## Carling Technologies ${ }^{\circ}$ <br> III NOW PART OF <br> Littelfuse

## 2M-Series

Miniature Toggles Switches

PRODUCT WEBPAGE
request sample, configure part

The 2 M family of miniature toggle switches is composed of three switch series; the 2 Ml -Series miniature toggle switch, the 2MS-Series sealed miniature toggle switch, and the 2 MIH -Series premium sealed miniature toggle switch. These series all feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, toggle styles and lengths, and optional color caps.
$\underset{\text { Poles }}{\mathbf{1 - 2}} \quad \begin{array}{llll}\text { Amps } & \mathbf{4 - 5} & \mathbf{V A C}\end{array}$

## Typical Applications

- Instrumentation
- Telecommunications
- Networking
- Medical


## Tech Specs



## Ordering Scheme



Selection
6
7

## 1. SERIES

2M1H Premium Sealed Miniature Toggle Switch
2. POLES / CIRCUIT

| ( ) - momentary |  |  |  |
| :---: | :---: | :---: | :---: |
| Position: | 1 | 2 | 3 |
|  | 2-3, 5-6 | Connected Terminals | 2-1, 5-4 |
| SP1 | ON | NONE | ON |
| SP2 | ON | NONE | (ON) |
| SP3 | ON | OFF | ON |
| SP4 | (ON) | OFF | (ON) |
| SP5 | ON | OFF | (ON) |
| DP1 | ON | NONE | ON |
| DP2 | ON | NONE | (ON) |
| DP3 | ON | OFF | ON |
| DP4 | (ON) | OFF | (ON) |
| DP5 | ON | OFF | (ON) |
| DP6 * | ON | ON | ON |
| DP7 * | (ON) | ON | (ON) |
| DP8 * | ON | ON | (ON) |
| *Center position connects 2-3, 5-4 |  |  |  |

## 3. ACTUATOR STYLE

TJ $.709^{\prime \prime}[18 \mathrm{~mm}]$ length TK $.512^{\prime \prime}[13.00 \mathrm{~mm}]$ length

## 4. BUSHING

BK . $386^{\prime \prime}$ [ 9.80 mm ] threaded, flat

## 5. TERMINATION

| M1 Solder Lug | M51 | Wire Wrap, $.750^{\prime \prime}[19.05 \mathrm{~mm}]$ length |
| :--- | :--- | :--- |
| M2 | PCB | M52 |
| M3 Quire Wrap, $.964^{\prime \prime}[24.48 \mathrm{~mm}]$ length |  |  |
|  |  | Quick Connect |
|  | M53 | Wire Wrap, $425^{\prime \prime}[10.80 \mathrm{~mm}]$ length |
|  | M54 | Wire Wrap, $1.062^{\prime \prime}[25.97 \mathrm{~mm}]$ length |

## 6. CONTACTS / TERMINALS

| Contact Material | Terminal Plating Rating |
| :--- | :--- |
| silver ${ }^{1}$ | gold over silver 5A 125 VAC or 28 VDC , |250VAC

## 7. EPOXY SEAL

E Epoxy Seal
Notes: Switches supplied with (1) 2MI-HDW4 hex nut and (1) 3MNH-WCP-0872 O-Ring
Movable contact and terminal platings: silver over copper alloy
Movable contact and terminal platings: gold over nickel over copper alloy
Terminal platings: gold over nickel over copper alloy
Terminal platings: tin over copper alloy
Terminal contact platings: gold over nickel alloy
6 Terminal contact platings: silver over nickel alloy
7 Tin option not available with M1 \& M3 terminations.

[^0]*Manufacturer reserves the right to change product specification without prior notice.

## Ordering Scheme

|  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  |  |

## 1. SERIES

2MS Sealed Miniature Toggle Switch

## 2. POLES

WSP Single pole - uses terminals $1,2 \& 3$
WDP Double pole - uses terminals $1,2,3,4,5 \& 6$
W3P Three pole - uses terminals $1,2,3,4,5,6,7,8 \& 9$
3. CIRCUIT

| ()-momentary |  |  |  |
| :--- | :--- | :--- | :--- |
| Position: | $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ |
|  | $2-3,5-6$ | Connected Terminals | $2-1,5-4$ |
| $\mathbf{1}$ | ON | NONE | ON |
| $\mathbf{2}$ | ON | NONE | (ON) |
| $\mathbf{3}$ | ON | OFF | ON |
| $\mathbf{4}$ | (ON) | OFF | (ON) |
| $\mathbf{5}$ | ON | OFF | (ON) |

## 4. ACTUATOR STYLE

| T1 Round Bat | P1 | Plastic Anti-Static $.496 "$ length |
| :--- | :--- | :--- |
| T2 Round Short Bat | P2 | Plastic Anti-Static $299^{\prime \prime}$ length |

T9 Long Black Plastic .492" length P2 Plastic Anti-Static .299" length

## 5. BUSHING

B1 Threaded, Keyway B4 Unthreaded, Short, Keyway, Flat
Notes:
Bl Bushing switches supplied with (2) 2MI-HDW2 nuts, (1) 2MI-HDWII washer and (1) 2MI-HDWI5 locking ring. See page 76-77.

