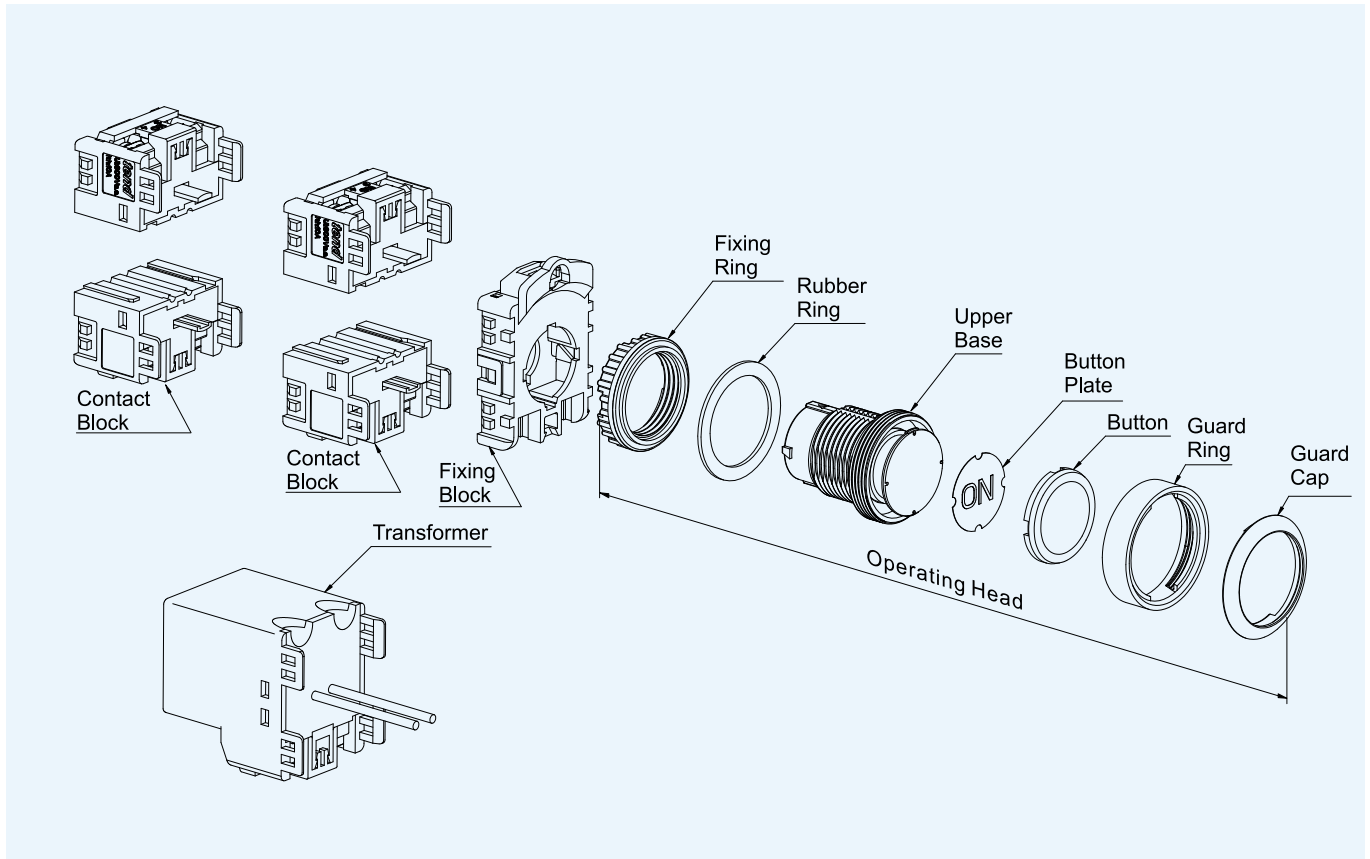


# tend TN2 Ø22/Ø25/Ø30 SERIES CONTROL COMPONENTS <sup>TN2</sup>

The operating head and contact block of TN2 series are detachable. The protection structure for this series is IP65(ICE144) for waterproof, oil ting and bust proof in harsh environment except twin-touch push button and illuminated push button switches are IP40.

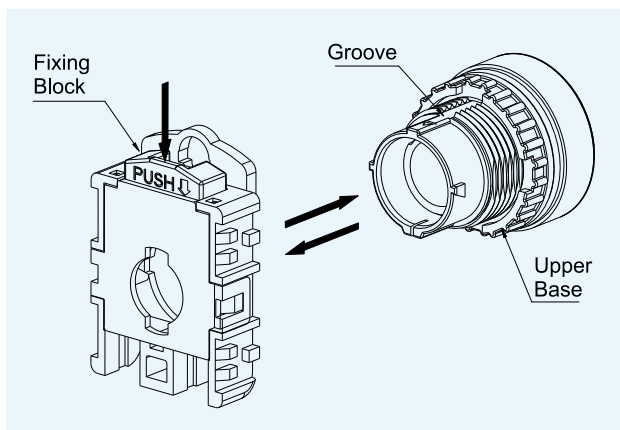
## ■ CONFIGURATION OF SWITCHES



## ■ FEATURES

TN2 series switches are detachable in 3 sub-assembly. It consists of upper base, fixing block and contact block.

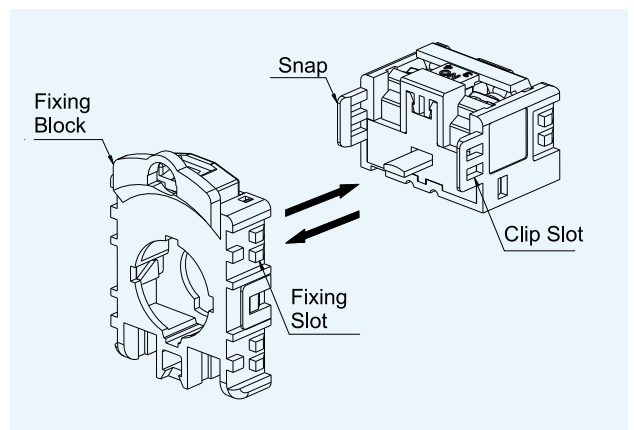
- Assembly and disassembly of fixing block with upper base



Assembly: Align the hole on top of fixing block with groove on the upper base and push them together.

Disassembly: Place downward by hand or use flat screwdriver to push down the orange button thru the hole on top of fixing block

- Assembly and disassembly of fixing block with contact block

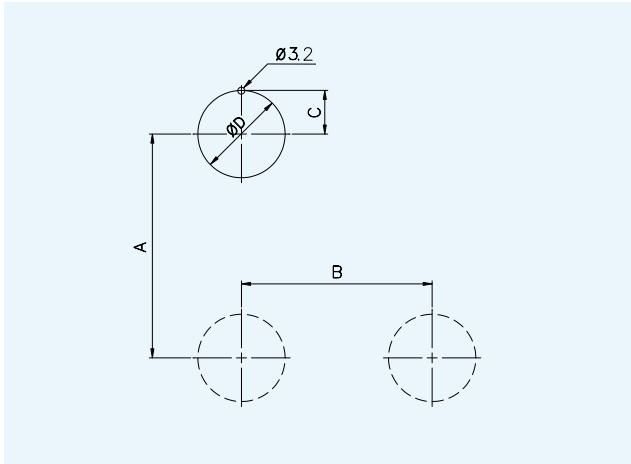


Assembly: Align the fixing slot on the fixing block to clip slot on contact block.

Disassembly: Use flat screwdriver toward fixing slot to lift up clip and snap for disassembly.

## ■ PANEL CUT-OUT

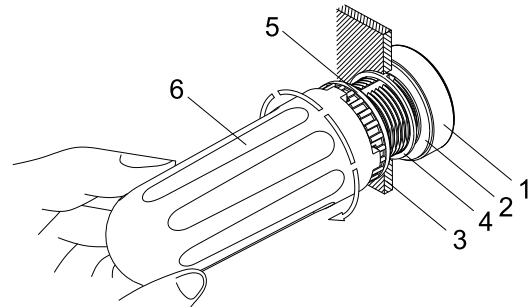
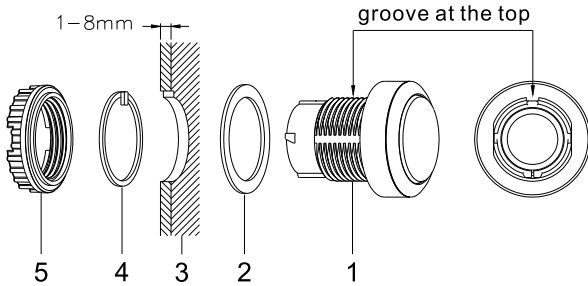
Ø22/Ø25/Ø30 Series



## DIMENSIONS (mm)

| Series |  | Ø22    | Ø25  | Ø30  |
|--------|--|--------|------|------|
| A      | All types except Twin-touch & Joystick                 | 50min. |      |      |
|        | Twin-Touch   | 60min. |      |      |
|        | Joystick   | 90min. |      |      |
| B      | Light push button & selector                           | 31     | 31   | 35   |
|        | With name plate  | 41min. |      |      |
|        | Mushroom, Push-Lock, Long & Lever Selector, Twin-touch | 39min. |      |      |
|        | Joystick   | 90min. |      |      |
| C      | All types  | 11.2   | 12.7 | 15.2 |
| D      | All types  | 22.4   | 25.4 | 30.4 |

