

°C
%RH
SHIMADEN

# Series CP3700

## CP3700 SERIES SIGNAL CONVERTERS



CE approved

CP3701: Thermocouple Temperature Converter  
CP3702: R.T.D. Temperature Converter  
CP3703: mV DC-DC Converter  
CP3704: V/mA DC-DC-Converter  
CP3705: Alarm Setter (Dual Points)

CP3707: Distributor  
CP3710: Potentiometer Converter  
CP3720: CT Converter  
CP3721: PT Converter

### BASIC FEATURES

- Slim-shaped plug-in converter with isolated single/dual- output
- DIN Rail mounting or Lateral mounting
- Power supply 100 - 240V AC or 24V DC
- Moisture-proof coating is applied as standard.
- CE marking applied (applicable standard: EMC: EN61326-1)

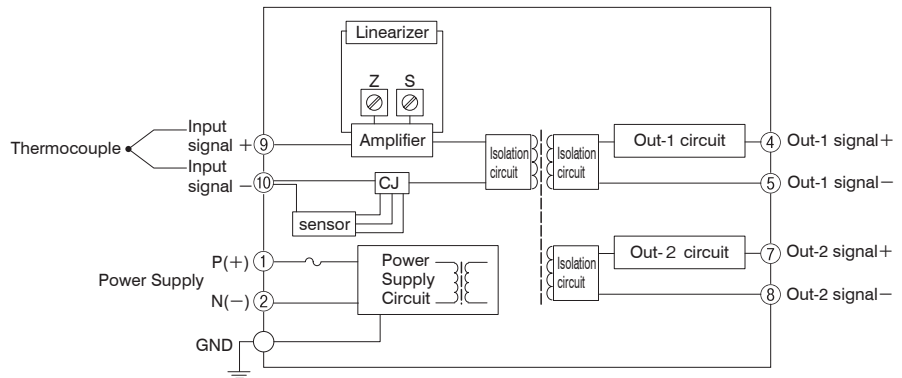
Thermocouple Temperature Converter



**OVERVIEW**

This Slim-shaped Plug-in thermocouple temperature converter, CP3701 functions to convert thermocouple input signals into any desired AC signals to generate isolated dual output.

**Block Diagram & Terminal Wiring**



**SPECIFICATIONS**

Input:	Thermocouple, K, E, J, T, B, R, S, N
Conversion accuracy:	Within $\pm 0.1\%FS \pm 0.5^\circ C$ (sensing element accuracy) + linearization accuracy/at $25 \pm 5^\circ C$ Linearization accuracy will be changed by input span
Conversion output:	DC voltage, DC current
Effect on ambient temperature:	$\pm 0.2\%$ max. against span of $10^\circ C$ temperature difference
Measuring range:	See measuring range code
Maximum output load:	DC voltage: 1V span min. Load current: 2mA max. 10mV span min. Load resistance: 10k $\Omega$ min. 100mV span min. Load resistance: 100k $\Omega$ min. DC current: 4-20mA Single output: Load current: 750 $\Omega$ max. 4-20mA Dual output: Output 1: 550 $\Omega$ max. Output 2: 350 $\Omega$ max.
Input resistance:	1M $\Omega$ min. (1M $\Omega$ when power failure/constant input)
External resistance tolerance range:	1k $\Omega$ max.
Response speed:	160m sec. max. (0 - 90%) at 100% step input
Burnout:	up-scale
Conversion output variable range:	zero: Approx. $\pm 5\%FS$ of span (adjustable by front trimmer) span: Approx. $\pm 5\%FS$ of span (adjustable by front trimmer)
Power supply:	100 - 240V AC $\pm 10\%$ or 24V DC $\pm 10\%$
Power consumption:	2W max. at 24V DC
Operating ambient temperature:	-5 - 55 $^\circ C$
Operating ambient humidity:	5 - 90%RH (No dew condensation)
Stock temperature:	-10 - 60 $^\circ C$
Isolation resistance:	100M $\Omega$ min. at 500V DC, between input, out 1, out 2, power supply and ground terminals
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)
External dimensions:	88 (H) x 29 (W) x D125 (H)mm
Weight:	Main body: 120g max. Terminal block: 80g max.

**ORDERING INFORMATION**

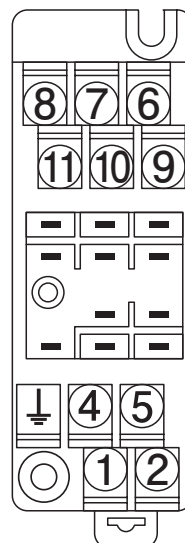
ITEMS	CODE		SPECIFICATIONS
SERIES	CP3701-		Thermocouple Temperature Converter
OUTPUT 1	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC
	7		0 - 5V DC
	8		0 - 10V DC
	9		Others (Please consult before ordering.)
OUTPUT 2	0		None
	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7		0 - 5V DC
	8		0 - 10V DC
9		Others (Please consult before ordering.)	
POWER SUPPLY	90-		100 - 240V AC ±10%, 50/60Hz
	08-		24V DC ±10%
INPUT		K	Thermocouple (K)
		E	Thermocouple (E)
		J	Thermocouple (J)
		T	Thermocouple (T)
		B	Thermocouple (B)
		R	Thermocouple (R)
		S	Thermocouple (S)
		N	Thermocouple (N)
		X	Others (Please consult before ordering.)
MEASURING RANGE		□□□	See measuring range codes.
REMARKS		0	Without
		9	With (Please consult before ordering.)

