

°C

%RH

SHIMADEN

## Series CP2 CP2 SERIES PLUG-IN TYPE CONVERTER



### BASIC FEATURES

- ❑ Small Size: 80 (H) × 50 (W) mm
- ❑ Input / Output Isolation (Exclude CP2RQ and CP2CX)
- ❑ Plug-in Type
- ❑ RoHS compliance applied

- Temperature Converter: SERIES CP2RT ..... 2-3
- Input/Output Non-Isolation Type 4-wire High Precision R.T.D. Temperature Converter: SERIES CP2RQ ..... 4-5
- Temperature Difference Converter: SERIES CP2RD ..... 6-7
- Potentiometer Converter: SERIES CP2RP ..... 8
- AC-DC Converter: SERIES CP2MA ..... 9
- DC-DC Converter: SERIES CP2MD ..... 10-11
- Manual Station: SERIES CP2SM ..... 12
- Alarm Setter: SERIES CP2SA ..... 13
- Ratio & Bias Setter: SERIES CP2SR ..... 14
- High / Low Selector (Comparator): SERIES CP2EC ..... 15
- Doubler-Inverter: SERIES CP2CX ..... 16-17
- Distributor: SERIES CP2CS ..... 18

**COMMON SPECIFICATIONS**

Input / Output Isolation: ..... Standard

Power Consumption: ..... Approx. 3VA (AC) / 120mA (DC)

Operating environment conditions

- Ambient Temperature Range: ..... -10–50 °C
- Ambient Humidity: ..... 90% RH max.

Storage temperature range: ..... -20–65 °C

RoHS compliance applied ..... RoHS: EN50581

Insulation Resistance:..... 500V DC 100M Ω between the input and output terminals  
 500V DC 100M Ω between the input / output terminals and the power supply terminals

Dielectric Strength: ..... 1 min. at 1000V AC between the input / output terminals and the power supply terminals  
 1 min. at 1500V AC between the input and output terminals

