



MICRO SWITCH™ Premium  
Large Basic Switches  
**DT | MN | MT | TB Series**



# MICRO SWITCH™ Premium Large Basic Switches

MICRO SWITCH™ premium large snap-action series are designed for repeatability and enhanced life. These series of precision switches feature application-specific characteristics. From double-break circuitry to handling power duty electrical loads, MICRO SWITCH™ premium large snap-action series switches are suitable for a variety of applications.

DT Series switches consist of two independent single-pole double throw (dpdt) contacts in one housing controlled by an integral common actuator. The DPDT contact configuration provides a contact for the control circuit and a different contact for the signal or auxiliary circuit.

MT Series magnetic blow-out switches are designed to switch high-capacity (125 Vdc/250 Vdc) electrical loads. An integral magnet around the contact gap deflects the arc away from the contacts, extending switch life. Vents between the cover and housing allow the hot gas to escape.

Easy to gang mount, MN Series single pole double throw double-break switches are for use with limit or control mechanisms on machine tools, presses, or other industrial equipment.

MICRO SWITCH™ TB Series miniature single pole double throw double break switches offer a means of controlling circuits similar to the MN series switches except in a smaller package.

## ***What makes our switches better?***

- Industry-leading temperature ranges of -55 °C to 85 °C [-67 °F to 185 °F]
- Switches with DPDT circuits (each pole electrically independent) can control two independent circuits in small package size eliminating need for a second switch or a two-pole relay, thereby reducing total system cost
- High capacity Vdc available for power duty control of electrical loads, such as dc motors and dc solenoids



***Great system design flexibility***

VALUE • DESIGN FLEXIBILITY • RELIABILITY

## Features and Benefits

### YEARS OF PERFORMANCE - NO MATTER THE ENVIRONMENT

MICRO SWITCH™ DT and TB Series feature **industry-leading temperature ranges** of -55 °C to 85 °C [-67 °F to 185 °F] for years of reliable performance in the harshest of conditions. Honeywell's large basics feature **rugged construction** and **enhanced mechanical life**.

### FLEXIBILITY OF PRODUCT CHARACTERISTICS

Honeywell's large basics boast a broad and deep array of product options and characteristics to **meet a wide variety of application and system requirements**. A range of accessories, including brackets and enclosures, is also offered.

### *Control two independent circuits in one small package*

### POWER DUTY CONTROL

**High capacity dc available** for power duty control of electrical loads such as those found on dc motors.

### ONE SMALL SWITCH OFFERS BIG BENEFITS

**DPDT circuits (with each pole electrically independent)** are able to control two independent circuits in small package size.

### *Power duty control options*

### EASY INSTALLATION REDUCES OVERALL COSTS

The switch's elongated mounting hole allows for **easier, more accurate mounting**.

### REDUCE TOTAL SYSTEM COST

**Unique design options** prevent the need for two individual switches/levers or two-pole relays which can help reduce total system cost.

### EQUIPMENT CERTIFICATION OPTIONS

Agency coverage to assist in equipment certification.

### MILITARY APPROVALS

**MIL-PRF-8805** DPDT switches available for military specified applications.

## Potential Applications



### **DC MOTOR & SOLENOID CONTROL CIRCUITS**

Utilized for dc control in back-up control systems

### **INDUSTRIAL EQUIPMENT**

Used in fork lifts with a DPDT contact for control contact & signal contact

### **MACHINE TOOLS**

Can be used to control circuits such as start, stop, or jog functions



### **MANUALLY OPERATED DEVICES**

Controls start-stop or on-off functions on equipment for drill presses, conveyors

