



Ramp/Soak Controller

Ramp/Soak Controller
(Temperature/Process Controller)



 Reinforced Insulation

PZ Series

RKC RKC INSTRUMENT INC.

Large three display

At-a-glance view of current status

The large LCD display provides various information about the control status. It is obvious at first glance to see the program running properly.



PZ400

PZ900



PV-value
Also available in white LED specification



SV-value

Program output
MV 68.9

Program elapsed time
H:M 16:52
M:S 30:56

CT1/CT2 value
CT1 12.8

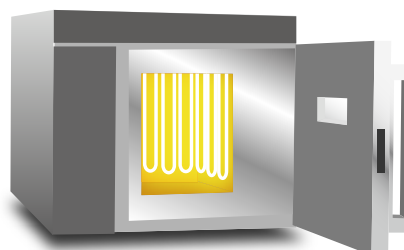
Running pattern/ Segment display

Ramp/Soak Status

5-digit PV/SV display

High resolution display for high temperature ranges

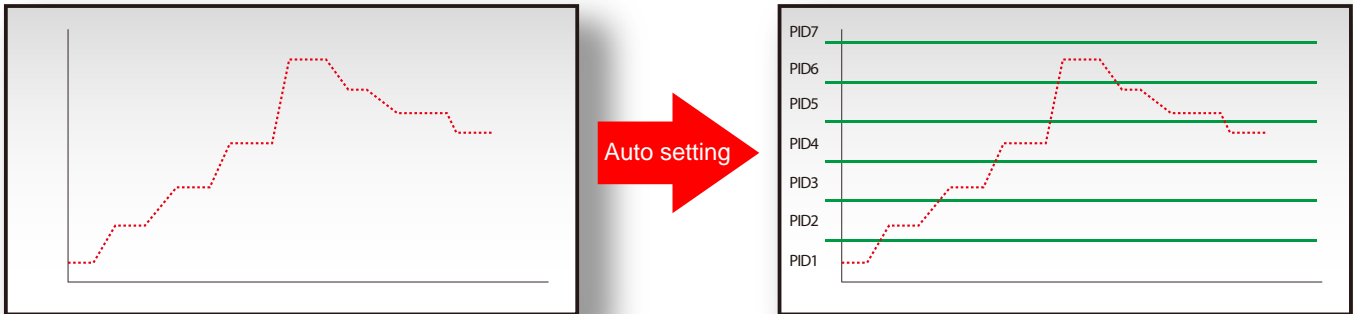
The high resolution display is suitable for various industrial furnaces, ovens and pottery kilns that need high temperature ranges.



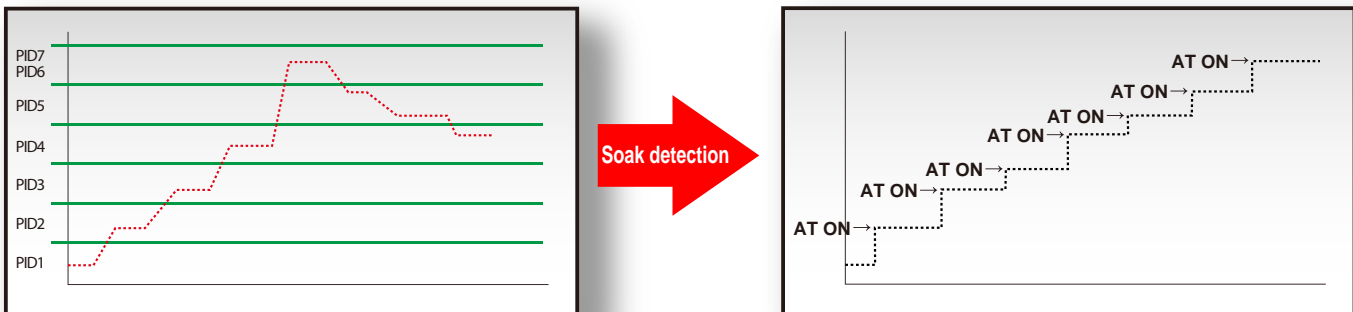
Automatic level setting Overall Level Autotuning

Automatic configuration for each machine

Level-PID function is available on many of our program controllers. Multiple PID levels are automatically calculated and set by the controller itself. The controller automatically completes the initial setup, requiring no advanced skills.



The Controller automatically recognizes the soak level inside the pattern and performs Autotuning at the recognized level. After the autotuning is completed, the calculated PID values are automatically set to the level.



Customizable keys

Realize easy operation

Frequently used functions are assignable to direct keys for quick and easy access. This prevents operators' errors and enables easy key operations.



Loader communication and Dedicated software

Easy initial setup. Controller can be quickly replaced.

All models are supplied with a front loader port as standard. Configuration can be set from the computer without removing the controller from the panel.

Saved configuration data can be sent to the controller from your computer on your desk.



Loader communication cable
Length : 1.5m
Model code for cable only :
W-BV-05-1500

USB communication converter COM-KG

The power to COM-KG is supplied from the PC via the USB port so no power supply is necessary.

