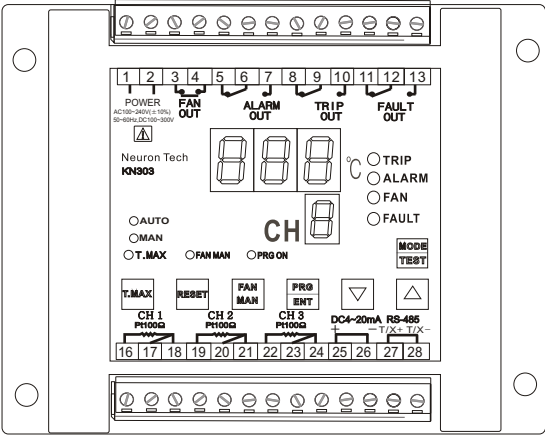


# TEMPERATURE CONTROLLER

## USER MANUAL (KN303)



Neuron Tech

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## Caution for Safety

- Caution for safety, aims at securing safety of user and preventing accident or danger in advance by using it safely, so read and follow it well.
- Caution matters are divided into 'warning' and 'caution' whose meanings are as follows



**WARNING**

Violating instruction may cause serious damage or death



**CAUTION**

Violating instruction may cause injury product damage or material loss.



**WARNING**

### 1. power

- 1) use it within rated voltage in order to protect equipment and prevent and prevent trouble.
- 2) In order to prevent electric shock and equipment damage when installing equipment check wiring after finishing wiring and then input power.
- 3) use standard wiring and terminal for connecting power. this can cause electric shock and fire.

### 2. caution for operation

- 1) If abnormality of this equipment is related to serious accident, it is recommended to install protection device in addition.
- 2) Do not use this equipment in the gas (This is not explosion-proof structure). If this equipment is exposed to gas do not operate power switch and so on but operate and it when it is safe after venting the space.
- 3) Do not use in the place with chemical materials, There is danger of electric leakage and electric shock.
- 4) Do not touch or loosen terminal when there is applied It can cause electric shock or mal-operation.
- 5) Do not touch the product when there is water around or when body is wet. There is danger of electric shock.
- 6) Do not install the equipment in the place where children can touch the equipment.

### 3. Caution for wiring and maintenance

- 1) Perform wiring for this equipment exactly into relevant number as show in the instruction manual or terminal instruction. (Tighten terminal bolt firmly) mal-wiring can cause equipment damage, mal-operation of fire.
- 2) Perform repair or assembling after turning off external power switch and interrupting external circuit power. It can cause electric shock or trouble.
- 3) Never disassemble reform or repair equipment It cause electric shock fire product damage mal-operation or trouble.
- 4) Replace sensor after turning off power by all means. It can cause electric shock. Fire product damage mal-operation or trouble.
- 5) The components of this equipment have life period and include year-passing components There is 1 year of guarantee period from purchasing date. However. Trouble due to customer mistake and natural disaster is excluded.



## CAUTION

### 1. Caution for attachment and wiring

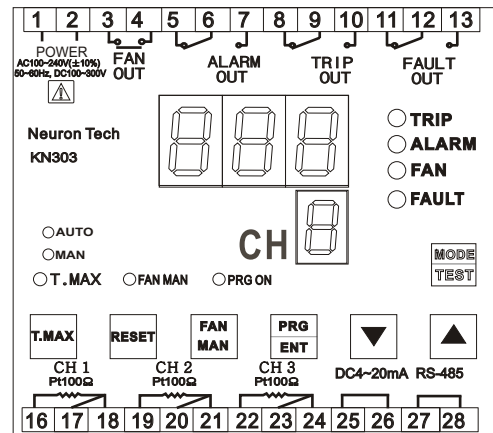
- 1) Fix the equipment firmly with the fixing device (included during shipment below and above the equipment when attaching equipment).
- 2) If there is severe induction noise in the power, it is recommended to use insulation transformer and noise removal circuit.
- 3) Twisted wiring of power line is effective for noise.
- 4) If water enters, receive checking by all means.
- 5) Use lead wire which has low resistance and is non-combustible.
- 6) Use output and input signal lines by separating them by all means. Use shield wire for input signal wire and be away from load or high voltage.
- 7) Use sensor of non-grounding type.

