



Reliable Switch Solutions for the Medical Industry

NIKK
SWITCHES

NKK Product Overview

SmartSwitch Product Line with Programmable Displays

Electrical Rating: 100mA @ 12V DC

IP Rating: IP64 (OLED Rocker)

Most extensive product line in the industry; available with OLED display, LCD 64 x 32 and 36 x 24 pixels; Pushbutton switches, OLED Rocker switch with integrated Pushbutton, or Display only



Pushbuttons – Illuminated and Nonilluminated

Many options including spot and ring illumination

Electrical Rating: Logic Level to 16A

IP Rating: IP65 and IP67 available; environmentally sealed option

Sizes: Subminiature to standard size

Product Series: AB, BB, EB, FB, FP01, GB, GB2, GB3, HB, HB2, JP, KB, KP, LB, LP01, M2B, MB2000, MB2400, NP01, SB, SCB, UB, UB2, WB, YB, YB2

Toggles – Illuminated and Nonilluminated

Electrical Rating: Logic Level to 50A

IP Rating: IP65 and IP67 available; environmentally sealed option

Sizes: Subminiature to standard size

Product Series: A, B, G, G3T, M, M2100, M2T, P, S, TL, WT



Rockers – Illuminated and Nonilluminated

Electrical Rating: Logic Level to 30A

IP Rating: IP65 and IP67 available; environmentally sealed option

Sizes: Subminiature to standard size

Product Series: A, CW, G, GW, JW, JWS, LW, M, M2100, M2T, MLW, P, SW, WR

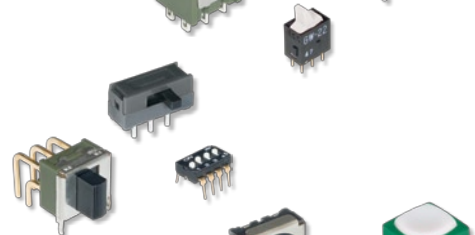


Slides – Illuminated and Nonilluminated

Electrical Rating: Logic Level to 6A

Sizes: Subminiature to miniature size

Product Series: AS, CS, FS, JS, MS, SM, SS, SS3



Specialty Tactiles – Illuminated and Nonilluminated

Electrical Rating: Logic Level to 125mA @ 24V DC

Sizes: Subminiature to miniature size

Product Series: CB, CB3, HP02, HP03, JB, JF, JL



Rotaries – Keylocks – Tilt Switches

Electrical Rating: Logic Level to 30A

IP Rating: IP67 available for MR and MRB series

Sizes: Subminiature to standard size

Product Series: FR01, FR02, HS, MR, MRB, ND, ND3, PS, TS (Rotaries)
CK, SK (Keylocks); DSA, DSB (Tilt)



Standards & Approvals – Free 3D Downloads – Mounting Options



RoHS: All products compliant – Free 3D model download for all products

Standards: UL, CSA and other international approvals for many series

Mounting: All product lines available with PCB and panel mount options

Product Highlights for Medical Applications

Illuminated Pushbuttons

NKK offers a wide variety of illuminated pushbutton switches that are suited for many medical applications. NKK's products are known for high reliability combined with an appealing and functional design.

- Momentary and alternate action
- IP65 and IP67 ratings for many models
- Optional covers for protection from water, oil, dust, and operator errors
- Panel cutouts from 8mm to 22.9mm diameter
- Round, square, and rectangular models available



LB Panel Seal

YB Panel Seal

YB2 Flush Mount Panel Seal

Toggle and Rocker Switches

NKK's toggle and rocker switches come in a wide variety of options, including full actuator illumination, spot, or toggle tip illumination with alternating colors for status indication.

- Momentary and alternate action
- IP65 and IP67 ratings for many models
- Optional boots and covers for protection from water, oil, and dust



TL Fully Illuminated Toggle



M Series with Large Bushing & Large Bar



MLW Rocker with Sculptured Cap



WB, WR, WT Environmentally Sealed Pushbuttons, Rockers, Toggles

Tilt and Keylock Switches

NKK's mercury-free tilt switches are triggered when tilted beyond mounting plane. Switches are constructed with either metallic ball contacts or photo interrupter technology.