Length : 1m
(Complete with loader communication cable)

COM-KG-4□
(With loader communication cable)
COM-KG-N□
(Without loader communication cable)



Easy Data Management Communication Tool **PROTEM 2**

Data monitoring, setting, storage, copy, transfer, logging, and report creation

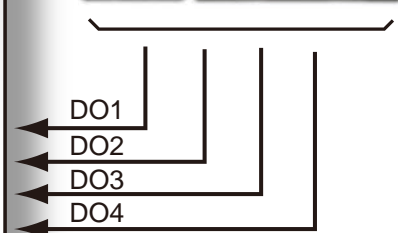
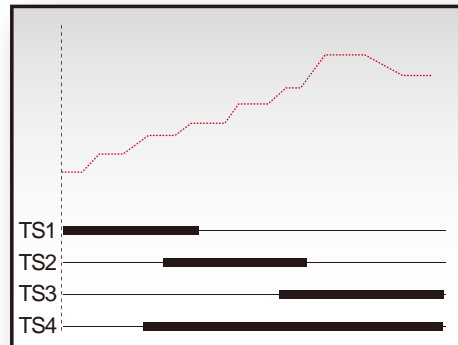


Simply download "PROTEM2" from the RKC Instrument web site (www.rkcinst.com).

Various functions comparable to higher end models adapt the controller suitable for many applications.

Applicable for the mid-scale program control applications

Max. 256 segments
 (16 patterns by 16 segments)
 Up to four individual time signal outputs per pattern
 The use of logic operation enables handling complicated external sequences up to four points per DO.



Programless connection to PLCs (Optional)

PLC Special Protocol
 (MAPMAN Function)

A PLC special protocol (MAPMAN) function becomes a Master Unit to PLC, and automatically stores temperature data into registers in a PLC. This enables easy handling of temperature control system to the exiting PLC system is available.

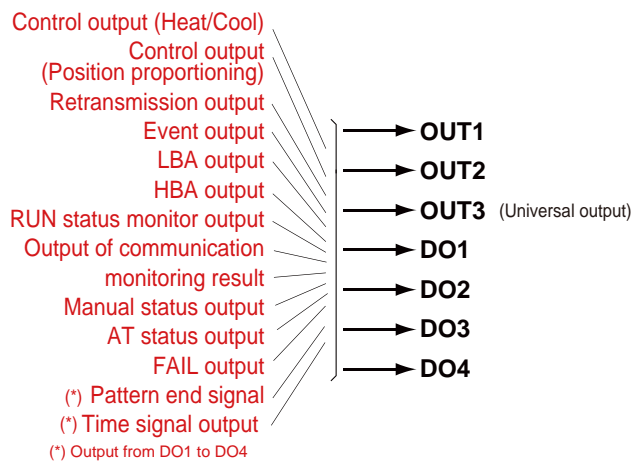
(MITSUBISHI PLC Protocol : QnA compatible, 3C frame (type 4))
MAPMAN MITSUBISHI MELSEC series



Flexible Output Configuration



OUT1,OUT2
 : Relay contact/Voltage pulse/Current/
 Continuous voltage/Transistor output
OUT3
 : Voltage pulse/Current (Universal output)
DO1, DO2, DO3, DO4
 : Relay contact
 Output type is freely changeable to meet the requirements of different applications.



Specifications

● Measured Input (Universal Inputs)

| | |
|---------------|---|
| Inputs | <ul style="list-style-type: none"> • Universal input (Use dip switch to change input group.) a) Temperature, Current, Low voltage input group <ul style="list-style-type: none"> Thermocouple : K, J, E, T, R, S, B, N (JIS/IEC), PLII (NBS), W5Re/W26Re (ASTM), U, L (DIN), PR40-20 RTD : Pt100 (JIS/IEC), JPt100 (JIS) • 3-wire system Low voltage : 0 to 100mV, 0 to 10mV DC b) High voltage input group (Input impedance : 1MΩ) <ul style="list-style-type: none"> 0 to 1V DC, 0 to 5V DC, 1 to 5V DC, 0 to 10V DC -5 to +5V, -10 to +10V c) Current input group (Input impedance : 50Ω) <ul style="list-style-type: none"> 4 to 20mA, 0 to 20mA |
| Sampling Time | 0.05 sec |

● Control

| | |
|----------------------|--|
| Control action | PID control, Heat/Cool type PID control, Position proportioning control without feedback resistance <ul style="list-style-type: none"> • P, PI, PD, ON/OFF control selectable • Direct action/Reverse action is selectable |
| Level-PID autotuning | Function to search program soaks in the RESET mode and perform Autotuning in the order of segments. |
| Control mode | Reset Mode (RESET) / Program Control Mode (RUN) Fix control mode (FIX) / Manual Control Mode (MAN), |