### 2. Caution for handling

- 1) When operation output relay frequently by connecting load without allowance in rating, relay life can be shorter than rating, so use it by adding relay to outside. \*Electric life of relay -- About 100,000 times (under rated load)
- 2) Make each setting exactly and check abnormality in input and output.
- 3) If sensor is single or short, it is displayed "FUL".  
Turn off voltage by all means when replacing sensor at this time.  
It can cause trouble and mal-operation.
- 4) Do not drop this product nor give shock to this product. It can cause trouble or mal-operation.
- 5) Do not wipe the product with organic solvent. It can cause damage in appearance.
- 6) Avoid use in the following conditions:
  - : In the place where surrounding temperature and humidity exceed the temperature and humidity scope in usage condition.
  - : In the place exposed to combustible gas or corrosive gas.
  - : In the place where there is much oil, water, steam, iron, or salt.
  - : In the place which is not waterproof structure exposed to outside water or rain.
  - : In the place directly exposed to direct sunshine.
  - : In the place where freezing phenomenon takes due to severe change of temperature and humidity.

# KN303 DIGITAL TEMPERATURE CONTROLLER

- Free voltage  
(AC100~240V(±10%) 50~60Hz, DC 100~300V)
- 3 sensor input(Pt100Ω)
- Operation setting function for each channel(run/stop)  
caution:"stop" selected channel is not displayed.
- Program type function  
(Setting value)
- Temp, max storage function for each channel
- Data storage function
- Fan auto / manual function
- Test function for each input channel
- Channels scanning  
SCAN : ch1-2-3 scanning( 2~9 sec)  
AUTO :automatic hottest scanning  
MAN :manual function
- Scan time setting function(2~10 sec)
- Outputs delay time setting function  
Fan ( 0.1~6.0 sec)  
Alarm, Trip ( 0.5~10.0 sec)



