

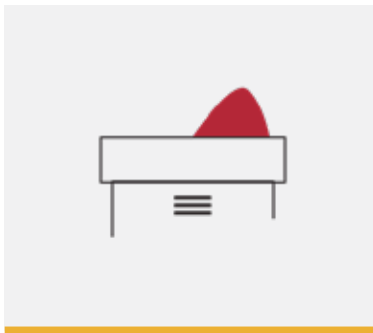
C&K® Switch Product Selection Guide

5,85 TYP

This product guide contains a selection of our most popular switch components

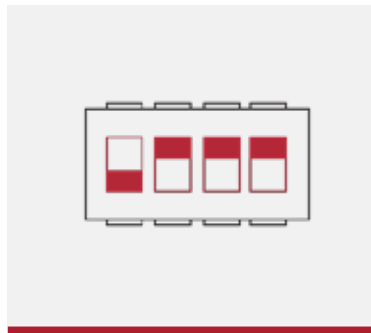
A Selection from our **55K Products**

For over 80 years, leading designers, manufacturers and distributors of electronics have turned to C&K when they require mission-critical reliability in an electromechanical switch, high-rel connector or custom assembly. The reason they keep coming back is because C&K's innovative design, cutting-edge production process, and strict quality assurance standards produce the world's best switches and components.



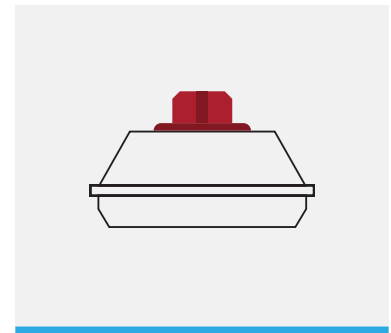
DETECT SWITCHES

Surface mount, through-hole,
Sealed
Pushbutton, snap-acting, lever actuation



DIP SWITCHES

1-16 position
Surface mount, through-hole
Washable
Top, side actuation



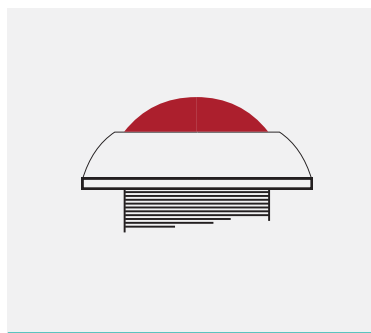
KEYSWITCHES

Surface mount, through-hole
Illuminated
Momentary, push-on/push-off



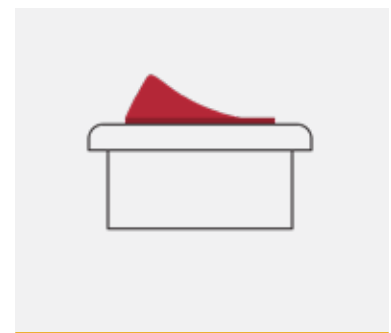
NAVIGATION SWITCHES

Multi-direction
Joystick, rocker



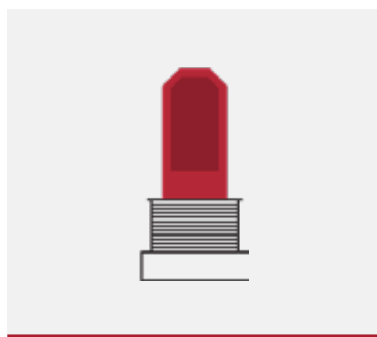
PUSHBUTTONS

Illuminated
Sealed
Miniature, subminiature, microminiature
Surface mount, through-hole, bushing mount



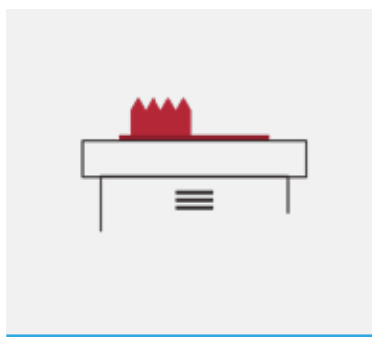
ROCKER SWITCHES

Snap-in, panel mount
Illuminated options
Several body sizes and shapes



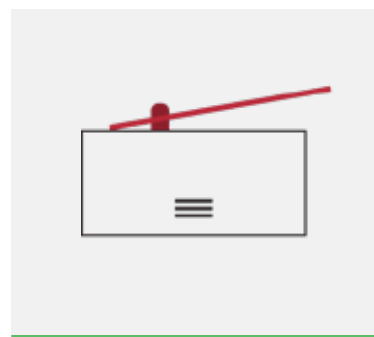
ROTARY SWITCHES

Multi-pole, multi-position
Sealed



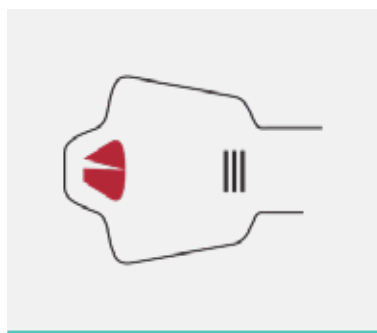
SLIDE SWITCHES

Miniature, ultraminiature
Process sealed switches
Surface mount, through-hole



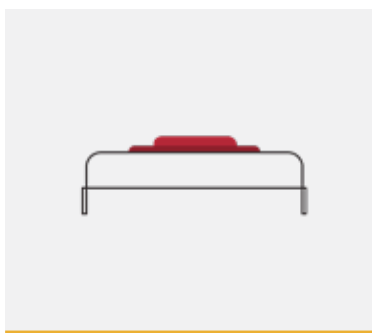
SNAP-ACTING SWITCHES

Miniature, subminiature
Sealed
Broad range of operating forces and lever styles
Power ratings up to 30 A



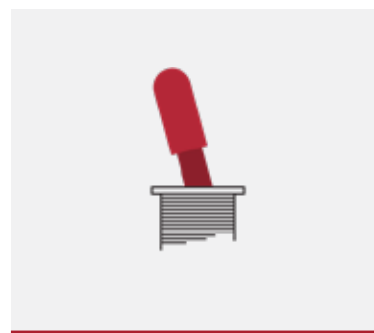
SWITCHLOCKS

Solder lug terminal
PC thru-hole
Wire lead
Quick connect
Anti static switch
200 to 2,000 different key codes



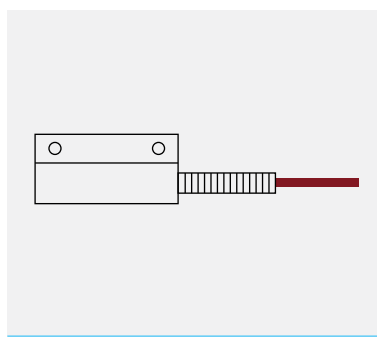
TACTILE SWITCHES

Surface mount, through-hole
Sealed
Top, side actuation
100,000 to 1,000,000 cycles



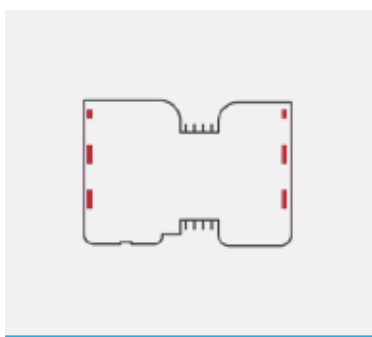
TOGGLE SWITCHES

Miniature, subminiature, ultraminiature
Sealed
Surface mount, through-hole, bushing mount



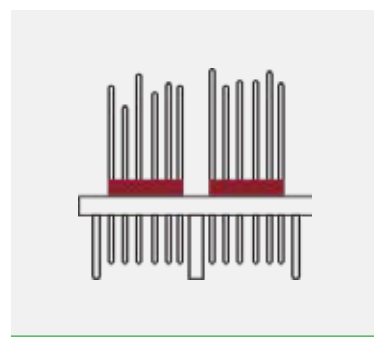
SENSORS

Sealed
Long life
Quick & easy installation



SMARTCARD CONNECTORS

ISO, SIM, SAM cards
Low profile
Anti-piracy



HIGH RELIABILITY CONNECTORS

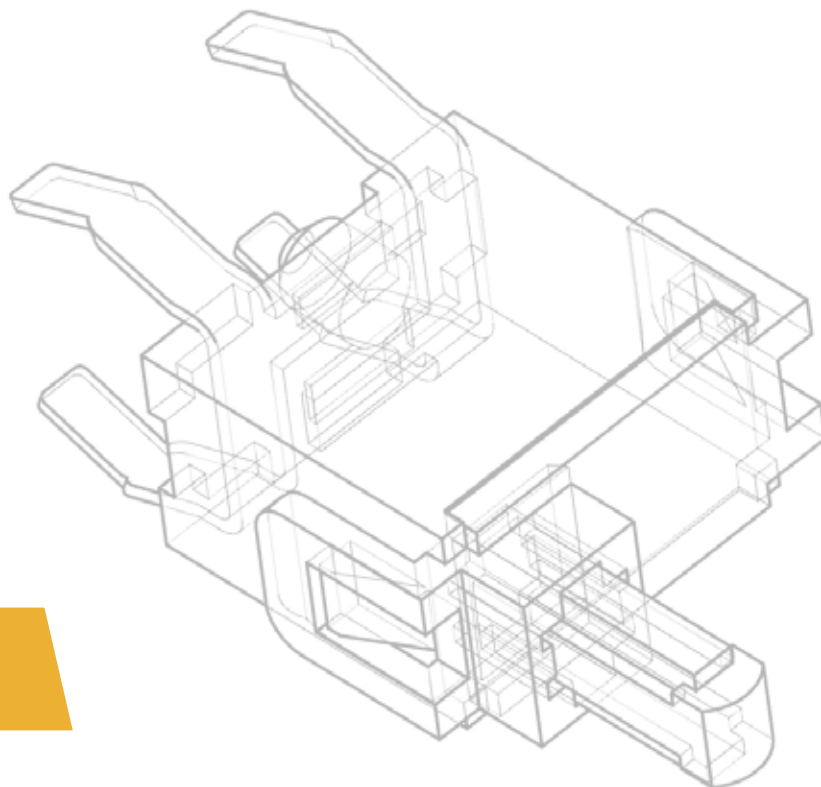
Microminiature & D-sub
Mil/Aero & medical
Board-board, board-cable, cable-cable

SWITCH

SOLUTION DESIGN INNOVATION

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PRODUCT SELECTION GUIDE

Detect Switches

With different series of standard detect switches, C&K offers the largest selection in SMT, through-hole, panel and snap-in / chassis and screw-mount versions. C&K's detect switches are offered in a variety of sizes and shapes, with various actuator orientations including vertical or horizontal, top or side, or right-angle or left, and come with soft actuation force. These detect switches include low profile, compact, micro- and ultra-miniature designs, with some sealed versions available.



SERIES	HDT	DS	HDS	HDP	SDS	DDS
Travel to Make (mm)	0.3	See datasheet	0.17	0.24	0.35	0.45
Overtravel	0.75	See datasheet	0.5	1.66	1.65	1.95
Total Travel	1.05	See datasheet	1.07	1.9	2.0	2.4
Actuator Length	1.4	See datasheet	1.17	2.15	2.5	2.6
Life Cycle	100,000	20,000 / 50,000 / 100,000	100,000	100,000	50,000	50,000
Contact Type	SPST N.O.	SPST / SPDT	SPST N.O.	SPST N.O.	SPST N.O. SPST N.C.	SPST N.O.
Max. Voltage	5 V	5 V / 16 V / 30 V	5 V	5 V	12 V	30 V
Max. Switching Current	1 mA	1 mA / 5 mA / 100 mA	1 mA	1 mA	100 mA	100 mA
Sealing	No	No	No	No	No	No
Mounting	Surface mount	Thru-hole, solder lug	Surface mount	Surface mount	Surface mount	Thru-hole



SERIES	FDSD	FDSE	KDS	KSU
Travel to Make (mm)	1.6 (15°)	1.44	1.25 max.	0.5
Overtravel	1.45	1.07	8.9	1.0
Total Travel	3.05 (60°)	3.14 (60°)	10.16	1.5
Actuator Length	2.3	2.67	10.16	1.5
Life Cycle	50,000	50,000	10,000	100,000
Contact Type	SPST N.O.	SPST N.C.	SPST N.O. SPST N.C.	SPST N.O.
Max. Voltage	5	5	20 V	32 V
Max. Switching Current	10 mA	1 mA	0.4 VA	50 mA
Sealing	No	No	No	Dust and water drop proof
Mounting	Surface mount	Surface mount	Snap-in panel	Surface mount



SERIES	ATS	KSR D	KSC D	KSJ D	KMT0 D
Travel to Make (mm)	0.7 (to break)	0.3	0.6	0.5	0.15
Overtravel	0.4		0.65	0.4	
Total Travel	1.1	0.3	1.5	1.05	0.25
Actuator Length	1.6	0.8	2.6	1.4	0.35
Life Cycle	5,000	100,000	500,000 / 2,000,000	200,000	300,000
Contact Type	SPST N.C.	SPST N.O.	SPST N.O.	SPST N.O.	SPST N.O.
Max. Voltage	32 V	32 V	32 V	32 V	32 V
Max. Switching Current	50 mA	10 mA	10 mA / 50 mA	10 mA / 50 mA	25 mA
Sealing	IP54	Dust and flux tight	IP67	Flux tight	IP68
Mounting	Surface mount	Surface mount	Surface mount	Thru-hole	Surface mount



SERIES	KMR D	K12S D	K12 D	RB
Travel to Make (mm)	0.225	0.85*	0.55*	10° / 90°
Overtravel		0.65	0.95 / 1.45	
Total Travel	0.4	1.5	1.5 / 2	
Actuator Length	1.1			
Life Cycle	100,000	300,000	1,000,000	20,000 / 100,000
Contact Type	SPST N.O.	SPST N.O. / N.C. DPST N.O. / N.C.	SPST N.O. / N.C.	SPST / SPDT
Max. Voltage	32 V	30 V	32 V	5 V / 24 V
Max. Switching Current	50 mA	100 mA	100 mA	1 mA / 25 mA
Sealing	IP40	IP40 / 6x	IP 40	
Mounting	Surface mount	Surface mount	Thru-hole	Thru-hole

* For information

**HDT SERIES****Micro Miniature Surface Mount Detect Switches****Features / Benefits**

Low profile package
 Design allows top or side actuation
 Low actuation force, 35 grams max.
 Pick and place compatible, available in tape & reel packaging
 Halogen free

Typical Applications

Consumer electronics
 Computers
 Medical devices
 ATCA and MicroTCA devices

PART NUMBER	Contact Type	Contact Rating	Pre-Travel	Overtravel	Total Travel	Mechanical / Electrical Life
HDT0001	SPST, NO	1 mA 5 VDC	.30 mm	.75 mm	1.05 mm	100,000 cycles min.

**HDS SERIES****Micro Mini Side Actuated Surface Mount Detect Switches****Features / Benefits**

Low profile package sits just 1.4 mm off PCB
 Design allows top or side actuation
 Right and left options available

Typical Applications

Consumer electronics
 Medical devices
 ATCA and MicroTCA devices

PART NUMBER	Contact Type	Contact Rating	Contact Material	Total Travel	Over Travel	Operating Life
HDS001R	SPST, NO	1 mA 5 VDC	Silver over nickel	1.87 mm	1.5 mm	100,000 cycles

**HDP SERIES****Micro Mini Side Actuated Surface Mount Detect Switches****Features / Benefits**

Low profile
 Right and left options available
 Side actuation

Typical Applications

Consumer electronics
 Medical devices
 ATCA and MicroTCA devices

PART NUMBER	Contact Type	Contact Rating	Contact Material	Total Travel	Over Travel	Operating Life
HDP001R	SPST, NO	1 mA 5 VDC	Silver over nickel	3.2 mm	2.96 mm	100,000 cycles

**SDS SERIES****Micro Miniature Surface Mount Detect Switches****Features / Benefits**

Low profile package sits just 2mm off PCB
 2mm overtravel ideal for detector applications
 Low actuation force (75 grams max.)
 RoHS compliant and compatible

Typical Applications

Medical devices
 Consumer electronic devices
 PCB lock cam detect
 Smart card detect
 ATCA and MicroTCA

PART NUMBER	Contact Type	Contact Rating	Contact Material	Total Travel	Over Travel	Operating Life
SDS0001	SPST, NO	100 mA @ 12 VDC	Silver	2.0 mm	1.65 mm	50,000 cycles

**FDSD SERIES****Micro Mini Side Actuated Detect Switches****Features / Benefits**

Extremely small package size
 Vertical side actuation
 Flat or bending terminations
 Long travel type
 RoHS compatible and compliant

Typical Applications

Consumer electronics
 Medical devices
 Safety control devices

PART NUMBER	Actuator Height	Operating Force	Contact Material	Electrical Life	Travel
FDSD001R	2.3 mm	40 gf	Silver	50,000 cycles	3.05 mm
FDSD002R	2.3 mm	40 gf	Silver	50,000 cycles	3.05 mm

**FDSE SERIES****Micro Mini Angled Actuated Detect Switches****Features / Benefits**

Extremely small package size
 Angled actuation
 Flat or bending terminations
 Long travel type
 RoHS compatible and compliant

Typical Applications

Consumer electronics
 Medical devices
 Safety control devices

PART NUMBER	Actuator Height	Operating Force	Contact Material	Electrical Life	Travel
FDSE001R		3.5 gf	Silver	50,000 cycles	3.14 mm
FDSE002R		3.5 gf	Silver	50,000 cycles	3.14 mm

**KSU SERIES****Micro Miniature Surface Mount Detect Switches****Features / Benefits**

New multi contact construction
 Metal actuator
 Low actuating force
 Silver / Gold contacts
 Compatible with pick and place machines

Typical Applications

Mobile phones and other handheld device
 Portable medical devices
 Audio devices
 Automotive
 Alarm devices
 Payment terminals

PART NUMBER	Contact Type	Contact Material	Travel	Operating Force	Operating Life
KSU211WLFG	SPST, NO	Silver	0.65 mm - 0.45/+0.25 mm	0.7 ± 0.5 N	100,000 cycles
KSU213WLFG	SPST, NO	Gold	0.65 mm - 0.45/+0.25 mm	0.7 ± 0.5 N	100,000 cycles