Movable contact \& terminal platings: silver over copper alloy
2 Movable contact \& terminal platings: gold over nickel over copper alloy
3 Terminal platings: tin over nickel over copper alloy
4 Tin option not available with MI terminal


## 3. CIRCUIT

() - momentary

Position: 1

| Position: | 1 |
| :--- | :--- |
|  | $2-3,5-6,8-9,11-12$ |
| $\mathbf{1}$ | ON |
| $\mathbf{2}$ | ON |
| $\mathbf{3}$ | ON |
| $\mathbf{4}$ | $(\mathrm{ON})$ |
| $\mathbf{5}$ | ON |
| $\mathbf{6}^{*}$ | ON |
| $\mathbf{7}^{*}$ | $(\mathrm{ON})$ |
| $\mathbf{8}^{*}$ | ON |
| *Available with DP and 4P switches on |  |

2
3

| Connected Terminals | $2-1,5-4,8-7,11-10$ |
| :--- | :--- |
| NONE | ON |
| NONE | (ON) |
| OFF | ON |
| OFF | (ON) |
| OFF | ON |
| ON | ON |
| ON | (ON |
| ON | (ON) |

## 4. ACTUATOR STYLE

| T1 | Round Bat | T7 | Large Bat (B0 bushing) |
| :--- | :--- | :--- | :--- |
| T2 | Round Short Bat | T8 | X-Large Bat (B0 bushing) |
| T3 | Paddle | T9 | Black Plastic |
| T4 | Medium Paddle | T0 | Rectangular |
| TA | Locking Lever | TA | Locking Lever |
| T5 | Long Paddle | TI | Locking Lever |
| T6 | Flat (B1,B2,B5,BA,BB,BE) | TL | Locking Lever |

Notes: B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2 M1-HDWII washer and (1) 2 MI-HDWI5 locking ring.

Movable contact \& terminal platings: silver over copper alloy
2 Movable contact \& terminal platings: gold over nickel over copper alloy
$3 \quad$ Terminal platings: tin over nickel over copper alloy
Tin option not available with M1 terminal Movable contact \& terminal platings: silver over copper alloy
$\begin{array}{ll}5 & \text { Movable contact \& terminal platings: gold over nickel over copper alloy } \\ 6 & \text { Terminal platings: tin over nickel over copper alloy }\end{array}$
3. $\quad \begin{array}{lll}6 & \begin{array}{l}\text { Terminal platings: tin over nickel over copper alloy } \\ \text { Tin option not available with Ml terminal }\end{array}\end{array}$

## . SERIES

Ioggle Switch

SP $\quad$ Single pole - uses terminals $1,2 \& 3$
DP Double pole-uses terminals $1,2,3,4,5 \& 6$
Phree pole - uses terminals $1,2,3,4,5,6,7,8$ \& 9
4P Four pole-uses terminals $1,2,3,4,5,6,7,8,9,10,11 \& 12$

[^1]
## 6. TERMINATION

| M1 ${ }^{4}$ | Solder Lug | VS21 Vertical, Snap-In, 460" |
| :---: | :---: | :---: |
| M2 | PCB | [ 11.70 mm ] |
| M3 | Quick Connect | Vs3 Vertical, .630" |
| M51 | Wire Wrap, .750" | VS31 Vertical, Snap-In, .630" |
| M52 | Wire Wrap, .964" | U2 Vertical, $551^{\prime \prime}$  - |
| M53 | Wire Wrap, $425^{\prime \prime}$ [ 10.80 mm ] | only 3PDT |
| M54 | Wire Wrap, 1.062 " | VS4 Vertical, 461 " 11.70 mm ] |
| M6 | Right Angle, PC Thru-Hole | VS41 Vertical, Snap-In, 461 " |
| M61 | Right Angle, Snap-In | [ 11.70 mm ] |
| M7 | Vertical, Right Angle, PC Thru-Hole | U4 Vertical, $.551^{\prime \prime}$ [ 14 mm ] only 3PDT |
| M71 | Vertical, Right Angle, Snap-In | VS5 Vertical, .630" |
| VS2 | Vertical, .461 " 11.70 mm ] | VS51 Vertical, Snap-In, .630" |


