The KP1000 series is a 96x96mm digital program controller with the indicating accuracy of ±0.1%, the control cycle of approximately 0.1 seconds and maximum 19 program patterns (maximum 19 steps/pattern).
Various functions including the whole program pattern display screen and universal input are provided as standard.

FEATURES

- **Large easy-to-view 5-digit display**
  Large easy-to-view 5-digit display
  Process value (PV) and set value (SV) are displayed by large easy-to-view 5-digit display indicators. The resolution of 0.1°C is enabled for more than 1000°C.

- **Outstanding controllability**
  Two types of PID algorithms, the position-type PID algorithm and the speed-type PID algorithm, have been installed. You can select the optimum PID algorithm for an object controlled.

- **Operability inheriting previous models**
  The controller inherits the settings screen which has been familiarized for long time. You can set up it with operation which is not different from previous models. The performance of touching-keys has been improved and the outstanding operability has been realized.

- **High-precision transmission signal output**
  The high-precision (0.1% of full scale) analog transmission signal output can be added.

- **24V power supply voltage type provided**
  The power supply voltage 24V (AC/DC) type, which is advantageous in respect of safe, is available.

- **Program pattern**
  Settings of maximum 19 steps per pattern and maximum 19 sets of patterns are enabled. Repeating of a whole program pattern, linking of program patterns and repeating of a specific step in a program pattern are enabled, too.

- **Easily identifiable pattern progress display**
  By selecting the whole program pattern display screen in the operation screen, the shape of whole program pattern and the progressed pattern position are identifiable at a glance.

- **Universal input**
  Various measurement ranges of DC voltage (up to maximum 10V) inputs, DC current input, thermocouple inputs and resistance thermometer inputs have been built-in.

- **2 colors of casing available**
  You can select the color of casing from 2 colors of gray with OA equipment feeling and black with high-class feeling.

- **Conforming to international safety standards and European directives (CE)**
  The controller is in conformity with European directives (CE), and is UL and c-UL approved.

- **Conforming to RoHS**
  The controller is an environmental consideration product which does not contain directed hazardous substances such as lead, etc.
MODELS

Control mode (Output No. 1)
1: ON-OFF pulse type PID
2: ON-OFF servo type PID (Standard load specification)
3: Current output type PID
5: SSR drive pulse type PID
6: Voltage output type PID

Control mode (Output No. 2) *
0: None
1: ON-OFF pulse type PID
3: Current output type PID
5: SSR drive pulse type PID
6: Voltage output type PID

Communications interface (1st zone) *
0: None
R: RS232C
A: AS422A
G: RS485
T: 5 Time signal outputs
N: 4 Status signal + End signal outputs
D: 4 External drive inputs
P: Pattern selection input
M: 4 Time signal + End signal outputs

Transmission signal output (2nd zone) *
0: None
1: 4-20mA
2: 0-1V
3: 0-10V
4: Other
T: 5 Time signal outputs
N: 4 Status signal + End signal outputs
D: 4 External drive inputs
P: Pattern selecting input
M: 4 Time signal + End signal outputs

External drive input (3rd zone) *
0: None
5: 4 Time signal outputs + End signal + 3 External drive inputs
6: 5 Time signal outputs + 3 External drive inputs
7: 4 Status signal outputs + 4 External drive inputs
O: 3 External drive inputs + Pattern selecting input
T: 5 Time signal outputs
N: 4 Status signal outputs + End signal outputs
D: 4 External drive inputs
P: Pattern selecting input
M: 4 Time signal + End signal outputs

Resistance color
G: Gray
B: Black

Panel sealing and terminal cover *
0: None
1: Terminal cover
2: IP54 panel sealing + No terminal cover
3: IP54 panel sealing + Terminal cover