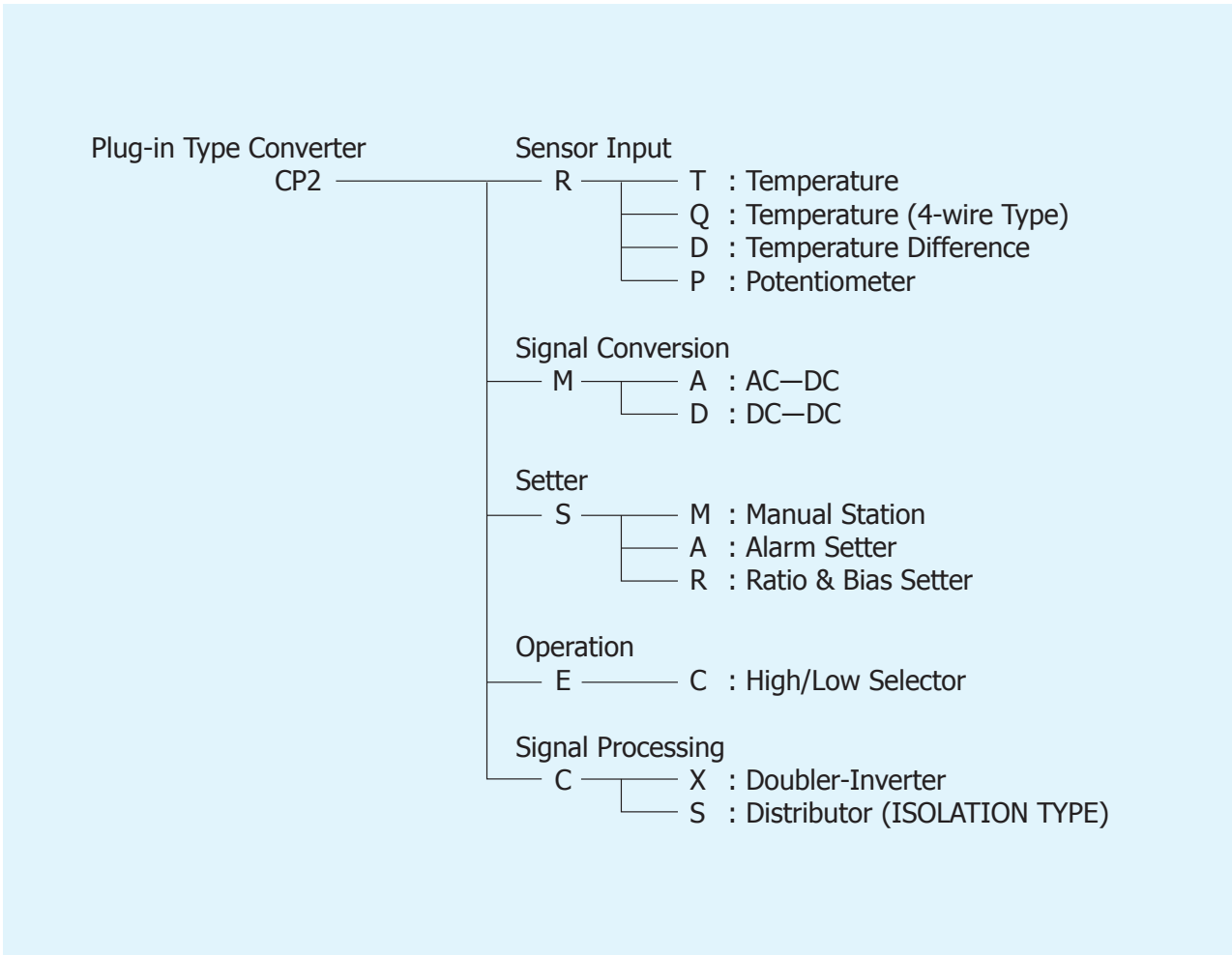
Material ..... ABS plastic molding

External Dimensions:..... 80 (H) × 50 (W) × 120 (D) mm

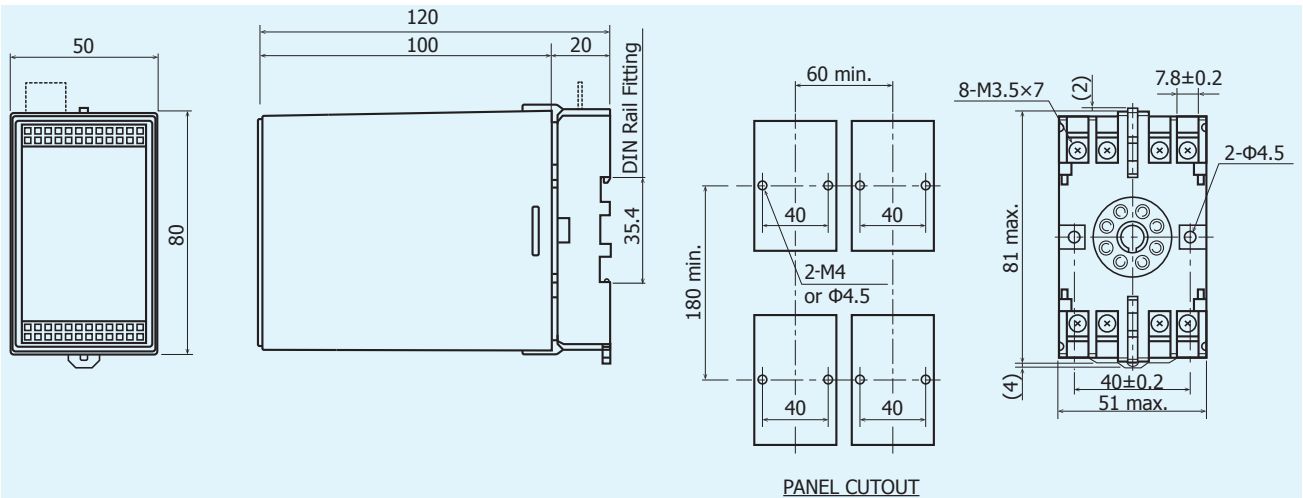
Mounting:..... Panel mounted 8-point plug-in type or DIN rail mounting

Weight: ..... Approx. 350g

**CP2 SERIES CONVERTER PRODUCT CONFIGURATION**



**EXTERNAL DIMENSIONS & TERMINAL ARRANGEMENT**

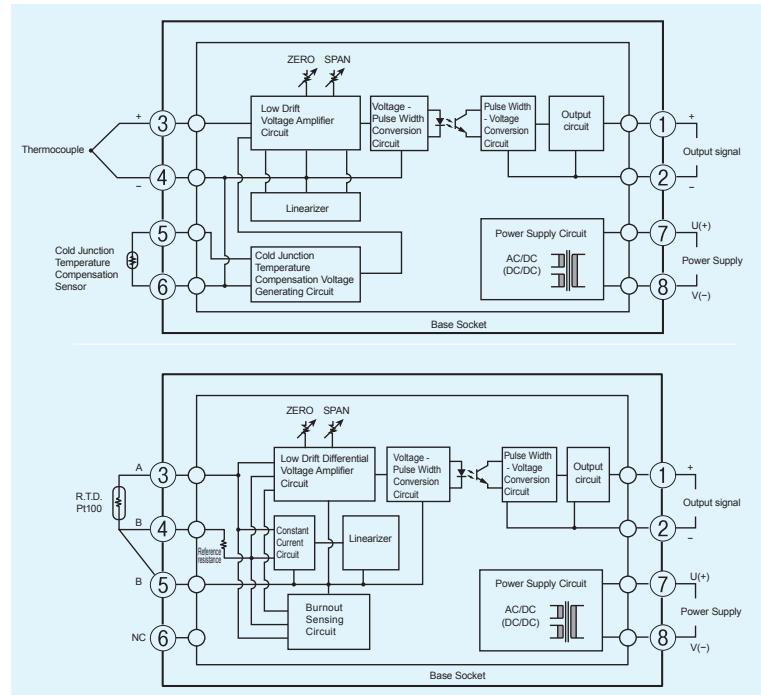


Unit: mm

**TEMPERATURE CONVERTER**



**Block Diagram & Terminal Wiring**



CP2RT functions to convert thermocouple and R.T.D. input signals into DC signals.

Standard feature: Isolation, Linear output and Burnout function

6 toxic substances, which are subject to RoHS regulations, are contained.

However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

■ Thermocouple Input:	T, E, J, K, N, R, S, B
Conversion accuracy:	±0.3% FS / Linearized output (at 23 °C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Measurement range:	Refer to "Ordering Information".
Conversion output:	Refer to "Measuring Range Codes"
Cold Junction Temp. Compensation Range:	5–45°C
Input Resistance:	1MΩ
External Resistance Tolerance:	100 Ω max.
■ R.T.D. Input:	Pt100 / JPt100 (3-wire type)
Conversion Accuracy:	±0.3% FS / Linearized output (at 23 °C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Measurement range:	Refer to "Measuring Range Codes"
Conversion output:	Refer to "Ordering Information".
Amperage:	1mA
R.T.D. Lead Wire Tolerable Resistance:	5Ω max. per wire
Response speed:	500ms max. (0–90%)
Reproducibility:	±0.1% FS
Burnout Circuit:	Standard (upscale)
Conversion Output Adjustment Range:	±4% (ZREO and SPAN)

**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2RT-	Temperature Converter	
INPUT	1	Thermocouple, T, E, J, K, N, R, S, B	Input Resistance:1MΩ
	2	R.T.D. (Pt100/JPt100), 3-wire type	Amperage: 1mA
CONVERSION OUTPUT	1	0-10mV DC / FS	Output Resistance: 5 Ω
	2	0-100mV DC / FS	Output Resistance: 50 Ω
	3	0-1V DC / FS	Max. Current: 2mA
	4	0-10V DC / FS	Max. Current: 2mA
	5	1-5V DC / FS	Max. Current: 2mA
	6	4-20mA DC / FS	Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	02-	24 V DC±10%	
	13-	100-110 V AC±10% 50/60Hz	
	14-	110-120 V AC±10% 50/60Hz	
	15-	200-220 V AC±10% 50/60Hz	
	16-	220-240 V AC±10% 50/60Hz	
	99-	Others (Please consult before ordering.)	
INPUT STANDARD	F	JIS Pt100	
	J	JIS JPt100 and Thermocouple	
	D	DIN	
	A	ANSI	
	X	Others (Please consult before ordering.)	
TYPE OF INPUT	T	Thermocouple T	Cold Junction Temperature Compensator (Externally installed)
	E	Thermocouple E	
	J	Thermocouple J	
	K	Thermocouple K	
	H	Thermocouple N	
	R	Thermocouple R	
	S	Thermocouple S	
	B	Thermocouple B	Cold Junction Temperature Compensator (Not Available)
	P	R. T. D. Pt100	
X	Others (Please consult before ordering.)		
MEASURING RANGE	□□□	See Measuring Range Codes.	
LEGEND	C	°C	
	F	°F	
	X	Others (Please consult before ordering.)	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

