The DB2000 series is a 96×96mm digital indicating controller with the indicating accuracy of ±0.1% and the control cycle of approximately 0.1 seconds. The configuration of highly functional system is enabled by various options including 2 transmission signal outputs, 2 communications ports and arbitrarily-allocation of digital inputs.

### FEATURES

**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.

**Highly-functional operation screen and settings screen**
The controller inherits the operation screen and the settings screen adopting the LCD (liquid-crystal-display) which has been familiarized for long time. Furthermore, the screens have become high-definition and highly sophisticated.

**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.

**Versatile control functions provided**
Versatile control functions, such as the automatic PID system, which executes control by PID parameters preset at every SV sections, and selection of the 2-output control system from PID system and split system for 2-output types, are available.

**Communications 2-port type provided**
Models with 2 communications ports are available. In addition, speeding up and highly-functionalization of communications have been realized. For example, you can use 1 port for high order communications with a personal computer and another port for the communications remote (digital remote) function. The communications protocol can be arbitrarily selected from [MODBUS] and [PRIVATE].

**Transmission signal 2-output type available**
2 types of transmission signal output, the high-precision type (0.1% of full scale) and the general type (0.3% of full scale), are available. Transmission signal 2-output types with these 2 transmission signal outputs and models with transmitter power supply are available.

**READY function provided**
Although the DB2000 series is the constant value controller, switching to the state (READY) that any control is not wanted is enabled. In addition, the output value (MV) at READY can be set arbitrarily.

**DI arbitrarily-allocation**
When the digital input (DI) is added, arbitrarily-allocation for assigning functions to those DI's is enabled. It is the function enabling allocations such as [READY/RUN] to DI1 and [Manual output operation/Automatic output operation] to DI2.

**Heater disconnection alarm**
The heater disconnection alarm can be added to ON-OFF pulse types or SSR drive pulse types only.

By connecting the designated CT externally, the current value of heater is measured and can be indicated on the operation screen.

**Other functions**
Various functions including multiple auto-tuning, timer function using the digital input (DI), control loop abnormality alarm and user calibration are built-in.

**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

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 1820.0°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 to 600.0°C</td>
</tr>
<tr>
<td>E</td>
<td>-270 to 1000.0°C</td>
</tr>
<tr>
<td>J</td>
<td>-200 to 1200.0°C</td>
</tr>
<tr>
<td>T</td>
<td>-270 to 2000.0°C</td>
</tr>
<tr>
<td>WRe5-WRe26</td>
<td>-200 to 3100.0°C</td>
</tr>
<tr>
<td>Wwr26</td>
<td>-200 to 3100.0°C</td>
</tr>
<tr>
<td>NiMoNi</td>
<td>-50 to 1410.0°C</td>
</tr>
<tr>
<td>CR-AuFe</td>
<td>0.0 to 280.0K</td>
</tr>
<tr>
<td>N</td>
<td>0.0 to 1300.0K</td>
</tr>
<tr>
<td>L</td>
<td>-200 to 400.0°C</td>
</tr>
<tr>
<td>U</td>
<td>-200 to 900.0°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 0 V</td>
</tr>
<tr>
<td>DC current</td>
<td></td>
</tr>
<tr>
<td>20mA</td>
<td>0 to 20mA</td>
</tr>
<tr>
<td>OldPt100</td>
<td>-200 to 649.0°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>-200 to 850.0°C</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>-200 to 049.0°C</td>
</tr>
<tr>
<td>JPt50</td>
<td>-200 to 049.0°C</td>
</tr>
<tr>
<td>Pt-Co</td>
<td>4.0 to 374.0K</td>
</tr>
</tbody>
</table>

Note: For options common to 1st zone, 2nd zone and 3rd zone, assign them in the order of [9], [P] and [M] from 3rd zone first.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1</td>
<td>The control mode (Output No.1) can be selected from 1, 3, 5 or 6 only.</td>
</tr>
<tr>
<td>*2</td>
<td>Only available to the unit having output No.1 (or No.2) of 1 or 5. Multiple selection in different option zone is not available.</td>
</tr>
<tr>
<td>*3</td>
<td>It can be selected when the 2nd zone is 1, 2, 3, 4 or 5 only.</td>
</tr>
<tr>
<td>*4</td>
<td>It can be selected when the 3rd zone is 0, 1, 2, 3, 4, J, K or L only.</td>
</tr>
</tbody>
</table>

Standards:
- WRe5-WRe26, WWR26, NiMoNi, Platine II, CR-AuFe, PtRh40-PtRh20: ASTM Vol.14.03
- U, L: DIN43710-1985
- Pt100: JIS C 1604-1981
### NAMES OF VARIOUS PARTS