**MEASURING RANGE CODES**

Input Type	Measuring Range	Code
E · J K · T	-100 - +100°C	016
	-50 - +150°C	035
	0 - 100°C	219
	0 - 150°C	223
	0 - 200°C	226
	0 - 300°C	230
	0 - 400°C	240
	-200 - +200°C	504
E · J · K	-150 - +150°C	507
	-50 - +200°C	533
	0 - 500°C	250
K	0 - 600°C	260
	0 - 800°C	308
K · N · R	0 - 1000°C	310
	0 - 1200°C	312
N · R	0 - 1300°C	313
	0 - 1400°C	314
S · R	0 - 1600°C	316
	0 - 1800°C	318 *
Other		999

\* Accuracy guarantee not applicable to 600°C or below.

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+)	POWER
2	N(-)	
↓	GND	
4	+	OUTPUT 1
5	-	OUTPUT 1
6	N.C	
7	+	OUTPUT 2
8	-	OUTPUT 2
9	T.C +	
10	T.C -	
11	N.C	

SOCKET TOP VIEW

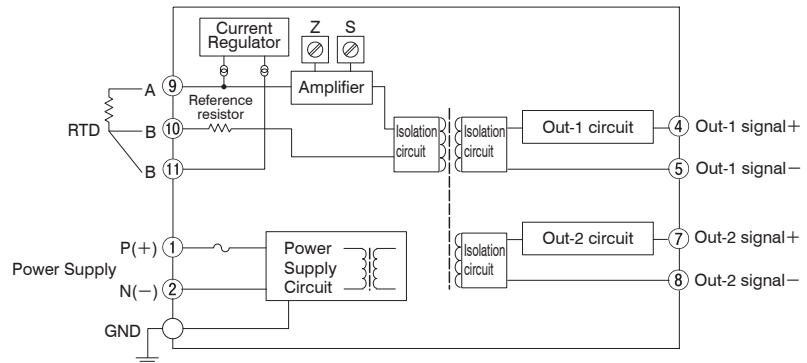
R.T.D. Temperature Converter



**OVERVIEW**

This Slim-shaped Plug-in R.T.D temperature converter, CP3702 functions to convert input from RTD into standard process signal to generate isolated dual output.

**Block Diagram & Terminal Wiring**



**SPECIFICATIONS**

Input:	R.T.D. Pt100/JPt100	
Conversion accuracy:	Within $\pm 0.15\%$ at $25 \pm 5^\circ\text{C}$	
Effect on ambient temperature:	$\pm 0.2\%$ max. against span of $10^\circ\text{C}$ temperature difference	
Measuring range:	See measuring range code	
Amperage:	1mA	
Input lead wire resistance:	200 $\Omega$ max./wire	
Maximum output load:	DC voltage:	Load current: 2mA max.
	1V span min.	Load resistance: 10k $\Omega$ min.
	10mV span min.	Load resistance: 100k $\Omega$ min.
	100mV span min.	Load current: 750 $\Omega$ max.
	DC current:	Output 1: 550 $\Omega$ max.
	4-20mA Single output:	Output 2: 350 $\Omega$ max.
	4-20mA Dual output:	
Input resistance:	1M $\Omega$ min. (1M $\Omega$ when power failure/constant input)	
External resistance tolerance range:	1k $\Omega$ max.	
Response speed:	170m sec. max. (0-90%) at 100% step input	
Burnout:	up-scale	
Conversion output variable range:	zero:	Approx. $\pm 5\%$ FS of span (adjustable by front trimmer)
	span:	Approx. $\pm 5\%$ FS of span (adjustable by front trimmer)
Power supply:	100 - 240V AC $\pm 10\%$ or 24V DC $\pm 10\%$	
Power consumption:	2W max. at 24V DC	
Operating ambient temperature:	$-5 - 55^\circ\text{C}$	
Operating ambient humidity:	5 - 90%RH (No dew condensation)	
Stock temperature:	$-10 - 60^\circ\text{C}$	
Isolation resistance:	100M $\Omega$ min. at 500V DC, between input, out 1, out 2, power supply and ground terminals	
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals	
	1 minutes at 500V AC, between out 1 and out 2	
Materials:	Housing: ABS resin (UL94V-0)	
	Terminal block: PBT resin (UL94V-0)	
	Terminal block cover: PC resin (UL94V-2)	
	Din-rail stopper: PP resin (UL94-HB)	
External dimensions:	88 (H) x 29 (W) x D125 (H)mm	
Weight:	Main body: 120g max.	
	Terminal block: 80g max.	

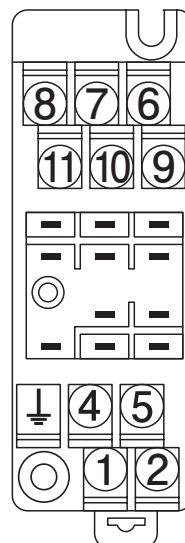
**ORDERING INFORMATION**

ITEMS	CODE		SPECIFICATIONS
SERIES	CP3702-		R.T.D. Temperature Converter
OUTPUT 1	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC
	7		0 - 5V DC
	8		0 - 10V DC
	9		Others (Please consult before ordering.)
OUTPUT 2	0		None
	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7		0 - 5V DC
	8		0 - 10V DC
9		Others (Please consult before ordering.)	
POWER SUPPLY	90-		100 - 240V AC ±10% 50/60Hz
	08-		24V DC ±10%
INPUT		F	Pt100
		J	JPt100
MEASURING RANGE		□□□	See measuring range codes.
REMARKS		0	Without
		9	With (Please consult before ordering.)

