

- High Reliability by S.M.T & TQC.
- With Cold Junction Compensation, Suited to Operated at  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- All type with Sensor Break Alarm LED.
- With P+D Control to Control Temperature Easily.
- High Accuracy of Displaying & Setting Less than 0.5% of F.S.
- With Stand-by/Over-heat Alarm.(Optioned).
- With Heater Break Alarm.(Optioned).
- 表面貼焊技術及全面品管，提供最可靠性產品
- 具冷接點補償，適用於周圍溫度 $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- 全機種具有測溫體斷線警報
- P+D控制易於控溫
- 高精度的顯示及設定精度，低於全刻度0.5%
- 具有待機/過熱警報功能(選擇機種)
- 具有加熱器斷線警報功能(選擇機種)



## Guiding of Model

Ex. TC - 4896 DA - PT - R 3 - F - S - A  
 ① ② ③④ ⑤ ⑥⑦ ⑧ ⑨ ⑩

### ① Product 產品代號

TC = Temperature Controller

### ② Outline 外型

48 = 48(W) X 48(H) mm X mm  
 4896 = 48(W) X 96(H) mm X mm  
 72 = 72(W) X 72(H) mm X mm  
 96 = 96(W) X 96(H) mm X mm

### ③ Method of Setting 設定方式

D = Digital Swith  
 A = Trimmer

### ④ Method of Display 顯示方式

A = Analog Deviation Meter  
 D = Digital LED Display  
 N = Without Display

### ⑤ Type of Sensor 感溫線種類

PT = RTD PT-100  $\Omega$   
 J = J Type Thermocouple  
 Non = K Type Thermocouple

### ⑥ Method of Output 輸出方式

R = Relay (5A/250VAC)  
 V = Voltage (20mA/12V)  
 L = Linear (4~20mA)

### ⑦ Range of Setting 設定範圍

#### Digital Switch

0 = -99 ~ + 99  
 1 = 0 ~ +199  
 3 = 0 ~ +399  
 5 = 0 ~ +599  
 9 = 0 ~ +999  
 11 = 0 ~ +1199

#### Trimmer

05 = -50 ~ +50  
 1 = 0 ~ +100  
 2 = 0 ~ +200  
 4 = 0 ~ +400  
 6 = 0 ~ +600  
 12 = 0 ~ +1200

### ⑧ Unit of Degree 刻度單位

F = F  
 non = C

### ⑨ Method of Control 控制方式

S = ON/OFF  
 non = P+D ON/OFF

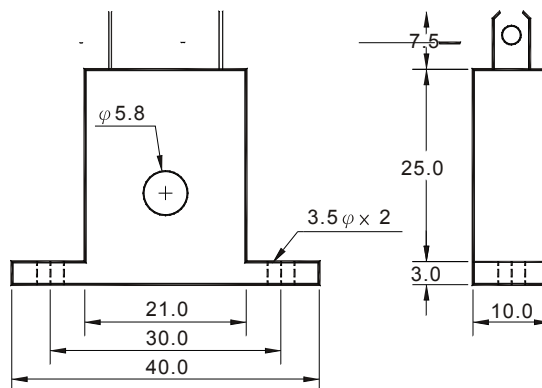
### ⑩ Alarm 警報

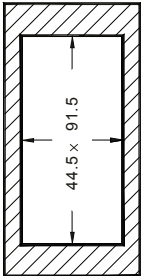
A = With Stand-by / Over Heat Alarm  
 AH = With Stand-by / Over Heat Alarm  
 & Heater Break Alarm  
 Non = Without Alarm

