# SWITCH SELECTION GUIDE



# Basic Switches









| SERIES | FEATURE                              | MAX RATING<br>(Resistive) | MECHANICAL LIFE | APPROVALS                                     | CIRCUITRY           |
|--------|--------------------------------------|---------------------------|-----------------|---|---------------------|
| B1     | Ultra Small                          | 2A                        | 100,000         | N/A   | SPST, SPDT          |
| B1-5   | Levers                               | 2A                        | 1,000,000       | N/A   | SPST, SPDT          |
| B2     | Subminiature                         | 7A                        | 250,000         | UL (E61705), CSA (LR43865),<br>DSCC (QPL8805) | SPST, SPDT          |
| B2-5   | Subminiature with<br>Integral Levers | 7A                        | 100,000         | UL (E61705), CSA (LR43865),<br>DSCC (QPL8805) | SPST, SPDT          |
| B3     | Subminiature                         | 8A                        | 1,000,000       | UL (E61705), CSA (LR43865),<br>DSCC (QPL8805) | SPST-DB,<br>SPDT-DB |
| B5     | Miniature                            | 10A                       | 1,000,000       | UL (E61705), CSA (LR43865),<br>DSCC (QPL8805) | SPST-DB,<br>SPDT-DB |
| B5-7   | Two Pole                             | 10A                       | 100,000         | UL (E61705), CSA (LR43865),<br>DSCC (QPL8805) | DPDT-DB             |

**BASICS** 

## ULTRA SMALL SUBMINIATURE BASICS

### SINGLE BREAK, COMMERICAL & MILITARY GRADES

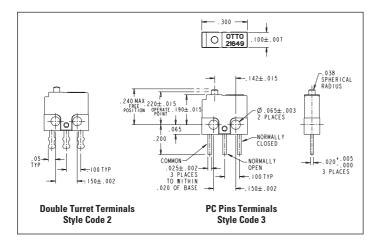
The B1 series basic switches are ultra-subminiature in size, designed to reliably switch low level logic signals as well as up to 2 amps switching capacity for a minimum of 25,000 cycles. Mechanical life expectancy is in excess of one million cycles.

The molded housing is rugged and structurally stable. The terminals are molded-in and sealed against solder flux entering the switch. The terminals are available in a choice of double turret solder style and  $0.020" \times 0.025"$  PC pins.

The B1 series is also available with integral lever actuators as B1-5 series.

### **Features:**

- Ultra-compact: only 0.300" w x 0.255" h x 0.100" thick
- 1 million cycle life, B1-5 Series
- Low level or logic level switching capability
- Designed to meet requirements of MIL-PRF-8805/94
- Available in Commercial & Military grades
- Choice of solder or PC molded-in terminals
- Precision operating points
- RoHS/WEEE/Reach compliant

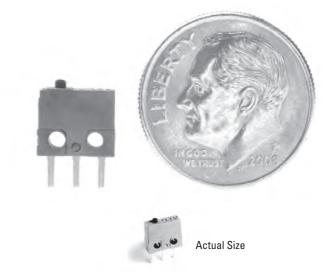


### **ORDERING INFORMATION:**

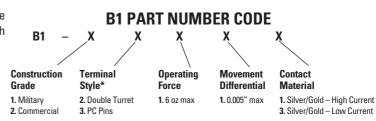
### **B1** Basic

Select the OTTO B1 basic switch to match your specific circuit and mechanical requirements. To order, specify your requirement using the OTTO Part Number Code shown below.

**Example:** B1-12111 specifies Military grade construction, double turret terminals, 6 oz max operating force and silver/gold high current contacts.



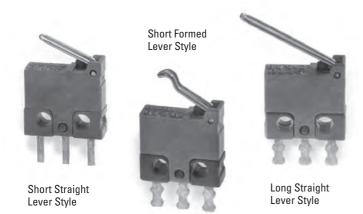
| Standard Chara   | acteri | stics/Ratings:   |                            |
|------------------|--------|--|----------------------------|
| ELECTRICAL RAT   |        |  |                            |
| Load             | Sea L  | evel @ 28VDC or 115VAC, 60Hz                               | 50,000 feet @ 28VDC        |
| Resistive        | 2A     |  | 2A                         |
| Inductive*       | 0.5A   |  | 0.2A                       |
| DWV              | 1050\  | /rms   | 400Vrms                    |
| Low Level        | 30m\   | / max and 10mA max   | 30mV and 10mA max          |
| *L/R = 0.026     |        |  |                            |
| Electrical Life: |        | 25,000 cycles  |                            |
| Mechanical Life: |        | B1 Series is 100,000 cycles (B1-5 S                        | Series is 1,000,000 cycles |
| Seal:            |        | Unsealed   |                            |
| Operating Temp R | ange:  | -55°C to +125°C  |                            |
| Operating Force: |        | 6 oz max   |                            |
| Release Force:   |        | 0.7 oz min   |                            |
| Operate Point:   |        | 0.220 +/- 0.015 inches from mounti                         | ng holes                   |
| Overtravel:      |        | 0.003 inches min   |                            |
| Movement Differe | ntial: | 0.002 inches nominal, 0.005 inches                         | max                        |
| Pretravel:       |        | 0.015 inches max   |                            |
| MATERIALS:       |        |  |                            |
| Case:            |        | Thermoset, blue  |                            |
| Cover:           |        | Thermoplastic, blue  |                            |
| Button:          |        | Thermoplastic, black                                       |                            |
| Terminals:       |        | Brass, gold over nickel                                    |                            |
| Contacts:        |        | Stationary: Silver with gold<br>Moveable: Silver with gold |                            |
| Terminal Hardwai | e:     | None provided  |                            |
| Mounting Hardwa  | re:    | None provided  |                            |



<sup>\*</sup> Wire leads available, contact factory

### **B1 BASICS WITH INTEGRAL LEVERS**

### SNAP-ACTION, SINGLE BREAK BASIC SWITCHES



### **B1-5 Integral Lever Basic Switches**

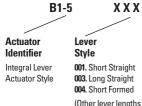
B1-5 series basic switches feature integral actuating levers. The lever is built-in so that the switch and actuator are one assembly.