**MEASURING RANGE CODES**

Input Type	Measuring Range	Code
PT100 JPt100	-100 - +100°C	016
	-100 - +50°C	018
	-100 - 0°C	020
	-60 - +40°C	029
	-50 - +150°C	035
	-50 - +100°C	036
	-50 - +50°C	038
	-20 - +80°C	053
	-10 - +50°C	063
	0 - 50°C	211
	0 - 60°C	213
	0 - 100°C	219
	0 - 150°C	223
	0 - 200°C	226
	0 - 250°C	228
	0 - 300°C	230
	0 - 350°C	235
	0 - 400°C	240
Other	999	

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+)	POWER
2	N(-)	
↓	GND	
4	+	OUTPUT 1
5	-	OUTPUT 1
6	N.C	
7	+	OUTPUT 2
8	-	OUTPUT 2
9	A	RTD
10	B	RTD
11	B'	RTD

SOCKET TOP VIEW

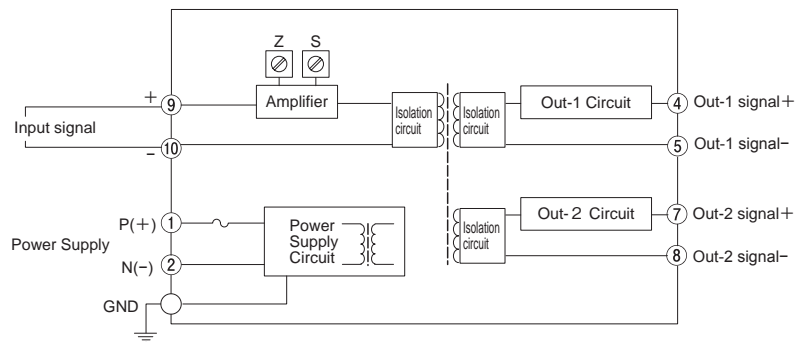
mV DC-DC Converter



**OVERVIEW**

This Slim-shaped Plug-in mV DC-DC converter, CP3703 functions to convert mV signal from every types of sensors into any desired DC signal to generate isolated single/dual output.

**Block Diagram & Terminal Wiring**



\* If any inductive load like an electric motor was connected, a relay contact protection circuit must be used.

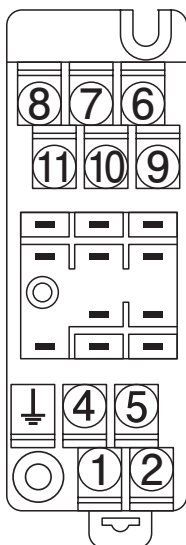
**SPECIFICATIONS**

Input:	DC voltage signal mV (see ordering code)
Input resistance:	1MΩmin. (1MΩ when power failure/constant input)
Input tolerable voltage:	30V DC
Conversion accuracy:	Within ±0.1% at 25±5°C
Conversion output:	DC voltage, current (see ordering code)
Effect against ambient temperature:	±0.2% max. against span of 10°C temperature difference
Maximum output load:	DC voltage:    1V span min.                    Load current: 2mA max. 10mV span min.                    Load resistance: 10kΩmin. 100mV span min.                    Load resistance: 100kΩmin. DC current:    4-20mA Single output:    Load current: 750Ωmax. 4-20mA Dual output:        Output 1: 550Ωmax.
Response speed:	160m sec. max. (0-90%) at 100% step input
Conversion output variable range:	zero:    Approx. ±5%FS of span (adjustable by front trimmer) span:    Approx. ±5%FS of span (adjustable by front trimmer)
Power supply:	100 - 240V AC ±10% or 24V DC±10%
Power consumption:	7vA max. at 100-240V AC 2W max. at 24V DC
Operating ambient temperature:	-5 - 55°C
Operating ambient humidity:	5 - 90%RH (No dew condensation)
Stock temperature:	-10 - 60°C
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)
External dimensions:	88 (H) x 29 (W) x D125 (H)mm
Weight:	Main body: 120g max. Terminal block: 80g max.

**ORDERING INFORMATION**

ITEMS	CODE		SPECIFICATIONS
SERIES	CP3703-		mV DC-DC Converter
INPUT	1		0 - 10mV DC
	2		0 - 100mV DC
	9		Others (Please consult before ordering.)
OUTPUT 1	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC
	7		0 - 5V DC
	8		0 - 10V DC
	9		Others (Please consult before ordering.)
OUTPUT 2	0		None
	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7		0 - 5V DC
	8		0 - 10V DC
9		Others (Please consult before ordering.)	
POWER SUPPLY	90-		100 - 240V AC ±10% 50/60Hz
	08-		24V DC ±10%
REMARKS	0		Without
	9		With (Please consult before ordering.)

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+)	POWER
2	N(-)	POWER
↓	GND	
4	+	OUTPUT 1
5	-	OUTPUT 1
6	N.C	
7	+	OUTPUT 2
8	-	OUTPUT 2
9	+	INPUT
10	-	INPUT
11	N.C	

SOCKET TOP VIEW

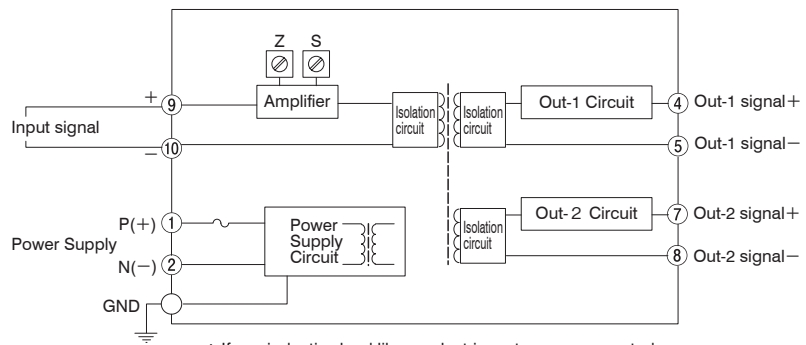
V/mA DC-DC Converter



**OVERVIEW**

This Slim-shaped Plug-in V/mA DC-DC converter, CP3704 functions to convert DC signal or VDC signal into any designated DC signals to generate isolated single or dual output.

**Block Diagram & Terminal Wiring**



\* If any inductive load like an electric motor was connected, a relay contact protection circuit must be used.

