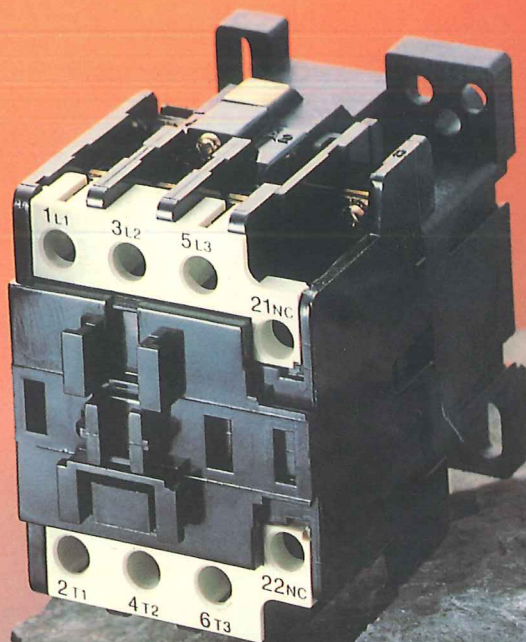


nd

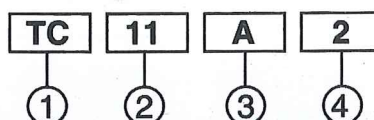
# MAGNETIC SWITCHES

ISO 9001



# tend CONTACTORS

## MODEL DESIGNATION



| Designation             | Signal                                             | Description                                                                                                 |
|-------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 1.Type                  | TC<br>TCR                                          | Magnetic Contactor<br>Reversing Contactor                                                                   |
| 2.Model                 | 11<br>16<br>21<br>30<br>35<br>40<br>50<br>60<br>80 | 12A (Rated Capacity<br>Based on AC3<br>3ph,220VAC)<br>16A<br>24A<br>30A<br>35A<br>44A<br>58A<br>68A<br>100A |
| 3.Auxiliary<br>Contacts | (none)<br>A<br>B                                   | 1a1b,2a2b(For TC50-80)<br>1a<br>1b                                                                          |

| Designation       | Signal | Description |        |
|-------------------|--------|-------------|--------|
|                   |        | 50Hz        | 60Hz   |
| 4.Coil<br>Voltage | 1      | 100VAC      | 110VAC |
|                   | 2      | 200VAC      | 220VAC |
|                   | 3      | 346VAC      | 380VAC |
|                   | 4      | 380-400VAC  | 440VAC |
|                   | 5      | 110VAC      | 120VAC |
|                   | 6      | 240VAC      | 260VAC |
|                   | 7      | 24VAC       | 24VAC  |
|                   | 8      | 48VAC       | 48VAC  |
|                   | 9      | 415VAC      | 460VAC |
|                   | a      | 220VAC      | 240VAC |
|                   | b      | 500VAC      | 550VAC |
|                   | c      | 32VAC       | 32VAC  |

## RATING AND CHARACTERISTICS

| Type No. | Auxiliary<br>Contacts |    | Rated<br>Operating<br>Current<br>(AC1)<br>Ith | IEC 60947 Rated Capacity (AC3) |                  |                  |                  |                    | Rated<br>Insulation<br>Voltage | Weight |
|----------|-----------------------|----|-----------------------------------------------|--------------------------------|------------------|------------------|------------------|--------------------|--------------------------------|--------|
|          |                       |    |                                               | 1 Phase                        |                  | 3 Phase          |                  |                    |                                |        |
|          |                       |    |                                               | 100V<br>120V                   | 200V<br>220V     | 200V<br>220V     | 380V<br>440V     | 500V<br>550V       |                                |        |
|          | NO                    | NC | A                                             | A<br>kw<br>hp                  | A<br>kw<br>hp    | A<br>kw<br>hp    | A<br>kw<br>hp    | A<br>kw<br>hp      | V                              | kg     |
| TC11A    | 1                     | —  | 25                                            | 12<br>0.55<br>0.75             | 12<br>1.1<br>1.5 | 12<br>3<br>4     | 12<br>5.5<br>7.5 | 9<br>5.5<br>7.5    | 600                            | 0.32   |
| TC11B    | —                     | 1  |                                               |                                |                  |                  |                  |                    |                                |        |
| TCR11AB  | 1                     | 1  |                                               |                                |                  |                  |                  |                    |                                | 0.66   |
| TCR112A  | 2                     | —  |                                               |                                |                  |                  |                  |                    |                                |        |
| TCR112B  | —                     | 2  |                                               |                                |                  |                  |                  |                    |                                |        |
| TC16A    | 1                     | —  | 30                                            | 16<br>0.75<br>1                | 16<br>1.5<br>2   | 16<br>4<br>5.5   | 16<br>7.5<br>10  | 12<br>7.5<br>10    | 600                            | 0.32   |
| TC16B    | —                     | 1  |                                               |                                |                  |                  |                  |                    |                                |        |
| TCR16AB  | 1                     | 1  |                                               |                                |                  |                  |                  |                    |                                | 0.66   |
| TCR162A  | 2                     | —  |                                               |                                |                  |                  |                  |                    |                                |        |
| TCR162B  | —                     | 2  |                                               |                                |                  |                  |                  |                    |                                |        |
| TC21     | 1                     | 1  | 40                                            | 24<br>1.1<br>1.5               | 24<br>2.2<br>3   | 24<br>5.5<br>7.5 | 24<br>11<br>15   | 18.4<br>11<br>15   | 600                            | 0.39   |
| TCR21    | 2                     | 2  |                                               | 1.5<br>3<br>7.5                | 15<br>15<br>15   | 15<br>15<br>15   | 15<br>15<br>15   | 0.79               |                                |        |
| TC30     | 1                     | 1  | 50                                            | 30<br>1.5<br>2                 | 30<br>3<br>4     | 30<br>7.5<br>10  | 30<br>15<br>20   | 23<br>15<br>20     | 600                            | 0.85   |
| TCR30    | 2                     | 2  |                                               | 2<br>4<br>10                   | 20<br>20<br>20   | 20<br>20<br>20   | 20<br>20<br>20   | 1.72               |                                |        |
| TC35     | 1                     | 1  | 50                                            | 35<br>1.8<br>2.5               | 35<br>4<br>5     | 35<br>9<br>12    | 35<br>15<br>20   | 28.5<br>18.5<br>25 | 600                            | 0.85   |
| TCR35    | 2                     | 2  |                                               | 2.5<br>5<br>12                 | 20<br>20<br>20   | 20<br>20<br>20   | 20<br>20<br>20   | 1.72               |                                |        |
| TC40     | 1                     | 1  | 60                                            | 44<br>2.2<br>3                 | 44<br>5.5<br>7.5 | 44<br>11<br>15   | 44<br>22<br>30   | 33<br>22<br>30     | 600                            | 0.85   |
| TCR40    | 2                     | 2  |                                               | 3<br>7.5<br>15                 | 30<br>30<br>30   | 30<br>30<br>30   | 30<br>30<br>30   | 1.72               |                                |        |
| TC50     | 2                     | 2  | 80                                            | 58<br>3<br>4                   | 58<br>5.5<br>7.5 | 58<br>15<br>20   | 52<br>30<br>40   | 41<br>30<br>40     | 600                            | 1.21   |
| TCR50    | 4                     | 4  |                                               | 4<br>7.5<br>20                 | 40<br>40<br>40   | 40<br>40<br>40   | 40<br>40<br>40   | 2.57               |                                |        |
| TC60     | 2                     | 2  | 100                                           | 68<br>3.7<br>5                 | 68<br>7.5<br>10  | 68<br>19<br>25   | 65<br>37<br>50   | 52<br>37<br>50     | 600                            | 1.21   |
| TCR60    | 4                     | 4  |                                               | 5<br>10<br>25                  | 50<br>50<br>50   | 50<br>50<br>50   | 50<br>50<br>50   | 2.57               |                                |        |
| TC80     | 2                     | 2  | 130                                           | —                              | —                | 100<br>25<br>35  | 90<br>50<br>70   | 72<br>50<br>70     | 600                            | 1.43   |
| TCR80    | 4                     | 4  |                                               | —                              | —                | —                | —                | —                  |                                | 3.00   |

\* Mechanical Service Life: 5,000,000 Operations.

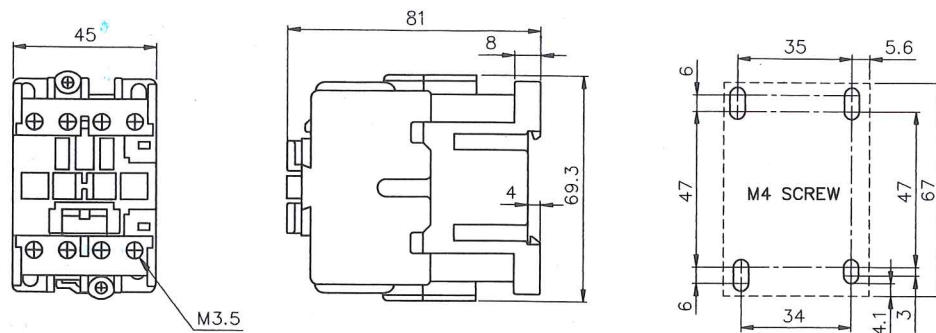
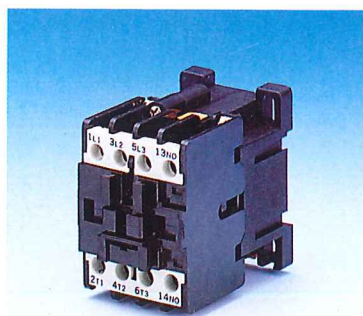
\* For track mounting on DIN rail or panel mounting.

\* Electrical Service Life: 1,000,000 Operations.