**MEASURING RANGE CODES**

■Thermocouple

INPUT	RANGE	CODE	RANGE	CODE
T	-100- 100 °C Δ	016	-200- 200 °F (32-) Δ	004
	-50- 150 °C Δ	035	-120- 300 °F (32-) Δ	013
E	0- 150 °C Δ	223	0- 300 °F (32-) Δ	230
	0- 300 °C	230	0- 600 °F (32-)	260
	0- 400 °C	240	0- 800 °F (32-)	308
J	0- 200 °C Δ	226	0- 400 °F (32-)	240
	0- 300 °C	230	0- 600 °F (32-)	260
	0- 400 °C	240	0- 800 °F (32-)	308
K	0- 300 °C	230	0- 300 °F (32-)	260
	0- 400 °C	240	0- 800 °F (32-)	308
	0- 500 °C	250	0-1000 °F (32-)	310
	0- 600 °C	260	0-1200 °F (32-)	312
	0- 800 °C	308	0-1500 °F (32-)	315
	0-1000 °C	310	0-1800 °F (32-)	318
	0-1200 °C	312	0-2000 °F (32-)	320
N	0-1300 °C	313		
S	0-1400 °C (500 -)	314	0-2600 °F (900-)	326
R	0-1400 °C (500 -)	314	0-2600 °F (900-)	326
	0-1600 °C (500 -)	316	0-2900 °F (900-)	329
B	0-1800 °C (500 -)	318	0-3200 °F (900-)	332

■R.T.D. Input:

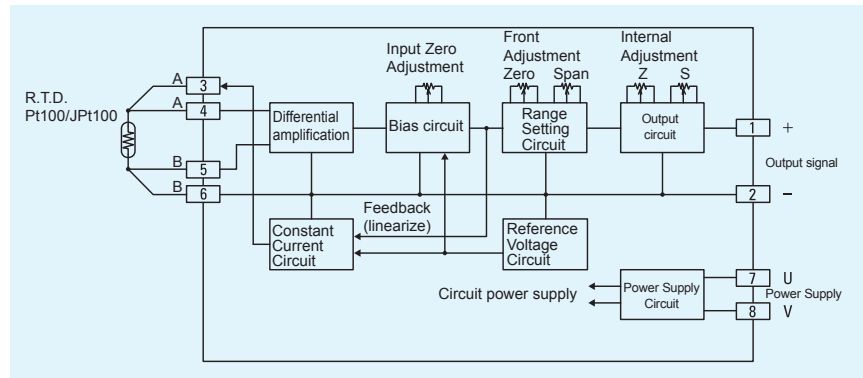
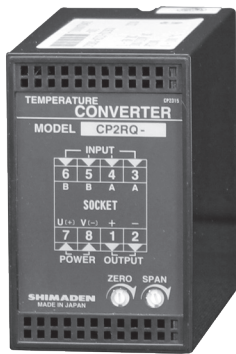
INPUT	RANGE	CODE	RANGE	CODE
Pt100	-100-100 °C	016		
	-100- 50 °C	018		
	-60- 40 °C	029		
	-50-100 °C	036		
	-20- 80 °C	053		
	-10- 50 °C Δ	063		
JPt100	0- 50 °C Δ	211	0-120 °F Δ	221
	0-100 °C	219	0-200 °F	226
	0-150 °C	223	0-300 °F	230
	0-200 °C	226	0-400 °F	240
	0-250 °C	228	0-500 °F	250
	0-300 °C	230	0-600 °F	260
	0-350 °C	235	0-700 °F	307
	0-400 °C	240	0-800 °F	308

( ) The value parentheses shows the minimum temperature in the standard accuracy measuring range

r Accuracy for this range will be ±0.5 %FS.

**INPUT/OUTPUT NON-ISOLATION TYPE 4-WIRE HIGH PRECISION R.T.D. TEMPERATURE CONVERTER**

**Block Diagram & Terminal Wiring**



CP2RQ functions to convert from 4-wire type RTD input signals into AC signals.  
 Isolation for input/output is not provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

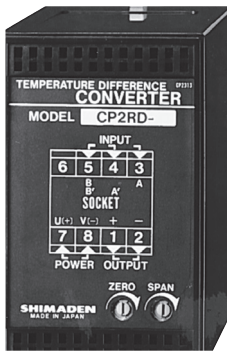
**SPECIFICATIONS**

Input:	R.T.D. Pt100/JPt100 4-wire type
Number of Input:	1
Input Range:	Refer to "Ordering Information".
Conversion Accuracy:	+/-0.1% FS/Linearized output (at 23 °C)
Influence of Ambient Temperature:	+/-0.1% FS (at temperature change of 10 °C)
Conversion Output:	Refer to "Ordering Information".
Number of Output:	1
Amperage:	1mA
Lead Wire Tolerable Range:	20Ω max. per wire
Influence of Lead Wire:	0.1% FS max. at 20Ω