**SPECIFICATIONS**

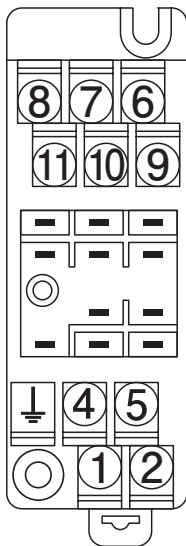
Input:	DC current or mA signal (see ordering code)
Input resistance:	Voltage input: 1MΩmin. (1MΩ when power failure/constant input) Current input: 250Ω
Input tolerable range:	Voltage input: 30V DC
Current input:	40mA DC
Conversion accuracy:	Within ±0.1% at 25±5°C
Conversion output:	DC voltage, current (see ordering code)
Effect against ambient temperature:	±0.2% max. against span of 10°C temperature difference
Maximum output load:	DC voltage: 1V span min. Load current: 2mA max. 10mV span min. Load resistance: 10kΩmin. 100mV span min. Load resistance: 100kΩmin.
	DC current: 4-20mA single output: Load current: 750Ωmax. 4-20mA dual output: Output 1: 550Ωmax., Output 2: 350Ωmax.
Response speed:	80m sec. max. (0-90%) at 100% step input
Conversion output variable range:	zero: Approx. ±5%FS of span (adjustable by "Z" front trimmer) span: Approx. ±5%FS of span (adjustable by "S" front trimmer)
Power supply:	100 - 240V AC ±10% or 24V DC±10%
Power consumption:	5vA max. at 100-240V AC 2W max. at 24V DC
Operating ambient temperature:	-5 - 55°C
Operating ambient humidity:	5 - 90%RH (No dew condensation)
Stock temperature:	-10 - 60°C
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)
External dimensions:	88 (H) x 29 (W) x D125 (H)mm
Weight:	Main body: 120g max. Terminal block: 80g max.



**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS
SERIES	CP3704-	V/mA DC-DC Converter
INPUT	1	0 - 5V DC
	3	0 - 1V DC
	4	0 - 10V DC
	5	1 - 5V DC
	6	4 - 20mA DC
	7	-5 - 5V DC
	8	-10 - 10V DC
	9	Others (Please consult before ordering.)
	OUTPUT 1	1
2		0 - 100mV DC
3		-10 - 10mV DC
4		-100 - 100mV DC
5		1 - 5V DC
6		4 - 20mA DC
7		0 - 5V DC
8		0 - 10V DC
9		Others (Please consult before ordering.)
OUTPUT 2	0	None
	1	0 - 10mV DC
	2	0 - 100mV DC
	3	- 10 - 10mV DC
	4	- 100 - 100mV DC
	5	1 - 5V DC
	6	4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7	0 - 5V DC
	8	0 - 10V DC
9	Others (Please consult before ordering.)	
POWER SUPPLY	90-	100 - 240V AC ±10% 50/60Hz
	08-	24V DC ±10%
REMARKS	0	Without
	9	With (Please consult before ordering.)

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+)	POWER
2	N(-)	POWER
↓	GND	
4	+	OUTPUT 1
5	-	OUTPUT 1
6	N.C	
7	+	OUTPUT 2
8	-	OUTPUT 2
9	+	INPUT
10	-	INPUT
11	N.C	

SOCKET TOP VIEW

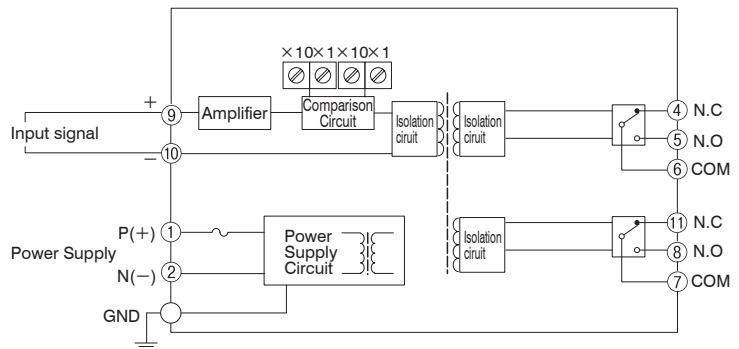
Alarm Setter (Dual Points)



**OVERVIEW**

This Slim-shaped Plug-in Isolated Dual points Alarm Setter, CP3705 functions to generate two independent relay contact ON/OFF outputs by comparing high level DC input signal with two pre-set trip points (higher and lower limits).

**Block Diagram & Terminal Wiring**



\* If any inductive load like an electric motor was connected, a relay contact protection circuit must be used.

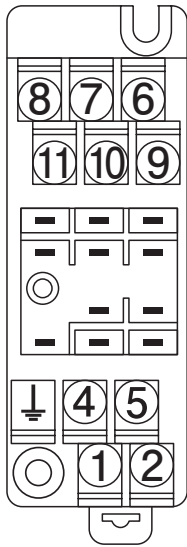
**SPECIFICATIONS**

Input:	DC voltage or DC current (see ordering code)
Input resistance:	Voltage input: 1MΩmin. (1MΩ when power failure/constant input) Current input: 250Ω
Input tolerable range:	Voltage input: 30V DC Current input: 40mA DC
Alarm action method:	High/Low Limit, High/High Limit, Low/Low Limit
Alarm setting method:	By front rotary switch
Alarm setting range:	0 - 99% of input signal
Alarm setting resolution:	1%FS
Alarm setting accuracy:	±0.5%FS
Alarm output:	Relay contact 2 outputs (c contact)
Alarm action hysteresis:	1.0% ±0.3% FS
Contact capacity:	125V AC 5A, resistive load
Conversion accuracy:	Within ±0.1% at 25±5°C
Conversion output:	DC voltage, current (see ordering code)
Input response speed:	150m sec. max. (0-90%) at 100% step input
Limitation of relay action:	Relay starts to action about 2 seconds after the power is turned ON.
Power supply:	100 - 240V AC ±10% or 24V DC±10%
Power consumption:	5vA max. at 100-240V AC 2W max. at 24V DC
Operating ambient temperature:	-5 - 55°C
Operating ambient humidity:	5 - 90%RH (No dew condensation)
Stock temperature:	-10 - 60°C
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)
External dimensions:	88 (H) x 29 (W) x D125 (H)mm
Weight:	Main body: 130g max. Terminal block: 80g max.

