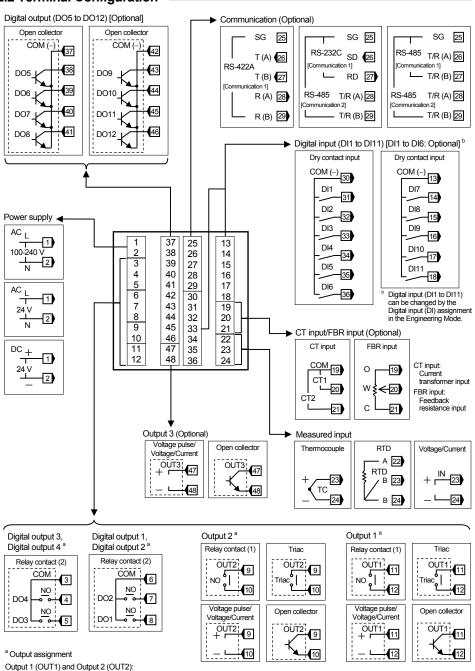


Table 2: Input type and Measured range

328.0 to +2502.0 °F

-328.0 to +2192.0 °F

-50 to +1768 °C

-58.0 to +3214.0 °F

-200.0 to +1000.0 °C -328 to +1832 °F

0.0 to 3272.0 °F

0 to 1300 °C

0 to 2372 °F

0.0 to 1390.0 °C 0 to 2534 °F

0.0 to 2300.0 °C 0 to 4200 °F

0.0 to 4200.0 °F

328.0 to +1832.0 °F 0 to 1800 °C

JPt100

0 to 1 V 0 to 10 V

1 to 5 V

S, R

В

Input type Measured range Input type Measured range

Control output or digital output can be allocated to OUT1 and OUT2. For Heat/Cool control, OUT1 corresponds to the heat-side output and OUT2 corresponds to the cool-side output.

For Position proportioning control, OUT1 corresponds to the open-side output and OUT2 corresponds to the close-side output

Digital output 1 (DO1) to Digital output 12 (DO12): Output of the Event function can be allocated to DO1 to DO12.

The following two methods of the output assignments are available: Specify when ordering (Initial setting code) Setting by Output assignment (Engineering Mode)

Table 1: Output type						
	OUT1 OUT2	OUT3	DO1 to DO4	DO5 to DO12		
Relay contact output (1)	0					
Relay contact output (2)			0			
Voltage pulse output	0	0				
Current output 0 to 20 mA, 4 to 20 mA	0	0				
Voltage output 0 to 5 V DC, 1 to 5 V DC, 0 to 10 V DC	0	0				
Voltage output 0 to 1 V DC		0				
Triac output	0					
Open collector output	С	С		0		

(O: Indicates that an output specification is supported.)

3. SPECIFICATIONS

Measured input

Number of input 1 point Refer to table 3. Input type and range:

Sampling cycle: Influence of external resist 100 ms (50 ms or 250 ms is selectable)

Approx. 0.2 IIV/O

(Converted depending on TC types) Influence of input lead: Approx. 0.01 % of Input span (RTD input) 10Ω or less per wire

Input impedance: Voltage (low) input:: 1 $M\Omega$ or more Voltage (high) input: 1 MΩ or more Current input: Approx. 5
Approx. 0.25 mA (RTD input) Approx. 50 Ω

Sensor current: Action at input beak:

TC input, Voltage (low) input:: Upscale or downscale

Voltage (high) input, Current input;

Downscale (Indicates the value 0 V or 0 mA)

Action at input short circuit: Downscale (RTD input) Input correction:

-Input span to +Input span PV bias: First order lag digital filter: 0.0 to 100.0 seconds (0.0: OFF) 0.00 to 25.00 % of input span

Current transformer (CT) input [Optional]

(Selects either CT input or FBR input) CT type: CTL-6-P-N or CTL-12-S56-10L-N (Sold separately) Input range: CTL -12-S56-10L-N: 0.0 to 100.0 A Sampling cycle: Twice of the measured input sampling cycle

Feedback resistance (FBR) input [Optional]

Number of input: 1 point (Selects either CT input or FBR input) Permissible resistance range

100 Ω to 10 k Ω (Standard: 135 Ω) Input range: 0.0 to 100.0 % (for adjustment span of open and close) Sampling cycle: Twice of the measured input sampling cycle

Digital input (DI)

11 points (DI1 to DI11) Number of inputs [DI1 to DI6: Optional] Input method: Dry contact input

