

# 30 mm Push Button Specifications

Bulletin Numbers 800T and 800H

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## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

| Resource  | Description   |
|---|---|
| Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a> | Provides general guidelines for installing a Rockwell Automation industrial system. |
| Product Certifications website, <a href="http://www.ab.com">http://www.ab.com</a>           | Provides declarations of conformity, certificates, and other certification details. |

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.



Specifications★

| Electrical Ratings   |   |                                       |
|--|---|---------------------------------------|
| Contact ratings  | Refer to the contact ratings tables on page 10-4.   |                                       |
| Dielectric strength  | 2200V for one minute, 1300V for one minute (Logic Reed)   |                                       |
| Mechanical Ratings   |   |                                       |
| Vibration  | 10...2000 Hz, 1.52 mm displacement (peak-to-peak) max./ 10 G max. (except Logic Reed)   |                                       |
| Shock  | 1/2 cycle sine wave for 11 ms ≥ 25 g (contact fragility) and no damage at 100 g   |                                       |
| Degree of protection   | Type 1/4/12/13 (800T); Type 1/4/4X/12/13 (800H); EN/IEC 60529 IP66/65   |                                       |
| Mechanical design life cycles  |   |                                       |
| Push buttons   | (Momentary, non-illuminated, flush and extended head)   | 10,000,000 min.                       |
|  | (Momentary, illuminated)  | 250,000 min.                          |
|  | (Push-pull/twist-to-release)  | 250,000 min. ‡                        |
| Selector switches  | (Non-illuminated)   | 1,000,000 min.                        |
|  | (Illuminated, key-operated)   | 200,000 min.                          |
| Potentiometers   | 25,000 min.   |                                       |
| All other devices  | 200,000 min.  |                                       |
| Contact operation  | Shallow, mini, and low-voltage contact blocks: Slow, double make and break<br>Logic Reed and sealed switch contact blocks: Single break magnetic  |                                       |
| Wire gauge/Terminal screw torque   | #18...14 AWG (#18...10 Max Duty) / 6...8 lb•in  |                                       |
| Typical operating forces   |   |                                       |
| Operators without contact blocks   | Flush, extended button, standard mushroom, jumbo plastic mushroom: 2 lbs max.<br>Jumbo and extended aluminum mushroom head: 3.95 lbs max.<br>Maintained selector switch: 3.6 in•lb max. |                                       |
| Spring return selector switches  | 3.6 in•lb to stop, 0.2 in•lb to return  |                                       |
| Illuminated push buttons and push-to-test pilot lights   | 5 lb max.   |                                       |
| 2-position push-pull   | 8.0 lb max. push or pull  |                                       |
| 3-position push-pull   | 8 lb max. push to in position or pull to center position (15 lb max. pull to out position)  |                                       |
| Twist-to-release or push-pull  | 9 lbs max. push or pull 30 in•oz max. twist, 6 in•oz minimum return   |                                       |
| Potentiometer  | Rotational torque 3...12 in•oz; stopping torque 12 in•lb (minimum)  |                                       |
| Contact blocks   | Standard  | 1 lb                                  |
|  | Logic Reed  | 1 lb max.                             |
|  | Sealed switch   | 3 lb max. at 0.205 in. plunger travel |
|  | Stackable sealed switch   | 1 lb max.                             |
|  | MaxDuty   | 1.4 lb max.                           |
|  | PenTUFF   | 1.4 lb max.                           |
|  | Self Monitoring   | 1.6 lb                                |
| Environment  |   |                                       |
| Temperature range  | Operating   | -40...+131 °F (-40...+55 °C)          |
|  | Storage   | -40...+185 °F (-40...+85 °C)          |
| <b>Note:</b> Operating temperatures below freezing are based on the absence of moisture and liquids. Consult your local Rockwell Automation sales office or Allen-Bradley distributor for use in lower temperature applications. |   |                                       |
| Humidity   | 50...95% RH from 77...140 °F (25...60 °C) per Procedure IV of MIL-STD-810C, Method 507.1 cycling test   |                                       |

★ **Performance Data** — Performance data given in this publication is provided only as a guide for the user in determining suitability and do not constitute a performance warranty of any kind. Such data may represent the results of accelerated testing at elevated stress levels, and the user is responsible for correlating the data to actual application requirements. ALL WARRANTIES AS TO ACTUAL PERFORMANCE, WHETHER EXPRESS OR IMPLIED, ARE EXPRESSLY DISCLAIMED.