<table>
<thead>
<tr>
<th>Display</th>
<th>Function keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Operation status (RUN) indication&lt;br&gt;Lights in operation.&lt;br&gt;2. Slope (SLOPE) indication&lt;br&gt;Lights in slope operation of SV.&lt;br&gt;3. Ready state (READY) indication&lt;br&gt;Lights during idling.&lt;br&gt;4. Alarm-standby (WAIT) indication&lt;br&gt;Lights in alarm-standby status or when alarm is cancelled.&lt;br&gt;5. Remote (REM) indication&lt;br&gt;6. Executing set value number (NO.) indication&lt;br&gt;7. Error (ERR) indication&lt;br&gt;Lights when sampling of input is abnormal.&lt;br&gt;8. Auto-tuning operation (AT) indication&lt;br&gt;Lights in auto-tuning operation.&lt;br&gt;9. Manual operation (MAN1/MAN2) indication&lt;br&gt;Lights when the output No.1 or No.2 is in manual output operation.&lt;br&gt;16. Process value (PV) indication&lt;br&gt;17. Set value (SV) indication&lt;br&gt;18. Alarm activation (AL1 to 4) indication&lt;br&gt;19. LCD display&lt;br&gt;10. 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.&lt;br&gt;11. It is used to switch the operation screen or to switch the settings screen.&lt;br&gt;12. It is used for switching between the automatic output operation and the manual output operation.&lt;br&gt;13. It is used for moving the cursor and for selecting a parameter.&lt;br&gt;14. It is used for changing a setting value (or selecting a parameter) in descending or ascending order.&lt;br&gt;15. It is used for registering the settings.&lt;br&gt;20. Engineering port</td>
<td></td>
</tr>
</tbody>
</table>
**INPUT SPECIFICATIONS**

Input type: Thermocouple

- B, R, S, K, E, J, T, N, WRe5-WRe26, W-WRe26,
  NiMo-Ni, CR-AuFe, PR5-20, PiRh40-PiRh20,
  Platell II, U, L DC voltage
  ±10mV, ±20mV, ±50mV, ±100mV, ±5V, ±10V
  DC current
  0 to 20mA

Resistance thermometer

- P1100, JP1100, Old P1100, JP110, Pt-Co

Measuring range:

- Thermocouple 28 ranges
  DC voltage 6 ranges,
  Direct current 1 range
  Resistance thermometer 14 ranges

Accuracy:

- ±0.1% of measuring range ± 1 digit

Reference junction compensation accuracy:

- K, E, J, T, N, Platell II --- ±0.5°C or a value equivalent to ±20mV, whichever is greater
  (at ambient temperature of 23°C ± 10°C)
- Others --- ±1.0°C or a value equivalent to ±40μV, 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 at 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 1MD or more
- DC voltage 1MD or more
- DC current
  Approximately 250Ω

Allowable signal source resistance:

- Thermocouple 100Ω or less
- DC voltage (mV) 1000Ω or less
- DC voltage (V) 3000Ω 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, DC voltage ±20V
- DC current ±30mA, ±7.5V
- Resistance thermometer 500Ω, ±5V

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 LED
- Lower display LCD (with back light) 108 x 24 dots

Display content:

- Upper display
  - PV 5-digit, SV 5-digit, status indications, etc.
- Lower display
  - MV, output status, setting screens, etc.

**CONTROL SPECIFICATIONS**

Control cycle: Approx. 0.1 seconds

Output type:

- ON-OFF pulse type, ON-OFF servo type, Current output type, SSR drive pulse type, Voltage output 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
  - Contact protection
    - Small CR element built-in

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 10mA or more
  - Contact capacity of very light load
    - Resistive load 100 to 240VAC 30VDC 20mA or less
    - Inductive load 100 to 240VAC 30VDC 20mA or less
    - Smallest load 5VDC 1mA or more
  - Feedback resistance
    - 100Ω to 2kΩ
  - Contact protection
    - Small CR element built-in

Current output type:

- Output signal 4 to 20mA
  - Load resistance 750Ω or less

SSR drive pulse type:

- Output signal ON-OFF pulse voltage signal
  - Output voltage
    - ON voltage
      - 12VDC ±20%
    - OFF voltage
      - 0VDC or less
  - Load current
    - 20mA or less
  - Pulse cycle
    - 1 to 180 seconds

Voltage output type:

- Output signal 0 to 10V
  - Output impedance
    - 50Ω or more
  - Load resistance
    - 5Ω or less
  - Output limit
    - -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 to 0.0

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%
  - AUTO → MAN Keeping output at AUTO

**SETTING SPECIFICATIONS**

SV relations:

- SV 8 types (maximum 5 digits setting)

SV range, SV rate-of-change

Control relations:

- PID 8 types
  - P
    - 0 to 999.9%
  - I
    - 1 to 9999 seconds
  - D
    - 0 to 9999 seconds
  - A.R.W. (Anti reset windup)
    - High limit --- 0 to 100.0%
    - Low limit --- -100 to 0.0%

Output relations:

- Output deadband 8 types
  - Output preset 8 types
  - Output limiter 8 types

Alarm relations:

- Alarm value 4 points 8 types, alarm types, alarm deadband
## ALARM SPECIFICATIONS

**Number of alarm points:**
4 points

**Alarm types:**
- Absolute value alarm, deviation alarm, absolute value deviation alarm, setting value alarm, output value alarm, control loop abnormality alarm, FAIL, timer alarm

**Output signal:**
- Relay output signal (a contact)
- 1 common terminal for AL1 and AL2, 1 common terminal for AL3 and AL4
- Contact capacity: Resistive 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)
- Terminal screws: M3.5
- Insulation resistance: Between primary terminals and secondary terminals 2MΩ or more (500VDC), Between primary terminals and ground terminal 2MΩ or more (500VDC), Between secondary terminals and ground terminal 2MΩ or more (500VDC)
- *Primary terminal: Terminals for power supply (100 to 240VAC), control output and alarm output

**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)

**Weight:**
- Without options: Approx. 450g
- With options: Approx. 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
  - 24V ± 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 the unit is needed.)

**Wind:**
- None

**External noise:**
- None

**Warming up time:**
- 30 min. 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 26.4VAC

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

**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, below, right and left 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:
- High-precision type ±0.1% of full scale
- General type ±0.3% of full scale

● Transmitter power supply

Power voltage: 24VDC ± 10%

Maximum current capacity: 30mA

● Remote signal input

By using external contacts, switching of remote mode and local mode is enabled. With the remote mode, the setting of SV is enabled by remote signal.

Number of inputs: 1 point

Input signal:
- 4 - 20mA (Input impedance Approx.50Ω)
- 0 - 1V (Input impedance Approx.500kΩ)
- 0 - 10V (Input impedance Approx.100kΩ)

Input accuracy: ±0.1% ± 1digit

Remote signal input: R/L (Remote/Local)

● 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

Communications speed: 2400/4800/9600/19200/38400 bps

Protocol: MODBUS (RTU), MODBUS (ASCII), PRIVATE

● Heater disconnection alarm

It is the function for detecting heater disconnection by CT input.

Measurement range: 10 to 100A AC (50/60Hz)

Accuracy rating: ±5.0% of full scale ± 1 digit

Designed CT: Use [CTL-12-S3-8] made by URD Co., Ltd.

● 2-output type

2 kinds of output with direct and reverse actions are outputted and simultaneous control of heating/cooling is enabled.

Control cycle: Approx. 0.1 seconds

Output type: ON-OFF pulse type, Current output type, SSR drive pulse type

Any combinations of these types are enabled.

Control system: PID system

● Digital input (DI)

The following switching is enabled by digital input signal.

Input signal: No-voltage contact, open-collector signal

External contact capacity: 5VDC 2mA

Functions:
1. Selection of executing No. (4 points)
2. Manual output operation/automatic output operation (2 points)
3. READY/RUN switching
4. Holding of PV
5. Holding of SV slope operation
6. Resetting of SV slope operation
7. Start/reset of timer (4 points)
8. Alarm output cancellation
9. Preset manual/Automatic output operation

● 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 safe. The cover is transparent.