| 7. CONTACTS | TERMINALS |  |
| :---: | :---: | :---: |
| Contact Material | Terminal Plating | Rating Approvals |
| G silver ${ }^{1}$ | gold over silver | 5A 125VAC or 28VDC, cinus, IP67 |
| K gold ${ }^{2}$ | tin 3,4 | 0.4 VA max 20 V max (AC/DC) IP67 |
| P silver ${ }^{1}$ | tin 3,4 | 5A 125VAC or 28VDC, cin |
|  | 2A | 250VAC |
| R gold $^{2}$ | gold ${ }^{2}$ | 0.4VA max 20 V max (AC/DC) IP67 |

## 8. EPOXY SEAL

E Epoxy Seal 0 without Epoxy Seal


## 6. TERMINATION

M1 ${ }^{4}$ Solder Lug
M2 PCB
M3 Quick Connect
M51 Wire Wrap, $.750 "$ [19.05mm]
M52 Wire Wrap, . $964^{\prime \prime}$ [ 24.48 mm ]
M53 Wire Wrap, $425^{\prime \prime}$ [ 10.80 mm ]
M54 Wire Wrap, $1.062^{\prime \prime}[25.97 \mathrm{~mm}]$
M6 Right Angle, PC Thru-Hole
M61 Right Angle, Snap-In
M7 Vertical, Right Angle,
PC Thru-Hole
M71 Vertical, Right Angle, Snap-In
vS2 Vertical, $461 "$ [ 11.70 mm ]

## 7. CONTACTS / TERMINALS



## 8. EPOXY SEAL

E Epoxy Seal 0 without Epoxy Seal
VS21 Vertical, Snap-In, .460 " [11.70mm]
vs3 Vertical, 630 " [16mm]
VS31 Vertical, Snap-In,. $630^{\prime \prime}$ [ 16 mm ]
U2 Vertical, $.551 "$ [ 14 mm ] only 3PDT
VS4 Vertical, 461 " [11.70mm]
VS41 Vertical, Snap-In, $.461^{\prime \prime}$ [11.70mm]
U4 Vertical, $.551 "$ [14mm] only 3PDT
Vs5 Vertical, $630^{\prime \prime}$ [ 16 mm ]
VS51 Vertical, Snap-In, $.630^{\prime \prime}$ [16mm]

## Ordering Scheme Accessories <br> 2M-Series Accessories

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word "assembled". Ex: 2Ml-SPl-Tl-Bl-MIQE-Tl2 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: $2 \mathrm{Ml}-\mathrm{Tl} 2$. See page 76 for dimensional specifications.

Optional Toggle Cap


## 1. SERIES

2M1 Fits $2 \mathrm{MlH}, 2 \mathrm{MS}$ or 2 Ml

## 2. TOGGLE CAP SIZE

| T1 | 10.6 mm |
| :--- | :--- |

## 3. CAP COLOR

| 1 | White | 5 | Yellow |
| :--- | :--- | :--- | :--- |
| 2 | Black | 6 | Green |
| 3 | Red | 7 | Blue |

## Optional Dress and Knurled Nuts

$\underset{\text { Selection }}{\substack{\text { Sample } \\ \text { Part Number }}} \frac{\sum \text { P/ }}{1}$

## 1. SERIES

2 Ml Fits $2 \mathrm{MlH}, 2 \mathrm{MS}$ or 2 Ml

## 2. NUT

HDW3 Dress nut for $1 / 4^{\prime \prime}$ bushing
HDW5 Knurled nut for 15/32" bushing (2Ml-Series only)

## Optional Rubber Seals



## 1. SERIES

2M1 Fits $2 \mathrm{MlH}, 2 \mathrm{MS}$ or 2 Ml

## 2. RUBBER BOOT SEAL

E1A 1/4-40" UNS bushing (Not available for BO bushing option)
K1 Metric M6 bushing (B8 bushing only)
YEID 15/32-32" UNS bushing (TJ, TK and BO bushings only)
YEIE $15 / 32-32^{\prime \prime}$ UNS bushing $1 / 2$ boot (T7, T8, TJ, TK and BO bushings only)


## 1. SERIES

3MNH Fits 3 MNH or 2 MIH

## 2. RUBBER O-RING

WCP-0872 For 15/32 bushing option

## Dimensional Specs

inches [millimeters]

Single Pole


Double Pole



Bushing Options \& Mounting


## Termination Options

M1 Standard Solder Lud


M2 PC Thru-Hole


M3 Quick Connect


M5 Wire Wrap


| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| M5-1 | $.750[19.05]$ |
| M5-2 | $.964[24.48]$ |
| M5-3 | $.425[10.80]$ |
| M5-4 | $1.062[26.97]$ |

5. 