‡ Illuminated Trigger Action E-stops are rated for 150,000 min. mechanical operations when using Cat. No. 800TC-XD4S Self-Monitoring Contact Blocks (SMCBs).

**Standard Contact Ratings**

Minimum: 24V, 24 mA

Maximum thermal continuous current  $I_{th}$  10 A AC/2.5 A DC. Bulletin 800T units with 800T-XA contacts have ratings as follows:

| Max. Operntl. Volts $U_e$ | Utilization Category |      | Rated Operational Currents |               |       |
|---------------------------|----------------------|------|----------------------------|---------------|-------|
|                           | IEC                  | NEMA | Volts $U_e$                | Make          | Break |
| AC 600                    | AC-15                | A600 | 120...600                  | 7200VA        | 720VA |
|                           |                      |      | 72...120                   | 60 A          | 720VA |
|                           |                      |      | 24...72                    | 60 A          | 10 A  |
| DC 600                    | DC-13                | Q600 | 28...600<br>24...28★       | 69VA<br>2.5 A |       |

★ For applications below 17V/5 mA, PenTUFF or Logic Reed contacts are recommended.

Electrical design life cycles: 1,000,000 (at max. rated load)

**Explosion-Protected Contact Ratings**

| Max. Operntl. Volts $U_e$ | Utilization Category |      | Rated Operational Currents |               |       |
|---------------------------|----------------------|------|----------------------------|---------------|-------|
|                           | IEC                  | NEMA | Volts $U_e$                | Make          | Break |
| AC 600                    | AC-15                | A600 | 120...600                  | 7200VA        | 720VA |
|                           |                      |      | 72...120                   | 60 A          | 720VA |
|                           |                      |      | 24...72                    | 60 A          | 10 A  |
| DC 600                    | DC-13                | Q600 | 28...600<br>24...28        | 69VA<br>2.5 A |       |

Maximum thermal continuous current  $I_{th}$  = 10 A  
 Minimum low energy switching load: 17V DC, 5 mA  
 Electrical design life cycles: 1,000,000 (24V DC, 25 mA)  
 Vibration: 5 g, 0.7 mm peak-to-peak displacement, sine sweep  
 10...2000 Hz / IEC 60068-2-6  
 Shock: 15 g (800H-TFRX trigger action E-stops), 50 g (all other devices) / IEC 60068-2-27

**Sealed Switch Contact Ratings**

Minimum: 5V, 1 mA

Maximum continuous current  $I_{th}$  5 A. Bulletin 800T units have control circuit ratings with sealed switch contact blocks as follows:

| Max. Operntl. Volts $U_e$ | Utilization Category |      | Rated Operational Currents |                |       |
|---------------------------|----------------------|------|----------------------------|----------------|-------|
|                           | IEC                  | NEMA | Volts $U_e$                | Make           | Break |
| AC 600                    | AC-15                | B600 | 120...600                  | 3600VA         | 360VA |
|                           |                      |      | 0...120                    | 30 A           | 3 A   |
| DC 300                    | DC-13                | P300 | 24...300<br>0...24         | 138VA<br>5.0 A |       |

**Stackable Sealed Switch Contact Ratings**

Minimum: 5V, 10 mA (digital); 24V, 1 mA (analog)