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**Detailed Specifications of Accuracy Ratings**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Accuracy rating</th>
<th>Exceptional specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermocouple</td>
<td>±0.1%±1digit</td>
<td></td>
</tr>
<tr>
<td>B, R, S</td>
<td></td>
<td>Less than 400°C: Not specified / 400°C to less than 800°C: ±0.2% ±1 digit</td>
</tr>
<tr>
<td>N</td>
<td>±0.1%±1digit</td>
<td>0°C to less than 400°C: ±0.2% ±1 digit</td>
</tr>
<tr>
<td>K</td>
<td></td>
<td>-20°C to less than 0°C: ±0.2% ±1digit or the value equivalent to ±60 µV, whichever is greater</td>
</tr>
<tr>
<td>E</td>
<td>±0.1%±1digit</td>
<td>-27°C to less than 0°C: ±0.2% ±1digit or the value equivalent to ±80 µV, whichever is greater</td>
</tr>
<tr>
<td>J</td>
<td>±0.1%±1digit</td>
<td>-200°C to less than 0°C: ±0.2% ±1digit or the value equivalent to ±80 µV, whichever is greater</td>
</tr>
<tr>
<td>T</td>
<td>±0.1%±1digit</td>
<td>-27°C to less than 0°C: ±0.2% ±1digit or the value equivalent to ±40 µV, whichever is greater</td>
</tr>
<tr>
<td>U</td>
<td>±0.1%±1digit</td>
<td>-200°C to less than 0°C: ±0.2% ±1digit or the value equivalent to ±40 µV, whichever is greater</td>
</tr>
<tr>
<td>L</td>
<td>±0.1%±1digit</td>
<td>0°C to less than 400°C: ±0.2% ±1digit</td>
</tr>
<tr>
<td>WRe5-WRe26</td>
<td>±0.2%±1digit</td>
<td>0K to less than 200K: ±0.5% ±1 digit / 20K to less than 50K: ±0.3% ±1 digit</td>
</tr>
<tr>
<td>W-VRe20</td>
<td>±0.2%±1digit</td>
<td>0°C to less than 100°C: Not specified / 100°C to less than 200°C: ±0.5% ±1 digit</td>
</tr>
<tr>
<td>NiMo-Ni</td>
<td>±0.2%±1digit</td>
<td>0°C to less than 400°C: ±1.5% ±1 digit / 400°C to less than 800°C: ±0.8% ±1 digit</td>
</tr>
<tr>
<td>Platinel II</td>
<td>±0.2%±1digit</td>
<td></td>
</tr>
<tr>
<td>CR-AuFe</td>
<td>±0.2%±1digit</td>
<td>0K to less than 200K: ±0.5% ±1 digit / 20K to less than 50K: ±0.3% ±1 digit</td>
</tr>
<tr>
<td>PR5-20</td>
<td>±0.2%±1digit</td>
<td></td>
</tr>
<tr>
<td>PrRh40-PrRh20</td>
<td>±0.2%±1digit</td>
<td>0°C to less than 100°C: Not specified / 100°C to less than 200°C: ±0.5% ±1 digit</td>
</tr>
<tr>
<td>DC voltage / DC current</td>
<td>±0.1%±1digit</td>
<td></td>
</tr>
</tbody>
</table>

* The above ratings are the measurement range conversion accuracies under the reference operating conditions.
* For thermocouple inputs, the reference junction compensation accuracy is added.
* WRe5-WRe26, W-VRe20, NiMo-Ni, Platinel II, CR-AuFe, PrRh40-PrRh20: ASTM Vol.14.03
* U, L: DIN43710 - 1985
* WRe5-WRe26, W-VRe20, NiMo-Ni, Platinel II, CR-AuFe, PrRh40-PrRh20: ASTM Vol.14.03

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4K to less than 20K: ±0.5% ±1 digit / 20K to less than 50K: ±0.3% ±1 digit
■ TERMINAL ARRANGEMENT

Option terminals

Options common to each zone

9  P  M  1st <-- 2nd <-- 3rd zone
CT  DI  CT
CT  DI  CT
DI  DI  DI
DI  DI  DI
DI  DI  COM

9 : Heater disconnection alarm
P : Digital input 6 points
M : Digital input 4 points + Heater disconnection alarm

Remote signal input (1st zone) 5/6/7/8

Transmission signal output (2nd zone) 1/2/3/4 J/K/L + J/K/L + H H 1/2/3/4 J/K/L

R/L only
COM

3rd zone

<table>
<thead>
<tr>
<th>Terminals</th>
<th>R</th>
<th>A</th>
<th>S</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td>SA</td>
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<td>SDB</td>
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<td>SDB2</td>
<td>Di</td>
<td>Di</td>
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</tr>
</tbody>
</table>

1/2/3/4 : High-precision type  J/K/L : General type  H : Transmitter power supply

R: Communications RS232C + Digital input 2 points
A: Communications RS422A
B: Communications RS232C + Communications RS422A
C: Communications RS232C + Communications RS422A
D: Communications RS422 + Communications RS485
E: Communications RS485 + Communications RS232C
F: Communications RS485 + Communications RS422A
G: Communications RS485 + Communications RS485
H: Digital input 8 points
I: Digital input 6 points + Heater disconnection alarm

7
ABOUT CRIMP STYLE TERMINALS

- **Ring type**
  - 7 or less
  - Ø3.7 or less
  - (in pressed condition)

- **Spade type**
  - 7 or less
  - Ø3.7 or less
  - (in pressed condition)

*Use terminal with insulation

EXTERNAL DIMENSIONS

PANEL CUTOUT

- Mounting metal
- Terminal cover

Closed mounting panel dimensions

- 96 x 38
- 91 x 31
- 116

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