

## Switches for Tough Environments

Dependability is required for switches to withstand rugged environments, and NKK consistently delivers. Our customers can trust our reliable switch solutions for punishing applications. We have a variety of power levels from 3A to 50A with ratings between IP50 to IP68. Additionally, we offer a vast selection of switch accessories to further guard against harsh conditions.

Some of our application fields where industrial and IP-rated switches are required include construction, military, transportation and medical. Many of these devices are further enhanced with NKK's value added services. These include laser etching, screen and pad printing, custom wire harness and cable assembly. Contact our team of expert engineers and they can assist in designing a perfect solution for your application.

### SCB15S10D-4CA SNAP SWITCH PUSHBUTTON

## Characteristics & Specifications

#### SCB Series Long Life Standard Size Pushbutton

- Rugged steel housing
- Round Red cap and Black shroud
- Long life 10A rating
- Solder lug terminals
- Maximum effective panel thickness: .157" (4.0mm)
- Standard hardware provided with cap: lockwasher and hex mounting nut
- Variety of cap and shroud color options

Resistive Load: 10A & 1/2 HP @ 125/250V AC
Lamp Load: 5A @ 125V AC
Contact Resistance: 15 milliohms max
Insulation Resistance: 100 megohms min @ 500V DC
Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min
Mechanical Life: 5,000,000 operations min
Electrical Life: 50,000 operations min
Travel: Pretravel .047" (1.19mm); Overtravel .040" (1.01mm); Differential .011" (0.27mm)
Operating Temperature Range: -40°C ~ +85°C (-40°F ~ +185°F)

### WR11AF/CUL ENVIRONMENTALLY SEALED ROCKER

## Characteristics & Specifications

#### WR Series with IP60 & IP67 Rated Rocker

- Meets IP67 of IEC60529 Standards at front panel (dust tight and water protected for temporary immersion). Behind panel is dust tight and rated IP60.
- Black rocker and .250" (6.35mm) quick connect terminals
- Single unit construction of flange and outer housing adds protection against environmental elements
- Contact mechanism designed for breaking light welds
- Minimal contact bounce achieved with specially designed interlocked switching mechanism
- Heat resistant resin used for outer housing and inner case meets UL94V-0 flammability standard and provides high arc and tracking resistance

Power Level: 15A @ 125/250V AC
Contact Resistance: 10 milliohms max
Insulation Resistance: 200 megohms min @ 500V DC
Dielectric Strength: 1,250V AC min between contacts for 1 minute min; 3,750V AC min between contacts & case for 1 minute min
Mechanical Life: 30,000 operations min
Electrical Life: 15,000 operations min
Angle of Throw: 24°
Operating Temperature Range: -25°C ~ +85°C (-13°F ~ +185°F)

## JWL21RA1A/UCV HIGH INRUSH 16 AMP ROCKER

### Characteristics & Specifications

#### JW Series Molded Rocker with TV-8 Rating

- Horizontally oriented international ON-OFF symbols inscribed on Black cap
- Industry's first molded rocker with TV rating, certified for TV-8
- Designed to handle large inrush current, with high electrical capacity of 16 Amps
- Solder lug/quick connect .187" (4.75mm) terminals may be used with connector
- Prominent external insulating barriers increase insulation resistance and dielectric strength
- Dust resistant construction with interior cover between actuator and contact area

Power Level: 16A @ 125/250V AC

Contact Resistance: 20 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 2,000V AC min between contacts for 1 minute min;  
4,000V AC min between contacts & case for 1 minute min

Mechanical Life: 25,000 operations min

Electrical Life: 25,000 operations min

Nominal Operating Force: 10.0N

Angle of Throw: 26°

Operating Temperature Range: -25°C ~ +70°C (-13°F ~ +158°F)

## WB12T-DA ENVIRONMENTALLY SEALED PUSHBUTTON

### Characteristics & Specifications

#### WB Series with IP60 & IP67 Rated Pushbutton

- Meets IP67 of IEC60529 Standards at front panel (dust tight and water protected for temporary immersion). Behind panel is dust tight and rated IP60
- .520" (13.2mm) diameter Black cap
- Screw lug terminals
- Single unit construction of bushing and case contributes added protection against environmental elements
- Minimal contact bounce with specially designed interlocked switching mechanism
- Outer housing of heat resistant resin meets UL94V-0 flammability standard and provides high arc and tracking resistance