Power supply voltage
A: 100 to 240V (AC)
D: 24V AC / 24VDC

MEASURING RANGES

Universal input

<table>
<thead>
<tr>
<th>Measuring ranges</th>
<th>Scale ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>0.0 to 1620.0°C</td>
</tr>
<tr>
<td>R</td>
<td>0.0 to 1760.0°C</td>
</tr>
<tr>
<td>S</td>
<td>0.0 to 1760.0°C</td>
</tr>
<tr>
<td>K</td>
<td>-200.0 to 1370.0°C</td>
</tr>
<tr>
<td>E</td>
<td>-270.0 to 1000.0°C</td>
</tr>
<tr>
<td>J</td>
<td>-200.0 to 900.0°C</td>
</tr>
<tr>
<td>T</td>
<td>-270.0 to 400.0°C</td>
</tr>
<tr>
<td>U</td>
<td>-200.0 to 200.0°C</td>
</tr>
<tr>
<td>L</td>
<td>-200.0 to 500.0°C</td>
</tr>
<tr>
<td>DC voltage</td>
<td></td>
</tr>
<tr>
<td>10mV</td>
<td>-10 to 10mV</td>
</tr>
<tr>
<td>20mV</td>
<td>-20 to 20mV</td>
</tr>
<tr>
<td>50mV</td>
<td>-50 to 50mV</td>
</tr>
<tr>
<td>100mV</td>
<td>-100 to 100mV</td>
</tr>
<tr>
<td>5V</td>
<td>-5 to 5V</td>
</tr>
<tr>
<td>10V</td>
<td>-10 to 10V</td>
</tr>
<tr>
<td>DC current</td>
<td></td>
</tr>
<tr>
<td>20mA</td>
<td>-200.0 to 400.0°C</td>
</tr>
<tr>
<td>100mA</td>
<td>-100.0 to 200.0°C</td>
</tr>
<tr>
<td>Old Pt100</td>
<td></td>
</tr>
<tr>
<td>JPt100</td>
<td></td>
</tr>
<tr>
<td>JPt50</td>
<td></td>
</tr>
<tr>
<td>Pt100</td>
<td></td>
</tr>
<tr>
<td>Pt150</td>
<td></td>
</tr>
<tr>
<td>Pt-Co</td>
<td></td>
</tr>
</tbody>
</table>

4-wire resistance thermometer

<table>
<thead>
<tr>
<th>Measuring ranges</th>
<th>Scale ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPt100</td>
<td></td>
</tr>
<tr>
<td>JPt50</td>
<td></td>
</tr>
<tr>
<td>Pt-Co</td>
<td></td>
</tr>
</tbody>
</table>

[Standards]
U, L: DIN43710-1985
Pt100: IEC751 (1985), JIS C 1604 -1997
JPt50: JIS C 1604 -1981
1. Operation status (RUN) indication
Lights in operation.

2. Operation stop (STOP) indication
Lights in the state of operation stop.

3. RESET indication
Lights when operation is cancelled and returns to the start point.

4. Constant value operation (CONST) indication
Light in constant value operation.

5. Pattern No. (PTN) indication

6. Alarm-standby (WAIT) indication
Lights in alarm-standby status or when alarm is cancelled.
Blinks when standby time alarm is activated.

7. Program remote (REM) indication
Lights when operation is executed by external drive input.

8. Executing step number (STP) indication
The step No. being executed is indicated.
(Blinks in real temperature compensation operation.)

9. Error (ERR) indication
Lights when sampling of input is abnormal.

10. Auto-tuning operation (AT) indication
Lights in auto-tuning operation.

11. Manual operation (MAN1/MAN2) indication
Lights when the output No.1 or No. 2 is in manual output operation.

12. Function (FNC) operation indication
Lights when the function key is operated.

13. FNC key
With the operation screen displayed, pressing it puts the controller in the operation key mode. With the settings screen displayed, pressing it puts the controller in the setting key mode and it operates to move the cursor backwards.

14. RUN key
In the operation key mode, it operates as RUN key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for switching between the operation screen and the mode screen of Mode 0, or for switching from the settings screen to the mode screen.

15. STOP key
In the operation key mode, it operates as STOP key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used to switch the settings screen.