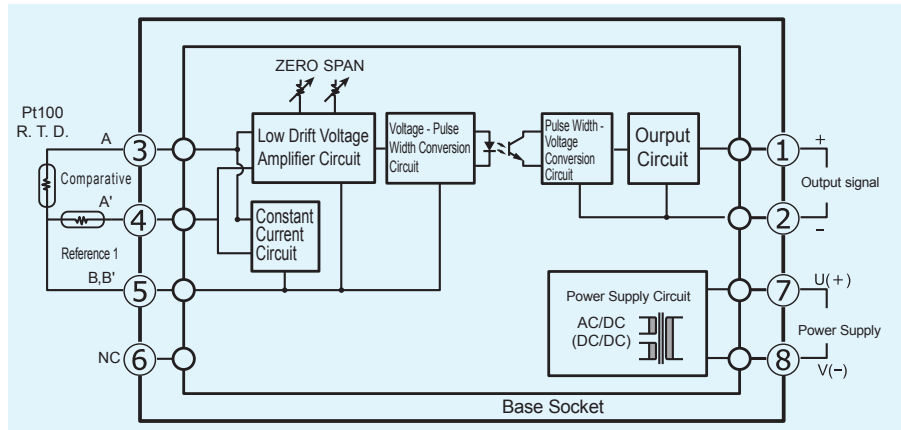
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2RQ-	Input/Output Non-Isolation Type 4-wire High Precision R.T.D. Temperature Converter	
INPUT	4	R.T.D. (Pt100/JPt100), 4-wire type, Current: 1mA	
CONVERSION OUTPUT	1	0-10mV DC / FS	Output Resistance: 50Ω
	2	0-100mV DC / FS	Output Resistance: 500Ω
	3	0-1V DC / FS	Max. Current: 2mA
	4	0-10V DC / FS	Max. Current: 2mA
	5	1-5V DC / FS	Max. Current: 2mA
	6	4-20mA DC / FS	Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	13-	100-110V AC±10% 50/60Hz	
	15-	200-220V AC±10% 50/60Hz	
	99-	Others (Please consult before ordering.)	
INPUT STANDARD	F	JIS Pt100	
	J	JIS JPt100	
	D	DIN	
	A	ANSI	
	X	Others (Please consult before ordering.)	
MEASURING RANGE	219	0-100 °C	
	223	0-150 °C	
	226	0-200 °C	
	053	-20- 80 °C	
	356	-40- 60 °C	
	038	-50- 50 °C	
	036	-50-100 °C	
	035	-50-150 °C	
LEGEND	C	°C	
	F	°F	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

**TEMPERATURE DIFFERENCE CONVERTER**



**Block Diagram & Terminal Wiring**



Outputs a DC signal corresponding to the difference between the reference temperature and comparison temperature.

Isolation for input/output is provided as standard feature.

6 toxic substances, which are subject to RoHS regulations, are contained.

However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Input:	R.T.D. Pt100 / JPt100 (2-wire type)
No. of Inputs:	2 (reference / A', B' and comparison / A, B)
Amperage:	1mA
Conversion Accuracy:	±1% of temperature difference range (at 23 °C)
Influence of ambient temperature:	±0.5% FS for temperature change of 10 °C
R.T.D. Lead Wire Tolerable Resistance:	5Ω max. per wire
R.T.D. Lead Wire Resistance Difference:	The ZERO and SPAN can only be adjusted when the resistance difference between the 2 R.T.D.'s is 0.2 Ω max.
Conversion output:	Refer to "Ordering Information".
Working Temperature:	Refer to "Ordering Information".
Temperature Difference Range:	Refer to "Ordering Information".
Response speed:	500ms max. (0-90%)



**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS		
SERIES	CP2RD-	Temperature Difference Converter		
INPUT	2	R.T.D.(Pt100), 2-wire type, Current: 1mA		
CONVERSION OUTPUT	1	0-10mV DC / FS	Output Resistance: 5Ω	
	2	0-100mV DC / FS	Output Resistance: 50Ω	
	5	1-5V DC / FS	Max. Current: 2mA	
	6	4-20mA DC / FS	Load Resistance: 600Ω max.	
	7	-10-10mV DC / FS	Output Resistance: 50Ω	
	8	-100-100mV DC / FS	Output Resistance: 500Ω	
	9	Others (Please consult before ordering.)		
	POWER SUPPLY	02-	24V DC±10% 50/60Hz	
		13-	100-110V AC±10% 50/60Hz	
14-		110-120V AC±10% 50/60Hz		
15-		200-220V AC±10% 50/60Hz		
16-		220-240 V AC±10% 50/60Hz		
99-		Others (Please consult before ordering.)		
INPUT STANDARD	F	JIS Pt100		
	J	JIS JPt100		
	D	DIN		
	A	ANSI		
	X	Others (Please consult before ordering.)		
TYPE OF INPUT	P	R.T.D. (Pt100)		
	X	Others (Please consult before ordering.)		
WORKING TEMPERATURE	A	-20-30 °C		
	B	0-50 °C		
	C	50-100 °C		
	X	Others (Please consult before ordering.)		
MEASURING RANGE	□□□	See temperature difference range codes.		
LEGEND	C	°C		
	F	°F		
	X	Others (Please consult before ordering.)		
REMARKS	0	Without		
	9	With (Please consult before ordering.)		

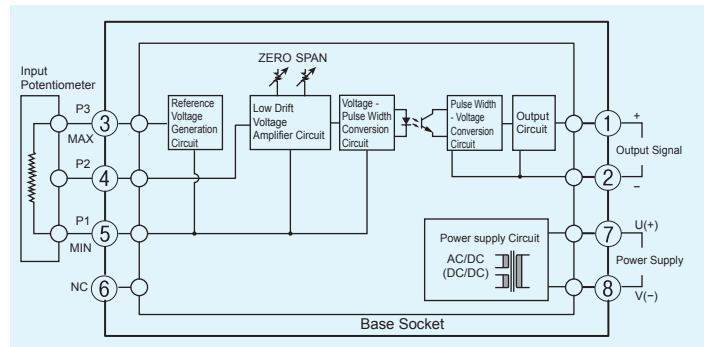
**TEMPERATURE DIFFERENCE RANGE CODES**

INPUT	TEMP.DIFFERENCE RANGE	CODE
Pt100 JPt100	-10-10 °C	064
	-20-20 °C	057
	0-20 °C	204
	0-50 °C	211
	Others	999

**POTENTIOMETER CONVERTER**



**Block Diagram & Terminal Wiring**



It converts the resistance change of the potentiometer into a DC signal and outputs it.  
 Isolation for input/output is provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Input:	Potentiometer (3-wire input)
Input resistance value range:	100Ω–10kΩ Random
Output:	DC voltage / Current (Refer to “Ordering Information”.)
Conversion Accuracy	±0.3% FS (at 23°C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Span Adjustment Range	0–50%
Zero Adjustment Range	50–0%
Response Time	500 msec. max. (0–90%)
Repeatability:	±0.1% of input range