Making the lever actuator an integral part of the basic switch case makes sense and saves money, too. Better precision, no parts to assemble and more variety add up to a cost saving proposition.

|   | STANDARD OPERATIONAL CHARACTERISTICS |                                    |                                  |                           |                            |  |   |
|---|--------------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|--|---|
| Lever<br>Style  | Catalog<br>Number                    | Operating<br>Force<br>(max ounces) | Release<br>Force<br>(min ounces) | Pretravel<br>(max inches) | Overtravel<br>(min inches) | Movement<br>Differential<br>(max inches) | Operating<br>Point<br>(inches)                        |
| Short Straight Lever<br>Long Straight Lever<br>Short Formed Lever | B1-500111<br>B1-500311<br>B1-500411  | 1.8<br>1.0<br>2.0                  | 0.11<br>0.09<br>0.15             | 0.054<br>0.185<br>0.030   | 0.015<br>0.023<br>0.015    | 0.016<br>0.032<br>0.020                  | 0.250 +/- 0.025<br>0.293 +/- 0.070<br>0.293 +/- 0.025 |

(Other lever lengths and styles available.)

### **B1-5 PART NUMBER CODE**



and styles available.)

Terminal Style\* 1 Double Turret

2. PC Pin 0.140" la. Current Current

# Contact Material

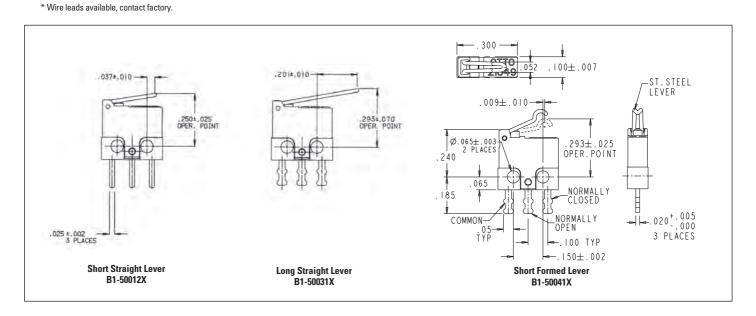
1 Silver/Gold - High 3 Silver/Gold - Low

### **ORDERING INFORMATION:**

### **B1-5 Series, Basic Switch with Integral Lever Actuator**

Select the OTTO B1-5 basic switch to match your specific circuit and mechanical requirements. To order, specify your requirement using the OTTO Part Number Code shown at left.

Example: B1-500111 specifies short straight integral lever, double turret terminals and silver/gold high current contacts.



### SINGLE BREAK, COMMERCIAL & MILITARY GRADES, TWO WIDTHS

Available in two widths, the B2 series can be specified to fit your application exactly.

In addition to being available with integral actuating levers as in the B2-5 series, the B2 series is also available with the A1 series auxiliary lever actuators as shown in the B3 section.

While the B2 series conforms to and is qualified to various military specifications, the same switch can be specified for commercial use at a cost savings.

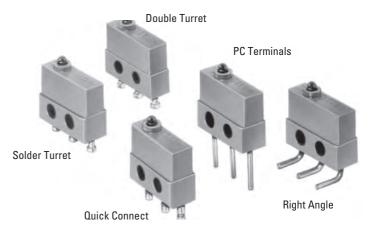
A choice of turret, quick connect and three lengths of printed circuit board style terminals are available for both the 0.156" and 0.200" wide models.

Whether it be military or commercial applications, OTTO can provide features you select for your application. You can specify the features you require without paying for ones you don't need.

The OTTO B2 sub-subminiature switches conform to and are qualified under MIL-PRF-8805/4, MIL-PRF-8805/106 (high temp -55°C to +205°C) and MIL-PRF-8805/109. Basic switches are designed for miniature spaces where cam or other limit actuators are used on the button. In addition, a full range of toggle, pushbutton and lever actuators are available.

### **Features:**

- Choice of 0.156" & 0.200" wide models
- Up to 7 amps switching
- Sensitive movement differentials
- Low operating forces
- Choice of 8 terminal styles or wire leads
- Long operating life
- Qualified under MIL-PRF-8805/4, MIL-PRF-8805/106
   & MIL-PRF-8805/109
- UL recognized & CSA certified
- RoHS/WEEE/Reach compliant



**High Level Switch Ratings** 



| Standard Characteristics/Ratings: |  |
|-----------------------------------|--|
|                                   |  |