16. ADV (Advance) key
In the operation key mode, it operates as ADV key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for moving the cursor and for selecting a parameter.

17. RESET key
In the operation key mode, it operates as RESET key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for changing a setting value (or selecting a parameter) in descending order.

18. PTN (Pattern) key
In the operation key mode, it operates as PTN key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for changing a setting value (or selecting a parameter) in ascending order.

19. A/M (Auto/Manual) key
In the operation key mode, it operates as A/M key. With the settings screen displayed, pressing it puts the controller in the setting key mode and it is used for registering the settings.

20. Process value (PV) indication

21. Set value (SV) indication

22. Time signal (TS1 to TS5) indication
Alarm activation (AL1 to AL4) indication

23. A wide variety of operation screens are prepared and arbitrarily-selection is enabled.
On the whole program pattern display screen, the simultaneous display of the shape of whole program pattern and the progressed pattern position has been realized.

24. Engineering port
**INPUT SPECIFICATIONS**

**Input signal:**
Thermocouple, B, S, K, E, J, T, N, WR5-WR5e26, W-WR5e26, NiMo-Ni, CR-AuFe, PR5-20, PtRh30-PtRh20, Platinell I, II, L

- DC voltage: ±10mV, ±20mV, ±50mV, ±100mV, ±5V, ±10V
- DC 0 to 20 mA
- Resistance thermomete: Pt100, JPt100, Old Pt100, JPt50, Pt-Co

**Measuring range:**
- Thermocouple: 28 ranges
- DC voltage: 6 ranges
- DC current: 1 range
- Resistance thermometer: 14 ranges

**Accuracy rating:**
- ±0.1% of measurement range ± 1 digit
- *For details, refer to [Detailed specifications of accuracy ratings].

**Reference junction compensation accuracy:**
- For K, E, J, T, N, Platinell II: ±0.5°C or a value equivalent to ±40 μV
- Others: ±1.0°C or a value equivalent to ±40 μV, whichever is greater

**Resolution:**
- Approximately 1/30000

**Sampling rate:**
- Approximately 0.1 seconds

**Burnout:**
- Upscale burnout is only enabled in thermocouple, DC voltage (±50mV or less) and resistance thermometer (3-wire type). For the burnout, the output value of Output No. 1 can be set arbitrarily, the output value of Output No. 2 is fixed at 0% and the high limit alarm is set on ON (for the upscale burnout).
- (The burnout is disabled in DC voltage (±100mV or more), DC current, resistance temperature (4-wire type).

**Input impedance:**
- Thermocouple: 1MΩ or more
- DC voltage: 1MΩ or more
- DC current: Approximately 250 Ω

**Allowable signal source resistance:**
- Thermocouple: 1000 Ω or less
- DC voltage (mV): 1000 Ω or less
- DC voltage (V): 3000 Ω or less

**Allowable wire resistance (resistance thermometer):**
- 5Ω or less (Same resistance for all wires)

**Rated current (resistance thermometer):**
- Approximately 1mA

**Maximum allowable input:**
- Thermocouple: ±20V or less
- DC voltage: ±20V or less
- DC current: ±30mA or less, ±7.5V or less
- Resistance thermometer 500Ω or less, ±5V or less

**Maximum common mode voltage:**
- 30VAC

**Common mode rejection ratio:**
- 130dB or more (50/60Hz)

**Normal mode rejection ratio:**
- 50dB or more (50/60Hz)

**DISPLAY SPECIFICATIONS**

**Display element:**
- Upper display: LCD
- Lower display: LCD (with back light)

**Display content:**
- Upper display: PV 5-digit, SV 5-digit, status indications, etc.
- Lower display: MV, output status, settings screen, etc.

