DP2000G
WIDE RANGE
GRAPHIC PROGRAM CONTROLLER

PS PERFORMANCE SPECIFICATION
CHINO

DP2000G series is a graphic program controller specially designed for wide range control. This control unit divides a control domain into a high region and a low region and controls extensively by changing two sensors for each region at a set point automatically.

Good accuracy and stability are realized for both high and low temperature control by using an optimum sensor for each region.

Automatic and Bumpless function realizes smooth control performance on switching the regions.

■ FEATURES

● **Realizing wide range control by changing two sensors for high and low regions**
Two sensors can be connected for each high and low region sensing. By switching to an appropriate sensor for each region, continuous control is available. Various changing types are selectable such as automatic change at a set point, changing by external input signal and the combination of both.

● **Employing clear 5.6"TFT color LCD display**
Graphic screen of pattern progress status, display PV value/SV value/pattern/step/time and various monitor function such as trend display, enlarged data display and bar graph display are prepared.

● **Easy program pattern setting on graphic screen**
Maximum 200 patterns, 199 steps/patterns (total 4000 steps) settings are available as well as pattern repeat, linking between patterns and endless program setting.

● **Parameter settings per step**
Each parameter setting such as PID constant, alarm, guarantee soak and time signal is available per step.

● **High performance and universal input**
Input selection from each range of thermocouple, DC voltage/current are available and unit has performance of 5 digits display, accuracy rating of ±0.1% and sampling period of 0.1sec.

● **Storing settings in CF card**
Setting management is easy as all settings including setting program pattern and each parameter are stored in CF card and readout from it. PC software allows you to edit program pattern and parameter.

● **Various control application functions**
2-output specification such as Heating/cooling output is applicable as control output has ON-OFF pulse type, ON/OFF servo type, current output type, SSR drive pulse type and voltage output type.

● **Abundant external input/output**
Unit with external input 16 points and external output 28 points enables function assignment. Synchronized operation with peripherals is easy. Serial communications interface and transmission signal output are also prepared.

● **Interchangeable with DP series**
DP series are easily replaced with DP2000G which has inherited characteristics of the DP series such as function, operability and terminal arrangement/configuration.

■ MODELS

DP21☐☐G☐☐☐—☐☐☐

INPUT
1 : Thermocouple/mV/V/mA

Control mode (output No.1)
1 : ON-OFF pulse PID
2 : ON-OFF servo PID (standard load spec)
3 : Current output PID (general type 4 to 20mA DC)
5 : SSR drive pulse PID
6 : Voltage output PID (general type 0 to 10V DC)
8 : ON-OFF servo PID (minimal load spec)
A : Current output PID (high accuracy type 4 to 20mA DC)
B : Current output PID (high accuracy type 1 to 5mA DC)
C : Voltage output PID (high accuracy type 0 to 10V DC)

Control mode (output No.2)
0 : None
1 : ON-OFF pulse PID *1 *OP*
3 : Current output PID
    (general type 4 to 20mA DC) *1 *OP*
5 : SSR drive pulse PID *1 *OP*
6 : Voltage output PID
    (general type 0 to 10V DC) *1 *OP*
A : Current output PID
    (high accuracy type 4 to 20mA DC) *1 *OP*
B : Current output PID
    (high accuracy type 1 to 5mA DC) *1 *OP*
C : Voltage output PID
    (high accuracy type 0 to 10V DC) *1 *OP*

Communications interface
0 : None
R : RS232C (COM1) *OP*
S : RS485 (COM1) *OP*
A : RS422A (COM1) *OP*
B : RS232C (COM1) + RS232C (COM2) *OP*
C : RS485 (COM1) + RS232C (COM2) *OP*
D : RS422A (COM1) + RS232C (COM2) *OP*
E : RS232C (COM1) + RS485 (COM2) *OP*
F : RS485 (COM1) + RS485 (COM2) *OP*
G : RS422A (COM1) + RS485 (COM2) *OP*

Transmission signal output 1
0 : None
1 : 4 to 20mA *OP*
2 : 0 to 1V *OP*
3 : 0 to 10V *OP*
4 : 1 to 5V *OP*

Transmission signal output 2
0 : None *2
1 : 4 to 20mA *OP*
2 : 0 to 1V *OP*
3 : 0 to 10V *OP*
    (Adding only transmission signal output 2 is not available)

Case color
G : Gray
B : Black *OP*

External input/ output signal
0 : None *OP*
1 : Digital input/ output (non voltage contact input)
2 : Digital input/ output
    (External power supply spec for only input) *OP*

Transmitter power supply
0 : None
1 : Transmitter power supply *OP*

*1　Selectable when control mode (output1) is 1,3,5,6,A,B,C.
*2　COM1 is exclusive use for rear port,
　　COM2 is rear port and front port switchable.
OP Option