Power Level: 6A @ 125V AC or 3A @ 250V AC

Contact Resistance: 10 milliohms max

Insulation Resistance: 200 megohms min @ 500V DC

Dielectric Strength: 1,500V AC min for 1 minute min

Mechanical Life: 30,000 operations min

Electrical Life: 15,000 operations min

Total Travel: .177" (4.5mm)

Operating Temperature Range: -30°C ~ +70°C (-22°F ~ +158°F)

## UB15SKW035F-JB LOW PROFILE PUSHBUTTON

### Characteristics & Specifications

#### UB Series Illuminated Pushbutton

- Bright Green LED distributes uniform illumination
- Square PCB mount and epoxy-sealed, straight PC terminals
- Combination of PCB mountability and short body lends advantage to compact applications
- Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break feature limits arcing and prolongs electrical life
- Latchdown mechanism, independent of switching mechanism, gives visible and tactile indication of circuit status
- Printing services available for custom legends

Power Level: 5A @ 125/250V AC

Contact Resistance: 50 milliohms max

Insulation Resistance: 200 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min;  
1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 1,000,000 operations min

Electrical Life: 10,000 operations min

Nominal Operating Force: 1.9N

Travel: Pretravel .067" (1.7mm); Overtravel .024" (0.6mm);  
Total Travel .091" (2.3mm)

Operating Temperature Range: -25°C ~ +50°C (-13°F ~ +122°F)

## M2012WBW01 WATERPROOF TOGGLE

### Characteristics & Specifications

#### M Series Miniature Toggle Rated IP67

- Meets IP67 of IEC60529 Standards, dust tight and water protected from temporary immersion; secured with inner o-ring and external rubber washer
- Waterproof boot at base of toggle further ensures protection against wet environments
- Actuation provides smooth, sturdy tactile feel
- .787" (20.0mm) bat lever and large .472" (12.0mm) threaded bushing with D flat
- Epoxy sealed solder lug terminals prevent entry of flux and other contaminants

Power Level: 6A @ 125V AC or 3A @ 250V AC
Contact Resistance: 10 milliohms max
Insulation Resistance: 1,000 megohms min @ 500V DC
Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min
Mechanical Life: 50,000 operations min
Electrical Life: 25,000 operations min for 6A @ 125V AC; 50,000 operations min for 3A @ 250V AC
Angle of Throw: 25°
Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

## YB26WRKW01-5F24-JF PANEL SEAL PUSHBUTTON

### Characteristics & Specifications

#### YB Series Illuminated Pushbutton

- Benefits of splashproof feature conforming to IP65 of IEC60529 Standards, in addition to dust and oil tight; exterior o-ring included further ensures panel sealability
- Bright Green LED with 24-volt resistor plus LED cap with Clear lens and White insert lend to full face illumination
- Rectangular bushing mount and epoxy-sealed, solder lug/.110" (2.8mm) quick connect terminals
- Snap-action contacts for shock resistance, long life, sensitive actuation
- Latchdown for circuit status indication, plus audible, tactile feedback with smooth, responsive operation
- High density design gives behind panel depth of less than one inch

Power Level: 3A @ 125/250V AC
Contact Resistance: 50 milliohms max
Insulation Resistance: 200 megohms min @ 500V DC
Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min
Mechanical Life: 200,000 operations min
Electrical Life: 100,000 operations min
Nominal Operating Force: 2.94N
Travel: Pretravel .059" (1.5mm); Overtravel .059" (1.5mm); Total Travel .118" (3.0mm)
Operating Temperature Range: -25°C ~ +50°C (-13°F ~ +122°F)

## S7AL MEDIUM CAPACITY TOGGLE

### Characteristics & Specifications

#### S Series Panel Seal Standard Size Toggle

- Lever lock panel seal model meets IP67 Standard above panel
- M12 P1 threaded bushing, flatted, and solder lug terminals
- Locking lever hinders misoperation when prevention is vital
- Lever lowering prevention mechanism, where lever is held by stop ring, restricting downward movement of lever and preventing ingress of liquids from bushing
- O-rings and grease use a material that has excellent ozone and cold resistant properties

