

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)   |                                       |
| Electrical design life cycles  | 1,000,000 at max. rated load, 200,000 at max. rated load (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. Opertnl. 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 24V/24 mA, PenTUFF or Logic Reed contacts are recommended.

**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. Opertnl. 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. Opertnl. 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.

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

**Thermoplastic Polyester (Fiberglass Reinforced)**

- Bushings
- Mounting Rings
- Sockets

**Thermoplastic Polyester**

- Non-illuminated button caps

**Transparent Amorphous Nylon**

- Pilot light lens cap
- Illuminated button caps

**Glass Filled Crystalline Nylon**

- Thrust washer

**Mineral Filled Nylon**

- Trim washer

**Nitrile (Synthetic Rubber)**

- Gaskets and internal seals

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

**Snap Action Contact Ratings**

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

**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)

2-Position Push-Pull and Push-Pull/Twist Release Devices, Non-Illuminated

Note: A jumbo or large legend plate is recommended, if space allows.



2-Position Push-Pull  
Cat. No. 800T-FX6D4



2-Position Metal Push-Pull  
Cat. No. 800TC-FXLE6D4S

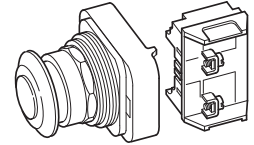


2-Position Push-Pull / Twist  
Cat. No. 800T-FXT6D4



2-Position Push-Pull / Twist  
Cat. No. 800H-FRXT6D4

800 T - FX 1 A1  
a b c d e



a

| Protection Rating |                       |
|-------------------|-----------------------|
| Code              | Description           |
| T                 | Metal, Type 4/13      |
| H                 | Plastic, Type 4/4X/13 |

b

| Finger-Safe Guards |                     |
|--------------------|---------------------|
| Code               | Description         |
| Blank              | No guards           |
| C                  | Guards on terminals |

c

| Head Type §    |  |                   |
|----------------|--|-------------------|
| 800T Type 4/13 | Description  | 800H Type 4/4X/13 |
| Code           |  | Code              |
| FX             | Mushroom head (push-pull)                              | —                 |
| FXC            | 90 mm anodized aluminum head (push-pull)               | —                 |
| FXJ            | Jumbo mushroom head (push-pull)                        | —                 |
| FXJE           | Jumbo mushroom head (push-pull) with "E-Stop"          | —                 |
| FXL            | 63 mm anodized aluminum head (push-pull)               | —                 |
| FXLE           | 63 mm anodized aluminum head (push-pull) with "E-Stop" | —                 |
| FXT            | Push-pull/twist-to-release                             | FRXT              |
| FXJT           | Jumbo head push-pull with twist-to-release             | FRXJT             |

d

| Color Cap |          |
|-----------|----------|
| Code      | Color    |
| Blank     | No cap ♣ |
| 1         | Green    |
| 2         | Black    |
| 3         | Orange   |
| 4         | Grey     |
| 5         | White    |
| 6         | Red      |
| 7         | Blue     |
| 9         | Yellow   |

e

| Contact Block(s) |                   |    |                         |
|------------------|-------------------|----|-------------------------|
| Code             | Operator Position |    | Description             |
|                  | Out               | In |                         |
| Blank            | —                 | —  | No contacts on operator |
| Standard         |                   |    |                         |
| D1               | O                 | X  | 1 N.O.                  |
| D2               | X                 | O  | 1 N.C.                  |
| D4               | X                 | O  | 1 N.C.L.B. ★            |
| A                | O                 | X  | 1 N.O. - 1 N.C.         |
| A1               | O                 | X  | 1 N.O. - 1 N.C.L.B. ★   |
| A5               | X                 | O  | 2 N.C.L.B. ▽★           |

e (cont'd)

| Contact Block(s)        |                   |    |                 |
|-------------------------|-------------------|----|-----------------|
| Code                    | Operator Position |    | Description     |
|                         | Out               | In |                 |
| Blank                   | —                 | —  | No contacts     |
| PentUFF (Low Voltage)   |                   |    |                 |
| D1V                     | O                 | X  | 1 N.O.          |
| D2V                     | X                 | O  | 1 N.C.          |
| D4V                     | X                 | O  | 1 N.C.L.B.      |
| AV                      | O                 | X  | 1 N.O. - 1 N.C. |
| Class 1, Div. 2         |                   |    |                 |
| Logic Reed              |                   |    |                 |
| D1R                     | O                 | X  | 1 N.O.          |
| D2R                     | X                 | O  | 1 N.C.          |
| AR                      | O                 | X  | 1 N.O. - 1 N.C. |
| X                       | X                 | O  |                 |
| Sealed Switch           |                   |    |                 |
| D1P                     | O                 | X  | 1 N.O.          |
| D2P                     | X                 | O  | 1 N.C.          |
| AP                      | O                 | X  | 1 N.O.          |
| X                       | X                 | O  | 1 N.C.          |
| Stackable Sealed Switch |                   |    |                 |
| D1Y                     | O                 | X  | 1 N.O.          |
| D2Y                     | X                 | O  | 1 N.C.          |
| AY                      | O                 | X  | 1 N.O. - 1 N.C. |
| X                       | X                 | O  |                 |

Note: X = Closed/O = Open

★ Normally closed late break contact. When button is pushed from the OUT to IN position, the mechanical detent action of the operator occurs before electrical contacts change state. When the button is pulled from the IN in the OUT position, the electrical contacts change state before the mechanical detent occurs.