## ■ MOUNTING METHOD

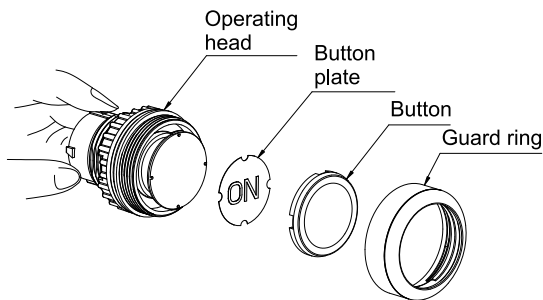


| 1              | 2           | 3     | 4         | 5           | 6           |
|----------------|-------------|-------|-----------|-------------|-------------|
| Operating head | Rubber ring | Panel | Stop ring | Fixing ring | Fixing tool |

- Install the operating head and rubber ring through the front panel and tighten fixing ring with fixing tool

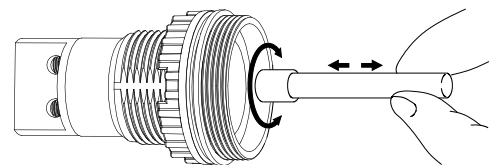
## ■ INDICATION OF LETTERS AND SYMBOLS

Transparent printing paper (types: see TA86)



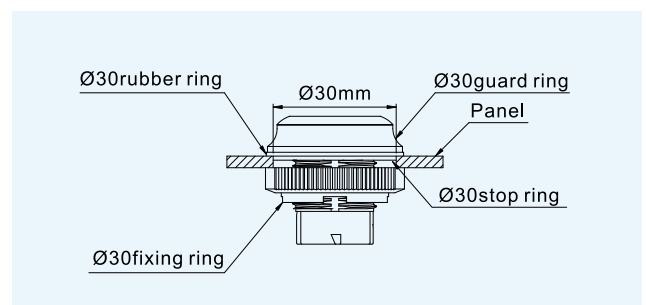
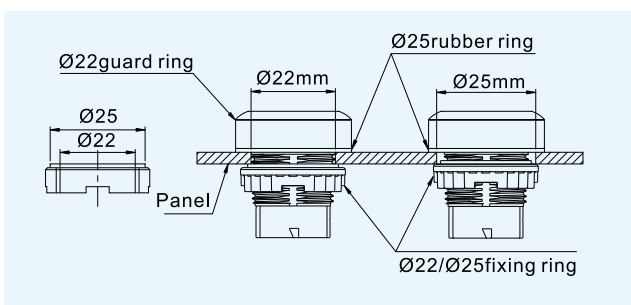
## ■ METHOD TO REPLACE LAMP

Disassembly fixing block from operating read and turn the lamp



## ■ Ø22MM/Ø25MM SERIES ARE THE SAME DIMENSIONS WITH COMMON FIXING RING.

## ● THE ASSEMBLY METHOD FOR Ø30 SERIES



## ■ TYPES OF FIXING BLOCK

There are three different types of fixing blocks.

Standard Fixing Block(TN2-1)



Direct Fixing Block(TN2-2)



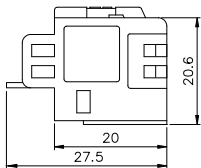
Transformer type Fixing Block(TN2-3)



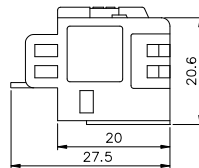
## ■ TYPES OF CONTACT BLOCK AND EXTENSION OF CONTACT BLOCK

There are 1a(1NO) 、1b(1NC) and 1c(1NO、1NC).

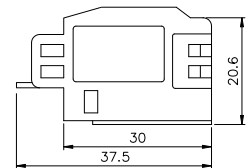
TN2-A(1a)



TN2-B(1b)



TN2-C(1c)



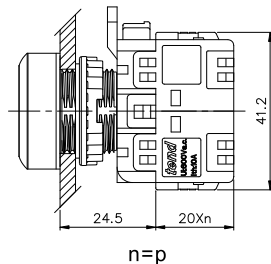
## ■ CONTACT BLOCKS CAN HAVE THE FOLLOWING 3 STYLES. IT DEPENDS ON THE FIXING BLOCKS

1. Stand contact block: standard fixing block with contact block. It can be extended to 4c (or 8a or 8b) used in non-illuminated products.
2. Direct contact block: direct fixing block with contact block. It can be extended to 4c(or 8a or 8b) used in illuminated products.
3. Transformer type contact block: transformer type fixing block with contact block. It can be extended to 2c (or 4a or 4b) used in transformer in illuminated products.

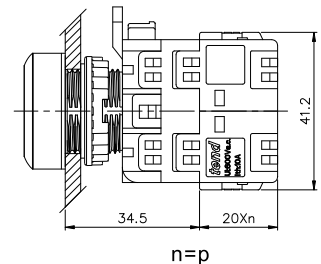
### ■ DIMENSIONS OF STAND CONTACT BLOCK

### ■ DIMENSIONS OF DIRECT CONTACT CONTACT BLOCK

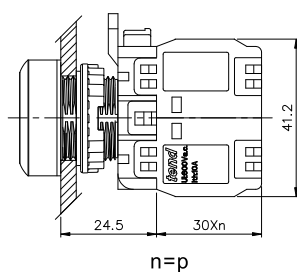
TN2-1a~TN2-8a  
TN2-1b~TN2-8b



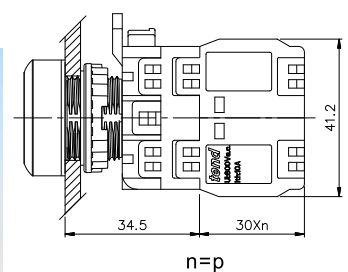
TN2-I1a~TN2-I8a  
Tn2-I1b~TN2-I8b



TN2-1c~TN2-4c

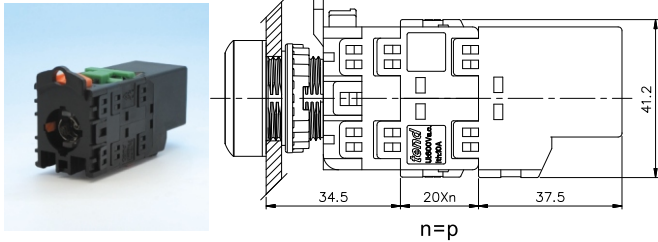


Tn2-I1c~TN2-I4c

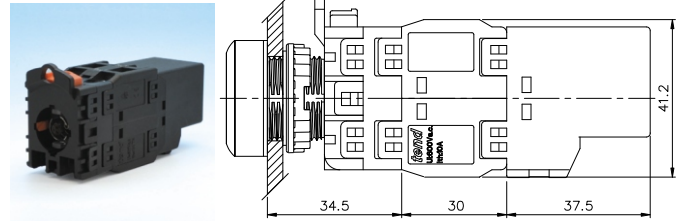


## DIMENSIONS OF TRANSFORMER TYPE OF CONTACT BLOCK

TN2-T1a~TN2-T4a.TN2-T1ab  
TN2-T1b~TN2-T4b



TN2-T2c



## CONTACT RATING

| AC             | AC11           | AC24V | AC110V | AC220V | AC380V | AC440V              | DC  | DC11           | DC24V | DC110V | DC220V | DC380V |
|----------------|----------------|-------|--------|--------|--------|---------------------|-----|----------------|-------|--------|--------|--------|
|                | Inductive load | 10A   | 6A     | 4A     | 2.5A   | 2A                  |     | Inductive load | 1.5A  | 0.5A   | 0.2A   | 0.1A   |
| Resistive load | 10A            | 10A   | 6A     | 5A     | 4A     | DC14 Resistive load | 10A | 2A             | 0.6A  | 0.2A   |        |        |

## CHARACTERISTICS

|                       |                              |  |
|-----------------------|------------------------------|--|
| Operating frequency   | Mechanically                 | Push button(momentary) 60 cycles / min., Others 30 cycles / min.         |
|                       | Electrically                 | 30 cycles / min  |
| Service life          | mechanically                 | Push button(momentary)3,000,000 operations., Others 300,000 operations.  |
|                       | Electrically                 | Push button(momentary)500,000 operations., Others 200,000 operations.    |
| Shock                 | Durability                   | Tans former series 600m/s <sup>2</sup> ., others 1000m/s <sup>2</sup>    |
|                       | Malfunction                  | Push button(momentary)1000m/s <sup>2</sup> ., others 250m/s <sup>2</sup> |
| Vibration             | Malfunction                  | 10~55Hz double amplitude 1.5mm   |
| Contact resistance    | 50mΩ max. (Initial value)    |  |
| Insulation resistance | 100MΩ min.(500VDC)           |  |
| Dielectric strength   | 2500VAC,50/60 HZ for 1minute |  |
| Ambient temperature   | -20°C~+60°C                  |  |
| Humidity              | 45~85%RH                     |  |

## STANDARD CONTACT BLOCKS

| Type                | TN2-1A | TN2-1B | TN2-1C | TN2-2A | TN2-2B | TN2-2C |
|---------------------|--------|--------|--------|--------|--------|--------|
| Contact             | 1a     | 1b     | 1a1b   | 2a     | 2b     | 2a2b   |
| Contact Arrangement |        |        |        |        |        |        |

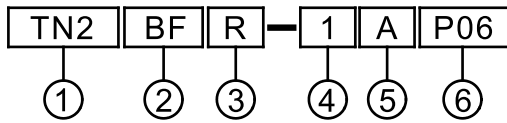
| Type                | TN2-3A | TN2-3B | TN2-3C | TN2-4A | TN2-4B | TN2-4C |
|---------------------|--------|--------|--------|--------|--------|--------|
| Contact             | 3a     | 3b     | 3a3b   | 4a     | 4b     | 4a4b   |
| Contact Arrangement |        |        |        |        |        |        |

# tend PUSH BUTTON SWITCH(TN2 Ø22/Ø25/Ø30)

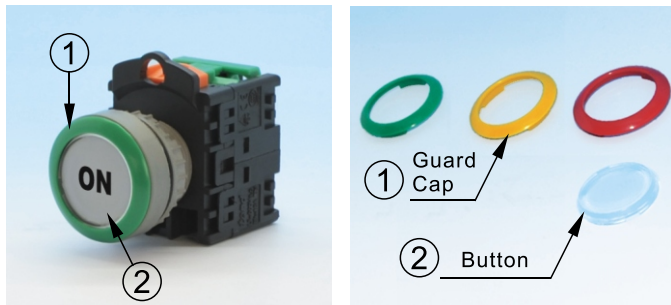
TN2

The contact block of this series is standard see page TA69,70 for contact arrangement and dimensions. Twin touch type can only used with AB contact.

