

The best for controlling carburizing furnace !

**NEW**

# CP970 Computing unit

CP970 computing unit calculates CP (carbon potential) value using O<sub>2</sub> (3-input including temperature and CO) or CO<sub>2</sub> (3-input including temperature and CO) and outputs its result.



## Simultaneously measures CP calculation value

The unit can calculate CP value from O<sub>2</sub> or CO<sub>2</sub> at the same time.

## Deviation alarm output of CP calculation value

Deviation of CP values from O<sub>2</sub> and CO<sub>2</sub> can be calculated and outputs as an alarm.

## Easy setting and operation

Complicated CP value calculation made effortless by easy-read display and simple operation.

## Input specifications

Input signals	Temperature input	0 to 1200°C (K thermocouple) 0 to 1300°C (N thermocouple) 0 to 1700°C (R thermocouple) 0 to 1700°C (S thermocouple)
	CO input	1 to 5V DC (0.00 to 50.00%)
	O <sub>2</sub> input	0 to 1500mV DC
	CO <sub>2</sub> input	1 to 5V DC (0.000 to 5.000%, setting change of scale upper limit is possible)
Input isolation	Without isolation between CO input and CO <sub>2</sub> input Isolation between O <sub>2</sub> input and other input	
Sampling period	2 seconds or less	
Burn-out	Thermocouple input	Upper limit Scale out
	CO, O <sub>2</sub> , and CO <sub>2</sub> input	None
Rated measuring accuracy	Thermocouple input	±0.2% ±1 digit for temperature range (in the standard operation condition)
	O <sub>2</sub> input	±0.1% ±1 digit for 0 to 1500mV DC
	CO, CO <sub>2</sub> input	±0.1% ±1 digit for 1 to 5V DC
Reference junction compensation accuracy	±0.5°C or equivalent value of 20μV, whichever is greater. (Ambient temperature: 23°C±10°C)	
	±1.5°C or equivalent value of 60μV, whichever is greater. (-10 to 50°C)	
Input resistance	Temperature, CO, CO <sub>2</sub> input	1MΩ or more
	O <sub>2</sub> input	20MΩ or more
Allowable signal source resistance	Temperature, CO, CO <sub>2</sub> input	100Ω or less
	O <sub>2</sub> input	30kΩ or less

## Output specifications

Output points	3 points	
Output signal	Output 1	1 to 5V DC
	Output 2	1 to 5V DC
	Output 3	0 to 10mV DC
Output types	Function 1	O <sub>2</sub> CP value/temperature/EMF
	Function 2	CO <sub>2</sub> CP value/temperature
	Function 3	O <sub>2</sub> CP value/CO <sub>2</sub> CP value/temperature/EMF
Output scale	Available to set each computation method	
	O <sub>2</sub> CP value	0.000 to 2.000
	CO <sub>2</sub> CP value	0.000 to 2.000
	Temperature	0 to 1200 (K thermocouple) 0 to 1300 (N thermocouple) 0 to 1700 (R thermocouple) 0 to 1700 (S thermocouple)
	EMF	0 to 1500
Load	2mA max.	
Output update period	Less than 2 seconds at 3 points	
Output resolution	About 1/10000	
Output accuracy	Output 1	±0.1% (for indication value)
	Output 2	±0.3% (for indication value)
	Output 3	±0.3% (for indication value)

Isolation	Isolate between each input and output, do not isolate among outputs	
First order leg computation	Available to set first order leg computation of output (Initial value 5 seconds)	

## Alarm specifications

Alarm points	2 points	
Alarm types	Impedance abnormality, CP deviation abnormality	
Contact capacity	Resistive load	100 to 240VAC 30VDC, 3A or less
	Inductive load	100 to 200VAC 30VDC, 1.5A or less
	Minimum load	5VDC 100mA or more
Electrical life duration	About more than 100,000 times	

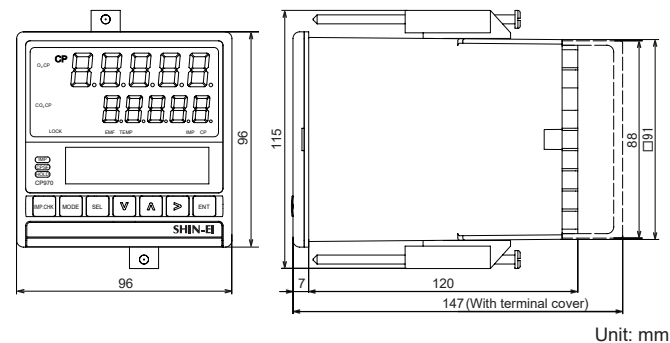
## Remote contact input specifications

Input points	3 points (Non-voltage contacts or transistor open collector)	
External contact capacity	5V DC, 2mA or more	
Functions	Impedance check, CP value shift, CP value hold	

## General specifications

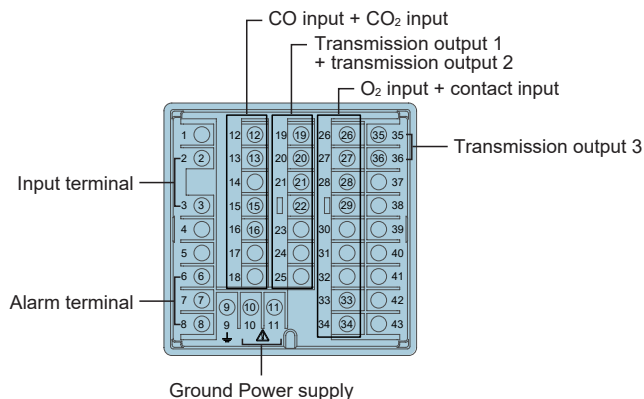
Rated power voltage	100V to 240V AC 50/60Hz free
Allowable power voltage	90 to 264V AC
Working temperature range	-10 to 50°C (Maximum 40°C during closed instrumentation)
Working humidity range	10 to 90%RH (no dew condensation)
Power failure protection	Settings are stored by EEPROM (number of rewriting less than 1,000,000 times)
Power consumption	Maximum 20VA
Case assemble material	Nonflammable polycarbonate
Color	Grey
Mounting	Panel mounting type
Weight	About 580g

## External dimensions

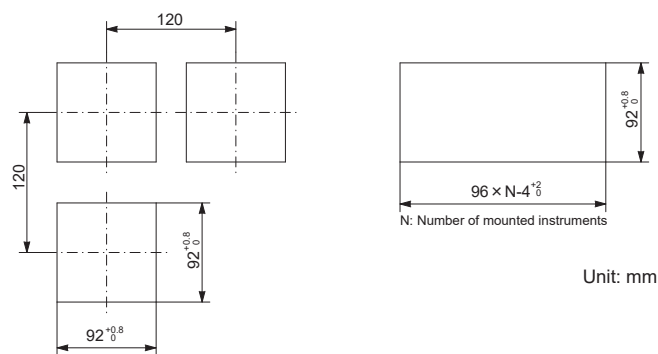


Unit: mm

## Terminal board diagram



## Panel cutout



Unit: mm

## ⚠ Safety Precautions

- This product is designed and manufactured as a general industrial product.
- Read the instruction manual carefully before installing, connecting, and using this product and use it accordingly.
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