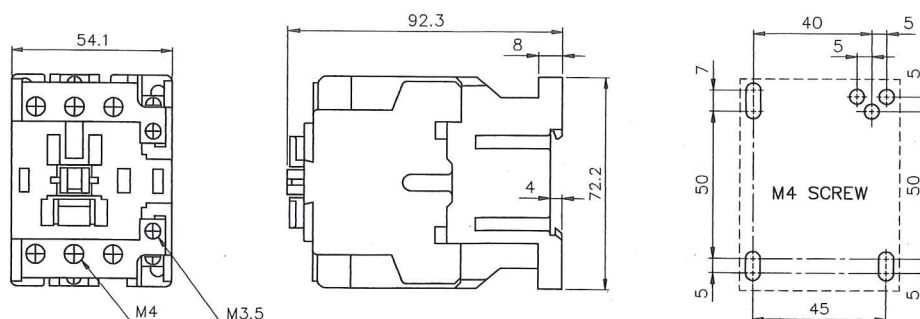
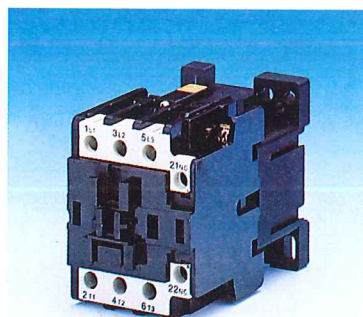
\* UL Pending

## ■ DIMENSIONS

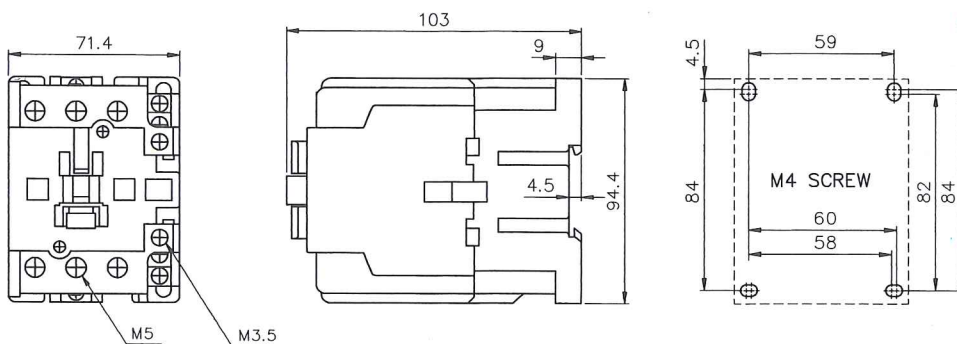
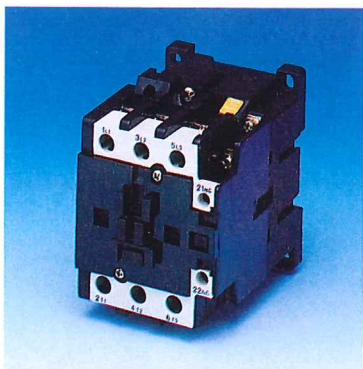
### TC11/16



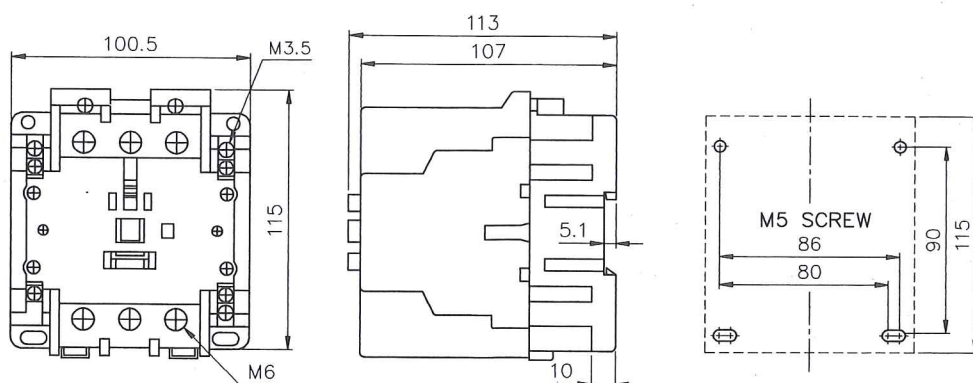
### TC21



### TC30/35/40

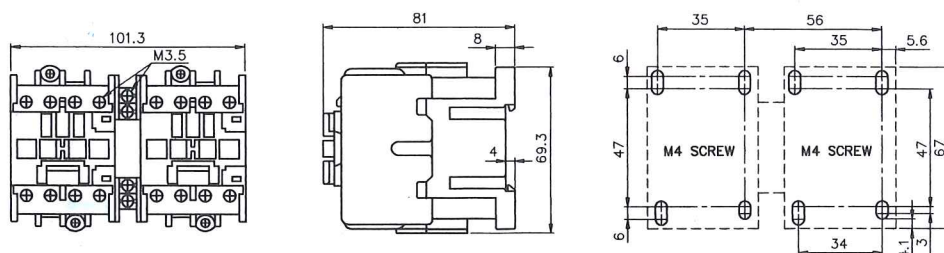
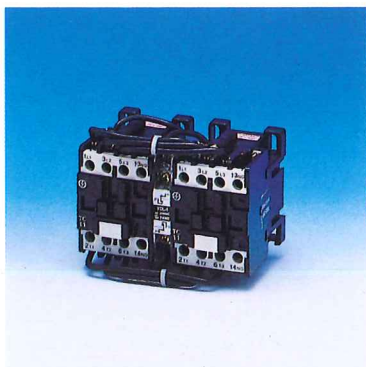


### TC50/60/80

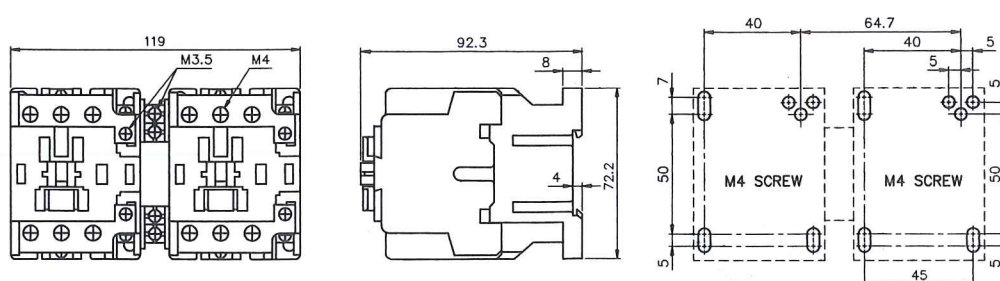
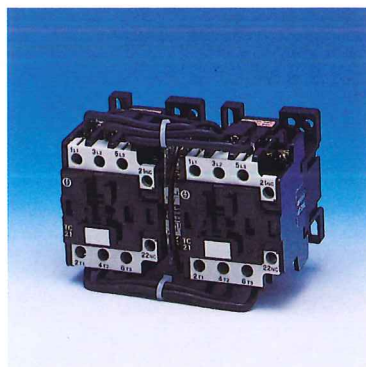


## ■ DIMENSIONS

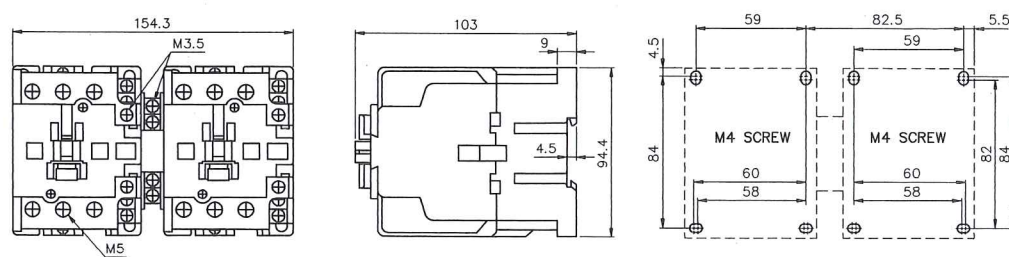
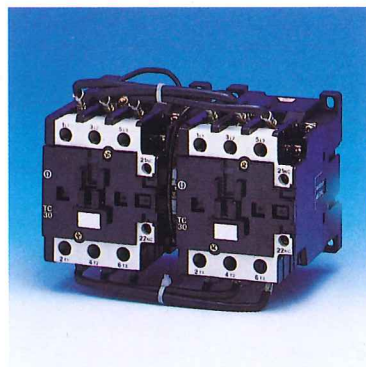
### TCR11/16



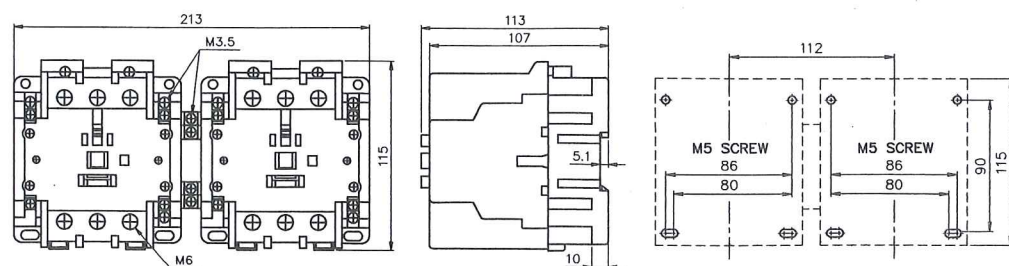
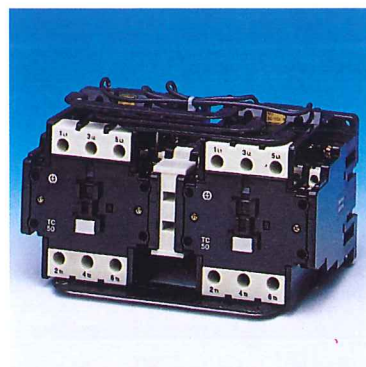
### TCR21