### **WELDERS**

Often used in dc control circuits



# MICRO SWITCH™ Premium Large Basic Switches

**Table 1. Specifications**

| Characteristic           | DT Series                                                                         | MT Series                                                                           | MN Series                                                                          | TB Series                                                                           |
|--------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                          |  |    |  |  |
| Differentiator           | same size as the MICRO SWITCH™ BZ Series, but double pole double throw (DPDT)     | designed for power duty dc loads                                                    | double-break contacts                                                              | smaller double-break package                                                        |
| Use                      | design permits several different wiring configurations                            | control circuits to switch high capacity (125 Vdc and 250 Vdc) systems              | limit or control mechanisms                                                        | limit or control mechanisms                                                         |
| Ampere rating            | 10 A                                                                              | 10 A                                                                                | 15 A                                                                               | 10 A                                                                                |
| Circuitry                | DPDT                                                                              | SPDT                                                                                | SPDT DB                                                                            | SPDT DB                                                                             |
| Operating force          | 3,34 N to 5,56 N<br>[12.0 oz to 20.0 oz] max.                                     | 3,34 N to 5,00 N<br>[12 oz to 18 oz] max.                                           | 1,95 N to 3,1 N<br>[7.0 oz to 11.0 oz]                                             | 1,95 N to 3,89 N<br>[7 oz to 14 oz] max.                                            |
| Termination              | screw                                                                             | solder, screw                                                                       | screw                                                                              | solder, screw                                                                       |
| Actuator                 | pin plunger, straight plunger, straight lever, reversed lever, roller lever       | pin plunger, straight lever, roller lever, flexible leaf, flexible leaf with roller | pin plunger                                                                        | pin plunger                                                                         |
| Voltage                  | 125 Vac, 250 Vac, 28 Vdc                                                          | 125 Vdc, 250 Vdc                                                                    | 480 Vac                                                                            | 250 Vac                                                                             |
| Agency approvals         | UL recognized;<br>CSA certified,<br>MIL-PRF-8805                                  | UL recognized                                                                       | UL recognized;<br>CSA certified                                                    | UL recognized,<br>CSA certified                                                     |
| Operating temperature    | -55 °C to 85 °C<br>[-67 °F to 185 °F]                                             | -55 °C to 82 °C<br>[-67 °F to 180 °F]                                               | -55 °C to 85 °C<br>[-67 °F to 185 °F]                                              | -55 °C to 125 °C [-67 °F to 257 °F]                                                 |
| Contacts                 | silver                                                                            | silver                                                                              | silver                                                                             | silver                                                                              |
| Housing                  | general purpose phenolic                                                          | arc resistant melamine                                                              | general purpose phenolic                                                           | general purpose phenolic                                                            |
| Expected mechanical life | 3,000,000 operations                                                              | 100,000 operations                                                                  | 10,000,000 cycles                                                                  | 7,000,000 operations                                                                |

O.F. • Operating force  
R.F. • Release force  
P.T. • Pretravel  
O.T. • Overtravel  
D.T. • Differential travel  
O.P. • Operating position

## DT SERIES ORDER GUIDE

|                                                                                  | Catalog Listing           | Recommended For                                      | Electrical Data and UL Codes | O.F. N [oz]               | R.F. min. N [oz] | P.T. max. mm [in] | O.T. min. mm [in] | D.T. mm [in]                  | O.P. * mm [in]            |
|----------------------------------------------------------------------------------|---------------------------|------------------------------------------------------|------------------------------|---------------------------|------------------|-------------------|-------------------|-------------------------------|---------------------------|
|  | <b>DT-2R-A7 MS25008-1</b> | Pin plunger, MIL-PRF-8805 applications               | 10 A J                       | 3,35 to 5,56 [12 to 20]   | 0,56 [2]         | 1,91 [0.075]      | 0,13 [0.005]      | 1,02 to 1,52 [0.040 to 0.060] | 15,6 [0.615 ±0.015]       |
|                                                                                  | <b>DT-2RS1-A7</b>         | Straight plunger                                     | 10 A J                       | 3,35 to 5,56 [12 to 20]   | 0,28 [1]         | 1,91 [0.075]      | 0,51 [0.020]      | 1,02 to 1,52 [0.040 to 0.060] | 28,2 ±0,038 [1.11 ±0.015] |
|                                                                                  | <b>DT-2RV3-A7</b>         | Straight lever, reversed lever position              | 10 A J                       | 1,11 to 1,95 [4 to 7]     | 0,14 [0.5]       | 6,86 [0.270]      | 0,25 [0.010]      | 2,92 to 4,83 [0.115 to 0.190] | 18,3 [0.719]              |
|                                                                                  | <b>DT-2RV-A7</b>          | Straight lever                                       | 10 A J                       | 0,97 to 1,67 [3.5 to 6]   | 0,28 [1]         | 25,4 [1]          | 1,57 [0.062]      | 12,4 to 19,2 [0.490 to 0.755] | 21,8 [0.859]              |
|                                                                                  | <b>DT-2RV216-A7</b>       | Roller lever (centered SST roller)                   | 10 A J                       | 11,1 [2.5 lb]             | 1,11 [4]         | 1,02 [0.040]      | 0,13 [0.005]      | 0,51 to 0,76 [0.020 to 0.030] | 31 [1.219]                |
|                                                                                  | <b>DT-2RV22-A7</b>        | 26,2 mm [1.03 in] roller lever (SST roller)          | 10 A J                       | 2,5 to 3,89 [9 to 14]     | 0,83 [3]         | 9,9 [0.39]        | 0,79 [0.031]      | 4,95 to 7,75 [0.195 to 0.305] | 30,2 ±0,38 [1.188 ±0.015] |
|                                                                                  | <b>DT-2RV212-A7</b>       | 30,2 mm [1.19 in] reversed roller lever (SST roller) | 10 A J                       | 2,5 to 4,17 [9 to 15]     | 0,42 [1.5]       | 3,3 [0.130]       | 0,13 [0.005]      | 1,27 to 2,16 [0.050 to 0.085] | 29,4 [1.156]              |
|                                                                                  | <b>DT-2RV23-A7</b>        | 48,22 [1.9 in] reversed roller lever (SST roller)    | 10 A J                       | 1,53 to 2,64 [5.5 to 9.5] | 0,21 [0.75]      | 4,45 [0.175]      | 0,25 [0.010]      | 2,16 to 3,43 [0.085 to 0.135] | 29,4 [1.156]              |
|                                                                                  | <b>DT-2RV2-A7</b>         | 48,3 mm [1.90 in] roller lever (SST roller)          | 10 A J                       | 1,25 to 2,09 [4.5 to 7.5] | 0,42 [1.5]       | 18,27 [0.72]      | 1,19 [0.047]      | 9,27 to 14,4 [0.365 to 0.565] | 31,8 [1.250]              |

