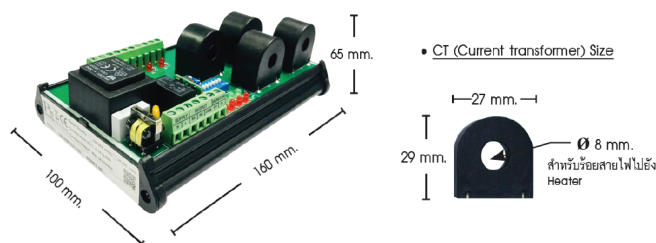




TECHNICAL SPECIFICATION

Power Supply		220 VAC ±15% 50/60 Hz
		24 VDC/VAC ±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	±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 250 VAC
Monitor Panel		RS-485 for Display value on CM-005D
Communication	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		100 x 160 x 65 mm.
Weight		375 g.

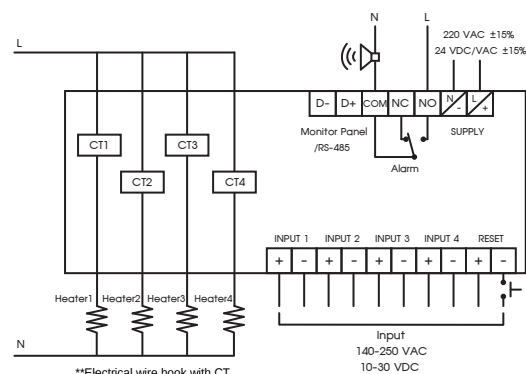
DIMENSION



DESCRIPTION

- CM-005N-4CH is device for checking Heater Break.
- Can check Heater current at 50A maximum 4 devices.
- Easy to install by wiring cable via CT to Heater (CT 50 A inside).
- Alarm output relay notice when heater break or heater short.
- LED shows Heater status of each device.
- 4 Input (1 input / 1 heater) by can choose 140-250 VAC and 10-30 VDC.
- Communication port RS-485 MODBUS RTU PROTOCOL

WIRING DIAGRAM



- 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.

GENERAL DESCRIPTION

CM-005N-4CH for check irregular condition of heater. It can check maximum 4 device in one time suit for Temperature Controller that command several heater and need to check heater and require to check heater break by CM-005N-4CH has Input 4 Channel isolate operation.

Input of CM-005N-4CH will connect to Output of Temperature Controller will operate relate to each other when Output of Temperature Controller operate CM-005N-4CH will check current in each heater if one of heater has no current. It means heater break. LED (Fault) at heater turn on and LED (Normal) turn off or in case heater operate all the time because Solid state relay has short circuit or contact of Magnetic Arc. stick together while output of temperature controller is not operating (Heater Short) made LED (Fault) at Heater operate (LED flash every 1 second) and LED (Normal) turn off with Alarm relay output operate to notice staff by LED (Fault) and Alarm relay will stop operation when Reset but if heater has normal current LED (normal) will turn on until there are irregular condition of heater.

CM-005N-4CH can connect with CM-005DN for display heater current of each device by show status of irregular condition of heater and Alarm output by LED at panel front of control cabinet, electrical cabinet, etc. and can communicate with computer via port RS-485 MODBUS RTU PROTOCOL to show heater current of each heater or save data to Data Logger.