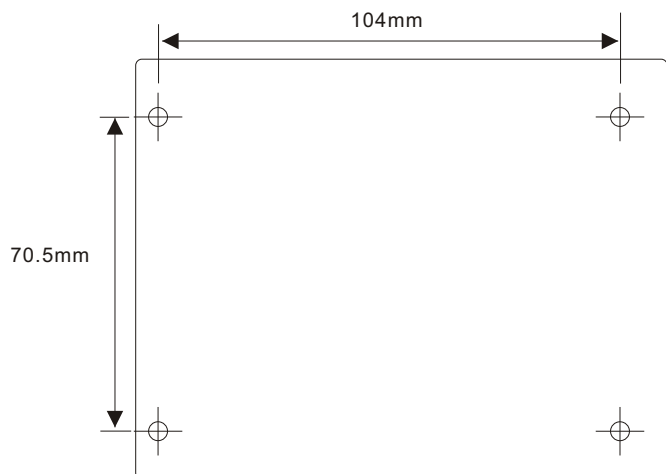
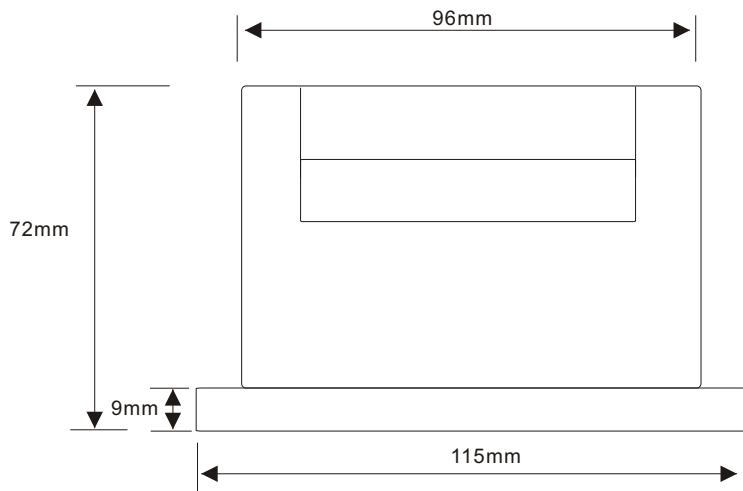
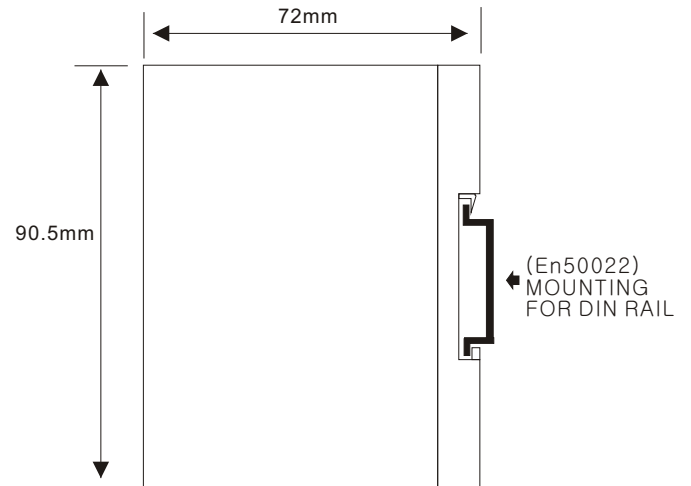
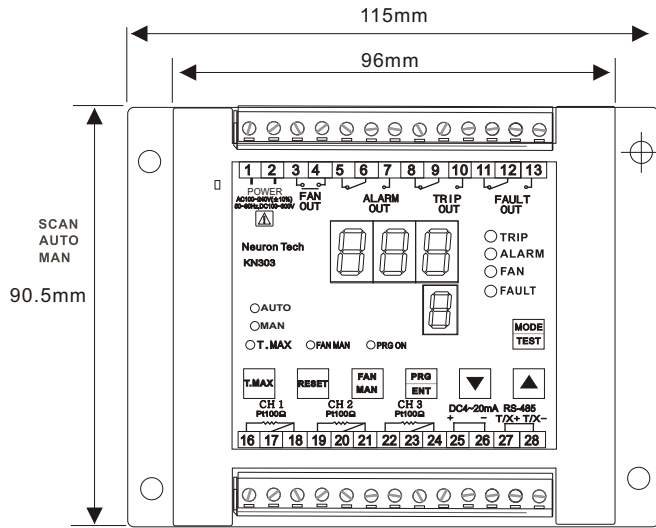
## 1. Specification

DIMENSION	115(W)X90.5(H)X72(D)mm
INPUT MEASURING CYCLE	100m SEC
ACCURACY	+/-0.5 °C (Full Scale)
INPUT	3 INPUT Pt100Ω-3WIRE(DIN IEC 751)
AMBIENT TEMPERATURE & HUMIDITY	OPERATION (-20 TO 60 °C / 10 TO 90% RH)
MEASURING RANGE	-50~250 °C
TEMPERATURE INDICATION	1 °C
OUTPUT CONTACTS CAPACITY	TRIP, ALARM, FAN, FAULT RELAY CONTACT AC 250V 5A(Resistance Load) DC 30V 5A(Resistance Load)
ANALOG OUTPUT	DC 4~20mA (RANGE:0~200 °C) Load Resistance Max 500Ω (INPUT/OUTPUT ISOLATION)
COMMUNICATION	SERIAL RS-485 MODBUS RTU (OPTION: RS-232) (INPUT/OUTPUT ISOLATION)
DATA STORAGE	10 YEARS
POWER SUPPLY	FREE VOLTAGE AC 100V TO 240V(± 10%) 50~60Hz,DC 100~300V
POWER CONSUMPTION	10 VA
DIELECTRIC STRENGTH	AC 2000V FOR 1MIN
INSULATION RESISTANCE	DC 500V 100M ohm MINIMUM
WEIGHT	750g