\* except where stated ±0,76 mm [±0.030 in]

## ELECTRICAL DATA AND UL CODES

Table 2. DT Series UL Electrical Ratings

| Code | Circuitry                                                                                   | Electrical data and UL codes                                                   |
|------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| J    | DPDT<br> | 10 A, 125 Vac or 250 Vac;<br>0.3 A, 125 Vdc;<br>0.15 A, 250 Vdc<br>UL Code L59 |

# MICRO SWITCH™ Premium Large Basic Switches

O.F. • Operating force  
R.F. • Release force  
P.T. • Pretravel  
O.T. • Overtravel  
D.T. • Differential travel  
O.P. • Operating position

## MT SERIES ORDER GUIDE

|                                                                                   | Catalog Listing     | Recommended For                                       | Electrical Data and UL Codes | O.F. N [oz]               | R.F. min. N [oz] | P.T. max. mm [in] | O.T. min. mm [in]       | D.T. mm [in]                    | O.P. max. mm [in]            |
|-----------------------------------------------------------------------------------|---------------------|-------------------------------------------------------|------------------------------|---------------------------|------------------|-------------------|-------------------------|---------------------------------|------------------------------|
|  | <b>MT-4R-A28</b>    | Pin plunger                                           | 10 A<br>K                    | 3,34 to 5,0<br>[12 to 18] | 1,39<br>[5]      | 1,02<br>[0.04]    | 0,13<br>[0.005]         | 0,1 to 0,18<br>[0.004 to 0.007] | 15,9 ±0,38<br>[0.625 ±0.015] |
|                                                                                   | <b>MT-4RV-A28</b>   | Straight lever                                        | 10 A<br>K                    | 0,56<br>[2]               | 0,14<br>[0.5]    | 12,7<br>[0.5]     | 1,19<br>[0.047]         | 2,16<br>[0.085]                 | 19,1<br>[0.750]              |
|                                                                                   | <b>MT-4RV2-A28</b>  | 48,3 mm [1.90 in]<br>lever with SST roller            | 10 A<br>K                    | 0,76<br>[2.75]            | 0,07<br>[0.25]   | 8,89<br>[0.35]    | 0,79<br>[0.031]         | 1,65<br>[0.065]                 | 30,2<br>[1.188]              |
|                                                                                   | <b>MT-4RV22-A28</b> | 26,2 mm [1.03 in]<br>lever with SST roller            | 10 A<br>K                    | 1,25<br>[4.5]             | 0,28<br>[1]      | 5,08<br>[0.20]    | 0,38<br>[0.015]         | 0,89<br>[0.035]                 | 31,3<br>[1.234]              |
|                                                                                   | <b>MT-4RL-A28</b>   | 49,5 mm 1.95 in]<br>flexible leaf                     | 10 A<br>K                    | 3,34<br>[12]              | 0,28<br>[1]      | 6,35<br>[0.25]    | 1,52<br>[0.060]<br>max. | –                               | 19,1<br>[0.750]              |
|                                                                                   | <b>MT-4RL2-A28</b>  | 46,2 mm [1.82 in]<br>flexible leaf with SST<br>roller | 10 A<br>K                    | 3,34<br>[12]              | 0,28<br>[1]      | 6,35<br>[0.25]    | 1,52<br>[0.060]<br>max. | –                               | 30,2<br>[1.188]              |

\* ±0,76 mm [±0.030 in]

## ELECTRICAL DATA AND UL CODES

Table 3. MT Series UL Electrical Ratings

| Code | Circuitry                                                                                                                                           | Electrical data and UL codes                                                                                     |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| K    | SPDT (un-<br>less other-<br>wise noted<br>in order<br>guide)<br> | Rating established with switch non-polarized<br>10 A, 125 Vac or Vdc;<br>1/4 HP, 125 Vac or Vdc<br>UL Code L 168 |
|      |                                                                                                                                                     | Non-polarized:<br>10 A res. or 1/4 HP, 125 Vdc;<br>3 A max. res. 250 Vdc                                         |
|      |                                                                                                                                                     | Polarized*:<br>10 A res. or 1/2 HP, 125 Vdc;<br>3 A max. res., 250 Vdc                                           |

\*To polarize, connect negative side of line to common terminal. To achieve the same effect, mount switch with brass screws, using a non-magnetic barrier (at least 1/4 N thick) between the switch and mounting surface