● Program Control

| | |
|----------------------------|---|
| Number of program patterns | Up to 16 patterns |
| Number of program segments | Up to 16 segments/pattern <ul style="list-style-type: none"> • Pattern linkable : Up to 256 segments. • With HOLD, STEP function |
| Segment time | 0 hr 0 min to 199 hs 59 min or 0 min 0 sec to 199 min 59 sec |
| Number of pattern repeat | 1 to 10,000 repeats <ul style="list-style-type: none"> • Continuous repeat when set to 10,000. |
| Pattern end output time | 0 hr 0 min to 199 hs 59 min or 0 min 0 sec to 199 min 59 sec <ul style="list-style-type: none"> • Output remains on when set to zero. |
| | a) Wait zone (upper) <ul style="list-style-type: none"> 1) Temperature input: 0 (0.0/0.00) to input span (°C, °F) 2) Voltage/current input: 0.0 to 100.0% of input span • Wait function off when set to zero |
| | b) Wait zone (lower) <ul style="list-style-type: none"> 1) Temperature input: -span to 0 (0.0/0.00) (°C, °F) 2) Voltage/current input: -100.0 to 0.0% of input span • Wait function off when set to zero |
| Time signal output | a) Number of outputs: 4 (TS1 to TS4) b) Output assignment: DO1 to DO4 c) Setting range <ul style="list-style-type: none"> Program pattern select : 1 to 16 Start segment : 1 to 16 Start time : 0 hr 0 min to 199 hs 59 min or 0 min 0 sec to 199 min 59 sec End segment : 1 to 16 End time : 0 hr 0 min to 199 hs 59 min or 0 min 0 sec to 199 min 59 sec |
| Level PID | a) Number of levels : 8 levels b) Setting range : Low input range to High input range |

● Performance

| Input Type | Range | Accuracy |
|-----------------------------|-------------------------------|-------------------------------|
| K, J, T, E, U, L | Lower than -100°C (-148°F) | ± (1.0°C [1.8°F] + 1 digit) |
| | -100 to 500°C (-148 to 932°F) | ± (0.5°C [0.9°F] + 1 digit) |
| | 500°C (932°F) or higher | ± (0.1% of Reading + 1 digit) |
| N, R, S, PLII W5Re/W26Re | Lower than 0°C (32°F) | ± (2.0°C [3.6°F] + 1 digit) |
| | 0 to 1000°C (32 to 1832°F) | ± (1.0°C [1.8°F] + 1 digit) |
| | 1000°C (1832°F) or higher | ± (0.1% of Reading + 1 digit) |
| B | Lower than 400°C (752°F) | ± (7.0°C [126°F] + 1 digit) |
| | 400 to 1000°C (752 to 1832°F) | ± (1.4°C [2.52°F] + 1 digit) |
| | 1000°C (1832°F) or higher | ± (0.1% of Reading + 1 digit) |
| PR40-20 | Lower than 400°C (752°F) | ± (20°C [36°F] + 1 digit) |
| | 400 to 1000°C (752 to 1832°F) | ± (10°C [18°F] + 1 digit) |
| | 1000°C (1832°F) or higher | ± (0.1% of Reading + 1 digit) |
| Pt100, JPt100 | Lower than 200°C (392°F) | ± (0.2°C [0.36°F] + 1 digit) |
| | 200°C (392°F) or higher | ± (0.1% of Reading + 1 digit) |
| | 0.00 to 50.00°C (90.00°F) | ± (0.10°C [0.18°F] + 1 digit) |
| Voltage/Current | -span to +span | ± (0.1% of span + 1 digit) |

*1 : Accuracy is not guaranteed for less than -100°C.

*2 : Accuracy is not guaranteed for less than 400°C (752°F) for Input Type R, S, B, PR20-40, and W5Re/W26Re.

● Output

| | |
|--|---|
| Relay contact output (1), [OUT1] | a) Contact type : 1a contact, 250V AC 3A, 30V DC 1A (Resistive load) b) Electric life : 100,000 operations or more (Rated load) c) Mechanical life : 20,000,000 operations or more (Switching: 300 times/min) |
| Relay contact output (2), [OUT2] | a) Contact type : 1a contact, 250V AC 3A, 30V DC 1A (Resistive load) b) Electric life : 300,000 operations or more (Rated load) c) Mechanical life : 50,000,000 operations or more (Switching: 180 times/min) |
| Relay contact output (3), [DO1 to DO4] | a) Contact type : 1a contact, 250V AC 1A, 30V DC 0.5A (Resistive load) b) Electric life : 150,000 operations or more (Rated load) c) Mechanical life : 20,000,000 operations or more (Switching: 300 times/min) |
| Voltage pulse output (1), [OUT1, OUT2] | 0/12V DC (Load resistance : More than 500Ω) |
| Voltage pulse output (2), [OUT3] | 0/14V DC (Load resistance : More than 600Ω) |
| Current output [OUT1, OUT2] | 4 to 20mA, 0 to 20mA (Load resistance : Less than 500Ω) |
| Continuous voltage output [OUT1, OUT2] | 0 to 5V DC, 1 to 5V DC, 0 to 10V DC (Load resistance : More than 1kΩ) |
| Transistor output [OUT1, OUT2] | a) Load voltage : Less than 30V DC b) Load current : Less than 100mA |