**ATS SERIES****Anti-Tampering Switches****Features / Benefits**

Normally closed function
 Vertical detect
 Reliable long time compression
 IP54

Typical Applications

Smart meters
 Alarm systems
 Anti-tamper devices

PART NUMBER	Contact Type	Contact Material	Contact Rating	Operating Force	Operating Life	Termination
ATS2D1GNC LFS	SPST-NC	Silver	50 mA @ 32 VDC	2 N	5,000 cycles	Surface mount
ATS2D3GNC LFS	SPST-NC	Gold	50 mA @ 32 VDC	2 N	5,000 cycles	Surface mount

**KSC D SERIES****Sealed Detect Switches for SMT****Features / Benefits**

Soft actuator
 Permanent actuation possible
 J bend or gull wing terminations
 Tape & reel
 IP67

Typical Applications

Automotive
 Cellular phones
 Industrial electronics
 Computer infrastructure and IT

PART NUMBER	Contact Type	Contact Material	Travel	Over Travel	Operating Life
KSC4D2J50SH LFS	SPST, NO	Silver	0.6 ± 0.25	0.65 mm	2,000,000 cycles
KSC4D3J50SH LFG	SPST, NO	Gold	0.6 ± 0.25	0.65 mm	500,000 cycles
KSC4D3J50SH LFG ULC *	SPST, NO	Gold	0.6 ± 0.25	0.65 mm	500,000 cycles

* ULC: Ultra low current 0.01 mA @ 1.8 V DC

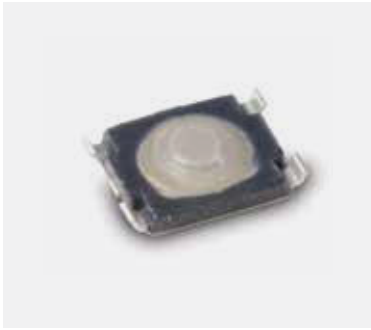
**KSJ D SERIES****Spherical Actuator Detect Switches****Features / Benefits**

Straight or vertical detect
 Spherical actuator allows actuation +/- 30°
 High travel / silent switch
 Adapted for cam actuation

Typical Applications

Automotive
 Industrial electronics
 Computer infrastructure and IT

PART NUMBER	Contact Type	Contact Material	Travel	Over Travel	Operating Life
KSJ0VD1860SH LFTR	SPST, NO	Silver	0.5 ± 0.25	0.4 mm	200,000 / 30,000 cycles
KSJ0MD3860SH LFTR	SPST, NO	Gold	0.5 ± 0.25	0.4 mm	200,000 / 30,000 cycles



KMT0 D SERIES

Momentary Detect Switches

Features / Benefits

Smallest footprint
Smallest thickness with integrated actuator
IP68

Typical Applications

Hearing aids
Medical devices (glucose meter)
IoT
Bluetooth headset
Consumer electronics

PART NUMBER

KMT0D1 NGJ LHS

KMT0D3 NGJ LHG

Contact Type

SPST, NO

SPST, NO

Contact Material

Silver

Gold

Travel

0.15 ± 0.1

0.15 ± 0.1

Electrical Life

300,000 cycles

300,000 cycles



KMR D SERIES

Momentary Detect Switches

Features / Benefits

Ground pin
Height 2.5 mm
Compact size 4.6 x 2.8

Typical Applications

IoT
Bluetooth headset
Consumer electronics

PART NUMBER

KMR401G LFS

Contact Type

SPST, NO

Contact Material

Silver

Travel

0.225 ± 0.175

Electrical Life

100,000 cycles



K12S D SERIES

Detect Switches

Features / Benefits

Harsh environment applications
Illuminated
SPST / DPST configurations
Designed for low-level switching
NC versions available
Permanent actuation possible

Typical Applications

Motorbike / Automotive
Industrial electronics
Medical equipment

PART NUMBER

K12SA S 1.5 3N O LFTX

K12SA S 1.5 3N C LFTX

K12SB D 1.5 3N OO LFTX

K12SB D 1.5 3N CC LFTX

Contact Type

SPST, NO

SPST, NC

DPST, NO

DPST, NC

Contact Material

Gold

Gold

Gold

Gold

Electrical Height

8.2 ± 0.2

8.2 ± 0.2

8.2 ± 0.2

8.2 ± 0.2

Over Travel

0.4

0.4

0.4

0.4

Electrical Life

300,000 cycles

300,000 cycles

300,000 cycles

300,000 cycles



K12 D SERIES Detect Switches

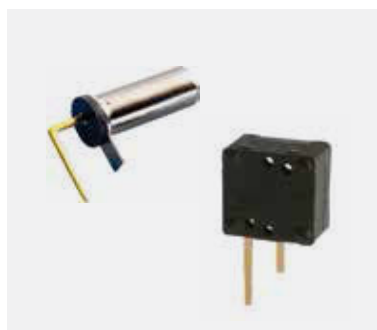
Features / Benefits

Overtravel up to 1.6 mm
Permanent actuation possible
Designed for low-level switching

Typical Applications

Industrial electronics
Medical equipment
Off-road transportation

PART NUMBER	Contact Type	Contact Material	Electrical Height	Over Travel	Electrical Life
K12P BK 1.5 1.5 OD	SPST, NO	Gold	10.45 ± 0.2	1.1	1,000,000 cycles
K12P BK 2 1.5 OD	SPST, NO	Gold	10.45 ± 0.2	1.6	1,000,000 cycles



RB SERIES Rolling Ball Sensor Switches

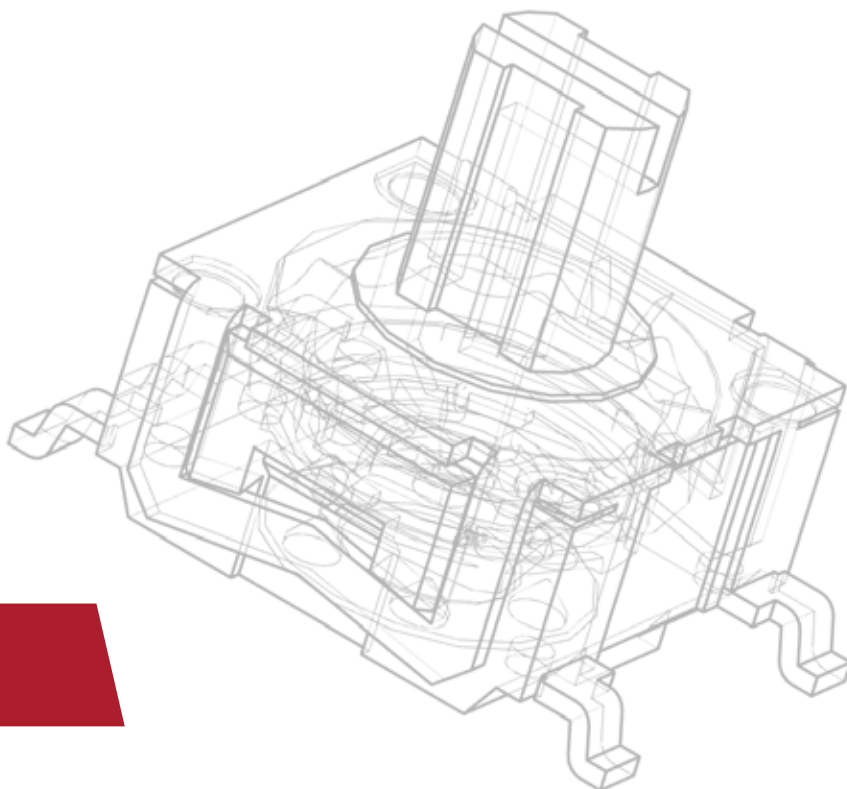
Features / Benefits

Compact shielded design
10 degree angle of detection
Conductive ball is movable inside tube to generate signal and control

Typical Applications

Movement detection
White goods
Consumer electronics

PART NUMBER	Contact Type	Contact Rating	Sensor Angle	Operating Life	Termination
RB-231X2	SPST	1 mA 5 V DC resistive load max	0° to 10° scope	100,000 cycles	PC thru-hole
RB-441-45	SPDT	25 mA 24 V DC resistive load max	45° ± 15°	100,000 cycles	PC thru-hole

**PRODUCT SELECTION GUIDE**

DIP Switches

C&K's series of surface mount half-pitch DIP switches, low profile and standard profile DIP switches, rotary and coded DIP switches, coded rotary DIP switches, SIP switches and jumper switches feature a variety of extended actuator and flush actuator styles. C&K DIP switches are available in surface mount, through-hole, right angle and vertical mounting options.



SERIES	TDP	TDA	SDA	SD	BD
Switch Type	Half-pitch .050" side	Half-pitch .050"	Low profile	Low profile	Standard profile
No. of Positions	2, 4, 8	2-10 (even only)	2-12 (except 11)	2-12 (except 11)	1-12 (except 11)
Contact Style	SPST	SPST	SPST	SPST	SPST
Profile Off PCB	.161 (4.1)	.090 (2.3)	.189 (4.80) thru-hole .175 (4.45) SMT	.168 (4.27) thru-hole .160 (4.06) SMT	.297 (7.55)
Process Sealed	Washable with tape	Washable with tape seal	Washable (tape not required)	Washable with tape	Washable (tape not required)
Extended Actuator	•		•	•	•
Flush Actuator	•	•	•	•	
Thru-hole			•	•	•
Vertical		•	•	•	•
Right Angle	•				•
Surface Mount	•	•	•	•	
Tape & Reel (SMT only)		•	•	•	
Maximum Current	100 mA	100 mA	100 mA	100 mA	100 mA



SERIES	BPA	TDD	SPA	RTE
Switch Type	Side actuated	Jumper switch	Single in-line package	Rotary & coded
No. of Positions	1-10 & 12	2	2, 4, 6, 8, 10	4, 10, 16
Contact Style	SPST	SPDT	SPST / SP3T / SP4T / coded	Coded
Profile Off PCB	.287 (7.3) thru-hole .274 (6.96) SMT	.090 (2.3)	.244 (6.2) vertical .169 (4.3)	.169 (4.25) thru-hole .168 (4.27) SMT
Process Sealed	Washable (tape not required)	Washable with tape	Washable (tape not required)	
Extended Actuator	•		•	•
Flush Actuator		•	•	•
Thru-hole	•		•	•
Vertical		•	•	•
Right Angle	•		•	•
Surface Mount	•	•	•	•
Tape & Reel (SMT only)	•	•	•	•
Maximum Current	100 mA	100 mA	0.4 VA	100 mA
Retention Feature			•	•

**SERIES****CD****CRD****RTF****CRE****Switch Type**

8 mm coded rotary

10 mm coded rotary

DIP

10 mm coded rotary

No. of Positions

8, 10, 16

10 & 16

4, 10, 16

4, 6, 8, 10, 16

Contact Style

Coded

Coded

Coded

Coded

Profile Off PCB.168 (4.27) thru-hole
.340 (8.6) Rt. angle.256 (6.5) vertical
.414 (10.5) Rt. angle

Varies

0.331" (8.4 mm) Flush /
0.370" (9.4 mm) Protrusion /
0.618" (15.7 mm) Extended**Process Sealed**

Washable (tape not required)

Washable (tape not required)

•

Washable (tape not required)

Extended Actuator

•

•

•

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Flush Actuator

•

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Thru-hole

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Vertical

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Right Angle

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Surface Mount

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Tape & Reel (SMT only)

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Maximum Current

0.4 VA

0.4 VA

100 mA

150 mA

Retention Feature

• C option

**TDA SERIES****Ultra-miniature Surface Mount Half-pitch DIP Switches****Features / Benefits**

Bifurcated contact for increased electrical reliability
 Process sealed for surface mount soldering and washable processing

Contact Rating:

24 V DC, 25 mA (switching)
 50 V DC, 100 mA (steady state)

Typical Applications

Hand-held electronic devices
 Portable computer and electronic devices
 Instrumentation and controls

PART NUMBER	Number of Positions	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
TDA04H0SB1R	SPST, 4 pos.	Flush actuator	SMT, gull wing	Gold	1,000 cycles
TDA08H0SB1R	SPST, 8 pos.	Flush actuator	SMT, gull wing	Gold	1,000 cycles
TDA10H0SB1R	SPST, 10 pos.	Flush actuator	SMT, gull wing	Gold	1,000 cycles

**SDA SERIES****Low Profile DIP Switches****Features / Benefits**

Low profile design saves space
 Thru-hole and surface mount models
 High pressure contact does not require tape seal for washing

Contact Rating:

25 mA @ 24 V DC or 100 mA @ 5 V DC

Typical Applications

Address switch for industrial controls
 Logic switching for computers and peripherals
 Function controlling for numerous applications

PART NUMBER	Number of Positions	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
SDA08H0B	SPST, 8 pos.	Flush actuator – with top tape	PC thru-hole	Gold plating	1,000 cycles
SDA03H0SBR	SPST, 3 pos.	Flush actuator – with top tape	SMT, gull wing	Gold plating	1,000 cycles
SDA04H0SBR	SPST, 4 pos.	Flush actuator – with top tape	SMT, gull wing	Gold plating	1,000 cycles



BPA SERIES

Side Actuated DIP Switches

Features / Benefits

Side actuated contacts
Available in thru-hole or SMT models
High pressure contact system does not require tape seal for washing

Contact Rating:

100 mA max. @ 5 V DC or 25 mA max. @ 24 V DC

Typical Applications

Address switch for industrial controls
Logic switching for computers and peripherals
Function controlling for numerous applications

PART NUMBER	Number of Positions	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
BPA04B	SPST, 4 pos.	Side actuator / Piano	PC thru-hole	Gold over nickel plate	1,000 cycles
BPA01B	SPST, 1 pos.	Side actuator / Piano	PC thru-hole	Gold over nickel plate	1,000 cycles
BPA05SB	SPST, 5 pos.	Side actuator / Piano	SMT, gull wing	Gold over nickel plate	1,000 cycles



RTE SERIES

Low Profile Rotary DIP Switches

Features / Benefits

Miniature size with robust stainless steel cover
Rotary SPDT, SP3T, SP4T functions
Rotary binary-decimal and hexadecimal coding

Contact Rating:

Gold: 100 mA max. 10 μ A min. 30 V DC max. 20 mVDC min.
Silver: 100 mA max. 1 mA min. 50 V DC max. 2 VDC min.

Typical Applications

Timers, automation components
Computer and peripherals
Alarms, smoke detectors, access control
Instrumentation
Address switching applications

PART NUMBER	Switch Function	ESD Protection / Actuator	Mounting Style / Termination	Contact Material	Electrical Life
RTE1002G14	10 position, BCD	Without ESD, shaft for button	SMT, gull wing	Gold	20,000 cycles
RTE1600V44	16 position, hexadecimal	Without ESD, flush, screwdriver slot	Right angle	Gold	20,000 cycles
RTE0400N04	4 position, single pole	Without ESD, flush, screwdriver slot	PC thru-hole	Gold	20,000 cycles



CD / CRD SERIES

8 mm / 10 mm DIP Coded Rotary Switches

Features / Benefits

Process sealed – withstands soldering and cleaning
 Thru-hole and surface mount models
 Crisp, positive detent ensures actuation

Contact Rating:

0.4 VA max. @ 20 V AC or V DC max.

Typical Applications

Address switching applications
 Data storage devices
 Computer and peripherals
 Instrumentation

PART NUMBER	Switch Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
CD10RM0SBR	10 position, BCD	Flush, screwdriver slot	SMT, gull wing	Gold	20,000 cycles
CD16RM0SBR	16 position, hexadecimal	Flush, screwdriver slot	SMT, gull wing	Gold	20,000 cycles
CRD10RM0CB	10 position, BCD	Flush, screwdriver slot	PC thru-hole	Gold	20,000 cycles
CRD16CM0SBR	16 position, hexadecimal complement	Flush, screwdriver slot	SMT, gull wing	Gold	20,000 cycles



RTF SERIES

7.2 x 7.2 mm Low Profile Rotary DIP Switches

Features / Benefits

Most compact rotary DIP switch
 Thru-hole, crimped, J-bend, angled & surface mount models
 New designs with different actuators
 IP67

Typical Applications

Instrumentation
 Security devices
 Computer & peripherals
 Industrial & control automation

PART NUMBER	Switch Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
RTF16R0S	16 position, hexadecimal	Flush, screwdriver slot	SMT	Gold plated	10,000 cycles
RTF16R0C	16 position, hexadecimal	Flush, screwdriver slot	Thru-hole	Gold plated	10,000 cycles



CRE SERIES
10 mm DIP Coded Rotary DIP Switches

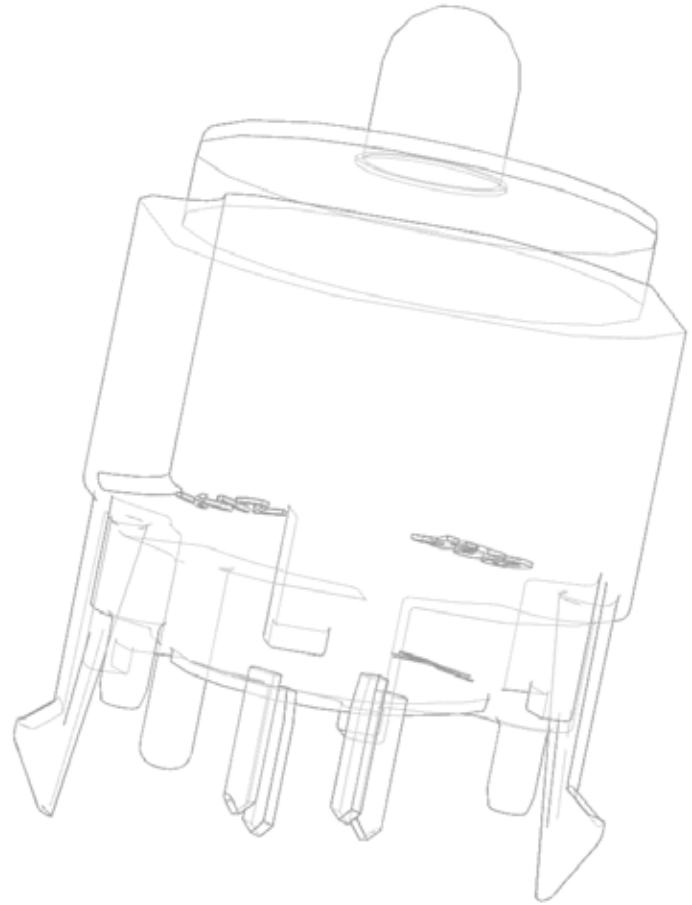
Features / Benefits

New designs with different actuators
Process sealed - withstands soldering & cleaning
Thru-hole & surface mount models
IP65