**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS
SERIES	CP3705-	Alarm Setter (Dual Points)
INPUT	1	0 - 5V DC
	4	0 - 10V DC
	5	1 - 5V DC
	6	4 - 20mA DC
	9	Others (Please consult before ordering.)
ALARM ACTION	03	High/Low Limit Alarm
	07	Low/Low Limit Alarm
	08	High/High Limit Alarm
POWER SUPPLY	90-	100 - 240V AC ±10% 50/60Hz
	08-	24V DC ±10%
REMARKS	0	Without
	9	With (Please consult before ordering.)

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**

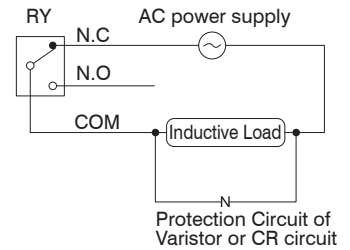


SOCKET TOP VIEW

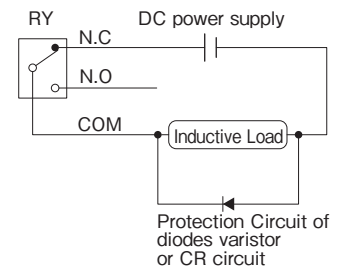
1	P(+)	POWER
2	N(-)	
↓	GND	
4	N.C	OUT 1
5	N.O	OUT 1
6	COM	OUT 1
7	COM	OUT 2
8	N.O	OUT 2
9	+	INPUT
10	-	INPUT
11	N.C	OUT 2

**WIRING EXAMPLE**

●Example of AC power supply connection



●Example of DC power supply connection



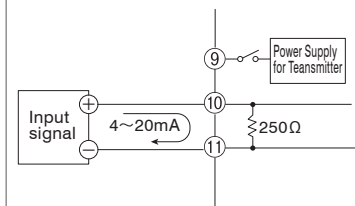
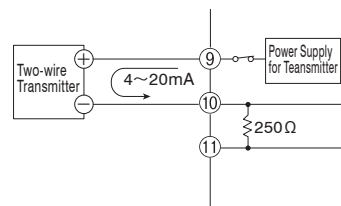
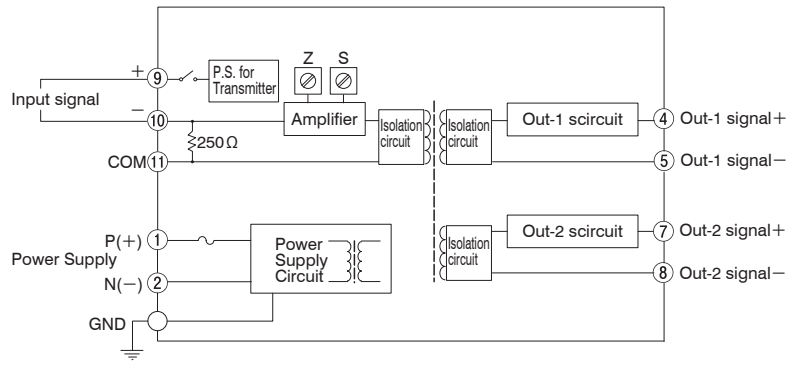
Distributor



**OVERVIEW**

This Slim-shaped Plug-in type Distributor, CP3707 functions to supply power to various types of Two-wire Transmitter and convert 4 - 20mA signal therefrom into any desired DC signal. It can also be used as an isolation device (isolator).

**Block Diagram & Terminal Wiring**



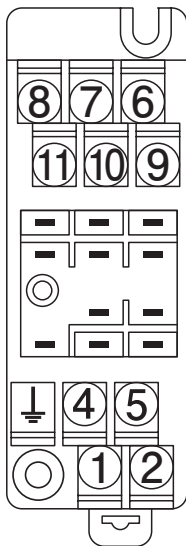
**SPECIFICATIONS**

Input:	4 - 20mA DC, 2-wire type transmitter
Input resistance:	250Ω
Power supply to transmitter:	Output voltage: 28.4V (typical)/at 0% input - 21.6V (typical)/at 100% input Max. current: 22mA (typical)
Maximum current:	25mA DC (typical)
Conversion accuracy:	Within ±0.1% at 25±5°C
Conversion output:	DC voltage, current (see ordering code)
Input response speed:	150m sec. max. (0-90%) at 100% step input
Effect against ambient temperature:	±0.2% max. against span of 10°C temperature difference
Maximum output load:	DC voltage: 1V span min. Load current: 2mA max. 10mV span min. Load resistance: 10kΩmin. 100mV span min. Load resistance: 100kΩmin.
	DC current: 4-20mA Single output: Load current: 750Ωmax. 4-20mA Dual output: Output 1: 550Ωmax./Output 2: 350Ωmax.
Response speed:	80m sec. max. (0-90%) at 100% step input
Conversion output variable range:	zero: Approx. ±5%FS of span (adjustable by "Z" front trimmer) span: Approx. ±5%FS of span (adjustable by "S" front trimmer)
Power supply:	100 - 240V AC ±10% or 24V DC±10%
Power consumption:	5vA max. at 100-240V AC 2W max. at 24V DC
Operating ambient temperature:	-5 - 55°C
Operating ambient humidity:	5 - 90%RH (No dew condensation)
Stock temperature:	-10 - 60°C
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)
External dimensions:	88 (H) x 29 (W) x D125 (H)mm
Weight:	Main body: 130g max. Terminal block: 80g max.