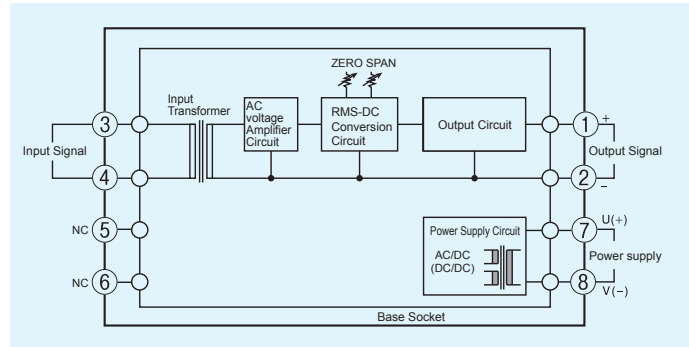
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2RP-	Potentiometer Converter	
INPUT	5	100 Ω–10K Ω Random (3-wire)	
	9	Others (Please consult before ordering.)	
CONVERSION OUTPUT	1	0–10mV DC / FS	Output Resistance: 5Ω
	2	0–100mV DC / FS	Output Resistance: 50Ω
	3	0–1V DC / FS	Max. Current: 2mA
	4	0–10V DC / FS	Max. Current: 2mA
	5	1–5V DC / FS	Max. Current: 2mA
	6	4–20mA DC / FS	Load Resistance: 600Ω max.
POWER SUPPLY	9	Others (Please consult before ordering.)	
	02-	24V DC±10%	
	13-	100–110V AC±10% 50/60Hz	
	14-	110–120V AC±10% 50/60Hz	
	15-	200–220V AC±10% 50/60Hz	
	16-	220–240V AC±10% 50/60Hz	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

**AC-DC CONVERTER**



**Block Diagram & Terminal Wiring**



It converts the true execution value of the AC signal into a DC signal and outputs it.  
 Isolation for input/output is provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Input:	AC voltage / current (Refer to "Ordering Information".)
Output:	DC voltage / current (Refer to "Ordering Information".)
Conversion Method:	Root mean square (RMS) operation
Conversion Accuracy	±1% FS (at 23 °C)
Influence of ambient temperature:	± 0.3% FS for temperature change of 10 °C
Response Time:	500 msec. max. (0–90%)
Repeatability:	±0.1% of input range
Output Ripple:	±0.5% FS
Operation Frequency Zone:	Commercial frequency
Conversion Output Adjustment Range:	±4% FS (ZERO and SPAN)

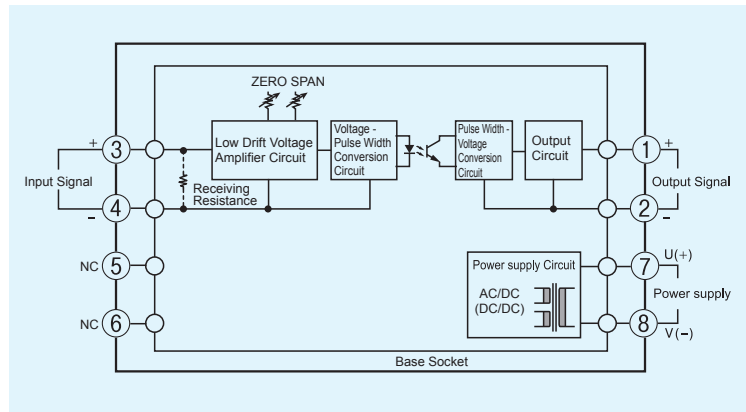
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2MA-	AC-DC Converter	
INPUT	01	0–110V AC / FS	Input Loss: 0.5VA max.
	02	0–150V AC / FS	
	03	0–220V AC / FS	
	04	0–250V AC / FS	
	21	0–1A AC / FS	
	22	0–5A AC / FS	
	99	Others (Please consult before ordering.)	
CONVERSION OUTPUT	1	0–10mV DC / FS	Output Resistance: 5Ω
	2	0–100mV DC / FS	Output Resistance: 50Ω
	3	0–1V DC / FS	Max. Current: 2mA
	4	0–10V DC / FS	Max. Current: 2mA
	5	1–5V DC / FS	Max. Current: 2mA
	6	4–20mA DC / FS	Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	02-	24V DC±10%	
	13-	100–110V AC±10% 50/60Hz	
	14-	110–120V AC±10% 50/60Hz	
	15-	200–220V AC±10% 50/60Hz	
	16-	220–240V AC±10% 50/60Hz	
99-	Others (Please consult before ordering.)		
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

**DC-DC CONVERTER**



**Block Diagram & Terminal Wiring**



Converts a DC signal into any other DC signal, which will be output.  
 Isolation for input/output is provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Input:	DC voltage / Current (Refer to "Ordering Information".)
Output:	DC voltage / Current (Refer to "Ordering Information".)
Conversion accuracy:	±0.3% FS (at 23 °C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Response Time:	200 msec. max. (0–90%)
Repeatability:	±0.1% of input range
Conversion Output Adjustment Range:	±4% FS (ZERO and SPAN)

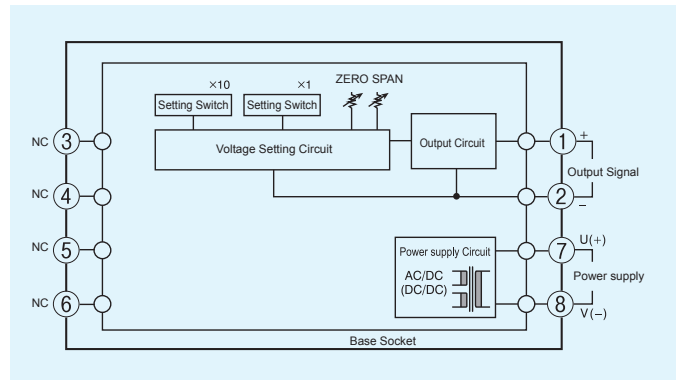
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2MD-	DC-DC Converter	
INPUT	1	0-10mV DC / FS	Input Resistance: 1MΩ
	2	0-100mV DC / FS	Input Resistance: 1MΩ
	3	0-1V DC / FS	Input Resistance: 1MΩ
	4	0-10V DC / FS	Input Resistance: 1MΩ
	5	1-5V DC / FS	Input Resistance: 1MΩ
	6	4-20mA DC / FS	Receiving Impedance: 62Ω
	9	Others (Please consult before ordering.)	
CONVERSION OUTPUT	1	0-10mV DC / FS	Output Resistance: 5Ω
	2	0-100mV DC / FS	Output Resistance: 50Ω
	3	0-1V DC / FS	Max. Current: 2mA
	4	0-10V DC / FS	Max. Current: 2mA
	5	1-5V DC / FS	Max. Current: 2mA
	6	4-20mA DC / FS	Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	02-	24V DC±10%	
	13-	100-110V AC±10% 50/60Hz	
	14-	110-120V AC±10% 50/60Hz	
	15-	200-220V AC±10% 50/60Hz	
	16-	220-240V AC±10% 50/60Hz	
	99-	Others (Please consult before ordering.)	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