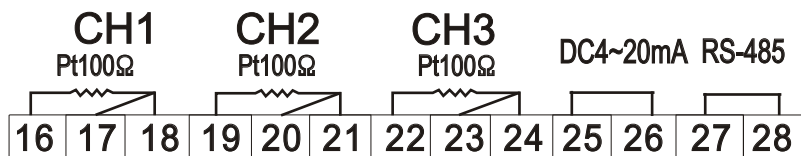
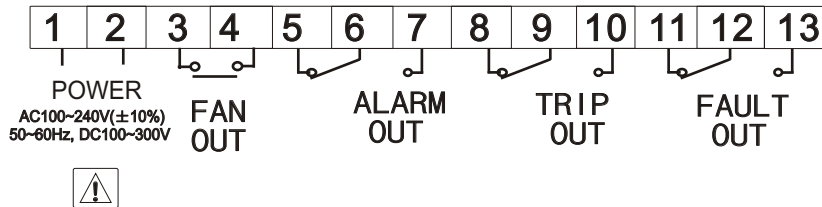
## 2.External Dimension and Mounting

◎ External Dimension

단위 :mm



### 3.Connection Diagram

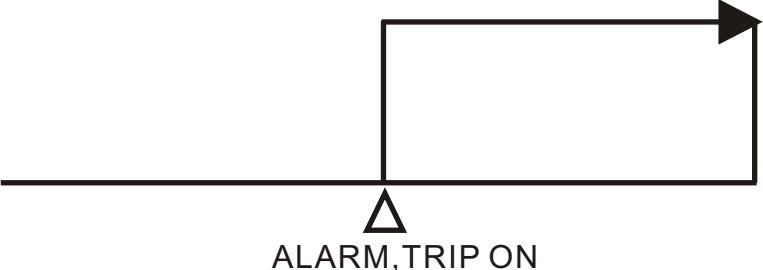
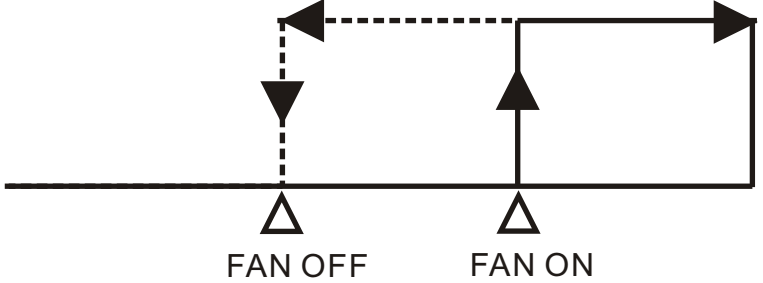


NOTE: When the unit is powered the fault relay 12-13 closed and it opens again in case of fault condition