|                         |                            |                                                                                                |
|-------------------------|----------------------------|------------------------------------------------------------------------------------------------|
| General Data<br>共同規格    | Sensor Type 感溫線            | K < CA > , J < IC > or PT-100 $\Omega$                                                         |
|                         | Output Method 輸出方式         | Relay < 5A / 250VAC > , Voltage < 20mA / 12V > , Linear < 4~20mA >                             |
|                         | Control Method 控制方式        | P+D ON/OFF , ON/OFF or Proportion                                                              |
|                         | Proportion Band 比例帶        | Appro 2.5% of F.S.                                                                             |
|                         | Cycle Time 動作週期            | 2 Sec or 20 Sec < ON+OFF >                                                                     |
|                         | Manual Reset 偏移修正          | Trimmer, Range $\pm 10^{\circ}$                                                                |
|                         | Unit of Degree 單位          | $^{\circ}\text{C}$ or $^{\circ}\text{F}$                                                       |
| AL Alarm<br>A1警報        | Setting Method 設定方式        | Trimmer ( AL )                                                                                 |
|                         | Setting Range 設定範圍         | $0 \sim +50^{\circ}$ , $0 \sim -50^{\circ}$ or $-50^{\circ} \sim +50^{\circ}$ of Setting Value |
|                         | Output Method 輸出方式         | Relay , 0.5A/250VAC                                                                            |
| HB Alarm<br>Hb警報        | Setting Method 設定方式        | Trimmer (HB)                                                                                   |
|                         | Setting Range 設定範圍         | 0.5A~25A ; 1.0A~50A                                                                            |
|                         | Output Method 輸出方式         | Relay , 0.5A/250VAC                                                                            |
| Electrical Data<br>電氣規格 | Power Supply 工作電壓          | 110 / 220 VAC $\pm 20\%$ 50 / 60Hz                                                             |
|                         | Current Consumption 耗電流    | 2.5VA max.                                                                                     |
|                         | Insulation Resistance 絕緣阻抗 | Over 50M $\Omega$ /500 VDC Between Power And Another Terminal                                  |
|                         | Dielectrical Strength 耐壓強度 | Over 2.5KV / 1min Between Power And Another Terminal                                           |
| Mechanical Data<br>機械規格 | Operating Temp./Hum 工作環境   | $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ ; 35%~85% RH                                    |
|                         | Vibration Resistance 耐振動   | 10~55Hz / 1.5mm , 2Hrs in X.Y.Z Direction                                                      |
|                         | Panel Thickness 面板厚度       | 1.0~8.0mm                                                                                      |

## Attachment 附件

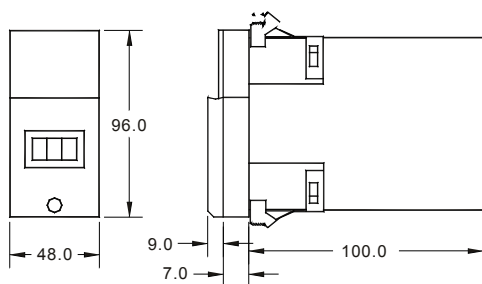
CT provided with Heater Break Alarm type only.  
只有加熱器斷線警報功能機種附 CT



|              | Model                                                                                           | TC-4896-DA-□-□                                                                    | TC-4896-DA-□-□-A                                                                   | TC-4896-DA-□-□-AH                                                                   |
|--------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|              | DIN48 X 96<br> |  |  |  |
|              | Alarm 警報                                                                                        | Non                                                                               | AL Alarm                                                                           | AL+HB                                                                               |
| Display 顯示方式 | Method 方式                                                                                       | Analog Deviation Meter                                                            |                                                                                    |                                                                                     |
|              | Tolerance 誤差                                                                                    | 1.0% of F.S.                                                                      |                                                                                    |                                                                                     |
|              | Range 範圍                                                                                        | ± 40°                                                                             |                                                                                    |                                                                                     |
| Setting 設定方式 | Method 方式                                                                                       | Digital Switch < 3 Digits >                                                       |                                                                                    |                                                                                     |
|              | Tolerance 誤差                                                                                    | 0.5% of Setting Range                                                             |                                                                                    |                                                                                     |
|              | Range 範圍                                                                                        | -99~+99 , 0~199 , 0~399 , 0~599 , 0~999                                           |                                                                                    |                                                                                     |

## Dimension & Fixed Hold 外型及固定孔尺寸

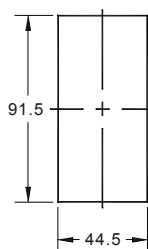
### Outline



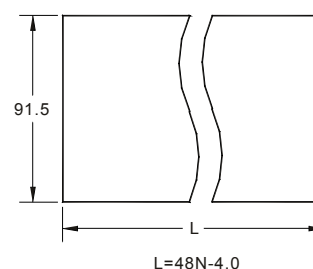
### Fixed Hole ( Thickness 1~8mm )