**MANUAL STATION**



**Block Diagram & Terminal Wiring**



DC signal outputs by manual setting (specify the output range)

6 toxic substances, which are subject to RoHS regulations, are contained.

However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Setting Method:	2-digit setting switch
Setting range	0–99%
Setting Resolution:	1%
Setting Accuracy:	±0.3% FS (at 23 °C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Linearity	±0.1%
Repeatability:	±0.1%
Setting output:	DC Voltage or Current (Refer to “Ordering Information”.)
Conversion Output Adjustment Range:	±4% FS (ZERO and SPAN)

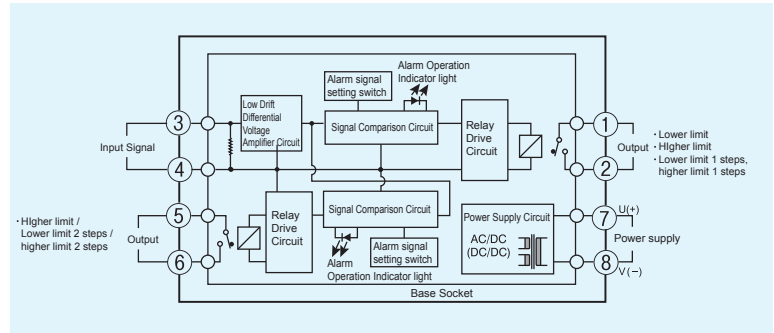
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2SM-	Manual Station	
SETTING RANGE	1	0–99%	
	9	Others (Please consult before ordering.)	
CONVERSION OUTPUT	1	0–10mV DC / FS	Output Resistance: 5Ω
	2	0–100mV DC / FS	Output Resistance: 50Ω
	3	0–1V DC / FS	Max. Current: 2mA
	4	0–10V DC / FS	Max. Current: 2mA
	5	1–5V DC / FS	Max. Current: 2mA
	6	4–20mA DC / FS	Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	02-	24V DC±10%	
	13-	100–110V AC±10% 50/60Hz	
	14-	110–120V AC±10% 50/60Hz	
	15-	200–220V AC±10% 50/60Hz	
	16-	220–240V AC±10% 50/60Hz	
99-	Others (Please consult before ordering.)		
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

**ALARM SETTER**



**Block Diagram & Terminal Wiring**



Contact signal outputs when input signal reaches alarm set value.  
 Isolation for input/output is provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Input	DC Voltage or Current (Refer to "Ordering Information".)
Alarm action	Lower limit, Higher limit, Higher/Lower limit, Lower limit 2 steps, higher limit 2 steps (Refer to "Ordering Information".)
Alarm Setting Method:	2-digit setting switch
Alarm Setting Range:	0–99%
Alarm Setting Accuracy:	±1%
Alarm Output:	Relay contact (When alarm is output/excitation/output continuity)
Hysteresis:	0.2%FS
Contact Capacity:	240V AC 1A / Resistive load
Alarm Action Display:	Red LED lights during operation
Repeatability:	0.2% of input range

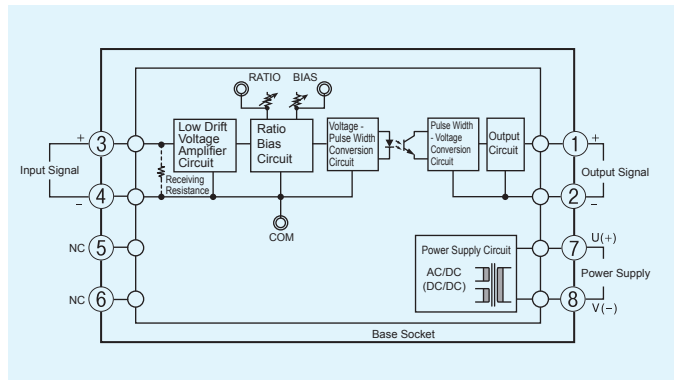
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2SA-	Alarm Setter	
INPUT	1	0–10mV DC / FS	Input Resistance: 1MΩ
	2	0–100mV DC / FS	Input Resistance: 1MΩ
	3	0–1V DC / FS	Input Resistance: 1MΩ
	4	0–10V DC / FS	Input Resistance: 1MΩ
	5	1–5V DC / FS	Input Resistance: 1MΩ
	6	4–20mA DC / FS	Receiving Impedance: 62Ω
	9	Others (Please consult before ordering.)	
ALARM OPERATION	01	Low Alarm	Separate Setting, Separate Output Alarm Alarm Output: Relay Contact Contact Capacity: 240V AC 1A / Resistive Load Alarm Operation: When contact is closed Alarm Setting Range:0–99%
	02	High Alarm	
	03	High / Low Alarm	
	07	Low / Low Alarm	
	08	High / High Alarm	
	99	Others (Please consult before ordering.)	
POWER SUPPLY	02-	24V DC±10%	
	13-	100–110V AC±10% 50/60Hz	
	14-	110–120V AC±10% 50/60Hz	
	15-	200–220V AC±10% 50/60Hz	
	16-	220–240V AC±10% 50/60Hz	
	99-	Others (Please consult before ordering.)	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

RATIO & BIAS SETTER



Block Diagram & Terminal Wiring



Outputs after multiplying input signal by ratio. Bias values can also be set.

Isolation for input/output is provided as standard feature.

6 toxic substances, which are subject to RoHS regulations, are contained.

However, the amount of toxic substances contained does not exceed standardized values.

