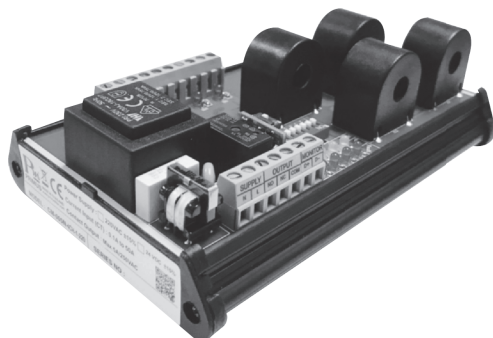




Specification

Power Supply		220VAC $\pm 15\%$ 50/60Hz
		24 VDC/VAC $\pm 15\%$
Power Consumption		8 VA
Display	Power Supply	1 LED
	Heater Status	4 LED Normal, 4 LED Fault
	Input Signal	4 LED Input, 1 LED Reset
	Alarm Relay	1 LED
	Communication	1 LED (Blink when communication success)
Input	Current (Direct)	4 Channel, 0.1 to 50.0A
	Accuracy	$\pm 0.5\%$ fs + 1dgt
	Control Input	4 Channel, 1 Heater / 1 Channel
	Input Type	140-250 VAC, 10-30 VDC
Output	Relay Alarm	1 Alarm Relay SPDT, 5A 250VAC
Monitor Panel		RS-485 for Display value on CM-005D
Communi- cation	Protocol	Modbus RTU
	Baud Rate	4800, 9600, 19200, 38400 bps
	Parity	None, Odd, Even
	Stop Bits	1, 2
	Data Bits	8 Bits
	Address	1-127
Ambient Operation	Temperature	-10°C to 60°C
	Humidity	85 % RH Non-Condensing
Ambient Storage	Temperature	-20°C to 80°C
	Humidity	85 % RH Non-Condensing
Protection Degree		None, Odd, Even
Material		ABS-V0
Installation		DIN RAIL Mounting
Size (mm.)		100 x 160 x 65
Weight (kg.)		375

Description

- Heater Break Alarm CM-005N-4CH is a device for checking multiple heater breaks simultaneously.
- Helps prevent product damage caused by heaters not operating completely.
- Can monitor heater current up to 50 A for up to 4 heaters.
- Easy installation by routing the heater wires through the CT to the heater (built-in 50 A CT).
- Equipped with an alarm output relay to provide alerts when a heater break or heater short occurs.
- Provides 4 inputs (1 input / 1 heater), selectable for either 140–250 VAC or 10–30 VDC.
- Supports RS-485 Modbus RTU protocol communication.
- LED indicators show the status of each heater.

Operation

CM-005N-4CH is a device for detecting heater abnormalities (Heater Break and Heater Short). It can monitor up to 4 heaters simultaneously and is suitable for temperature controllers that control multiple heaters and require heater break detection. The CM-005N-4CH has 4 input channels that operate independently of each other.

The inputs of the CM-005N-4CH are connected to the outputs of the temperature controller and operate in coordination. When the output of the temperature controller is active, the CM-005N-4CH checks the current of each heater.

If any heater has no current, it indicates a Heater Break, causing the Fault LED of that heater to turn on continuously. Under normal operation, the LED remains off.

In the case where the solid state relay has a short circuit or the contacts of the magnetic contactor are welded together, causing the heater to operate continuously while the output of the temperature controller is not operating, the Fault LED of that heater will operate by flashing every 1 second.

The alarm relay output operates in both conditions (Heater Break and Short Circuit) to notify operators. The Fault LED and the alarm relay output will stop operating after a reset or when normal operation resumes.

The CM-005N-4CH can be used together with the CM-005DN to display the current value of each heater, indicate heater fault status, and show alarm output via LEDs on the control panel or electrical cabinet. It can also communicate with a computer via the RS-485 Modbus RTU protocol to display the current values of each heater or to perform data logging.

Operation Graph

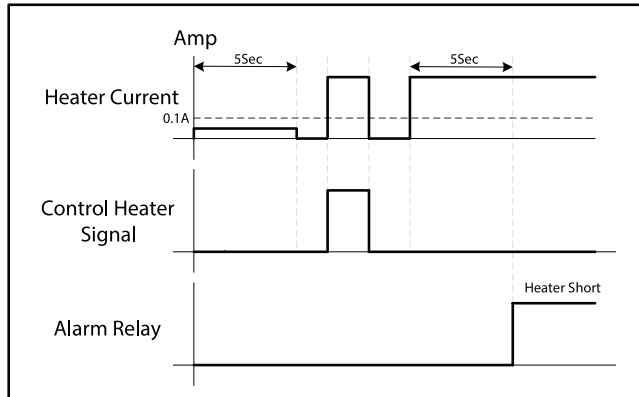


Fig1. Shows the operation during Heater Break incident.

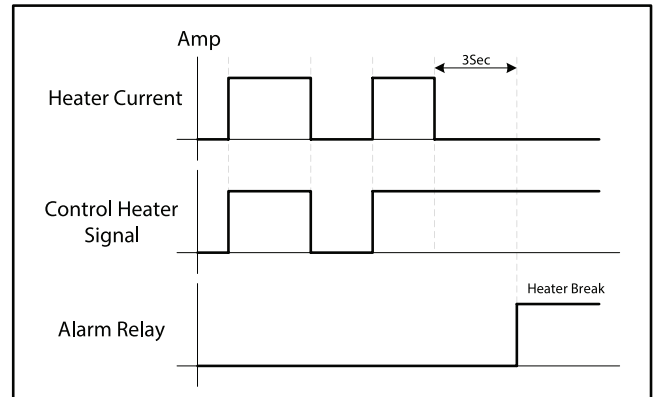


Fig2. Shows the operation during Heater Break incident.