## 4.Features

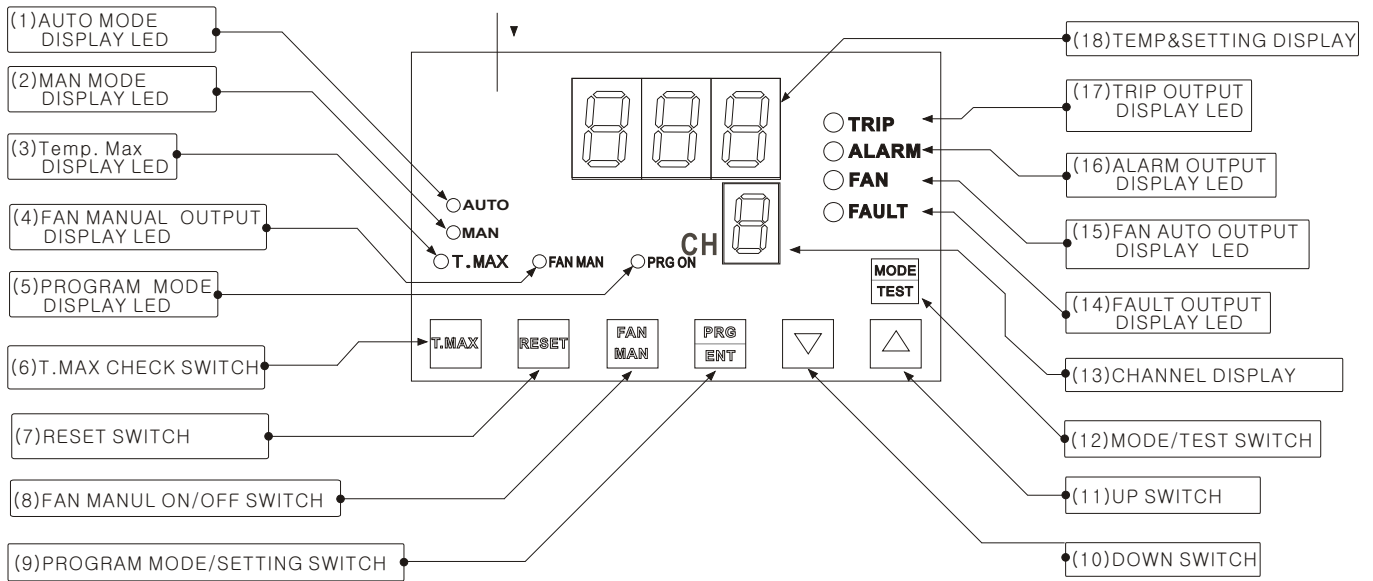
- ⊙ Power input is free voltage (AC 100~240V(±10%) 50~60Hz,DC 100~300V) and it is stably operated even at bad condition such as outside power change,surge etc
- ⊙ Temperature of transformer is measured and displayed and alarm output (alarm, trip) and fan is controlled according to temperature.
- ⊙ Temp max function –It is possible to check the highest temperature of transformer during operation up to now.
- ⊙ Data storage function memorizes T .MAX value and each control temperature setting values.(Semi eternal)
- ⊙ T.MAX value is stored even after turning power it is reset during operation.
- ⊙ Each setting value is also stored after turning off power unless setting value is changed during operation.
- ⊙ Fan out function –It is possible to control outside fan by comparing fan on and fan off setting values and measured temperature.

## 5.Output Operating Diagram

OUTPUT	SPECIFICATIONS( $\Delta$ :setting temp)
ALARM,TRIP	 <p style="text-align: center;">ALARM,TRIP ON</p>
FAN OUT	 <p style="text-align: center;">FAN OFF      FAN ON</p>



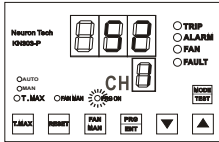
## 6. Name of Each Part



## 7. Operating and Setting

FUNCTIONS	<p>(1)AUTO: Control device automatically displays the highest temperature channel</p> <p>(2)MAN: Channel temperature manual reading through cursor keys</p> <p>(3)T.MAX: Monitoring unit shows the highest temperature recorded by the sensor and the last reset</p> <p>(4)FAN: FAN is automatically controlled by fan on and fan off setting value</p> <p>(16)ALARM: When the measurement temperature is over ALARM setting value, ALARM ON</p> <p>(17)TRIP: When the measurement temperature is over TRIP setting value, TRIP ON</p>
OPERATION KEYS	<p>(8)T.MAX: T.MAX value check key(SCAN,AUTO,MAN mode only)</p> <p>(9)RESET: RESET(In T.MAX MODE)-&gt;The current T.MAX value delete and record again("RESET" key 3 seconds pressing)</p> <p>(8)FAN MAN: FAN operation the button which the ON/OFF operation with a manual operation.</p> <p>(9)PRG/ENT: PROGRAM MODE("PRG/ENT"key 3 seconds pressing) Program setting function key</p> <p>(10)DOWN: When Program setting value change DOWN.</p> <p>(11)UP: When Program setting value change UP.</p> <p>(12)MODE/TEST: DISPLAY MODE(SCAN,AUTO,MAN) change key TEST MODE key ("MODE/TEST" key 3 seconds pressing)</p>