SPECIFICATIONS

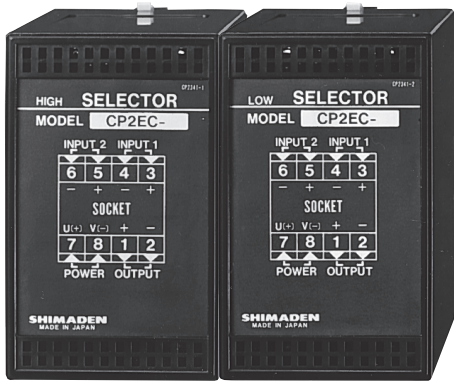
Input	DC Voltage or Current (Refer to "Ordering Information".)
Output	DC Voltage or Current (Refer to "Ordering Information".)
Ratio setting range:	0.3–3 times
Bias Value Setting Range	-100–100%
Setting Precision	±0.5% of the input range (for set value monitor output) at 23°C
Calculation Precision	±0.5%FS (when ratio = 1, bias value = 0%) at 23°C
Operation	$I_0 = nI_1$ $I_0$ : Output signal (%) $n$ : Ratio $I_0 = nI_1 \pm \alpha$ $I_1$ : Input signal (%) $\alpha$ : Bias (%) When the operation result exceeds the output range, a correct signal will not be output.
Monitor Output Voltage	Ratio: 0.3–3 times / 0.3–3V (Load resistance: 5 kΩ min.) Bias: -100–100% / -1–1V (Load resistance: 5 kΩ min.)
Isolation	Insulation between inputs and outputs
Influence of Ambient Temperature:	±0.2% FS for temperature change of 10 °C
Response Time:	200 msec. max. (0–90%)
Repeatability:	±0.1% of input range

ORDERING INFORMATION

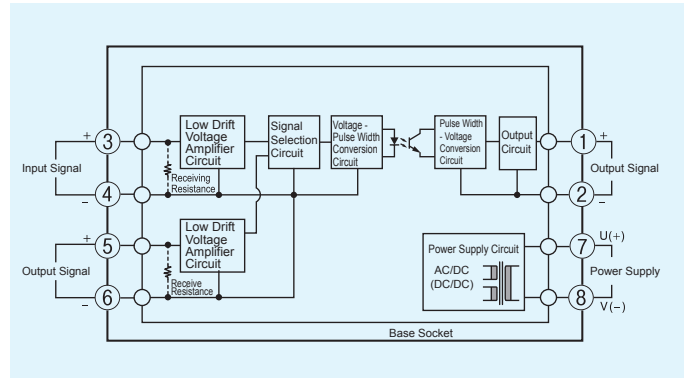
ITEMS	CODE	SPECIFICATIONS
SERIES	CP2SR-	Ratio & Bias Setter
Input	3	0–1V DC / FS Input Resistance: 1MΩ
	4	0–10V DC / FS Input Resistance: 1MΩ
	5	1–5V DC / FS Input Resistance: 1MΩ
	6	4–20mA DC / FS Receiving Impedance: 62Ω
	9	Others (Please consult before ordering.)
Output	3	0–1V DC / FS Max. Current: 2mA
	4	0–10V DC / FS Max. Current: 2mA
	5	1–5V DC / FS Max. Current: 2mA
	6	4–20mA DC / FS Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)
POWER SUPPLY	02-	24V DC±10%
	13-	100–110V AC±10% 50/60Hz
	14-	110–120V AC±10% 50/60Hz
	15-	200–220V AC±10% 50/60Hz
	16-	220–240V AC±10% 50/60Hz
99-	Others (Please consult before ordering.)	
REMARKS	0	Without
	9	With (Please consult before ordering.)



**HIGH / LOW SELECTOR (COMPARATOR)**



**Block Diagram & Terminal Wiring**



Conducts 2-point current signal input and outputs either a large or small value.  
 Isolation for input/output is provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Operation	High Selector / Inputs are compared and highest value is output. Low Selector / Inputs are compared and lowest value is output.
Input	DC Voltage or Current (Refer to "Ordering Information".)
Output	Same type as input, same level
No. of Inputs:	2
No. of Output:	1
Response Time:	500 msec. max. (0-90%)
Repeatability:	±0.2% of input range

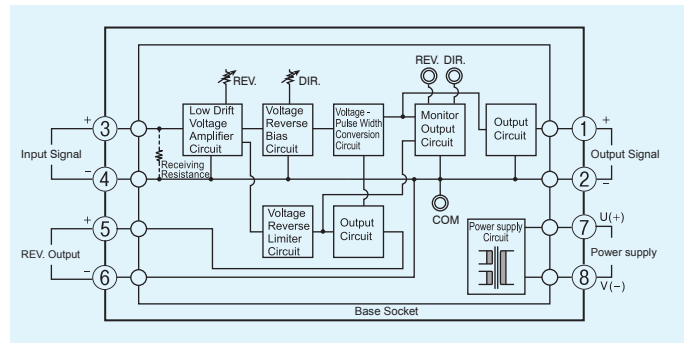
**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS
SERIES	CP2EC-	High / Low Selector (Comparator)
OPERATION	H	High Selector (Inputs are compared and highest value is output.)
	L	Low Selector (Inputs are compared and lowest value is output.)
NO. OF INPUTS	02	Two (2) Inputs
	99	Others (Please consult before ordering.)
INPUT / OUTPUTS	1	0-10mV DC / FS Input Resistance: 1MΩ Output Resistance: 5Ω
	2	0-100mV DC / FS Input Resistance: 1MΩ Output Resistance: 50Ω
	3	0-1V DC / FS Input Resistance: 1MΩ Max. Current: 2mA
	4	0-10V DC / FS Input Resistance: 1MΩ Max. Current: 2mA
	5	1-5V DC / FS Input Resistance: 1MΩ Max. Current: 2mA
	6	4-20mA DC / FS Receiving Impedance: 62Ω Load Resistance: 600Ω max.
POWER SUPPLY	9	Others (Please consult before ordering.)
	02-	24V DC ±10%
	13-	100-110V AC ±10%, 50 / 60Hz
	14-	110-120V AC ±10%, 50 / 60Hz
	15-	200-220V AC ±10%, 50 / 60Hz
REMARKS	16-	220-240V AC ±10%, 50 / 60Hz
	99-	Others (Please consult before ordering.)
	0	Without
	9	With (Please consult before ordering.)