OUT1 to OUT3 : Control output, Analog output, Event, Heater break alarm, Control loop break alarm
 RUN status, MAN status, FAIL
 DO1 to DO4 : Time signal, Pattern end signal
 Event, Heater break alarm, Control loop break alarm
 RUN status, MAN status, FAIL
 OUT3 (Optional) : Voltage pulse, Current output (Universal output)

● Event, Alarm function

(Optional)

| | |
|--------------------------------|---|
| Number of events | Up to 4 points |
| Event type | Process high, Process low, Process high/low*1, Deviation high, Deviation low, Deviation high/low*1, Band*1, MV value high (Heat/Cool), MV value low (Heat/Cool), FBR input *1: Two types of alarm settings are field-selectable. <ol style="list-style-type: none"> 1. Independent high and low settings. 2. Common high/low setting <ul style="list-style-type: none"> • Selectable to availability of event function for each time signals. • Hold/Re-hold action, Delay time, Energized/de-energized action, Interlock (latch) function, Alarm lamp ON condition available. |
| Event output | Assigned to digital output |
| Control loop break alarm (LBA) | LBA time : 0 to 7200 sec (LBA is OFF when 0 is set.) Dead band : 0 to input span |
| Heater break alarm (HBA) | Number of alarm : 2 points (1 point per CT input) Setting range : 0.0 to 100.0A (0.0: HBA function OFF) |
| Output logic calculation | OR select from Event 1 to 4, HBA1/2, LBA and Input abnormal high/low |

● Current Transformer (CT) Input

(Optional)

| | |
|------------------|---|
| Number of events | Up to 2 points |
| CT Type | CTL-6-P-Z, CTL-6-P-N, CTL-12-S56-10L-N |
| CT input range | CTL-6-P-Z : 0.0 to 10.0A (High accuracy type) CTL-6-P-N : 0.0 to 30.0A CTL-12-S56-10L-N : 0.0 to 100.0A |
| Sampling time | 0.5 sec |

● Feedback Resistance (FBR) Input

(Optional)

| | |
|------------------|------------------------------------|
| Resistance value | 100 to 10kΩ (factory default 135Ω) |
| Sampling time | 0.5 sec |

● Digital Input (DI)

(Optional)

| | |
|------------------|--|
| Number of inputs | Up to 6 points (DI 1 to 6) |
| Input method | Non-voltage contact input |
| Function | Run, Reset, Program pattern No. switching, Direct/Reverse action, HOLD/HOLD reset, Step, Autotuning ON/OFF, Setting data Unlock/Lock, Interlock release, Peak/Bottom hold reset |

● Host communication

(Optional)

| | |
|----------------------|--|
| Communication method | RS-485, RS-422A |
| Protocol | a) ANSI X3.28 sub-category 2.5A4 (RKC standard) b) MODBUS-RTU c) PLC communication (MAPMAN) |
| Bit format | Data bit : 7 or 8 (MODBUS-RTU : 8 bit fix) Parity bit : 1(odd or even) or none, Stop bit : 1 or 2 |
| Communication speed | 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps |
| Maximum connection | 31 units |

● Loader communication

(Standard)

| | |
|----------------------|--|
| Protocol | ANSI X3.28 sub-category 2.5A4 (RKC standard) |
| Communication speed | 38400bps |
| Method of connection | Exclusive cable (COM-K2) |

● General Specifications

| | |
|------------------------------------|---|
| Supply voltage | a) 85 to 264V AC (50/60Hz, Selectable), Rating : 100 to 240V AC b) 20.4 to 26.4V AC (50/60Hz, Selectable), Rating : 24V AC c) 2.0 to 26.4V DC Rating : 24V DC a) 100 to 240V AC type PZ400 : Max. 6.8VA (100V), Rush current : Less than 5.6A Max. 10.1VZ (240V), Rush current : Less than 13.3A PZ900 : Max. 7.4VA (100V), Rush current : Less than 5.6A Max. 10.9VA (200V), Rush current : Less than 13.3A |
| Power consumption/ Rush current | b) 24V AC type PZ400 : Max. 6.9VA (24V), Rush current : Less than 16.3A PZ900 : Max. 7.4VA (24V), Rush current : Less than 16.3A c) 24V DC type PZ400 : Max. 175mA (24V), Rush current : Less than 11.5A PZ900 : Max. 190mA (24V), Rush current : Less than 11.5A |
| Insulation resistance | More than 20MΩ (500V DC) between measured terminals and ground More than 20MΩ (500V DC) between power terminals and ground |
| Dielectric voltage | 1500V AC for one minute between measured terminals and ground 1500V AC for one minute between power terminals and ground 3000V AC for one minute between measured terminals and power terminals |
| Power failure | a) 100 to 240V AC, 24V AC type A power failure of 20m sec or less will not affect the control action. b) 24V DC type A power failure of 5m sec or less will not affect the control action. |
| Memory backup | Backed up by non-volatile memory (FRAM) <ul style="list-style-type: none"> • Data retaining period : Approx. 10 years • Number of writing : Approx. 1,000,000,000,000,000 times. (Depending on storage and operating conditions.) |
| Waterproof/Dustproof (Optional) | IP65 (IEC60529) <ul style="list-style-type: none"> • Waterproof/Dustproof protection only effective from the front in panel mounted installation. • When the front loader connector cover is not installed: IP00 |
| Ambient temperature | -10 to +55°C (14 to 131°F) |
| Ambient humidity | 5 to 95% RH (Non condensing) (MAX.W.C 29g/m ³ dry air at 101.3kPa) |
| Weight | PZ400 : Approx.221g, PZ900 : 291g |
| Compliance with Standards | a) UL : UL61010-1 b) cUL : CAN/CSA-C22.2 No.61010-1 c) CE Mark : LVD: EN61010-1, EMC: EN61326-1 RoHS: EN50581 d) RCM : EN55011 |