Typical Applications

Address switching applications
Data storage devices
Instrumentation

PART NUMBER	Switch Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
CRE16RRDM0S	16 position, hexadecimal	Flush, screwdriver slot	SMT	Gold plated	10,000 cycles
CRE16RRDL0C	16 position, hexadecimal	Extended, screwdriver slot	Thru-hole	Gold plated	10,000 cycles



PRODUCT SELECTION GUIDE

Keyswitches

C&K keyswitches are designed to support high-performance, environmentally demanding applications. They are available in a large number of combined versions:

- SMT or THT solder process compatible
- IP40 or IP67 sealing level
- LED illumination option
- SPST, SPDT, DPST or DPDT electrical functions
- Normally Open or Normally Closed contacts
- Double step actuation
- Momentary or latching “push-on/push-off” versions
- Tactile or non-tactile feedback



SERIES	K12S	K12	K12C	D6
Size (mm) L x W x H	12 x 11.6 x 9.1	12 x 12 x 11	12 x 12 x 11	12 x 11.4 x 14.5
Poles / Throws	SPST / DPST / 2 x SPST momentary	SPST / 2 x SPST momentary	SPST	SPST momentary
Maximum Load	30 V / 100 mA	30 V / 100 mA	30 V / 100 mA	32 V / 100 mA*
Operating Force	3 N / 3.5 N / 5 N / 6 N / 9 N / 4/8 N / 6/12 N	1.5 N / 2.5 N / 3.5 N / 5 N / 3.5/7 N / 6/12 N	2.5 N / 5 N / 9 N	1.3 N / 2.75 N
Travel (standard)	1.5 mm	1 mm / 1.5 mm / 2 mm	1 mm / 1.3 mm	1 mm / 1.10 mm
Life Cycle	1,000,000	1,000,000	100,000	250,000
IP Rating	IP40 / IP67	IP40	IP67	
Illumination	•	•		•
Termination	SMT	Thru-hole	Thru-hole	Thru-hole



SERIES	KS	DIGITAST	ED/EDM
Size (mm) L x W x H	12.4 x 12.4 x 9.9	17.1 x 12.3 x 14.3	12.7 x 11.3 x 1.2
Poles / Throws	SPST / SPDT	SPDT momentary or push-on / push off	SPST momentary
Maximum Load	50 V / 25 mA	24 V / 10 mA	100 V / 100 mA
Operating Force		1.5 N	2.4 N to 6.5 N
Travel (standard)	0.75 mm	3 mm	0.3 mm
Life Cycle	100,000	5,000,000	1,000,000
IP Rating			IP67
Illumination		•	
Termination	Thru-hole	Thru-hole	Thru-hole / SMT



K12S SERIES

High Performance SMT Key Switches

Features / Benefits

IP67
Compatible with SMT lead free soldering process / tape & reel packaging
Illuminated
Excellent tactile feel
High reliability / long life
DPST, double step and detect versions available
Normally closed version available

Typical Applications

Automotive, motorbikes
Off-road transportation
Industrial electronics
Medical
Network

PART NUMBER	Sub-Series	Type	LED Color	Travel	Operating Force	Contact Arrangement
K12SB S 1.5 9N O LFTX	IP67 with peg	SPST	None	1.5 mm	9 N	NO
K12SB S 1.5 3.5N C LFTX	IP67 with peg	SPST	None	1.5 mm	3.5 N	NC
K12SC L 1.5 WHO 9N O LFTX	IP40 without peg	SPST	White	1.5 mm	9 N	NO
K12SC D 1.5 4/8N OO LFTX	IP40 without peg	DPST	None	1.5 mm	4 / 8 N	2 NO
K12SB D 1.5 12N OO LFTX	IP67 with peg	DPST	None	1.5 mm	12 N	2 NO



K12 SERIES

High Performance Key Switches

Features / Benefits

Excellent tactile feel
Wide choice of LED colors, travel and actuator forces
Sealed version available
Designed for low-level switching
Double stroke versions available

Typical Applications

Automotive
Off-road transportation
Industrial electronics
Computers & network equipment

PART NUMBER	Function	Button Type / Color	Travel	Operating Force
K12GO BK 1.5 6/12N	Two-step switch	Black cap	1.5 mm	6 / 12 N
K12P BK 1 5N	With snap-in pegs	Black cap	1 mm	5 N
K12A BK 1 5N	No snap-in pegs	Black cap	1 mm	5 N
K12PL WH 1.5 5N LV302	With central LED	White LED	1.5 mm	5 N
K12PL GN 1.5 5N LV306	With central LED	Green LED	1,5 mm	5 N



K12C SERIES

High Performance Key Switches

Features / Benefits

Excellent tactile effect
Harsh environment applications
IP67
Designed for low-level switching

Typical Applications

Off-road transportation
Industrial electronics
Medical equipment
Automotive

PART NUMBER	Function	Button Type / Color	Travel	Operating Force
K12C 1 5N	Sealed contact with rubber cap (IP67)	Black rubber cap	1 mm	5 N
K12C 1.3 9N 0.5	Sealed contact with rubber cap (IP67)	Black rubber cap	1.3 mm	9 N



D6 SERIES

SPST Momentary Key Switches

Features / Benefits

Positive tactile feedback
High temperature
Wide variety of colors and styles

Typical Applications

Video
Electronic games
Appliances

PART NUMBER	Function	Button Type / Color	Travel	Operating Force	Illumination
D6R90 F1 LFS	SPST, NO	Round / Black	0.6 mm	1.3 N	
D6C90 F1 LFS	SPST, NO	Square / Black	0.6 mm	1.3 N	
D6R10 F1 LFS	SPST, NO	Round / Gray	0.6 mm	1.3 N	
D6L90 F1 LFS	SPST, NO	Plunger / Black	0.6 mm	1.3 N	
D6RLRD F1 LFS	SPST, NO	Round / Transparent	0.6 mm	1.3 N	Red
D6RLWH F1 LFS	SPST, NO	Round / Transparent	0.6 mm	1.3 N	White



KS SERIES

Single Pole Key Switches

Features / Benefits

Positive tactile feel
Variety of cap colors
SPST and SPDT configurations
RoHS compliant

Typical Applications

Telecommunications
Industrial
Instrumentation

PART NUMBER	Function	Button Type / Color	Contact Material	Seal
KS11 R2 2 C Q D	SPST Off-Mom.	Black cap	Silver	No epoxy
KS12 R2 3 C B E	SPDT On-Mom.	Red cap	Gold	Epoxy
KS12 R2 1 C B D	SPDT On-Mom.	White cap	Gold	No epoxy



DIGITAST SERIES

SPDT Key Switches

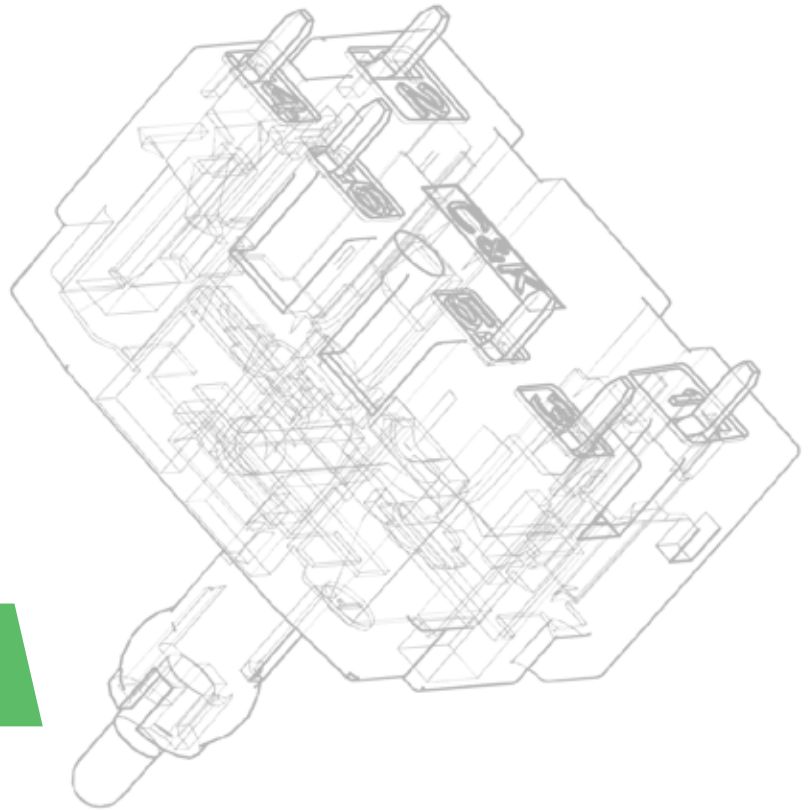
Features / Benefits

Designed for low level switching
High reliability / long life
Several button options

Typical Applications

Medical
Instrumentation
Industrial electronics

PART NUMBER	Function	Button	Button Color	Contact Material	Termination
SER BK AU OA	SPDT, momentary	Narrow button	Black	Gold	PC thru-hole
SET BK AU OA	SPDT, momentary	Wide button	Black	Gold	PC thru-hole
SERU AU OA	SPDT, momentary			Gold	PC thru-hole
SRK GY		Narrow button	Gray		
STK WH		Wide button	White		



PRODUCT SELECTION GUIDE

Navigation Switches

C&K's navigation switches are miniature, compact and multi-directional products. The CS series features a 4-way adjustable direction switch designed for mirror control. The THB series dual action 360° joystick is ideal for gaming, drone, and other controllers.

			
SERIES	CS	SAM	THB
Number of Directions	4	2 or 4	Dual axis with center select switch
Size on PCB (mm) L x W x H	40 x 40 x 38	20.7 x 18.0 26.2 x 26.2	21.0 x 17.0
Total Height (mm)	58	27.85 or 31.85 or 27.6	19.45
Actuation Force (N)	4.9 N	5.3 / 6 N	714 ± 204 gf
Contact Type	Silver	Silver	SPST N.O.
Max. Voltage (V)	10	14	5 V DC, 50 V AC
Max. Switching Power (VA)	.02	15	0.05 A @ 12 VDC
Life Cycles per Direction	10,000	30,000	2,000,000
Sealing	Not sealed	Not sealed	Not sealed

**CS SERIES****4-Way Adjustable Direction Switches****Features / Benefits**

Designed for mirror control
 Wire harness and connector easy to customize
 Easy installation
 4-way adjustable directions

Typical Applications

Automotive
 Industrial

PART NUMBER	Circuit	Mounting Type	Actuation Force	Current Rating	Life Cycle
CS41001E	SP4T	Panel mount, front, snap-in	200 ±100 gf / 400 ± 200 gf / 500 ± 200 gf	0.2 A @ 12 VDC	10,000 cycles

**SAM SERIES****Multiway Switches****Features / Benefits**

Multi-directional switches 2-way & 4-way
 Actuation force 5.3 N or 6 N
 Footprint 20.7 x 18.0 mm (2-way) & 26.2 x 26.2 mm (4-way)

Typical Applications

Automotive
 Industrial

PART NUMBER	Circuit	Actuation Force	Life Cycle*	Travel (mm)
SAM-H2-LR10SPA	SPDT	6.0 ± 2.0	30,000 cycles	1.00 ± 0.4
SAM-H2-LR14SPA	SPDT	5.3 ± 2.0	30,000 cycles	1.25 ± 0.4
SAM-H2-MR14SPA	SPDT	5.3 ± 2.0	30,000 cycles	1.25 ± 0.4
SAM-H4-MR11SPA	SPDT	6.0 ± 2.0	30,000 cycles	1.00 ± 0.4

* Life cycle per direction

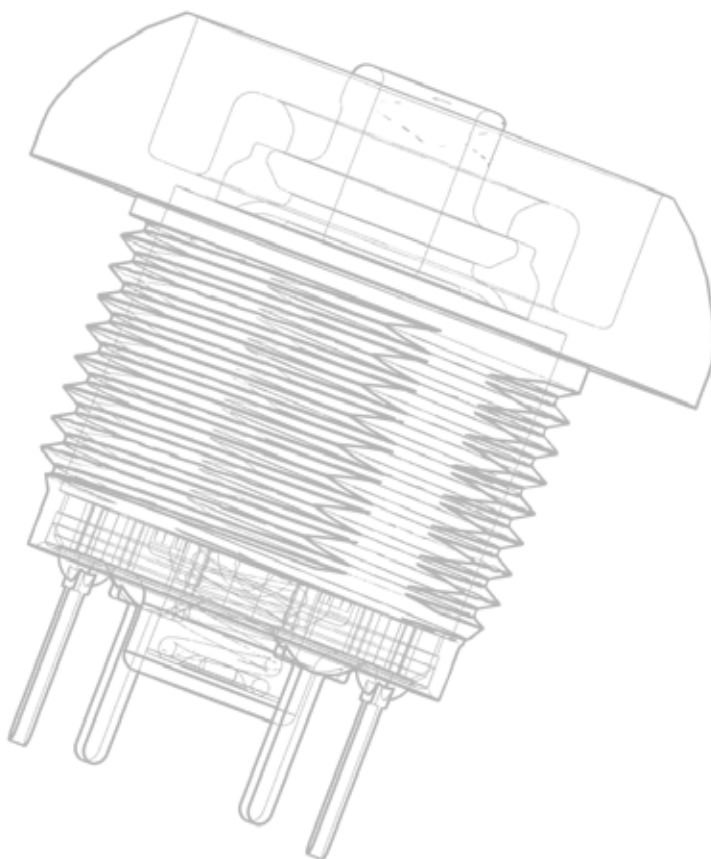
**THB SERIES****Thumbstick****Features / Benefits**

Higher actuation force
 Reduced "Dead Zone" slack & wide angular sweep
 Small form factor

Typical Applications

Industrial
 High-end consumer

PART NUMBER	Circuit	Mounting Type	Actuation Force	Current Rating	Life Cycle
THB001P	Dual Potentiometer + SPST N.O.	Thru-hole	714 ± 204 gf	0.05 A @ 12 VDC	2,000,000 cycles for toggle



PRODUCT SELECTION GUIDE

Pushbutton Switches

C&K's extensive range of miniature, sub-miniature and ultra-miniature pushbuttons for printed circuit board with thru-hole or surface mounted and panel application with either threaded or snap-in option. Products are offering with momentary and latch function for SPST, SPDT, DPST or DPDT circuitry in sealed and low-profile configurations. C&K pushbuttons are available in the widest selection of actuator styles, shapes and colours, with or without illumination.



SERIES	ELUM	EP	TP	E020	8020	E010	8060	8500
Switch Type	PCB Illuminated	Sub-miniature	Sub-miniature	Miniature	Miniature	Miniature	Sub-miniature	Sub-miniature
Poles / Throws	SPDT	SPST / SPDT / DPST	SPST / SPDT / DPST	SPDT / DPST	SPDT / DPDT / 3PDT / 4PDT	SPDT	SPDT / DPDT	SPST
Max. Current	3.5 VA	1 Amp	1 Amp	1 Amp	1 Amp	4 Amps	6 Amps	3 Amps
Process Sealed		•		•		•		
Illuminated	•				•		•	•
Mounting Options								
Thru-hole	•	•	•	•	•	•	•	•
Surface Mount	•	•						
Panel Mount			•		•	•	•	•



SERIES	KM	8600	8700	GP	PN	PHB	F	NE-18
Switch Type	Sub-miniature	Micro / Ultra-miniature	Sub-miniature	Micro / Ultra-miniature	Sub-miniature	Miniature	Miniature	Miniature
Poles / Throws	SPST / SPDT	SPST	SPST	SPST / SPDT	SPDT / DPDT / 4PDT	DPDT / 4PDT	DPDT / 4PDT / 6PDT / 8PDT / 10PDT	DPST / DPDT / Varied
Max. Current	1 Amp	500 mA	1 Amp	0.4 VA	200 mA	100 mA	500 mA	6 A
Process Sealed				•				
Mounting Options								
Thru-hole	•	•	•	•	•	•	•	•
Surface Mount				•				
Panel Mount	•	•	•				•	•



SERIES	FP	PVA	PS	PBA	AP	APB	NP	PNP
Switch Type	Micro / Ultra-miniature	Sub-miniature	Miniature	PCB Illuminated	Sealed / Industrial	Sealed / Industrial	Sealed / Industrial	Sealed / Industrial
Poles / Throws	SPST	DPST / DPDT	SPDT / DPDT	DPST	SPST	SPST	SPDT	SPST N.O. / SPST N.C. / SPDT
Max. Current	0.4 VA	100 mA	0.1 A / 1 A 0.3 A / 2 A	250 mA	400 mA	400 mA	5 Amp	10 mA / 3 A / 5 A
Process Sealed	•	IP40			IP67	IP67	IP68	IP68
Mounting Options								
Thru-hole	•	•	•	•	•	•	•	•
Surface Mount			•					
Panel Mount				•	•	•	•	•



SERIES	ATP	PLP16	KLS
Switch Type	Panel Illuminated	Panel Illuminated	PCB Illuminated
Poles / Throws	SPST / SPDT / DPDT	Pilot light, SPST, DPDT	SPST, DPDT
Max. Current	3 A / 2 A	3 A / 250 Vac 1 A / 30 Vdc	0.5 A / 25 Vdc 0.1 A / 28 Vdc
Process Sealed	IP67		•
Mounting Options			
Thru-hole	•		•
Surface Mount			
Panel Mount		•	

**EP SERIES****Sealed Tiny Pushbutton Switches****Features / Benefits**

Sealed against solder & cleaning processes
 Snap-fitting actuator accepts standard caps
 Contact rating 0.4 VA max @ 20 V AC or DC max.

