

# TC003 SERIES

LED TACT SWITCH



## Feature -

- small size
- bi-color LED illuminated available
- long life cycles
- right angle and vertical PCB terminal

## Applications -

- consumer products
- computer products
- instrumentation
- communication equipments

## SPECIFICATIONS

| SWITCH SPECIFICATIONS       |                                                                 |
|-----------------------------|-----------------------------------------------------------------|
| POLE - POSITION             | 1P1T , Right Angle Push on Type , with or w/o LED are Available |
| CONTACT RATING              | 12 V DC , 50 mA                                                 |
| CONTACT RESISTANCE          | 100 mΩ MAX. 1.5 V DC ; 100 mA , by Method of Voltage DROP       |
| INSULATION RESISTANCE       | 100 MΩ MIN. 500 V DC                                            |
| DIELECTRIC STRENGTH         | Breakdown is not Allowable ; 500 V AC for 1 Minute              |
| OPERATING FORCE             | 160 ± 50 gf                                                     |
| OPERATING LIFE              | 500,000 cycles                                                  |
| OPERATING TEMPERATURE RANGE | -20°C ~ 70°C                                                    |
| TOTAL TRAVEL                | 0.2 ± 0.1 mm                                                    |

| LED SPECIFICATIONS                                                                                                                      |                                                                                     |      |                   |         |         |                  |         |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------|---------|---------|------------------|---------|
|  ATTENTION<br>LEDs are Electrostatic Sensitive devices |  | Unit | Value / LED Color |         |         |                  |         |
|                                                                                                                                         |                                                                                     |      | Blue              | Green   | Red     | White            | Yellow  |
| FORWARD CURRENT                                                                                                                         | If                                                                                  | mA   | 10                | 20      | 20      | 2                | 20      |
| REVERSE VOLTAGE                                                                                                                         | Vr                                                                                  | V    | 5.0               | 5.0     | 5.0     | 5.0              | 5.0     |
| REVERSE CURRENT                                                                                                                         | Ir                                                                                  | μA   | 10                | 10      | 10      | 10               | 10      |
| FORWARD VOLTAGE                                                                                                                         | Vf                                                                                  | V    | @ 10mA<br>3.0-4.0 | 2.1-2.5 | 2.0-2.5 | @ 2mA<br>2.8-4.0 | 2.0-2.5 |
| LUMINOUS INTENSITY                                                                                                                      | Iv                                                                                  | mcd  | @ 10mA<br>200     | 800     | 1800    | @ 2mA<br>12      | 1800    |

Physical and electrical information of LED will be provided upon customer's request on switches .