### TCR30/35/40

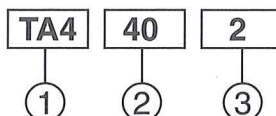


### TCR50/60/80



# tend CONTACTORS & CONTROL RELAYS

## ■ MODEL DESIGNATION



| Designation | Signal | Description               |
|-------------|--------|---------------------------|
| 1.Type      | TA4    | 4P type Contactor for 4Hp |
|             | TB4    | 4P type Contactor for 5Hp |
|             | TR4    | 4P type Control relay     |
| 2.Contacts  | 40     | 4a                        |
|             | 31     | 3a1b                      |
|             | 22     | 2a2b                      |

| Designation    | Signal | Description |        |
|----------------|--------|-------------|--------|
|                |        | 50Hz        | 60Hz   |
| 3.Coil Voltage | 1      | 100VAC      | 110VAC |
|                | 2      | 200VAC      | 220VAC |
|                | 3      | 346VAC      | 380VAC |
|                | 4      | 380-400VAC  | 440VAC |
|                | 5      | 110VAC      | 120VAC |
|                | 6      | 240VAC      | 260VAC |
|                | 7      | 24VAC       | 24VAC  |
|                | 8      | 48VAC       | 48VAC  |
|                | 9      | 415VAC      | 460VAC |
|                | a      | 220VAC      | 240VAC |
|                | b      | 500VAC      | 550VAC |
|                | c      | 32VAC       | 32VAC  |

## ■ RATING AND CHARACTERISTICS (CONTACTORS)

| Type No. | Contacts |    | Rated Operating Current (AC1) Ith | Rated Capacity(AC3) |               |               |               |               | Rated Insulation Voltage | Weight |
|----------|----------|----|-----------------------------------|---------------------|---------------|---------------|---------------|---------------|--------------------------|--------|
|          |          |    |                                   | 1 Phase             |               | 3 Phase       |               |               |                          |        |
|          |          |    |                                   | 100V<br>120V        | 200V<br>220V  | 200V<br>220V  | 380V<br>440V  | 500V<br>550V  |                          |        |
|          | NO       | NC | A                                 | A<br>kw<br>hp       | A<br>kw<br>hp | A<br>kw<br>hp | A<br>kw<br>hp | A<br>kw<br>hp | V                        | kg     |
| TA440    | 4        | —  | 25                                | 12                  | 12            | 12            | 12            | 9             | 600                      | 0.32   |
| TA431    | 3        | 1  |                                   | 0.55                | 1.1           | 3             | 5.5           | 5.5           |                          |        |
| TA422    | 2        | 2  |                                   | 0.75                | 1.5           | 4             | 7.5           | 7.5           |                          |        |
| TB440    | 4        | —  | 30                                | 16                  | 16            | 16            | 16            | 12            | 600                      | 0.32   |
| TB431    | 3        | 1  |                                   | 0.75                | 1.5           | 4             | 7.5           | 7.5           |                          |        |
| TB422    | 2        | 2  |                                   | 1                   | 2             | 5.5           | 10            | 10            |                          |        |

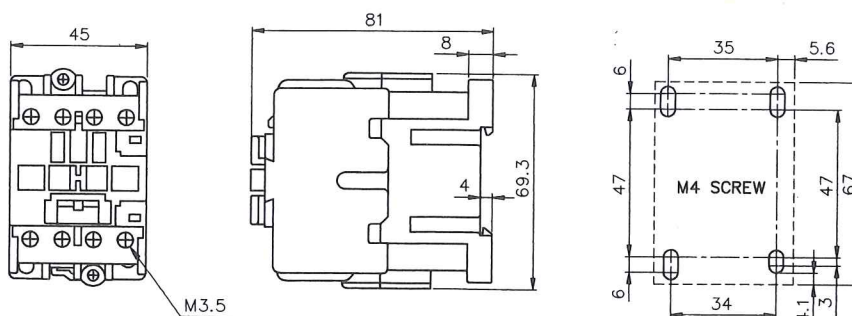
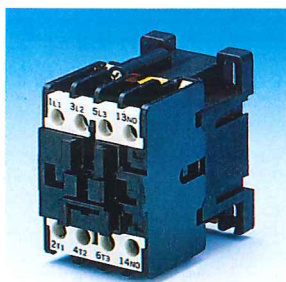
## ■ RATING AND CHARACTERISTICS (CONTROL RELAYS)

| Type No. | Auxiliary Contacts |    | Rated Operating Current Ith | Rated Capacity(AC15) |        |        |        |        |        | Rated Operating Current Ith | Rated Capacity(DC13) |        |        |        |        | Rated Insulation Voltage | Weight |
|----------|--------------------|----|-----------------------------|----------------------|--------|--------|--------|--------|--------|-----------------------------|----------------------|--------|--------|--------|--------|--------------------------|--------|
|          |                    |    |                             | 120VAC               | 240VAC | 380VAC | 480VAC | 500VAC | 600VAC |                             | 125VDC               | 250VDC | 400VDC | 500VDC | 600VDC |                          |        |
|          | NO                 | NC | A                           | A                    | A      | A      | A      | A      | A      | A                           | A                    | A      | A      | A      | A      | V                        | kg     |
| * TR440  | 4                  | —  | 10                          | 6                    | 3      | 1.9    | 1.5    | 1.4    | 1.2    | 5                           | 1.1                  | 0.55   | 0.31   | 0.27   | 0.2    | 600                      | 0.32   |
| * TR431  | 3                  | 1  |                             |                      |        |        |        |        |        |                             |                      |        |        |        |        |                          |        |
| * TR422  | 2                  | 2  |                             |                      |        |        |        |        |        |                             |                      |        |        |        |        |                          |        |

\* : CE mark Pending

## ■ DIMENSIONS

### TA4/TB4/TR4



## ■ USER'S INSTRUCTION

### Attention :

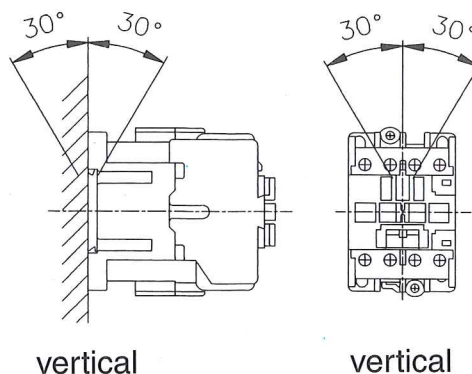
- Turn off power before carrying out any maintenance.
- Please handle carefully and avoid abnormal vibration and shock.
- The dust-proof lable on the side of frame must be tear off clearly, if side-mounted auxiliary contact block or mechanical interlock is used.
- To dismantle the magnetic contactors which is mounted by DIN 35mm rail, right "-" screw driver shall be applied and handled in running direction.
- A minimum clearance of 8mm and a minimum creepage distance of 12mm has to be ensured by the installation.

### 1. Service Environment:

- 1.1 Operational Temperature: -20°C~50°C.
- 1.2 Storage Temperature: -40°C~70°C
- 1.3 Relative Humidity: 45%~85%.
- 1.4 Altitude: below 2000m.

### 2. Installation and wiring:

- 2.1 Ensure that the specifications (Rated power, arrangement of auxiliary contact, rated coil voltage and frequency) meet the requirements.
- 2.2 Mounting positions shall be within the ranges specified below.
- 2.3 Select appropriate conductor and tighten with appropriate torque with right tool.
- 2.4 Tightening torques for contactors are given below:



| Type       | Item                         | Screw/blot | Tighting torque(kgf.cm) |
|------------|------------------------------|------------|-------------------------|
| TC11       | Main Terminal                | M3.5       | 8~12                    |
| TC16       | Main Terminal                | M3.5       | 8~12                    |
| TC21       | Main Terminal                | M4         | 12~20                   |
| TC30/35/40 | Main Terminal                | M5         | 20~25                   |
| TC50/60    | Main Terminal                | M6         | 35~40                   |
| All Series | Auxi contact & coil terminal | M3.5       | 8~12                    |

Tightening torque shall be within the values given above to avoid deteriorating the screws.

### 3. Maintenance:

- 3.1 Turn off power before conducting any maintenance.
- 3.2 Disconnect the wires in sequence.
- 3.3 Dismantle contactor as required for maintenance.
- 3.4 Assemble and connect the contactor in reverse procedures conducted in steps 3.3 and 3.2.
- 3.5 Check the contactor in a good condition.

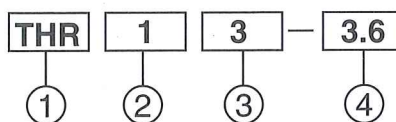
### 4. Replacement of the coil:

Follow the instructions if replacement of the coil is carried out.

- 4.1 Dismantle the contactor in appropriate means.
- 4.2 Replace the coil to requested coil.
- 4.3 Assemble the contactor in a reverse sequence conducted in step 4.1.
- 4.4 Check that the contactor can be operated normally.