## MODEL DESIGNATION



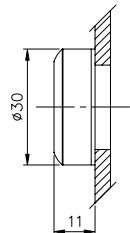
It must use transparent button to have marking printing on buttons. The colours can be distinguished by using different colour guard ring.



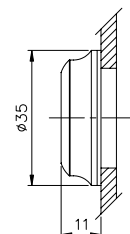
| Designation                    | Signal                                 | Description  |
|--------------------------------|--|--|
| 1.Mounting Hole                | TN2<br>TN3                             | Ø22mm/Ø25mm<br>Ø30mm   |
| 2.Type                         | BF<br>BL<br>BM<br>BA<br>BK<br>BP<br>BT | Flat<br>Long head<br>Mushroom head<br>Long head(alternate)<br>Push-lock<br>Push-pull<br>Twin-touch |
| 3.Lens Color                   | R<br>G<br>Y<br>W<br>BL<br>B            | Red<br>Green<br>Yellow<br>White<br>Blue (only available with lettering)<br>Black                   |
| 4.No. of Contacts Fitted       | 1<br>2<br>3<br>4                       | 1<br>2<br>3<br>4   |
| 5.Type of contact Block Fitted | A<br>B<br>C<br>AB                      | 1a<br>1b<br>1a1b<br>1a+1b  |
| 6.Lettering                    | 00<br>P01~P43<br>M01~M22               | NO Lettering<br>See TA86 TPP<br>See TA86 TPM   |

## OPERATING HEADS DIMENSIONS

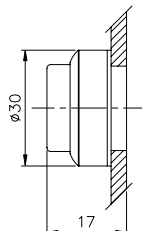
TN2BF



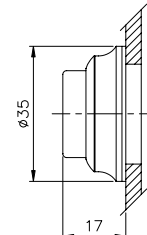
TN3BF



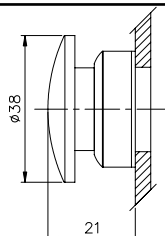
TN2BL



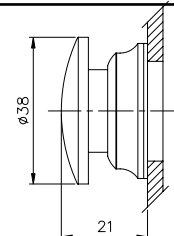
TN3BL



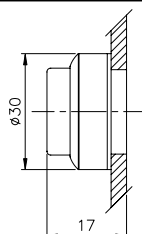
TN2BM



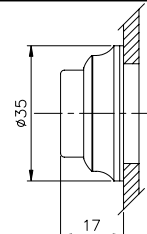
TN3BM



TN2BA



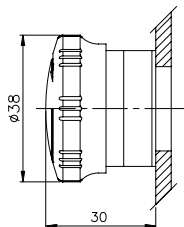
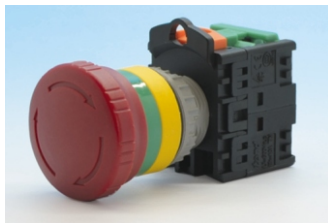
TN3BA



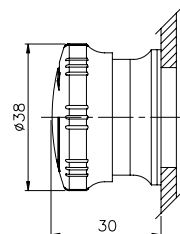
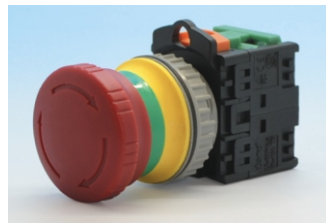
# tend PUSH BUTTON SWITCH(TN2 Ø22/Ø25/Ø30)

TN2

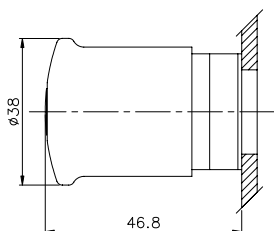
TN2BK



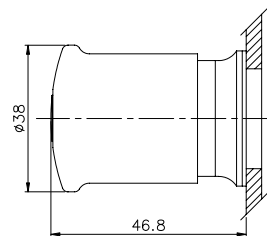
TN3BK



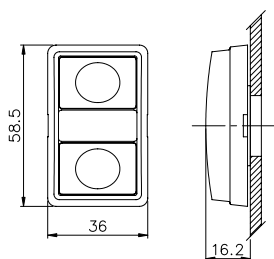
TN2BP



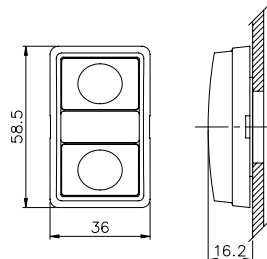
TN3BP



TN2BT



TN3BT



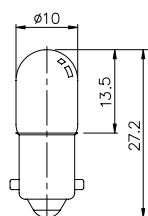
## BULB TYPE AND CHARACTERISTICS

BA9S-11\*28mm-1.2 W max

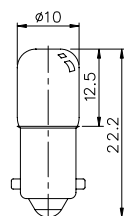
| Lamp         | Signal | Rated Voltage | Signal | Operating voltage | Rated current | Color code  | Signal | Designation |
|--------------|--------|---------------|--------|-------------------|---------------|-------------|--------|-------------|
| Incandescent | I      | 6V AC/DC      | 6      | 6V AC/DC          | 150mA         | None        | None   | I-6         |
|              |        | 12V AC/DC     | 12     | 12V AC/DC         | 100mA         |             |        |             |
|              |        | 18V AC/DC     | 18     | 18V AC/DC         | 66mA          |             |        |             |
|              |        | 24V AC/DC     | 24     | 24V AC/DC         | 50mA          |             |        |             |
|              |        | 30V AC/DC     | 30     | 30V AC/DC         | 40mA          |             |        |             |
| Neon Bulb    | N      | 110V AC       | 110    | 110V AC           | 1.3mA         | Red         | R      | N-110 R     |
|              |        | 220V AC       | 220    | 220V AC           | 2.2mA         | Green       | G      |             |
|              |        | 380V AC       | 380    | 380V AC           | 1.15mA        | Blue        | BL     |             |
|              |        | 440V AC       | 440    | 440V AC           | 1.4mA         |             |        |             |
| LED Bulb     | L      | 6V AC/DC      | 6      | 6V AC/DC          | 9~13mA        | Red Blue    | R BL   | L-24 R      |
|              |        | 12V AC/DC     | 12     | 12V AC/DC         | 9~13mA        |             |        |             |
|              |        | 24V AC/DC     | 24     | 24V AC/DC         | 8~13mA        | Green White | G W    |             |
|              |        | 30V AC/DC     | 30     | 30V AC/DC         | 8~13mA        |             |        |             |
|              |        | 110V AC       | 110    | 110V AC           | 3~5mA         | Orange      | O      |             |
| 220V AC      | 220    | 220V AC       | 3~5mA  |                   |               |             |        |             |

## DIMENSIONS OF BULB

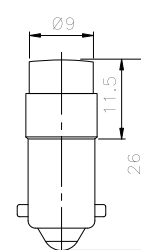
### ● Incandescent



### ● Neon Bulb



### ● LED Bulb

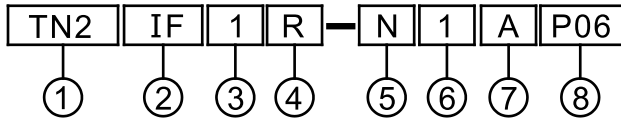


# tend ILLUMINATED PUSH BUTTON ( TN2 Ø22/Ø25/Ø30 DIRECT POWER )

TN2

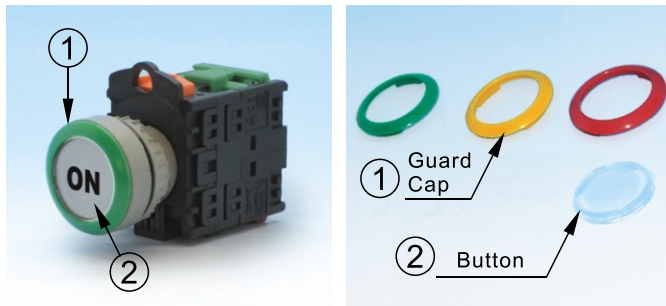
The contact block for this series is direct contact block. Twin touch can only used with AB contact.

## MODEL DESIGNATION



| Designation      | Signal | Description           |
|------------------|--------|-----------------------|
| 1. Mounting Hole | TN2    | Ø22mm/Ø25mm           |
|                  | TN3    | Ø30mm                 |
| 2.Type           | IF     | Flat head             |
|                  | IL     | Long head             |
|                  | IM     | Mushroom head         |
|                  | IA     | Long head (alternate) |
|                  | IK     | Push-lock             |
|                  | IT     | Twin-touch ▲          |

It must use transparent button to have marking printing on buttons. The colours can be distinguished by using different colour guard ring.