Single Cutout Multi Juxtaposed Cutout

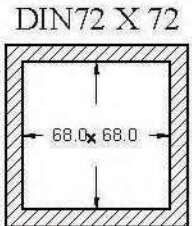
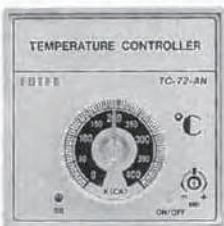
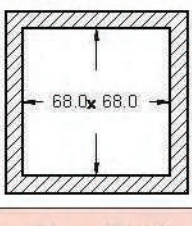
單個開孔



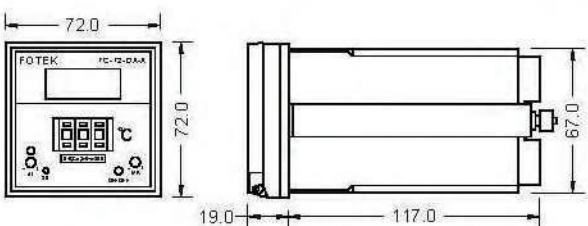
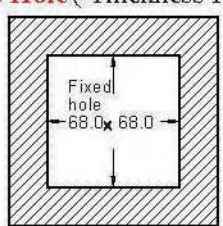
多個並排開孔

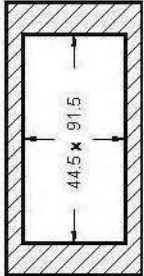


| N | 2    | 3     | 4     | 5     | 6     |
|---|------|-------|-------|-------|-------|
| L | 92.0 | 140.0 | 188.0 | 236.0 | 284.0 |

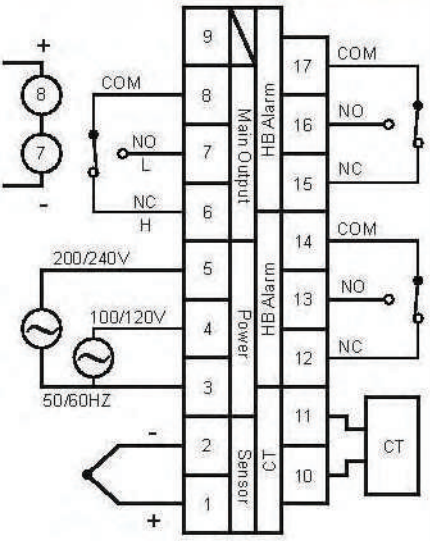
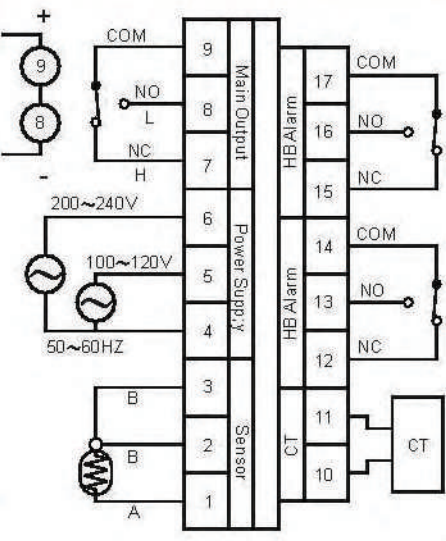
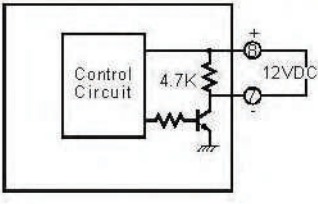
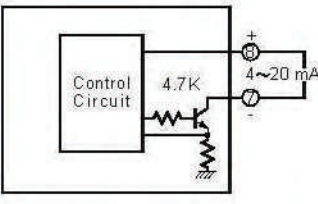
| Model                                                                                                    | TC-72-AN-□-□                                                                        | TC-72-AA-□-□                                                                         | TC-72-AA-□-□-A                                                                        |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Outline 外型</b><br>   |    |    |    |
| Alarm 警報                                                                                                 | Non                                                                                 | Non                                                                                  | AL Alarm                                                                              |
| <b>Display 顯示方式</b>                                                                                      | Method 方式                                                                           | Non                                                                                  | Analog Deviation Meter                                                                |
|                                                                                                          | Tolerance 誤差                                                                        | Non                                                                                  | 1.0% of F.S.                                                                          |
|                                                                                                          | Range 範圍                                                                            | Non                                                                                  | $\pm 40^{\circ}$                                                                      |
| <b>Setting 設定方式</b>                                                                                      | Method 方式                                                                           | Trimmer < Variable Resister >                                                        |                                                                                       |
|                                                                                                          | Tolerance 誤差                                                                        | 1.0% of Setting Range                                                                |                                                                                       |
|                                                                                                          | Range 範圍                                                                            | 0~100 , 0~200 , 0~400 , 0~600 , 0~1200                                               |                                                                                       |
| Model                                                                                                    | TC-72-DN-□-□                                                                        | TC-72-DA-□-□                                                                         | TC-72-DA-□-□-A                                                                        |
| <b>Outline 外型</b><br> |  |  |  |
| Alarm 警報                                                                                                 | Non                                                                                 | Non                                                                                  | AL Alarm                                                                              |
| <b>Display 顯示方式</b>                                                                                      | Method 方式                                                                           | Non                                                                                  | Analog Deviation Meter                                                                |
|                                                                                                          | Tolerance 誤差                                                                        | Non                                                                                  | 1.0% of F.S.                                                                          |
|                                                                                                          | Range 範圍                                                                            | Non                                                                                  | $\pm 40^{\circ}$                                                                      |
| <b>Setting 設定方式</b>                                                                                      | Method 方式                                                                           | Digital Switch                                                                       |                                                                                       |
|                                                                                                          | Tolerance 誤差                                                                        | 0.5% of Setting Range                                                                |                                                                                       |
|                                                                                                          | Range 範圍                                                                            | -99 ~+99 , 0~199 , 0~399 , 0~599 , 0~999 , 0~1199                                    |                                                                                       |