#### **ELECTRICAL RATINGS:**

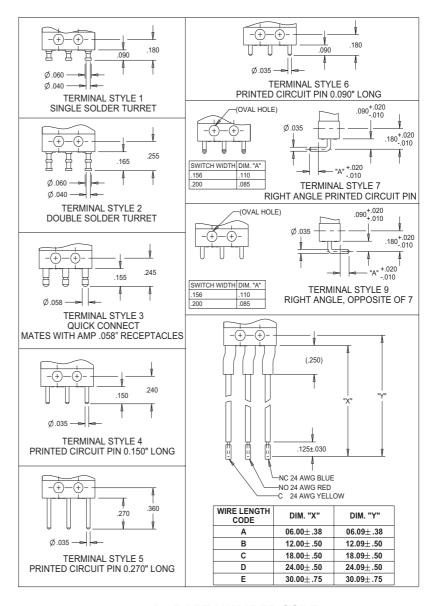
| Load                    | Rating – Sea Level                                       | Rating – 50,000 feet  |
|-------------------------|--|-----------------------|
| 115/250VAC, 60Hz silve  | r contacts with gold plate                               |                       |
| Resistive               | 7A   | N/A                   |
| Inductive               | 7A   | N/A                   |
| Lamp                    | 2A   | N/A                   |
| 28VDC, silver contacts  | with gold plate  |                       |
| Resistive               | 7A   | 4A                    |
| Inductive               | 4A   | 2.5A                  |
| Lamp                    | 2.5A   | 2.5A                  |
|                         | Low Level Switch Ra                                      | tings                 |
| 28VDC, gold plate conta | acts   |                       |
| Resistive               | 1A   | 1A                    |
| Inductive               | 0.5A   | 0.5A                  |
| Lamp                    | N/A  | N/A                   |
| DWV:                    | 1050Vrms   | 400Vrms               |
| Electrical Life:        | Up to 50,000 cycles                                      |                       |
| Mechanical Life:        | Up to 250,000 cycles                                     |                       |
| Seal:                   | Unsealed   |                       |
| Operating Temp Range    | : -55°C to +85°C, high temp r                            | ating -55°C to +205°C |
| Operating Force:        | 5 oz or 6 oz   |                       |
| Release Force:          | 1 oz min   |                       |
| Operate Point:          | 0.320 +/- 0.015 inches from                              | mounting holes        |
| Overtravel:             | 0.004 inches min   |                       |
| Movement Differential:  | 0.006 inches max   |                       |
| Pretravel:              | 0.020 inches max   |                       |
| MATERIALS:              |  |                       |
| Case:                   | Thermoset, blue  |                       |
| Cover:                  | Thermoplastic, blue                                      |                       |
| Button:                 | Thermoplastic, black                                     |                       |
| Terminals:              | Brass, gold over nickel                                  |                       |
| Contacts:               | Stationary: Silver with gold<br>Moveable: Silver or gold |                       |
| Terminal Hardware:      | None provided  |                       |
| Optional Wires:         | 24 AWG blue, red, yellow                                 |                       |
| Mounting Hardware:      | None provided  |                       |

### **BASIC SWITCHES**

### SINGLE BREAK, COMMERCIAL & MILITARY GRADES, TWO WIDTHS

# MILITARY APPROVALS (MIL-PRF-8805/4, MIL-PRF-8805/106 & MIL-PRF-8805/109) Certain OTTO B2 models have been qualified to the military specification for these parts. The following is the latest listing.

| MILITARY NO.        | OTTO P/N  |  |
|---------------------|-----------|--|
| M8805/106-01        | B2-200031 |  |
| M8805/106-02        | B2-200032 |  |
| M8805/109-01        | B2-111351 |  |
| M8805/109-02        | B2-112351 |  |
| M8805/109-03        | B2-111353 |  |
| M8805/109-04        | B2-112353 |  |
| MS24547-1 (M8805/4) | B2-211351 |  |
| MS24547-2 (M8805/4) | B2-211353 |  |
| MS24547-4 (M8805/4) | B2-212351 |  |
| MS24547-5 (M8805/4) | B2-212353 |  |
| MS24547-6 (M8805/4) | B2-200029 |  |
| MS24547-7 (M8805/4) | B2-200030 |  |



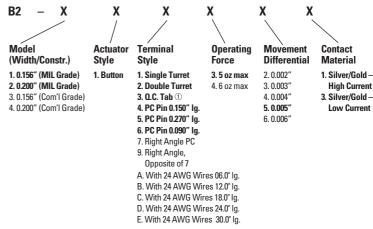
### **ORDERING INFORMATION:**

Select the OTTO B2 basic switch to match your specific circuit and mechanical requirements. To order, specify your requirement using the OTTO Part Number Code shown to the right.

**Example:** B2-112351 specifies Military grade construction on a 0.156" wide base, double turret terminals, 5 oz operating force, 0.005" movement differential and silver/gold high current contacts.

### **B2 PART NUMBER CODE**

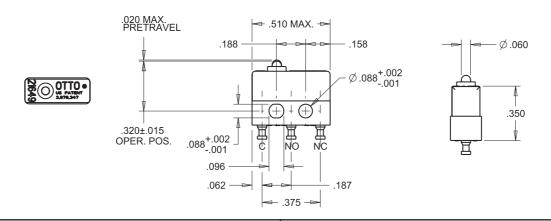
**Bold Code** numbers signify standard features with best availability.



① Mates with AMP 0.058" receptacles

### SINGLE BREAK, COMMERCIAL & MILITARY GRADES, TWO WIDTHS

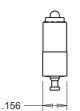
### BASIC SWITCH APPLIES TO ALL SWITCHES ON THIS PAGE



MODEL (WIDTH/CONSTRUCTION) 1 0.156" (MILITARY GRADE)

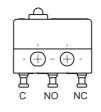
MILITARY NO. OTTO P/N M8805/109-01 M8805/109-02 M8805/109-03 M8805/109-04

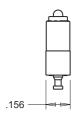




MODEL (WIDTH/CONSTRUCTION) 3 0.156" (COMMERCIAL GRADE)







MODEL (WIDTH/CONSTRUCTION) 2 0.200" (MILITARY GRADE)

| S (U) US PATEENT |  |
|------------------|--|
| (6) - 3,0,0,347  |  |

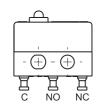
(+)

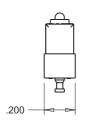
 $\oplus$ 

NC

NO

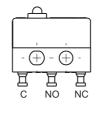
MILITARY NO. OTTO P/N MS24547-1 (M8805/4) B2-211351 MS24547-1 (M8805/4) MS24547-4 (M8805/4) MS24547-2 (M8805/4) MS24547-5 (M8805/4) B2-212351 B2-211353 B2-212353

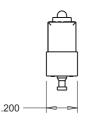


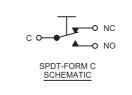


MODEL (WIDTH/CONSTRUCTION) 4 0.200" (COMMERCIAL GRADE)



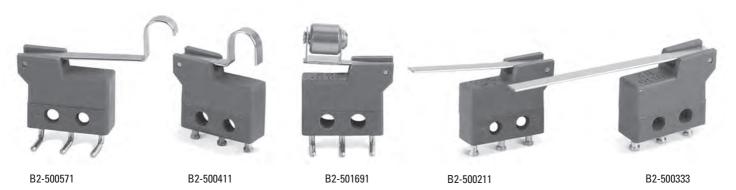






### **B2 BASICS WITH INTEGRAL LEVERS**

### CHOICE OF STRAIGHT, FORMED OR ROLLER LEVERS



Shown are examples of available lever styles.