**DOUBLER-INVERTER (X-Characteristic Converter)**



**Block Diagram & Terminal Wiring**



Converts control input signals to heating/cooling signals or humidification/dehumidification signals.  
 Isolation for input/output is not provided as standard feature.  
 6 toxic substances, which are subject to RoHS regulations, are contained.  
 However, the amount of toxic substances contained does not exceed standardized values.

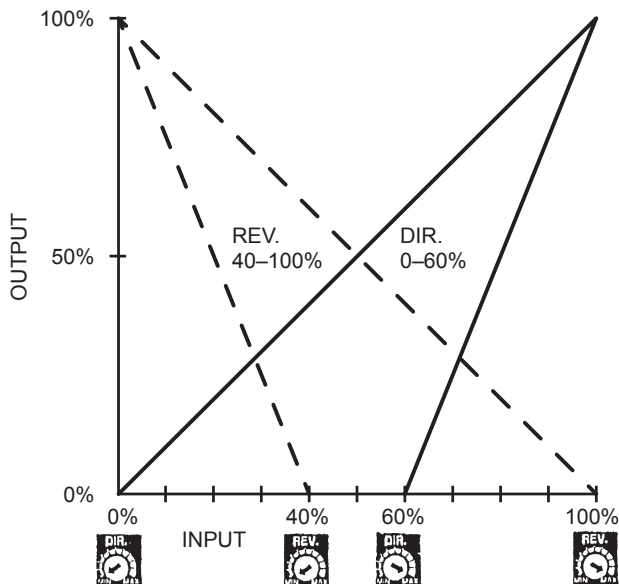
**SPECIFICATIONS**

Input	DC Voltage or Current (Refer to "Ordering Information".)
Output / Points	DC Voltage or Current / 2-Point (Refer to "Ordering Information".)
Output Characteristics:	Direct Characteristics, Reverse Characteristics (2 Outputs)
Split Setting	DIRECT 0– 60% of input signal REVERSE 40–100% of input signal
Output Monitor Voltage	0–100% / 0–1V (Load Resistance: 5kΩ min.)
Conversion Accuracy:	±0.3% of input range (at 23 °C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Response Time:	200msec. max. (0–90%)
Repeatability:	±0.1% of input range

**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2CX-	Doublor-Inverter (X-Characteristic Converter)	
INPUT	3	0-1V DC / FS	Input Resistance: 1MΩ
	4	0-10V DC / FS	Input Resistance: 1MΩ
	5	1-5V DC / FS	Input Resistance: 1MΩ
	6	4-20mA DC / FS	Receiving Impedance: 62Ω
	9	Others (Please consult before ordering.)	
CONVESION OUTPUT	3	0-1V & 1-0V DC / FS	Max. Current: 2mA
	4	0-10V & 10-0V DC / FS	Max. Current: 2mA
	5	1-5V & 5-1V DC / FS	Max. Current: 2mA
	6	4-20mA & 20-4mA DC / FS	Load Resistance: 600Ω max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	02-	24V DC±10%	
	13-	100-110V AC±10% 50/60Hz	
	14-	110-120V AC±10% 50/60Hz	
	15-	200-220V AC±10% 50/60Hz	
	16-	220-240V AC±10% 50/60Hz	
	99-	Others (Please consult before ordering.)	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

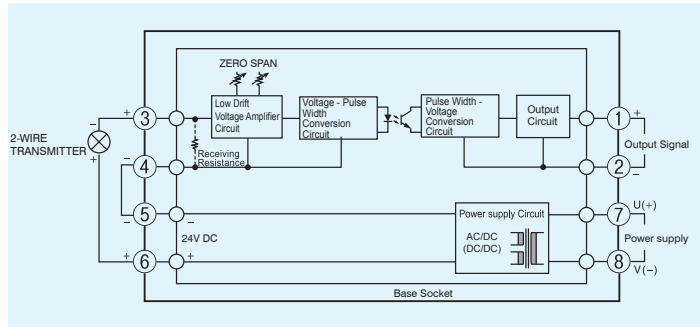
**INPUT / OUTPUT CHARACTERISTICS DRAWING**



**DISTRIBUTOR (2-WIRE TRANSMITTER), ISOLATION TYPE**



**Block Diagram & Terminal Wiring**



This is an isolation type DC-DC converter with a built-in DC power supply for a 2-wire transmitter.

Isolation for input/output is provided as standard feature.

6 toxic substances, which are subject to RoHS regulations, are contained.

However, the amount of toxic substances contained does not exceed standardized values.

**SPECIFICATIONS**

Input:	4–20mA DC
Receiving Resistance:	62.5 Ω
Input Signal	DC Voltage or Current (Refer to "Ordering Information".)
Isolation	Insulation between inputs and outputs
Conversion Output:	±0.3% of input range (at 23 °C)
Influence of ambient temperature:	±0.2% FS for temperature change of 10 °C
Response Time:	200 msec. (0–90%)
Repeatability:	±0.1% of input range
Power Supply for Transmitter:	Power Supply Voltage = 24V DC ±1V Current Capacity = 22mA max.

**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS	
SERIES	CP2CS-	Distributor (2-Wire Transmitter), Isolation Type	
CONVERSION OUTPUT	5	1–5V DC / FS	Max. Current: 2mA
	6	4–20mA DC / FS	Load Resistance: 600Ω Max.
	9	Others (Please consult before ordering.)	
POWER SUPPLY	13-	100–110V AC±10%	50/60Hz
	14-	110–120V AC±10%	50/60Hz
	15-	200–220V AC±10%	50/60Hz
	16-	220–240V AC±10%	50/60Hz
	99-	Others (Please consult before ordering.)	
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

 Warning

- \* The CP2 Series is designed for the control of temperature, humidity and other physical values of general industrial equipment. It is not to be used for any purpose which regulates the prevention of the serious effect on human life or safety.



- \* The possibility of loss or damage to your system or property as a result of failure of any part of the process exists, proper safety measures must be made before the instrument is put into use so as to prevent the occurrence of trouble.

**Head Office & Saitama Factory**  
**ISO 9001/ISO 14001 Certification Obtained**

(The contents of this brochure are subject to change without notice.)

**Temperature and Humidity Control Specialists**  
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