# DT | MT | MN | TB Series

## 3MN SERIES ORDER GUIDE

|                                                                                   | Catalog Listing | Recommended For | Electrical Data and UL Codes | O.F. N [oz]             | R.F. min. N [oz] | P.T. max. mm [in] | O.T. min. mm [in] | D.T. mm [in]                  | O.P.* max. mm [in] |
|-----------------------------------------------------------------------------------|-----------------|-----------------|------------------------------|-------------------------|------------------|-------------------|-------------------|-------------------------------|--------------------|
|  | <b>3MN1</b>     | General purpose | 15 A V                       | 3,34 to 5,56 [12 to 20] | 1,67 [6]         | 1,52 [0.060]      | 2,03 [0.080]      | 0,38 to 0,63 [0.015 to 0.025] | 2,16 [0.085]       |
|                                                                                   | <b>3MN6</b>     | Lower force     | 15 A V                       | 1,95 to 3,1 [7 to 11]   | 1,11 [4]         | 1,52 [0.060]      | 2,03 [0.080]      | 0,38 to 0,63 [0.015 to 0.025] | 2,16 [0.085]       |

\*  $\pm 0,38$  mm [ $\pm 0.015$  in]

## ELECTRICAL DATA AND UL CODES

Table 4. 3MN Series UL Electrical Ratings

| Code | Circuitry                                                                                                      | Electrical data and UL codes                                                                                                         |
|------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| V    | Two-circuit, double break<br> | Motor Control<br>15 A, 120 Vac, 240 Vac, 480 Vac or 600 Vac;<br>1/2 HP, 120 Vac; 1 HP, 240 Vac;<br>0.8 A, 115 Vdc;<br>0.4 A, 230 Vdc |

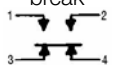
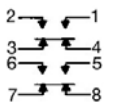
## TB SERIES ORDER GUIDE

|                                                                                     | Catalog Listing | Recommended For                                   | Electrical Data and UL Codes | O.F. N [oz]            | R.F. min. N [oz] | P.T. max. mm [in] | O.T. min. mm [in] | D.T. mm [in]                  | O.P.* max. mm [in] |
|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------|------------------------------|------------------------|------------------|-------------------|-------------------|-------------------------------|--------------------|
|  | <b>1TB1-1</b>   | Two-circuit, doublebreak, end screw terminals     | 10 A Z                       | 1,95 to 3,61 [7 to 13] | 1,11 [4]         | 1,52 [0.060]      | 0,25 [0.010]      | 0,25 to 0,64 [0.010 to 0.025] | 11,7 [0.460]       |
|                                                                                     | <b>1TB1-2</b>   | Two-circuit, doublebreak, end solder terminals    | 10 A Z                       | 1,95 to 3,61 [7 to 13] | 1,11 [4]         | 1,52 [0.060]      | 0,25 [0.010]      | 0,25 to 0,64 [0.010 to 0.025] | 11,7 [0.460]       |
|                                                                                     | <b>1TB1-3</b>   | Two-circuit, doublebreak, front solder terminals  | 10 A Z                       | 1,95 to 3,61 [7 to 13] | 1,11 [4]         | 1,52 [0.060]      | 0,25 [0.010]      | 0,25 to 0,64 [0.010 to 0.025] | 11,7 [0.460]       |
|                                                                                     | <b>41TB5-3</b>  | Four-circuit, doublebreak, front solder terminals | 10 A Z                       | 5,56 to 10 [20 to 36]  | 2,22 [8]         | 1,78 [0.070]      | 0,25 [0.010]      | 0,64 to 1,14 [0.025 to 0.045] | 4,70 [0.185]       |

\*  $\pm 0,38$  mm [ $\pm 0.015$  in]

## ELECTRICAL DATA AND UL CODES

Table 5. TB Series UL Electrical Ratings

| Code | Circuitry                                                                                                         | Electrical data and UL codes                                   |
|------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Z    | Two-circuit, double break<br>  | 10 A, 125 Vac or 250 Vac, or 30 Vdc                            |
|      | Four-circuit, double break<br> | UL/CSA rating:<br>10 A, 125 Vac or 250 Vac;<br>1/2 HP, 125 Vac |

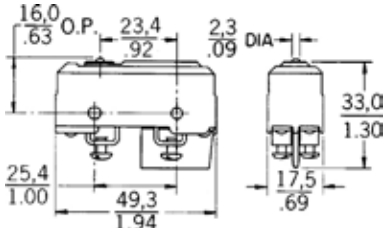
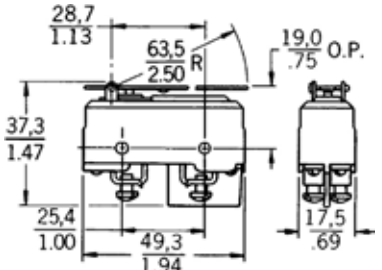
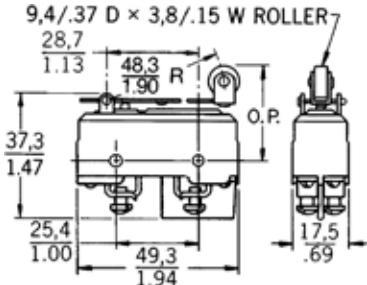
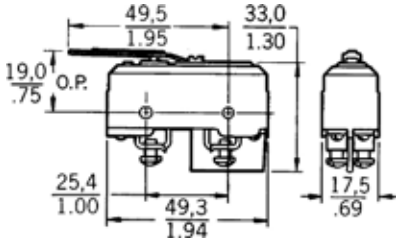
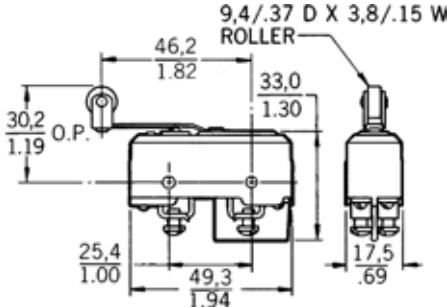
# MICRO SWITCH™ Premium Large Basic Switches