PSE-809A

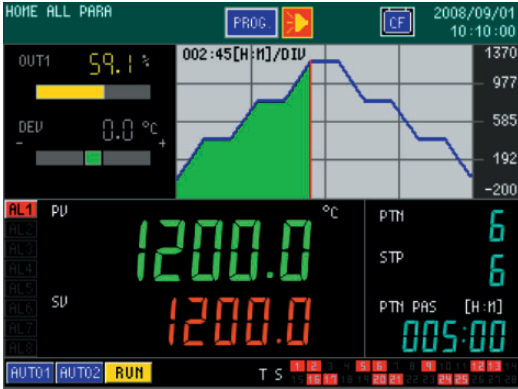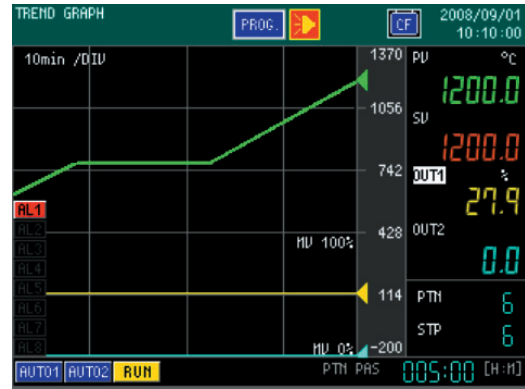# ■OPERATION SCREEN

●Running status display at once
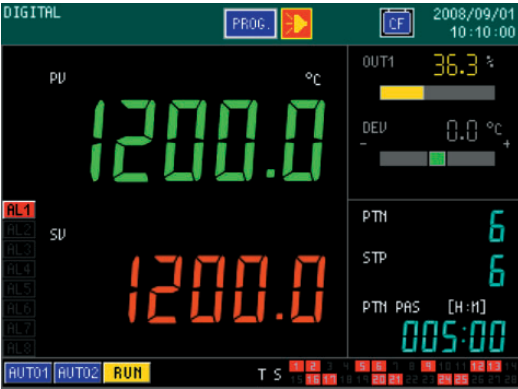Running status display of pattern progress and PV/ SV/ MV/ variation.
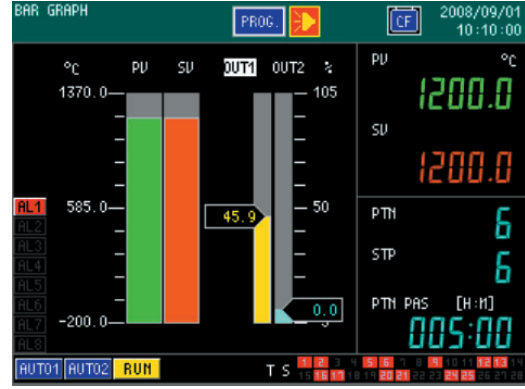

●Trend screen
Enlarged trend display of PV and SV
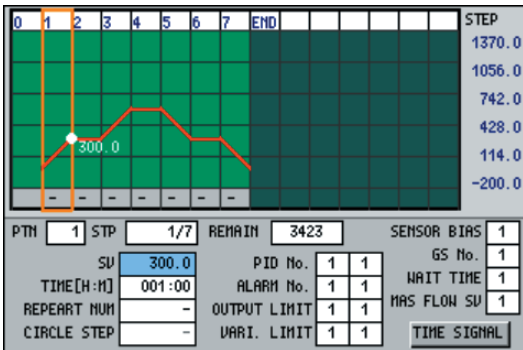

●Enlarged data screen
Enlarged display of PV/SV

●Bar-graph screen
Bar-graph display of PV/ SV/ MV

●Pattern setting screen

●Step parameter setting screen

■KEY ARRANGEMENT
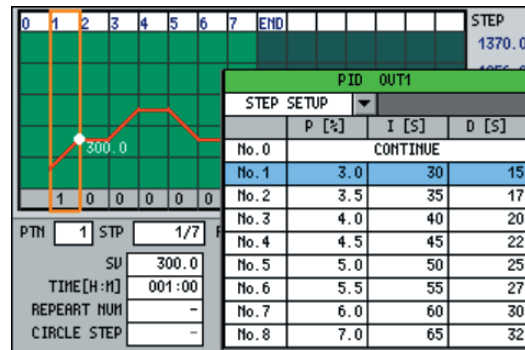
| A/M | RUN | RESET | DISP | ESC |
| FNC | STOP | ADV | MENU | ENT |
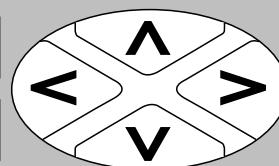
Direction key