**CONTROL SPECIFICATIONS**

**Control cycle:**
- Approximately 0.1 seconds

**Output type:**
- ON-OFF pulse type, ON-OFF servo type, Current type, Voltage type

**ON-OFF pulse type:**
- Output signal: ON-OFF pulse conductive signal
- Contact capacity: Resistive load 100 to 240VAC 30VDC 5A or less
- Inductive load 100 to 240VAC 30VDC 2.5A or less
- Smallest load 5VDC 10mA or more

**ON-OFF servo type:**
- Output signal: ON-OFF servo conductive signal
- Contact capacity of standard load: Resistive load 100 to 240VAC 30VDC 5A or less
- Inductive load 100 to 240VAC 30VDC 2.5A or less
- Smallest load 5VDC 1mA or more

**Current output type:**
- Output signal: 4 to 20mA
- Load resistance: 750Ω or less

**SSR drive pulse type:**
- Output signal: ON-OFF pulse signal
- Output voltage: ON-OFF pulse 12VDC ±20%
- Load current: 20mA or less
- Pulse cycle: 1 to 180 seconds

**Voltage output type:**
- Output signal: 0 to 10V
- Output impedance: Approx. 10Ω
- Load resistance: 50kΩ or more

**Output limiter:**
- -5.0 to 105.0%

**Rate-of-change limiter for output:**
- 0.1 to 100.0%

**Output preset:**
- With P action (Settings of I and D = 0), Output at PV = SV -100.0 to 100.0%
- Output No. 2: 0%

**Output deadband:**
- In case of 2-position control (Setting of P = 0), Setting range: 0.1 to 9.9%

**Control action:**
- With direct/reverse selection

**Output at PV abnormality:**
- Over-range, under-range, abnormal internal data

**Manual output operation:**
- Output by manual setting: -5.0 to 105.0%
- Output by manual setting: MAN → AUTO Balanceless bumpless
- AUTO → MAN Keeping output at AUTO

**SETTING SPECIFICATIONS**

**Number of patterns:**
- 19 patterns

**Pattern repetition:**
- Maximum 9999 times

**Number of steps:**
- 19 steps/pattern

**Control repetition:**
- Maximum 99 times

**Control relations:**
- PID 8 types
- I 0 to 999.9%
- D ∞, 1 to 9999 seconds
- A.R.W. (Anti reset windup)

**Output relations:**
- Output deadband
- Output preset
- Output limiter 8 types
- Rate-of-change limiter for output 8 types
- Alarm relations: Alarm value 4 points 8 types, alarm types, alarm deadband, alarm delay
**ALARM SPECIFICATIONS**

Number of alarm points: 4 points

Alarm types: Absolute value alarm, deviation alarm

Output signal: Relay output signal (a contact)

1 common terminal for AL1 and AL2, 1 common terminal for AL3 and AL4

Contact capacity

- Resistance load: 100 to 240VAC 30VDC 3A or less
- Inductive load: 100 to 240VAC 30VDC 1.5A or less
- Smallest load: 5VDC 10mA or more

**GENERAL SPECIFICATIONS**

Rated power voltage:
- General power supply specifications 100 to 240VAC
- 24V Power supply specifications 24VAC/24VDC

Rated power supply frequency:
- General power supply specifications 50/60Hz
- 24V Power supply specification 50/60Hz (24VAC)

Maximum power consumption:
- General power supply specifications
  - Without options: 100VAC 10VA
  - 240VAC 15VA
  - With options: 100VAC 15VA
  - 240VAC 20VA
- 24V Power supply specifications
  - Without options: 24VAC 10VA
  - 24VDC 5W
  - With options: 24VAC 15VA
  - 24VDC 10W

Working temperature range: -10 to 50°C

Working humidity range: 10 to 90%RH

Power failure countermeasures:
- Settings stored in EEPROM (Rewrite count: One million times or less) and stored by a lithium battery for 5 years or more

Terminal screws: M3.5

Insulation resistance:
- Between primary terminals and secondary terminals 20MΩ or more (500VDC)
- Between primary terminals and ground terminal 20MΩ or more (500VDC)
- Between secondary terminals and ground terminal 20MΩ or more (500VDC)

Withstand voltage:
- Between primary terminals and secondary terminals 1500VAC (For 1 minute)
- Between primary terminals and ground terminal 1500VAC (For 1 minute)
- Between secondary terminals and ground terminal 500VAC (For 1 minute)

*Primary terminal: Terminals for power supply (100 to 240VAC), control output and alarm output

Casing: Fire-retardant polycarbonate

Color: Gray or black

Mounting: Panel mounting

External dimensions: 96 (H) x 96 (W) x 127 (D) mm

*The depth from the front panel is 120mm.