### **B2-5 Integral Lever Basic Switches**

B2-5 series basic switches feature integral actuating levers. The lever is built-in so that the switch and actuator are one assembly.

Making the lever actuator an integral part of the basic switch case makes sense and saves money, too. Better precision, no auxiliary parts for you to assemble, and more variety add up to a cost saving proposition.

|                        |                   | STANDARD OPERATIONAL CHARACTERISTICS |                                  |                        |                         |                                    |                                |
|------------------------|-------------------|--------------------------------------|----------------------------------|------------------------|-------------------------|------------------------------------|--------------------------------|
| Lever<br>Style         | Catalog<br>Number | Operating<br>Force<br>(max ounces)   | Release<br>Force<br>(min ounces) | Pretravel (max inches) | Overtravel (min inches) | Move't<br>Differ'l<br>(max inches) | Operating<br>Point<br>(inches) |
| Short Lever            | B2-500111         | 1.76                                 | 0.32                             | 0.065                  | 0.014                   | 0.020                              | 0.332 +/- 0.045                |
| Medium Lever           | B2-500211         | 1.10                                 | 0.18                             | 0.115                  | 0.025                   | 0.035                              | 0.325 +/- 0.075                |
| Long Lever             | B2-500311         | 0.71                                 | 0.11                             | 0.185                  | 0.046                   | 0.060                              | 0.305 +/- 0.115                |
| Short Formed Lever     | B2-500411         | 2.10                                 | 0.39                             | 0.050                  | 0.010                   | 0.015                              | 0.545 +/- 0.036                |
| Long Formed Lever      | B2-500511         | 1.10                                 | 0.18                             | 0.105                  | 0.022                   | 0.035                              | 0.559 +/- 0.065                |
| Lever Style with Hole  | B2-500611         | 1.10                                 | 0.18                             | 0.115                  | 0.025                   | 0.035                              | 0.325 +/- 0.075                |
| Short "V" Lever        | B2-501211         | 3.00                                 | 0.57                             | 0.042                  | 0.010                   | 0.010                              | 0.411 +/- 0.011                |
| Roller Sleeve Sideways | B2-501611         | 2.29                                 | 0.43                             | 0.065                  | 0.008                   | 0.020                              | 0.581 +/- 0.045                |
| Roller Lever in Line   | B2-501911         | 2.29                                 | 0.43                             | 0.070                  | 0.008                   | 0.020                              | 0.581 +/- 0.050                |

### **B2-5 PART NUMBER CODE**

| B2-5                 | XXX                     | Χ                              | X                             |
|----------------------|-------------------------|--------------------------------|-------------------------------|
|                      |                         |                                |                               |
| Lever Style*         | Terminal St             | yle or Wire Length             | Contact Material              |
| 001. Short Straight  | 1. Single Solder Turret | 9. Right Angle**               | 1. Silver/Gold - High Current |
| 002. Medium Straight | 2. Double Solder Turret | A. With Wires 06.0" lg.        | 3. Silver/Gold - Low Current  |
| 003. Long Straight   | 3. Quick Connect        | <b>B.</b> With Wires 12.0" lg. |                               |

006. With Hole 6. PC Pin 0.090" lg. 012. Short "V" 7. Right Angle PC Pin 016. Roller Sleeve

4. PC Pin 0.150" lg.

**5.** PC Pin 0.270" lg.

004. Short Formed

005. Long Formed

Sideways 019. Roller Lever in Line **C.** With Wires 18.0" lg.

D. With Wires 24.0" lg.

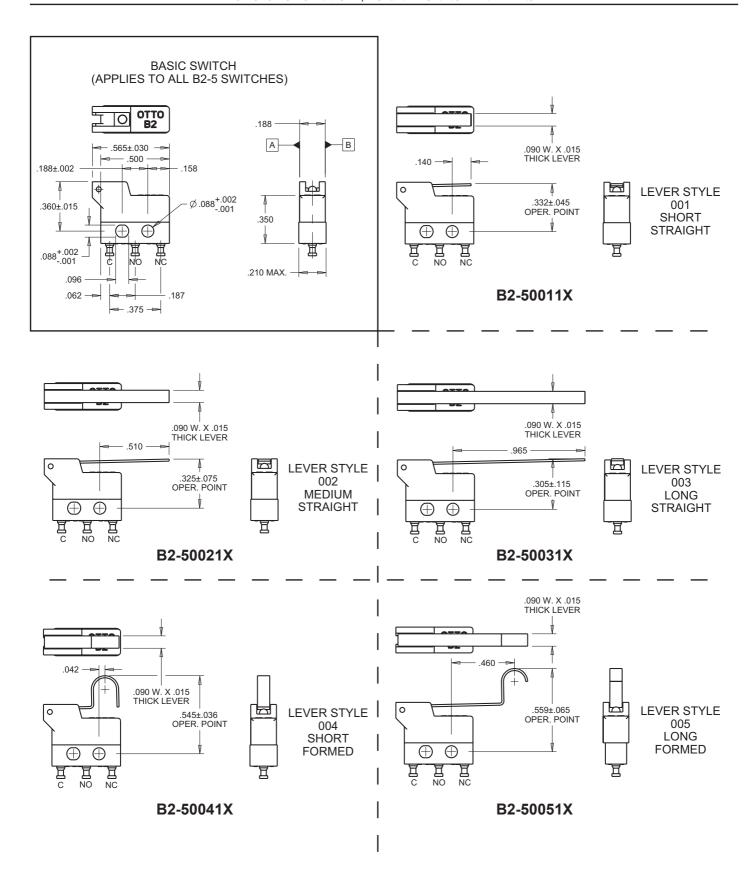
E. With Wires 30.0" lg.