■ INPUT SPECIFICATIONS

Input points:	2 points (Range-L /Range-H)
Input types:	DC voltage --- ±10mV, ±20mV, ±50mV, ±100mV, ±5V, ±10V
	DC current --- 20mA
	Thermocouple --- B, R, S, K, E, J, T, N, U, L, WRe5-WRe26, W-WRe26, NiMo-Ni, CR-AuFe, PR5-20, PtRh40-PtRh20, PlatinelⅡ
Accuracy rating:	Refer to the table of measuring range and accuracy ratings

Reference junction compensation accuracy:
- K, E, J, T, N, PlatinelⅡ --- ±0.5℃ or less
- Other than above --- ±1.0℃ or less

Sensor bias:	One kind (bias) for Range-H, Liner correction of 9 breaking points for Rang-L
Input change:	Input change by change SV (automatic), external input signal or both.
	Function: Bumpless (PV variation limit) at switching, PV start, Change error status, Range-H status, Dead band
Sampling period:	Approx. 0.1 sec
Burnout:	Burnout available for thermocouple, DC voltage (±50mV or less) and resistance thermometer
	Output value at burnout is settable to any value
Range setting:	The useable range is settable within the measuring range (only for linear range)
Scaling:	DC voltage/ current input (Setting range: −99999 to 99999, decimal point specified)
User linearize table:	Useable for DC voltage/ current input (19 break points)
Digital filter:	0 to −99.9sec

Allowable signal source:
- Thermocouple input/ DC voltage (mV) --- 100Ω or less
- DC voltage input (±5V, ±10V) --- 300Ω or less
- Resistance thermometer (3 wire) --- 5Ω or less per wire (4 wire) --- 100Ω or less per wire

Input resistance:	Thermocouple/DC voltage input --- 1MΩ or more
	DC current input --- Approx. 100Ω
Measuring current:	Resistance thermometer input --- Approx. 1mA
Maximum allowable input:	Thermocouple/DC voltage input --- ±20V DC
	DC current input --- ±30mA
Operation function:	Square roots calculation, Log operation

■ PROGRAMMING SPECIFICATIONS

Pattern set type:	Target temp (SV)/Time or Ramp rate/Time
	Time setting - Hour/Minute or Minute/Second
	Ramp rate setting - Temperature/minute or temperature/ second
Number of steps:	Up to 199 steps per pattern
Number of patterns:	Up to 200 patterns
Total number of steps:	Up to 4000 steps
Repeat:	Pattern --- Up to 9999 times, Step --- up to 99 times
Step setup range:	Target value --- Input scale range
	Ramp rate --- −99.999 to 99.999
	Time --- 0 to 999 hours 59 minutes or 0 to 999 minutes 59 seconds
Start temperature:	Select either PV start or arbitrary set value start

Target value (SV) correction:
- −99999 to 99999, decimal point linked with scaling

Fast-forward (FAST)	Program fast-forward function provided (Approx. 10 times or 60 times)
End output:	Select either constant value control or fixed output (setting: -5 to 105%)

Parameter registration:
(Sequence programming)
- PID constant --- 8 types, or 8 automatic selection types for SV interval (including dead band, ARW upper/lower limits, and output preset)
- Output limit (upper/lower)/ output variation limit (upper/lower) 8 types for each, or 8 automatic selection types for SV interval
- Guarantee soak 8 types
- Wait time alarm 8 types
- Alarm 8 types for each (a set of 4points)
- Time signal 30 types, all ON, all OFF, reverse phase, repeat in a step
- Mass flow SV 8 types

Parameter setting change:
- Changeable during operation
- Target value, time, ramp rate, PID, ARW, guarantee soak, output limit, output variation limit, alarm, SV, mass flow SV

Additional function: Pattern link, circle function, pattern edit

■ CONTROL SPECIFICATIONS

Control switching period:	Approx. 0.1 (initial value)/ 0.2/ 0.3/ 0.5 sec
Control type:	ON-OFF pulse type, ON-OFF servo type, current output type, SSR drive pulse type, voltage output type
PID value:	Automatic setting by auto tuning or Manual setting
	P --- 0 to 999.9% (0 for 2 position operation)
	I --- 0 to 9999 sec (0 for no I operation)
	D --- 0 to 9999 sec