**DT SERIES • STANDARD ACTUATOR OPTIONS, SCREW TERMINALS, & DIMENSIONS (mm/in)**  
(for reference only)

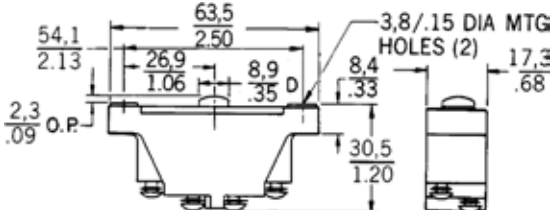
|                                                                                                                                                                                                                                       |                                                                                                                                                                                                                              |                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>DT Series: Pin plunger</b></p> <p>2.3<br/>.09 DIA<br/>23.4<br/>9.2<br/>15.7<br/>.62 O.P.<br/>16.7<br/>.66<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>MOUNTING HOLES ACCEPT PINS OR SCREWS OF 3.53/.139 DIA</p> | <p><b>DT Series: Straight lever</b></p> <p>28.7<br/>1.13<br/>63.5<br/>2.50 R<br/>21.8<br/>.86 O.P.<br/>36.6<br/>1.44<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p>                                 | <p><b>DT Series: Straight lever (reversed)</b></p> <p>63.5<br/>2.50 R<br/>1.3<br/>.05<br/>31.2<br/>1.23<br/>18.3<br/>.72 O.P.<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p>          |
| <p><b>DT Series: Roller lever</b></p> <p>9.4/.37 D × 3.8/.15 W ROLLER<br/>28.7<br/>1.13<br/>48.3<br/>1.90 R<br/>31.8<br/>1.25 O.P.<br/>36.6<br/>1.44<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p>          | <p><b>DT Series: Roller lever</b></p> <p>9.4/.37 D × 3.8/.15 W ROLLER<br/>28.7<br/>1.13<br/>26.2<br/>1.03 R<br/>30.2<br/>1.19 O.P.<br/>36.6<br/>1.44<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p> | <p><b>DT Series: Roller lever (reversed)</b></p> <p>9.4/.37 D × 3.8/.15 W ROLLER<br/>48.3<br/>1.90 R<br/>1.3<br/>.05<br/>31.2<br/>1.23<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p> |
| <p><b>DT Series: Roller lever (reversed)</b></p> <p>9.4/.37 D × 3.8/.15 W ROLLER<br/>30.2<br/>1.19 R<br/>1.3<br/>.05<br/>31.2<br/>1.23<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p>                        | <p><b>DT Series: Roller lever (reversed)</b></p> <p>9.4/.37 D × 3.8/.15 W ROLLER<br/>12.4<br/>.49<br/>31.0<br/>1.22 O.P.<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69</p> <p>NC C NO</p>                             | <p><b>DT Series: Straight plunger</b></p> <p>23.4<br/>9.2<br/>3.3<br/>.13 DIA<br/>28.2<br/>1.11 O.P.<br/>25.4<br/>1.00<br/>49.3<br/>1.94<br/>17.5<br/>.69<br/>31.2<br/>1.23</p> <p>NC C NO</p>                 |