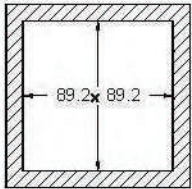
## Dimension & Fixed Hold 外型及固定孔尺寸

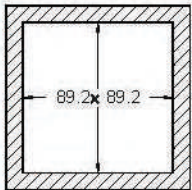
|                                                                                                       |                                                                                                                                |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Outline</b><br> | <b>Fixed Hole ( Thickness 1~8mm )</b><br> |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|

|              | Model                                                                                           | TC-4896-DD-□-□                                                                    | TC-4896-DD-□-□-A                                                                   | TC-4896-DD-□-□-AH                                                                   |
|--------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Outline 外型   | DIN48 X 96<br> |  |  |  |
| Alarm 警報     |                                                                                                 | Non                                                                               | AL Alarm                                                                           | AL+HB                                                                               |
| Display 顯示方式 | Method 方式                                                                                       | 14 mm 7 Segment Red LED                                                           |                                                                                    |                                                                                     |
|              | Tolerance 誤差                                                                                    | 0.5% of F.S. + 1 Digit                                                            |                                                                                    |                                                                                     |
|              | Range 範圍                                                                                        | -99~+99 , 0~999                                                                   |                                                                                    |                                                                                     |
| Setting 設定方式 | Method 方式                                                                                       | Digital Switch < 3 Digits >                                                       |                                                                                    |                                                                                     |
|              | Tolerance 誤差                                                                                    | 0.5% of Setting Range                                                             |                                                                                    |                                                                                     |
|              | Range 範圍                                                                                        | -99~+99 , 0~199 , 0~399 , 0~599 , 0~999                                           |                                                                                    |                                                                                     |

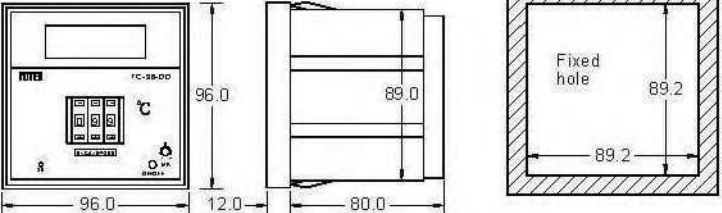
### Output circuit & connection diagram 輸出回路及接線圖