10 kΩ or more Open state: Close state: 1 kΩ or less Contact current: 5 mA or less Voltage at open: Approx. 5 V DC

Capture judgment time: Max. 200 ms + 1 sampling cycle

Output

Number of outputs: 15 points (OUT1, OUT2, OUT3, DO1 to DO12) [OUT3, DO5 to DO12: Optional Output type:

 Relay contact output (1) 1a contact Contact type:

Contact rating (Resistive load):
250 V AC 3 A/ 30 V DC 1 A Electrical life: 300,000 times or more (Rated load)

Mechanical life: 50 million times or more (Switching: 180 times/min) • Relay contact output (2)

1a contact Contact type: Contact rating (Resistive load):

250 V AC 1 A/ 30 V DC 1 A Electrical life: 300,000 times or more (Rated load) Mechanical life 20 million times or more (Switching: 300 times/min)

Voltage pulse output Output voltage:

0 to 1112 °F

0 to 1652 °F

0.0 to 1652.0 °F

0.0 to 1800.0 °C 0 to 3200 °F 0.0 to 3200.0 °F

-200 to +850 °C

-200.0 to +850.0 °C

100.00 to +150.00 °C -328 to +1562 °F

-328.0 to +1562.0 °F -148.00 to +302.00 °F -200 to +640 °C

-200.0 to +640.0 °C

100.00 to +150.00 °C

-19999 to +32000

0/12 V DC (Rating) ON voltage: 11 to 13 V OFF voltage: 0.2 V or less Allowable load resistance: 600 Ω or more (20 mA or less)

 Current output Output range:

Output current (Rating): 4 to 20 mA DC, 0 to 20 mA DC 3 to 21 mA DC, 0 to 21 mA DC

Allowable load resistance: Voltage output Output voltage (Rating): 0 to 10 V DC, 0 to 5 V DC, 1 to 5 V DC,

0 to 1 V DC (OUT3 only) -0.5 to +10.5 V DC, -0.25 to +5.25 V DC. Output range 0.8 to 5.2 V DC, -0.05 to +1.05 V DC

Allowable load resis

Triac output

Output method: AC output (Zero-cross method) Allowable load current: 0.5 A (Ambient temperature 40 °C or less) Derating: -0.02 A/°C when ambient temperature is 40 °C or more

75 to 250 V AC Load voltage: Minimum load current: 30 mA

ON voltage: 1.6 V or less (at maximum load current) Open collector output (OUT1 to OUT3)

Allowable load current: 100 mA Load voltage: 30 V DC or less ON voltage:

2 V or less (at maximum load current) Leakage current at OFF:

 Open collector output (DO5 to DO12) Output method: Sink type 100 mA

Load voltage: 30 V DC or less 2 V or less (at maximum load current) ON voltage: Leakage current at OFF: 0.1 mA or less

Communication [Optional]

Communication 1 (Host communication)

Based on RS-232C, RS-485, or RS-422A, Interface:

EIA standard Multi-drop connection of RS-485 and

RS-422A is available. Protocol

RKC communication (ANSI X3.28-1976 subcategories 2.5 and A4)

(Example: 120 Ω 1/2W)

Modbus-RTU Externally connected

(Example: 120 O 1/2W) Communication 2 (Intercontroller communication) Based on RS-485 Interface Modbus-RTU Protocol: Externally connected Termination resistor.

General specifications

Power supply voltage:

100 to 240 V AC type:

85 to 264 V AC [Including power supply voltage variation], 50/60 Hz (Rating 100 to 240 V AC)

Frequency variation: 50/60 Hz -10 % to +5 %

24 V AC type:

20.4 to 26.4 V AC [Including power supply voltage variation], 50/60 Hz (Rating 24 V AC) Frequency variation: 50/60 Hz –10 % to +5 %

24 V DC type:

20.4 to 26.4 V DC [Including power supply voltage variation] (Rating 24 V DC)

Power consumption (at maximum load):

 100 to 240 V AC type: 9.5 VA max. (at 100 V AC) [Power saving mode: 7.1 VA] Rush current: 7.5 A or less 13.5 VA max. (at 240 V AC) [Power saving mode: 10.9 VA]

Rush current: 17.5 A or less 24 V AC type: 8.5 VA max. (at 24 V AC) Power saving mode: 6.2 VA

Rush current: 8.5 A or less 24 V DC type: 230 mA max. (at 24 V DC) [Power saving mode: 173 mA]