## Dimensional Specs

inches [millimeters]

6.

## Dimensional Specs

inches [millimeters]

## Bushing Options

B1


B4



## Dimensional Specs

inches [millimeters]
P.C.MOUNTING

VS2-VS3 Single Pole
P.C.MOUNTING


| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| vS2 | .461 <br> $[11.70]$ |
| vS3 | .630 <br> $[16.00]$ |



VS2-VS3 Double Pole
P.C.MOUNTING


| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| vS2 | .461 <br> $[11.70]$ |
| vS3 | .630 <br> $[16.00]$ |



U2-vS3 Three Pole

8.

## Dimensional Specs

inches [millimeters]


[^2]9.

## Dimensional Specs

inches [millimeters]

${ }^{*}$ T6 actuator is available with $\mathrm{Bl}, \mathrm{B} 2, \mathrm{~B} 5, \mathrm{B6}, \mathrm{BA}, \mathrm{BB} \& \mathrm{BE}$ bushing. Actuator length shown for $\mathrm{Tl}-\mathrm{T} 5, \mathrm{~T} 9$ and T 10 is with Bl bushing. $\mathrm{T} 7, \mathrm{P} 7, \mathrm{P} 8$ does not require a bushing code.


## Bushing Options



B3 Threaded B4 Non-Threaded



B5 High Torque


B6 High Torque


## Dimensional Specs

inches [millimeters]

B7 Long



BL Locking Lever


ON-OFF-ON \& ON-ON-ON model

BA Threaded for T6


BB Non-Threaded for T6


BB High Torque for $T 6$


11.

## Dimensional Specs

inches [millimeters]


## M7 Four Pole



VS2-VS3 Single Pole


| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| VS2 | .461 <br> $[11.70]$ |
| VS3 | .630 <br> $[16.00]$ |

## P.C.MOUNTING



## Dimensional Specs

inches [millimeters]
VS2-VS3 Double Pole


| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| VS2 | .461 <br> $[11.70]$ |
| VS3 | .630 <br> $[16.00]$ |



VS4-VS5 Single Pole


| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| VS4 | .461 <br> $[11.70]$ |
| VS5 | .630 <br> $[16.00]$ |

P.C.MOUNTING


VS4-VS5 Double Pole

P.C.MOUNTING

| OPTION <br> CODE | DIM.'A' |
| :---: | :---: |
| VS4 | .461 <br> $[11.70]$ |
| VS5 | .630 <br> $[16.00]$ |

## Snap-In Termination Options

M61 (available with SP \& DP)


M71 (available with SP \& DP)


VS21, VS31


VS41, VS51


* PC Mounting for M61,M71,VS21,VS31,VS41,VS5 1 refer to M6,M7,VS2,VS3,VS4,VS5 respectively.

13. 

## Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit www.carlingtech.com/findarep.


## About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With six ISO9001 and IATF16949 registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit www.carlingtech.com/company-profile.

To view all of Carling's environmental, quality, health \& safety certifications please visit www.carlingtech.com/environmental-certifications.
14. Carling is a registered trademark of Carling Technologies, Inc. in the U.S. and other countries.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components
Click to view similar products for Toggle Switches category:
Click to view products by Carling manufacturer:
Other Similar products are found below :
8928K478 8A1-C-222 020017-13 60012L 6006L CS115W CS120W 6663 7101SPDV30BE 7103SDV30BE 7105D 7108P3YAV2BE 71YY50282 7300 K 367301 K 38 7306K36 7310 K 36 7506K4 7592 K 67600 K 12 7691K14 7700 K 18391 K 108 8396K108 8811K17 8812K14 $\underline{8824 \mathrm{~K} 14} \underline{8828 \mathrm{~K} 13} \underline{8835 \mathrm{~K} 3} \underline{8858 \mathrm{~K} 44}$ PS83-121G 1-1825192-0 A201SCWZB04 A207SYCB04 A208J61ZQ0004 A221T1TCQ A323S1CWZQ A423S1CWZG-M8 1201W 12156AX408 12147AGKX679 12246X778 12TW49-3D 130312 13037L 13001X AE101MD1W4B04 AE208SD1W4B04 MS24659-22D MS27407-5


[^0]:    Configure Complete Part Number >

[^1]:    Tin option not available with Ml terminal

[^2]:    * PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