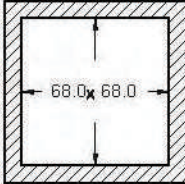
| Thermocouple Type < K or J >                                                        | RTD PT-100 $\Omega$ Type                                                             | Voltage Output                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <br>Linear Output<br> |

| Model        | TC-96-AD-□-□                                                                                                                                                                                                                                                                                                                               | TC-96-AD-□-□-A                                     | TC-96-AD-□-□-AH |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------|
| Outline 外型   |     |                                                    |                 |
| Alarm 警報     | Non                                                                                                                                                                                                                                                                                                                                        | AL Alarm                                           | AL+HB Alarm     |
| Display 顯示方式 | Method 方式                                                                                                                                                                                                                                                                                                                                  | 14mm 7 Segment Red LED                             |                 |
|              | Tolerance 誤差                                                                                                                                                                                                                                                                                                                               | 0.5% of F.S.                                       |                 |
|              | Range 範圍                                                                                                                                                                                                                                                                                                                                   | -99 ~+99 , 0~999 , 0~1200                          |                 |
| Setting 設定方式 | Method 方式                                                                                                                                                                                                                                                                                                                                  | Trimmer < Variable Resister >                      |                 |
|              | Tolerance 誤差                                                                                                                                                                                                                                                                                                                               | 1.0% of F.S.                                       |                 |
|              | Range 範圍                                                                                                                                                                                                                                                                                                                                   | -50 ~+50 , 0~100 , 0~200 , 0~400 , 0~600 or 0~1200 |                 |

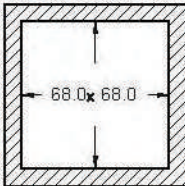
| Model        | TC-96-DD-□-□                                                                                                                                                                                                                                                                                                                                       | TC-96-DD-□-□-A                                    | TC-96-DD-□-□-AH |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------------|
| Outline 外型   |     |                                                   |                 |
| Alarm 警報     | Non                                                                                                                                                                                                                                                                                                                                                | AL Alarm                                          | AL+HB Alarm     |
| Display 顯示方式 | Method 方式                                                                                                                                                                                                                                                                                                                                          | 14mm 7 Segment Red LED                            |                 |
|              | Tolerance 誤差                                                                                                                                                                                                                                                                                                                                       | 0.5% of F.S.                                      |                 |
|              | Range 範圍                                                                                                                                                                                                                                                                                                                                           | -99 ~+99 , 0~999 , 0~1200                         |                 |
| Setting 設定方式 | Method 方式                                                                                                                                                                                                                                                                                                                                          | Digital Switch                                    |                 |
|              | Tolerance 誤差                                                                                                                                                                                                                                                                                                                                       | 0.5% of F.S.                                      |                 |
|              | Range 範圍                                                                                                                                                                                                                                                                                                                                           | -99 ~+99 , 0~199 , 0~399 , 0~599 , 0~999 , 0~1199 |                 |

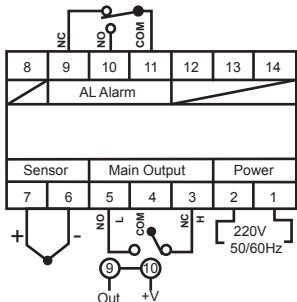
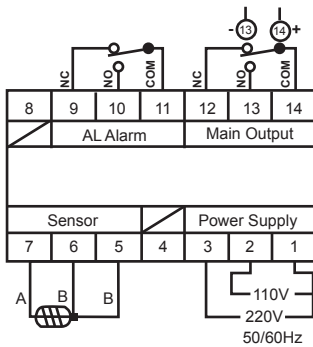
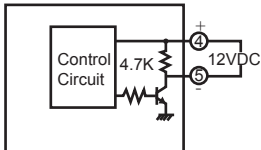
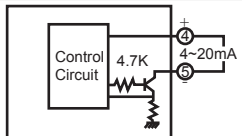
## Dimension & Fixed Hold 外型及固定孔尺寸