# tend THERMAL OVERLOAD RELAYS

## ■ MODEL DESIGNATION

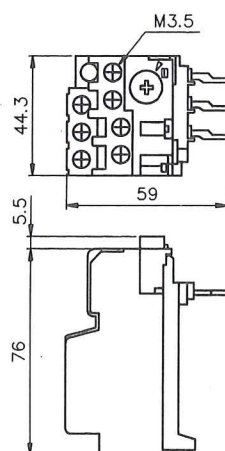
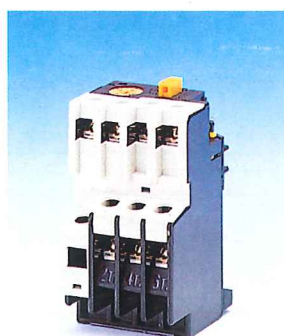


| Designation               | Signal                                               | Description                                                                                                                                                       |
|---------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.Type                    | THR<br>THP                                           | Overload Protection<br>Phase-Failure Protection                                                                                                                   |
| 2.Contacts                | 1<br>2<br>3<br>4                                     | for TC11&TC16<br>for TC21<br>for TC30/35&40<br>for TC50&TC60                                                                                                      |
| 3.Number of Heaters       | 2<br>3                                               | 2 Heater Elements<br>3 Heater Elements                                                                                                                            |
| 4.Heater Setting Range(A) | 0.12<br>0.2<br>0.3<br>0.44<br>0.6<br>0.8<br>1<br>1.2 | 0.1 — 0.12 — 0.15<br>0.16 — 0.2 — 0.24<br>0.24 — 0.3 — 0.36<br>0.36 — 0.44 — 0.54<br>0.48 — 0.6 — 0.72<br>0.64 — 0.8 — 0.96<br>0.8 — 1 — 1.2<br>0.95 — 1.2 — 1.45 |

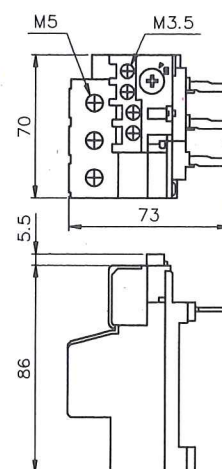
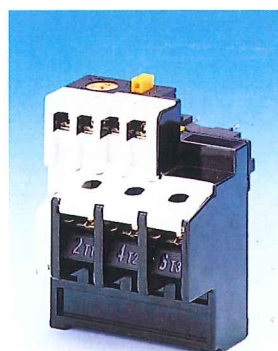
| Designation               | Signal                                      | Description                                                                                                         |
|---------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                           | 1.8<br>2.1<br>2.8<br>3.6<br>5<br>6.5<br>7.5 | 1.4 — 1.8 — 2.2<br>1.7 — 2.1 — 2.6<br>2.2 — 2.8 — 3.4<br>2.8 — 3.6 — 4.2<br>4 — 5 — 6<br>5 — 6.5 — 8<br>6 — 7.5 — 9 |
| 4.Heater Setting Range(A) | 9<br>11<br>15<br>19<br>23                   | 7 — 9 — 11<br>9 — 11 — 13<br>12 — 15 — 18<br>16 — 19 — 22<br>20 — 23 — 26                                           |
|                           | 28<br>33<br>40<br>54<br>67                  | 22 — 28 — 34<br>28 — 33 — 38<br>32 — 40 — 48<br>43 — 54 — 65<br>54 — 67 — 80                                        |

\* Range: (THR1: 0.1A-18A, THR2: 1.4A-26A THR3: 7A-48A, THR4: 16A-80A)

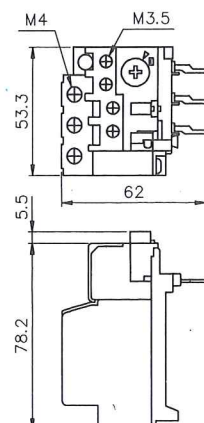
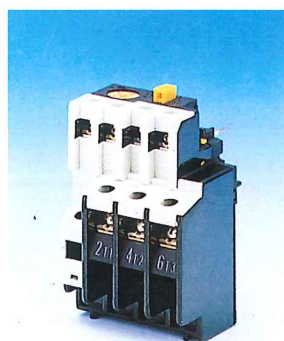
THR1/THP1



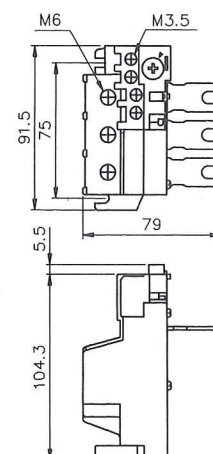
THR3/THP3



THR2/THP2



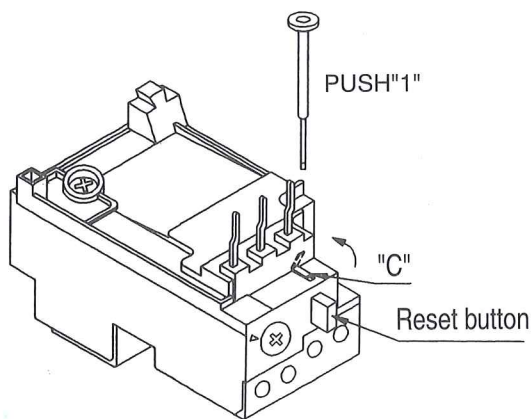
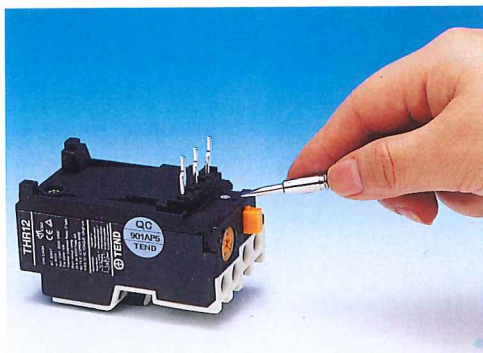
THR4/THP4



\* CE mark Pending

# tend THERMAL OVERLOAD RELAYS

THR(THP)

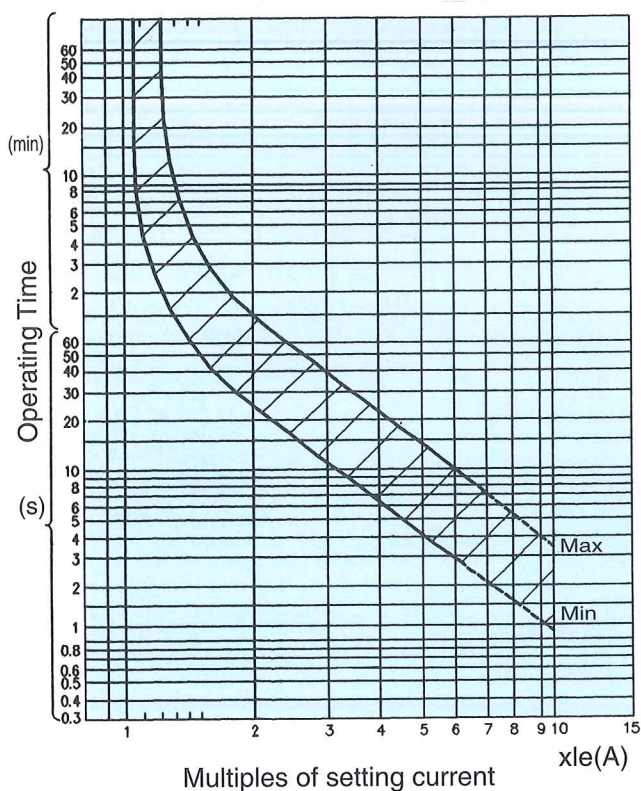


**Manual Reset :**  
Press reset button  
to reset the Thermal  
Overload Relay

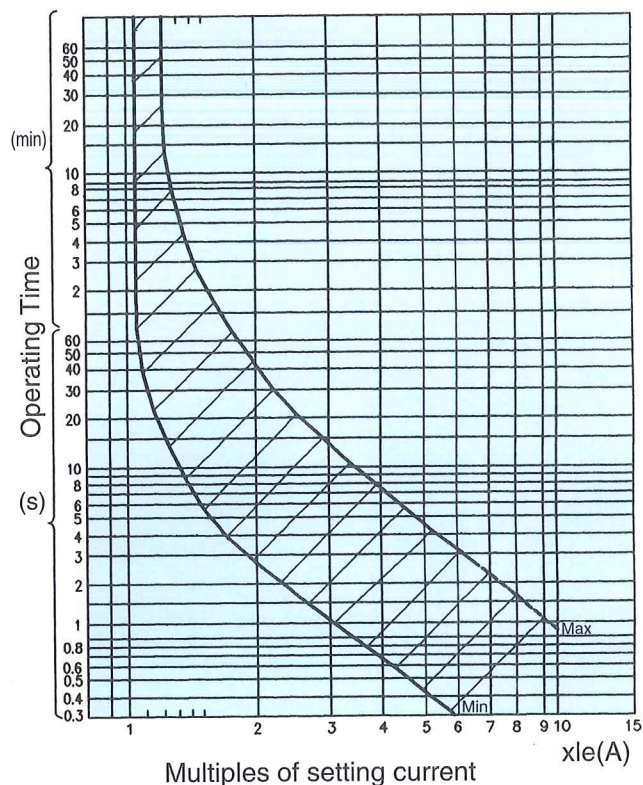
**Auto Reset :**  
Take off "C"  
Then press reset button  
and push "1" (flat screw  
driver) to lock the button  
to become autoreset.

## Operating Characteristics of Thermal Overload Relays

Cold State Curves



Hot State Curves

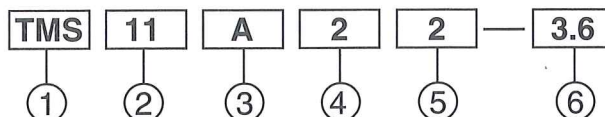


## Star-Delta Starter Selection Table

| Type                |                 | Y-TC21 | Y-TC35 | Y-TC50 | Y-TC60 |
|---------------------|-----------------|--------|--------|--------|--------|
| Motor Output KW(HP) | 200-220V        | 11(15) | 19(25) | 22(30) | 30(40) |
|                     | 380V            | 19(25) | 30(40) | 45(60) | 55(75) |
|                     | 440V            | 19(25) | 30(40) | 45(60) | 55(75) |
| Contactor Used      | MC <sub>M</sub> | TC21   | TC35   | TC50   | TC60   |
|                     | MC <sub>D</sub> | TC21   | TC35   | TC50   | TC60   |
|                     | MC <sub>S</sub> | TC11   | TC16   | TC21   | TC21   |