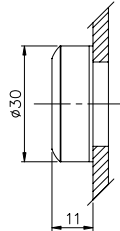


| Designation                    | Signal  | Description                         |
|--------------------------------|---------|-------------------------------------|
| 3. Voltage                     | 1       | 110VAC ( Neon .LED Bulb )           |
|                                | 2       | 220VAC ( Neon .LED Bulb )           |
|                                | 3       | 380VAC ( Neon Bulb )                |
|                                | 4       | 440VAC ( Neon Bulb )                |
|                                | 5       | 6VAC/DC ( Incandescent .LED Bulb )  |
|                                | 6       | 18VAC/DC ( Incandescent )           |
|                                | 7       | 24VAC/DC ( Incandescent .LED Bulb ) |
|                                | 8       | 30VAC/DC ( Incandescent .LED Bulb ) |
|                                | 9       | 12VAC/DC ( Incandescent .LED Bulb ) |
| 4. Lens Color                  | R       | Red                                 |
|                                | G       | Green                               |
|                                | O       | Orange                              |
|                                | W       | White                               |
|                                | BL      | Blue                                |
|                                | C       | Transparent(First-eight vote)       |
|                                | 5.Lamp  | I                                   |
| N                              |         | Neon bulb                           |
| L                              |         | LED bulb                            |
| 6.No. Of Contacts Fitted       | 1       | 1                                   |
|                                | 2       | 2                                   |
|                                | 3       | 3                                   |
|                                | 4       | 4                                   |
| 7.Type of contact block fitted | A       | 1a                                  |
|                                | B       | 1b                                  |
|                                | C       | 1a1b                                |
|                                | AB      | 1a+1b                               |
| 8.Lettering                    | 00      | No lettering                        |
|                                | P01~P43 | See TA 86 TPP                       |
|                                | M01~M22 | See TA 86 TPM                       |

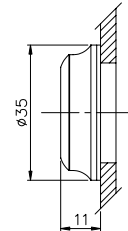
## OPERATING HEAD DIMENSIONS

▲ Only used with ab contact

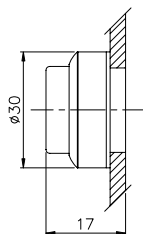
TN2IF



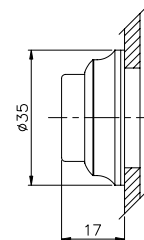
TN3IF



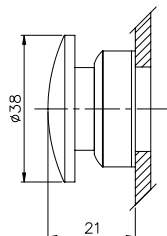
TN2IL



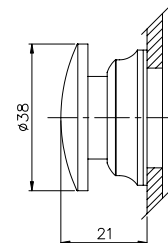
TN3IL



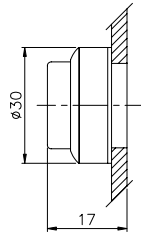
TN2IM



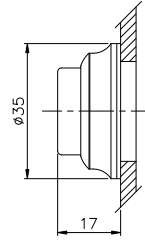
TN3IM



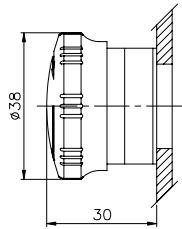
TN2IA



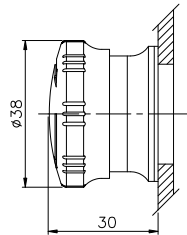
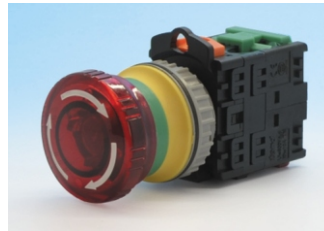
TN3IA



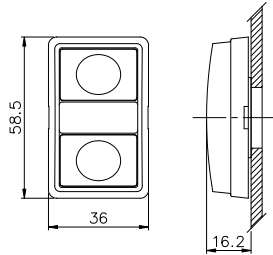
TN2IK



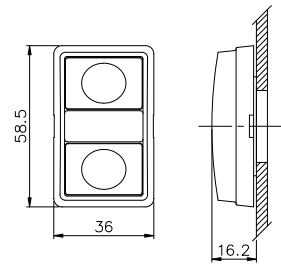
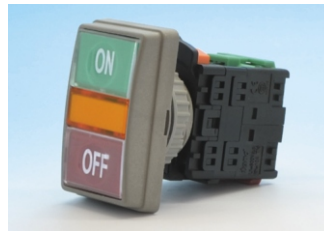
TN3IK



TN2IT



TN3IT



## ILLUMINATED PUSH BUTTON(DIRECT POWER)CONTACT BLOCKS

| Type                | TN2-I1A | TN2-I1B | TN2-I1C | TN2-I2A | TN2-I2B | TN2-I2C |
|---------------------|---------|---------|---------|---------|---------|---------|
| Contact             | 1a      | 1b      | 1a1b    | 2a      | 2b      | 2a2b    |
| Contact Arrangement |         |         |         |         |         |         |

| Type                | TN2-I3A | TN2-I3B | TN2-I3C | TN2-I4A | TN2-I4B | TN2-I4C |
|---------------------|---------|---------|---------|---------|---------|---------|
| Contact             | 3a      | 3b      | 3a3b    | 4a      | 4b      | 4a4b    |
| Contact Arrangement |         |         |         |         |         |         |

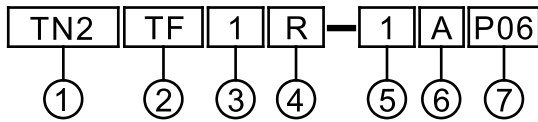


# tend ILLUMINATED PUSH BUTTON ( Tn2 022/025/030 WITH TRANSFORMER )

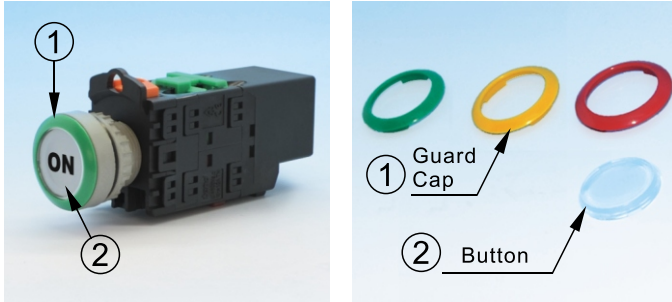
TN2

This series of switches come with built in transformer. The secondary voltage of 5V is used with a 6V incandescent lamp. SeeTA72. Twin touch type can only used with AB contact. Cannot use 1C contact.

## MODEL DESIGNATION



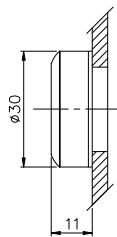
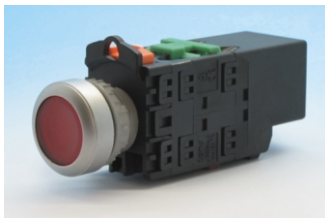
It must use transparent button to have marking printing on buttons. The colours can be distinguished by using different colour guard ring. Limit the crew cut and convex heads sincerely.



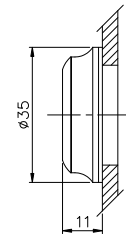
| Designation                     | Signal                           | Description   |
|---------------------------------|----------------------------------|---|
| 1. Mounting hole                | TN2<br>TN3                       | Ø22mm/Ø25mm<br>Ø30mm  |
| 2. Type                         | TF<br>TL<br>TM<br>TA<br>TK<br>TT | Flat Head<br>Long Head<br>Mushroom Head<br>Long Head (alternate)<br>Push-Lock<br>Twin-Touch |
| 3. Voltage                      | 1<br>2<br>3<br>4                 | 110VAC<br>220VAC<br>380VAC<br>440VAC  |
| 4. Lens Color                   | R<br>G<br>O<br>W<br>BL           | Red<br>Green<br>Orange<br>White<br>Blue   |
| 5. NO. of Contacts Fitted       | 1<br>2                           | 1<br>2  |
| 6. Type of Contact Block Fitted | A<br>B<br>C<br>AB                | 1a<br>1b<br>1a1b(僅限2C,1C不可裝配)<br>1a+1b  |
| 7. Lettering                    | 00<br>P01~P43<br>M01~M22         | No lettering<br>See TA 86 TPP<br>See TA 86 TPM  |

## OPERATING HEADS DIMENSIONS

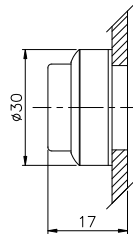
TN2TF



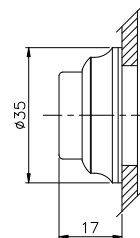
TN3TF



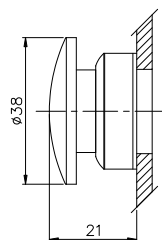
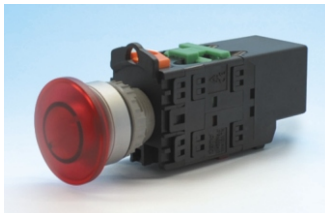
TN2TL



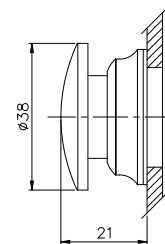
TN3TL



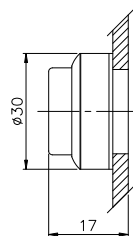
TN2TM



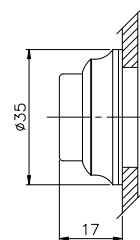
TN3TM



TN2TA



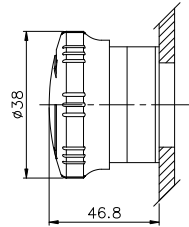
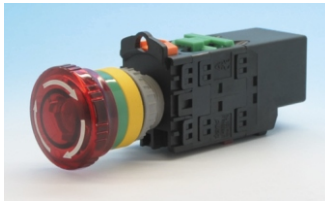
TN3TA



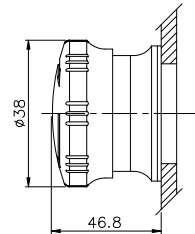
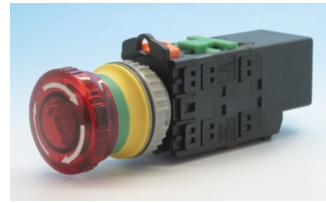
# tend ILLUMINATED PUSH BUTTON ( Tn2 Ø22/Ø25/Ø30 WITH TRANSFORMER )