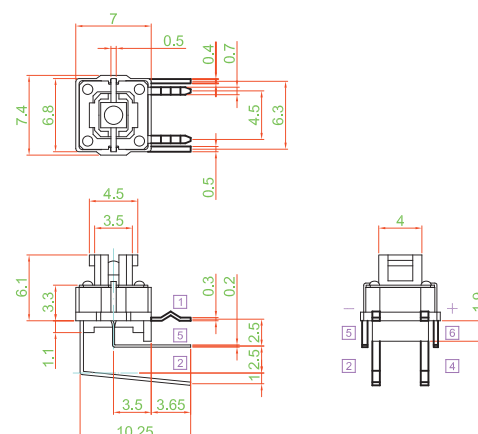
## HOW TO ORDER

|                                  |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
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| TC003                            | -                                                                                                                      | N                                                                             | 1 | 1         | A                 | A                                                                              | B | U        | B                   | X                                                                                                                                                                                                                         | X | -          | R               | G                   |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
|                                  |                                                                                                                        | <table><tr><td>OPERATION</td></tr><tr><td>N NON-LOCK (std.)</td></tr></table> |   | OPERATION | N NON-LOCK (std.) | <table><tr><td>POSITION</td></tr><tr><td>1 1 POSITION (std.)</td></tr></table> |   | POSITION | 1 1 POSITION (std.) | <table><tr><td>FRAME TYPE</td></tr><tr><td>A A TYPE (std.)</td></tr><tr><td>B B TYPE (DIP TYPE)</td></tr><tr><td>C C TYPE</td></tr><tr><td>D D TYPE</td></tr><tr><td>E E TYPE</td></tr><tr><td>F F TYPE</td></tr></table> |   | FRAME TYPE | A A TYPE (std.) | B B TYPE (DIP TYPE) | C C TYPE | D D TYPE | E E TYPE | F F TYPE | <table><tr><td>CIRCUIT</td></tr><tr><td>A A CIRCUIT (std.)</td></tr></table> |  | CIRCUIT | A A CIRCUIT (std.) | <table><tr><td>ACTUATOR</td></tr><tr><td>A A TYPE (std.)</td></tr><tr><td>A1 A1 TYPE</td></tr><tr><td>B B TYPE WITH CAP</td></tr></table> |  | ACTUATOR | A A TYPE (std.) | A1 A1 TYPE | B B TYPE WITH CAP | <table><tr><td>CHIP1 LED BRIGHTNESS</td></tr><tr><td>U ULTRA (std.)</td></tr><tr><td>R REGULAR</td></tr><tr><td>X WITHOUT</td></tr></table> |  | CHIP1 LED BRIGHTNESS | U ULTRA (std.) | R REGULAR | X WITHOUT | <table><tr><td>CHIP2 LED BRIGHTNESS</td></tr><tr><td>U ULTRA (std.)</td></tr><tr><td>R REGULAR</td></tr><tr><td>X WITHOUT</td></tr></table> |  | CHIP2 LED BRIGHTNESS | U ULTRA (std.) | R REGULAR | X WITHOUT | <table><tr><td>LED COLOR</td></tr><tr><td>B BLUE</td></tr><tr><td>G GREEN</td></tr><tr><td>R RED</td></tr><tr><td>W WHITE</td></tr><tr><td>Y YELLOW</td></tr><tr><td>X WITHOUT</td></tr></table> |  | LED COLOR | B BLUE | G GREEN | R RED | W WHITE | Y YELLOW | X WITHOUT | <table><tr><td>CAP TYPE</td></tr><tr><td>S SQUARE</td></tr><tr><td>S1 SQUARE</td></tr><tr><td>R ROUND</td></tr><tr><td>R1 ROUND</td></tr><tr><td>R2 ROUND</td></tr><tr><td>R3 ROUND</td></tr><tr><td>R4 ROUND</td></tr><tr><td>R5 ROUND</td></tr><tr><td>R6 ROUND</td></tr><tr><td>R7 ROUND</td></tr><tr><td>R8 ROUND</td></tr><tr><td>R9 ROUND</td></tr><tr><td>R10 ROUND</td></tr><tr><td>□ WITHOUT</td></tr></table> |  | CAP TYPE | S SQUARE | S1 SQUARE | R ROUND | R1 ROUND | R2 ROUND | R3 ROUND | R4 ROUND | R5 ROUND | R6 ROUND | R7 ROUND | R8 ROUND | R9 ROUND | R10 ROUND | □ WITHOUT | <table><tr><td>LED COLOR</td></tr><tr><td>B BLUE</td></tr><tr><td>G GREEN</td></tr><tr><td>R RED</td></tr><tr><td>W WHITE</td></tr><tr><td>Y YELLOW</td></tr><tr><td>X WITHOUT</td></tr></table> |  | LED COLOR | B BLUE | G GREEN | R RED | W WHITE | Y YELLOW | X WITHOUT | <table><tr><td>CAP COLOR</td></tr><tr><td>G GRAY (std.)</td></tr><tr><td>K BLACK</td></tr><tr><td>N GREEN</td></tr><tr><td>R RED</td></tr><tr><td>Y YELLOW</td></tr><tr><td>T TRANSPARENT</td></tr><tr><td>B BLUE</td></tr><tr><td>S SILVER</td></tr><tr><td>□ WITHOUT</td></tr></table> |  | CAP COLOR | G GRAY (std.) | K BLACK | N GREEN | R RED | Y YELLOW | T TRANSPARENT | B BLUE | S SILVER | □ WITHOUT | <table><tr><td>CAP SYMBOL</td></tr><tr><td colspan="2">Please refer to appendix 1(knob)</td></tr><tr><td colspan="2">For example</td></tr><tr><td>K3</td><td> PK3:Printing<br/>K3:Laser carving</td></tr><tr><td>E1</td><td> PE1:Printing<br/>E1:Laser carving</td></tr><tr><td>□</td><td>WITHOUT</td></tr></table> |  | CAP SYMBOL | Please refer to appendix 1(knob) |  | For example |  | K3 |  PK3:Printing<br>K3:Laser carving | E1 |  PE1:Printing<br>E1:Laser carving | □ | WITHOUT |
| OPERATION                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| N NON-LOCK (std.)                |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| POSITION                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| 1 1 POSITION (std.)              |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| FRAME TYPE                       |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| A A TYPE (std.)                  |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| B B TYPE (DIP TYPE)              |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| C C TYPE                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| D D TYPE                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| E E TYPE                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| F F TYPE                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| CIRCUIT                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| A A CIRCUIT (std.)               |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| ACTUATOR                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| A A TYPE (std.)                  |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| A1 A1 TYPE                       |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| B B TYPE WITH CAP                |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| CHIP1 LED BRIGHTNESS             |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| U ULTRA (std.)                   |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R REGULAR                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| X WITHOUT                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| CHIP2 LED BRIGHTNESS             |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| U ULTRA (std.)                   |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R REGULAR                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| X WITHOUT                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| LED COLOR                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| B BLUE                           |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| G GREEN                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R RED                            |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| W WHITE                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| Y YELLOW                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| X WITHOUT                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| CAP TYPE                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| S SQUARE                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| S1 SQUARE                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R ROUND                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R1 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R2 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R3 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R4 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R5 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R6 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R7 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R8 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R9 ROUND                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R10 ROUND                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| □ WITHOUT                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| LED COLOR                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| B BLUE                           |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| G GREEN                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R RED                            |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| W WHITE                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| Y YELLOW                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| X WITHOUT                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| CAP COLOR                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| G GRAY (std.)                    |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| K BLACK                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| N GREEN                          |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| R RED                            |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| Y YELLOW                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| T TRANSPARENT                    |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| B BLUE                           |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| S SILVER                         |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| □ WITHOUT                        |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| CAP SYMBOL                       |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| Please refer to appendix 1(knob) |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| For example                      |                                                                                                                        |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| K3                               |  PK3:Printing<br>K3:Laser carving |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| E1                               |  PE1:Printing<br>E1:Laser carving |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |
| □                                | WITHOUT                                                                                                                |                                                                               |   |           |                   |                                                                                |   |          |                     |                                                                                                                                                                                                                           |   |            |                 |                     |          |          |          |          |                                                                              |  |         |                    |                                                                                                                                           |  |          |                 |            |                   |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                             |  |                      |                |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                         |  |          |          |           |         |          |          |          |          |          |          |          |          |          |           |           |                                                                                                                                                                                                  |  |           |        |         |       |         |          |           |                                                                                                                                                                                                                                                                                          |  |           |               |         |         |       |          |               |        |          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |            |                                  |  |             |  |    |                                                                                                                        |    |                                                                                                                        |   |         |