# tend MAGNETIC SWITCHES

## ■ MODEL DESIGNATION



| Designation          | Signal | Description                           |
|----------------------|--------|---------------------------------------|
| 1.Type               | TMS    | Open Type                             |
|                      | TMR    | Reversing Type                        |
|                      | TES    | Enclosed Type                         |
|                      | TEB    | Enclosed with pushbutton              |
|                      | TEL    | Enclosed with indicator               |
|                      | TEW    | Enclosed with rainproof (IEC144 IP65) |
| 2.Model              | 11     | 12A (Rated Capacity                   |
|                      | 16     | 16A Based on AC3                      |
|                      | 21     | 24A 3ph, 220VAC)                      |
|                      | 30     | 30A                                   |
|                      | 35     | 35A                                   |
|                      | 40     | 44A                                   |
|                      | 50     | 58A                                   |
|                      | 60     | 68A                                   |
| 3.Auxiliary Contacts | (none) | 1a1b,2a2b(For TMS50,60)               |
|                      | A      | 1a                                    |
|                      | B      | 1b                                    |

| Designation               | Signal     | Description              |        |
|---------------------------|------------|--------------------------|--------|
|                           |            | 50Hz                     | 60Hz   |
| 4.Coil<br>Voltage         | 1          | 100VAC                   | 110VAC |
|                           | 2          | 200VAC                   | 220VAC |
|                           | 3          | 346VAC                   | 380VAC |
|                           | 4          | 380–400VAC               | 440VAC |
|                           | 5          | 110VAC                   | 120VAC |
|                           | 6          | 240VAC                   | 260VAC |
|                           | 7          | 24VAC                    | 24VAC  |
|                           | 8          | 48VAC                    | 48VAC  |
|                           | 9          | 415VAC                   | 460VAC |
|                           | a          | 220VAC                   | 240VAC |
|                           | b          | 500VAC                   | 550VAC |
|                           | c          | 32VAC                    | 32VAC  |
| 5.Number of<br>Heaters    | 2          | 2 Heaters                |        |
|                           | 3          | 3 Heaters                |        |
|                           | P          | Phase–Failure(3 Heaters) |        |
| 6.Heater Setting<br>Range | See Page 6 |                          |        |

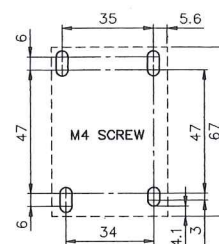
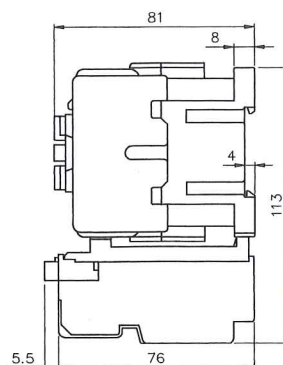
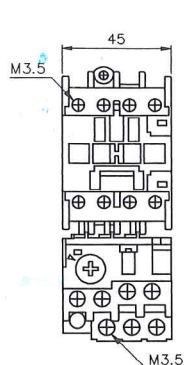
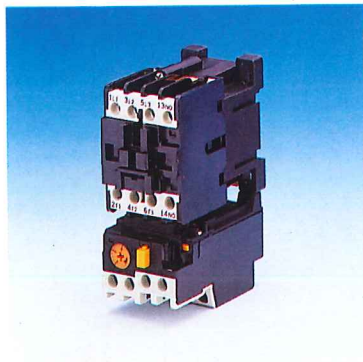
## ■ RATING AND CHARACTERISTICS

| Type No. | Auxiliary<br>Contacts |    | Rated<br>Operating<br>Current<br>(AC1)<br>Ith | ICE 60947 Rated Capacity (AC3) |                  |                  |                  |                    | Rated<br>Insulation<br>Voltage | Weight |
|----------|-----------------------|----|-----------------------------------------------|--------------------------------|------------------|------------------|------------------|--------------------|--------------------------------|--------|
|          |                       |    |                                               | 1 Phase                        |                  | 3 Phase          |                  |                    |                                |        |
|          |                       |    |                                               | 100V<br>120V                   | 200V<br>220V     | 200V<br>220V     | 380V<br>440V     | 500V<br>550V       |                                |        |
|          | NO                    | NC | A                                             | A<br>kw<br>hp                  | A<br>kw<br>hp    | A<br>kw<br>hp    | A<br>kw<br>hp    | A<br>kw<br>hp      | V                              | kg     |
| TMS11A   | 1                     | —  | 25                                            | 12<br>0.55<br>0.75             | 12<br>1.1<br>1.5 | 12<br>3<br>4     | 12<br>5.5<br>7.5 | 9<br>5.5<br>7.5    | 600                            | 0.43   |
| TMS11B   | —                     | 1  |                                               |                                |                  |                  |                  |                    |                                |        |
| TMR11AB  | 1                     | 1  |                                               |                                |                  |                  |                  |                    |                                | 0.88   |
| TMR112A  | 2                     | —  |                                               |                                |                  |                  |                  |                    |                                |        |
| TMR112B  | —                     | 2  |                                               |                                |                  |                  |                  |                    |                                |        |
| TMS16A   | 1                     | —  | 30                                            | 16<br>0.75<br>1                | 16<br>1.5<br>2   | 16<br>4<br>5.5   | 16<br>7.5<br>10  | 12<br>7.5<br>10    | 600                            | 0.43   |
| TMS16B   | —                     | 1  |                                               |                                |                  |                  |                  |                    |                                |        |
| TMR16AB  | 1                     | 1  |                                               |                                |                  |                  |                  |                    |                                | 0.88   |
| TMR162A  | 2                     | —  |                                               |                                |                  |                  |                  |                    |                                |        |
| TMR162B  | —                     | 2  |                                               |                                |                  |                  |                  |                    |                                |        |
| TMS21    | 1                     | 1  | 40                                            | 24<br>1.1<br>1.5               | 24<br>2.2<br>3   | 24<br>5.5<br>7.5 | 24<br>11<br>15   | 18.4<br>11<br>15   | 600                            | 0.51   |
| TMR21    | 2                     | 2  |                                               |                                |                  |                  |                  |                    |                                | 1.04   |
| TMS30    | 1                     | 1  | 50                                            | 30<br>1.5<br>2                 | 30<br>3<br>4     | 30<br>7.5<br>10  | 30<br>15<br>20   | 23<br>15<br>20     | 600                            | 1.03   |
| TMR30    | 2                     | 2  |                                               |                                |                  |                  |                  |                    |                                | 2.08   |
| TMS35    | 1                     | 1  | 50                                            | 35<br>1.8<br>2.5               | 35<br>4<br>5     | 35<br>9<br>12    | 35<br>15<br>20   | 28.5<br>18.5<br>25 | 600                            | 1.03   |
| TMR35    | 2                     | 2  |                                               |                                |                  |                  |                  |                    |                                | 2.08   |
| TMS40    | 1                     | 1  | 60                                            | 44<br>2.2<br>3                 | 44<br>5.5<br>7.5 | 44<br>11<br>15   | 44<br>22<br>30   | 33<br>22<br>30     | 600                            | 1.03   |
| TMR40    | 2                     | 2  |                                               |                                |                  |                  |                  |                    |                                | 2.08   |
| TMS50    | 2                     | 2  | 80                                            | 58<br>3<br>4                   | 58<br>5.5<br>7.5 | 58<br>15<br>20   | 52<br>30<br>40   | 41<br>30<br>40     | 600                            | 1.55   |
| TMR50    | 4                     | 4  |                                               |                                |                  |                  |                  |                    |                                | 2.76   |
| TMS60    | 2                     | 2  | 100                                           | 68<br>3.7<br>5                 | 68<br>7.5<br>10  | 68<br>19<br>25   | 65<br>37<br>50   | 52<br>37<br>50     | 600                            | 1.55   |
| TMR60    | 4                     | 4  |                                               |                                |                  |                  |                  |                    |                                | 2.76   |

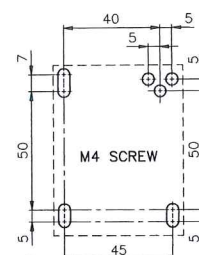
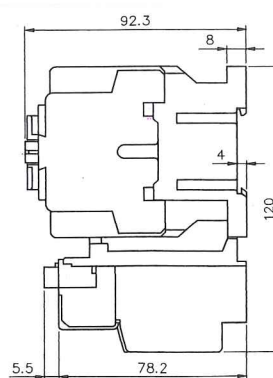
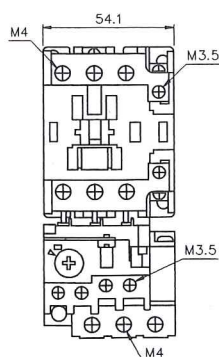
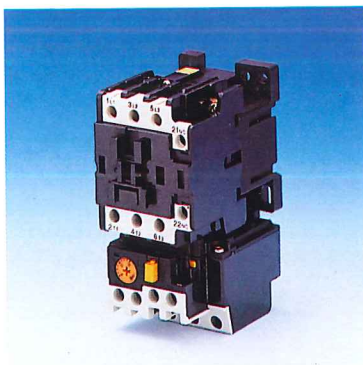
# tend MAGNETIC SWITCHES

## ■ DIMENSIONS

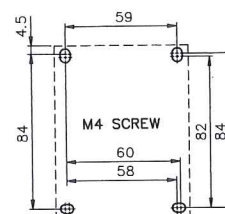
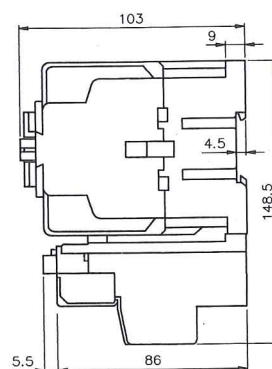
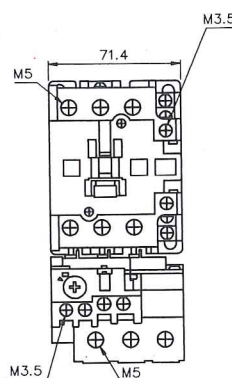
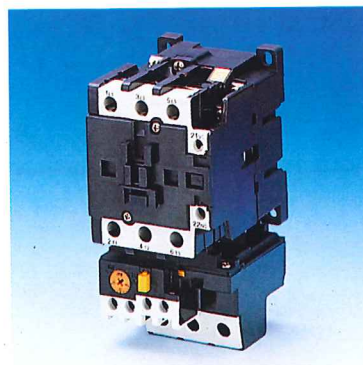
### TMS11/16