<sup>\*</sup> For additional lever options, contact factory. \*\* Opposite of 7

Specifications Subject To Change Without Notice Phone: +44(0) 1793 616700

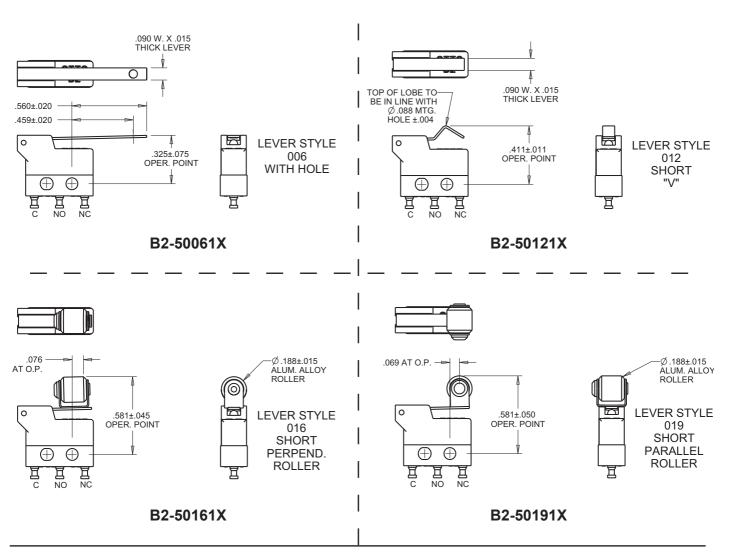
### **B2 BASICS WITH INTEGRAL LEVERS**

### CHOICE OF STRAIGHT, FORMED OR ROLLER LEVERS



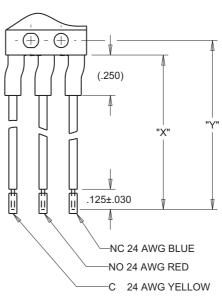
### **B2 BASICS WITH INTEGRAL LEVERS**

#### CHOICE OF STRAIGHT, FORMED OR ROLLER LEVERS



### WIRE LENGTHS (APPLIES TO ALL B2-5 SWITCHES)

| WIRE LENGTH<br>CODE | DIM. "X"    | DIM. "Y"    |
|---------------------|-------------|-------------|
| Α                   | 06.00±.38   | 06.09±.38   |
| В                   | 12.00 ± .50 | 12.09 ± .50 |
| С                   | 18.00 ± .50 | 18.09 ± .50 |
| D                   | 24.00 ± .50 | 24.09 ± .50 |
| E                   | 30.00 ± .75 | 30.09±.75   |



### COMMERCIAL & MILITARY GRADES, SUB-SUBMINIATURE DOUBLE BREAK, SNAP-ACTION

Standard C

### MIL-PRF-8805/76 (0.200 inches wide)

OTTO's B3-2XXXX series is a sub-subminiature switch that meets all requirements of MIL-PRF-8805/76. Designed to switch at least one million mechanical cycles, the B3 surpasses the requirements of the military in these categories: contact resistance less than  $25 m \Omega$ , contact pressure, contact bounce and overall cycle life. For MIL-PRF-8805/76 requirements, B3-22141 has standard silver with gold contacts, SPDT double break two circuit (Form Z), solder terminals in thermoset case material. Gold plate contacts are available for non-military applications. UL recognized and CSA certified models available.

### MIL-PRF-8805/101 (0.156 inches wide)

For your really difficult projects, try OTTO'S B3 series. They meet the OTTO inspired MIL-PRF-8805/101 specification. Only 0.156" thick, think of all those extra 0.044" you can use in those tight ganged jobs. With the B3 series, you can get an extra pole in where only four MIL-PRF-8805/76s fit, with room to spare. Examine the characteristics. With the MIL-PRF-8805/101, the only thing you give up is the extra space the MIL-PRF-8805/76 takes. Cycle life, very low contact resistance, higher than normal contact pressures, minimal contact bounce...everything is exactly as provided by the MIL-PRF-8805/76 specification.

For MIL-PRF-8805/101 requirements, B3-11141 (PC pin) and B3-12141 (turret) have silver with gold contacts and SPDT double break (Form Z) contact. For commercial applications, a variety of contact forms, special forces and gold plate contacts are available. Most versions are also UL recognized and CSA certified.

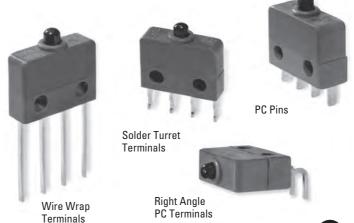
Great circuit versatility is available with either switch style. You have your choice of normally open (Form X) or closed (Form Y), 3 terminal (Form C) and 4 terminal (Form Z) SPDT double break.

### **Features:**

- Low level switching capability
- Less than 25mΩ contact resistance
- Up to 8 amps switching capability
- Button accepts actuation directly from a cam
- Choice of 0.156" & 0.200" wide models
- Choice of 6 standard terminal styles or wire leads
- Available in Commercial & Military grades
- UL recognized & CSA certified
- Qualified under MIL-PRF-8805/76 & MIL-PRF-8805/101
- RoHS/WEEE/Reach compliant

#### **APPLICATIONS**

OTTO sub-subminiature switches are designed to meet all applications requiring MIL-PRF-8805/76 or MIL-PRF-8805/101 switches. Basic switches are designed for miniature spaces where cam or other limit actuators are used. In addition, toggle, pushbutton and lever actuators are available.