Five types of keylock switches for different security needs and environments – from antistatic subminiature to high security standard size.



SK Keylock Switch



DSA Tilt Switch



DSB Tilt Switch



CKL Keylock Switch

Customized Products

- One stop supplier for custom legend inscriptions on caps and wire assembly
- Contact NKK Switches for custom options including new switch design; product modification; new/modified tooling; different actuator, housing or terminals; different electrical, mechanical, or environment specs; non-standard product shapes, materials, colors, etc.



SmartSwitch Product Line with Programmable Displays

NKK's SmartSwitch products are user-friendly interface devices with programmable displays.

- Smallest off-the-shelf OLED and LCD devices in the industry
- Broadest product offering of programmable display switches
- Rocker switch with programmable display; IP64 for medical wipe-down
- Pushbutton switch with programmable display
- Save installation time, money and panel space
- Achieve complex panel design with fewer devices and less inventory
- Display industry specific text, graphics and moving images
- Development kits and engineering support at NKKSmartSwitch.com
- On-line design tools: free software, specifications, development and design tools, and engineering documentation



Application Examples

Diagnostic Equipment

Laboratory
Monitoring
Nurse Call Station
Laser
Ultrasound
X-Ray
Mobile Imaging
Spectrophotometers
CCD Cameras



Dental Equipment

Dental Chairs
Imaging
Laser
Amalgam Separators



Medical Transportation

Ambulances
Scooters
Powered Wheelchairs
Mini Van Conversions / Lifts
Hospital Beds



Design / Laboratory

Laboratory Equipment – Biological Glass
Instrumentation for Pharmaceutical Research
Research Simulators & Amplifiers
Evaluation & Rehabilitation Systems
Hospital Security

Durable Medical Equipment

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Seven Questions To Specify A Switch



1. What type of actuator?

Keylock, Pushbutton, Rocker, Rotary, Slide, Tactile, Toggle

2. What are the electrical requirements?

Voltage, Current (6A @ 125V AC), Number of Poles, Resistive, Motor load?



3. What size of switch?

Ultra-miniature, Subminiature, Miniature, Standard

4. What type of terminations?

Solder lug, Screw terminals, PCB, SMT, QC



5. How is it mounted into device?

Panel bushing mount (threads), Snap-in panel mount, PCB mount, SMT

6. What is the application?

Medical, Telecom, Gaming, Computer, Logic Level, Power circuit, etc.



7. Are there any unique requirements?

Sealed, Illuminated, etc.