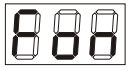
# Setting manual



After power supply  
The display shows the measurement temperature

Pressing key 3 seconds

PRG ON PRG ON led turns on



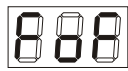
"Fan on" Setting display



"FAN ON" Setting value changes



Save the changed setting value



"Fan off" Setting display



"FAN OFF" Setting value changes



Save the changed setting value



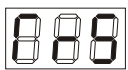
"ALarm on Setting" display



"ALARM ON" Setting value changes



Save the changed setting value



"Trip on Setting" display



"TRIP ON" Setting value changes



Save the changed setting value



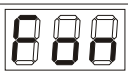
"Com Id" Communication ID setting display



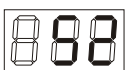
"COM ID" Setting ID value changes



Save the changed setting value



Return to first display



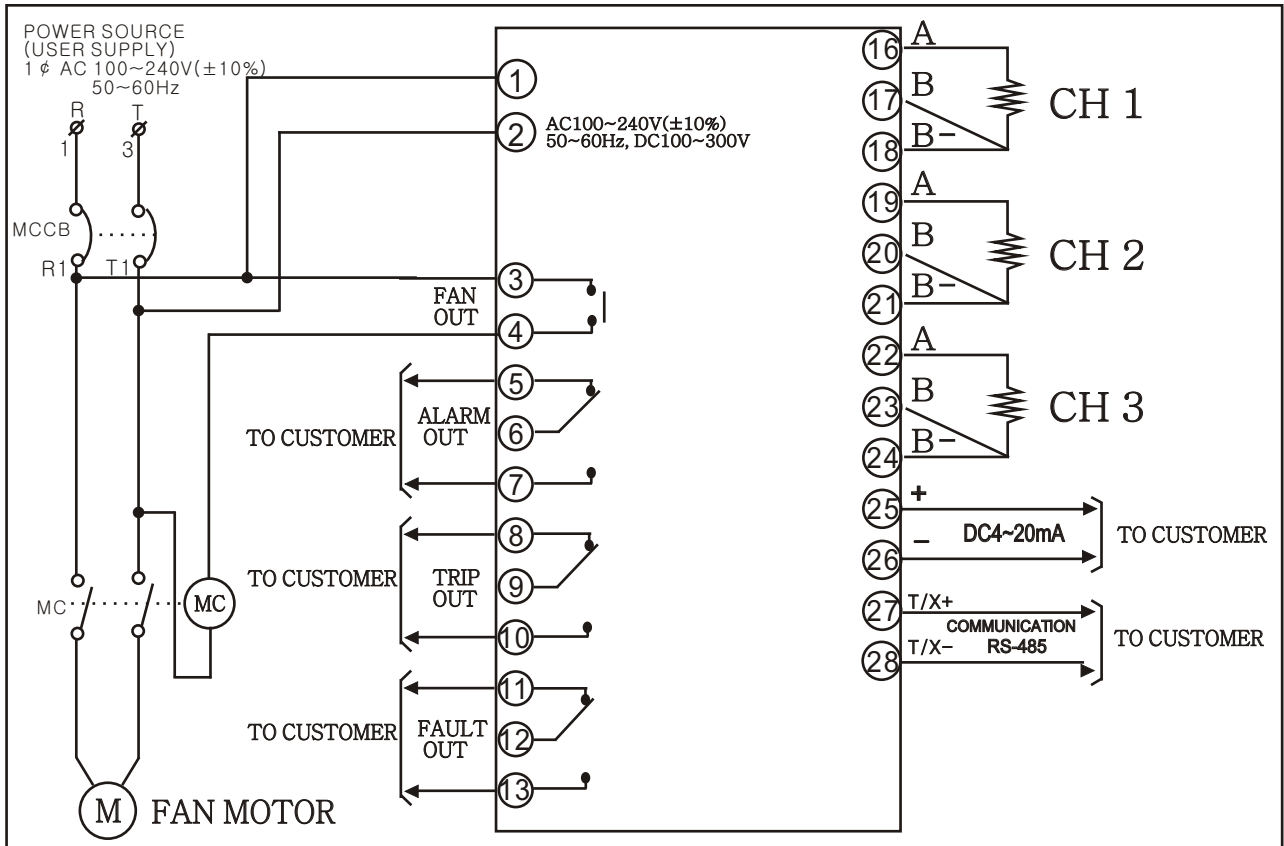
\*Anywhere in the program by pressing key 3 seconds or key operation is not longer than 30 seconds in the measurement mode is changed.

