

TWTD Series — Full Size NEMA Pushbuttons

A4

Switches & Pilot Devices



TWTD Series: Heavy duty switches built to last

Key features include:

- Variety of button sizes up to 2 9/16" (65mm)
- Rugged construction includes chrome plated zinc locking ring die cast zinc mounting threads, screw mounted contact blocks
- LED or incandescent illumination
- Transformer or full voltage
- Transparent contact windows
- Slow make, double break self cleaning contacts
- Modular construction for maximum flexibility
- Double nickel plated terminal screws
- Available assembled or as sub-components
- NEMA 4x and IP65 watertight/oiltight panel
- Large M3.5 screw terminals with captive sems plate

The rugged series of TWTD switches offers both variety and durability in an attractive design.

With button sizes up to 2 9/16" (65mm), chrome plated zinc locking rings, die cast zinc mounting threads, steel anti-rotation rings, and self cleaning contacts, the TWTD's are here to stay.

The TWTD series also offers either LED or incandescent illumination in full voltage and transformer models.

Transparent contact windows allow the viewing of IDEC's self cleaning slow-make/slow-break contacts.

Regardless of your switching needs, the TWTD series provides the kind of long lasting, industrial strength quality you've come to expect from IDEC.



UL Listed
File No. E70646







SA® File No. LR48366



D Ref. No. 117617MC



Certificate No.
2005010305145658

| | | |
|---|--|--|
| Specifications | Conforming to Standards | EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14 |
| | Approvals |   UL Listed File No. E70646 File No. LR48366   Ref. No. 117617MC |
| | Operating Temperature | Operation: -25 to +50°C (without freezing) Storage: -40 to +70°C (without freezing) |
| | Vibration Resistance | 10 to 55Hz, 98m/sec ² (10g) conforming to IEC6068-2-6 |
| | Shock Resistance | 980m/sec ² (100g) conforming to IEC6068-2-7 |
| | Electric Shock Protection | Class 0 conforming to IEC60536 |
| | Degree of Protection | IP65 (from front of the panel) (conforming to IEC60529) IP54 (key switches) NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (conforming to NEMA ICS6-110) |
| | Mechanical Life | Momentary pushbuttons: 5,000,000 (900 operations per hour) All other switches: 500,000 |
| | Pollution Degree (conforming to IEC60947-1) | 3 for switches not using a transformer 2 for switches using a transformer |
| | Mechanical-Electrical Specifications | Rated Operational Characteristics |
| Rated Insulation Voltage | | 600V |
| Rated Switching Over-Voltage | | Less than 4kV, conforming to IEC60947-1 |
| Rated Impulse Withstanding Voltage | | 4kV for contact circuit 2.5kV for lamp circuit |
| Rated Thermal Current | | 10 Amp |
| Minimum Switching Capacity | | 5 mA at 3V AC/DC |
| Contact Operation | | Slow break NC or NO, self-cleaning |
| Operating Force | | Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained) Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained) |
| Terminal Referencing | | Conforming to CENELEC EN50005 |
| Recommended Terminal Torque | | 0.8 N m (7.1 in lb.) |
| External Short-Circuit Protection | | 10A 250V fuse conforming to IEC60269-1 |
| Applicable Wire Size | | Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG |
| Contact Resistance | | Initial contact resistance of 50mΩ or less |
| Contact Gap | | 4mm (NO and NC) 2mm (NO-EM and NC-LB) |
| Lamp Ratings | | Incandescent: 1 W LEDs: 6, 12, 24V: 20mA / 120, 240V: 10mA |
| Maximum Inrush Current | | 40 A (40 msec) |
| Contact Material | Silver | |

| | | | | | | | | | |
|------------------------|---|--|--|-----|-----|------|------|------|------|
| Contact Ratings | Contact Ratings by Utilization Category IEC 60947-5-1 | | AC-15 (A600) DC-13 (P600) | | | | | | |
| | Contact Ratings by Utilization Category | | | | | | | | |
| | Operational Voltage | | | 24V | 48V | 50V | 110V | 220V | 440V |
| | Operation Current | AC 50/60 Hz | AC-12 Control of resistive loads & solid state loads | 10A | — | 10A | 10A | 6A | 2A |
| | | | AC-15 Control of electromagnetic loads (> 72VA) | 10A | — | 7A | 5A | 3A | 1A |
| | DC | DC-12 Control of resistive loads & solid state loads | 8A | 5A | — | 2.2A | 1.1A | — | |
| | | DC-13 Control of electromagnets | 5A | 2A | — | 1.1A | 0.6A | — | |

E-Stops (Assembled)