Maximum continuous current  $I_{th}$  2.5 A. Bulletin 800T units have control circuit ratings with sealed switch contact blocks as follows:

| Max. Operntl. Volts $U_e$ | Utilization Category |      | Rated Operational Currents |               |       |
|---------------------------|----------------------|------|----------------------------|---------------|-------|
|                           | IEC                  | NEMA | Volts $U_e$                | Make          | Break |
| AC 300                    | AC-15                | C300 | 120...300                  | 1800VA        | 180VA |
|                           |                      |      | 0...120                    | 15 A          | 1.5 A |
| DC 150                    | DC-13                | Q150 | 24...150<br>0...24         | 69VA<br>2.5 A |       |

**Logic Reed Contact Ratings**

Minimum — DC: 5V, 1 mA

Maximum — DC: 30V, 0.06 A, AC: 150V, 0.15 A

Should only be used with resistive loads.

Electrical design life cycles: 200,000 (at max. rated load)

**PenTUFF™ (Low Voltage) Contact Ratings**

Minimum DC: 5V, 1 mA

Maximum thermal continuous current  $I_{th}$  2.5 A AC/1.0 A DC. Bulletin 800T units with 800T-XAV contacts have ratings as follows:

| Max. Operntl. Volts $U_e$ | Utilization Category |      | Rated Operational Currents |               |       |
|---------------------------|----------------------|------|----------------------------|---------------|-------|
|                           | IEC                  | NEMA | Volts $U_e$                | Make          | Break |
| AC 300                    | AC-15                | C300 | 120...300                  | 1800VA        | 180VA |
|                           |                      |      | 0...120                    | 15 A          | 1.5 A |
| DC 150                    | DC-13                | R150 | 24...150<br>0...24         | 28VA<br>1.0 A |       |

**Snap Action Contact Ratings**

| Max. Operntl. Volts $U_e$ | Contact Rating Designation | Rated Operational Currents |        |       |
|---------------------------|----------------------------|----------------------------|--------|-------|
|                           |                            | Volts $U_e$                | Make   | Break |
| AC 300                    | A300                       | 120...300                  | 7200VA | 720VA |
|                           |                            | 24...72                    | 60 A   | 10 A  |
| DC 250                    | —                          | 230...250                  | 0.2 A  |       |
|                           |                            | 115...125                  | 0.4 A  |       |

**MaxDuty Contact Rating**

Maximum thermal continuous current  $I_{th}$  24 A.

Pilot Duty — 120V AC, 12 A; 24V DC, 10 A

Motor Ratings — 120V AC, 1.5 Hp; 240V AC, 3 Hp; 24V DC, 10 A FLA/60 A LRA

**Time Delay Contacts**

| Max. Operntl. Volts $U_e$ | Contact Rating Designation | Rated Operational Currents |        |       |
|---------------------------|----------------------------|----------------------------|--------|-------|
|                           |                            | Volts $U_e$                | Make   | Break |
| AC 120                    | B150                       | 120                        | 3600VA | 360VA |

**Note:** This device is not rated for DC applications.

Adjustment range: 0.5...15 s ± 25%  $I_{th}$  = 5 A

**Materials Used in 800H Type 4X Operators**

**Thermoplastic Polyester (Fiberglass Reinforced)**

- Bushings
- Mounting Rings
- Sockets

**Transparent Amorphous Nylon**

- Pilot light lens cap
- Illuminated button caps

**Mineral Filled Nylon**

- Trim washer

**Thermoplastic Polyester**

- Non-illuminated button caps

**Glass Filled Crystalline Nylon**

- Thrust washer

**Nitrile (Synthetic Rubber)**

- Gaskets and internal seals

**Standards Compliance**

UL 508

CCC

**Certifications**

UL Listed  
 (File No. E14840, E10314  
 Guide No. NKCR, NOIV, NISD)

CSA Certified  
 (File No. LR1234, LR11924)

CSA C22.2, No. 14

CE Marked (EN/IEC 60947-5-1,  
 EN/IEC 60947-5-5,  
 EN ISO 13850)