**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS
SERIES	CP3707-	Distributor
OUTPUT 1	1	0 - 10mV DC
	2	0 - 100mV DC
	3	-10 - 10mV DC
	4	-100 - 100mV DC
	5	1 - 5V DC
	6	4 - 20mA DC
	7	0 - 5V DC
	8	0 - 10V DC
	9	Others (Please consult before ordering.)
OUTPUT 2	0	None
	1	0 - 10mV DC
	2	0 - 100mV DC
	3	- 10 - 10mV DC
	4	- 100 - 100mV DC
	5	1 - 5V DC
	6	4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7	0 - 5V DC
	8	0 - 10V DC
9	Others (Please consult before ordering.)	
POWER SUPPLY	90-	100 - 240V AC ±10% 50/60Hz
	08-	24V DC ±10%
REMARKS	0	Without
	9	With (Please consult before ordering.)

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+) POWER
2	N(-) POWER
↓	GND
4	+ OUTPUT 1
5	- OUTPUT 1
6	N.C
7	+ OUTPUT 2
8	- OUTPUT 2
9	+ INPUT
10	- INPUT
11	COM

SOCKET TOP VIEW

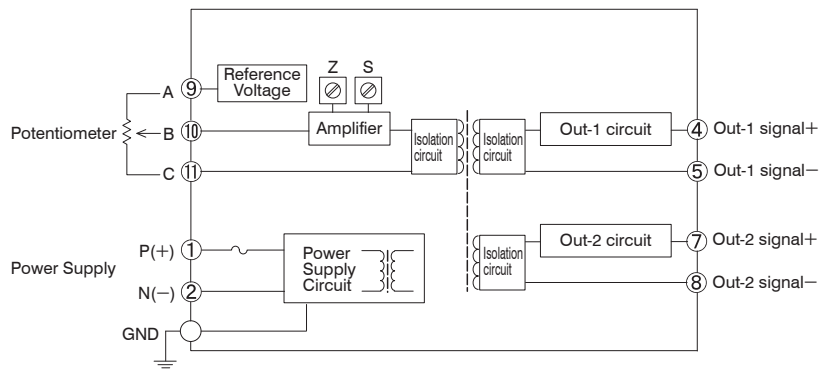
Potentiometer Converter



**OVERVIEW**

This Slim-shaped Plug-in type Potentiometer, CP3710 functions to detect the variation of resistance value of Potentiometer (slide rheostat) type sensor and convert same into any desired isolated No.1 and No. 2 (dual) DC output.

**Block Diagram & Terminal Wiring**



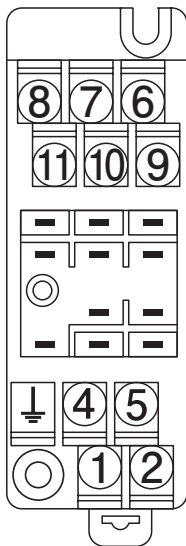
**SPECIFICATIONS**

Input:	Potentiometer (3 wire system)	
Input resistance range:	Within 0 - 100Ω and 0 - 10kΩ	
Allowable input lead wire resistance:	10% (per wire) FS max. of total resistance. (Resistance of each wire should be identical)	
Conversion accuracy:	Within ±0.2% at 25±5°C	
Conversion output:	DC voltage, current (see ordering code)	
Effect against ambient temperature:	±0.2% max. against span of 10°C temperature difference	
Maximum output load:	DC voltage:	1V span min. Load current: 2mA max. 10mV span min. Load resistance: 10kΩmin. 100mV span min. Load resistance: 100kΩmin.
	DC current:	4-20mA Single output: Load current: 750Ωmax. 4-20mA Dual output: Output 1: 550Ωmax./Output 2: 350Ωmax.
Response speed:	170m sec. max. (0-90%) at 100% step input	
Conversion output variable range:	zero: Approx. 0 - 50%FS of input span (adjustable by "Z" front trimmer) span: Approx. 50 - 100%FS of input span (adjustable by "S" front trimmer)	
Power supply:	100 - 240V AC ±10% or 24V DC±10%	
Power consumption:	5.5vA max. at 100-240V AC 2W max. at 24V DC	
Operating ambient temperature:	-5 - 55°C	
Operating ambient humidity:	5 - 90%RH (No dew condensation)	
Stock temperature:	-10 - 60°C	
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals	
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2	
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)	
External dimensions:	88 (H) x 29 (W) x D125 (H)mm	
Weight:	Main body: 130g max. Terminal block: 80g max.	

**ORDERING INFORMATION**

ITEMS	CODE	SPECIFICATIONS
SERIES	CP3710-	Potentiometer Converter
OUTPUT 1	1	0 - 10mV DC
	2	0 - 100mV DC
	3	-10 - 10mV DC
	4	-100 - 100mV DC
	5	1 - 5V DC
	6	4 - 20mA DC
	7	0 - 5V DC
	8	0 - 10V DC
	9	Others (Please consult before ordering.)
OUTPUT 2	0	None
	1	0 - 10mV DC
	2	0 - 100mV DC
	3	- 10 - 10mV DC
	4	- 100 - 100mV DC
	5	1 - 5V DC
	6	4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7	0 - 5V DC
	8	0 - 10V DC
9	Others (Please consult before ordering.)	
POWER SUPPLY	90-	100 - 240V AC ±10% 50/60Hz
	08-	24V DC ±10%
REMARKS	0	Without
	9	With (Please consult before ordering.)