Weight:
- Without options: Approximately 450g
- With options: Approximately 580g

**SAFETY STANDARD**

CE:
- EN61326: 1997 +A1+A2+A3
- EN61010-1: 2001 (Overvoltage category II, pollution degree 2)

*Under the test conditions of EMC directives, there may be variation of indication value or output value which is equivalent to maximum ±10% or maximum 2mV, whichever is greater.

UL:
- UL61010-1 2nd edition

c-UL:
- CAN/CSA C22.2 No.61010-1-04

**REFERENCE OPERATING CONDITIONS**

Ambient temperature: 23°C ±2°C

Ambient humidity: 55%RH ±5% (No dew condensation)

Power voltage:
- General power supply specifications 100VAC ±1%
- 24V power supply specifications 24VDC ±1%

Power supply frequency:
- General power supply specifications 50/60Hz ±0.5%
- 24V power supply specifications DC

Mounting angle:
- Forward or backward ±3°, lateral ±3°

Installation height:
- Altitude 2000m or below

Vibration:
- 0m/s²

Shock:
- 0m/s²

Mounting condition:
- Single-unit panel mounting (Space above, below, right and left of unit is needed.)

Wind:
- None

External noise:
- None

Warm up time:
- 30 minutes or longer

**NORMAL OPERATING CONDITIONS**

Ambient temperature:
- -10°C to 50°C (-10°C to 40°C for closed mounting)

Ambient humidity:
- 10 to 90%RH (no dew condensation)

Power voltage:
- General power supply specifications 90 to 264VAC
- 24V Power supply specifications 21.6 to 26.4VDC/AC

Power supply frequency:
- General power supply specifications 50/60Hz ± 2%
- 24V Power supply specifications DC, 50/60Hz ± 2%

Mounting angle:
- Forward or backward ±10°, lateral ±10°

Installation height:
- Altitude 2000m or below

Vibration:
- 2m/s²

Shock:
- 0m/s²

Mounting condition:
- Single-unit panel mounting (Space above and below of the unit is needed.)

External noise:
- None

Rate of ambient temperature change:
- 10°C/hour or less

**TRANSPORT CONDITIONS**

Ambient temperature:
- -20°C to 60°C

Ambient humidity:
- 5 to 90%RH (no dew condensation)

Vibration:
- 4.9m/s² (10 to 60Hz)

Shock:
- 392m/s²

Under the condition that the unit is packed for shipment by the factory

**STORAGE CONDITIONS**

Ambient temperature:
- -20°C to 60°C

For long term storage, the temperature should be 10°C to 30°C.

Ambient humidity:
- 5 to 90%RH (no dew condensation)

Vibration:
- 0m/s²

Shock:
- 0m/s²

Under the condition that the unit is packed for shipment by the factory
### OPTIONS

**Transmission signal output**
- Output a signal corresponding to set value (SV), process value (PV), manipulated value (MV), etc.
- Number of output: 1 point
  - Output signal: 4 - 20mA (Load resistance 400Ω or less)
  - 0 - 1V
  - (Output resistance Approx.10Ω, Load resistance 50kΩ or more)
  - 0 - 10V
  - (Output resistance Approx.10Ω, Load resistance 50kΩ or more)
- Output accuracy: ±0.1% of full scale
- Output resolution: Approximately 1/30000

**Communications interface**
- With RS232C, RS422A or RS485, the setting and measured values of the controller can be transmitted to a master CPU and various parameters can be set by the master CPU.
- Number of communications points: 1 point
- Communications type: RS232C, RS422A, RS485
- Communication speed: 2400/4800/9600/19200/38400 bps
- Protocol: MODBUS (RTU), MODBUS (ASCII), PRIVATE