|                         | <b>A</b> |  |
|-------------------------|----------|--|
| haracteristics/Ratings: |          |  |

| ELECTRICAL RATINGS:    |                              |                      |                        |                                 |  |
|------------------------|------------------------------|----------------------|------------------------|---------------------------------|--|
|                        |                              |                      |                        |                                 |  |
| Circuitry Load         |                              | Sea Level<br>@ 28VDC | 70,000 feet<br>@ 28VDC | Sea Level @<br>115VAC, 60/400Hz |  |
| ODOT NO. NO. D. : e:   |                              | 0.4                  |                        |                                 |  |
| SPST-NO or NC Resistiv | /e                           | 8A                   | 8A                     | 8A                              |  |
| Form Z                 |                              | 5A                   | 5A                     | 5A                              |  |
| Form C                 |                              | 5A                   | 5A                     | 5A                              |  |
| Gold Contacts          |                              | 5A                   | 5A                     | N/A                             |  |
| SPST-NO or NC Inductiv | ve*                          | 5A                   | 3A                     | 5A                              |  |
| Form Z                 |                              | 3A                   | 2A                     | 3A                              |  |
| Form C                 |                              | 2.5A                 | 1.5A                   | 2.5A                            |  |
| Gold Contacts          |                              | 3A                   | 2A                     | 3A                              |  |
| *L/R = 0.026           |                              |                      |                        |                                 |  |
| Lamp                   |                              | 1A                   | N/A                    | 1A                              |  |
| Motor                  |                              | 5A                   | N/A                    |                                 |  |
| DWV                    |                              | 1050Vrms             | 400Vrms                |                                 |  |
| Low Level:             | Gold co                      | ntacts 10mA @        | 30mV                   |                                 |  |
| Electrical Life:       | 50,000 c                     | ycles at full loa    | ıd                     |                                 |  |
| Mechanical Life:       | 1,000,00                     | 0 cycles             |                        |                                 |  |
| Seal:                  | Unseale                      | ed                   |                        |                                 |  |
| Operating Temp Range:  | -65°C to                     | +125°C               |                        |                                 |  |
| Operating Force:       | 5 oz +3/                     | -2 oz typical, 6     | oz max, or 5 oz m      | nin options                     |  |
| Release Force:         | 1.5 oz m                     | nin                  |                        |                                 |  |
| Operate Point:         | 0.320 +/                     | - 0.015 inches f     | rom mounting ho        | oles                            |  |
| Overtravel:            | 0.004 in                     | ches min             |                        |                                 |  |
| Movement Differential: | 0.018 +/                     | - 0.008 inches       |                        |                                 |  |
| MATERIALS:             |                              |                      |                        |                                 |  |
| Case:                  | Thermo                       | set, blue            |                        |                                 |  |
| Cover:                 | Thermo                       | plastic, blue        | <u> </u>               |                                 |  |
| Button:                | Button: Thermoplastic, black |                      |                        |                                 |  |
| Terminals:             | Terminals: Brass with gold   |                      |                        |                                 |  |
| Contacts:              | nary: Silver with gold plate |                      |                        |                                 |  |
|                        |                              | ole: Silver with     | gold plate             |                                 |  |
| Terminal Hardware:     | None p                       |                      |                        |                                 |  |
| Mounting Hardware:     | None p                       | rovided              |                        |                                 |  |

### BASIC SWITCHES

### COMMERCIAL & MILITARY GRADES, SUB-SUBMINIATURE DOUBLE BREAK, SNAP-ACTION

### **CONTACT CONFIGURATIONS:**

MIL-PRF-8805/76 and MIL-PRF-8805/101 specify single pole, double throw, double break (Form Z) contact configuration. Available and included in the military specifications are SPNO and SPNC double break, (Form X and Y). The MIL-PRF-8805/101 also specifies SPDT Form C.

#### **MILITARY APPROVALS**

#### (MIL-PRF-8805/76 & MIL-PRF-8805/101)

Certain OTTO B3 models have been qualified to the military specifications for these parts. The following is a partial listing. Consult the Cross Reference that appears at the back of this catalog for the latest, complete listings.

| MILITARY NO.  | OTTO P/N | MILITARY NO.  | OTTO P/N |  |  |
|---------------|----------|---------------|----------|--|--|
| MS27257-1     | B3-26141 | M8805/101-011 | B3-15141 |  |  |
| MS27257-2     | B3-22141 | M8805/101-012 | B3-15142 |  |  |
| M8805/101-001 | B3-10064 | M8805/101-013 | B3-13141 |  |  |
| M8805/101-002 | B3-10065 | M8805/101-014 | B3-13142 |  |  |
| M8805/101-003 | B3-10066 | M8805/101-015 | B3-11131 |  |  |
| M8805/101-004 | B3-10067 | M8805/101-016 | B3-11132 |  |  |
| M8805/101-005 | B3-10063 | M8805/101-017 | B3-12131 |  |  |
| M8805/101-006 | B3-10072 | M8805/101-018 | B3-12132 |  |  |
| M8805/101-007 | B3-11141 | M8805/101-019 | B3-15131 |  |  |
| M8805/101-008 | B3-11142 | M8805/101-020 | B3-15132 |  |  |
| M8805/101-009 | B3-12141 | M8805/101-021 | B3-13131 |  |  |
| M8805/101-010 | B3-12142 | M8805/101-022 | B3-13132 |  |  |

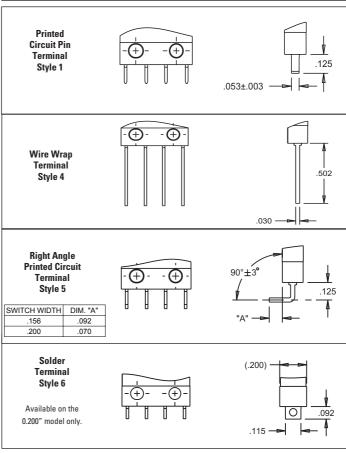
### **ORDERING INFORMATION:**

### **B3 Basic**

Select the OTTO B3 basic switch to match your specific circuit and mechanical requirements. To order, specify your requirement using the OTTO Part Number Code shown below.

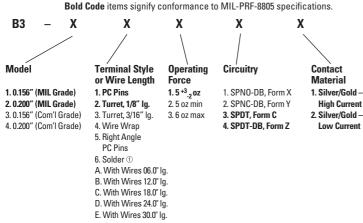
**Example:** B3-12141 is 0.156" wide, has 1/8" long turret terminals, 5 oz operating force, SPDT double break and silver/gold contacts (MIL-PRF-8805/101).