Typical Applications

Telecommunications and networking equipment
 Computers and peripherals
 Instrumentation and controls

PART NUMBER	Function	Mounting Style / Termination	Plunger	Contact Material	Operating Life
EP11SD1ABE	SPST Off-Mom.	Right angle, PC thru-hole	.215" high	Gold	60,000 cycles
EP11SD1AVBE	SPST Off-Mom.	Vertical right angle, PC thru-hole	.215" high	Gold	60,000 cycles
EP11SD1CBE	SPST Off-Mom.	PC thru-hole	.215" high	Gold	60,000 cycles
EP11SD1SAPE	SPST Off-Mom.	Right angle, surface mount	.215" high	Gold, matte-tin	60,000 cycles
EP12SD1ABE	SPDT On-Mom.	Right angle, PC thru-hole	.215" high	Gold	30,000 cycles

**TP SERIES****Sealed Tiny Pushbutton Switches****Features / Benefits**

Subminiature size—capable of switching 1 AMP
 Epoxy terminal seal compatible with bottom wash cleaning

Contact Rating:

Gold: 0.4 VA max. @ 20 V AC or DC max.

Silver: 1 AMP @ 120 V AC or 28 V DC

Typical Applications

Telecommunications and networking equipment
 Computers and peripherals
 Instrumentation and controls

PART NUMBER	Function	Actuator or Bushing	Mounting Style / Termination	Contact Material	Operating Life
TP11SH8ABE	SPST Off-Mom.	.155" high plunger, unthreaded; .220" high bushing, round	Right angle, PC thru-hole	Gold	60,000 cycles
TP11SH9ABE	SPST Off-Mom.	.155" high plunger, unthreaded; .220" high bushing, flat	Right angle, PC thru-hole	Gold	60,000 cycles
TP11SH9CBE	SPST Off-Mom.	.155" high plunger, unthreaded; .220" high bushing, flat	PC thru-hole	Gold	60,000 cycles
TP11SHZQE	SPST Off-Mom.	.155" high plunger, threaded; .220" high bushing, flat	Solder lug	Silver	60,000 cycles
TP12SH9ABE	SPST Off-Mom.	.155" high plunger, unthreaded; .220" high bushing, flat	Right angle, PC thru-hole	Gold	30,000 cycles

**8020 SERIES****Snap-acting Momentary Pushbutton Switches****Features / Benefits**

Positive tactile feel
 Epoxy terminal seal compatible with bottom wash cleaning
 Operating life 60,000 cycles

Contact Rating

Gold: 0.4 VA max. @ 20 V AC or DC max.
 Gold over silver: 1 AMP @ 120 V AC or 28 V DC

Typical Applications

Telecommunications and networking equipment
 Computers peripherals
 Instrumentation and controls

PART NUMBER	Function	Actuator or Bushing	Bushing	Mounting Style / Termination	Contact Material	Cap / Frame Color
8121SHZGE	SPDT On-Mom.	Plunger	.250" high, flat	Solder lug	Gold over silver	None
8125SHZBE	SPDT On-Mom.	Plunger	.250" high, flat	Solder lug	Gold	None
8221SHZGE	DPDT On-Mom.	Plunger	.250" high, flat	Solder lug	Gold over silver	None
8121J81ZGE22	SPDT On-Mom.	Snap-in with frame	None	Solder lug	Gold over silver	Black / Black
8125SHCBE	SPDT On-Mom.	Plunger	.250" high, flat	PC thru-hole	Gold	None

**FP SERIES****Sealed Ultra Miniature Pushbutton Switches****Features / Benefits**

Sealed against soldering and cleaning processes

Contact Rating:

0.4 VA (28 V DC or V AC) max.
 Operating life 50,000 cycles

Typical Applications

Networking equipment
 Modems
 Reset functions
 Instrumentation

PART NUMBER	Function	Actuator Length	Mounting Style	Contact Material	Cap
FP11SPC1B1TP00	SPST Off-Mom.	3.3 mm	Vertical	Gold over nickel plate	No cap
FP11SPA1B1TP02	SPST Off-Mom.	3.3 mm	Right angle	Gold over nickel plate	Black cap (bulk bagged)
FP11SPC1B1TP02	SPST Off-Mom.	3.3 mm	Vertical	Gold over nickel plate	Black cap (bulk bagged)
FP11SPA1B1TP03	SPST Off-Mom.	3.3 mm	Right angle	Gold over nickel plate	Red cap (bulk bagged)
FP11SPC1B1TP03	SPST Off-Mom.	3.3 mm	Vertical	Gold over nickel plate	Red cap (bulk bagged)



PVA SERIES

Short Stroke Key Switches

Features / Benefits

Compact design
Short stroke to latch
Wide variety of actuator heights and styles
Adapted for medium power applications

Typical Applications

Automotive (air conditioning, lighting)
Industrial
Control panel

PART NUMBER	Function	Mechanical Function	Total Height	Travel	Operating Force
PVA1EEH1 3.5N V2	DPST	Push-push	17.5 mm	2.4 mm	3.5 N
PVA10AH1 1.2N V2	DPST	Momentary	17.5 mm	2.4 mm	1.2 N
PVA2EEH3 1.2N V2	DPDT	Push-push	20.5 mm	2.4 mm	1.2 N
PVA20AH5 1.7N V2	DPDT	Momentary	13 mm	2.4 mm	1.7 N



PS SERIES

Push Switches

Features / Benefits

Compact miniature size
Momentary or latching
Shorting or non-shorting

Typical Applications

Automotive interior lighting
Computer peripherals
Appliances
Consumer electronics

PART NUMBER	Function	Footprint	Height	Operating Force	Operating Life	Total Travel
PS-12G01	SPDT, latching	16.8 x 14 mm	26.4 mm	400 gf	20,000 cycles	5 mm
PS-12G03	SPDT, latching	16.8 x 14 mm	27.2 mm	650 gf	20,000 cycles	4.5 mm
PS-2214-L NS PA	DPDT, latching	5.8 x 5.8 mm	7.5 mm	150 gf	10,000 cycles	2.3 mm
PS-2214-F NS PA	DPDT, momentary	5.8 x 5.8 mm	7.5 mm	150 gf	10,000 cycles	2.3 mm

**AP SERIES****Sealed Industrial Pushbutton Switches****Features / Benefits**

IP67 sealed
 Operating life 500,000 to 1,000,000 cycles
 Illumination / Non-illumination, Multiple colored caps
 SPST, normally open

Contact Rating:

200 mA @ 24 V DC resistive (500,000 cycles)
 100 mA @ 50 V DC resistive (500,000 cycles)
 400 mA @ 32 V AC resistive (500,000 cycles)
 125 mA @ 125 V AC resistive (1,000,000 cycles)

Typical Applications

Harsh environments
 Off-road
 Industrial
 Medical
 Transportation
 Joystick control modules
 Gaming
 Military

PART NUMBER	Operating Force	Total Travel	Actuator Style	Actuator Color	Bushing Style	Termination	Contact Material
AP2D200TWBE	2 N	2.1 ± 0.2 mm	Dome / Convex	Black	Threaded plastic	12" wire leads 22 AWG	Gold
AP4D200TZBE	4 N	2.1 ± 0.2 mm	Dome / Convex	Black	Threaded plastic	Solder lug	Gold
AP2D300SZBE	2 N	2.1 ± 0.2 mm	Dome / Convex	Red	Snap-in plastic	Solder lug	Gold
AP4E300TZBE	4 N	2.1 ± 0.2 mm	Extended Dome	Red	Threaded plastic	Solder lug	Gold

**APB SERIES****Backlit Pushbutton Switches****Features / Benefits**

IP67 sealed
 1,000,000 life cycle
 Illumination
 Threaded or snap-in mounting
 RoHS compliant

Typical Applications

Harsh environments
 Off-road
 Transportation
 Joystick control modules
 Gaming
 Military

PART NUMBER	Operating Force	Total Travel	Cap Symbol *	Actuator Color	Bushing Style	Termination	Contact Material
APB4E01TZBE-001	4 N	2.1 ± 0.2 mm	Plus	Black	Threaded plastic	Solder lug	Gold
APB4E01TZBE-002	4 N	2.1 ± 0.2 mm	Lock	Black	Threaded plastic	Solder lug	Gold

* See C&K full line catalog or website for complete options for symbols

**NP SERIES****Sealed Industrial Pushbutton Switches****Features / Benefits**

IP68 sealed
Multiple housing styles

Contact Rating:

10 mA / 5 VDC resistive (1,000,000 cycles)
1 A / 32 VDC resistive (100,000 cycles)
5 A / 32 VDC resistive (25,000 cycles)
3 A / 32 VDC inductive (25,000 cycles)

Typical Applications

Harsh environments
Off-road
Industrial
Transportation
Military

PART NUMBER	Operating Force	Total Travel	Actuator Style	Actuator Color	Housing Style	Termination	Contact Material
NP8S2D203QE	8 N	1.6 ± 0.15 mm	Standard	Black	Dome bezel	Solder lug	Silver
NP8S2R203QE	8 N	1.6 ± 0.15 mm	Standard	Black	Rear mount	Solder lug	Silver
NP8S2T203QE	8 N	1.6 ± 0.15 mm	Standard	Black	Std threaded mount	Solder lug	Silver
NP8S3D203QE	8 N	1.6 ± 0.15 mm	Standard	Red	Dome bezel	Solder lug	Silver
NP8S2D2W4QE	8 N	1.6 ± 0.15 mm	Standard	Black	Dome bezel	4 x 12" 22 AWG UL 1569 wire	Silver

**PNP SERIES****Sealed Industrial Pushbutton Switches****Features / Benefits**

IP68 sealed to endure harsh environments
Multiple housing styles
Longer solder leads for ease of wire installation
Up to 5 A resistive load

Contact Rating:

Silver (Q): 5 A / 32 VDC resistive (25,000 cycles)
3 A / 32 VDC resistive (25,000 cycles)
Gold (G): 10 mA / 5 VDC resistive (1,000,000 cycles)

Typical Applications

Control grips
Off-road panels
Heavy equipment
Industrial instruments
Lifts
Conveyor controls

PART NUMBER	Operating Force	Total Travel	Actuator Style	Actuator Color	Housing Style	Circuit	Termination	Contact Material
PNP8S2T2C03GE	8 N	2 mm max.	Standard	Black	Standard	SPDT	Solder lug	Gold
PNP8S2T2C03QE	8 N	2 mm max.	Standard	Black	Standard	SPDT	Solder lug	Silver
PNP8S2D2YW2QE	8 N	2 mm max.	Standard	Black	Dome	SPST NC	2 x 12" 22 AWG UL 1569 wire	Silver
PNP8S2T2CW3QE	8 N	2 mm max.	Standard	Black	Standard	SPDT	3 x 12" 22 AWG UL 1569 wire	Silver



ATP SERIES

Anti-Vandal Pushbuttons

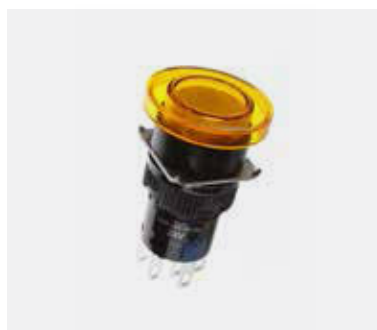
Features / Benefits

Momentary or lock version
 IP67 sealed
 Various colors of LED illuminate indicator
 Choices of CAP with symbol of Ring, Spot or Power logo

Typical Applications

Control panels for car park & traffic light
 Lifts / Escalator
 Alarm, safety and security systems
 Intercom "push-to-talk" devices
 Food & drink vending machines

PART NUMBER	Size	Function	Actuator Style	Actuator Indicator	Bushing Type	Termination	Contact Material
ATP16-DL1-000-B4SA-04G	16 mm	SPST, momentary	Dome	Ring	Al alloy (anodized)	Solder lug	Gold flash
ATP16-DL5-606-B3SA-04G	16 mm	SPST, momentary	Dome	Ring & power	Al alloy (black anodized)	Solder lug	Gold flash
ATP16-SL1-612-M4SA-04G	16 mm	SPST, momentary	Standard / Flat	Ring	Stainless DD	Solder lug	Gold flash
ATP19-SL3-624-B0DA-03Q	19 mm	DPDT, momentary	Standard / Flat	Ring (moving)	Stainless round	STD Solder lug	Silver
ATP19-SL4-612-M0DE-03Q	19 mm	DPDT, lock	Standard / Flat	Power	Stainless DD	STD Solder lug	Silver
ATP19-SL1-324-B0SE-03Q	19 mm	SPDT, lock	Standard / Flat	Ring (fix)	Stainless round	STD Solder lug	Silver
ATP22-SL3-724-B0SE-03Q	22 mm	SPDT, lock	Standard / Flat	Ring (moving)	Stainless round	STD Solder lug	Silver
ATP22-SL3-312-B0SA-03Q	22 mm	SPDT, momentary	Standard / Flat	Ring (moving)	Stainless round	STD Solder lug	Silver



PLP16 SERIES

Panel Mount LED Sealed Pushbutton Switches

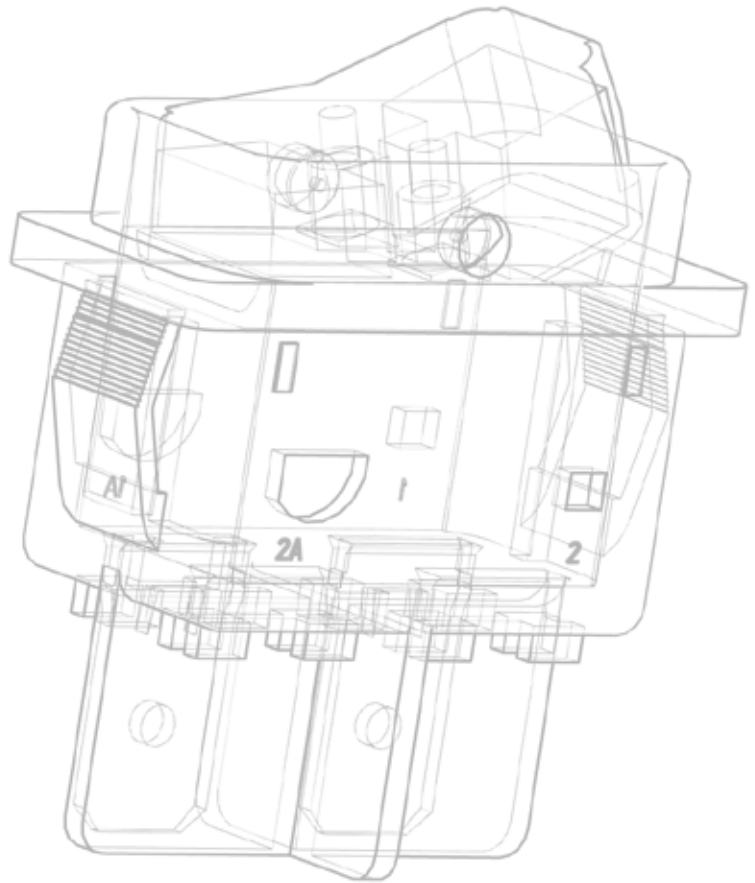
Features / Benefits

Illuminated & non-illuminated type
 Momentary or lock version
 IP65 or IP40 sealed
 Choices of colors on LED illumination
 Various actuator sizes & styles

Typical Applications

Industrial control panel
 Off-road transportation
 Machine & equipment
 Production control indicator

PART NUMBER	Function	Actuator Style	Actuator Color	LED Voltage	IP Rating
PLP1600RD6SA6	Mom. SPDT	Round	Green		IP65
PLP1624RD3DE6	Lock. DPDT	Round	Red	24	IP65
PLP1624SQ3DE6	Lock. DPDT	Square	Red	24	IP65
PLP1624SQ6SE4	Lock. SPDT	Square	Green	24	IP40
PLP1624TA3SA6	Mom. SPDT	Rectangular	Red	24	IP65
PLP16C1RD3SE6	Lock. SPDT	Round	Solid Red		IP65
PLP16C1SQ3SA4	Mom. SPDT	Square	Solid Red		IP40
PLP16C2TA6SA6	Mom. SPDT	Rectangular	Trans. Green		IP65



PRODUCT SELECTION GUIDE

Rocker Switches

A rocker switch is an electrical on / off switch that rocks from one side to the other when pressed, leaving one side raised and the other depressed. This rocking mechanism will either connect or disconnect an electrical circuit. C&K's selection of rocker switches includes subminiature, miniature and power, providing an extensive range for printed circuit board through-hole, surface mount and panel mount applications. Models are available in illuminated (LED and neon) and sealed / waterproof versions, with SPST, SPDT, DPST, DPDT, 3PDT and 4DPT functionality. PCB mount options include vertical, right angle and surface mount, while panel mount options include front mount, rear mount and snap-in versions.