All products RoHS compliant



Actuator Type	NKK Series	Size	Illum option	Dust/Water Resistance IEC60529	UL CSA	Mounting	Electrical (Resistive Load)
Keylock	CK	Miniature	N	No	N	Bushing mount	3A, 250VAC
Keylock	SK	Miniature	N	No	N	PCB, Bushing	3A, 125 VAC
Membrane	FM	Standard	N	No	N	Flexible, PCB option	Logic level
Pushbutton	BB	Subminiature	N	No	Y	PCB	0.4A, 28V AC/DC
Pushbutton	FP01	Standard	Y	No	N	Snap-in	Transistor output
Pushbutton	G3B	Ultra-miniature	N	No	N	SMT	0.4VA, 28V AC/DC
Pushbutton	GB, GB2	Ultra-miniature	Y	No	N	PCB	0.4VA, 28V AC/DC
Pushbutton	HB2	Subminiature	Y	No	N	PCB	0.1A, 30V AC/DC
Pushbutton	LB	Standard	Y	IP65	Y	Rear panel mount, PCB, Bushing, Snap-in	3A, 250VAC
Pushbutton	LP01	Miniature	Y	No	Y	bushing, snap-in	3A, 125/250V AC
Pushbutton	M2B	Miniature	N	No	Y	PCB	1A, 125V AC
Pushbutton	MB	Miniature	N	No	Y	PCB, Bushing, Snap-in	6A, 125VAC
Pushbutton	MB20	Miniature	N	IP67	Y	PCB, Bushing, Snap-in	6A, 125VAC
Pushbutton	MB24	Miniature	N	No	Y	PCB, Bushing, snap-in	3A, 125V AC
Pushbutton	NP01	Subminiature	Y	No	N	PCB	0.4VA, 28V AC/DC
Pushbutton	SB	Standard	N	No	Y	Bushing mount	15A, 125VAC
Pushbutton	UB	Miniature	Y	No	Y	PCB, Snap-In	5A, 125/250V AC
Pushbutton	UB2	Miniature	Y	No	Y	PCB, Snap-In	5A, 125/250V AC
Pushbutton	WB	Standard	N	IP67	N	Bushing mount	6A, 125VAC
Pushbutton	YB	Miniature	Y	IP65	Y	Bushing, Snap-in	3A, 250VAC
Pushbutton	YB2	Standard	Y	IP65	Y	Panel mount	3A, 250VAC
Rocker	CW	Miniature	Y	No	Y	Front panel, Snap-in	9A, 125VAC
Rocker	JW	Standard	N	IP67	Y	Snap-in	16A, 250VAC
Rocker	JWS	Miniature	N	No	Y	Snap-in	6A, 125/250V AC
Rocker	SW	Standard	N	No	Y	Panel	30A, 125VAC
Rocker	WR	Standard	N	IP67	Y	Snap-in	15A, 250VAC
Rocker/Paddle	GW	Ultra-miniature	Y	No	N	PCB	0.4VA, 28V AC/DC
Rotary	TS	Standard	N	No	N	Bushing	6A, 250VAC
Rotary	MR	Miniature	N	IP67	N	PCB, Bushing	3A, 125V AC
Rotary	MRT	Miniature	N	No	Y	Bushing	10A, 125VAC
Rotary-DIP	FR	Subminiature, Ultra-miniature	N	No	N	PCB & SMT	100mA, 5/50V DC
Rotary-DIP	ND, ND3	Ultra-miniature	N	No	N	PCB, SMT	100mA, 5/50V DC
Slide	MS	Miniature	Y	No	Y	PCB	6A, 125V AC
Slide	SS	Ultra-miniature	Y	No	N	PCB	0.1A, 30V DC
SmartSwitch Pushbutton with programmable display	SmartSwitch	Standard	N	No	N	PCB	100mA, 12V DC
SmartSwitch Rocker with programmable display	SmartSwitch	Standard	N	IP64	N	PCB	100mA, 12V DC
Tactile	CB	Ultra-miniature	N	No	N	PCB	50mA, 24V DC
Tactile	HP	Ultra-miniature	N	No	N	PCB	3VA, 28V DC
Tactile	JB	Subminiature	Y	Yes	N	PCB	50mA, 24V DC
Tactile	JF	Subminiature	Y	No	N	PCB	50mA, 24V DC
Tilt switch	DSA	Standard	N	No	N	Flexible, PCB option	0.1A, 12V DC
Tilt switch	DSB	Standard	N	Yes	N	Flexible, user preference	Transistor output
Toggle	B	Subminiature	Y	IP65	N	PCB	0.4A, 28V AC/DC
Toggle	G3T	Ultra-miniature	N	No	N	SMT	0.4VA, 28V AC/DC
Toggle	S	Standard	N	IP67	Y	Bushing mount	50A, 125VAC
Toggle	TL	Miniature	Y	IP65	Y	Panel mount	6A, 125VAC
Toggle	WT	Standard	N	IP67	N	Bushing	10A, 125VAC
Toggle/Rocker	G	Ultra-miniature	Y	No	N	PCB	0.4VA, 28V AC/DC
Toggle/Rocker	M20	Miniature	N	IP67	Y	PCB, Bushing	6A, 125VAC
Toggle/Rocker	M211	Miniature	N	No	Y	PCB	6A, 125VAC
Toggle/Rocker	M2T	Miniature	N	No	Y	PCB	6A, 125VAC
Toggle/Rocker/Paddle	M2100	Miniature	Y	No	N	PCB, Bushing, Snap-in, Screw	6A, 125V AC