TN2

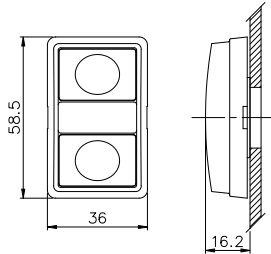
TN2TK



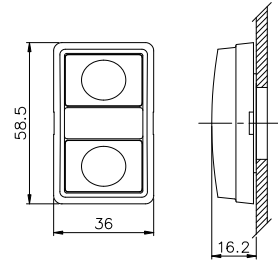
TN3TK



TN2TT



TN3TT



## ILLUMINATED PUSH BUTTON CONTACT BLOCKS (WITH TRANSFORMER) DIMENSIONS

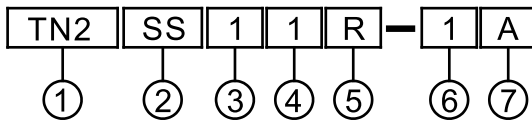
| Type                | TN2-T1A | TN2-T1B | TN2-T1AB | TN2-T2A | TN2-T2B | TN2-T2C |
|---------------------|---------|---------|----------|---------|---------|---------|
| Contact             | 1a      | 1b      | 1a+1b    | 2a      | 2b      | 2a2b    |
| Contact Arrangement |         |         |          |         |         |         |

# tend SELECTOR SWITCH (TN2 Ø22/Ø25/Ø30)

TN2

The contact block of this series of switches standard see page TA69 3for assembly dimension .2positions contact block arrange, 1c contact arrangement for 2 positions is 1a1b, aa contact block arrangement for 3positions is 1A+1A(2A)

## MODEL DESIGNATION



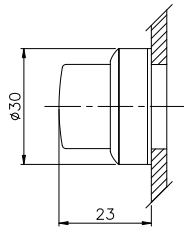
| Designation      | Signal         | Description                                     |
|------------------|----------------|---|
| 1. Mounting hole | TN2<br>TN3     | Ø22mm/Ø25mm<br>Ø30mm                            |
| 2.Type           | SS<br>SH<br>KS | Knob operator<br>Lever operator<br>Key operator |
| 3. Positions     | 1              | 90°X2 3-poerator                                |
|                  | 2              | 90° 2-poerator                                  |
|                  | 3              | 90° 2-poerator spring return from right         |
|                  | 4              | 45°X2 3-poerator                                |
|                  | 5              | 45°X2 3-poerator spring return from right       |
|                  | 6              | 45°X2 3-poerator spring return from left        |
|                  | 7              | 45°X2 3-poerator 2-way spring return            |

| Designation                    | Signal       | Description                 |                       |
|--------------------------------|--------------|-----------------------------|-----------------------|
| 4.Key Withdrawable             | 1            | 0 - 1 key with-drawable     |                       |
|                                | 2            | 0 key with-drawable         |                       |
|                                | 3            | 1 key with-drawable         |                       |
|                                | 5            | 0 key with-drawable         |                       |
|                                | 6            | 0 - 1 - 2 key with-drawable |                       |
|                                | 7            | 0 key with-drawable         |                       |
|                                | 5.Lens Color | R<br>G<br>B                 | Red<br>Green<br>Black |
| 6.NO. of Contacts Fitted       | 1            | 1                           |                       |
|                                | 2            | 2                           |                       |
|                                | 3            | 3                           |                       |
|                                | 4            | 4                           |                       |
| 7.Type of Contact Block Fitted |              | 2-poerator                  | 3-poerator            |
|                                | A            | 1a                          | —                     |
|                                | B            | 1b                          | —                     |
|                                | C            | 1a1b                        | —                     |
|                                | AB           | 1a+1b                       | —                     |
| AA                             | —            | 1a + 1a(2a)                 |                       |

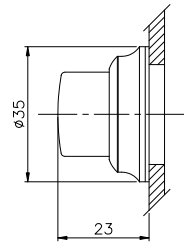
3-Position is limited to use AA contact block.

## OPERATING HEADS DIMENSIONS

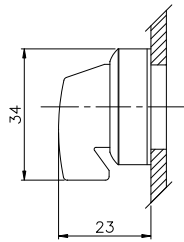
TN2SS



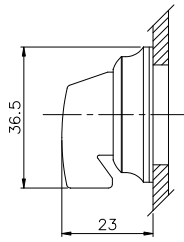
TN3SS



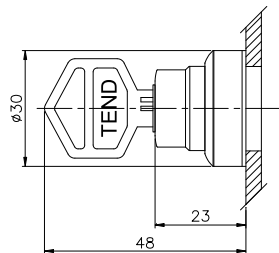
TN2SH



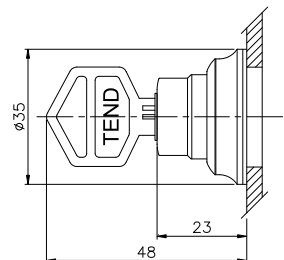
TN3SH



TN2KS



TN3KS



## SELECTOR SWITCH 2-POSITION CONTACT ARRANGEMENT

| Type                    | TN2-1A   | TN2-1B  | TN2-1C | TN2-2A | TN2-2B | TN2-2C |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
|-------------------------|--|---------|--------|--------|--------|--------|---|--|---------|---|---|-----|---|--|---|---------|---|---|-----|---|--|-----|--|---|---|---------|---|---|-----|--|---|-----|--|---|---|---------|---|---|-----|---|--|-----|---|--|---|---------|---|---|-----|---|--|-----|---|--|-----|--|---|-----|--|---|
| Contact                 | 1a   | 1b      | 1a1b   | 2a     | 2b     | 2a2b   |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| <br>Contact Arrangement | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0      | 1      | 3-4    |        | X | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 3-4 |  | X | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 3-4 |  | X | 3-4 |  | X | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 1-2 | X |  | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td>X</td><td></td></tr> <tr><td>1-2</td><td></td><td>X</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 3-4 | X |  | 1-2 |  | X | 3-4 |  | X |
| Contact                 | 0  | 1       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 3-4                     |  | X       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| Contact                 | 0  | 1       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 1-2                     | X  |         |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| Contact                 | 0  | 1       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 1-2                     | X  |         |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 3-4                     |  | X       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| Contact                 | 0  | 1       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 3-4                     |  | X       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 3-4                     |  | X       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| Contact                 | 0  | 1       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 1-2                     | X  |         |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 1-2                     | X  |         |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| Contact                 | 0  | 1       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 1-2                     | X  |         |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 3-4                     | X  |         |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 1-2                     |  | X       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |
| 3-4                     |  | X       |        |        |        |        |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |   |  |     |  |   |     |  |   |

## SELECTOR SWITCH 3-POSITION CONTACT ARRANGEMENT

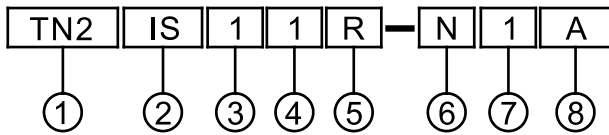
| Type                    | TN2-1AA   | TN2-2AA |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
|-------------------------|---|---------|---|---|---|-----|---|--|--|-----|--|--|---|---|---------|---|---|---|-----|---|--|--|-----|---|--|--|-----|--|--|---|-----|--|--|---|
| Contact                 | 1a 0 1a   | 2a 0 2a |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| <br>Contact Arrangement | <br><table border="1"> <tr><td>Contact</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> </table> | Contact | 1 | 0 | 2 | 3-4 | X |  |  | 3-4 |  |  | X | <br><table border="1"> <tr><td>Contact</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> </table> | Contact | 1 | 0 | 2 | 3-4 | X |  |  | 3-4 | X |  |  | 3-4 |  |  | X | 3-4 |  |  | X |
| Contact                 | 1   | 0       | 2 |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                     | X   |         |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                     |   |         | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| Contact                 | 1   | 0       | 2 |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                     | X   |         |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                     | X   |         |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                     |   |         | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                     |   |         | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |

# tend ILLUMINATED PUSH BUTTON ( TN2 Ø22/Ø25/Ø30 )

TN2

The contact block used in this type of switch is a direct type .see page TA69 for assembly dimension. The type and specification of bulb used are the same as those for direct type illuminated push button switch. See TA72 Positionic contact block arrange AA contact block arrangement for 2 positions is 1a1b. 1c contact block arrangement for 3 positions is 1a+1a(2a)

## MODEL DESIGNATION



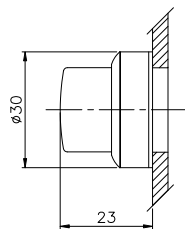
| Designation      | Signal     | Description                                  |
|------------------|------------|--|
| 1. Mounting Hole | TN2<br>TN3 | Ø22mm/Ø25mm<br>Ø30mm                         |
| 2.Type           | IS<br>IH   | Knob operator<br>Lever operator              |
| 3. Positions     | 1          | 90°X2 3-position                             |
|                  | 2          | 90° 2-position                               |
|                  | 3          | 90° 2-position<br>spring return from right   |
|                  | 4          | 45°X2 3-position                             |
|                  | 5          | 45°X2 3-position<br>spring return from right |
|                  | 6          | 45°X2 3-position<br>spring return from left  |
|                  | 7          | 45°X2 3-position<br>2-way spring return      |

| Designation                     | Signal | Description                         |             |
|---------------------------------|--------|-------------------------------------|-------------|
| 4. Voltage                      | 1      | 110VAC ( Neon .LED Bulb )           |             |
|                                 | 2      | 220VAC ( Neon .LED Bulb )           |             |
|                                 | 3      | 380VAC ( Neon Bulb )                |             |
|                                 | 4      | 440VAC ( Neon Bulb )                |             |
|                                 | 5      | 6VAC/DC ( Incandescent. LED Bulb )  |             |
|                                 | 6      | 18VAC/DC ( Incandescent )           |             |
|                                 | 7      | 24VAC/DC ( Incandescent. LED Bulb ) |             |
|                                 | 8      | 30VAC/DC ( Incandescent. LED Bulb ) |             |
|                                 | 9      | 12VAC/DC ( Incandescent. LED Bulb ) |             |
| 5. Lens Color                   | R      | Red                                 |             |
|                                 | G      | Green                               |             |
|                                 | O      | Orange                              |             |
|                                 | W      | White                               |             |
|                                 | BL     | Black                               |             |
| 6. Lamp                         | I      | Incandescent                        |             |
|                                 | N      | Neon bulb                           |             |
|                                 | L      | Led bulb                            |             |
| 6.NO. of Contacts Fitted        | 1      | 1                                   |             |
|                                 | 2      | 2                                   |             |
|                                 | 3      | 3                                   |             |
|                                 | 4      | 4                                   |             |
| 7. Type of Contact Block Fitted | A      | 2-position                          | 3-position  |
|                                 |        | 1a                                  | —           |
|                                 | B      | 1b                                  | —           |
|                                 | C      | 1a1b                                | —           |
|                                 | AB     | 1a+1b                               | —           |
|                                 | AA     | —                                   | 1a + 1a(2a) |

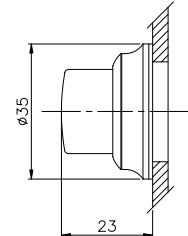
3-Position is limited to use AA contact block.