SERIES	7000	E	ET	T	9000	DA
Switch Type	Miniature	Miniature	Subminiature	Subminiature	Power rocker & lever handle	Miniature power
Poles / Throws	SPDT / DPDT / 3PDT / 4PDT	SPDT / DPDT / 3PDT	SPST / SPDT / DPDT	SPST / SPDT / DPDT	DPDT	SPST / SPDT
Max. Current	5 Amps	7.5 Amps	3 Amps	3 Amps	10 Amps	16 Amps 10 Amps
Washable		•	•			
Illuminated						•
PCB Mount Options						
Front Mount	•	•		•	•	Snap-in
Rear Mount	•	•	•	•	•	
PCB Mount Options						
Vertical	•	•	•	•	•	•
Right Angle	•	•	•	•	•	•
Surface Mount			•			



SERIES	D	DM	DM	DF	CR	SW
Switch Type	Miniature power	Miniature, 2 pole power	Miniature, illuminated, power	Power	Round	Miniature, power
Poles / Throws	SPST / SPDT / DPST / DPDT	DPST / DPDT	SPST / DPST	SPST / SPDT / DPST	SPST / SPDT	SPST / SPDT / DPST
Max. Current	4 Amps 10 Amps	3 Amps / 10 Amps	3 Amps / 10 Amps	16 Amps	10 Amps / 6 Amps	3 A / 6 A / 6.5 A / 10 A / 16 A
Washable						
Illuminated			•		•	•
PCB Mount Options						
Front Mount	Snap-in	Snap-in	Snap-in	Snap-in	Snap-in	Snap-in
Rear Mount				•		
PCB Mount Options						
Vertical	•					
Right Angle	•			•		
Surface Mount						

**7000 SERIES****Miniature Rocker & Lever Handle Switches****Features / Benefits**

Multi-pole and multi-position
 Wide variety of actuator and termination options
 Epoxy terminal-seal compatible with bottom wash cleaning

Contact Rating:

Gold 0.4 VA MAX. @ 20 V AC or DC MAX.
 Silver 5 AMPS @ 120 V AC or 28 V DC, 2 AMPS @ 250 V AC

Typical Applications

Telecommunications
 Instrumentation
 Medical equipment

PART NUMBER	Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
7101J1AV2QE2	SPDT On-None-On	.531" long rocker	Vertical right angle, PC thru-hole	Silver	100,000 cycles
7101J1AQE2	SPDT On-None-On	.531" long rocker	Right angle, PC thru-hole	Silver	100,000 cycles
7101J1ABE2	SPDT On-None-On	.531" long rocker	Right angle, PC thru-hole	Gold	100,000 cycles

**E SERIES****Sealed Miniature Rocker and Lever Handle Switches****Features / Benefits**

Sealed against solder and cleaning process contaminants
 ESD Resistance—all actuator options
 Rocker, case & bushing UL 94V-0

Contact Rating:

Gold 0.4 VA max. @ 20 V AC or DC max.
 Silver 7.5 AMPS@125 V AC or 28 V DC, 3 AMPS @ 250 V AC

Typical Applications

Telecommunications
 Instrumentation
 Computers & peripherals

PART NUMBER	Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
E101J1AQE2	SPDT On-None-On	.531" long rocker	Right angle, PC thru-hole	Silver	40,000 cycles
E201J1V31QE2	DPDT On-None-On	.531" long rocker	.460" high, V-bracket, snap-in	Silver	40,000 cycles
E101J3V31QE2	SPDT On-None-On	.906" long rocker	.460" high, V-bracket, snap-in	Silver	40,000 cycles

**D SERIES****Miniature Snap-in Power Rocker Switches****Features / Benefits**

Momentary and maintained models
 PC and quick connect terminals
 Recessed bracket available — prevents accidental actuation

Contact Rating:

Refer to full line catalog online
 Contact Material Silver

Typical Applications

Small appliances
 Computers and peripherals
 Medical instrumentation

PART NUMBER	Function	Mounting Style / Color	Mounting Style / Termination	Markings	Electrical Life
D502J12S2AHQA	SPST, On-None-Off	Snap-in, black	Right angle, PC thru-hole	O I	10,000 cycles
D101J12S215PQA	SPDT, On-None-On	Snap-in, black	PC thru-hole	O -	10,000 cycles
D501J12S2AHQA	SPDT, On-None-On	Snap-in, black	Right angle, PC thru-hole	O I	10,000 cycles

**DF SERIES****Power Rocker Switches****Features / Benefits**

Power switching up to 16 AMPS
 Sub-panel and front-panel mounting
 Multi-position and multi-pole function
 Available in UL94V-0 grade materials

Contact Rating:

16 AMPS @ 125, 250 V AC, 1/4 HP @ 125 V AC
 1/2 HP @ 250 V AC, 6 AMPS @ 48 V DC (UL)

Typical Applications

Overhead fan on range / hood
 Small and large appliances

PART NUMBER	Function	Housing Style / Color	Mounting Style / Termination	Contact Material	Electrical Life	Markings
DF62J12S2AHQA	DPST, Off-On	Sub-panel, black	Right angle, PC thru-hole	Silver (UL)	10,000 cycles	OI
DF62J12S2APQA	DPST, Off-On	Sub-panel, black	Right angle, PC thru-hole	Silver (UL)	10,000 cycles	O-
DF62J12S215PQA	DPST, Off-On	Sub-panel, black	Quick connect	Silver (UL)	10,000 cycles	O-



SW SERIES
Power Rocker Switches

Features / Benefits

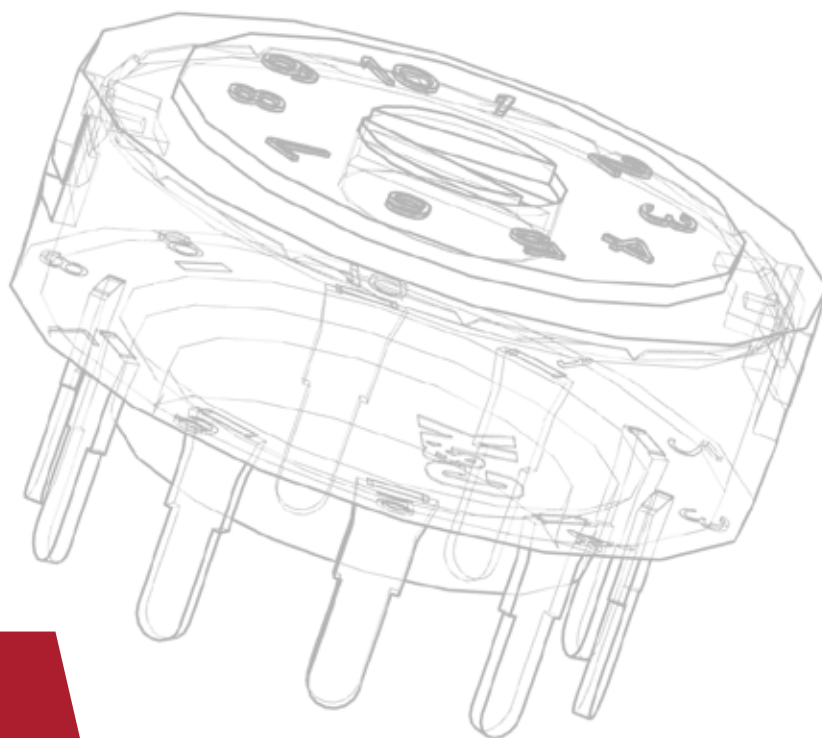
- Oval shape
- Several color options (black, white, almond, biscuit)
- Front panel mounting

Contact Rating:
6.5 AMP @ 125 V AC

Typical Applications

- Computers
- Power supplies
- Appliances
- Fitness equipment
- Off-road vehicles

PART NUMBER	Function	Actuator	Color	Termination
SW-13A65N-A01 BK	SPDT, On-Off-On	Concave (curved)	Black	Quick connect
SW-13A65N-A01	SPDT, On-Off-On	Concave (curved)	White	Quick connect

**PRODUCT SELECTION GUIDE**

Rotary Switches

Rotary switches from C&K are available in a variety of indexing options for applications ranging from 10 mA to 12 Amps. With multi-pole, multi-position, half-inch, rota-slide, power rota-slide and sub-miniature switch type designs, C&K rotary switches feature shorting and non-shorting contacts for maximum design flexibility.



SERIES	A	RTA	M	R	F	H	RW	RM	ENC
Switch Type	Multi-pole / Multi-position	Multi-pole / Multi-position	Half-inch	Rota-slide	Rota-slide	Power Rota-slide	Sub-miniature rotary SMT	Sub-miniature rotary	Optical encoder
Miniature					•		•	•	
Low Profile					•		•		
Screwdriver Slot	•	•	•	•	•			•	
Power						•			
Maximum Current	2.5 Amps	5 A 1 A	6 Amps	5 Amps	4 Amps	12 Amps	0.1 A 10 mA	0.5 Amps	30 mA
Poles	1-4	1-4 (except 3)	1 & 2	1 & 2	1 & 2	1 & 2	1	1	1
Indexing	30° / 45° / 90°	22.5° / 30° / 36°	30° / 36°	36°	45° & 90°	45°	36° & 45°	45°	22.5°
Splashproof	•		•						
Sealed			• F option						
Non-shortening / Shorting Contacts	•								
Panel Mount Options									
Top Mount									•
Rear Mount	•	•	•	•	•	•			
PCB Mount Options									
Vertical	•	•	•	•	•		•		
Terminations									
Solder Lug	•	•	•	•	•	•			
Wire Lead				•	•	•			
Quick Connect						•			
PC	•	•	•	•	•		•	•	
Connector									•



A SERIES

1-4 Pole Rotary Switches

Features / Benefits

Multi-pole and multi-position
 Positive detent
 Shorting & non-shortng contacts
 Panel and PCB mounting
 Electrical life 15,000 make-and-break cycles at full load
 up to 300,000 detent operations

Typical Applications

Automotive
 Major and small appliances
 Industrial equipment

PART NUMBER	Function	Contact Rating	Mounting Style / Termination	Contact Material	Seal
A10305RNCB	SP, 30° Index, 3 pos. non-shortng	0.4 VA MAX. @ 20 V AC or DC MAX	PC thru-hole	Gold	None
A11405RNZQ	SP, 90° Index, 2 pos. non-shortng	SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS	Solder lug	Silver	None
A20605RNCQK	DP, 30° Index, 6 pos. non-shortng	SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS	PC thru-hole	Silver	Epoxy & splashproof bushing seal



R SERIES

ROTA-SLIDE® Rotary Switches

Features / Benefits

Multi-pole and multi-position
 Positive detent
 Panel and PCB mounting
 Enclosed
 Electrical life 10,000 make-and-break cycles at full load

Typical Applications

Ceiling fans
 Industrial equipment
 Portable tools

Contact Rating:

5 AMPS @ 125 V AC, 2.5 AMPS @ 250 V AC
 0.5 AMP @ 125 V DC (UL)
 1/8 HP @ 125 and 250 VAC (UL)

PART NUMBER	Function	Actuator	Mounting Style	Mounting Style / Termination
R20507RR02Q	DP, 36° Index, 5 pos.	.500" high with .156" flat	3/8-32 threaded bushing	PC thru-hole
R20407RR03Q	DP, 36° Index, 4 pos.	.500" high with .156" flat	3/8-32 threaded bushing	Solder lug with hole
R10815RS02Q	SP, 36° Index, 8 pos.	Screwdriver slot without bushing	PC without bushing	PC thru-hole



ENC SERIES
Subminiature Rotary Switches

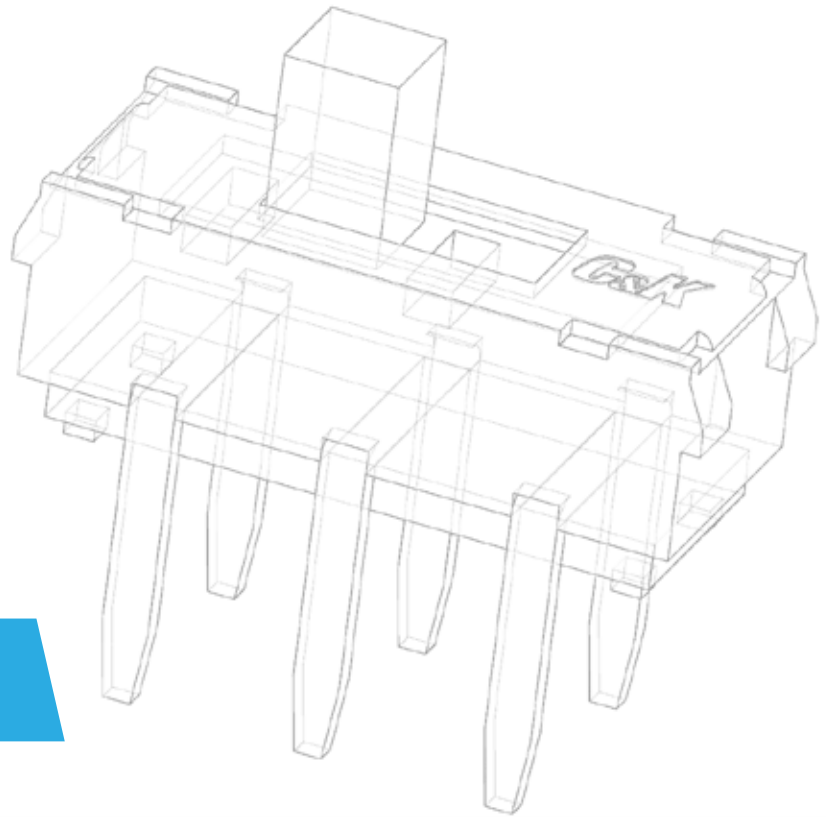
Features / Benefits

- Clear detent / haptic feel
- Two channel, 2-bit code output
- Quadrature (incremental type)
- Integrated pushbutton

Typical Applications

- Automotive interior control
- Industrial equipment
- Test & instrumentation
- Medical equipment

PART NUMBER	Function	Contact Rating	Actuation Force	Operating Life	Termination
ENCOS16DS5C	1 pole 16 position	Rotary: 30 mA @ 5 V DC Pushbutton: 10 mA @ 5 V DC	600 ± 20% gf	300,000 cycles	SMT



PRODUCT SELECTION GUIDE

Slide Switches

Featuring large size slide switches for power applications and small or medium size for low current or signal level applications. Our slide switches are compatible with the most standard soldering processes. Wave soldering and Reflow processes for switch placement at PCB level and also manual soldering and spot welding for typical value add solutions with wire leads or wire harnesses. Available in SPST, SPDT, SP3T, DPST, DPDT, 3PDT, 4PDT and 4P3T functions. Most of our designs include positive detent, sealing properties and selection in between Make-Before Break or Break-Before Break contacts.



SERIES	JS	SS	1000	OS	L	AYZ	PCM	SK
Switch Type	Small	Small	Medium	Small	Large	Small	Small	Small
Travel (mm)*	2 mm	Min: 2 Max: 5	Min: 2.16 Max: 2.41	2	Min: 3.30 Max: 4.06	1.5	1.5	Min: 2 Max: 4
Rating (max.)	0.3 A 6 VDC	0.3 A 6 VDC or 30 VDC	6 A 20 VAC or VDC	0.1 A 12 VDC	4 A 125 VAC or 28 VDC	100 mA 12 VDC	0.3 A 6 VDC	0.3 A 30 VDC
Poles	1 or 2	1, 2 or 4	1 or 2	1 or 2	1 or 2	1 or 2	1	1, 2 or 4
No. of Position (Throws)	1, 2 or 3	1, 2, 3 or 4	1 or 2	1, 2 or 3	1, 2, 3 or 4	1, 2 or 3	1, 2 or 3	1, 2, 3 or 4
Min. Mount Height - Top Actuator	3.5 mm		6.35 mm	4 mm	9.09 mm	1.5 mm		
Min. Mount Height - Right Angle	0.7 mm	3.5 mm	6.6 mm	3.9 mm	7.92 mm	1.5 mm	1.4 mm	3 mm
Momentary (MOM) or Maintained	MOM or Maintained	Maintained	MOM or Maintained	Maintained	MOM or Maintained	Maintained	Maintained	Maintained
Tape & Reel	•						•	
Terminations								
Wire Wrap			•		•			
Quick Connect			•					
Wire Lead					•			
Solder Lug			•	•	•			
PC	•	•	•	•	•	•	•	•
Terminations								
Thru-hole	•	•	•	•	•			•
Vertical	•	•	•	•	•			
Right Angle	•		•	•				•
Surface Mount	•					•	•	
Terminations								
Snap-in								
Mounting Ears			•	•	•			
Right Angle			•					



SERIES	V	JSM	JSX	ES	TS	GS	LP	S
Switch Type	Large	Small	Small	Small	Small	Small	Large	Large
Travel (mm)*	6.60	2.7	1.3	2.29	3.05	1.02	3.68	4.57
Rating (max.)	10 A 125 VAC or 30 VDC	0.3 A 4 VDC	10 mA 5 VDC	0.02 A 20 VAC or VDC	3 A 20 VAC or VDC	0.02 A 20 VAC or VDC	11 A 125 VAC or 28 VDC	6 A or 15 A 125 VAC or 20 VDC
Poles	1 or 2	1	1	1 or 2	1	1	1 or 2	1 or 2
No. of Position (Throws)	1 or 2	1, 2, 3 or 4	2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2
Min. Mount Height - Top Actuator	15.75 mm	2 mm		6.38 mm	5.08 mm	5.38 mm	8.13 mm	7.11 mm
Min. Mount Height - Right Angle	15.75 mm	2 mm	1.2 mm	10.03 mm	9.81 mm	5.38 mm		
Momentary (MOM) or Maintained	Maintained	MOM or Maintained	MOM	Maintained	Maintained	Maintained	Maintained	MOM or Maintained
Tape & Reel		•	•	•		•		
Terminations								
Wire Wrap					•			
Quick Connect	•							•
Wire Lead							•	•
Solder Lug							•	•
PC	•			•	•	•		•
Terminations								
Thru-hole	•			•	•	•	•	•
Vertical	•			•	•	•	•	•
Right Angle	•			•	•	•		•
Surface Mount		•	•	•		•		
Terminations								
Snap-in	•						•	•
Mounting Ears	•							•
Right Angle	•			•	•	•		•

**JS SERIES****Sub-Miniature Slide Switches****Features / Benefits**

Positive detent
Low profile
IR reflow to 260° solder profile

Contact Rating:

0.3A @ 6 V DC

Typical Applications

Telecommunication products
Computer peripherals
Thermostat select switch
Instrumentation
Medical

PART NUMBER	Function	Mounting Style / Termination	Contact Material	Electrical Life
JS102011JAQN	SPDT	Right angle - surface mount	Copper alloy, silver plated	5,000 cycles
JS207011SCQNR	DP3T	Surface mount	Copper alloy, silver plated	5,000 cycles
JS102011SAQN	SPDT	Right angle - surface mount	Copper alloy, silver plated	5,000 cycles

**SS SERIES****Miniature Slide Switches****Features / Benefits**

Various circuit design, SPDT, 4P3T, vertical, right angle
Compact miniature slide switch
Shorting or non-shorting
Custom design available

Typical Applications

Consumer electronics
Computer peripherals
Telecommunication
Audio & visual equipment
Medical

PART NUMBER	Function	Contact Rating	Actuator	Travel	Termination	Electrical Life
SS-12D07-VG 4 NS GA PA	SPDT, non-shorting	0.3 A @ 30 V DC	4 mm	2 mm	PC thru-hole	10,000 cycles
SS-12D1505-G 2	SPDT, non-shorting	0.3 A @ 6 V DC	2 mm	2 mm	PC thru-hole	10,000 cycles
SS-14D08-VG 5 PA	1P4T	0.3 A @ 30 V DC	5 mm	2 mm	PC thru-hole	10,000 cycles
SS-22D0205-G 2	DPDT, non-shorting	0.3 A @ 6 V DC	2 mm	2 mm	PC thru-hole	10,000 cycles
SS-22D07-G 2 NS PA	DPDT, non-shorting	0.3 A @ 30 V DC	4 mm	2 mm	PC thru-hole	10,000 cycles