Resistive Load: 20A @ 125V AC or 10A @ 250V AC
Contact Resistance: 10 milliohms max
Insulation Resistance: 1,000 megohms min @ 500V DC
Dielectric Strength: 2,000V AC min for 1 minute min
Mechanical Life: 50,000 operations min
Electrical Life: 25,000 operations min
Angle of Throw: 28°
Operating Temperature Range: -30°C ~ +70°C (-22°F ~ +158°F)

## S5AWB WATERPROOF TOGGLE

### Characteristics & Specifications

#### S Series Standard Size Toggle Rated IP68

- Dual seal protection achieving IP68 of IEC60529 Standards with internal o-ring and external rubber washer (dust tight and water protected against immersion for up to 30 minutes and in 1.5 meters of water)
- Waterproof boot at base of toggle supplies extra panel seal security against wet environments
- Fluid actuation delivered in smooth, sturdy tactile feel
- Large 12.0mm diameter flatted bushing with length of .295" (7.5mm) and solder lug terminals
- Construction design prohibits entry of foreign particles that may otherwise compromise lever operation

Resistive Load: 15A @ 125V AC or 6A @ 250V AC

Contact Resistance: 10 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 2,000V AC min for 1 minute min

Mechanical Life: 30,000 operations min

Electrical Life: 25,000 operations min

Angle of Throw: 20° ± 4°

Operating Temperature Range: -30°C ~ +70°C (-22°F ~ +158°F)

## SK12ADW01-007/UL MEDIUM SECURITY KEYLOCK

### Characteristics & Specifications

#### SK Series Keylock with 12mm Diameter Bushing

- Brass key with shiny nickel finish provided with each switch
- Short behind panel dimension of 1.063" (27.0mm)
- 12mm diameter threaded bushing enables easy panel cutout against wet environments
- Detent mechanism delivers crisp, positive action for accurate switch setting
- Epoxy sealed solder lug terminals prevent entry of flux and other contaminants
- Dust resistant interior construction protects contacts
- High dielectric strength of 1,500V between contacts and case

Power Level: 3A @ 125V AC

Contact Resistance: 10 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 30,000 cycles min

Electrical Life: 10,000 cycles min

Nominal Operating Torque: .026Nm (.234 lb•in)

Angle of Throw: 90° (2-position)

Operating Temperature Range: -25°C ~ +70°C (-13°F ~ +158°F)

## CKL12BTW01-008 HIGH SECURITY KEYLOCK

### Characteristics & Specifications

#### CK Series Keylock with 19mm Diameter Bushing

- Rugged, die cast housing designed for higher security
- Tubular style key supplied with each switch; press inward to actuate
- Vertically rotating switching mechanism combines with sliding contacts for high reliability and long operating life
- Interior construction provides seal for contact area
- Solder lug, epoxy sealed terminals prevent entry of flux and other contaminants
- High dielectric strength of 1,500 volts between contacts and case

Power Level: 3A @ 250V AC

Contact Resistance: 20 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 30,000 cycles min

Electrical Life: 10,000 cycles min

Nominal Operating Torque: .07Nm (9.91 oz•in)

Angle of Throw: 90° (2-position)

Operating Temperature Range: -25°C ~ +70°C (-13°F ~ +158°F)

## LB25WKW01-5C-JC PANEL SEAL PUSHBUTTON

### Characteristics & Specifications

#### LB Series Illuminated Pushbutton

- Meets IP65 of IEC60529 specifications
- Bright Red LED and LED cap with Clear lens and Red diffuser enhance full face illumination; front panel relamping
- Black, round style body with .866" (22.0mm) diameter panel cutout; panel thickness .039" ~ .157" (1.0mm ~ 4.0mm)
- Snap-action contact mechanism for long electrical life and sensitivity of actuation
- Latchdown feature for circuit status indication, plus audible, tactile feedback with smooth, responsive operation
- .110" (2.8mm) solder lug/quick connect terminals epoxy sealed to prohibit entry of flux, dust, other contaminants
- Compact design minimizes behind panel depth

Power Level: 3A @ 125/250V AC

Contact Resistance: 50 milliohms max

Insulation Resistance: 200 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 1,000,000 operations min

Electrical Life: 100,000 operations min

Nominal Operating Force: 5.39N

Travel: Pretravel .059" (1.5mm); Overtravel .059" (1.5mm); Total Travel .118" (3.0mm)