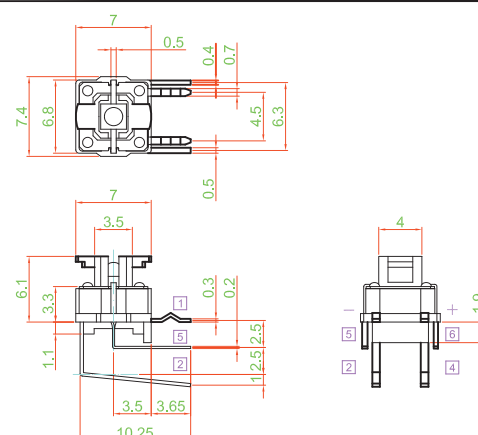


► DIMENSION

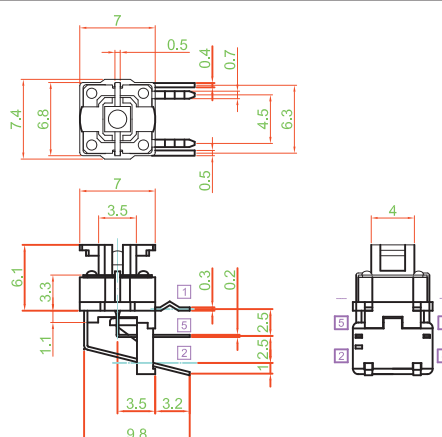
TC003-N11AAA □ □ □ □



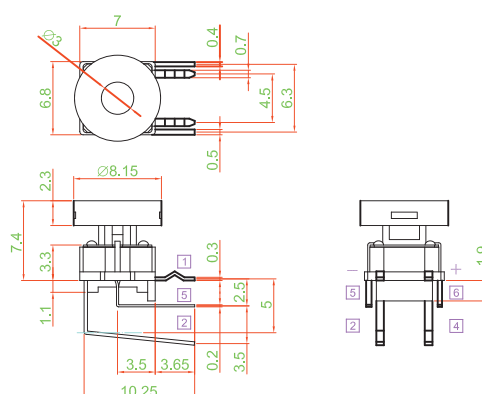
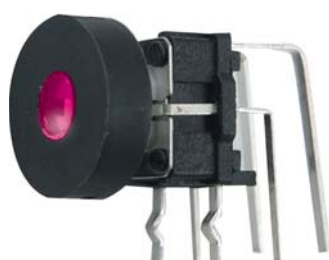
TC003-N11AAA1 □ □ □ □