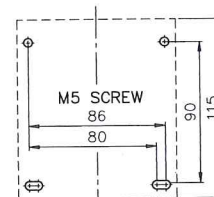
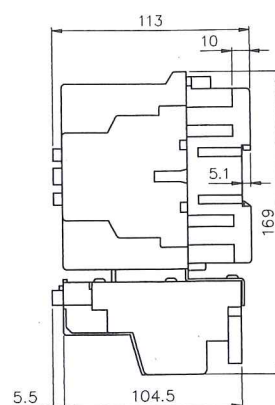
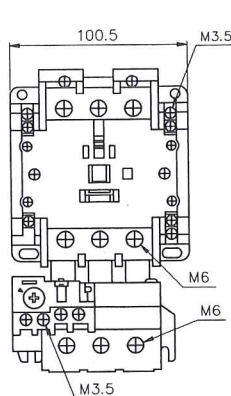
### TMS21



### TMS30/35/40



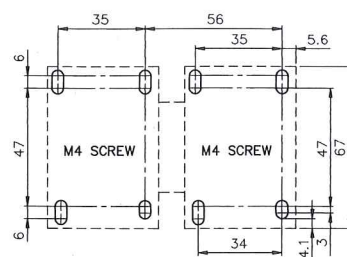
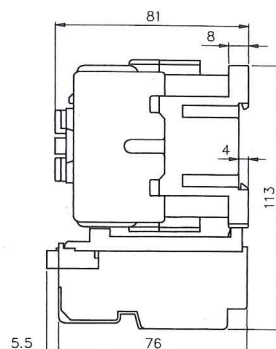
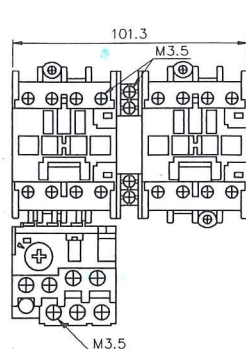
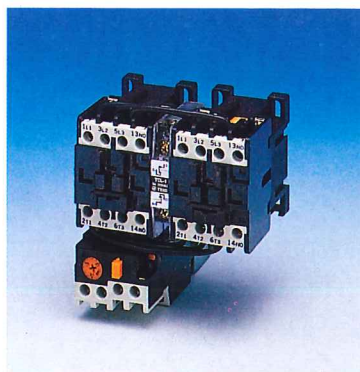
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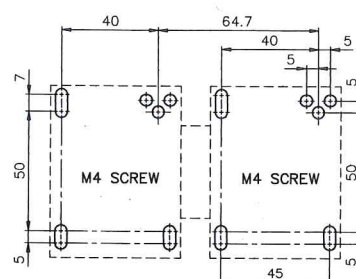
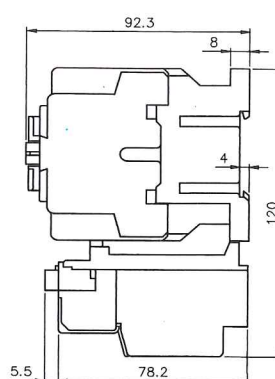
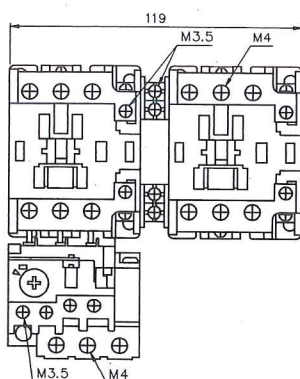
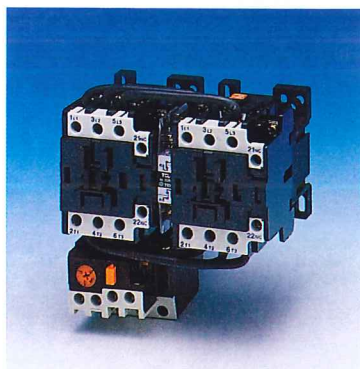
# tend MAGNETIC SWITCHES

## ■ DIMENSIONS

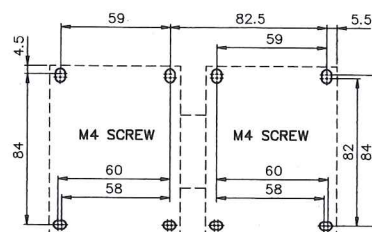
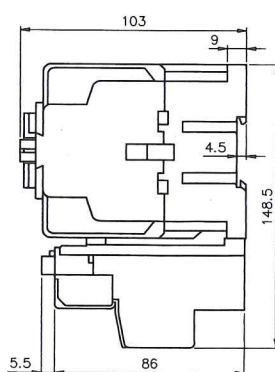
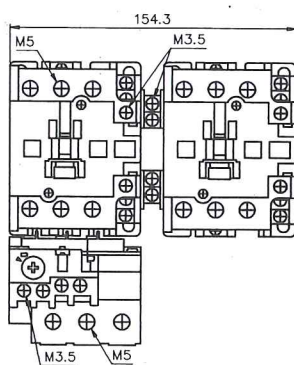
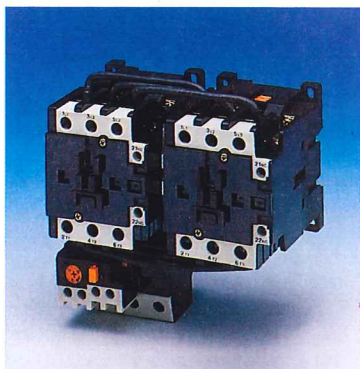
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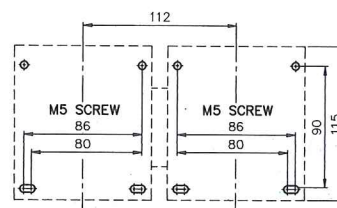
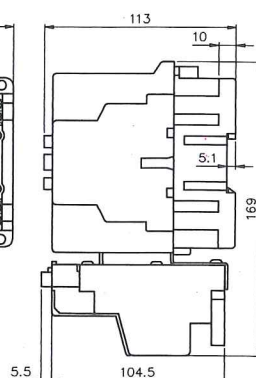
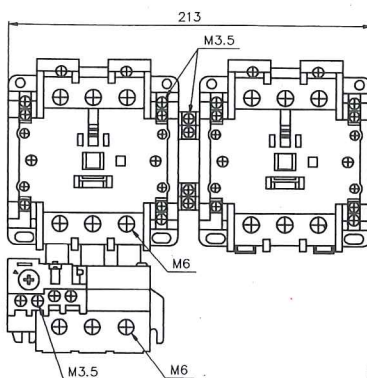
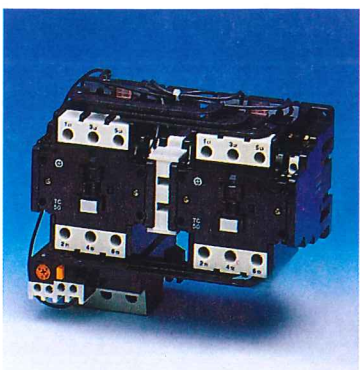
### TMR21



### TMR30/35/40



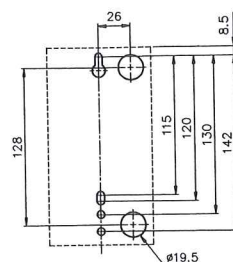
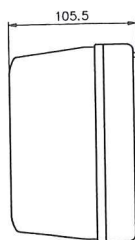
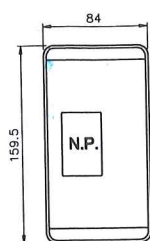
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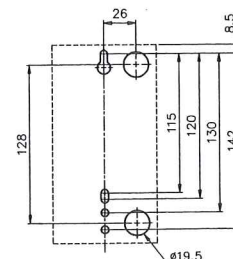
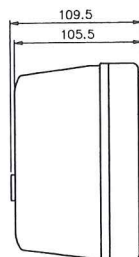
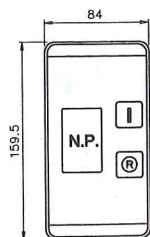
# tend MAGNETIC SWITCHES

## ■ DIMENSIONS

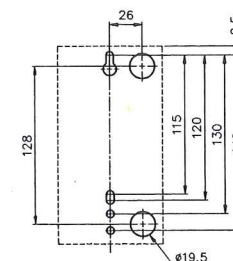
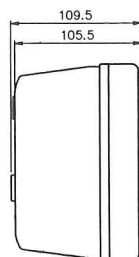
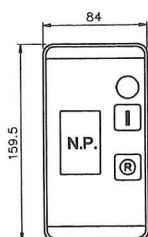
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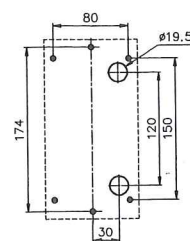
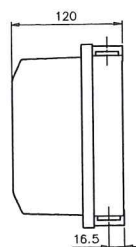
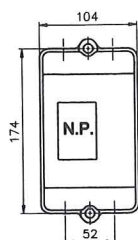
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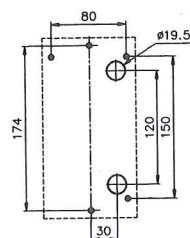
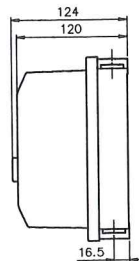
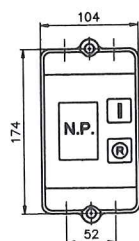
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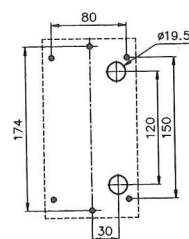
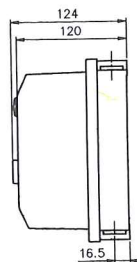
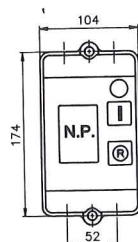
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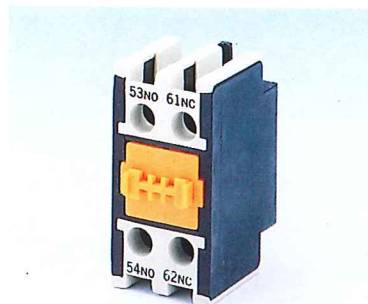
**TEB21**