ORDERING CODE

CM-005N-4CH- [] - []		INPUT		SUPPLY	
1	140-250 VAC	220	220 VAC $\pm 15\%$	24	24 VDC/VAC $\pm 15\%$
2	10-30 VDC				



CM-005N-4CH

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Operation graph

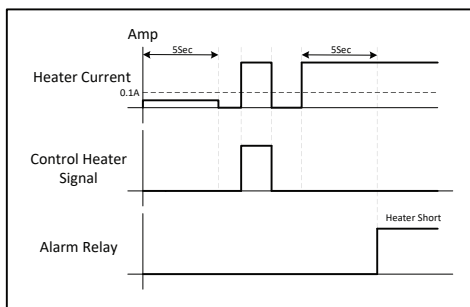


Fig1. Show operation when there are Heater Short

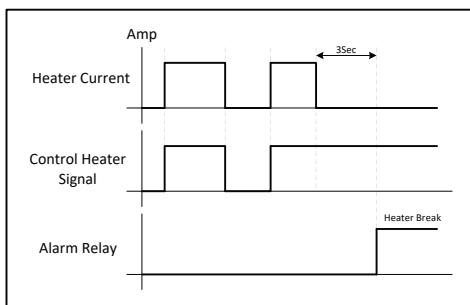


Fig2. Show operation when there are Heater Break

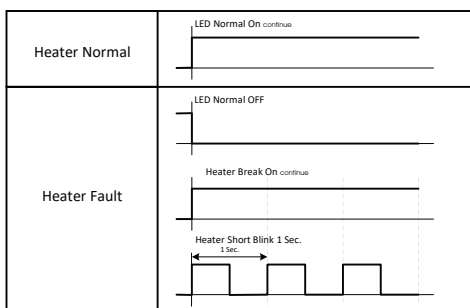


Fig3. Show operation of LED Status.

SERIAL COMMUNICATION

CM-005N-4CH can read Parameter data that measured in Real time by Protocol

Modbus RTU RS-485 system.

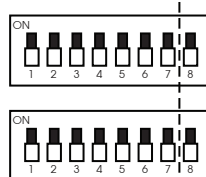
Address Setting

First 7 bits will be Address Selector and last 1 bit is 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

Address Selector Stop Bit Selector



Stop Bit Selector

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

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

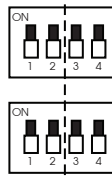
Communication Setting

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

Baud Rate Selector

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

Baud Rate Selector Parity Selector



Parity Selector

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

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

Modbus Function Code

Code	Name	Meaning
01	ILLEGAL FUNCTION	The function code received in the query is not an allowable action for the server (or slave).
02	ILLEGAL DATA ADDRESS	The data address received in the data field is not an allowable value for the server (or slave).
03	ILLEGAL DATA VALUE	A value contained in the query data field is not an allowable value for serves (or slave)

Modbus Table

Address	Reg Description	Format	Word	Access
0	Ch1 Status (0 = Normal, 1 = Heater Break, 2 = Heater Short, 3 = Standby)	Signed int	1	Read only
1	Ch2 Status (0 = Normal, 1 = Heater Break, 2 = Heater Short, 3 = Standby)	Signed int	1	Read only
2	Ch3 Status (0 = Normal, 1 = Heater Break, 2 = Heater Short, 3 = Standby)	Signed int	1	Read only
3	Ch4 Status (0 = Normal, 1 = Heater Break, 2 = Heater Short, 3 = Standby)	Signed int	1	Read only
4	Ch1 Current 0 to 5100 (5100 = 51.00 A)	Signed int	1	Read only
5	Ch2 Current 0 to 5100 (5100 = 51.00 A)	Signed int	1	Read only
6	Ch3 Current 0 to 5100 (5100 = 51.00 A)	Signed int	1	Read only
7	Ch4 Current 0 to 5100 (5100 = 51.00 A)	Signed int	1	Read only
8	Input1 (0 = No Signal, 1 = Operate)	Signed int	1	Read only
9	Input2 (0 = No Signal, 1 = Operate)	Signed int	1	Read only
10	Input Reset (0 = Not Reset, 1 = Reset Push)	Signed int	1	Read only
11	Alarm Status (0 = Normal, 1 = Alarm Fault)	Signed int	1	Read only
12	Remote Reset (0 = Not Reset, 1 = Reset Push)	Signed int	1	R/W
13	Remote Alarm (When write by Modbus 0 = Force Alarm OFF, 1 = Force Alarm ON , Can Clear reg. by hardware or Modbus)	Signed int	1	R/W
14	Input3 (0 = NoSignal, 1 = Operate)	Signed int	1	Read only
15	Input4 (0 = NoSignal, 1 = Operate)	Signed int	1	Read only
16	Ch1 Heater Break Value 10 to 5100 (5100 = 51.00A)	Signed int	1	R/W
17	Ch2 Heater Break Value 10 to 5100 (5100 = 51.00A)	Signed int	1	R/W
18	Ch3 Heater Break Value 10 to 5100 (5100 = 51.00A)	Signed int	1	R/W
19	Ch4 Heater Break Value 10 to 5100 (5100 = 51.00A)	Signed int	1	R/W

Modbus Function Code

Function	Operation	Broadcast
0x03	Read Holding Registers	Yes
0x04	Read Multiple Registers	Yes
0x06	Preset Single Registers	Yes



CM-005N-4CH

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