Rush current: 6.0 A or less Allowable ambient temperature: 5 to 95 % RH

Allowable ambient humidity: (Absolute humidity: MAX.W.C 29 g/m³ dry air at 101.3 kPa) Insulation resistance:

Between measuring terminal and grounding

20 MΩ or more at 500 V DC Between power supply terminal and grounding:

20 M Ω or more at 500 V DC Between power supply and measuring terminals: 20 $M\Omega$ or more at 500 V DC

When grounding is not provided: Between panels

Time: 1 minute	Θ	0	3	●	6
Grounding terminal					
② Power terminal	1500 V AC				
 Measured input terminal 	1500 V AC	2300 V AC			
Output terminal (Relay contact, Triac)	1500 V AC	2300 V AC	2300 V AC		
© Output terminal (Voltage pulse, Voltage/Current, Open collector)	1500 V AC	2300 V AC	1500 V AC		
 Communication, digital input (DI) terminals 	1500 V AC	2300 V AC	510 V AC	2300 V AC	1000 V AC

Transportation and Storage environment conditions:

Height 600 mm or less · Shock: Temperature: -40 to +70 °C

5 to 95 % RH (Non condensing) Installation enviro ment conditions: Indoor use

Altitude up to 2000 m Approx. 470 g Weight:

Standard

CE marking:

LII · LII 61010-1 Safety standards:

cUI: CAN/CSA-C22 2 No 61010-1

EN61010-1 • LVD:

OVERVOLTAGE CATEGORYII POLLUTION DEGREE 2. Class II (Reinforced insulation)

• EMC: EN61326-1 C-Tick: EN55011

IP55 (IEC60529) [Front panel] Panel sealing:

4. MODEL CODE

■ Suffix code

PF900	-000-	П	*	-П		1/Y
PF901	(1) (2) (3)	(4)	(5) (6) (7) (8)	(9)	(10)	(11)

: Indicates a specification code to be optional specified. If this section is blank, this means that no code is described on the nameplate.

Display color:

	PV display	SV/Timer display	Pattern display	
PF900	Green	Orange	White	
PF901		White		

(1) Output 1 (OUT1), (2) Output 2 (OUT2)

6: Voltage output (1 to 5 V DC) N: None (OUT2 only) M: Relay contact output 7: Current output (0 to 20 mA DC) V: Voltage pulse output Current output (4 to 20 mA DC) 4: Voltage output (0 to 5 V DC) T: Triac output

5: Voltage output (0 to 10 V DC) D: Open collector output (3) Output 3 (OUT3) a

N: None /: Voltage pulse output 6: Voltage output (1 to 5 V DC) D: Open collector output 7: Current output (0 to 20 mA DC)

3: Voltage output (0 to 1 V DC) 8: Current output (4 to 20 mA DC) 4: Voltage output (0 to 5 V DC) a OUT3 can be used as the Transmissi

(4) Power supply voltage

3: 24 V AC/DC 4: 100 to 240 V AC (5) Digital output (DO1 to DO12)

4: DO1 to DO4 C: DO1 to DO12 * * DO5 to DO12: Open collector output

(6) CT input/Feedback resistance input T: CT input (2 points) F: Feedback resistance input

(7) Communication function/Digital input (DI1 to DI6)

N. None : Communication 1 (RS-232C) + No communication 2

 Communication 1 (RS-422A) + No communication 2 Communication 1 (RS-485) + No communication 2

W: Communication 1 (RS-232C) + Communication 2 (RS-485) 1,2 X: Communication 1 (RS-485) + Communication 2 (RS-485) Y: No communication 1 + Communication 2 (RS-485)

If any one of the communication functions is also specified (other than the code "N"), the digital inputs (from DI1 to DI6) are automatically added. Factory set value of communication 2 protocol: Intercontroller communication

(8) Quick start code N: No quick start code (Configured at factory set value)

Specify quick start code 1 2: Specify quick start code 1 and 2

D: Digital input (DI1 to DI6)

* Factory set value: Refer to the Instruction Manual (IMR02L03-E

). (9) Control Method [Quick start code 1]

No code: No specify quick start code F: PID action with AT (Reverse action)

D: PID action with AT (Direct action) G: Heat/cool PID action with AT (for Extruder [cooling gain linear type])

A: Heat/cool PID action with AT (for Extruder [air cooling]) W: Heat/cool PID action with AT (for Extruder [water cooling]) Position proportioning PID action without FBR (Reverse action)

C: Position proportioning PID action without FBR (Direct action) (10) Measured input and Range [Quick start code 1]

No code: No specify quick start code □□□: Refer to range code table.