#### **Basic Switch** shown with Solder Turret **Terminals** Terminal Dim. "A' Style Length 2 0.125 3 0.187 -005 282 -425-MOWN. **Hinney** THIN



### **B3 PART NUMBER CODE**

Bold Code items signify conformance to MIL-PRF-8805 specifications.



**Auxiliary Lever Actuators for B3** Catalog Number 432 Number of Poles A1-101-02 281 A3-102 Supplied with two 2-56 panhead screws, hex nuts and lockwashers

### SUBMINIATURE DOUBLE BREAK, SNAP-ACTION COMMERCIAL & MILITARY GRADES

B5 series basic switches are subminiature in size and feature up to 10 amps switching capability of 100,000 cycles. Mechanical life is one million cycles.

The molded housing is rugged and structurally stable. The terminals are sealed against solder flux entering the switch and are bright acid tin plated for excellent solderability.

A variety of actuators for pushbutton, toggle and lever actuation are available in standard and custom configurations.

### **Features:**

- Up to 10 amps switching capability
- High contact pressure
- Precision operating points
- Button accepts actuation directly from cam
- Constructed in accordance with MIL-PRF-8805/7
- Available in Commercial & Military grades
- Choice of four standard terminal styles or wire leads
- UL recognized
- B5-21141 QPL to MS27217-1
- RoHS/WEEE/Reach compliant

#### **B5 PART NUMBER CODE B5** X Model **Terminal Style O**perating Circuitry Contact or Wire Length Force Material **1.** 5 +3<sub>-2</sub> oz 1. Solder 1. SPNO-DB. Form X 1. Silver/Gold -1. Commercial 2. Taper Tab Quick 2. SPNC-DB, Form Y 2. Military High Current 2. 6 oz max 2. Silver/Gold -Connect 3. SPDT, Form C **3.** 5 oz min 3. 0.110 Quick 4. SPDT-DB, Form Z Low Current Connect 1 4 PC Pin A. With Wires 06.0" lg. B. With Wires 12.0" lg. C. With Wires 18.0" lg. D. With Wires 24.0" lg. E. With Wires 30.0" lg. ① Mates with AMP Series 110 receptacles.



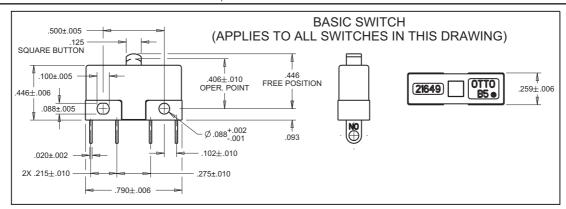
Solder Terminal Style

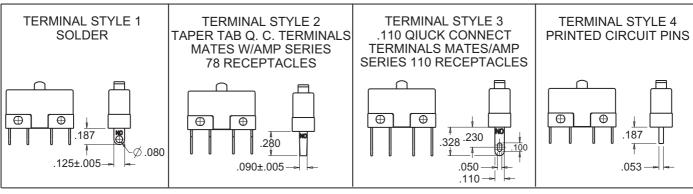


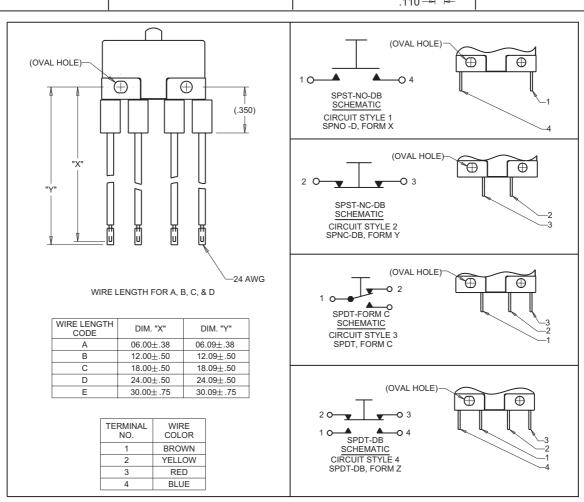
| Standard Ch           | aracteri   | stics  | /Ratings:   |   |                                 |  |  |
|-----------------------|------------|--|---|---|---------------------------------|--|--|
| ELECTRICAL RATINGS:   |            |  |   |   |                                 |  |  |
| Circuitry             | Load       |  | Sea Level<br>@ 28VDC or<br>@ 115VAC, 60Hz                   | 70,000 feet<br>@ 28VDC or<br>@ 115VAC, 60Hz | Sea Level @<br>125/250VAC, 60Hz |  |  |
| SPNO-DB &             | Resistiv   | е  | 10A   | 10A   | 10.1A                           |  |  |
| SPNC-DB               | Inductiv   | e* 7.5A  |   | 3.5A  | 5A                              |  |  |
|                       | Lamp       |  | 1A  | N/A   | 3A                              |  |  |
| SPDT-DB               | Resistiv   | е  | 10A   | 10A   | 10.1A                           |  |  |
| 2 Circuit             | Inductiv   | e*   | 5A  | 2A  | 5A                              |  |  |
| -                     | Lamp       |  | 3A  | N/A   | 1.5A                            |  |  |
| SPDT                  | Resistiv   | е  | 10A   | 10A   | 10.1A                           |  |  |
|                       | Inductiv   | e*   | 3A  | 1.5A  | N/A                             |  |  |
| _                     | Lamp       |  | 3A  | N/A   | N/A                             |  |  |
| *L/R = 0.026          |            |  |   |   |                                 |  |  |
| Electrical Life:      |            | 100,000 cycles   |   |   |                                 |  |  |
| Mechanical Life:      |            | 1,000,000 cycles   |   |   |                                 |  |  |
| Seal:                 |            | Unsealed   |   |   |                                 |  |  |
| Operating Temp Range: |            |  |   |   |                                 |  |  |
| Operating Force:      |            | 5 oz, +3/-2 oz or 6 oz max or 3 oz min                     |   |   |                                 |  |  |
| Release Force:        |            | 2 oz min   |   |   |                                 |  |  |
| Operate Point:        |            | 0.406 +/- 0.010 inches from mounting holes                 |   |   |                                 |  |  |
| Overtravel:           |            | 0.012 inches min   |   |   |                                 |  |  |
| Movement Diff         | rerential: |  |   |   |                                 |  |  |
| Pretravel:            |            | 0.050 inches max   |   |   |                                 |  |  |
| MATERIALS:            |            |  |   |   |                                 |  |  |
| Case:                 |            | Ther   | hermoset, blue  |   |                                 |  |  |
| Cover:                |            | Ther   | noset, blue   |   |                                 |  |  |
| Button:               |            |  | moplastic, black  |   |                                 |  |  |
| Terminals:            |            |  | End or front solder type brass with bright acid tin plating |   |                                 |  |  |
| Contacts:             |            | Stationary: Silver with gold<br>Moveable: Silver with gold |   |   |                                 |  |  |
| Terminal Hard         | ware:      | None   | provided  |   |                                 |  |  |
| Mounting Hard         | lware:     | None   | provided  |   |                                 |  |  |
|                       |            |  |   |   |                                 |  |  |