§ Devices with N.C.L.B. contacts meet EN ISO 13850 and IEC 60947-5-5 standards for emergency stop applications.

♣ Not valid with head Type J or JT.

▽ Two 800T-XD4 contact blocks supplied.

2-Position Push-Pull and Push-Pull/Twist Release Devices, Illuminated

Note: A jumbo or large legend plate is recommended, if space allows.



Illuminated 2-Position Push-Pull  
Cat. No. 800T-FXP16RA1



2-Position Push-Pull  
Cat. No. 800T-FXJEP16RA1

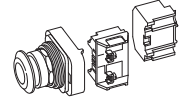


Illuminated 2-Position Push-Pull/Twist  
Cat. No. 800T-FXTP16RA1



Illuminated 2-Position Push-Pull/Twist  
Cat. No. 800H-FRXT16RA1

800 T - FX T PH 16 R A1  
a b c d e f g h



a

| Protection Rating |                       |
|-------------------|-----------------------|
| Code              | Description           |
| T                 | Metal, Type 4/13      |
| H                 | Plastic, Type 4/4X/13 |

b

| Finger-Safe Guards |                     |
|--------------------|---------------------|
| Code               | Description         |
| Blank              | No guards           |
| C                  | Guards on terminals |

c

| Head Type *    |  |                   |
|----------------|--|-------------------|
| 800T Type 4/13 | Description                              | 800H Type 4/4X/13 |
| Code           |  | Code              |
| FX             | Mushroom head                            | FRX               |
| FXJ            | Jumbo mushroom                           | FRXJ              |
| FXJE           | Jumbo mushroom (push-pull) with "E-Stop" | —                 |

d

| Operator Function |                 |
|-------------------|-----------------|
| Code              | Description     |
| Blank             | Push-pull #     |
| T                 | Push-pull/twist |

e

| Illumination Options |                              |
|----------------------|------------------------------|
| Transformer          |                              |
| Code                 | Description                  |
| P                    | Incandescent                 |
| PH                   | LED                          |
| Full Voltage         |                              |
| Q                    | Incandescent                 |
| QH                   | Universal LED                |
| Dual Input           |                              |
| D                    | Diode type ▲                 |
| DT                   | Transformer — relay type     |
| DTH                  | Transformer — relay type LED |

f

| Voltage §     |                                   |
|---------------|-----------------------------------|
| Transformer   |                                   |
| Code          | Description                       |
| 16            | 120V AC 50/60 Hz                  |
| 26            | 240V AC 50/60 Hz                  |
| Full Voltage  |                                   |
| 24            | 24V AC/DC                         |
| 10            | 120V AC/DC                        |
| 20            | 240V AC/DC                        |
| Universal LED |                                   |
| 2             | 12...130V AC/DC                   |
| Dual Input    |                                   |
| 16            | 120V AC                           |
| 24            | 24V AC/DC (dual input diode only) |

g

| Color Cap |                                     |
|-----------|-------------------------------------|
| Code      | Color                               |
| X         | No cap (not valid with head Type J) |
| A         | Amber                               |
| B         | Blue                                |
| C         | Clear                               |
| G         | Green                               |
| R         | Red                                 |
| W         | White                               |

h

| Target                |                     |   |
|-----------------------|---------------------|---|
| Contact               |                     |   |
| N.O.                  | O                   | X |
| N.C./N.C.L.B.         | X                   | O |
| Contact Blocks        |                     |   |
| Code                  | Description         |   |
| Blank                 | No contacts         |   |
| Standard              |                     |   |
| D1                    | 1 N.O.              |   |
| D2                    | 1 N.C.              |   |
| D4                    | 1 N.C.L.B.          |   |
| A                     | 1 N.O. - 1 N.C.     |   |
| A1                    | 1 N.O. - 1 N.C.L.B. |   |
| A5                    | 2 N.C.L.B. ▽        |   |
| PenTUFF (Low Voltage) |                     |   |
| D1V                   | 1 N.O.              |   |
| D2V                   | 1 N.C.              |   |
| D4V                   | 1 N.C.L.B.          |   |
| AV                    | 1 N.O. - 1 N.C.     |   |

h (cont'd)

| Contact Blocks          |                 |
|-------------------------|-----------------|
| Code                    | Description     |
| Class 1, Div. 2         |                 |
| Logic Reed              |                 |
| D1R                     | 1 N.O.          |
| D2R                     | 1 N.C.          |
| AR                      | 1 N.O. - 1 N.C. |
| Sealed Switch           |                 |
| D1P                     | 1 N.O.          |
| D2P                     | 1 N.C.          |
| AP                      | 1 N.O. - 1 N.C. |
| Stackable Sealed Switch |                 |
| D1Y                     | 1 N.O.          |
| D2Y                     | 1 N.C.          |
| AY                      | 1 N.O. - 1 N.C. |

- § See page 18 for additional voltage code options.
- \* Devices with N.C.L.B. contacts meet EN ISO 13850 and IEC 60947-5-5 standards for emergency stop applications.
- # Push-Pull is available only with Bul. 800T.
- ▲ Diode type dual input provides circuit isolation via opposing diodes. Not recommended for use with solid-state outputs.
- ▽ Two stacked 800T-XD4 contact blocks supplied.