## OPERATING HEADS DIMENSIONS

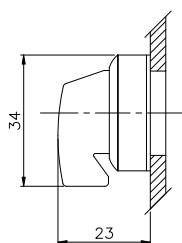
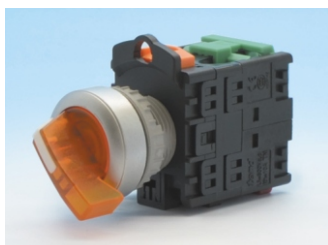
TN2IS



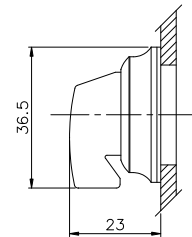
TN3IS



TN2IH



TN3IH



# tend ILLUMINATED SELECTOR SWITCH ( TN2 Ø22/Ø25/Ø30 )

DIRECT POWER

TN2

## ILLUMINATED SELECTOR SWITCH (DIRECT POWER) 2-POSITION CONTACT ARRANGEMENT

| Type                | TN2-I1A  | TN2-I1B | TN2-I1C | TN2-I2A | TN2-I2B | TN2-I2C |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
|---------------------|--|---------|---------|---------|---------|---------|---|--|---------|---|---|-----|---|--|---|---------|---|---|-----|---|--|-----|--|---|--|---------|---|---|-----|--|---|---|---------|---|---|-----|---|--|-----|---|--|---|---------|---|---|-----|---|--|-----|--|---|-----|---|--|-----|--|---|
| Contact             | 1a   | 1b      | 1a1b    | 2a      | 2b      | 2a2b    |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact Arrangement | <table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0       | 1       | 3-4     |         | X | <table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | <table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 3-4 |  | X | <table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 3-4 |  | X | <table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 1-2 | X |  | <table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 3-4 |  | X | 1-2 | X |  | 3-4 |  | X |
| Contact             | 0  | 1       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |         |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |  |         |   |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |

## ILLUMINATED SELECTOR SWITCH (DIRECT POWER) 3-POSITION CONTACT ARRANGEMENT

| Type                | TN2-I1AA  | TN2-I2AA |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
|---------------------|---|----------|---|---|---|-----|---|--|--|-----|--|--|---|---|---------|---|---|---|-----|---|--|--|-----|---|--|--|-----|--|--|---|-----|--|--|---|
| Contact             | 1a 0 1a   | 2a 0 2a  |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| Contact Arrangement | <table border="1"> <tr><td>Contact</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> </table> | Contact  | 1 | 0 | 2 | 3-4 | X |  |  | 3-4 |  |  | X | <table border="1"> <tr><td>Contact</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> </table> | Contact | 1 | 0 | 2 | 3-4 | X |  |  | 3-4 | X |  |  | 3-4 |  |  | X | 3-4 |  |  | X |
| Contact             | 1   | 0        | 2 |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 | X   |          |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 |   |          | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| Contact             | 1   | 0        | 2 |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 | X   |          |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 | X   |          |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 |   |          | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 |   |          | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |

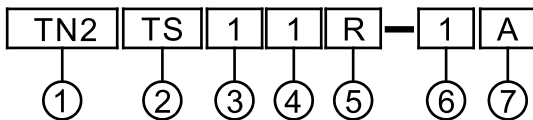
# tend ILLUMINATED SELECTOR SWITCH ( TN2 Ø22/Ø25/Ø30 )

(WITH TRANSFORMER)

TN2

The contact block of this series of switches is the transformer type contact block. See pageTA72, for assembly dimension. This series of switches come with transformers at secondary voltage of 5V and (6V) incandescent used, seeTA70. 2 positions contact block arrangement, 1c contact block arrangement for 2 positions is 1a1b,aa contact block contact block arrangement for 3 positions is 1a+1a(2A)

### MODEL DESIGNATION



| Designation      | Signal     | Description                                  |
|------------------|------------|--|
| 1. Mounting hole | TN2<br>TN3 | Ø22mm/Ø25mm<br>Ø30mm                         |
| 2.Type           | TS<br>TH   | Knob operator<br>Lever operator              |
| 3. Positions     | 1          | 90°X2 3-position                             |
|                  | 2          | 90° 2-position                               |
|                  | 3          | 90° 2-position<br>spring return from right   |
|                  | 4          | 45°X2 3-position                             |
|                  | 5          | 45°X2 3-position<br>spring return from right |
|                  | 6          | 45°X2 3-position<br>spring return from left  |
|                  | 7          | 45°X2 3-position<br>2-way spring return      |

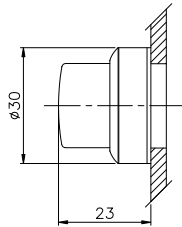
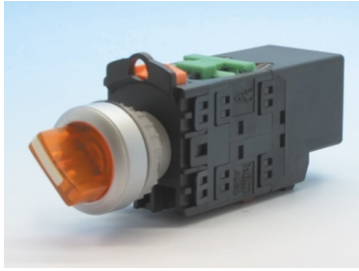
| Designation                    | Signal | Description |             |
|--------------------------------|--------|-------------|-------------|
| 4. Voltage                     | 1      | 110VAC      |             |
|                                | 2      | 220VAC      |             |
|                                | 3      | 380VAC      |             |
|                                | 4      | 440VAC      |             |
| 5. Lens Color                  | R      | Red         |             |
|                                | G      | Green       |             |
|                                | O      | Orange      |             |
|                                | W      | White       |             |
| 6.NO. of Contacts Fitted       | 1      | 1           |             |
|                                | 2      | 2           |             |
| 7.Type of Contact Block Fitted | A      | 2-position  | 3-position  |
|                                |        | 1a          | —           |
|                                | B      | 1b          | —           |
|                                | C      | 1a1b        | —           |
|                                | AB     | 1a+1b       | —           |
|                                | AA     | —           | 1a + 1a(2a) |

3-Position is limited to use AA contact block.

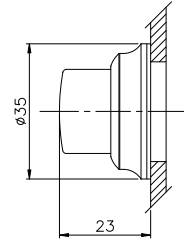
# tend ILLUMINATED SELECTOR SWITCH (TN2 Ø22/Ø25/Ø30 WITH TRANSFORMER) TN2

## OPERATING HEADS DIMENSIONS

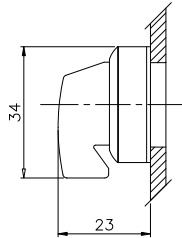
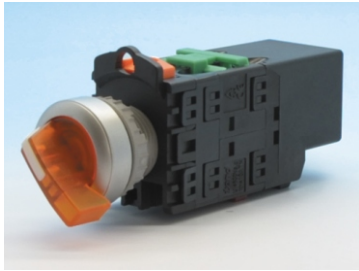
TN2TS



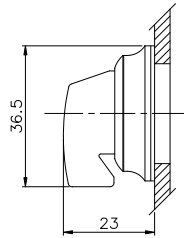
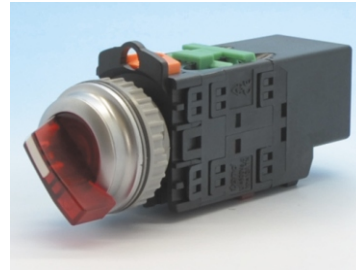
TN3TS



TN2TH



TN3TH



## ILLUMINATED SELECTOR SWITCH (TRANSFORMER) 2-POSITION CONTACT ARRANGEMENT

| Type                | TN2-T1A  | TN2-T1B | TN2-T1AB | TN2-T2A | TN2-T2B | TN2-T2C |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
|---------------------|--|---------|----------|---------|---------|---------|---|--|---------|---|---|-----|---|--|---|---------|---|---|-----|---|--|-----|--|---|---|---------|---|---|-----|--|---|-----|--|---|---|---------|---|---|-----|---|--|-----|---|--|---|---------|---|---|-----|---|--|-----|--|---|-----|---|--|-----|--|---|
| Contact             | 1a   | 1b      | 1a+1b    | 2a      | 2b      | 2a2b    |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact Arrangement | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0        | 1       | 3-4     |         | X | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | <br><table border="1"> <tr><td>Contact</td><td>1</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 1 | 1 | 1-2 | X |  | 3-4 |  | X | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 3-4 |  | X | 3-4 |  | X | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 1-2 | X |  | <br><table border="1"> <tr><td>Contact</td><td>0</td><td>1</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> <tr><td>1-2</td><td>X</td><td></td></tr> <tr><td>3-4</td><td></td><td>X</td></tr> </table> | Contact | 0 | 1 | 1-2 | X |  | 3-4 |  | X | 1-2 | X |  | 3-4 |  | X |
| Contact             | 0  | 1       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 1  | 1       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| Contact             | 0  | 1       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 1-2                 | X  |         |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |
| 3-4                 |  | X       |          |         |         |         |   |  |         |   |   |     |   |  |   |         |   |   |     |   |  |     |  |   |   |         |   |   |     |  |   |     |  |   |   |         |   |   |     |   |  |     |   |  |   |         |   |   |     |   |  |     |  |   |     |   |  |     |  |   |