Auto tuning:	AT1 --- Set by the target value during operation
	AT2 --- Preset the step interval coaxial 8 types
	AT3 --- Preset 8 automatic selection types for SV interval
	AT4 to AT6 --- Setting for the 2 outputs type
On-off pulse type:	Output signal --- On-off pulse conductive signal (relay contact)
	Contact capacity --- Resistance load 100 to 240VAC 30VDC, 5A or less
	Inductive load 100 to 240V AC 30 VDC, 2.5A or less
	Minimum load 5 VDC, 10mA or more
	Contact protection---CR element built-in
On-off servo type:	Output signal --- On-off servo conductive signal
	Contact capacity--- Standard load spec
	Resistance load --- 100 to 240VAC 30VDC 5A or less
	Inductive load --- 100 to 240VAC 30VDC 2.5A or less
	Minimum load --- 5VDC, 10mA or more
	Minimal load spec
	Resistance load --- 100 to 240 VAC 30VDC 20mA or less
	Inductive load --- 100 to 240 VAC 30VDC 20mA or less
	Minimum load --- 5VDC, 1mA or more
	Feedback resistance --- 100Ω to 2kΩ
	Contact protection --- Compact CR element built-in
Current output type:	Output signal --- 4 to 20mA or 1 to 5mA
	Load resistance --- 750Ω or less
	Control output accuracy --- 0.1% for high accuracy type
SSR drive pulse type:	Output signal --- On-off pulse voltage signal
	At ON --- 12VDC±20% (maximum 20mA)
	At OFF --- 0.8VDC or less
Voltage output type:	Output signal --- 0 to 10 VDC
	Output resistance --- Approx. 10Ω
	Control output accuracy --- High accuracy type 0.1%
Output limit:	Upper 0.0 to 105.0%, Lower −5.0 to 100.0%
Output variation limit:	Up 0.01 to 100.00%
	Down −0.01 to −100.00%
Output preset:	Output setting in proportional operation when PV=SV −100.0% to 100.00%
Output dead band:	Dead band setting 0.0 to 9.9% (0.1 to 9.9% for 2 position operation)
Control action:	Direct/ reverse action switching
Guarantee soak:	Deviation setting 0 to 99999, decimal point linked with scaling
Output at PV error:	Individual setting of outputs at upper and lower limit errors −5.0 to 105.0%
A.R.W:	Upper 0.0 to 100.0%, lower −100.0 to 0.0%
Constant value operation:	Program (PROG) / constant (CONST) mode switching
Manual operation:	Output range --- −5.0 to 105.0%
	・Balanceless bumpless when switching from MAN to AUTO
	・Output at AUTO kept when switching from AUTO to MAN
Program actions on repower:	Select to continue or reset the program when recovering the power
Control operation:	Position type and speed type selectable
2 outputs specification:	Independent PID, Any combination of 6 types from On-off pulse type, current output type, SSR drive type, voltage output type, current output type (high accuracy), voltage output type (high accuracy) (No secondary output for ON-OFF servo type)

Heating and cooling control:
- Cooling proportional operation, matching box operation

Cascade primary controller:
- Output (%) =a x control operation value + b + c x set value a, c: 0.00 to 1.00, b: −100.0 to 100.0
- Output destination − control output 1/2, transmission output 1/2

■ ALARM SPECIFICATIONS

Number of set points:	4 points + 4 points (for extended assignment setting)
Judgment method:	Upper alarm or lower alarm (with/without wait) using an absolute value
	Upper alarm or lower alarm (with/without wait) using an deviation
	Upper alarm or lower alarm (with/without wait) using a absolute value deviation
	Upper alarm or lower alarm (with/without wait) using an measured value change rate
	Upper or lower limit judgment of output value (with/without wait)
	Upper or lower limit judgment of set value (with/without wait)
	Control loop error, fail, wait time alarm, end signal
	Delay or latch function is selectable

DP2000G

Setting range: -99999 to 99999, decimal point linked with scaling
Dead band: 0.1 times of set resolution
Delay setting range: 1 to 10 times
Output type: Relay contact output 4 points --- (A contact, 1 common)
                     Contact capacity --- Resistance load 100 to 240VAC 30VDC, 3A or less
                     Inductive load 100 to 240VAC 30VDC, 1.5A or less
                     External output signal assignment 4 points (for extended assignment setting)
Alarm reset: Alarm can be cleared during occurrence

■ EXTERNAL OUTPUT SIGNAL SPECIFICATION

Number of output: 28 points (function assignment per point)
Output type: Open collector output (24V DC, up to 50mA)
Time signal output: Default assignment --- 18 points
                    Output type --- ALL-ON/ ALL-OFF/ maximum of 30 types per step
Status output: Default assignment --- 10 points
                    Output type --- RUN/STOP, ADV, RESET, WAIT, FAST, END, ALM-WAIT, ERR, SV-UP, SV-DOWN
                    Selective assignment --- Pattern/ step No.-BCD output
Alarm output: Selective assignment --- 8 types
                    Output type --- AL1 to AL8

■ EXTERNAL INPUT SIGNAL SPECIFICATION

Number of inputs: 16 points (function assignable per point except external drive input)
Input type: Non voltage contact (contact capacity 12V DC, 2mA or more)
                    External power supply specification 12/24V DC ON when power is applied (up to 12mA/point)
External drive input: Default assignment --- 5 points
                    Input type --- RUN/STOP, ADV, RESET, WAIT, FAST
                    Selective assignment --- Circle pulse (program operation)
                                             External A/M switching, alarm reset, PV hold, SV hold
Pattern select input: Default assignment --- 10 points
                    Input type --- 10 types of 1, 2, 4, 8, 10, 20, 40, 80, 100, 200
                    Selection method --- Select the number from 1 to 200 using BCD code