Operating Temperature Range: -25°C ~ +50°C (-13°F ~ +122°F)

## FP0115CAC1FF-C2 CONTACTLESS PUSHBUTTON

### Characteristics & Specifications

#### FP01 Series Illuminated Pushbutton with Photo Transistor

- Green actuator and brilliant Green LED illumination awards highly visible status indication
- Photo interrupter (rather than contacts) ensures high reliability and long life of 3 million operations minimum
- Rugged construction and smooth actuation allow repeated, rapid actuation force anywhere on cap surface
- Snap-in mounting for easy installation
- Connector socket with 6 pins for simple connection
- Well suited for gaming and vending machines, or equipment exposed to corrosive gases and used in environments such as chemical or steel manufacturing plants
- NKK can provide custom legends for caps

Switch Specifications	Actuator Up	Actuator Down
Status of Photo Interrupter:	Unshaded	Shaded
Collector Current $I_C$ :	0.8mA minimum	10µA maximum
Status of Photo Transistor:	On	Off

Output Condition of Photo Transistor:  $I_F = 20mA$  &  $V_{CE} = 5V$

#### Mechanical Specifications

Mechanical Life: 3,000,000 operations minimum

Operating Force: 0.75 N (.169 lbf)

Total Travel: .079" (2.0mm)

Operating Temperature Range: -25°C ~ +50°C (-13°F ~ +122°F)

## WT22L ENVIRONMENTALLY SEALED TOGGLE

### Characteristics & Specifications

#### WT Series with IP67 Rated Toggle

- Sealing for wire lead model meets IP67 of IEC60529 Standards at front and back panel
- Single unit construction of bushing and case lends added protection against environmental elements
- Epoxy sealed base covered by outer case doubles protection from dust and water
- Interlocked movable contact mechanism provides highly reliable switching by minimizing contact bounce over center contact
- Heat resistant resin for outer housing meets UL94V-0 flammability standard and provides high arc and tracking resistance

Power Level: 10A @ 125V AC or 6A @ 250V AC

Contact Resistance: 30 milliohms max

Insulation Resistance: 200 megohms min @ 500V DC

Dielectric Strength: 1,500V AC min for 1 minute min

Mechanical Life: 50,000 operations min

Electrical Life: 15,000 operations min

Angle of Throw: 24°

Operating Temperature Range: -30°C ~ +70°C (-22°F ~ +158°F)

## SW3822/CUL HIGH CAPACITY ROCKER

### Characteristics & Specifications

#### SW Series Standard Size Rocker

- .866" (22.0mm) wide White rocker
- Rugged, steel 2-screw panel or subpanel mounting frame facilitates easier panel mount process
- Screw lug terminals
- Maximum effective panel thickness: .177" (4.5mm)
- Custom legend options available

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 Resistive Load: 30A @ 125/250V AC
 

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 Contact Resistance: 10 milliohms max
 

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 Insulation Resistance: 1,000 megohms min @ 500V DC
 

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 Dielectric Strength: 2,000V AC min for 1 minute min
 

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 Mechanical Life: 50,000 operations min
 

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 Electrical Life: 25,000 operations min
 

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 Angle of Throw: 26°
 

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 Nominal Operating Force: 1,800 grams
 

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 Operating Temperature Range: -10°C ~ +70°C (+14°F ~ +158°F)
 

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## S822/CUL HIGH CAPACITY TOGGLE

### Characteristics & Specifications

#### S Series Standard Size Toggle

- .866" (22.0mm) long bat lever, brass with chrome plating
- M12 P1 threaded bushing, .472" (12.0mm) length
- Screw lug terminals
- Standard hardware includes face hex nut, locking ring, lockwasher, backup hex nut
- Panel cutout with locking ring; maximum panel thickness .177" (4.5mm)
- Splashproof boot assembly available: boot, hex nut, o-ring

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 Resistive Load: 30A @ 125/250V AC
 

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 Contact Resistance: 10 milliohms max
 

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 Insulation Resistance: 1,000 megohms min @ 500V DC
 

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 Dielectric Strength: 2,000V AC min for 1 minute min
 

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 Mechanical Life: 50,000 operations min
 

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 Electrical Life: 25,000 operations min
 

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 Angle of Throw: 28°
 

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 Operating Temperature Range: -10°C ~ +70°C (+14°F ~ +158°F)
 

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