**TEW11/16/21 TEL21**

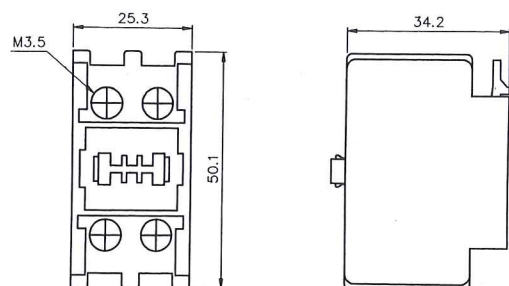


## Auxiliary Contact Blocks(Front Mounted)

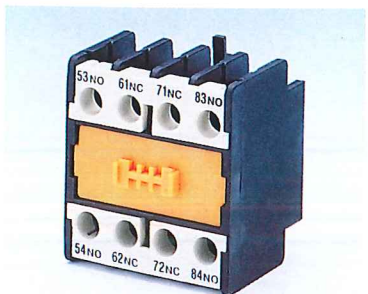


| Type NO. | NO | NC |
|----------|----|----|
| TCF-211  | 1  | 1  |
| TCF-220  | 2  | —  |
| TCF-202  | —  | 2  |

Suitable For:TC11-TC80

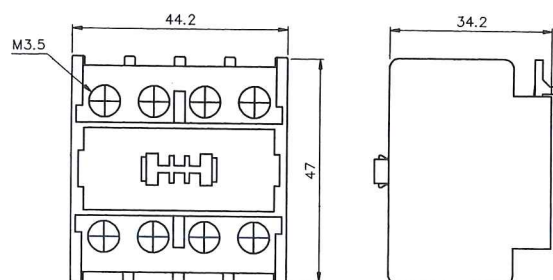


## Auxiliary Contact Blocks(Front Mounted)

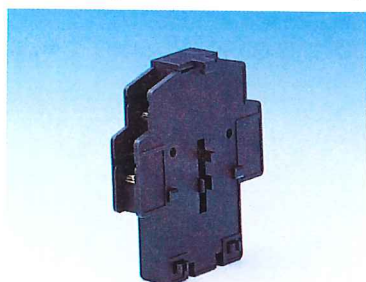


| Type NO. | NO | NC |
|----------|----|----|
| TCF-440  | 4  | —  |
| TCF-431  | 3  | 1  |
| TCF-422  | 2  | 2  |
| TCF-413  | 1  | 3  |
| TCF-404  | —  | 4  |

Suitable For:TC11-TC80

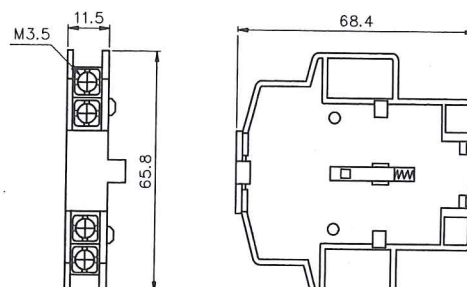


## Auxiliary Contact Blocks(Side Mounted)

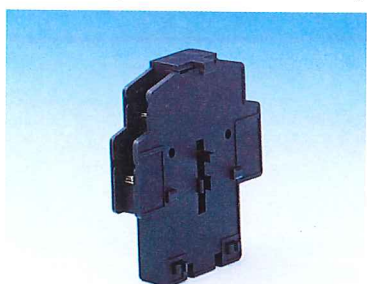


| Type NO. | NO | NC |
|----------|----|----|
| TCS-111  | 1  | 1  |
| TCS-120  | 2  | —  |
| TCS-102  | —  | 2  |

Suitable For:TC11-TC16

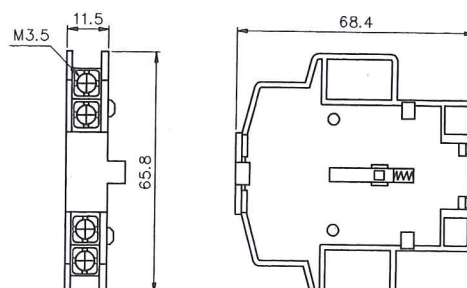


## Auxiliary Contact Blocks(Side Mounted)



| Type NO. | NO | NC |
|----------|----|----|
| TCS-211  | 1  | 1  |
| TCS-220  | 2  | —  |
| TCS-202  | —  | 2  |

Suitable For:TC21

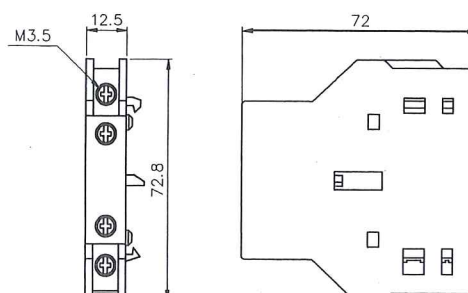


## Auxiliary Contact Blocks(Side Mounted)



| Type NO. | NO | NC |
|----------|----|----|
| TCS-311  | 1  | 1  |
| TCS-320  | 2  | —  |
| TCS-302  | —  | 2  |

Suitable For:TC30-TC80

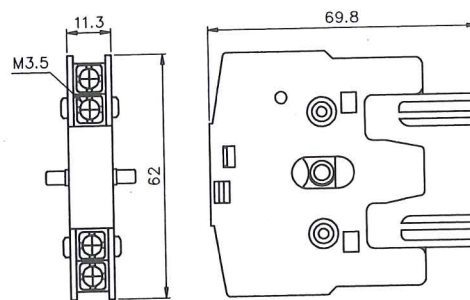


# tend ACCESSORIES

## Mechanical Interlock



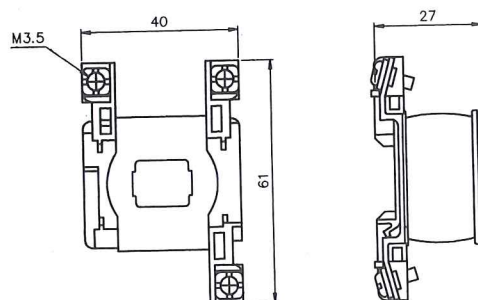
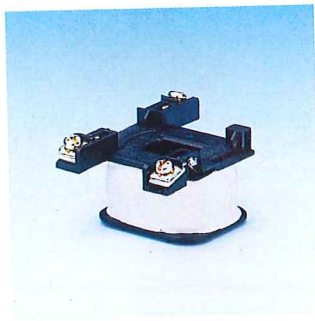
| Type No. | NO | NC | Suitable For |
|----------|----|----|--------------|
| *TCL-1   | —  | 2  | TC11 - TC21  |
| TCL-1N   | —  | —  | TC11 - TC21  |
| *TCL-3   | —  | 2  | TC30 - TC40  |
| TCL-3N   | —  | —  | TC30 - TC40  |
| *TCL-4   | —  | 2  | TC50 - TC80  |
| TCL-4N   | —  | —  | TC50 - TC80  |



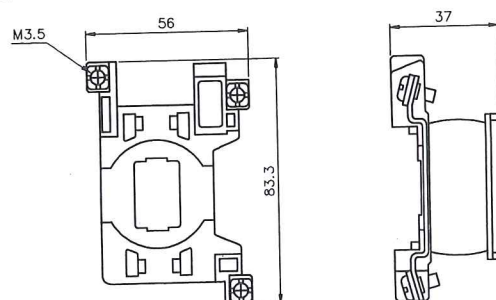
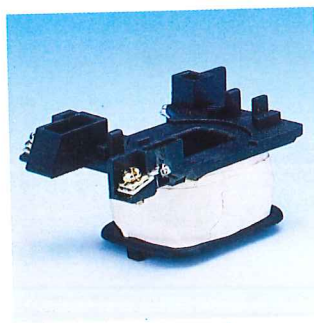
\* :with electrical interlock

| Type No. | Rated Operating Current Ith | Rated Capacity(AC15) |        |        |        |        |        | Rated Operating Current Ith | Rated Capacity(DC13) |        |        |        |        | Rated Insulation Voltage | Weight |
|----------|-----------------------------|----------------------|--------|--------|--------|--------|--------|-----------------------------|----------------------|--------|--------|--------|--------|--------------------------|--------|
|          |                             | 120VAC               | 240VAC | 380VAC | 480VAC | 500VAC | 600VAC |                             | 125VAC               | 250VAC | 400VAC | 500VAC | 600VAC |                          |        |
|          | A                           | A                    | A      | A      | A      | A      | A      | A                           | A                    | A      | A      | A      | A      | V                        | kg     |
| TCF-2    | 10                          | 6                    | 3      | 1.9    | 1.5    | 1.4    | 1.2    | 5                           | 1.1                  | 0.55   | 0.31   | 0.27   | 0.2    | 600                      | 0.034  |
| TCF-4    |                             |                      |        |        |        |        |        |                             |                      |        |        |        |        |                          | 0.054  |
| TCS-1(2) |                             |                      |        |        |        |        |        |                             |                      |        |        |        |        |                          | 0.034  |
| TCS-3    |                             |                      |        |        |        |        |        |                             |                      |        |        |        |        |                          | 0.040  |
| TCL      |                             |                      |        |        |        |        |        |                             |                      |        |        |        |        |                          | 0.036  |