■ DISPLAY SPECIFICATION

Screen: 5.6"TFT color LCD
Display content: Operation screen
                    Home screen --- Pattern progress, pattern/step No. numeric data, status, time signal, alarm
                    Enlarged data screen, bar-graph screen, trend screen, DO/DI screen
                    Setting screen --- Pattern/sequence setting, various parameter setting, memory card management setting, maintenance, setting lock, communications, setting change during operation
LCD backlight: 4 brightness adjustment levels

■ SETTING AND OPERATION SPECIFICATION

Operation key type:
                    MENU, DISP, DIRECTION key, ENT, ESC, FNC, RUN, STOP, ADV, RESET, A/M
Setting and operation method:
                    Setting --- Menu calling/ cursor selection method
                    Operation --- Direct key operation (combined with FNC)
Menu setting: Mode 0   (Execution steps setting)
                    Mode 1   (Operation status selection/ Input change setting)
                    Mode 2   (Pattern and sequence)
                    Mode 3   (PID/alarm)
                    Mode 4   (Output/control)
                    Mode 5   (Input)
                    Mode 6   (Time signal/guarantee soak)
                    Mode 7   (Transmission)
                    Mode 8   (Communications)
                    Mode 9   (Memory card)
                    Mode 10 (Enhanced setup)
                    Mode 11 (Maintenance)
                    Mode 12 (Help)
Operation: Operation start/stop (RUN/STOP), operation reset (RESET),
                    Stepping operation (ADV), auto/manual switching (A/M), Fast-forwarding (FAST)
Display operation: Switching between operation screens
                    HOME screen (registered operation screen) automatic display
Engineering port: Serial port on the front panel
                    (Custom cable connection)

■ MEMORY CARD SPECIFICATION (Card is optional)

Memory media: Compact flash (CF) card
Memory size: Up to 2 GB
Saved data: Setup parameters, program patterns
                    All data (for auto loading)

Function: Save/read/delete/verify
                    For program patterns, individual or all pattern save/delete selectable
                    Card format (simple format)

■ GENERAL SPECIFICATION

Rated power voltage: 100 to 240V AC 50/60Hz (universal power supply)
Maximum power consumption: 50VA
Reference operation condition:
                    Ambient temperature humidity range ---
                    21 to 25℃, 50 to 60%RH
                    Power voltage --- 100V AC ±1.0%
                    Power frequency --- 50/60Hz ±0.5%
                    Attitude --- Left/right ±3˚, forward/backward ±3˚
                    Warm-up time --- 30 minutes or more
Normal operation condition:
                    Ambient temperature humidity range ---
                    -10 to 50℃, 10 to 90%RH
                    Power voltage --- 90 to 264V AC
                    Power frequency --- 50/60Hz ±2%
                    Attitude --- Left/right ±10˚, forward/backward ±10˚
Transportation condition:
                    At the packed condition on shipment from our factory
                    Ambient temperature humidity range ---
                    -20 to 60℃, 5 to 90%RH (No dew condensation)
                    Vibration --- 10 to 60Hz 0.5G (4.9m/s^2) or less
                    Impact --- 40G (352m/s^2) or less
Storage condition: Ambient temperature humidity range ---
                    -20 to 60℃, 5 to 90%RH
                    (No dew condensation)
Power failure protection:
                    The settings are kept using EEPROM and lithium battery backed up RAM
Insulation resistance: Between secondary terminal and protection conductor terminal --- 500V DC 20MΩ or more
                    Between primary terminal and protection conductor terminal --- 500V DC 20MΩ or more
                    Between primary terminal and secondary terminal ---500V DC 20MΩ or more
Withstand voltage: Between secondary terminal and protection conductor terminal --- 500V AC for 1minute
                    Between primary terminal and protection conductor terminal --- 1500V AC for 1minute
                    Between primary terminal and secondary terminal ---1500V AC for 1minute
                    *Primary terminal: Power supply (100-240V AC), control output terminals, and alarm output terminals
                    *Secondary terminal: All terminals other than primary terminal
Protection: Conformed to IP54
Case assembly material:
                    Case, Front bezel, input/output terminal board --- Fire-retardant polycarbonate resin
                    External input/output , transmission output, communications terminal board --- PBT
Color: Front bezel, case --- Gray or black
Terminal cover: Standard provision
Weight: Approx 1.7kg
Mounting: Panel mounting
Terminal screw: M3.5 (M3 for external input/output, transmission output, communications terminal board)

■ SOFTWARE

DP-G parameter editing software
·Program pattern editing / file management / printing
·Setting parameter editing / file management / printing
·CF card reading / storing for DP-G