Model and Suffix Codes

| | | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ |
|---|---|-------|---|---|---|---|---|---|---|---|---|
| 48 x 96mm (PV display: Green 1/8 DIN Vertical size) | | PZ400 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| 96 x 96mm (PV display: Green 1/4 DIN size) | | PZ900 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| 48 x 96mm (PV display: White 1/8 DIN Vertical size) | | PZ401 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| 96 x 96mm (PV display: White 1/4 DIN size) | | PZ901 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| ① Control Method | PID control with AT (Reverse action) | F | | | | | | | | | |
| | PID control with AT (Direct action) | D | | | | | | | | | |
| | Heat/Cool PID control with AT | G | | | | | | | | | |
| | Heat/Cool PID control with AT for extruder (Air cooling type) | A | | | | | | | | | |
| | Heat/Cool PID control with AT for extruder (Water cooling type) | W | | | | | | | | | |
| | Position proportional PID control without FBR (Reverse action) | Z | | | | | | | | | |
| ② Input and range | See Input range Code Table | | □ | □ | | | | | | | |
| | Not supplied | | | | | | | | N | | |
| ③ Output 1 (OUT1) | Relay contact output | | | | | | | | M | | |
| | Voltage pulse output (0/12V DC) | | | | | | | | V | | |
| | DC mA, V See Output Code Table | | | | | | | | □ | | |
| | Transistor output | | | | | | | | B | | |
| | Not supplied | | | | | | | | | N | |
| ④ Output 2 (OUT2) | Relay contact output | | | | | | | | M | | |
| | Voltage pulse output (0/12V DC) | | | | | | | | V | | |
| | DC mA, V See Output Code Table | | | | | | | | □ | | |
| | Transistor output | | | | | | | | B | | |
| | Not supplied | | | | | | | | | N | |
| ⑤ Power Supply | 24V AC/DC | | | | | | | | | 3 | |
| | 100 to 240V AC | | | | | | | | | 4 | |
| ⑥ Digital output | Digital output 1 point | | | | | | | | | | 1 |
| | Digital output 4 points | | | | | | | | | | 4 |
| ⑦ Option 1 | Not supplied | | | | | | | | | | N |
| | CT input 2 points (CTL-6-P-N) | | | | | | | | | | T |
| | CT input 2 points (CTL-12-S56-10L-N) | | | | | | | | | | U |
| | CT input 2 points (CTL-6-Z) | | | | | | | | | | V |
| | Feedback resistance input (FBR) | | | | | | | | | | W |
| ⑧ Option 2 | Not supplied | | | | | | | | | | N |
| | Output 3 (OUT3) | | | | | | | | | | A |
| | Digital input 1 to 6 (DI1 to 6) | | | | | | | | | | B |
| | Communication RS-422A | | | | | | | | | | C |
| | Communication RS-485 | | | | | | | | | | D |
| | Output 3 (OUT3) + Digital input 1 to 6 (DI1 to 6) | | | | | | | | | | E |
| | Output 3 (OUT3) + Communication RS-422A | | | | | | | | | | F |
| | Output 3 (OUT3) + Communication RS-485 | | | | | | | | | | G |
| | Output 3 (OUT3) + Digital input 1 to 4 (DI1 to 4) + Communication RS-422A | | | | | | | | | | H |
| | Output 3 (OUT3) + Digital input 1 to 6 (DI1 to 6) + Communication RS-485 | | | | | | | | | | J |
| ⑨ Waterproof/Dustproof | Not supplied | | | | | | | | | | N |
| | Waterproof/Dustproof protection (IP65) | | | | | | | | | | 1 |
| ⑩ Quick start code | No quick start code (Default setting) | | | | | | | | | | N |
| | Specify quick start code (DO type) | | | | | | | | | | 1 |

< Default setting of Output 1 (OUT1), Output 2 (OUT2), and Digital output >

- Output 1 : Control output
- Output 2 : Heat/Cool PID control : Cooling side output
Position proportioning PID control : Closing side output
PID control : Output 2 < Code 4 to 8 > : Analog retransmission output (PV)
Output 2 < Code M, V, B > : Control output