DT | MT | MN | TB Series

MT SERIES • STANDARD ACTUATOR OPTIONS, SCREW TERMINALS, & DIMENSIONS (mm/in)  
(for reference only)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>MT Series: Pin plunger</p>  <p>Technical drawing of the MT Series Pin plunger actuator. The front view shows a rectangular body with two screw terminals at the bottom. Dimensions include a top width of 16.0 mm (.63 in), a terminal spacing of 23.4 mm (.92 in), a terminal diameter of 2.3 mm (.09 in), a body width of 49.3 mm (1.94 in), a body height of 25.4 mm (1.00 in), and a terminal height of 17.5 mm (.69 in). The side view shows a total height of 33.0 mm (1.30 in).</p> | <p>MT Series: Straight lever</p>  <p>Technical drawing of the MT Series Straight lever actuator. The front view shows a rectangular body with a straight lever arm extending from the top. Dimensions include a lever height of 28.7 mm (1.13 in), a lever width of 63.5 mm (2.50 in), a terminal spacing of 19.0 mm (.75 in), a body width of 49.3 mm (1.94 in), a body height of 25.4 mm (1.00 in), and a terminal height of 17.5 mm (.69 in). The side view shows a total height of 37.3 mm (1.47 in).</p>                               | <p>MT Series: Roller lever</p>  <p>Technical drawing of the MT Series Roller lever actuator. The front view shows a rectangular body with a roller lever arm. Dimensions include a roller diameter of 9.4 mm (.37 in), a roller width of 3.8 mm (.15 in), a lever height of 28.7 mm (1.13 in), a lever width of 48.3 mm (1.90 in), a terminal spacing of 19.0 mm (.75 in), a body width of 49.3 mm (1.94 in), a body height of 25.4 mm (1.00 in), and a terminal height of 17.5 mm (.69 in). The side view shows a total height of 37.3 mm (1.47 in).</p> |
| <p>MT Series: Flexible leaf lever</p>  <p>Technical drawing of the MT Series Flexible leaf lever actuator. The front view shows a rectangular body with a flexible leaf lever arm. Dimensions include a lever height of 49.5 mm (1.95 in), a lever width of 33.0 mm (1.30 in), a terminal spacing of 19.0 mm (.75 in), a body width of 49.3 mm (1.94 in), a body height of 25.4 mm (1.00 in), and a terminal height of 17.5 mm (.69 in).</p>                                                  | <p>MT Series: Flexible leaf roller lever</p>  <p>Technical drawing of the MT Series Flexible leaf roller lever actuator. The front view shows a rectangular body with a flexible leaf roller lever arm. Dimensions include a roller diameter of 9.4 mm (.37 in), a roller width of 3.8 mm (.15 in), a lever height of 46.2 mm (1.82 in), a lever width of 33.0 mm (1.30 in), a terminal spacing of 30.2 mm (1.19 in), a body width of 49.3 mm (1.94 in), a body height of 25.4 mm (1.00 in), and a terminal height of 17.5 mm (.69 in).</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

MN SERIES • STANDARD ACTUATOR OPTIONS, SCREW TERMINALS, & DIMENSIONS (mm/in)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>MN Series: Pin plunger</p>  <p>Technical drawing of the MN Series Pin plunger actuator. The front view shows a rectangular body with two screw terminals at the bottom. Dimensions include a top width of 63.5 mm (2.50 in), a terminal spacing of 26.9 mm (1.06 in), a terminal diameter of 8.9 mm (.35 in), a body width of 49.3 mm (1.94 in), a body height of 25.4 mm (1.00 in), and a terminal height of 17.5 mm (.69 in). The side view shows a total height of 30.5 mm (1.20 in).</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# MICRO SWITCH™ Premium Large Basic Switches

## TB SERIES • STANDARD ACTUATOR OPTIONS, TERMINALS, & DIMENSIONS (mm/in) (for reference only)

|                                                         |                                                                       |
|---------------------------------------------------------|-----------------------------------------------------------------------|
| <p>TB Series: Pin plunger, screw terminals</p>          | <p>TB Series: Pin plunger, solder terminals</p>                       |
| <p>TB Series: Pin plunger, solder terminals (front)</p> | <p>TB Series: Pin plunger, solder terminals (front), four circuit</p> |

## LARGE SNAP-ACTION SWITCH ACCESSORIES

### Brackets

| Description             | 8MA1                                                                                                              | 8MA2                                                                               | 17MA1-B                                                                                                                      |
|-------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|                         |                                  |  |                                           |
| <b>Description</b>      | Adjustable mounting bracket with adjustment slot on left                                                          | Adjustable mounting bracket with adjustment slot on right                          | Conversion mounting bracket                                                                                                  |
| <b>Housing material</b> | Steel                                                                                                             | Steel                                                                              | Corrosion-resistant metal                                                                                                    |
| <b>Measurements</b>     | 60,2 mm W x 21,3 mm H x 7,4 mm D [2.37 in W x 0.84 in H x 0.29 in D]                                              |                                                                                    | 66,8 mm W x 19,0 mm D [2.63 in W x 0.75 in D]                                                                                |
| <b>Features</b>         | sturdy plated steel construction; fast, easy screwdriver adjustment; can be used with all standard basic switches |                                                                                    | converts standard basic switches from side to top mount; corrosion resistant; snaps into switch mounting holes without tools |