■ OPTION SPECIFICATION

●**Transmission signal output**
Number of outputs: Up to 2 points
Output signal: 4 to 20mA DC (load resistance 400Ω or less)
                    0 to 1V DC (load resistance 50kΩ or more)
                    1 to 5V DC (load resistance 50kΩ or more)
                    0 to 10V DC (load resistance 50kΩ or more)
                    *1 to 5V DC for secondary transmission output
Output accuracy: Primary output --- ±0.1% of output span
                    Secondary output --- ±0.3% of output span
●**Transmitter power supply (Insulation type)**
                    Power voltage: 24V DC
                    Current capacity: Up to 30mA
●**Communications interface**
                    Number of communications points: Up to 2 points
Communications type:
                    RS232C, RS422A, RS485
                    *COM2 for front and rear switching
Protocol: MODBUS/PRIVATE

■MEASURING RANGES

Measuring range		Scale range
T/C	B	0.0 to 1820.0ºC
	R	0.0 to 1760.0ºC
		0.0 to 1200.0ºC
	S	0.0 to 1760.0ºC
	K	-200.0 to 1370.0ºC
		0.0 to 600.0ºC
		-200.0 to 300.0ºC
	E	-270.0 to 1000.0ºC
		0.0 to 700.0ºC
		-270.0 to 300.0ºC
		-270.0 to 150.0ºC
	J	-200.0 to 1200.0ºC
		-200.0 to 900.0ºC
		-200.0 to 400.0ºC
		-100.0 to 200.0ºC
	T	-270.0 to 400.0ºC
		-200.0 to 200.0ºC
	WRe5-WRe26	0.0 to 2310.0ºC
	W-WRe26	0.0 to 2310.0ºC
	NiMo-Ni	-50.0 to 1410.0ºC
	CR-AuFe	0.0 to 280.0K
	N	0.0 to 1300.0ºC
	PtRh40-PtRh20	0.0 to 1880.0ºC
	Platinel Ⅱ	0.0 to 1390.0ºC
		0.0 to 600.0ºC
	U	-200.0 to 400.0ºC
	L	-200.0 to 900.0ºC
DC voltage DC current	10mV	-10 to 10mV
	20mV	-20 to 20mV
	50mV	-50 to 50mV
	100mV	-100 to 100mV
	5V	-5 to 5 V
	10V	-10 to 10 V
	20mA	0 to 20 mA

■ ACCURACY RATINGS

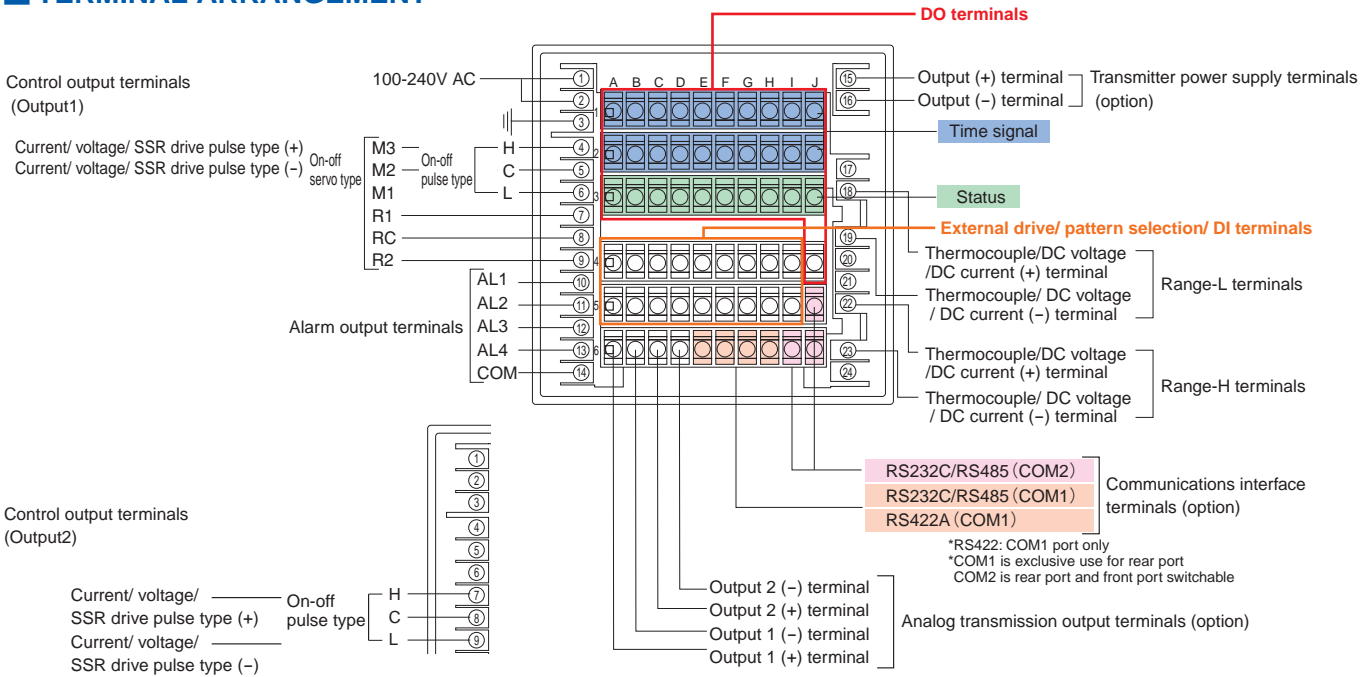| Input type		Accuracy rating	Exception
T/C	B	±0.1%±1digit	0 to 400ºC : Not defined 400 to 800ºC : ±0.2%±1digit
	R、S		0 to 400ºC : ±0.2%±1digit
	N		
	K		-200 to 0ºC: ±0.2%±1digit or ±60μV-equivalent value, whichever is greater
	E		-270 to 0ºC: ±0.2%±1digit or ±80μV-equivalent value, whichever is greater
	J		-200 to 0ºC:±0.2%±1digit or ±80μV-equivalent value, whichever is greater
	T		-270 to 0ºC: ±0.2%±1digit or ±40μV-equivalent value, whichever is greater
	U		-200 to 0ºC: ±0.2%±1digit or ±40μV-equivalent value, whichever is greater
	L		-200 to 0ºC: ±0.2%±1digit
	WRe5-WRe26		
	W-WRe26		0 to 400ºC: ±0.3%±1digit
	NiMo-Ni		
	Platinel Ⅱ		
	CR-AuFe	±0.2%±1digit	0 to 20K: ±0.5%±1digit 20 to 50K: ±0.3%±1digit
	PtRh40-PtRh20		0 to 400ºC: ±1.5%±1digit 400 to 800ºC: ±0.8%±1digit
DC voltage / current		±0.1%±1digit	