< Default setting of Option function >

- CT input
CT1 assignment: Output 1 (OUT1)
CT2 assignment: PID control : Output 1 (OUT1)
Heat/Cool PID control : Output 2 (OUT2)
Position proportioning PID control : Output 2 (OUT2)
- Output 3 (OUT3)
Current output (4 to 20mA), Analog retransmission output (PV)
- Digital input (DI)
Option 2 : Code "B", "E", "J"
DI1 : RESET, DI2 : RUN, DI3 : STEP, DI4 : HOLD, DI5 : Interlock release, DI6 : Setting data lock/unlock
Option 2 : Code "H"
DI1 : RESET, DI2 : RUN, DI3 : STEP, DI4 : HOLD,
- Communication
When quick start code not specified :
RKC standard communication (ANSI X3.28-1976)

Quick start code

| Quick start code | | ① | ② | ③ | ④ | ⑤ |
|-----------------------------|---|---|---|---|---|---|
| ① Digital output 1 function | None See Digital output function code table | N | □ | □ | □ | □ |
| ② Digital output 2 function | None See Digital output function code table | N | □ | □ | □ | □ |
| ③ Digital output 3 function | None See Digital output function code table | N | □ | □ | □ | □ |
| ④ Digital output 4 function | None See Digital output function code table | N | □ | □ | □ | □ |
| ⑤ Communication | When "Communication" is not specified as an option, only "N: None" is selectable as the communication protocol. | | | | | N |
| | ANSI/RKC standard protocol | | | | | 1 |
| | MODBUS protocol | | | | | 2 |
| | PLC communication: MITSUBISHI MELSEC series special protocol | | | | | 3 |

Digital output function code table

| | |
|---|--------------------------------|
| A | Deviation High |
| B | Deviation Low |
| C | Deviation High/Low |
| D | Band |
| E | Deviation High with Hold |
| F | Deviation Low with Hold |
| G | Deviation High/Low with Hold |
| H | Process High |
| J | Process Low |
| K | Process High with Hold |
| L | Process Low with Hold |
| P | Heater Break Alarm 1 (HBA1) |
| Q | Heater Break Alarm 2 (HBA2) |
| R | Control Loop Break Alarm (LBA) |
| S | FAIL |
| V | Set value High |
| W | Set value Low |
| 1 | TS1 |
| 2 | TS2 |
| 3 | TS3 |
| 4 | TS4 |
| 5 | OR output of TS1 and TS2 |
| 6 | Pattern End |
| 7 | RUN status |

TS : Time signal

Input Range Code Table (Universal input, Field-programmable) Thermocouple

| Input | Range | Code |
|-------------|---------------------|------|
| K | 0 to 200°C | K01 |
| | 0 to 400°C | K02 |
| | 0 to 600°C | K03 |
| | 0 to 800°C | K04 |
| | 0 to 1200°C | K06 |
| | 0 to 1372°C | K07 |
| | -199.9 to +300.0°C | K08 |
| | 0.0 to 400.0°C | K09 |
| | 0.0 to 800.0°C | K10 |
| | 0 to 300°C | K14 |
| | -200 to +1372°C | K41 |
| | -200.0 to +1372.0°C | K42 |
| | 0 to 800°F | KA1 |
| | 0 to 1600°F | KA2 |
| 0 to 2502°F | KA3 | |
| J | 0 to 200°C | J01 |
| | 0 to 400°C | J02 |
| | 0 to 600°C | J03 |
| | 0 to 800°C | J04 |
| | 0.0 to 400.0°C | J08 |
| | -200.0 to +1200.0°C | J29 |
| | 0 to 800°F | JA1 |
| | 0 to 2192°F | JA3 |
| 0 to 400°F | JA6 | |
| T | -199.9 to +400.0°C | T01 |
| | -199.9 to +100.0°C | T02 |
| | -100.0 to +200.0°C | T03 |
| | -200.0 to +400.0°C | T19 |
| | -50 to +1768°C | S06 |
| S | -50.0 to +1768.0°C | S07 |
| | 0 to 1600°C | R01 |
| R | -50 to +1768°C | R07 |
| | -50.0 to +1768.0°C | R08 |
| | 0.0 to 1600.0°C | R09 |
| | 0 to 800°C | E01 |
| E | 0.0 to 800.0°C | E23 |
| | 0 to 1800°C | B03 |
| B | 0.0 to 1800.0°C | B04 |
| | 0 to 1300°C | N02 |
| N | 0.0 to 1300.0°C | N05 |
| | 0 to 1300°C | A01 |
| PLII | 0.0 to 1300.0°C | A05 |
| | 0 to 2300°C | W03 |
| W5Re/W26Re | 0 to 1800°C | F02 |
| PR40-20 | 0 to 3200°F | FA2 |
| | -199.9 to +600.0°C | U01 |
| U | -199.9 to +600.0°C | U01 |
| L | 0.0 to 900.0°C | L04 |