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Assembled E-Stops

A V (L) D 3 (99) 11 (D) N - R - (24V)

| | |
|---|--|
| <p>Function</p> <p>V: Pushlock Turn Reset Y: Push-Pull</p> <p>Illumination</p> <p>Blank: None L: Illuminated</p> <p>Series Designation</p> <p>D: TWTD Series</p> <p>Button/Lens Size</p> <p>3: 40mm Mushroom</p> <p>Illuminated Circuit (illuminated unit only)</p> <p>99: Full Voltage (lamp determines voltage) 126: 120V AC Step Down Transformer 246: 240V AC Step Down Transformer 486: 480V AC Step Down Transformer</p> | <p>Lamp Voltage (full voltage illuminated units only)</p> <p>6V: 6V AC/DC 12V: 12V AC/DC 24V: 24V AC/DC 120V: 120V AC/DC 240V: 240V AC/DC</p> <p>Button/Lens Color</p> <p>A: Amber R: Red W: White G: Green S: Blue Y: Yellow</p> <p>Lamp Type (illuminated units only)</p> <p>Blank: Incandescent D: LED</p> <p>Contact Arrangement</p> <p>10: 1NO 01: 1NC 20: 2NO 02: 2NC 11: 1NO/1NC 22: 2NO/2NC</p> |
|---|--|



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom contact configurations available, contact IDEC for details.

E-Stops (Assembled)

Part Numbers: E-Stop Switches

| Style | Contacts | Part Number |
|---|-------------------------------------|--|
| Ø 40mm Pushlock Turn Reset | 1NO 1NC 1NO-1NC 2NO 2NC | AVD310N-R* AVD301N-R* AVD311N-R* AVD320N-R* AVD302N-R* |
| Ø 40mm Illuminated Pushlock Turn Reset | 1NO-1NC 2NO 2NC | AVLD39911⑤N-R-③* AVLD39920⑤N-R-③* AVLD39902⑤N-R-③* |
| Ø 40mm Push-Pull | 1NO 1NC 1NO-1NC 2NO 2NC | AYD310N-① AYD301N-① AYD311N-① AYD320N-① AYD302N-① |
| Ø 40mm Push-Pull | 1NO-1NC 2NO 2NC | AYLD39911⑤N-②-③** AYLD39920⑤N-②-③** AYLD39902⑤N-②-③** |
| Ø 40mm Momentary Push-Pull (3-position) | 1NO-1NC 1NC-1LB† | AYLD229911⑤N-②-③-TK962 AYLD229902S⑤N-②-③-TK962 |
| | 1NO-1NC 1NC-1LB† | AYLD22 ④ 11⑤N-②-TK962 AYLD22 ④ 02S⑤N-②-TK962 |

3 Position Push-Pull

| Contact | Push | Center | Pull |
|------------------|------|--------|------|
| NC (BST-001) | 0 | 0 | X |
| NC-LB (BST-001S) | 0 | X | X |
| NO (BST-010) | X | 0 | 0 |
| NO-EM (BST-010S) | X | X | 0 |



- In place of ①, specify the button color code
- In place of ②, specify the lens color code.
- In place of ③, specify the Full Voltage (lamp voltage) Code.
- In place of ④, specify the transformer voltage code.
- In place of ⑤, specify the Lamp Type code.
- *Available in red only.
- 3 position push-pull available in spring return to center only.
- † The most common configuration for motor starting applications.
- For accessories, see page A4-188.
- For dimensions, see page A4-192.

① Button Color Code

| Color | Code |
|--------|------|
| Black | B |
| Green | G |
| Red | R |
| Blue | S |
| Yellow | Y |

② LED Color Codes

| Color | Code |
|-------|------|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |

③ Full Voltage Code

| Voltage | Code |
|-----------|-----------------|
| 6V AC/DC | 6V |
| 12V AC/DC | 12V |
| 24V AC/DC | 24V |
| 120V AC | 120V |
| 240V AC | 240V (LED only) |

④ Transformer Voltage Codes

| Voltage | Code |
|---------|------|
| 120VAC | 126 |
| 240VAC | 246 |
| 480VAC | 486 |



Transformers step down to 6V.

⑤ Lamp Type Code

| Lamp | Code |
|--------------|-------|
| Incandescent | Blank |
| LED | D |

Part Numbers: Unibody E-Stops

| Style | Contacts | Part Number |
|--|----------------|--|
| Ø 40mm Pushlock Turn Reset (available in Red only) | 1NO-1NC 2NC | HN1E-BV4F11-R* HN1E-BV4F02-R* |
| Illuminated Ø 40mm Pushlock Turn Reset (available in Red only) | 1NO-1NC 2NC | HN1E-LV4F11Q⑤-R-③ HN1E-LV4F02Q⑤-R-③ |



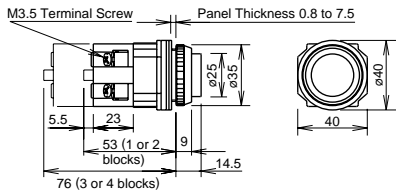
- * Available in Red only.
- **Not available in blue.
- In place of ③, specify Full Voltage Code.
- With single unit construction, the positive action contacts are integrated in the body of the switch. This provides an extra degree of safety and reliability for critical emergency stop functions.
- For nameplates and accessories, see page A3-96.
- For dimensions, see page A3-100.
- For sub-assembly part numbers, see next page.
- HN1E series E-stops comply with EN418, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.