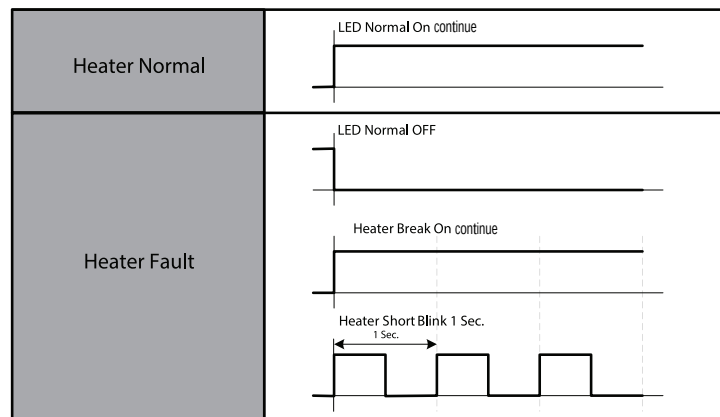


Fig3. Shows the operation of LED Status

Communication Setting

The CM-005N-4CH can read various measured parameter data in real time via the Modbus RTU RS-485 protocol.

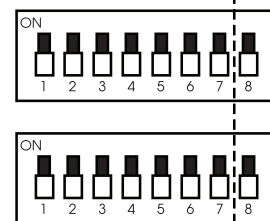
Address Setting

First of 7 bits will be Address Selector and last bit will be Stop Bit Selector.

Address Selector

- 1 ON = 1
- 2 ON = 2
- 3 ON = 4
- 4 ON = 8
- 5 ON = 16
- 6 ON = 32
- 7 ON = 64

Stop Bit Selector



Ex. Address = 1+2 = 3
Stop Bit = 0 = 1 Stop Bit

Stop Bit Selector

- 0 = 1 Stop Bit
- 1 = 2 Stop Bits

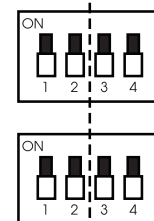
Communication Setting

First of 2 bits will be Baud Rate Selector and last 2 bits will be Parity Selector.

Baud Rate Selector

- 0 = 4800 bps
- 1 = 9600 bps
- 2 = 19200 bps
- 3 = 38400 bps

Parity Selector

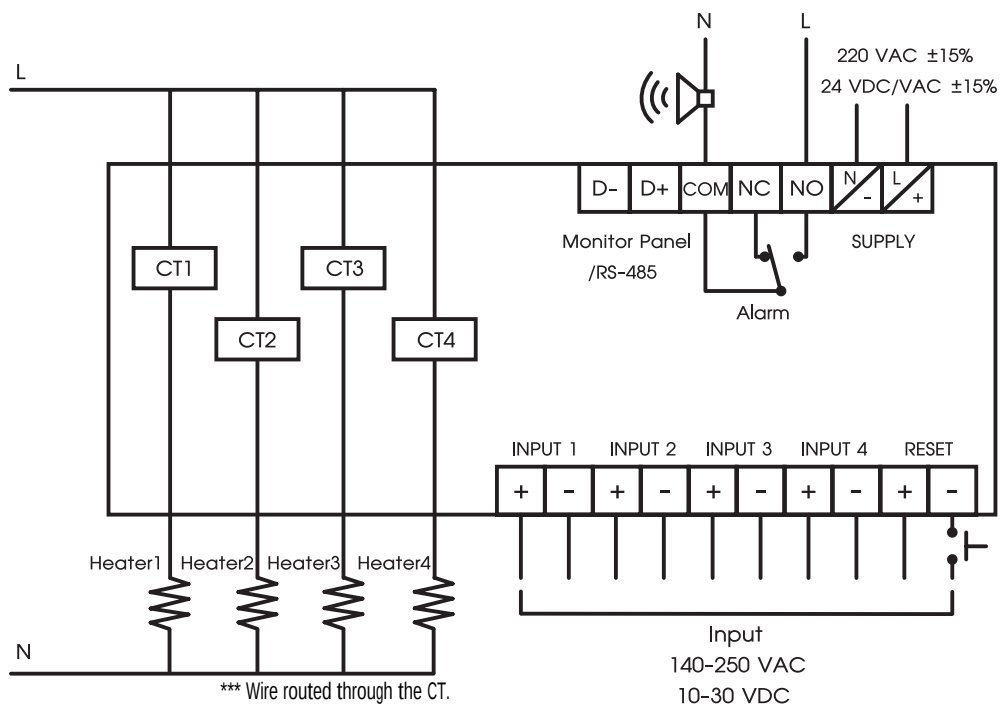


Ex. Baud Rate = 1 = 9600 bps
Parity = 0 = None

Parity Selector

- 0 = None
- 1 = Odd
- 2 = Even

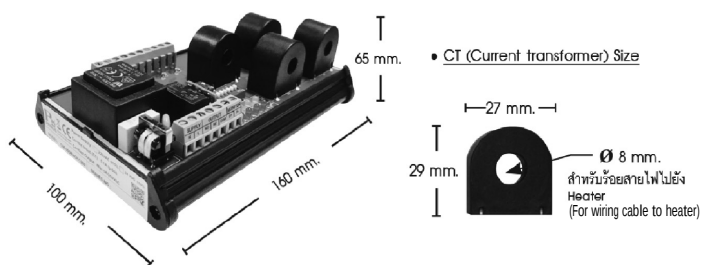
Wiring Diagram



WARNING

- Make sure the correct wiring connection before turning on electricity. Mis-wiring may cause malfunction of the unit and fire.
- Never modify the unit to prevent damage or incident such as malfunction and fire etc.

Dimension



Ordering Code