3-Position Push-Pull Devices, Illuminated

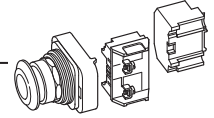


Illuminated 3-Position Push-Pull  
Cat. No. 800T-FXMP16RA7



Illuminated 3-Position Push-Pull  
Cat. No. 800H-FRXMP16A7

800 T - FX M PH 16 R A1  
a b c d e f g h



**a**

| Protection Rating |                       |
|-------------------|-----------------------|
| Code              | Description           |
| T                 | Metal, Type 4/13      |
| H                 | Plastic, Type 4/4X/13 |

**b**

| Finger-Safe Guards |                     |
|--------------------|---------------------|
| Code               | Description         |
| Blank              | No guards           |
| C                  | Guards on terminals |

**c**

| Head Type      |                |                   |
|----------------|----------------|-------------------|
| 800T Type 4/13 | Description    | 800H Type 4/4X/13 |
| Code           |                | Code              |
| FX             | Mushroom head  | FRX               |
| FXJ            | Jumbo mushroom | FRXJ              |

**d**

| Operator Function |                   |       |       |
|-------------------|-------------------|-------|-------|
| Code              | Operator Position |       |       |
|                   | Out               | Ctr.  | In    |
| M                 | Mom.              | Main. | Main. |
| N                 | Mom.              | Main. | Mom.  |

Mom. – Momentary, Main. – Maintained.

**e**

| Illumination Options |                          |
|----------------------|--------------------------|
| Transformer          |                          |
| Code                 | Description              |
| P                    | Incandescent             |
| PH                   | LED                      |
| Full Voltage         |                          |
| Q                    | Incandescent             |
| QH                   | Universal LED            |
| Dual Input           |                          |
| D                    | Diode type <sup>♣</sup>  |
| DT                   | Transformer — relay type |
| DTH                  | Transformer — relay LED  |

**f**

| Voltage <sup>♣</sup> |                        |
|----------------------|------------------------|
| Transformer          |                        |
| Code                 | Description            |
| 16                   | 120V AC 50/60 Hz       |
| 26                   | 240V AC 50/60 Hz       |
| Full Voltage         |                        |
| 24                   | 24V AC/DC              |
| 10                   | 120V AC/DC             |
| 20                   | 240V AC/DC             |
| Universal LED        |                        |
| 2                    | 12...130V AC/DC        |
| Dual Input           |                        |
| 16                   | 120V AC                |
| 24                   | 24V AC/DC <sup>#</sup> |

**g**

| Color Cap |                                     |
|-----------|-------------------------------------|
| Code      | Color                               |
| X         | No cap (not valid with head Type J) |
| A         | Amber                               |
| B         | Blue                                |
| C         | Clear                               |
| G         | Green                               |
| R         | Red                                 |
| W         | White                               |

**h**

| Target                  |                         |   |   |
|-------------------------|-------------------------|---|---|
| Contact                 |                         |   |   |
| N.O.                    | O                       | O | X |
| N.C.                    | X                       | O | O |
| N.C.L.B.                | X                       | X | O |
| Contact Blocks          |                         |   |   |
| Code                    | Description             |   |   |
| Blank                   | No contacts on operator |   |   |
| Standard                |                         |   |   |
| A                       | 1 N.O. - 1 N.C.         |   |   |
| A1                      | 1 N.O. - 1 N.C.L.B.     |   |   |
| A7                      | 1 N.C. - 1 N.C.L.B.     |   |   |
| PenTUFF (Low Voltage)   |                         |   |   |
| AV                      | 1 N.O. - 1 N.C.         |   |   |
| Class 1, Div. 2         |                         |   |   |
| Logic Reed              |                         |   |   |
| AR                      | 1 N.O. - 1 N.C.         |   |   |
| Sealed Switch           |                         |   |   |
| AP                      | 1 N.O. - 1 N.C.         |   |   |
| Stackable Sealed Switch |                         |   |   |
| AY                      | 1 N.O. - 1 N.C.         |   |   |

<sup>♣</sup> See page 18 (Table f) for additional voltage code options.  
<sup>♠</sup> Diode type dual input provides circuit isolation via opposing diodes. Not recommended for use with solid-state outputs and neon indicators.  
<sup>#</sup> Dual input diode only.