Dimensions — TWTD Series

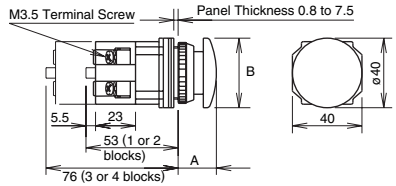
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Switches & Pilot Devices

Pushbutton



Mushroom Pushbutton w/Full Shroud

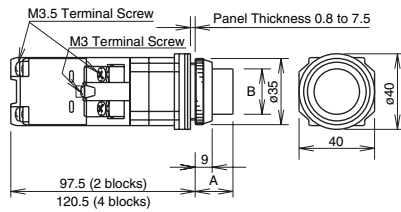


| Pushbuttons | Dimension A | Dimension B |
|--|-----------------------------------|----------------------------------|
| Flush | 0.351" (9mm) | Ø 0.975" (25mm) |
| Extended | 0.566" (14.5mm) | Ø 0.975" (25mm) |
| Extended w/Full Shroud | 0.663" (17mm) | Ø 1.11" (28.5mm) |
| Mushroom | 0.858" (22mm) | Ø 1.56" (40mm) |
| Mushroom w/Full Shroud | 0.936" (24mm) | Ø 1.87" (48mm) |
| Jumbo Mushroom | 1.13" (29mm) | Ø 2.54" (65mm) |
| Mushroom, Pushlock Turn Reset and Push-Pull | *0.975" (25mm) **0.975" (25mm) | Ø 1.56" (40mm) Ø 1.56" (40mm) |

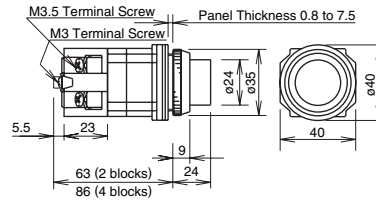
Note: *Dimension when operator is in reset position.
**Dimension when operator is in pull position.

Illuminated Pushbuttons

w/AC Adapter w/Transformer



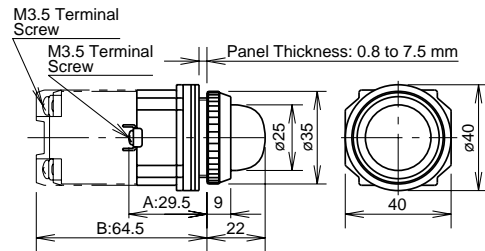
Full Voltage



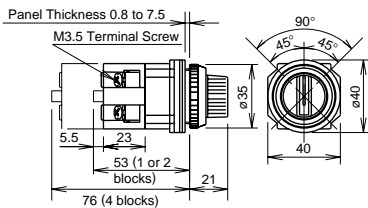
| Illuminated Pushbuttons | Dimension A | Dimension B |
|---|-----------------------------------|------------------------------------|
| Flush w/Full Shroud | 0.975" (25mm) 0.995" (25.5mm) | Ø 0.936" (24mm) Ø 0.936" (24mm) |
| Extended w/Full Shroud | 0.741" (19mm) 0.761" (19.5mm) | Ø 0.936" (24mm) Ø 0.936" (24mm) |
| Ø 1.56" (40mm) Mushroom Pushlock Turn Reset, Push-Pull | *0.975" (25mm) **0.975" (25mm) | Ø 1.56" (40mm) Ø 1.56" (40mm) |

Note: *Dimension when operator is in reset position.
**Dimension when operator is in pull position.

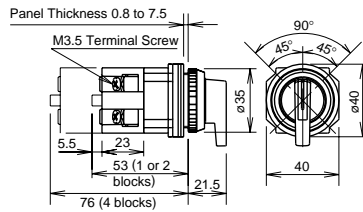
Pilot Lights



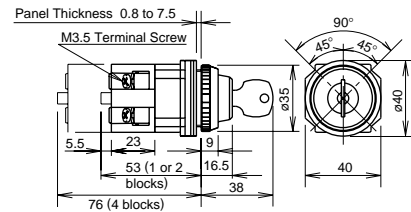
Selector Switches Knob



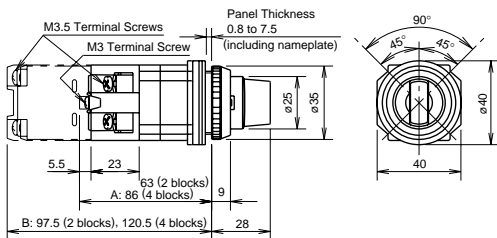
Lever



Key



Illuminated Knob



All measurements in mm.