1000 SERIES

Miniature Slide Switches

Features / Benefits

Variety of actuators and terminations
 Panel mount tabs available
 Epoxy terminal seal—compatible with bottom-wash cleaning

Contact Rating:

Gold 0.4 VA max. @ 20 V AC or DC max.
 Silver 6 AMPS @ 120 V AC or 28 V DC, 3 AMPS @ 250 V AC

Typical Applications

Test & measurement equipment
 Telecommunications
 Computer & peripherals

PART NUMBER	Function	Mounting Style	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
1101M2S3CQE2	SPDT On-None-On	PC mount without tabs	.200" high	PC thru-hole	Silver	40,000 cycles
1101M2S3AV2QE2	SPDT On-None-On	PC mount without tabs	.200" high	Vertical right angle, PC thru-hole	Silver	40,000 cycles
1101M2S3AQE2	SPDT On-None-On	PC mount without tabs	.200" high	Right angle, PC thru-hole	Silver	40,000 cycles
1201M2S1CQE2	DP On-None-On	Panel mount with tabs	.200" high	PC thru-hole	Silver	40,000 cycles



OS SERIES

Miniature Slide Switches

Features / Benefits

Variety of actuators & terminations
 PC and panel mounting
 Gold or silver plating available
 Shorting or non-shorting contacts

Contact Rating:

0.1 A @ 12 V DC

Typical Applications

Test & measurement equipment
 Computer peripherals & network products
 Consumer products

PART NUMBER	Function	Mounting Style	Actuator	Travel	Contact Material	Electrical Life
OS103011MS8QP1	SP3T, On-On-On, non-shorting	Vertical	H: 4 mm	2 mm	Copper alloy, silver plated	10,000 cycles
OS102011MS2QN1	SPDT, On-On, non-shorting	Vertical	H: 4 mm	2 mm	Copper alloy, silver plated	10,000 cycles
OS202011MS2QS1	DPDT, On-On, shorting	Vertical	H: 4 mm	2 mm	Copper alloy, silver plated	10,000 cycles
OS202011MA0QN1	DPDT, On-On, non-shorting	Right angle	L: 4 mm	2 mm	Copper alloy, silver plated	10,000 cycles



L SERIES

Miniature Slide Switches

Features / Benefits

Positive detent
Enclosed housing
Maintained and momentary functions
PC and panel mounting

Contact Rating:

4 AMPS @ 125 V AC or 28 V DC
2 AMPS @ 250 V AC
0.5 AMP @ 125 V DC (UL)

Typical Applications

Communications equipment
Lighting devices

PART NUMBER	Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
L203111MS02Q	DP3T	0.100" high	PC thru-hole	Silver	10,000 cycles
L103111MS02Q	SP3T	0.100" high	PC thru-hole	Silver	10,000 cycles
L20202MA04Q	DPDT	0.335" high	Right angle, PC thru-hole	Silver	10,000 cycles
L212132MV02QE	DPDT-MOM	Plunger without cap	PC thru-hole	Silver	10,000 cycles



AYZ SERIES

Miniature Slide Switches

Features / Benefits

Low profile
Single & double pole models
Double & triple throw models

Contact Rating:

100 mA @ 12 V DC

Typical Applications

Computer peripherals & network products
Telecommunication products
Test & measurement equipment
Medical

PART NUMBER	Function	Actuator	Termination	Contact Material	Electrical Life
AYZ0202AGRLC	DPDT, On-On	H: 1.0 mm	SMT	Copper alloy, silver plated	10,000 cycles
AYZ0102AGRLC	SPDT, On-On	L: 1.0 mm	SMT	Copper alloy, silver plated	10,000 cycles
AYZ0203AGRLC	DP3T, On-On-On	H: 1.0 mm	SMT	Copper alloy, silver plated	10,000 cycles



PCM SERIES

Sub-Miniature Slide Switches

Features / Benefits

Ultraminiature surface mount
Low profile
SPDT & SP3T models
RoHS compliant

Typical Applications

Computer peripherals & network product
Telecommunication products
Test & measurement equipment
Medical

PART NUMBER	Function	Mounting Style / Termination	Contact Material	Electrical Life
PCM12SMTR	SPDT	SMT, right angle	Copper alloy, silver plated	10,000 cycles
PCM13SMTR	SP3T	SMT, right angle	Copper alloy, silver plated	10,000 cycles



SK SERIES

Miniature Slide Switches

Features / Benefits

Various circuit design, SPDT, 4P3T, vertical, right angle
Compact miniature slide switch
Shorting or non-shorting
Custom design available

Typical Applications

Consumer electronics
Computer peripherals
Telecommunication
Audio & visual equipment
Medical

PART NUMBER	Function	Contact Rating	Actuator	Travel	Termination	Electrical Life
SK-12D04-VG 3 NS	SPDT, non-shorting	0.3 A @ 30 V DC	3 mm	2 mm	PC thru-hole	10,000 cycles
SK-12D07-G 5 NS PA	SPDT, non-shorting	0.3 A @ 30 V DC	5 mm	2 mm	PC thru-hole	10,000 cycles
SK-12D07-VG 4 NS PA	SPDT, non-shorting	0.3 A @ 30 V DC	4 mm	2 mm	PC thru-hole	10,000 cycles
SK-13D21-G 2 RT	1P3T, non-shorting	0.3 A @ 4 V DC	2 mm	2 mm	SMT	10,000 cycles
SK-14D01-G6	1P4T	0.3 A @ 30 V DC	6 mm	2 mm	PC thru-hole	10,000 cycles



V SERIES
Power & Line Voltage Select Slide Switches

Features / Benefits

Actuator with screwdriver slot

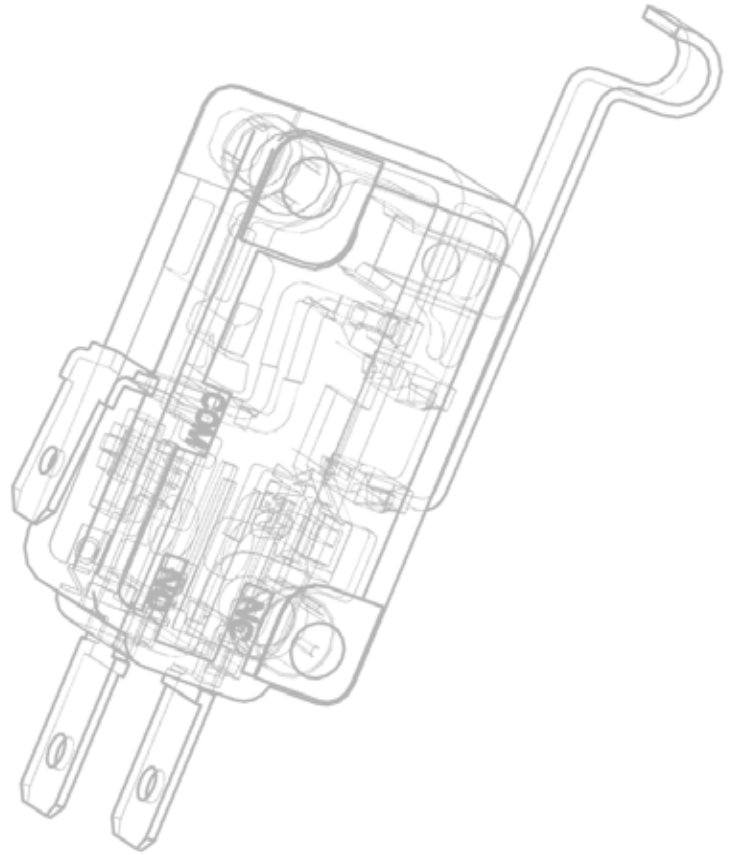
Typical Applications

Appliances

Contact Rating:

- 10 GPA @ 125 V AC 50/60 Hz T85
- 5 GPA @ 250 V AC 50/60 Hz T85
- 2 (0.5) A @ 250 V AC 50/60 Hz T85
- 4RA @ 30 VDC T85

PART NUMBER	Function	Mounting Style	Mounting Style / Termination	Contact Material	Electrical Life
V80212MS02Q	DPDT	PC thru-hole	PC thru-hole	Silver	10,000 cycles
V80212MA08Q	DPDT	Right angle, PC thru-hole	Right angle PC thru-hole	Silver	10,000 cycles
V80212S205Q	DPDT	Snap-in panel	Quick connect	Silver	10,000 cycles



PRODUCT SELECTION GUIDE

Snap-acting Switches

C&K's broad range of snap switches includes subminiature, miniature, and metal case models. These limit switches have a variety of actuator configurations (pin plunger, lever, and roller lever), electrical ratings from low levels up to 30 Amps, and a broad range of operating forces. Terminal styles include PCB through-hole, quick connect, wire leads, screw, solder, formed PC through-hole, flat and step base. Sealed models are available as is SPST, SPDT, DPST and DPDT functionality. Mounting options include vertical or right angle, PCB and snap-in mounting.



SERIES	MM	MS	ZM	ZMA	ZMS	ZMSM	ZMW	ZPA
Switch Type	Mini Size	Mini Size	Mini Size	Mini Size	Mini Size	Mini Size	Mini Size	Mini Size
Poles / Throws	SPDT	SPDT	SPDT	SPDT	SPDT	SPDT	SPST, SPDT	SPDT
Maximum Current	7 Amps	3 Amps	3 Amps	3 Amps	3 Amps	3 Amps	0.1 Amps	0.1 Amps
Terminations								
Solder				•	•	•	•	•
Quick Connect							•	
Wire Leads					•	•	•	
Screw								
PCB Thru-hole	•	•	•	•	•	•	•	
Flat & Step Base								
Bushing								
Sealed					•	•	•	



SERIES	MDS	SSW	LC	LCA	LCS	TF	TFS	TF3
Switch Type	Mini Size	Mini Size	Small Size	Small Size	Small Size	Mid Size	Mid Size	Mid Size
Poles / Throws	SPDT	DPDT	SPST, SPDT	SPDT	SPST	SPST, SPDT	SPDT	SPST
Maximum Current	300 m Amps	20 Amps	10.1 Amps	10 Amps	6 Amps	21 Amps	10 Amps	25 Amps
Terminations								
Solder	•		•	•	•	•		
Quick Connect			•	•	•	•	•	•
Wire Leads			•		•		•	
Screw								
PCB Thru-hole	•							
Flat & Step Base								
Surface Mount		•						
PC			•	•	•			
Formed PC			•	•				
Extended Operations			•	•		•	•	
Sealed					•		•	



SERIES	TM	HB	A	TL	DS
Switch Type	Mid Size	Large Heavy Duty	Large Heavy Duty	Large Heavy Duty	Large Heavy Duty
Poles / Throws	SPST, SPDT	SPST, SPDT	SPST, SPDT, DP	SPDT	SPST, SPDT
Maximum Current	15 Amps	20 Amps	30.1 Amps	15 Amps	0.1, 10, 16 A
Terminations					
Solder	•	•			
Quick Connect	•	•	•	•	•
Wire Leads					
Screw	•	•		•	
PCB Thru-hole					
Flat & Step Base		•			
Surface Mount					
PC					
Formed PC					
Bushing		15/32-32	3/8-23		



MS SERIES

Snap-acting Switches

Features / Benefits

Detect interlock and movement
Different lever options
Various operating forces

Typical Applications

Industrial
Consumer electronics
Appliances

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
MS-118305-G	SP momentary	25 gf	0.1 A, 30 V DC	Lever ST 12.5 mm	PC thru-hole
MS-118405-H	SP momentary	25 gf	0.1 A, 30 V DC	Lever SR R1.3	Solder lug
MS-105A01 (H)	SP momentary	230 gf	5 A 125 V AC	Pin plunger	Solder lug



ZMA SERIES

Mini Size Snap-acting Switches

Features / Benefits

Reliable snap-acting mechanism
Long electrical and mechanical life
Compact size—Ideal when space is limited
Electrical life 300,000 cycles @ 0.1A / 10,000 cycles @ 3A

Typical Applications

PCB detection switch
Communication devices
Testing equipment
Security / Alarm systems

PART NUMBER	Function	Electrical Rating	Operating Force	Actuator	Mounting Style / Termination
ZMA03A150S07EC	SPDT, momentary	3 A @ 125 V AC 24 V DC	150 grams	Simulated roller 0.75 mm	Solder
ZMA00A150L04PC	SPDT, momentary	0.1 A @ 125 V AC 60 V DC	150 grams	Lever 4.55 mm	PC thru-hole
ZMA03A150A03PC	SPDT, momentary	3 A @ 125 V AC 24 V DC	150 grams	Roller 1.87 mm	PC thru-hole

**ZMW SERIES****Mini Size Snap-acting Switches****Features / Benefits**

Long and adequate stroke setting for high reliability and insulation
 Silent for noiseless application
 Compact size – ideal when space is limited
 IP67

Typical Applications

Automotive
 Industrial
 Home appliances

PART NUMBER	Function	Electrical Rating	Operating Force	Actuator	Mounting Style / Termination
ZMW00AP00PCAA	SPDT	0.1 A 30 VDC	150 grams	Pin plunger	PC thru-hole
ZMW00AT10SCAA	SPDT	0.1 A 30 VDC	150 grams	Lever	

**ZPA SERIES****Surface Mount Snap-acting Switches****Features / Benefits**

Reliable snap-acting mechanism
 Long electrical and mechanical life
 Subminiature packaging size
 Surface mount terminations
 RoHS compatible & compliant

Typical Applications

PCB detection switch
 Communication devices
 Testing equipment
 Security / Alarm systems
 Consumer electronics

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
ZPA00A150P00T	SPST	150 grams	0.1 A	Pin plunger	Surface mount

**SSW SERIES****Mini Size 2 Pole Snap-acting Switches****Features / Benefits**

SMT
 IP67
 Redundant contacts
 Change over time <15 ms
 Top and side actuation

Typical Applications

Automotive, ASIL related applications
 (electronic parking brake, by-wire functions)
 Safety applications

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
SSW 115S	DPDT	2 N	20 mA, 18 V DC	Standard	Surface mount

**LC SERIES****Small Size Precision Snap-acting Switches****Features / Benefits**

Compact design
 Long life and high electrical capacity
 Quick connect, wire lead or PC mounting
 Wide variety of actuator styles

Typical Applications

Motorized equipment
 Sump pump
 Thermostatic controls

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
LCGHF5A10RCE	SPDT	6 oz. / 170 grams	1 A, 125, V AC, 30 V DC	.28" lever roller, high force	Right formed PC thru-hole
LCGGL9P00EC	SPDT	5 oz. / 142 grams	5 A, 1/3 HP, 125, 250 V AC	Pin plunger	Solder lug

**LCS SERIES****Small Size Sealed Snap-acting Switches****Features / Benefits**

Compact design
 Quick connect, solder terminals, PC terminals, wire leads
 Wide variety of actuator styles
 IP67
 Electrical life 10,000 cycles

Typical Applications

Motorized equipment
 Sump pump
 Thermostatic controls
 Computers
 Air conditioners

PART NUMBER	Function	Operating Force	Actuator	Mounting Style/ Termination	Contact Rating
LCS051P00SDC	SPDT	150 grams	Pin plunger	Solder	5 AMP, 125/250 V AC
LCS011T05QDC	SPDT	150 grams	Short lever, 17.4 mm	0.110 quick connect	0.1 AMP, 125/250 V AC
LCS051P00PDC	SPDT	150 grams	Pin plunger	PC thru-hole	5 AMP, 125/250 V AC



TF SERIES

Mid Size Snap-acting Switches

Features / Benefits

Broad range of operating forces
From low level* to 21 AMPS @ 277 V AC
Wide variety of actuator styles

Typical Applications

Motor controls
Thermostatics
Portable tools

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
TFCJL3SP004AC	SPDT momentary	5.29 oz. / 150 grams	20 A, 250 V AC; 1 HP, 125 V AC; 2 HP 250 V AC	Pin plunger	.250" quick connect
TFCDK6ST2640C	SPDT momentary	.88 oz. / 25 grams	11 A, 277 V AC; 1/3 HP, 125, 250 V AC; 0.5 A, 125 V DC; 0.25 A, 250 V DC	2.57" lever, low force	.187" quick connect



TF3 SERIES

Mid Size Snap-acting Switches

Features / Benefits

Broad range of operating forces
Rating up to 25 AMPS
Wide variety of actuator styles
Extreme operating temperature up to 125°C

Typical Applications

Heavy duty power tools
Motor controls
HVAC

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
TF325CFP0040Y	SPST	190 grams	25A	Pin plunger	Quick connect

**A SERIES****General Purpose Snap-acting Switches****Features / Benefits**

Low cost—high performance
 Long electrical life
 Sealed actuator option available

Typical Applications

Enclosure equipment
 Garage door openers
 Vending machines

PART NUMBER	Function	Operating Force	Electrical Rating	Actuator	Termination
ASKHC2T04AC	SPDT	20 oz. / 567 grams	15 A, 125, 250 V AC 3/4 HP, 125 V AC 1 1/2 HP, 250 V AC	Lever	.250" quick connect
ADPDC2T04AC	DPDT	30 oz. / 850 grams	15 A, 125, 250 V AC 3/4 HP, 125 V AC 1 1/2 HP, 250 V AC	Lever	.250" quick connect
ASKHC2J04AC	SPDT	20 oz. / 567 grams	15 A, 125, 250 V AC 3/4 HP, 125 V AC 1 1/2 HP, 250 V AC	High overtravel plunger	.250" quick connect