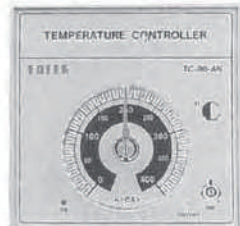
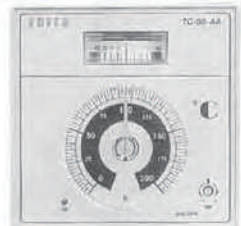
|                                                                                      |                                |
|--------------------------------------------------------------------------------------|--------------------------------|
| Outline                                                                              | Fixed Hole ( Thickness 1~8mm ) |
|  |                                |

| Model        |                                                                                   | TC-72-AD-□-□                                                                      | TC-72-AD-□-□-A                                                                     |
|--------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Outline 外型   | DIN72 X 72                                                                        |  |  |
|              |  |                                                                                   |                                                                                    |
| Alarm 警報     |                                                                                   | Non                                                                               | AL Alarm                                                                           |
| Display 顯示方式 | Method 方式                                                                         | 14mm 7 Segment Red LED                                                            |                                                                                    |
|              | Tolerance 誤差                                                                      | 0.5% of F.S.                                                                      |                                                                                    |
|              | Range 範圍                                                                          | 0~999 or 0~1999                                                                   |                                                                                    |
| Setting 設定方式 | Method 方式                                                                         | Trimmer < Variable Resister >                                                     |                                                                                    |
|              | Tolerance 誤差                                                                      | 1.0% of F.S.                                                                      |                                                                                    |
|              | Range 範圍                                                                          | 0~100 , 0~200 , 0~400 , 0~600 , 0~1200                                            |                                                                                    |

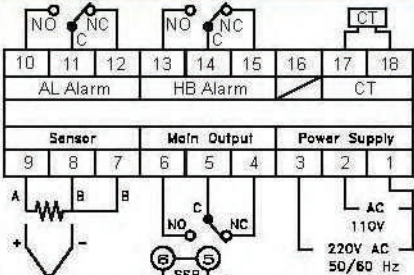
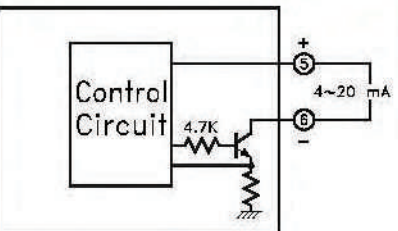
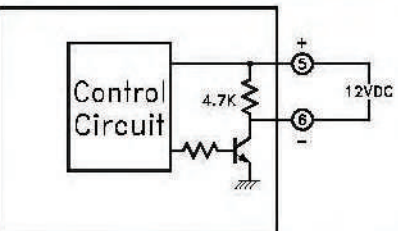
  

| Model        |                                                                                     | TC-72-DD-□-□                                                                        | TC-72-DD-□-□-A                                                                       |
|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Outline 外型   | DIN72 X 72                                                                          |  |  |
|              |  |                                                                                     |                                                                                      |
| Alarm 警報     |                                                                                     | Non                                                                                 | AL Alarm                                                                             |
| Display 顯示方式 | Method 方式                                                                           | 14mm 7 Segment Red LED                                                              |                                                                                      |
|              | Tolerance 誤差                                                                        | 0.5% of F.S.                                                                        |                                                                                      |
|              | Range 範圍                                                                            | -99~99 , 0~999 or 0~1999                                                            |                                                                                      |
| Setting 設定方式 | Method 方式                                                                           | Digital Switch                                                                      |                                                                                      |
|              | Tolerance 誤差                                                                        | 0.5% of Setting Range                                                               |                                                                                      |
|              | Range 範圍                                                                            | -99 ~+99 , 0~199 , 0~399 , 0~599 , 0~999 , 0~1199                                   |                                                                                      |

| K type                                                                                                                                                           | PT type                                                                             | Voltage Output                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
|  <p>Standard Power Supply is 220VAC<br/>If Need 110 VAC, Please Change it</p> |  |                          |
|                                                                                                                                                                  |                                                                                     | <b>Linear Output</b><br> |

| TC-96-AN-□-□                                                                      | TC-96-AA-□-□                                                                      | TC-96-AA-□-□-A                                                                     | TC-96-AA-□-□-AH                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| Non                                                                               | Non                                                                               | AL Alarm                                                                           | AL+HB Alarm                                                                         |
| Non                                                                               | Analog Deviation Meter                                                            |                                                                                    |                                                                                     |
| Non                                                                               | 1.0% of F.S.                                                                      |                                                                                    |                                                                                     |
| Non                                                                               | ±40°                                                                              |                                                                                    |                                                                                     |
| Trimmer < Variable Resister >                                                     |                                                                                   |                                                                                    |                                                                                     |
| 1.0% of F.S.                                                                      |                                                                                   |                                                                                    |                                                                                     |
| -50 ~+50 , 0~100 , 0~200 , 0~400 , 0~600 or 0~1200                                |                                                                                   |                                                                                    |                                                                                     |