TC003-N11ACA1 □ □ □ □



TC003-N11AAB □ □ □ □ - R □

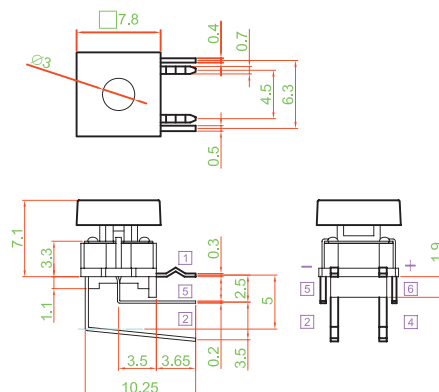


# TC003 SERIES

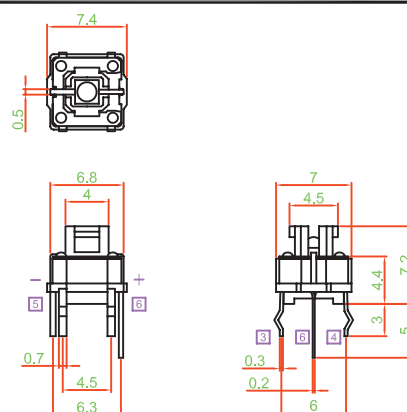
LED TACT SWITCH

## ► DIMENSION

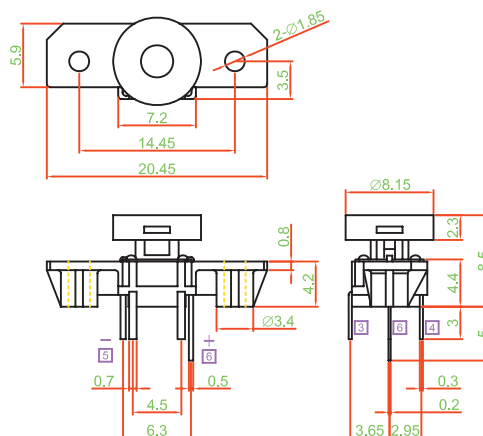
TC003-N11AAB □□□□ - S1 □



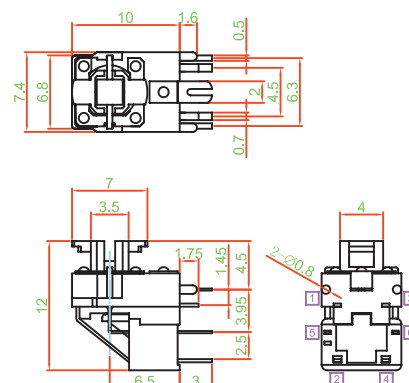
TC003-N11ABA □□□□

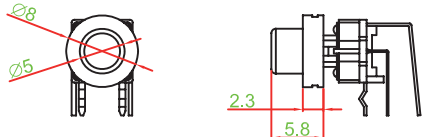
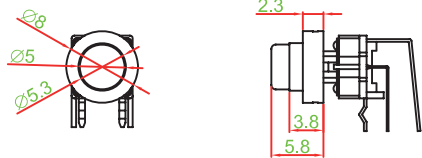
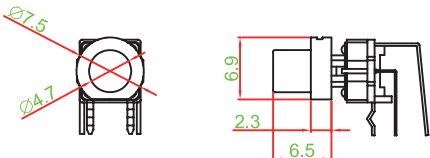
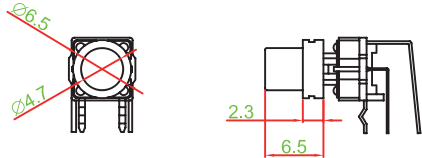
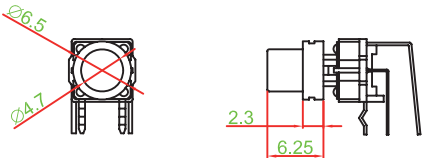
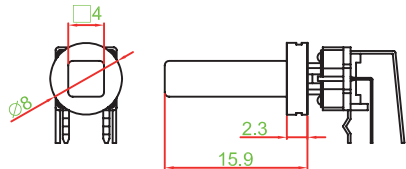
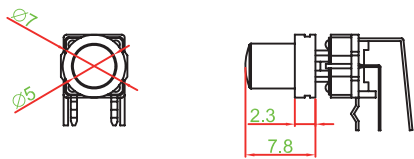
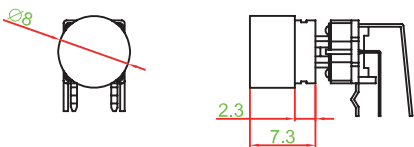


TC003-N11ADB □□□□ - R □



TC003-N11AEA1 □□□□



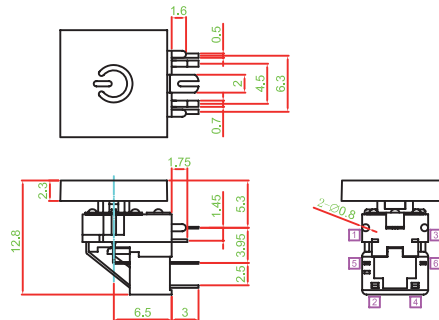
| ► DIMENSION                                                                                                    |                                                                                      |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| TC003-N11AAB □□□□ - R1□<br>   |    |
| TC003-N11AAB □□□□ - R2□<br>   |    |
| TC003-N11AAB □□□□ - R3□<br>   |    |
| TC003-N11AAB □□□□ - R4□<br>  |   |
| TC003-N11AAB □□□□ - R5□<br> |  |
| TC003-N11AAB □□□□ - R6□<br> |  |
| TC003-N11AAB □□□□ - R7□<br> |  |
| TC003-N11AAB □□□□ - R8□<br> |  |
| TC003-N11AAB □□□□ - R9□<br> |  |

# TC003 SERIES

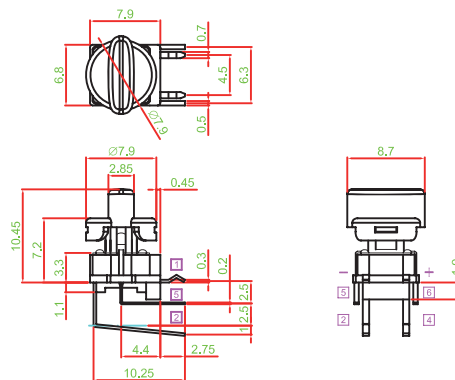
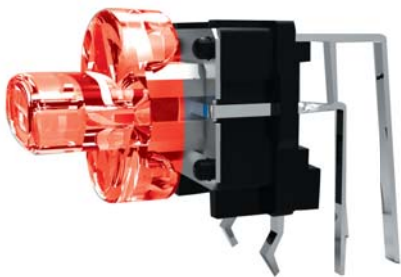
LED TACT SWITCH