\*Measurement mode

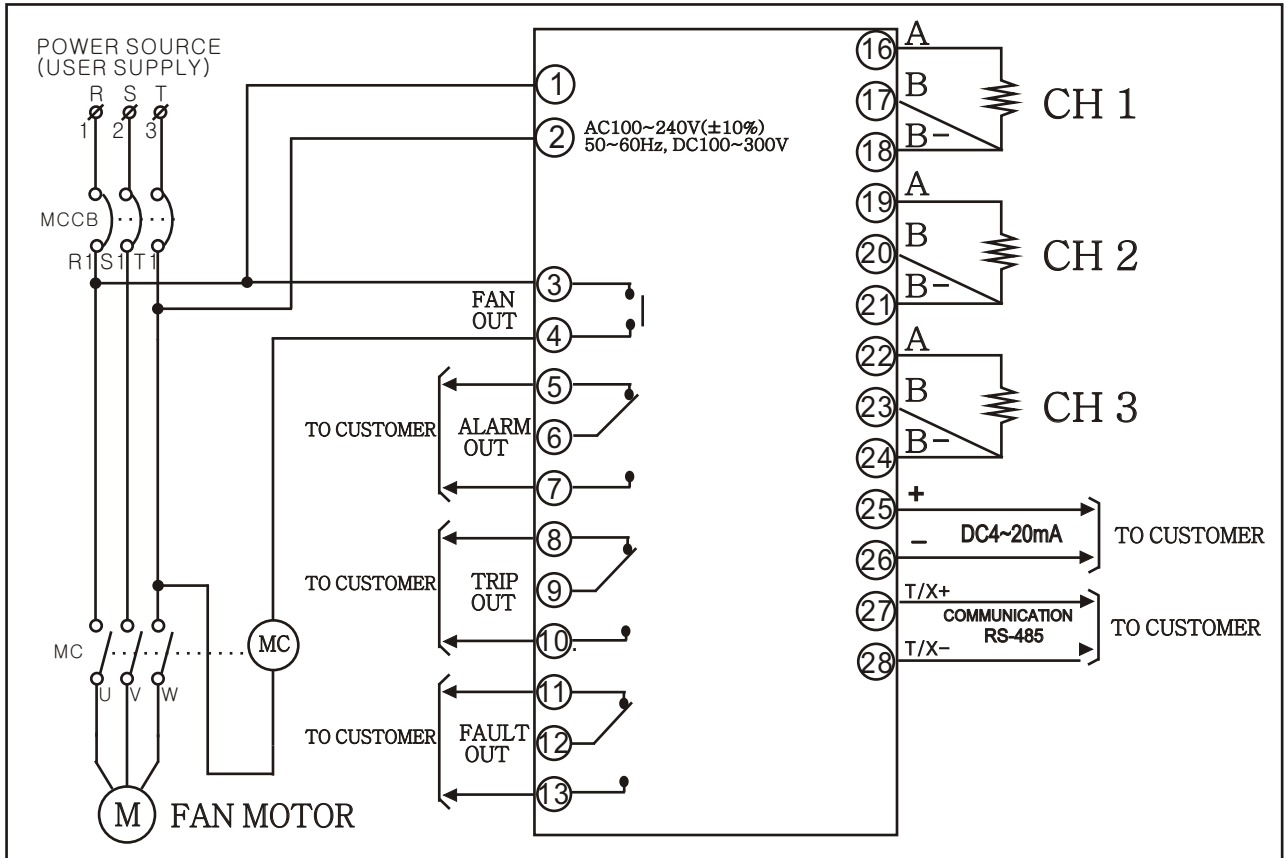
PRG ON PRG ON led turns off

## 8.Example of Wiring

### ◎ In case of Phase



### ◎ In case of Three Phase





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