RTD

| Input | Range | Code |
|-------|----------------------|------|
| Pt100 | -199.9 to +649.0°C | D01 |
| | -100.0 to +100.0°C | D04 |
| | -100.0 to +200.0°C | D05 |
| | 0.0 to 50.0°C | D06 |
| | 0.0 to 100.0°C | D07 |
| | 0.0 to 200.0°C | D08 |
| | 0.0 to 300.0°C | D09 |
| | 0.0 to 500.0°C | D10 |
| | -199.9 to +600.0°C | D12 |
| | -200.0 to +200.0°C | D21 |
| | 0.0 to 50.00°C | D27 |
| | -100.00 to +100.00°C | D34 |
| | -200.0 to +850.0°C | D35 |
| | -199.9 to +999.9°F | DA1 |
| | 0.0 to 500.0°F | DA9 |
| | 0.0 to 200.0°C | P08 |
| | -100.00 to +100.00°C | P29 |
| | -200.0 to +640.0°C | P30 |

DC Current • voltage

| Input | Code | Range |
|----------------|------|---|
| 0 to 10mV DC | 101 | Scale range and decimal point are programmable in the range of -19999 to +99999 |
| 0 to 100mV DC | 201 | |
| 0 to 1V DC | 301 | |
| 0 to 5V DC | 401 | |
| 0 to 10V DC | 501 | |
| 1 to 5V DC | 601 | |
| 0 to 20mA DC | 701 | |
| 4 to 20mA DC | 801 | |
| -10 to +10V DC | 904 | |
| -5 to +5V DC | 905 | |
| | | Factory set value 0.0 to 100.0% |

Output Code Table

| Output | Code |
|--------------|------|
| 0 to 5V DC | 4 |
| 0 to 10V DC | 5 |
| 1 to 5V DC | 6 |
| 0 to 20mA DC | 7 |
| 4 to 20mA DC | 8 |

Measured Range (Universal Inputs)

| Input | Measured range | Input | Measured range |
|-------|--|------------|---|
| K | -200.0 to +400.0°C, -328.0 to +752.0°F -200.0 to +1372.0°C, -328.0 to +2502.0°F | PLII | 0.0 to 1390.0°C, 0.0 to 2534.0°F |
| J | -200.0 to +400.0°C, -328.0 to +752.0°F -200.0 to +1200.0°C, -328.0 to +2192.0°F | W5Re/W26Re | 0 to 2300°C, 0 to 4200°F |
| T | -200.0 to +400.0°C, -328.0 to +752.0°F | U | -200.0 to +600.0°C, -328.0 to +1112.0°F |
| S | -50.0 to +1768.0°C, -58.0 to +3214.0°F | L | 0.0 to 900.0°C, 0.0 to 1652.0°F |
| R | -50.0 to +1768.0°C, -58.0 to +3214.0°F | PR40-20 | 0 to 1800°C, 0 to 3200°F |
| E | -200.0 to +1000.0°C, -328.0 to +1832.0°F | Pt100 | -200.0 to +850.0°C, -328.0 to +1562.0°F -100.00 to +100.00°C, -148.00 to +212.00°F 0.00 to 50.00°C, 32.00 to 122.00°F |
| B | 0.0 to 1800.0°C, 0.0 to 3272.0°F | JPt100 | -200.0 to +640.0°C, -328.0 to +1184.0°F -100.00 to +100.00°C, -148.00 to +212.00°F 0.00 to 50.00°C, 32.00 to 122.00°F |
| N | 0.0 to 1300.0°C, 0.0 to 2372.0°F | | |

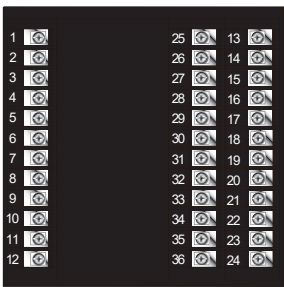
Rear Terminals

• Use a solderless terminal for screw size M3, width 5.8mm or less.

PZ900

PZ400

Option



| No | Description |
|----|---|
| 1 | AC 100-240V DC 24V |
| 2 | Power supply |
| 3 | Output 2 (OUT2) (1) Relay contact output (2) Voltage pulse/Current/Voltage/Transistor |
| 4 | Output 1 (OUT1) (1) Relay contact output (2) Voltage pulse/Current/Voltage/Transistor |
| 5 | Output 1 (OUT1) (1) Relay contact output (2) Voltage pulse/Current/Voltage/Transistor |
| 6 | Output 1 (OUT1) (1) Relay contact output (2) Voltage pulse/Current/Voltage/Transistor |
| 7 | Output 1 (OUT1) (1) Relay contact output (2) Voltage pulse/Current/Voltage/Transistor |
| 8 | Digital output 1 |
| 9 | Relay contact output |
| 10 | Measured input |
| 11 | (1) Thermocouple (2) RTD (3) Voltage/Current |
| 12 | (1) Thermocouple (2) RTD (3) Voltage/Current |