**Panel sealing**
- By mounting the controller to a panel, it has the panel sealing equivalent to [IP54 compliance].

**Terminal cover**
- It covers the terminals for safety. The cover is transparent.

**2-output type**
- 2 kinds of output with direct and reverse actions are outputted and simultaneous control of heating/cooling is enabled.
- Control period: Approx. 0.1 seconds
- Output type: ON-OFF pulse type, Current output type, Voltage output type, SSR drive pulse type
- Any combinations of these types are enabled.
- Control system: PID system

### External drive input
- Operation by external contact signal input is enabled.
- Input signal: No-voltage contact, open-collector signal
- Functions: 1. Run/Stop
  - 2. Advance
  - 3. Reset
  - 4. Wait
  * Not available for 3 external drive inputs

### Pattern Selecting input
- Selection of pattern No. by external contact signal input is enabled.
- Input signal: No-voltage contact, open-collector signal
- Function: Pattern No. selection 5 points

### Status signal output
- Current operation status can be outputted.
- Output signal: Open-collector signal
- Functions: 1. Run/Stop
  - 2. Advance
  - 3. Reset
  - 4. Wait

### Time signal output
- Time signal can be outputted for each preset pattern/step.
- Output signal: Open-collector signal
- Function: Time signal 5 points
  * 4 points in case of time signal 4 points specification

### End signal output
- Program operation end status can be outputted.
- Output signal: Open-collector signal
- Function: End

### DETAILED SPECIFICATIONS OF ACCURACY RATING

<table>
<thead>
<tr>
<th>Input type</th>
<th>Accuracy rating</th>
<th>Exceptional specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>±0.1%±1digit</td>
<td>Less than 400°C: Not specified / 400°C to less than 800°C: ±0.2%±1digit 0°C to less than 400°C: ±0.2%±1digit</td>
</tr>
<tr>
<td>R, S</td>
<td>±0.1%±1digit</td>
<td>-20°C to less than 0°C: ±0.2%±1digit or the value equivalent to ±80 μV, whichever is greater -27°C to less than 0°C: ±0.2%±1digit or the value equivalent to ±80 μV, whichever is greater</td>
</tr>
<tr>
<td>N</td>
<td>±0.1%±1digit</td>
<td>-20°C to less than 0°C: ±0.2%±1digit or the value equivalent to ±80 μV, whichever is greater -27°C to less than 0°C: ±0.2%±1digit or the value equivalent to ±40 μV, whichever is greater</td>
</tr>
<tr>
<td>K</td>
<td>±0.1%±1digit</td>
<td>-20°C to less than 0°C: ±0.2%±1digit or the value equivalent to ±40 μV, whichever is greater</td>
</tr>
<tr>
<td>E</td>
<td>±0.1%±1digit</td>
<td>0°C to less than 400°C: ±0.3%±1digit</td>
</tr>
<tr>
<td>J</td>
<td>±0.2%±1digit</td>
<td>0K to less than 200K: ±0.8%±1digit / 20K to less than 50K: ±0.3%±1digit</td>
</tr>
<tr>
<td>T</td>
<td>±0.2%±1digit</td>
<td>0°C to less than 100°C: Not specified / 100°C to less than 200°C: ±0.6%±1digit</td>
</tr>
<tr>
<td>U</td>
<td>±0.2%±1digit</td>
<td>For the measuring range of [-100°C to 100°C] only: ±0.15%±1digit</td>
</tr>
<tr>
<td>L</td>
<td>±0.2%±1digit</td>
<td>0°C to less than 400°C: ±1.5%±1digit / 400°C to less than 800°C: ±0.8%±1digit</td>
</tr>
</tbody>
</table>

For thermocouple inputs, the reference junction compensation accuracy is added.