## DIMENSION

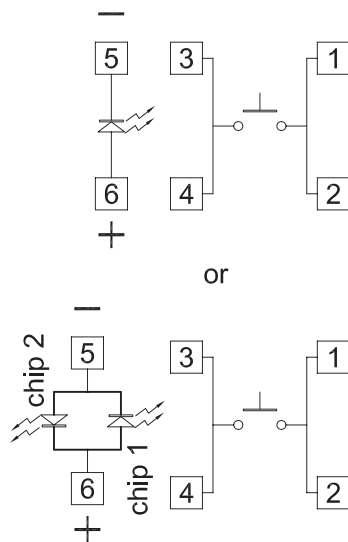
TC003-N11AEB ☐ ☐ ☐ ☐ - S ☐



TC003-N11AFB ☐ ☐ ☐ ☐ - R10 ☐



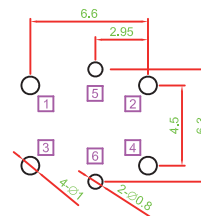
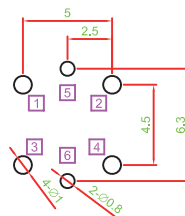
## SCHEMATIC



## P.C.B LAYOUT

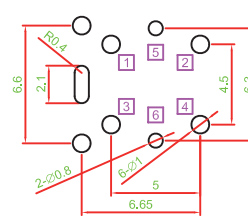
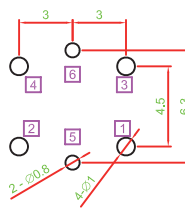
RIGHT ANGLE TYPE

FRAME : D



DIP TYPE

FRAME : E



## MATERIAL

- COVER : PA
- ACTUATOR : PA + GF
- BASE FRAME : PA + GF
- BRASS TERMINAL : SILVER PLATING
- STEADY PLATE : SUS

## UNIT WEIGHT

- TC003-N11AAA ☐ ☐ ☐ ☐ : 0.35 ± 0.05 g / pc
- TC003-N11AAA1 ☐ ☐ ☐ ☐ : 0.35 ± 0.05 g / pc
- TC003-N11ACA1 ☐ ☐ ☐ ☐ : 0.45 ± 0.05 g / pc
- TC003-N11AAB ☐ ☐ ☐ ☐ - ☐ ☐ : 0.47 ± 0.05 g / pc
- TC003-N11ABA ☐ ☐ ☐ ☐ : 0.32 ± 0.05 g / pc