**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+) POWER
2	N(-) POWER
↓	GND
4	+ OUTPUT 1
5	- OUTPUT 1
6	N.C
7	+ OUTPUT 2
8	- OUTPUT 2
9	A POT
10	B POT
11	C POT

SOCKET TOP VIEW

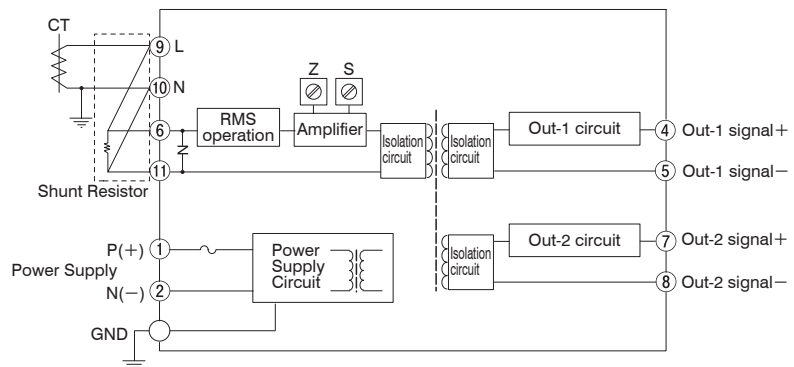
CT Converter



**OVERVIEW**

This Slim-shaped Plug-in type CT Converter, CP3720 performs RMS operation of AC signal and A/D conversion thereof to generate isolated No. 1 and No. 2 outputs.

**Block Diagram & Terminal Wiring**



**SPECIFICATIONS**

Input:	AC current by CT output	
Input resistance:	2MΩ(shunt resistor) at 5A AC input 10MΩ(shunt resistor) at 1A AC input	
Input frequency:	50/60Hz	
Allowable input current:	Continuous, 120% of rated input value Instantaneous, 10 times rated input value (3 sec.)	
Crest factor:	3 max.	
Conversion accuracy:	±0.25% FS in range higher than 10% of span at 25±5°C	
Conversion output:	DC voltage, current (see ordering code)	
Effect against ambient temperature:	±0.2% max. against span of 10°C temperature difference	
Maximum output load:	DC voltage:	1V span min. Load current: 2mA max. 10mV span min. Load resistance: 10kΩmin. 100mV span min. Load resistance: 100kΩmin.
	DC current:	4-20mA Single output: Load current: 750Ωmax. 4-20mA Dual output: Output 1: 550Ωmax./Output 2: 350Ωmax.
Response speed:	400m sec. max. (0-90%) at 100% step input	
Conversion output variable range:	zero: Approx. ±5% of span (adjustable by "Z" front trimmer) span: Approx. ±5% of span (adjustable by "S" front trimmer)	
Power supply:	100 - 240V AC ±10% or 24V DC±10%	
Power consumption:	5.5vA max. at 100-240V AC 2W max. at 24V DC	
Operating ambient temperature:	-5 - 55°C	
Operating ambient humidity:	5 - 90%RH (No dew condensation)	
Stock temperature:	-10 - 60°C	
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals	
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2	
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)	
External dimensions:	88 (H) x 29 (W) x D125 (H)mm	
Weight:	Main body: 130g max. Terminal block: 80g max.	





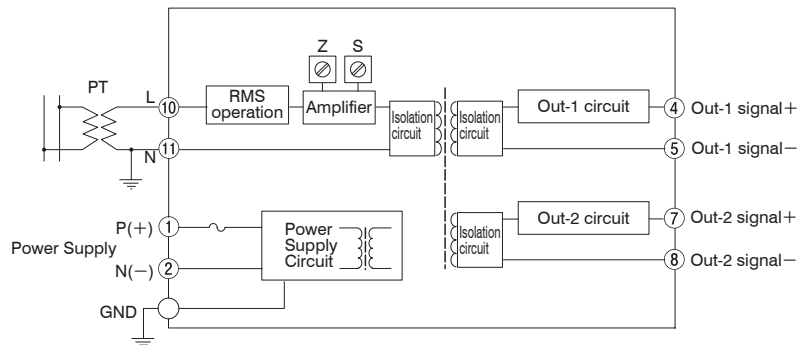
PT Converter



**OVERVIEW**

This Slim-shaped Plug-in Signal transmitter, CP3701 functions to convert thermocouple input signals into any desired AC signals to generate isolated dual output.

**Block Diagram & Terminal Wiring**



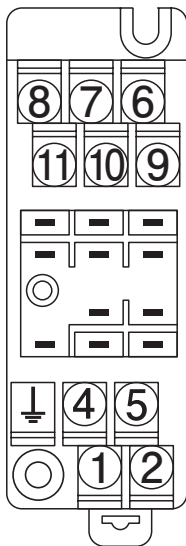
**SPECIFICATIONS**

Input:	AC voltage
Input resistance:	1MΩmin. (1MΩ minimum without power)
Input frequency:	50/60Hz
Allowable input current:	Continuous, 120% of rated input value Instantaneous, 1.5 times rated input value (5 sec.)
Crest factor:	3 max.
Conversion accuracy:	±0.25% FS in range higher than 10% of span at 25±5°C
Conversion output:	DC voltage, current (see ordering code)
Effect against ambient temperature:	±0.2% max. against span of 10°C temperature difference
Maximum output load:	DC voltage: 1V span min. Load current: 2mA max. 10mV span min. Load resistance: 10kΩmin. 100mV span min. Load resistance: 100kΩmin.
	DC current: 4-20mA Single output: Load current: 750Qmax. 4-20mA Dual output: Output 1: 550Qmax./Output 2: 350Qmax.
Response speed:	400m sec. max. (0-90%) at 100% step input
Conversion output variable range:	zero: Approx. ±5% of span (adjustable by "Z" front trimmer) span: Approx. ±5% of span (adjustable by "S" front trimmer)
Power supply:	100 - 240V AC ±10% or 24V DC±10%
Power consumption:	5.5vA max. at 100-240V AC 2W max. at 24V DC
Operating ambient temperature:	-5 - 55°C
Operating ambient humidity:	5 - 90%RH (No dew condensation)
Stock temperature:	-10 - 60°C
Isolation resistance:	100M Ω min. at 500V DC, between input, out 1, out 2, power supply and ground terminals
Dielectric strength:	1 minutes at 2000V AC, between input, out 1, out 2, power supply and ground terminals 1 minutes at 500V AC, between out 1 and out 2
Materials:	Housing: ABS resin (UL94V-0) Terminal block: PBT resin (UL94V-0) Terminal block cover: PC resin (UL94V-2) Din-rail stopper: PP resin (UL94-HB)
External dimensions:	88 (H) x 29 (W) x D125 (H)mm
Weight:	Main body: 130g max. Terminal block: 80g max.