*Accuracy converted to the measuring range under the reference operation condition.
 Reference junction compensation accuracy is added to thermocouple.
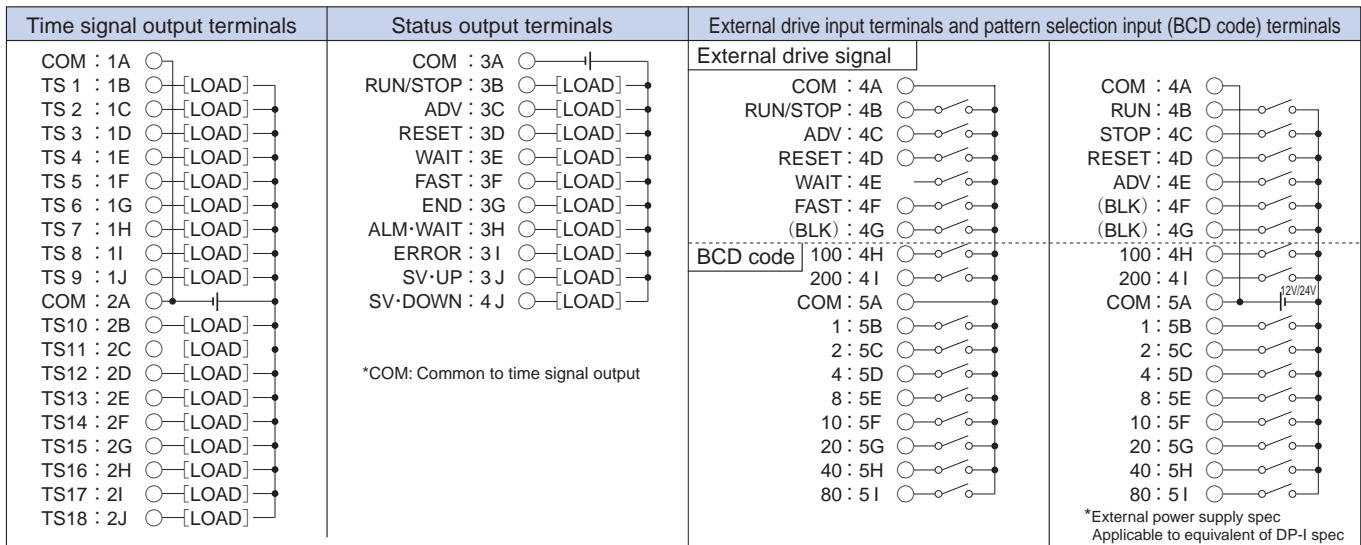*K, E, J, T, R, S, B, N : IEC584 (1977, 1982), JIS C 1602-1995, JIS C 1605-1995,
 WRe5-WRe26, W-WRe26, NiMo-Ni, Platinel2, CR-AuFe, PtRh40-PtRh20 : ASTM Vol.14.03 U, L : DIN43710-1985
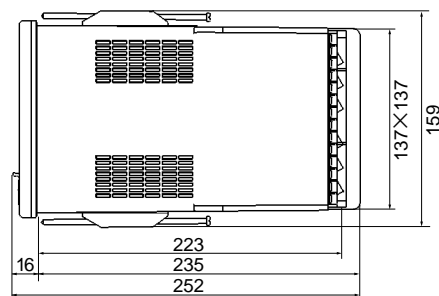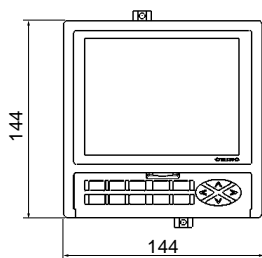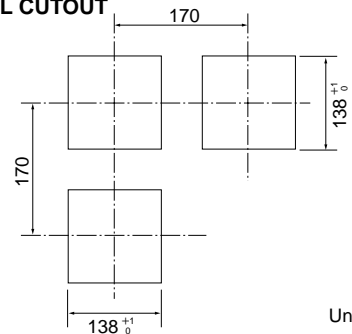
■ TERMINAL ARRANGEMENT