### Die-cast Zinc Enclosures

| Description             | 3PA1                                                                                                                                 | 3PA28                                                                                                                               | 3PA2                                                                                                                                                                           |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                    |                                                  |                                                                                            |
| <b>Description</b>      | mounted from either side through 3,55 mm [0.140 in] dia. holes on 25,4 mm [1.0 in] centers; conduit/hub 0.5 – 14 NPT internal thread | mounted from either side through 3,55 mm [0.140 in] dia. holes on 25,4 mm [1.0 in] centers. 1/2-14 NPSM internal thread conduit hub | switch secured in enclosure; two 4,37 mm [0.172 in] dia. holes in flange accept #8 screws for mounting on 41,3 mm [1.625 in] centers; conduit/hub 0.5 – 14 NPT internal thread |
| <b>Housing material</b> | die-cast zinc enclosure (side mount)                                                                                                 | die-cast zinc enclosure (side mount)                                                                                                | die-cast zinc enclosure (flange mount)                                                                                                                                         |
| <b>Measurements</b>     | 74,8 mm W x 42,9 mm H x 25,4 mm D [2.95 in W x 1.69 in H x 1.00 in D]                                                                | 74,8 mm W x 42,9 mm H x 25,4 mm D [2.95 in W x 1.69 in H x 1.00 in D]                                                               | 74,8 mm W x 42,9 mm H x 25,4 mm D [2.95 in W x 1.69 in H x 1.00 in D]                                                                                                          |
| <b>Sealing/Features</b> | NEMA 1; IP40; protects the switch from physical abuse and personnel from contact with exposed terminals                              |                                                                                                                                     |                                                                                                                                                                                |

### Plastic Terminal Enclosures

| Description             | 5PA1                                                                                                                 | 5PA2                                                                                 | 5PA3                                                                                                             |
|-------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
|                         |                                   |  |                             |
| <b>Description</b>      | Plastic terminal enclosure used with solder terminal switches                                                        | Plastic terminal enclosure use with screw terminal switches                          | Plastic terminal enclosure used with either solder or screw terminal switches with auxiliary actuators assembled |
| <b>Housing material</b> | plastic                                                                                                              | plastic                                                                              | plastic                                                                                                          |
| <b>Measurements</b>     | 52,8 mm W x 16,1 mm H [2.08 in W x 0.64 in H]                                                                        | 52,8 mm W x 20,2 mm H x 21,0 mm D [2.08 in W x 0.80 in H x 0.83 in D]                | 52,8 mm W x 20,2 mm H x 21,0 mm D [2.08 in W x 0.80 in H x 0.83 in D]                                            |
| <b>Sealing/Features</b> | NEMA 1, IP40; easy to use; screw and solder terminal versions; protect personnel from contact with exposed terminals |                                                                                      |                                                                                                                  |

# MICRO SWITCH™ Premium Large Basic Switches

## AUXILIARY ACTUATOR ORDER GUIDE

|                                                                                     | Catalog Listing | Description                                                                                                        | Use only with | Overtravel min. mm [in]    | Operating Position* mm [in]                     | Free Position mm [in] |
|-------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------|---------------|----------------------------|-------------------------------------------------|-----------------------|
|    | <b>JR</b>       | Roller lever for “S” plunger type DT switches only. Permits cam operation                                          | DT            | 11,1 mm [0.437 in]         | 44,45 mm $\pm$ 3,18 mm [1.75 in $\pm$ 0.125 in] | –                     |
|    | <b>ADD3721R</b> | Adjustable roller lever. Tang on top of actuator can be bent to adjust O.P. and F.P.                               | DT, MT        | 9,53 mm [0.375 in] approx. | 39,6 mm [1.562 in] approx.                      | 46,03 mm [1.812 in]   |
|    | <b>MCD2711</b>  | Straight plunger. Panel mount                                                                                      | DT, MT        | 3,58 mm [0.141 in]         | 27,79 mm [1.094 in]                             | 30,18 mm [1.188 in]   |
|    | <b>MCD2711H</b> | Sealed straight plunger. Panel mount. Elastomer boot seal keeps out liquid splash and dirt. Furnished unassembled. | DT, MT        | 3,58 mm [0.141 in]         | 27,79 mm [1.094 in]                             | 30,18 mm [1.188 in]   |
|   | <b>MD3211Q</b>  | Roller plunger. Panel mount. Roller parallel to long axis of the switch                                            | DT, MT        | 3,18 mm [0.125 in]         | 35,7 mm [1.406 in]                              | 37,69 mm [1.484 in]   |
|  | <b>MD3211Q1</b> | Cross roller plunger. Panel mount. Roller perpendicular to long axis of the switch                                 | DT, MT        | 3,18 mm [0.125 in]         | 35,7 mm [1.406 in]                              | 37,69 mm [1.484 in]   |
|  | <b>MCD7711</b>  | High overtravel plunger. Panel mount                                                                               | DT, MT        | 18,26 mm [0.719 in]        | 69,1 mm [2.719 in]                              | 71,42 mm [2.812 in]   |

\* except where stated  $\pm 1,14$  mm [ $\pm 0.045$  in]

NOTE: All actuators are for use with pin plunger types only, except catalog listing JR.