### Resistance thermometer
- PT100: ±0.1%±1digit
- Old Pt100: ±0.1%±1digit
- JPt100: ±0.1%±1digit
- JPt50: ±0.15%±1digit
- Pt-Co: ±0.15%±1digit
- 4K to less than 20K: ±0.5%±1digit / 20K to less than 50K: ±0.3%±1digit

\* The above ratings are the measurement range conversion accuracies under the reference operating conditions.

For thermocouple inputs, the reference junction compensation accuracy is added.

U, L: DIN43710-1985
JPt50: JIS C 1604-1981
## TERMINAL ARRANGEMENT

### Option terminals

<table>
<thead>
<tr>
<th>T</th>
<th>N</th>
<th>D</th>
<th>P</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS1</td>
<td>RUN/STOP</td>
<td></td>
<td>PTN10</td>
<td>TS1</td>
</tr>
<tr>
<td>TS2</td>
<td>ADV</td>
<td>WAIT</td>
<td>PTN8</td>
<td>TS2</td>
</tr>
<tr>
<td>TG3</td>
<td>RECET</td>
<td>RECET</td>
<td>PTN4</td>
<td>TG3</td>
</tr>
<tr>
<td>TS4</td>
<td>WAIT</td>
<td>ADV</td>
<td>PTN2</td>
<td>TS4</td>
</tr>
<tr>
<td>TS5</td>
<td>END</td>
<td>RUN/STOP</td>
<td>PTN1</td>
<td>END</td>
</tr>
<tr>
<td>COM</td>
<td>COM</td>
<td>COM</td>
<td>COM</td>
<td>COM</td>
</tr>
</tbody>
</table>

**T**: 5 Time signal outputs  
**N**: 4 Status signal + End signal outputs  
**D**: 4 External drive inputs  
**P**: Pattern selecting input  
**M**: 4 Time signal + End signal outputs  

Based on combination with other options, assign the zone in the above order.

### Communication interface (1st zone)

<table>
<thead>
<tr>
<th>R</th>
<th>A</th>
<th>S</th>
<th>Transmission signal output (2nd zone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD</td>
<td>RDA</td>
<td>SA</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>SD</td>
<td>RDB</td>
<td>SB</td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>SDA</td>
<td>SG</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>SDB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R: RS232C  
A: RS422A  
S: RS485

### External drive input (3rd zone)

<table>
<thead>
<tr>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS1</td>
<td>TS1</td>
<td>RUN/STOP</td>
<td>PTN10</td>
</tr>
<tr>
<td>TS2</td>
<td>TS2</td>
<td>ADV</td>
<td>PTN8</td>
</tr>
<tr>
<td>TS3</td>
<td>TS3</td>
<td>RESET</td>
<td>PTN4</td>
</tr>
<tr>
<td>TS4</td>
<td>TS4</td>
<td>WAIT</td>
<td>PTN2</td>
</tr>
<tr>
<td>END</td>
<td>TS5</td>
<td>WAIT</td>
<td>PTN1</td>
</tr>
<tr>
<td>RESET</td>
<td>RESET</td>
<td>RESET</td>
<td>RESET</td>
</tr>
<tr>
<td>ADV</td>
<td>ADV</td>
<td>ADV</td>
<td>ADV</td>
</tr>
<tr>
<td>RUN/STOP</td>
<td>RUN/STOP</td>
<td>RUN/STOP</td>
<td>RUN/STOP</td>
</tr>
<tr>
<td>COM</td>
<td>COM</td>
<td>COM</td>
<td>COM</td>
</tr>
</tbody>
</table>

5: 4 Time signal + End signal outputs + 3 External drive inputs  
6: 5 Time signal outputs + 3 External drive inputs  
7: 4 Status signal outputs + 4 External drive inputs  
8: 3 External drive inputs + Pattern selecting input
EXTERIOR DIMENSIONS

Panel cutout

Closed mounting panel dimensions

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CHINO CORPORATION
32-8 KUMANO-CHO, ITABASHI-KU, TOKYO 173-8632
PHONE: +81-3-3956-2171
FAX: +81-3-3956-0915
E-mail: inter@chino.co.jp
Website: http://www.chino.co.jp