| TC-96-DN-□-□                                                                        | TC-96-DA-□-□                                                                        | TC-96-DA-□-□-A                                                                       | TC-96-DA-□-□-AH                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |
| Non                                                                                 | Non                                                                                 | AL Alarm                                                                             | AL+HB Alarm                                                                           |
| Non                                                                                 | Analog Deviation Meter                                                              |                                                                                      |                                                                                       |
| Non                                                                                 | 1.0% of F.S.                                                                        |                                                                                      |                                                                                       |
| Non                                                                                 | ± 40°                                                                               |                                                                                      |                                                                                       |
| Digital Switch                                                                      |                                                                                     |                                                                                      |                                                                                       |
| 0.5% of F.S.                                                                        |                                                                                     |                                                                                      |                                                                                       |
| -99 ~+99 ,0~199 ,0~399 ,0~599 ,0~999 ,0~1199                                        |                                                                                     |                                                                                      |                                                                                       |

| Connection Diagram 接線圖                                                              | Linear Output 線性輸出                                                                   | Voltage Output 電壓輸出                                                                   |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |

## Control Output 控制輸出

ON/OFF LED Turn to Green Color , Control Output Turn ON.

綠色動作燈，表示控制輸出動作。

ON/OFF LED Turn to Red Color , Control Output Turn OFF.

紅色動作燈，表示控制輸出復歸。

but , Linear Output Type That ON/OFF LED Turn to Green Color.