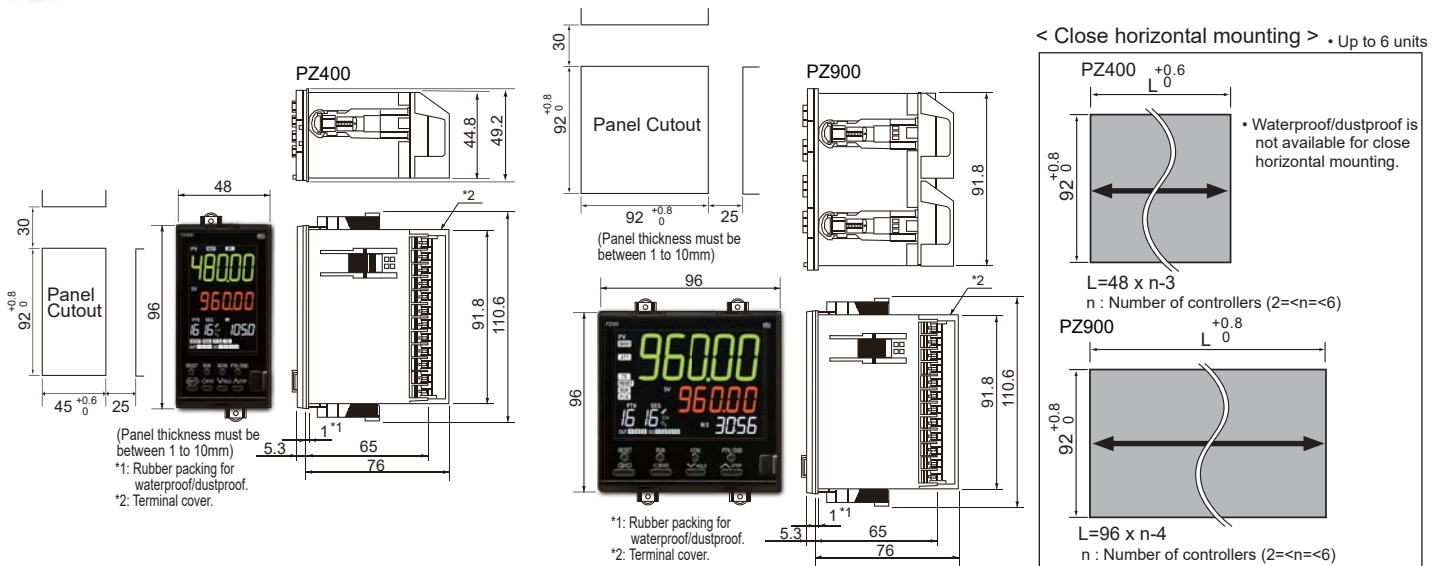
| No | Description |
|----|--|
| 25 | Output 3 (OUT3) Voltage pulse/Current |
| 26 | Output 3 (OUT3) Voltage pulse/Current |
| 27 | Digital input (DI1 to 6) or (DI1 to 4) Non voltage contact input |
| 28 | COM |
| 29 | DI 1 |
| 30 | DI 2 |
| 31 | DI 3 |
| 32 | DI 4 |
| 33 | DI 5 |
| 34 | DI 6 |
| 35 | Communication (1) RS-485 (2) RS-422A |
| 36 | Communication (1) RS-485 (2) RS-422A |

| No | Description |
|----|---|
| 13 | Digital output 2 (DO 2) |
| 14 | Relay contact output |
| 15 | Digital output 3 (DO 3) |
| 16 | Relay contact output |
| 17 | Digital output 4 (DO 4) |
| 18 | Relay contact output |
| 19 | (1) CT1, CT2 input (2) Feedback resistance input |
| 20 | (1) CT1, CT2 input (2) Feedback resistance input |
| 21 | (1) CT1, CT2 input (2) Feedback resistance input |
| 22 | |
| 23 | |
| 24 | |

CT : Current transformer for heater break alarm

External Dimensions

Unit:mm



Accessories

(Sold separately)

Front Cover



Model code : KRB400-36



Model code : KRB900-36

Terminal Cover



Model Code : KFB400-58



Model Code : KFB400-58
 • Two pieces necessary

CT : Current transformer for heater break alarm

Model : CTL-6-P-N
 (0 to 30A)

Cable : Approx. 130mm

Model : CTL-12-S56-10L-N
 (0 to 100A)

Cable : Approx. 100mm

Model : CTL-6-P-Z
 (0 to 10A)

φ 5.8

(U.R.D.Co.,LTD product)

Safety Warning

- Before operating this product, read the instruction manual carefully to avoid incorrect operation.
- This product is intended for use with industrial machines, test and measuring equipment. It is not designed for use with medical equipment.
- If it is possible that an accident may occur as a result of the failure of the product or some other abnormality, an appropriate independent protection device must be installed.

Caution for the export trade
 All transactions must comply with laws, regulations, and treaties.

Caution for imitated products
 As products imitating our product now appear on the market, be careful that you don't purchase these imitated products. We will not warrant such products nor bear the responsibility for any damage and/or accident caused by their use.

RKC® RKC INSTRUMENT INC.
 (RIKA KOGYO CO.,LTD)

HEAD OFFICE : 16-6, KUGAHARA 5 CHOME OHTA-KU TOKYO 146-8515 JAPAN
 PHONE : 03-3751-9799 (+81 3 3751 9799)
 Email : info@rkinst.co.jp
 http://www.rkinst.com/