(11) Instrument specification Y. Version symbol

■ Quick start code 2 (Initial setting code)

0-000-00 (1) (2) (3) (4) (5) (6) (7)

(1) Digital input (DI) assignments

0 to 4: Refer to Digital input (DI) assignments table. (2) Digital output 1 (DO1), (3) Digital output 2 (DO2),

(4) Digital output 3 (DO3), (5) Digital output 4 (DO4) T: Feedback resistance (FBR) input error U: Band ² N: None A: Deviation high

V: SV high B: Deviation low C: Deviation high/lov W:SV low D: Band X: Deviation high/low Y: Deviation high/low 1 E: Deviation high : MV1 high : Deviation low

G: Deviation high/low 2: MV1 low H: Process high Cooling MV2 high J: Process low 4: Cooling MV2 low K: Process high : Time signal 1

: Process low 6: Time signal 2 Q: Heater break alarm 1 (HBA1) 7: Time signal 3 P: Heater break alarm 2 (HBA2) 8: Time signal 4 9: Pattern end signal R: Control loop break alarm (LBA)

S: FAIL (de-energized fixed) ² High/Low individual setting With hold action

(6) CT type N: CT1 (None), CT2 (None)

P: CT1 (CTL-6-P-N), CT2 (None) S: CT1 (CTL-12-S56-10L-N), CT2 (None) T: CT1 (CTL-6-P-N), CT2 (CTL-6-P-N) U: CT1 (CTL-12-S56-10L-N), CT2 (CTL-12-S56-10L-N)

(7) Communication 1 protocol 1: RKC communication (ANSI X3.28-1976)

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RKC RKC INSTRUMENT INC. The first edition: APR 2009 [IMQ00] HEADQUARTERS: 16-6, KUGAHARA 5-CHOME, OHTA-KU TOKYO 146-8515 JAPAN

Range code table

PLII

U

PR40-20

Pt100

JPt100

U08

[Voltage input, Current input]

Туре

Thermocouple (TC) input, RTD input

Type | Code | Measured range

0.0 to 400.0 °C

0.0 to 1300.0 °C -200.0 to +400.0 -200 to +1372 °C

0.0 to +1700.0 °C -50 to +1768 °C

50.0 to +1768.0 °C

–50 to +1768 °C

50.0 to +1768.0 °C

0.0 to 1800.0 °C

0 to 1300 °C 0.0 to 1300.0 °C

0.0 to 1300.0 °C

0 to 2300 °C 0.0 to 2300.0 °C

0 to 600 °C

0.0 to 900.0 °

0 to 900 °C

0.0 to 1800.0

-200.0 to +600.0 °C

100.00 to +150.00 °C

-200.0 to +850.0 °C

-200 to +850 °C

-200.0 to +600.0 °C

-200.0 to +640.0 °C

–200 to +640 °C

Programmable range -19999 to +32000 (Factory set value: 0.0 to 100.0)

Measured range

Measured range

0.0 to +2400.0 °F -328 to +2502 °F

-328.0 to +2502.0 °

0.0 to 800.0 °F -328 to +2192 °F

-328.0 to +752.0 °l

-328 to +752 °

-328 to +1832 °F -328.0 to +1832.0 °

0.0 to +3200.0 °F -58 to +3214 °F

58.0 to +3214.0 °F

58.0 to +3214.0 °F

0 to 3272 °F

0 to 2372 °F

0.0 to 2300.0 °F

0.0 to 2534.0 °F

0.0 to 4200.0 °

0.0 to 1112.0 °F

0.0 to 1600.0 °F

0.0 to 1652.0 °F

-328.0 to +1562.0 °F

-328 to +1562 °F

 Digital input (DI) assignments table (DI1 to DI11) [DI1 to DI6: Optional] Code DI1 DI2 DI3 DI4 DI5 DI6

Code	DI7	DI8	DI9	DI10	DI11	
0	RESET	RUN	STEP	HOLD	P. Transfer	
1	RESET	RUN	HOLD	P. Transfer		
2		P. Tra	Transfer P. SET			
3	P. Transfer					
4	RESET	RUN	STEP	HOLD	D/R	

P. Transfer: Pattern transfer, P. SET: Pattern set, WAIT1 to WAIT6: WAIT1 release to WAIT6 release D/R: Control Direct action/Reverse action transfer