### **BASIC SWITCHES**

### SUBMINIATURE DOUBLE BREAK, SNAP-ACTION COMMERCIAL & MILITARY GRADES







## DOUBLE POLE, 4 CIRCUIT SUBMINIATURE

### COMMERCIAL & MILITARY GRADES, SNAP-ACTION, DOUBLE BREAK BASIC SWITCHES

Two switches in one case! The B5-7 series basic switches are subminiature in size but feature up to 10 amps switching capability of 100,000 cycles.

The molded housing is rugged and structurally stable. The terminals are sealed against solder flux entering the switch and are bright acid tin plate brass for excellent solderability. B5-71 has end terminals; B5-72 has front terminals.

A variety of custom configured actuators for pushbutton, toggle and lever actuation are available.

### **Features:**

- Up to 10 amps switching capability
- Simultaneity of both poles to within 0.004"
- Button accepts actuation directly from cam
- Constructed in accordance with MIL-PRF-8805
- Available in Commercial & Military grades
- Choice of end or front terminals
- RoHS/WEEE/Reach compliant





End Terminal Style

Front Terminal Style

| Standard Characteristics/Ratings:   |   |  |  |  |
|-------------------------------------|---|--|--|--|
| ELECTRICAL RATINGS: See chart below |   |  |  |  |
| Electrical Life:                    | 50,000 cycles   |  |  |  |
| Mechanical Life:                    | 100,000 cycles  |  |  |  |
| Seal:                               | Unsealed  |  |  |  |
| Operating Temp Range:               | -65°C to +125°C   |  |  |  |
| Operating Force:                    | 12 +/- 4 oz   |  |  |  |
| Release Force:                      | 5 oz min  |  |  |  |
| Operate Point:                      | 0.396 +/- 0.010 inches from mounting holes                  |  |  |  |
| Overtravel:                         | 0.012 inches min  |  |  |  |
| Simultaneity:                       | Within 0.004 inches   |  |  |  |
| Movement Differential:              | 0.020 +/- 0.010 inches                                      |  |  |  |
| Pretravel:                          | 0.050 inches max  |  |  |  |
| MATERIALS:                          |   |  |  |  |
| Case:                               | Thermoset, blue   |  |  |  |
| Cover:                              | Thermoset, blue   |  |  |  |
| Button:                             | Thermoplastic, black  |  |  |  |
| Terminals:                          | End or front solder type brass with bright acid tin plating |  |  |  |
| Contacts:                           | Silver with gold  |  |  |  |
| Terminal Hardware:                  | None provided   |  |  |  |
| Mounting Hardware:                  | None provided   |  |  |  |

|                       |                 |                              |                                   | •                                   |  |                                |                                     |                                   |
|-----------------------|-----------------|------------------------------|-----------------------------------|-------------------------------------|--|--------------------------------|-------------------------------------|-----------------------------------|
| Catalog<br>Number     | Type of<br>Load | Sea Level<br>@ 28VDC<br>DPDT | Sea Level<br>@ 28VDC<br>4 Circuit | Sea Level @<br>115VAC, 60Hz<br>DPDT | Sea Level @<br>115VAC, 60Hz<br>4 Circuit | 70,000 feet<br>@ 28VDC<br>DPDT | 70,000 feet<br>@ 28VDC<br>4 Circuit | Contact<br>Plating<br>Over Silver |
| B5-71001 & B5-72001   | Resistive       | 10A                          | 10A                               | 7.5A                                | 5A                                       | 10A                            | 10A                                 | Gold                              |
| B5-71001              | Inductive*      | 7.5A                         | 5A                                | 5A                                  | 5A                                       | 3.5A                           | 2A                                  | Gold                              |
| B5-72001              | Inductive       | 5A                           | 2A                                | 5A                                  | 5A                                       | 3.5A                           | 2A                                  | Gold                              |
| B5-71001 & B5-72001   | Lamp            | 4A                           | 3A                                | 3A                                  | 1.5A                                     | N/A                            | N/A                                 | Gold                              |
| B5-71004 & B5-72004   | Resistive       | 5A                           | 5A                                | N/A                                 | N/A                                      | 5A                             | 5A                                  | Gold                              |
| B5-71004 & B5-72004   | Inductive*      | 3A                           | 3A                                | N/A                                 | N/A                                      | 3A                             | 3A                                  | Gold                              |
| B5-71002 Low Level    | Resistive       | 1A                           | 1A                                | N/A                                 | N/A                                      | 1A                             | 1A                                  | Gold                              |
| B5-72002 Low Level    | Inductive*      | 0.5A                         | 0.5A                              | N/A                                 | N/A                                      | 0.5A                           | 0.5A                                | Gold                              |
| Dielectric Withstand: |                 | 1050Vrms                     | 1050Vrms                          | 1050Vrms                            | 1050Vrms                                 | 400Vrms                        | 400Vrms                             |                                   |
| *L/R = 0.026          |                 |                              |                                   |                                     |  |                                |                                     |                                   |