**ORDERING INFORMATION**

ITEMS	CODE		SPECIFICATIONS
SERIES	CP3721-		PT Converter
INPUT	01		0 - 110V AC, 50/60Hz
	02		0 - 150V AC, 50/60Hz
	04		0 - 250V AC, 50/60Hz
	99		Others (Please consult before ordering.)
OUTPUT 1	1		0 - 10mV DC
	2		0 - 100mV DC
	3		-10 - 10mV DC
	4		-100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC
	7		0 - 5V DC
	8		0 - 10V DC
	9		Others (Please consult before ordering.)
OUTPUT 2	0		None
	1		0 - 10mV DC
	2		0 - 100mV DC
	3		- 10 - 10mV DC
	4		- 100 - 100mV DC
	5		1 - 5V DC
	6		4 - 20mA DC * Note: Available only when output 1 (4 - 20mA DC) is selected.
	7		0 - 5V DC
	8		0 - 10V DC
9		Others (Please consult before ordering.)	
POWER SUPPLY	90-		100 - 240V AC ±10% 50/60Hz
	08-		24V DC ±10%
REMARKS	0		Without
	9		With (Please consult before ordering.)

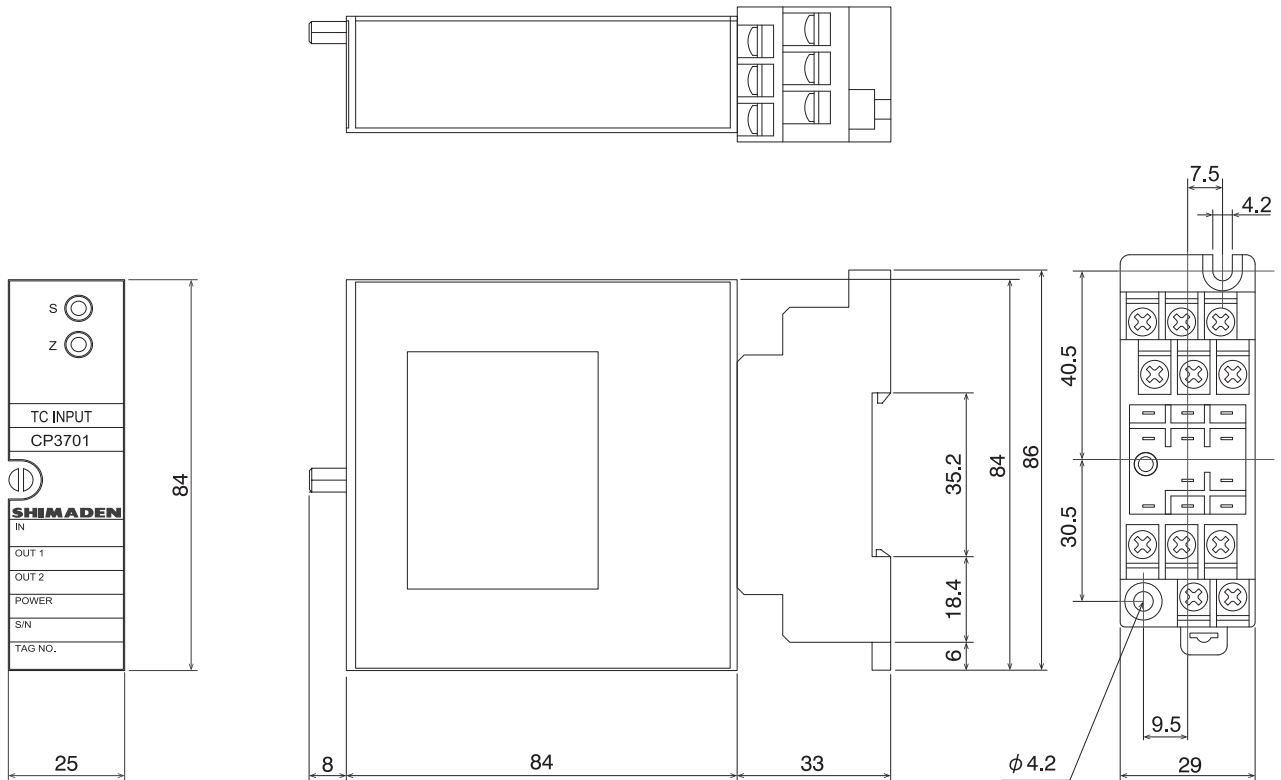
**TERMINAL ARRANGEMENT / SIGNAL ASSIGNMENT**



1	P(+)	POWER
2	N(-)	POWER
↓	GND	
4	+	OUTPUT 1
5	-	OUTPUT 1
6	N.C	
7	+	OUTPUT 2
8	-	OUTPUT 2
9	N.C	
10	L	INPUT
11	N	INPUT

SOCKET TOP VIEW

## EXTERNAL DIMENSIONS



Unit : mm

### Warning

- \* The T71A/H71A/TH71A 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.



The contents of this manual are subject to change without notice.

Temperature and Humidity Control Specialists  
**SHIMADEN CO., LTD.**

Head Office: 2-30-10 Kitamachi, Nerima-ku, Tokyo 179-0081 Japan  
 Phone: +81-3-3931-7891 Fax: +81-3-3931-3089  
 E-MAIL: exp-dept@shimaden.co.jp URL: <http://www.shimaden.co.jp>