Control output terminals (Output1)

Current/ voltage/ SSR drive pulse type (+)
Current/ voltage/ SSR drive pulse type (−)   On-off servo type   M3, M2, M1   On-off pulse type   H, C, L

R1
RC
R2

Alarm output terminals   AL1, AL2, AL3, AL4, COM

100-240V AC

DO terminals

Output (+) terminal
Output (−) terminal   Transmitter power supply terminals (option)

Time signal

Status

External drive/ pattern selection/ DI terminals

Thermocouple/DC voltage /DC current (+) terminal
Thermocouple/ DC voltage / DC current (−) terminal   Range-L terminals

Thermocouple/DC voltage /DC current (+) terminal
Thermocouple/ DC voltage / DC current (−) terminal   Range-H terminals

RS232C/RS485 (COM2)
RS232C/RS485 (COM1)
RS422A (COM1)   Communications interface terminals (option)

*RS422: COM1 port only
*COM1 is exclusive use for rear port
COM2 is rear port and front port switchable

Control output terminals (Output2)

Current/ voltage/ SSR drive pulse type (+)
Current/ voltage/ SSR drive pulse type (−)   On-off pulse type   H, C, L

Output 2 (−) terminal
Output 2 (+) terminal
Output 1 (−) terminal
Output 1 (+) terminal   Analog transmission output terminals (option)

■ EXTERNAL INPUT/OUTPUT TERMINALS

Time signal output terminals	Status output terminals	External drive input terminals and pattern selection input (BCD code) terminals	
COM : 1A	COM : 3A	**External drive signal**	
TS 1 : 1B —[LOAD]	RUN/STOP : 3B —[LOAD]	COM : 4A	COM : 4A
TS 2 : 1C —[LOAD]	ADV : 3C —[LOAD]	RUN/STOP : 4B	RUN : 4B
TS 3 : 1D —[LOAD]	RESET : 3D —[LOAD]	ADV : 4C	STOP : 4C
TS 4 : 1E —[LOAD]	WAIT : 3E —[LOAD]	RESET : 4D	RESET : 4D
TS 5 : 1F —[LOAD]	FAST : 3F —[LOAD]	WAIT : 4E	ADV : 4E
TS 6 : 1G —[LOAD]	END : 3G —[LOAD]	FAST : 4F	(BLK) : 4F
TS 7 : 1H —[LOAD]	ALM·WAIT : 3H —[LOAD]	(BLK) : 4G	(BLK) : 4G
TS 8 : 1I —[LOAD]	ERROR : 3I —[LOAD]	**BCD code** 100 : 4H	100 : 4H
TS 9 : 1J —[LOAD]	SV·UP : 3J —[LOAD]	200 : 4I	200 : 4I
COM : 2A	SV·DOWN : 4J —[LOAD]	COM : 5A	COM : 5A
TS10 : 2B		1 : 5B	1 : 5B
TS11 : 2C [LOAD]	*COM: Common to time signal output	2 : 5C	2 : 5C
TS12 : 2D —[LOAD]		4 : 5D	4 : 5D
TS13 : 2E —[LOAD]		8 : 5E	8 : 5E
TS14 : 2F —[LOAD]		10 : 5F	10 : 5F
TS15 : 2G —[LOAD]		20 : 5G	20 : 5G
TS16 : 2H —[LOAD]		40 : 5H	40 : 5H
TS17 : 2I —[LOAD]		80 : 5I	80 : 5I
TS18 : 2J —[LOAD]			*External power supply spec Applicable to equivalent of DP-I spec

■ DIMENSIONS

144
144
16   223   235   252
137×137   159

● PANEL CUTOUT

170
170
$138 ^{+1}_0$
$138 ^{+1}_0$

Unit: mm

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