## OPERATING CHARACTERISTICS

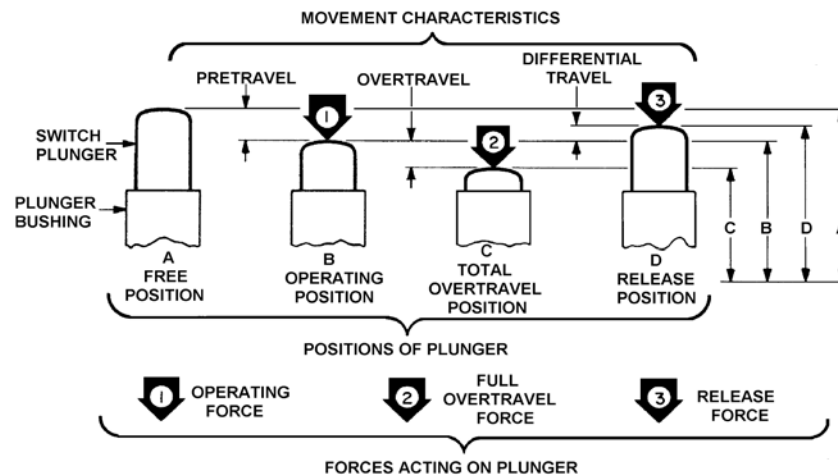


Table 3. Operating Characteristics Definitions

| Characteristic                | Description                                                                                                                                                                                                                                                                                                       |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Differential Travel-DT</b> | Plunger or actuator travel from point where contacts “snap-over” to point where they “snap-back.”                                                                                                                                                                                                                 |
| <b>Free Position-FP</b>       | Position of switch plunger or actuator when no external force is applied.                                                                                                                                                                                                                                         |
| <b>Full Overtravel Force</b>  | Force required to attain full overtravel of actuator.                                                                                                                                                                                                                                                             |
| <b>Operating Position-OP</b>  | Position of switch plunger or actuator at which point contacts snap from normal to operated position. With flexible or adjustable actuators, the operating position is measured from the end of the lever or its maximum length. Location of operating position measurement shown on mounting dimension drawings. |
| <b>Operating Force-OF</b>     | Amount of force applied to switch plunger or actuator to cause the contact “snap-over.” Note in the case of adjustable actuators, the force is measured from the maximum length position of the lever.                                                                                                            |
| <b>Overtravel-OT</b>          | Plunger or actuator travel safely available beyond operating position.                                                                                                                                                                                                                                            |
| <b>Pretravel-PT</b>           | Distance or angle traveled in moving plunger or actuator from free position to operating position.                                                                                                                                                                                                                |
| <b>Release Force-RF</b>       | Amount of force still applied to switch plunger or actuator at the moment contacts snap from operated position to non-operated position.                                                                                                                                                                          |
| <b>Total Travel</b>           | Distance from actuator free position to overtravel limit position.                                                                                                                                                                                                                                                |

## This Honeywell datasheet supports the following MICRO SWITCH™ Premium Large Basic Switch Listings

|          |            |              |              |              |              |
|----------|------------|--------------|--------------|--------------|--------------|
| 13MN2    | 1TB86-3    | DT-2R4-B6    | DT-2RV22-A7  | MT-4R        | MT-4RL-A28   |
| 1TB1-1   | 2TB242-4   | DT-2R711-A7  | DT-2RV22-B6  | MT-4R27      | MT-4R-P1     |
| 1TB1-13  | 3MN1       | DT-2R722-A7  | DT-2RV239-A7 | MT-4R4-A69   | MT-4RV       |
| 1TB1-2   | 3MN11      | DT-2R-A7     | DT-2RV23-A7  | MT-4R-A210   | MT-4RV22     |
| 1TB1-3   | 3MN19      | DT-2R-B6     | DT-2RV2-A7   | MT-4R-A28    | MT-4RV22-A28 |
| 1TB242-4 | 3MN6       | DT-2RQ-A7N4  | DT-2RV31-A7  | MT-4RL       | MT-4RV2-A28  |
| 1TB24-3  | 3TB41-15   | DT-2RQ-A7N5  | DT-2RV3-A7   | MT-4RL13-D10 | MT-4RV34-A28 |
| 1TB244-6 | 41TB22-3   | DT-2RQ-A7N6  | DT-2RV3-B6   | MT-4RL14-D11 | MT-4RV36-D73 |
| 1TB25-17 | 41TB5-3    | DT-2RS1-A7   | DT-2RV49-B6  | MT-4RL2      | MT-4RV4-A28  |
| 1TB25-D8 | DT-2R48-B6 | DT-2RV212-A7 | DT-2RV-A7    | MT-4RL2-A28  | MT-4RV-A28   |
| 1TB28-2  | DT-2R4-A7  | DT-2RV216-A7 | DT-2RV-B6    |              |              |

# MICRO SWITCH™ Premium Large Basic Switches

## ADDITIONAL INFORMATION

The following associated literature is available on the Web at [sensing.honeywell.com](http://sensing.honeywell.com):

- Product installation instructions
- Product application-specific information
  - Sensors and switches for potential HVAC/R applications
  - Sensors and switches for valve monitors and valve indicators
  - Sensors and switches in oil rig applications
  - Sensors and switches in sanitary valves
- Applying basic switches
- Low energy switching guide
- Product range guide

### **WARNING**

#### **PERSONAL INJURY**

**DO NOT USE** these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

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