## ILLUMINATED SELECTOR SWITCH (TRANSFORMER) 3-POSITION CONTACT ARRANGEMENT

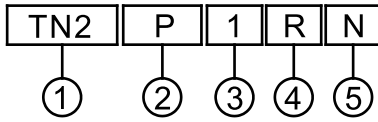
| Type                | TN2-T1AA  | TN2-T2AA |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
|---------------------|---|----------|---|---|---|-----|---|--|--|-----|--|--|---|---|---------|---|---|---|-----|---|--|--|-----|---|--|--|-----|--|--|---|-----|--|--|---|
| Contact             | 1a 0 1a   | 2a 0 2a  |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| Contact Arrangement | <br><table border="1"> <tr><td>Contact</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> </table> | Contact  | 1 | 0 | 2 | 3-4 | X |  |  | 3-4 |  |  | X | <br><table border="1"> <tr><td>Contact</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td>X</td><td></td><td></td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> <tr><td>3-4</td><td></td><td></td><td>X</td></tr> </table> | Contact | 1 | 0 | 2 | 3-4 | X |  |  | 3-4 | X |  |  | 3-4 |  |  | X | 3-4 |  |  | X |
| Contact             | 1   | 0        | 2 |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 | X   |          |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 |   |          | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| Contact             | 1   | 0        | 2 |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 | X   |          |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 | X   |          |   |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 |   |          | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |
| 3-4                 |   |          | X |   |   |     |   |  |  |     |  |  |   |   |         |   |   |   |     |   |  |  |     |   |  |  |     |  |  |   |     |  |  |   |

# tend PILOT LAMP (TN2 Ø22/Ø25/Ø30)

TN2

The bulbs used in this series of pilot lamp are same as those for direct type illuminated push switch, see TA72


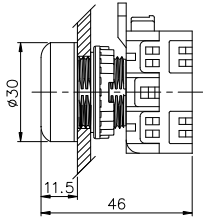

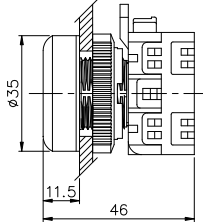

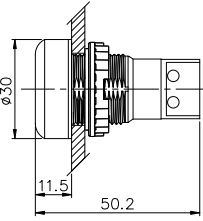

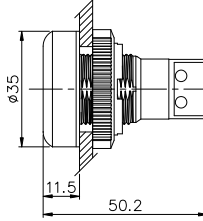

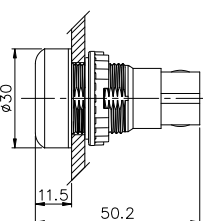

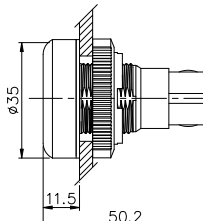

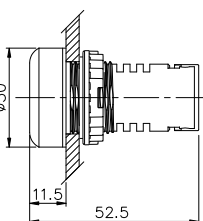

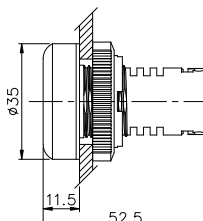
## MODEL DESIGNATION



| Designation      | Signal | Description                        |
|------------------|--------|------------------------------------|
| 1. Mounting hole | TN2    | Ø22mm/Ø25mm                        |
|                  | TN3    | Ø30mm                              |
| 2.Type           | P      | Direct power                       |
|                  | L      | Simple(screw terminal in the rear) |
|                  | N      | Simple(screw terminal in the rear) |
|                  | D      | Big LED                            |

| Designation   | Signal | Description                       |
|---------------|--------|-----------------------------------|
| 3. Voltage    | 1      | 110VAC (Neon .LED Bulb)           |
|               | 2      | 220VAC (Neon .LED Bulb)           |
|               | 3      | 380VAC (Neon Bulb)                |
|               | 4      | 440VAC (Neon Bulb)                |
|               | 5      | 6VAC/DC (Incandescent, LED Bulb)  |
|               | 6      | 18VAC/DC (Incandescent)           |
|               | 7      | 24VAC/DC (Incandescent, LED Bulb) |
|               | 8      | 30VAC/DC (Incandescent, LED Bulb) |
|               | 9      | 12VAC/DC (Incandescent, LED Bulb) |
| 4. Lens color | R      | Red                               |
|               | G      | Green                             |
|               | O      | Orange                            |
|               | W      | White                             |
|               | BL     | Blue                              |
|               | YG     | Olive green                       |
| 5. Lamp       | I      | Incandescent                      |
|               | N      | Neon bulb                         |
|               | L      | LED bulb                          |

## PILOT LAMP (DIRECT POWER) DIMENSIONS

|  |   |
|--|---|
| <b>TN2P</b><br>    | <b>TN3P</b><br>    |
| <b>TN2L</b><br>  | <b>TN3L</b><br>  |
| <b>TN2N</b><br>  | <b>TN3N</b><br>  |
| <b>TN2D</b><br>  | <b>TN3D</b><br>  |

## LAMP HOLDER BLOCKS (DIRECT POWER)

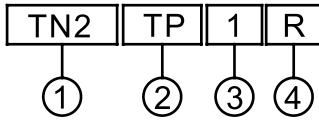
|  |   |  |
|--|---|--|
| <b>TNPS-1</b><br> |  |  |
|--|---|--|

# tend PLOT LAMP(TN2 Ø22/Ø25/Ø30)

TN2

This series of switches come with built in transformer.

## MODEL DESIGNATION

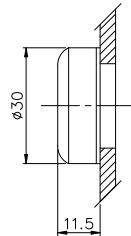
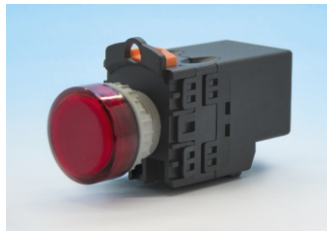


| Designation      | Signal     | Description          |
|------------------|------------|----------------------|
| 1. Mounting hole | TN2<br>TN3 | Ø22mm/Ø25mm<br>Ø30mm |
| 2.Type           | TP         | With transformer     |

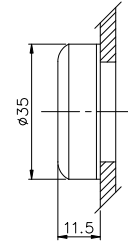
| Designation   | Signal | Description |
|---------------|--------|-------------|
| 3. Voltage    | 1      | 110V/5 VAC  |
|               | 2      | 220V/5 VAC  |
|               | 3      | 380V/5 VAC  |
|               | 4      | 440V/5 VAC  |
| 4. Lens color | R      | Red         |
|               | G      | Green       |
|               | O      | Orange      |
|               | W      | White       |
|               | BL     | Blue        |

## PILOT LAMP DIMENSIONS

TN2TP

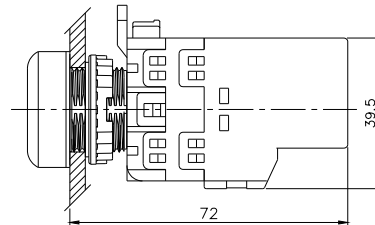
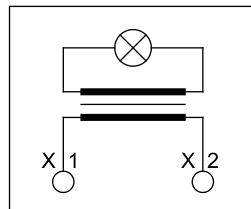


TN3TP



## LAMP HOLDER BLOCKS (WITH TRANSFORMER)

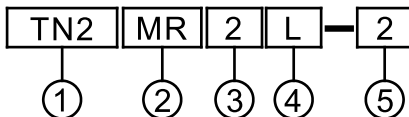
TNPS-2



# tend JOYSTICK (TN2 Ø22/Ø25/Ø30)

TN2

## MODEL DESIGNATION

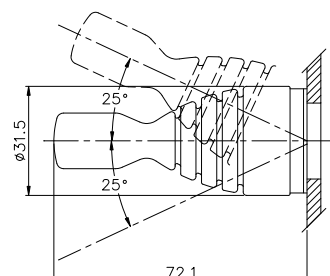
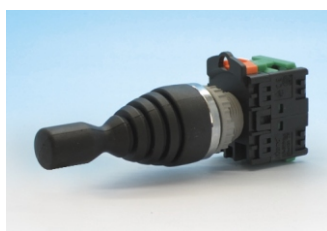


The contact block of the joystick will have printed marking U D L R for up, Down, left & right direction. The contact block is only for joystick and can not be used in any other type of switches

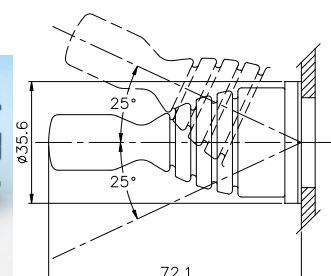
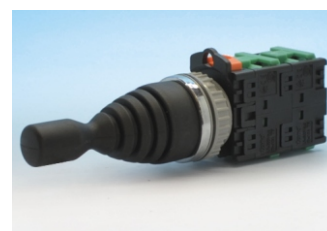
## JOYSTICK DIMENSIONS

| Designation            | Signal      | Description  |
|------------------------|-------------|--|
| 1. Mounting hole       | TN2<br>TN3  | Ø22mm/Ø25mm<br>Ø30mm   |
| 2.Type                 | MR          | Joystick   |
| 3. Direct              | 2<br>4      | Up & down 2 directions<br>Up, down, left & right 4 Directions  |
| 4.Movement way         | L<br>R      | Retain<br>Return   |
| 5.No. Of contact block | 2<br>4<br>8 | 1a at up & down each<br>2a at up & down or 1a up, down, left & right<br>2a at up, down, left & right |

TN2MR2



TN3MR4



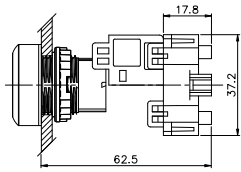


# tend INSULATED ENCLOSURES(TN2 Ø22)

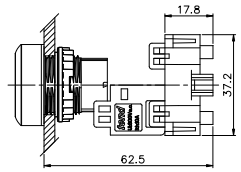
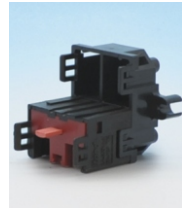
TN2

The mounting holes of this series of insulated enclosures are Ø22mm. single-hole insulated enclosure is available in yellow and gray. All the others are in gray. The contact blocks are of exclusive type, which is different from those of Ø22/Ø30 series control components. The dimension and type of the upper base are same as those of Ø22/Ø30 series control components.