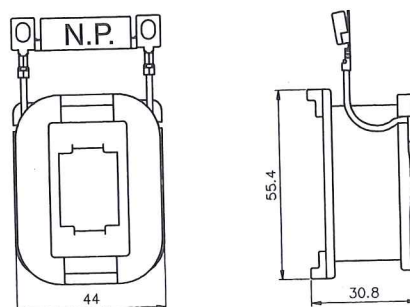
## Spare Coil:TCC-11 Suitable For: TC11-21



## Spare Coil:TCC-30 Suitable For: TC30-40

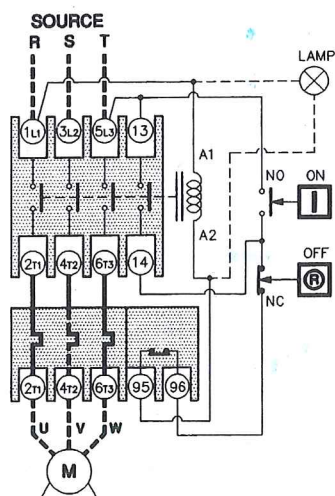


## Spare Coil:TCC-50 Suitable For: TC50-80

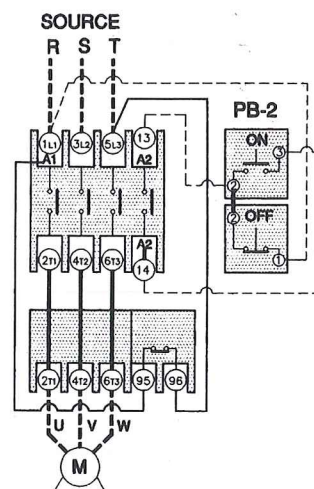


## ■ CONNECTION DIAGRAMS

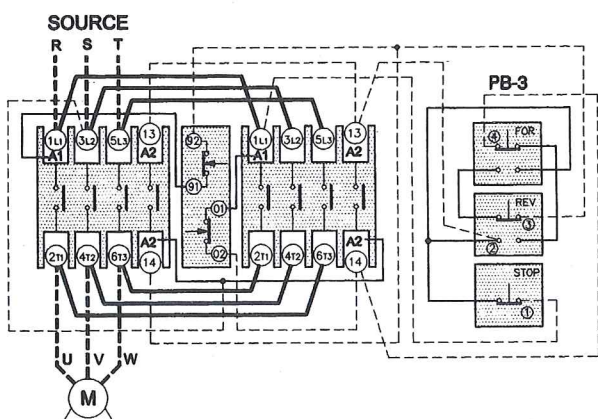
TEB11/16/21  
TEL11/16/21  
TEW11/16/21



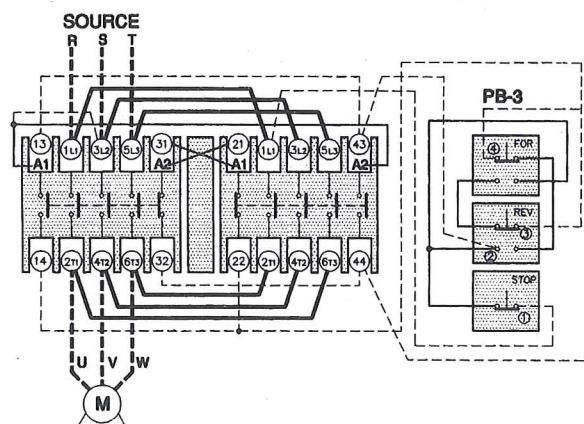
TMS11/16/21  
TMS30/35/40  
TMS50/60/80  
TES11/16/21



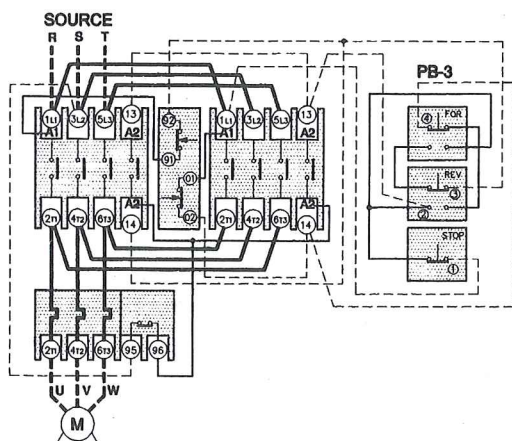
TCR11/16/21, TCR30/35/40



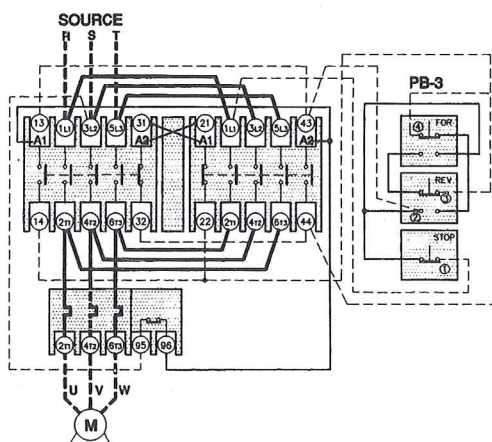
TCR50/60/80



TMR11/16/21, TMR30/35/40

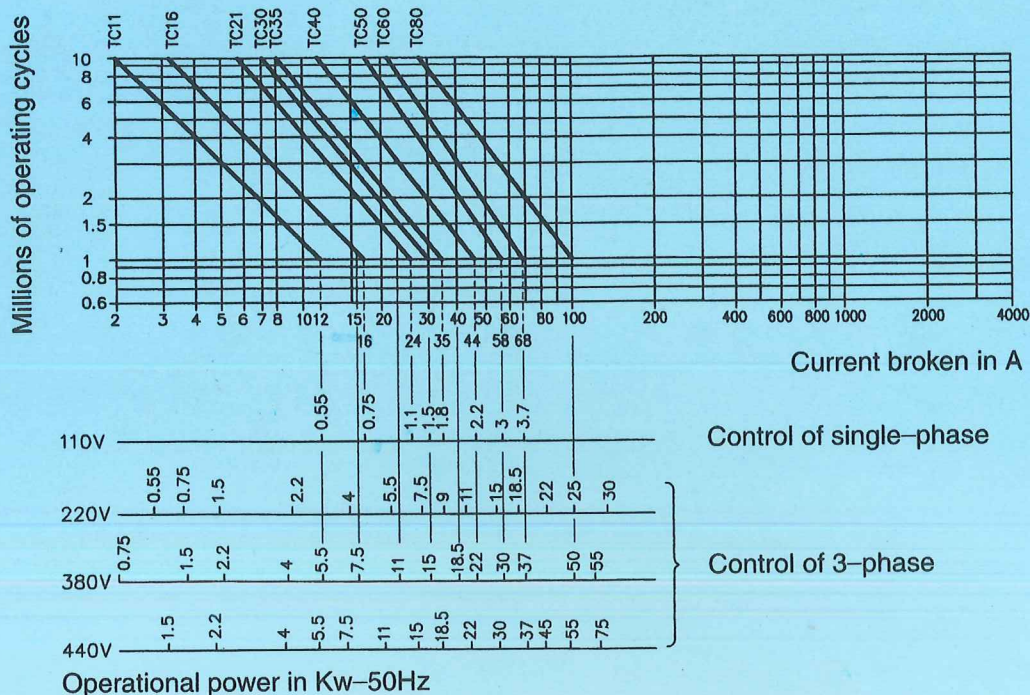


TMR50/60/80

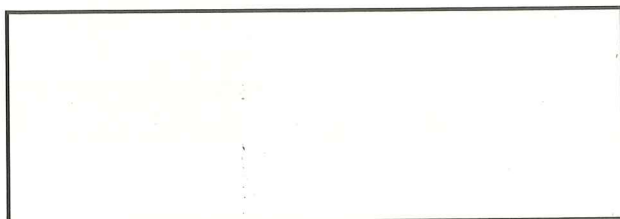
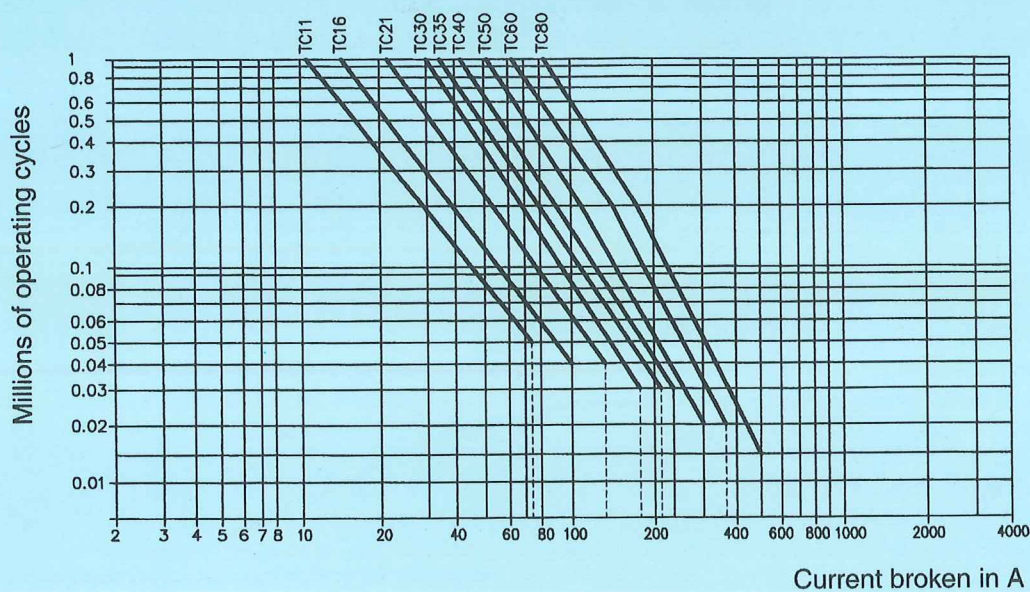


# tend CONTACTOR SELECTION GUIDE

Ues in category AC-3( $U_e \leq 440V$ )



Ues in category AC-4( $U_e \leq 440V$ )



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