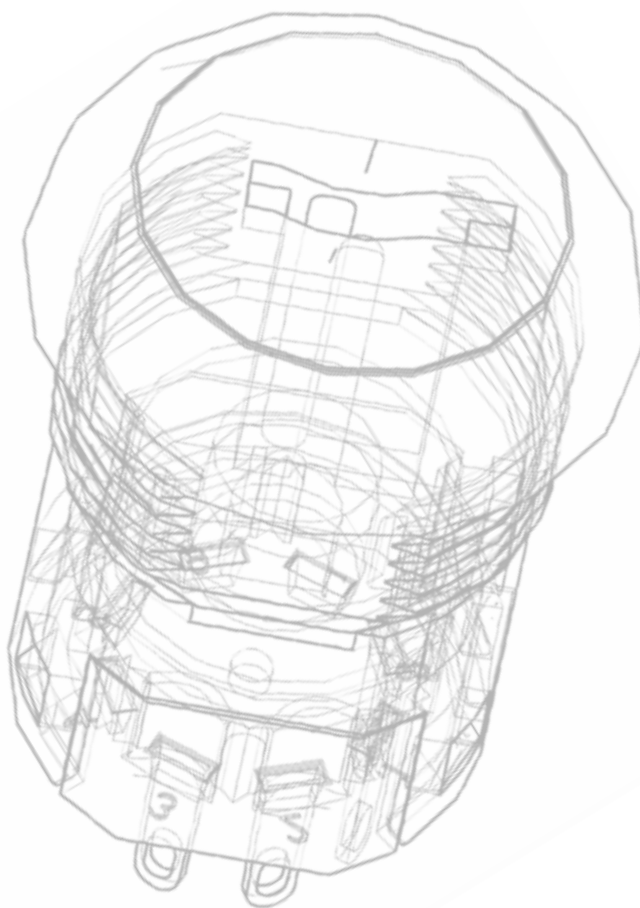
**DS SERIES****Interlock Pushbutton Switches****Features / Benefits**

Snap-in mounting
 Reliable snap action mechanism
 Latch or momentary
 Halogen free material

Typical Applications

Interlock switch
 Detection switch
 Circuit interrupt

PART NUMBER	Function	Contact Rating	Actuator	Terminals
DS1D6AQ1	SPDT	10 (4) A @125/250 V AC 50/60 Hz 50,000 cycles, 10 A G.P. @ 125 / 250 V AC 1/3HP @ 125/250 V AC 50/60 Hz 10,000 cycles	Momentary, short button	4.8 x 0.5 mm
DS2D6BQ1	DPDT	10 (4) A @125/250 V AC 50/60 Hz 50,000 cycles, 10 A G.P. @ 125 / 250 V AC 1/3HP @ 125/250 V AC 50/60 Hz 10,000 cycles	Momentary, long button	4.8 x 0.5 mm
DS2D6CQ1	DPDT	10 (4) A @125/250 V AC 50/60 Hz 50,000 cycles, 10 A G.P. @ 125 / 250 V AC 1/3HP @ 125/250 V AC 50/60 Hz 10,000 cycles	Momentary, pulled out button	4.8 x 0.5 mm



PRODUCT SELECTION GUIDE

Switchlocks

Available in plastic or metal housings, C&K's switchlocks feature 4 to 6 tumblers supporting a variety of security needs. Miniature, anti-static and momentary versions combine with bushing or snap-in mounting for a broad product selection.



SERIES	Y	YF	YM	PM
Switch Type	4, 5, 6 Tumbler	4 Tumbler	4 Tumbler	5 Tumbler
Lock	Metal	Metal	Metal	Plastic
Latch Pawl	•			
Miniature		•	•	•
Anti-static	•			
Momentary	•			
Poles	1 & 2	1 & 2	1	1
Indexing	45° & 90°	45° & 90°	90°	90°
Max. Current	4 Amps	4 Amps	4 Amps	4 Amps
Panel Mount Options				
Snap-in				•
Bushing	•	•	•	
PC Thru-hole	•			



SERIES	A	H	PL
Switch Type	4 & 5 Tumbler	4 & 6 Tumbler	5 Tumbler
Lock	Metal	Metal	Plastic
Cam			•
Miniature			•
Anti-static	•		
Momentary			
Poles	1 - 4	1 & 2	
Indexing	30°, 45° & 90°	45° & 90°	90°
Max. Current	2.5 Amps	12 Amps	
Panel Mount Options			
Snap-in			•
Bushing	•	•	
Thru-hole	•		

**Y SERIES****4, 5 & 6 Tumbler Switchlocks****Features / Benefits**

Anti-static switch—exceeds 20 KV DC static resistance
 Momentary models available
 Wire leads and harnesses available

Contact Rating:

4 AMPS @ 125 V AC or 28 V DC, 2 AMPS @ 250 V AC (UL/CSA)
 Electrical Life 10,000 make-and-break cycles at full load

Typical Applications

Point-of-sale terminals
 Cash registers
 Computers

PART NUMBER	Function	Keying	Lock Type	Termination
Y201132C203NQ	DP, 90°, keypull pos. 1	Two nickel plated brass keys (4 & 5 tumbler) or two die cast zinc alloy keys with chrome plating (6 tumbler)	4 Tumbler lock with detent	Solder lug with hole
Y1011U2C203NQ	SP, 90°, keypull pos. 1 & 2	Two nickel plated brass keys (4 & 5 tumbler) or two die cast zinc alloy keys with chrome plating (6 tumbler)	4 Tumbler lock with detent	Solder lug with hole
Y101132C203NQ	SP, 90°, keypull pos. 1	Two nickel plated brass keys (4 & 5 tumbler) or two die cast zinc alloy keys with chrome plating (6 tumbler)	4 Tumbler lock with detent	Solder lug with hole

**H SERIES****4 & 6 Tumbler Power Switchlocks****Features / Benefits**

Positive detent
 Multi-pole and multi-position
 Snap-together assembly
 Power switching

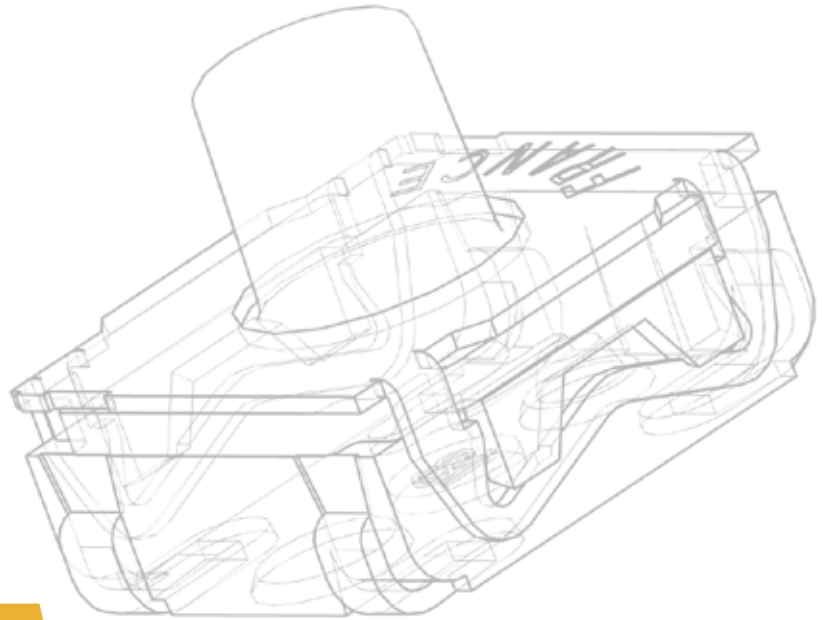
Contact Rating:

Silver: 12 AMPS @ 125 V AC, 6 AMPS @ 250 V AC, 1 AMP @ 125 V DC (UL/CSA)
 Gold: 0.4 VA Max. @ 20 V AC or DC Max.
 Electrical life 10,000 make-and-break cycles at full load

Typical Applications

Machine controls
 Elevators

PART NUMBER	Function	Keying	Lock Type	Termination	Termination
H1011U2F205NQ	SP, 90° Index, keypull pos. 1 & 2	Two nickel plated brass keys	4 Tumbler lock with detent	Quick connect	Silver
H201132F205NQ	DP, 90° Index, keypull pos. 1	Two nickel plated brass keys	4 Tumbler lock with detent	Quick connect	Silver
H200AA2F205NQ	DP, 45° Index, keypull pos. 1, 2 & 3	Two nickel plated brass keys	4 Tumbler lock with detent	Quick connect	Silver



PRODUCT SELECTION GUIDE

Tactile Switches

C&K offers a broad range of miniature tactile, ultra-miniature tactile and micro miniature tactile switches for printed circuit board mounting. Available in J bend, gull wing, illuminated, sealed, low-profile, low-noise, SMT and through hole versions, C&K's tactile switches are designed for the most demanding applications.



Surface Mount

SERIES	KXT3	KMT0	KMT2	KMR2-9	KMS	PTS525	PTS526
Size on PCB L x W (mm)	3 x 2	3 x 2.6	3 x 2.6	4.2 x 2.8	4.2 x 3.55	5.2 x 5.2	5.2 x 5.2
Total Height (mm)	0.6	0.65	0.65	1.9 / 2.5	1.42	0.8 and 1.5	0.8 / 1.5 / 1.7 / 2.0
Travel (mm)	0.13	0.15	0.15	0.2 to 0.35	0.25 to 0.3	0.25	0.25
Actuation Force (N)	100 gf / 160 gf / 240 gf / 330 gf	1.0 / 1.6 / 2.3 / 3.4	1.0 / 1.6	1.2 / 2.0 / 3.0 / 4.0	2.0 / 3.0	160 gf / 260 gf	160 gf / 260 gf / 320 gf
Contact Type	Silver	Silver	Silver	Silver / Gold	Silver / Gold	Silver	Silver
Max. Voltage (V)	15	32	32	32	32	15	12
Max. Switching Power (VA)	0.5	0.5	0.5	1 / 0.2	1 / 0.2	0.3	0.6
Life Cycles	300,000 / 500,000	300,000 / 600,000 / 1,000,000	150,000	100,000 / 300,000	100,000	200,000 to 1,000,000	150,000 to 500,000
IP Rating	IP54	IP68	IP54	IP40 / IP67	IP40	IP40	IP40



Surface Mount

SERIES	PTS530	PTS540	PTS810	PTS815	PTS820	PTS830	PTS840
Size on PCB L x W (mm)	4.5 x 4.5	3.7 x 3.7	4.2 x 3.2	4.2 x 3.2	3.9 x 2.9	3.5 x 2.6	3.5 x 3.55
Total Height (mm)	0.55 and 0.65	0.35	2.5	2.5	1.5 / 2.0 / 2.5	1.4	1.35
Travel (mm)	0.2	0.15	0.15 / 0.2	0.2	0.2	0.15	0.2
Actuation Force (N)	100 gf / 160 gf / 200 gf / 260 gf / 400 gf / 600 gf	160 gf / 230 gf	160 gf / 260 gf / 400 gf / 600 gf	180 gf / 250 gf / 400 gf	160 gf / 250 gf	160 gf / 450 gf	160 gf / 220 gf
Contact Type	Silver	Silver	Silver	Silver	Silver	Silver	Silver
Max. Voltage (V)	12	12	16	12	12	12	12
Max. Switching Power (VA)	0.6	0.6	0.8	0.6	0.6	0.6	0.6
Life Cycles	150,000 to 1,000,000	300,000 to 500,000	50,000 to 150,000	100,000	100,000 to 200,000	200,000 to 1,000,000	100,000
IP Rating	IP40	IP40	IP40	IP40	IP40	IP40	IP40



Surface Mount Thru-Hole Options

SERIES	KSR	KSS	KSC4V2	KSC1-10		KSC DCT
Size on PCB L x W (mm)	7.15 x 3.8 / 7.3 x 3.8	5.5 x 4.4	2 holes ø 1.1 / 2 pads 1.5 x 0.8	J 6.8 x 6.2	G 10 x 6.2	6.8 x 6.2
Total Height (mm)	2.5	1.7	5.0*			5.2
Travel (mm)	0.3 to 0.5	0.3	0.7*	0.20 to 0.75 *		0.85
Actuation Force (N)	1.2 / 2.0 / 3.0 / 45	2 / 2.5 / 4	3.5*	1.1 to 5.5 *		4.75
Contact Type	Silver / Gold	Silver / Gold	Silver / Gold	Silver / Gold		Silver
Max. Voltage (V)	32	32	32	32		32
Max. Switching Power (VA)	1 / 0.2	1 / 0.2	1 / 0.2	1 / 0.2		1
Life Cycles	100,000 / 200,000	100,000	300,000	100,000 to 1,000,000		300,000
IP Rating	IP50	IP40	IP67	IP67		IP67



Surface Mount Thru-Hole Options

SERIES	KSC PF	KSC OF	KSC TE	KSC SLT	KSE	KT
Size on PCB L x W (mm)	6.8 x 6.2	6.8 x 6.2	6.8 x 6.2	6.8 x 6.2	6.8 x 6.2	SA 7.5 x 5 SA2 7.5 x 7
Total Height (mm)	5.2	5.2	3.5	5	3.1 / 4.3	6.6 / 7.11 with tab
Travel (mm)	0.5 to 1.0	0.5 to 0.75	0.25 to 0.35	1.35	0.3	0.3 to 0.5
Actuation Force (N)	1.7 to 6.25	1.65 / 4	1.6 to 4	2.4 / 3.5	1.5 / 2.25	3
Contact Type	Silver	Silver	Silver	Silver / Gold	Silver	Silver / Gold
Max. Voltage (V)	32	32	24	32	32	50
Max. Switching Power (VA)	1	1	0.03	1 / 0.2	1	1 / 0.2
Life Cycles	300,000 to 1,000,000	300,000 to 1,000,000	5,000,000 to 10,000,000	200,000	300,000	100,000
IP Rating	IP67	IP 67	IP67	IP40	IP67	



Surface Mount Thru-Hole Options

SERIES	K5AT	K8	K5V	KSF/KSI	KSA	KSA-V
Size on PCB L x W (mm)	G 8.4 x 10.8	G 8.4 x 10.8	8 x 9 x 17 / 9 x 13	7.62 x 5.08	7.62 x 5.08	7.62 x 2.54
Total Height (mm)	6.1	6	9 / 13	2.6	4.7 button option	8
Travel (mm)	0.5	0.45	1.2	0.3 to 0.5	0.3 to 0.5	0.3 to 0.5
Actuation Force (N)	4.0	4.0	4.0	1.3 / 1.6 / 3.0 / 5.0	1.3 / 3.0 / 5.0	1.3 / 3.0 / 5.0
Contact Type	Gold	Silver	Gold	Silver / Gold	Silver / Gold	Silver / Gold
Max. Voltage (V)	32	32	32	32	32	32
Max. Switching Power (VA)	1	1	1	1 / 0.2		
Life Cycles	100,000	300,000	25,000	100,000	100,000	100,000
IP Rating	IP40	IP40	IP40	IP60	IP60	IP60



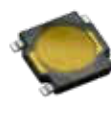
Surface Mount Thru-Hole Options

SERIES	KSA MKII	KSL	KSL-V	KSJ	KSJ-V	PTS636
Footprint	7.62 x 5.08	7.62 x 5.08	7.62 x 2.54	7.62 x 5.08	7.62 x 2.54	6 x 3.5
Total Height (mm)	4.7	9.9	8	6.65	8	2.5 / 4.3 / 5.0
Travel (mm)	0.3 to 0.5	0.3 to 0.5	0.3 to 0.5	0.55 to 0.7	0.55 to 0.7	0.25 to 0.30
Actuation Force (N)	1.3 / 3.0 / 5.0	1.3 / 3.0	1.3 / 3.0	2.0 / 3.0	2.0 / 3.0	130 gf / 180 gf / 250 gf / 320 gf
Contact Type	Silver / Gold	Silver / Gold	Silver / Gold	Silver / Gold	Silver / Gold	Silver
Max. Voltage (V)	32	32	32	32	32	12
Life Cycles	100,000 / 1,000,000	100,000	100,000	100,000	100,000 / 30,000	20,000 to 100,000
IP Rating	IP67	IP60	IP60	IP60	IP60	IP40



Surface Mount Thru-Hole Options

SERIES	PTS641	PTS645	PTS645-V	PTS647	PTS125	ITS
Footprint	6,3 x 6,4	6 x 6	7.0 x 7.9	4.5 x 4.5	12 x 12	Variety of sizes available
Total Height (mm)	2.5 / 3.1 / 3.4	4.3 / 5.0 / 7.0 / 7.3 / 9.5 / 13.0	7.0	3.8 / 5.0 / 7.0	4.3 / 7.3 / 8.5 / 12.0	6.2 / 7.0 / 7.1 / 7.2
Travel (mm)	0.20 / 0.30	0.25	0.25	0.25	0.30	0.25
Actuation Force (N)	160 gf / 250 gf / 320 gf	1.3 / 1.6 / 2.0 / 2.6	1.0 / 1.6	100 gf / 180 gf / 250 gf	1.8 / 2.5	160 gf
Contact Type	Silver	Silver	Silver	Silver	Silver	Silver
Max. Voltage (V)	12	12	12	12	12	12
Life Cycles	100,000	100,000 / 1,000,000	100,000	100,000	200,000 / 1,000,000	50,000
IP Rating	IP40	IP40	IP40	IP40	IP40	IP40



Surface Mount Thru-Hole Options

SERIES	ILS	NANOT	PTS841	RK	TLS
Footprint	Variety of sizes available	2.1 x 1.65 / 2.2 x 1.7	3.6 x 3.5	4.5 x 4.5 / 4.2 x 3.2 / 3.5 x 2.6	8.6 x 8.4
Total Height (mm)	7.0 / 7.2 / 9.0	0.55 / 1.65	1.25	0.55 / 2.5 / 1.4	3.95
Travel (mm)	0.25	0.1	0.2	0.15 / 0.2	0.75 / 0.9
Actuation Force (N)	180 gf / 250 gf	100 gf / 180 gf / 240 gf	180 gf / 250 gf	160 gf / 180 gf / 250 gf / 400 gf / 450 gf / 540 gf	4 / 7 / 10
Contact Type	Silver	Silver	Silver	Silver	Silver
Max. Voltage (V)	12	15	12	12 to 15	16
Life Cycles	100,000	200,000 / 300,000	100,000	100,000 to 500,000	300,000 to 1,000,000
IP Rating	IP40	IP67	IP40		IP54