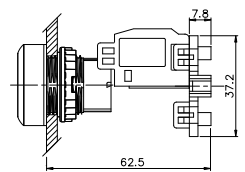
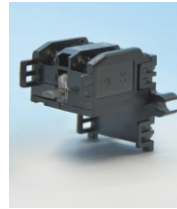
TN2-B1A



TN2-B1B



TN2-B1C



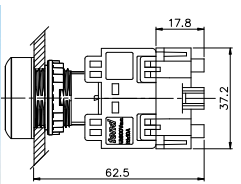
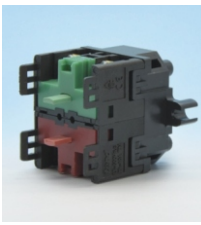
## THE ASSEMBLY OF INSULATED ENCLOSURES AND SWITCH

1. Take apart the upper cover and the lower base of the insulated enclosures.
2. Fix the contact block on the lower base, and the upper base on the upper cover.
3. Connect the upper cover with the lower base into one kit.

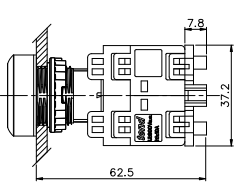
- The protection structure for this series of insulated enclosures is IP65(IEC144)
- All the illuminated switches used in the insulated enclosures are direct type

## STANDARD CONTACT BLOCK FOR INSULATED ENCLOSURES ILLUMINATED CONTACT BLOCK FOR INSULATED ENCLOSURES

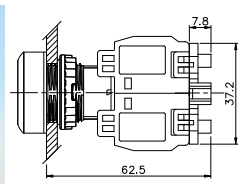
TN2-B1ab • TN2-B2a • TN2-B2b



TN2-B11ab • TN2-B12a • TN2-B12b

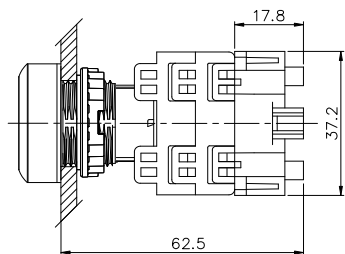


TN2-B2c



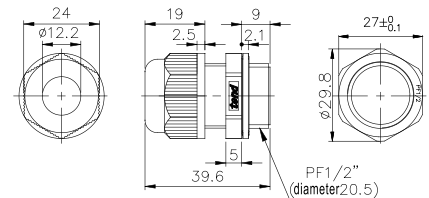
## LAMP HOLDER BLOCKS(FOR INSULATED ENCLOSURES)

TNPS-3



## CABLE GLAND TPF-21

(Diameter of cables: Ø6~Ø12 operating temperature: -40°C~100°C)



## INSULATED ENCLOSURES DIMENSIONS TN2:Ø22mm TN3:Ø30mm

TN2-B1



TN2-B2



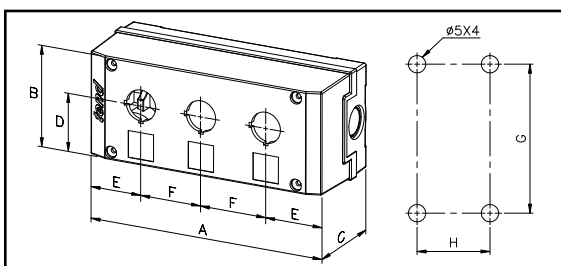
TN2-B3



TN2-B4



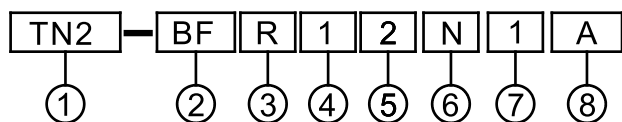
TN2-B5



| Type             | A   | B  | C    | D    | E  | F  | G   | H  |
|------------------|-----|----|------|------|----|----|-----|----|
| TN2-B1<br>TN3-B1 | 82  | 75 | 67.3 | 43.5 | 41 | —  | 63  | 54 |
| TN2-B2<br>TN3-B2 | 127 | 75 | 67.3 | 43.5 | 41 | 45 | 108 | 54 |
| TN2-B3<br>TN3-B3 | 172 | 75 | 67.3 | 43.5 | 41 | 45 | 153 | 54 |
| TN2-B4<br>TN3-B4 | 217 | 75 | 67.3 | 43.5 | 41 | 45 | 198 | 54 |
| TN2-B5<br>TN3-B5 | 262 | 75 | 67.3 | 43.5 | 41 | 45 | 243 | 54 |

- The mounting hole of this series of insulated enclosure is 22. The illuminated push button and pilot lamp are all direct type.
- The insulated enclosures of mushroom-head and push-lock type push button are in yellow or gray. Others in gray.

## ONE BUTTON MODEL DESIGNATION



| Designation     | Signal                       | Description                           |
|-----------------|------------------------------|---------------------------------------|
| 1. NO.of Button | TNB1                         | 1 Button                              |
| 2. Type         | BF                           | Flat Head Push Button                 |
|                 | BL                           | Long Head Push Button                 |
|                 | BM                           | Mushroom Head push Button             |
|                 | BK                           | Push-lock Push button                 |
|                 | IF                           | Flat Head Illuminated Push Button     |
|                 | IL                           | Long Head Illuminated Push Button     |
|                 | IM                           | Mushroom Head illuminated Push button |
|                 | IK                           | Push-lock Illuminated Push Button     |
|                 | S2                           | Selector Switch(2 Positions)          |
| S3              | Selector Switch(3 Positions) |                                       |

| Designation                     | Signal | Description                       |
|---------------------------------|--------|-----------------------------------|
| 3. Lens Color                   | R      | Red                               |
|                                 | G      | Green                             |
|                                 | B      | Black                             |
| 4. Name Plate                   | 1      | OFF                               |
|                                 | 2      | ON                                |
|                                 | 3      | EM. STOP                          |
|                                 | 4      | OFF-ON                            |
|                                 | 5      | ON-OFF-ON                         |
| 5. Voltage                      | 1      | 110VAC (Neon .LED Bulb)           |
|                                 | 2      | 220VAC (Neon .LED Bulb)           |
|                                 | 3      | 380VAC (Neon Bulb)                |
|                                 | 4      | 440VAC (Neon Bulb)                |
|                                 | 5      | 6VAC/DC (Incandescent. LED Bulb)  |
|                                 | 6      | 18VAC/DC (Incandescent )          |
|                                 | 7      | 24VAC/DC (Incandescent. LED Bulb) |
|                                 | 8      | 30VAC/DC (Incandescent. LED Bulb) |
|                                 | 9      | 12VAC/DC (Incandescent. LED Bulb) |
| 6. Bulb type                    | I      | Incandescent                      |
|                                 | N      | Neon bulb                         |
|                                 | L      | LED bulb                          |
| 7. NO. of Contacts Fitted       | 1      | 1                                 |
|                                 | 2      | 2                                 |
| 8. Type of contact block fitted | A      | 1a                                |
|                                 | B      | 1b                                |
|                                 | C      | 1a1b(S3 Use 1a 0 1a)              |
|                                 | AB     | 1a+1b                             |

TNB1-BFR1  
TNB1-IFR1



TNB1-BFG2  
TNB1-IFG2



TNB1-BLR1  
TNB1-ILR1



TNB1-BLG2  
TNB1-ILG2



TNB1-BMR3  
TNB1-IMR3



TNB1-BKR3  
TNB1-IKR3



TNB1-S2B4



TNB1-S3B5



## 二個開關



| Type     | Nameplate | Buttons                         | Voltage | Bulb         |
|----------|-----------|---------------------------------|---------|--------------|
| TNB2-BF  | NO OFF    | 2 Flat Push Buttons             |         |              |
| TNB2-IF2 | NO OFF    | 2 Flat Head Illuminated Buttons | 220 VAC | Neon         |
| TNB2-IF7 | NO OFF    | 2 Flat head Illuminated Buttons | 24 V    | Incandescent |

## 三個開關



| Type     | Nameplate   | Buttons                               | Bulb         |
|----------|-------------|---------------------------------------|--------------|
| TNB3-BF  | NO OFF ON   | 3 Flat Push Buttons                   |              |
| TNB3-IF  | NO OFF ON   | 3 Flat Head Illuminated Buttons       |              |
| TNB3-PF2 | 220V ON OFF | 1 Pilot Lamp 2 Flat head Push Buttons | Neon         |
| TNB3-PF7 | 24V ON OFF  | 1 Pilot Lamp 2 Flat head Push Buttons | Incandescent |