## CAP SYMBOL

|   | 0                                                                                  | 1                                                                                   | 2                                                                                   | 3                                                                                   | 4                                                                                   | 5                                                                                   | 6                                                                                   | 7                                                                                             | 8                                                                                   | 9                                                                                   | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|
| A | 0                                                                                  | 1                                                                                   | 2                                                                                   | 3                                                                                   | 4                                                                                   | 5                                                                                   | 6                                                                                   | 7                                                                                             | 8                                                                                   | 9                                                                                   |    |    |    |    |    |    |    |    |    |    |
| B | A                                                                                  | B                                                                                   | C                                                                                   | D                                                                                   | E                                                                                   | F                                                                                   | G                                                                                   | H                                                                                             | I                                                                                   | J                                                                                   |    |    |    |    |    |    |    |    |    |    |
| C | K                                                                                  | L                                                                                   | M                                                                                   | N                                                                                   | O                                                                                   | P                                                                                   | Q                                                                                   | R                                                                                             | S                                                                                   | T                                                                                   |    |    |    |    |    |    |    |    |    |    |
| D | U                                                                                  | V                                                                                   | W                                                                                   | X                                                                                   | Y                                                                                   | Z                                                                                   | POWER                                                                               | ON<br>OFF                                                                                     | ON                                                                                  | OFF                                                                                 |    |    |    |    |    |    |    |    |    |    |
| E | OK                                                                                 |    | Auto                                                                                | Enter                                                                               | Start                                                                               | STOP                                                                                | OPEN                                                                                | CLOSE                                                                                         | Exit                                                                                | Move                                                                                |    |    |    |    |    |    |    |    |    |    |
| F | SET                                                                                | Reset                                                                               | Light                                                                               | Alarm                                                                               | Menu                                                                                | Next                                                                                | Back                                                                                | Delete                                                                                        | Motor                                                                               | Save                                                                                |    |    |    |    |    |    |    |    |    |    |
| G | Up                                                                                 | Down                                                                                | Right                                                                               | Left                                                                                | Test                                                                                | End                                                                                 | Insert                                                                              | Lock                                                                                          | Print                                                                               | +/-                                                                                 |    |    |    |    |    |    |    |    |    |    |
| H | ESC                                                                                | BC.                                                                                 | HOME                                                                                | Health                                                                              | D-LED 2                                                                             | OC<br>GENIE                                                                         | VIDEO<br>INPUT                                                                      | clr<br>CMOS                                                                                   | Green<br>Power                                                                      | Save<br>OK                                                                          |    |    |    |    |    |    |    |    |    |    |
| I |    |    |    | F1                                                                                  | F2                                                                                  | F3                                                                                  | F4                                                                                  | F5                                                                                            | F6                                                                                  | F7                                                                                  |    |    |    |    |    |    |    |    |    |    |
| J | F8                                                                                 | F9                                                                                  | F10                                                                                 | F11                                                                                 | F12                                                                                 | F13                                                                                 | F14                                                                                 | IN<br>1                                                                                       | IN<br>2                                                                             | IN<br>3                                                                             |    |    |    |    |    |    |    |    |    |    |
| K | IN<br>4                                                                            | IN<br>5                                                                             | IN<br>6                                                                             |   |   |   |   |             |   |   |    |    |    |    |    |    |    |    |    |    |
| L |  |  |  |  |  |  |  |            |  |  |    |    |    |    |    |    |    |    |    |    |
| M |  |  |  |  |  |  |  |            |  |  |    |    |    |    |    |    |    |    |    |    |
| N |  |  |  |  |  |  |  |            |  |  |    |    |    |    |    |    |    |    |    |    |
| O |  |  |  |  |  |  |  |            |  |  |    |    |    |    |    |    |    |    |    |    |
| P |  |  |  |  |  |  | Config.                                                                             | TIME<br>LINE                                                                                  | ME1                                                                                 | ME2                                                                                 |    |    |    |    |    |    |    |    |    |    |
| Q | ME3                                                                                | ME4                                                                                 | BGND<br>3D<br>DVE1                                                                  | BGND<br>3D<br>DVE2                                                                  | BUS<br>COLOR                                                                        | ME<br>BUTTON<br>LINK                                                                | *                                                                                   | INSERT<br> | WIPE                                                                                |  |    |    |    |    |    |    |    |    |    |    |
| R |  | ALL                                                                                 |  | VP                                                                                  |  | COPY                                                                                |  | RECORD<br>MODE                                                                                |  |  |    |    |    |    |    |    |    |    |    |    |
| S |  |  |  |  |  |  |  |            |  |  |    |    |    |    |    |    |    |    |    |    |
| T |  |  |  |  |  |  |  |            |  |  |    |    |    |    |    |    |    |    |    |    |
| U |  |  | chair                                                                               | undo                                                                                | redo                                                                                | touch                                                                               | store                                                                               | recall                                                                                        |  |  |    |    |    |    |    |    |    |    |    |    |
| V |  |  |  |  |  | CLEAR                                                                               | CROSS<br>WIND                                                                       | AMMO<br>TEMP                                                                                  | BARO<br>PRESS                                                                       | AIR<br>TEMP                                                                         |    |    |    |    |    |    |    |    |    |    |
| W | BORE-<br>SIGHT                                                                     | CANT                                                                                | LEAD                                                                                | RANGE                                                                               | MRS                                                                                 | ZERO                                                                                | TEST                                                                                | UD                                                                                            | LR                                                                                  |  |    |    |    |    |    |    |    |    |    |    |
| X | ID                                                                                 | Disp                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                               |                                                                                     |                                                                                     |    |    |    |    |    |    |    |    |    |    |
| Y |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                               |                                                                                     |                                                                                     |    |    |    |    |    |    |    |    |    |    |
| Z |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                               |                                                                                     |                                                                                     |    |    |    |    |    |    |    |    |    |    |