但，線性輸出型，動作燈亮綠色。

## Sensor Break Alarm (SB)測溫體斷線指示燈

SB LED Turn ON when Sensor Break測溫體斷線時，SB燈會亮著。

## Stand-by/Over-heat Alarm(AL)待機/過熱警報

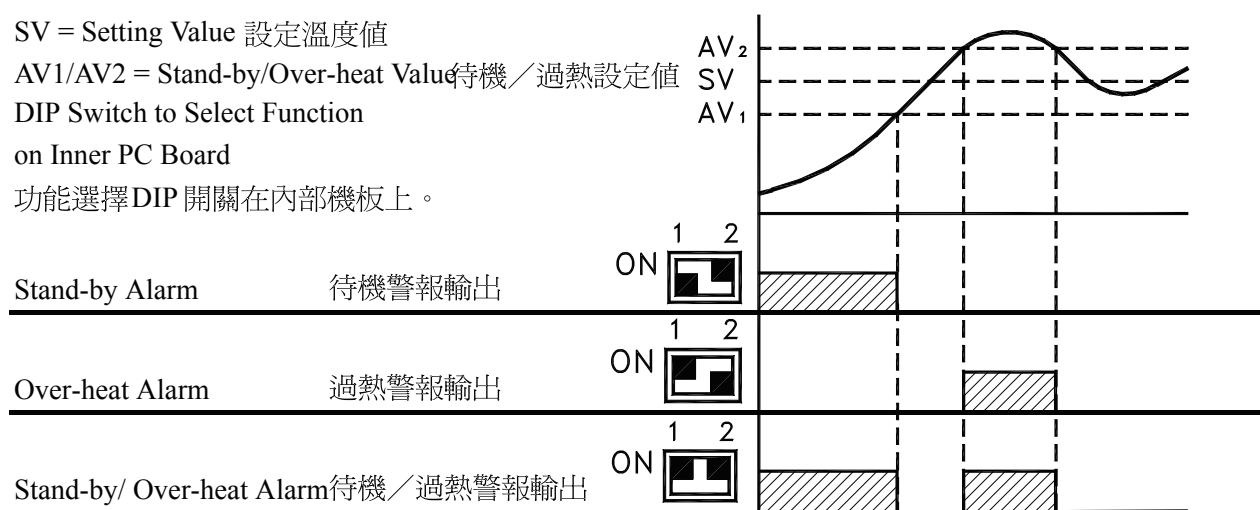
SV = Setting Value 設定溫度值

AV1/AV2 = Stand-by/Over-heat Value待機/過熱設定值

DIP Switch to Select Function

on Inner PC Board

功能選擇DIP 開關在內部機板上。



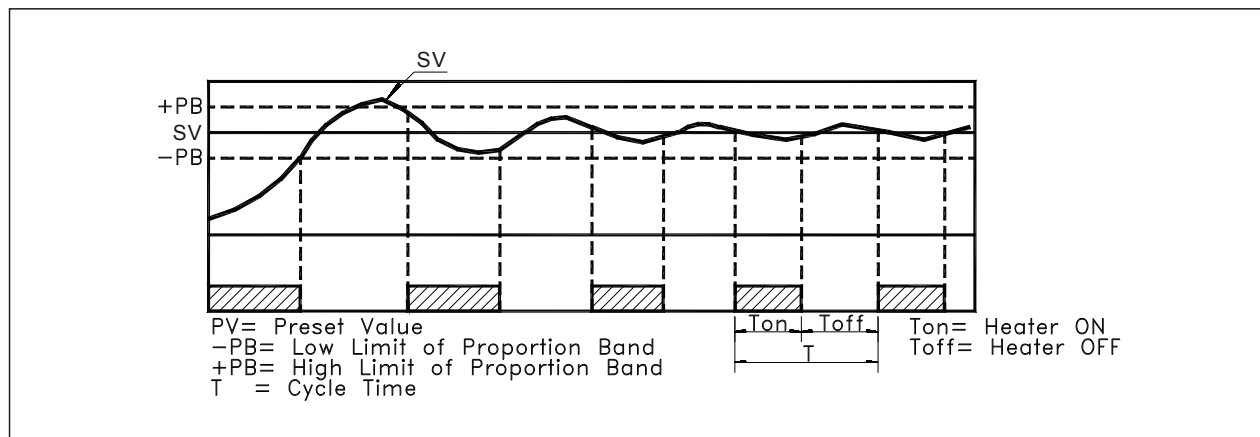
## Heater Break Alarm(HB)加熱器斷線警報

Heater Break Alarm Output Turns ON when the Current of Heater Lower than Setting Value that may set at Front Panel. ( 0.5A~25A standard/1.0A~50A Optioned )

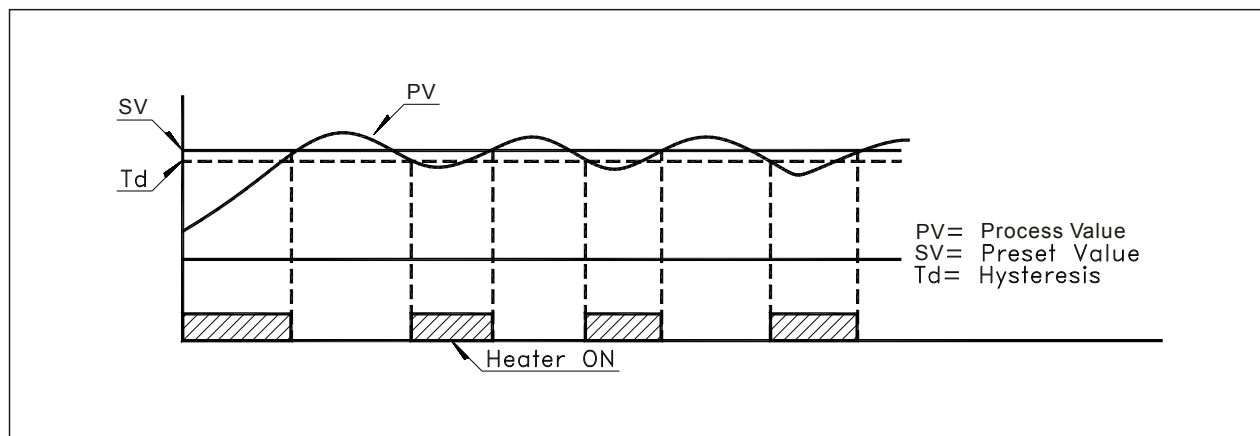
當加熱器電流低於設定值時，加熱器斷線警報即動作，設定值可在面板設定，標準 0.5A~25A，訂做 1.0A~50A

## Illustration 說明

### P+D ON/OFF



### ON/OFF (S)



### Proportion