**KXT3 SERIES****Ultra Low Profile Top Actuated Tact Switches****Features / Benefits**

Smallest footprint 3.0 x 2.0 mm
 0.6 mm thickness
 High number of cycles

Typical Applications

Wearable electronics
 In-ear headphones, earbuds
 Portable electronics
 Hearing aids

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KXT 311 LHS	100 ± 50 gf	Silver	300,000 cycles	0.13 ± 0.05 mm
KXT 321 LHS	160 ± 50 gf	Silver	500,000 cycles	0.13 ± 0.05 mm
KXT 331 LHS	240 ± 70 gf	Silver	500,000 cycles	0.13 ± 0.05 mm

**KMT0 SERIES****Nano-miniature SMT Top Actuated Tact Switches****Features / Benefits**

3.0 x 2.06 mm footprint
 IP68
 Ultra low current capabilities

Typical Applications

Mobile phones
 Hearing aids
 MP3 accessories
 Bluetooth headset

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KMT011NGJ LHS	1.0 ± 0.25 N	Silver	300,000 cycles	0.15 ± 0.1 mm
KMT031NGJ LHS	3.4 ± 0.25 N	Silver	300,000 cycles	0.15 ± 0.1 mm
KMT071NGJ LHS	2.3 ± 0.25 N	Silver	300,000 cycles	0.15 ± 0.1 mm

**KMR SERIES****Microminiature SMT Top Actuated****Features / Benefits**

IP40 or IP67 sealing
 Optional ground pin
 Ultra low current capabilities
 Heights: 1.9 mm & 2.5 mm

Typical Applications

Automotive
 Consumer
 Industrial electronics
 Medical equipment

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KMR211G LFS	1.2 ± 0.30 N	Silver	200,000 cycles	0.20 ± 0.1 mm
KMR621NG LFS	2.0 ± 0.50 N	Silver	200,000 cycles	0.25 ± 0.1 mm
KMR73N1G LFS	3.0 ± 0.75 N	Silver	150,000 cycles	0.25 ± 0.1 mm

**KMS SERIES****Microminiature SMT Side Actuated****Features / Benefits**

Compact size
Excellent tactile feel
Positioning pegs for stability
IP40 sealing

Typical Applications

Medical handheld monitors
Consumer electronics
Telecommunication networks

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KMS221G LFS	2.0 ± 0.5 N	Silver	100,000 cycles	0.25 ± 0.15 mm
KMS231G LFS	3.0 ± 0.6 N	Silver	100,000 cycles	0.30 ± 0.15 mm

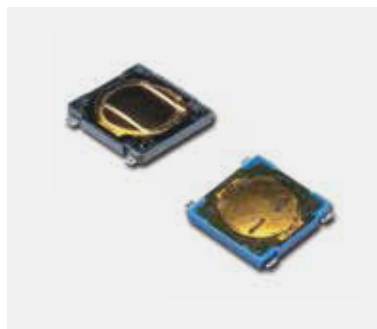
**PTS526 SERIES****Microminiature SMT Top Actuated****Features / Benefits**

5.2 x 5.2 mm footprint
Variable thickness
Commercial grade

Typical Applications

IoT devices
Home automation
Remote controls

PART NUMBER	Operating Force	Total Height	Operating Life
PTS526 SM 08 SMTR2 LFS	160 gf	0.8 mm	500,000 cycles
PTS526 SK G 15J SMTR2 LFS	250 gf	1.5 mm	200,000 cycles
PTS526 SP 20 SMTR2 LFS	320 gf	2.0 mm	100,000 cycles

**PTS530 SERIES****Ultra Low Profile SMT Top Actuated****Features / Benefits**

4.5 x 4.5 mm footprint
0.55 mm thickness
High number of cycles
Symbol line identification

Typical Applications

MP3 accessories
Bluetooth headset
Remote controls
Garage door opener

PART NUMBER	Termination Style	Operating Force	Operating Life	Travel
PTS530GM055SMTRLFS	Gull wing	160 ± 30 gf	1,000,000 cycles	0.2 mm - 0.1 /+ 0.15 mm
PTS530GK055SMTRLFS	Gull wing	260 ± 30 gf	200,000 cycles	0.2 mm - 0.1 /+ 0.15 mm



PTS540 SERIES

Microminiature SMT Top Actuated

Features / Benefits

3.7 x 3.7 mm footprint
High number of cycles
0.35 mm thickness

Typical Applications

MP3 accessories
Bluetooth headset
Remote controls

PART NUMBER

PTS540JM035SMTRLFS

PTS540JK035SMTRLFS

Total Height

0.35 mm

0.35 mm

Operating Force

160 ± 50 gf

230 ± 50 gf

Operating Life

500,000 cycles

300,000 cycles

Travel

0.15 +/- 0.1 mm

0.15 +/- 0.1 mm



PTS815 SERIES

Microminiature SMT Top Actuated

Features / Benefits

4.2 x 3.2 mm footprint
2.5 mm thickness
Commercial grade

Typical Applications

IoT devices
Home automation
Remote controls

PART NUMBER

PTS815 SJM 250 SMTR LFS

PTS815 SJK 250 SMTR LFS

PTS815 SJG 250 SMTR LFS

Actuator Color

White

White

Black

Operating Force

180 ± 50 gf

250 ± 50 gf

400 ± 100 gf

Operating Life

100,000 cycles

50,000 cycles

100,000 cycles



PTS820 SERIES

Microminiature SMT Top Actuated

Features / Benefits

3.9 x 2.9 mm footprint
Three different heights
High number of cycles
Reduced footprint

Typical Applications

Control panels
Nomad devices
Remote controls
Keyless entry system

PART NUMBER

PTS820J25MSMTRLFS

PTS820J25KSMTRLFS

Total Height

2.5 mm

2.5 mm

Pegs

No

No

Operating Force

160 ± 50 gf

250 ± 50 gf

Operating Life

200,000 cycles

100,000 cycles

**PTS840 SERIES****Microminiature SMT Side Actuated****Features / Benefits**

3.5 x 3.55 mm footprint
 Front PIP leads option for strong shear resistance
 ESD pin option

Typical Applications

Nomad devices
 Remote controls
 Personal health diagnostics
 Consumer electronics

PART NUMBER	Operating Force	Operating Life	Ground	Termination Style	Pegs
PTS840PMSMTR LFS	160 gf -40/+70 gf	100,000 cycles	No	Pin in paste	No
PTS840GMPMTR LFS	160 gf -40/+70 gf	100,000 cycles	No	Gull wing	Yes
PTS840GKPSMTR LFS	220 gf -70/+80 gf	100,000 cycles	No	Gull wing	Yes
PTS840ESDPMSMTR LFS	160 gf -40/+70 gf	100,000 cycles	Yes	Pin in paste	No

**KSR SERIES****Microminiature SMT Top Actuated****Features / Benefits**

4 actuation forces
 N.O. and N.C.
 Rubber actuator
 IP50 sealed

Typical Applications

Automotive
 Medical equipment
 Industrial electronics
 Smart meters

PART NUMBER	Operating Force	Contact Material	Switch Function	Operating Life	Travel
KSR221G LFS	2.2 N	Silver	Normally open	100,000 cycles	0.30 ± 0.15 mm
KSR231G LFS	3.0 N	Silver	Normally open	100,000 cycles	0.35 ± 0.15 mm
KSR251G LFS	4.5 N	Silver	Normally open	100,000 cycles	0.50 ± 0.15 mm
KSR223G NC LFG	2.0 N	Gold	Normally closed	50,000 cycles	0.30 ± 0.15 mm
KSR221G NC LFS	2.25 N	Silver	Normally closed	30,000 cycles	0.30 ± 0.15 mm

**KSS SERIES****Subminiature SMT Side Actuated****Features / Benefits**

Low profile
3 actuation forces
IP40 sealed

Typical Applications

Mobile phone
Industrial electronics
Health diagnostic electronics

PART NUMBER	Operating Force	Contact Material	Switch Function	Operating Life	Travel
KSS221G LFS	2.0 ± 0.5 N	Silver	Normally open	100,000 cycles	0.30 ± 0.15 mm
KSS231G LFS	2.5 ± 0.5 N	Silver	Normally open	100,000 cycles	0.30 ± 0.10 mm
KSS241G LFS	4.0 ± 1 N	Silver	Normally open	100,000 cycles	0.30 ± 0.15 mm

**KSC4V2 SERIES****Side Actuated Sealed Tact Switches****Features / Benefits**

Full SMT compatible side actuated
Haptic adaptability
Pin in paste terminations
IP67

Typical Applications

Automotive
Industrial
Telecommunication networks
Network infrastructure and IT

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSC441V2SPD LFS	3.5 ± 1.0 N	Silver	300,000 cycles	0.7 ± 0.2 mm

Other options: height, force, travel, operating life available on request

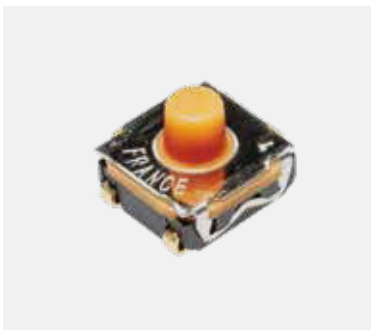
**KSC SERIES****Sealed Tact Switches for SMT****Features / Benefits**

Full SMT compatible side actuated
Haptic adaptability
Pin in paste terminations
IP67

Typical Applications

Automotive
Industrial
Telecommunication networks
Network infrastructure and IT

PART NUMBER	Operating Force (Min /Max)	Actuator Height	Operating Life	Travel
KSC241J LFS	3.5 ± 0.9 N	3.5 ± 0.2 mm	300,000 cycles	0.5 ± 0.2 mm
KSC321J LFS	1.6 N	3.47 ± 0.2 mm	300,000 cycles	0.2 +0.3 mm
KSC441J 70SH LFS	4 ± 1 N	5.2 ± 0.2 mm	300,000 cycles	0.75 ± 0.25 mm
KSC441J ST2 LFS	3.4 ± 1 N	5.2 ± 0.2 mm	300,000 cycles	0.35 ± 0.20 mm
KSC641J LFS	3.4 ± 1 N	7.7 ± 0.2 mm	300,000 cycles	0.4 ± 0.2 mm
KSC841J OL LFS	3.4 ± 0.85 N	4.9 ± 0.2 mm	300,000 cycles	0.4 ± 0.2 mm
KSC941J LFS	3.4 ± 0.85 N	7.7 ± 0.2 mm	300,000 cycles	0.4 ± 0.2 mm

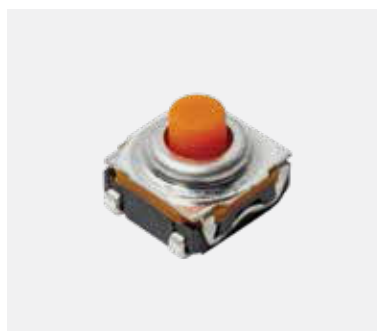
**KSC-DCT SERIES****Dual Circuit Technology Tact Switches****Features / Benefits**

SPDT NC-NO function
Silicone actuator
J or G terminations
IP67

Typical Applications

Automotive
Medical equipment
Industrial electronics

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSC441J DCT 70SH LFS	4.75 ± 1.25 N	Silver	300,000 cycles	0.85 + 0.35 / - 0.25 mm
KSC441G DCT 70SH LFS	4.75 ± 1.25 N	Silver	300,000 cycles	0.85 + 0.35 / - 0.25 mm



KSC-PF SERIES

Potting Friendly Tact Switches

Features / Benefits

Extended cage
Silicone actuator
J or G terminations
IP67

Typical Applications

Automotive
Medical equipment
Industrial electronics

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSC422J 70SH LFS PF	1.8 ± 0.45 N	Silver	1,000,000 cycles	0.5 ± 0.25 mm
KSC441G 70SH LFS PF	4 ± 1 N	Silver	300,000 cycles	0.65 ± 0.25 mm
KSC461J 70SH LFS PF	6.25 ± 1.75 N	Silver	300,000 cycles	0.75 ± 0.25 mm



KSC OF SERIES

Overload Friendly Tactile Switches

Features / Benefits

6.2 x 6.2 x 5.1 mm form factor
SMT versions J leads
Life time of 300,000 cycles at 20N actuation and 1 time overload at 200N

Typical Applications

Consumer
Power tool
Industrial
Medical
Automotive

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSC421G 70SH LFS OF	1.65	Silver	300,000 cycles	0.5
KSC441J 70SH LFS OF	4	Silver	300,000 cycles	0.5



KSC TE SERIES

Tireless Endurance Tactile Switches

Features / Benefits

6.2 x 6.3 mm form factor
SMT versions J leads
1.6N, 2.8N & 4N actuation forces

Typical Applications

Elevator
Game controller
Industrial
Mouse and peripherals for computers
Barcode scanner

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSC2 TE 01J LFS	1.6	Silver	10,000,000 cycles	0.25
KSC2 TE31J LFS	2.8	Silver	5,000,000 cycles	0.30
KSC2 TE 41J LFS	4	Silver	5,000,000 cycles	0.35



KSC SLT SERIES

Long Travel Low Sound Tactile Switches

Features / Benefits

Actuator height 5.0 mm
IP40
6.2 x 6.2 form factor

Typical Applications

Automotive interior

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSC SLT 221G LFS	2.4	Silver	200,000 cycles	1.35
KSC SLT 223J LFS	2.4	Gold	200,000 cycles	1.35
KSC SLT 241J LFS	3.2	Silver	200,000 cycles	1.35



KSE SERIES

High Performance Sealed Tact Switches

Features / Benefits

Low profile
IP67
Height 3.1 mm & 4.3 mm

Typical Applications

Smart meters
Home appliances / Consumer electronics
Industrial electronics
Telecommunications

PART NUMBER	Operating Force	Operating Life	Travel
KSEM31J LFS	1.5 ± 0.5 N	300,000 cycles	0.3 + 0.1/-0.2 mm
KSEK43G LFS	2.25 ± 0.75 N	300,000 cycles	0.30 ± 0.2 mm



KT SERIES

SMT Tact Switches

Features / Benefits

Rubber or hard plastic actuator
Press fit or snap fit caps
Easy to pick & place with top plate tab

Typical Applications

Telecommunications
Computer products
Instrumentation

PART NUMBER	Actuator	Orientation	Mounting Bracket	Contact Material	Termination
KT11 B2 SAM 34 LFS	Soft 2.24 mm	Side actuated		Silver	SMT
KT11 P3 SA1M 34 LFS	Hard 1.12 mm	Side actuated	Front solder pad	Silver	SMT
KT11 P4 SA2M 35 LFG	Hard 3.96 mm	Side actuated	Solder pad and pick & place	Gold	SMT
KT11 B0 SA3M 34 LFS	Soft flush	Side actuated	Pick and place tab	Silver	SMT
KT11 P3 SM 34 LFS	Hard 1.12 mm	Top actuated	Gull wing	Silver	SMT



PTS641 SERIES

Miniature SMT Top Actuated

Features / Benefits

6.3 x 6.3 mm footprint
Multiple heights
Ground pin option

Typical Applications

Metering
White goods
Home and garden equipment

PART NUMBER	Total Height	Operating Force	Operating Life	Ground Pin
PTS641SM31SMTR2LFS	3.1 mm	160 gf	100,000 cycles	No
PTS641TK25SMTR2LFS	2.5 mm	250 gf	100,000 cycles	No

**PTS645 SERIES****Miniature SMT / THT Top / Side Actuated****Features / Benefits**

Compact size 6 x 6 mm
 Variety of actuator lengths
 Choice of actuator force

Typical Applications

Computer products
 Industrial
 Consumer products
 Instrumentation

PART NUMBER	Total Height	Operating Force	Operating Life	Termination
PTS645SL43SMTR92 LFS	4.3 mm	130 gf	100,000 cycles	SMT
PTS645VH58-2 LFS	6.2 mm	200 gf	100,000 cycles	Vertical

**PTS647 SERIES****4.5 mm Tact Switches****Features / Benefits**

Compact size 4.5 x 4.5 mm
 SMT terminals
 Different actuator heights
 Choice of actuation forces

Typical Applications

Consumer
 Industrial control panels
 Computer products

PART NUMBER	Total Height	Operating Force	Operating Life	Travel
PTS647SN50SMTR2 LFS	5.0 mm	100 gf	100,000 cycles	0.25 ± 0.15 mm

**PTS125 SERIES****Miniature SMT Top Actuated****Features / Benefits**

12 x 12 mm
 Four different heights
 THT and SMT termination
 Snap fit actuator option

Typical Applications

Computer products
 Industrial
 Consumer products
 Instrumentation

PART NUMBER	Total Height	Operating Force	Operating Life	Termination
PTS125SJM73 SMTR-2 LFS	7.3 mm	180 gf	200,000 cycles	SMT
PTS125SK43-2 LFS	4.3 mm	250 gf	200,000 cycles	THT



ITS SERIES

Illuminated Pushbuttons

Features / Benefits

Vertical and right angle
Thru-hole and SMT models
Multiple caps and legends
Several LED colors and bi-color options

Typical Applications

Consumer electronics
Server / Storage
Medical devices
Test / Measurement / Instrumentation

PART NUMBER	LED Color	Mounting Style / Termination	Operating Life	Operating Force
ITS10FV1ST	Red	Vertical thru-hole	50,000 cycles	160gf ± 50 gf
ITS13FV2SR	Red / Green	Vertical SMT gull wing	50,000 cycles	160gf ± 50 gf
ITS50FV3SR	White	Vertical SMT gull wing with J bend LED	50,000 cycles	160gf ± 50 gf
ITS23FR1ST	Yellow / Green	Right angle thru-hole	50,000 cycles	160gf ± 50 gf
ITS40FR2ST	Blue	Right angle thru-hole 2.5 mm leads	50,000 cycles	160gf ± 50 gf



ILS SERIES

Integrated LED Tact Switches

Features / Benefits

Red, yellow green, blue, white and green LED
IP40
THT versions

Typical Applications

Video broadcast systems
Servers
Software defined radio/ receivers

PART NUMBER	LED Color	Mounting Style / Termination	Operating Life	Operating Force
ILSTC18060	7N	Brass	500,000 cycles	0.9 mm
ILSTC25060	10N	Brass	300,000 cycles	0.9 mm
ILSTB18010	4N	Brass	1,000,000 cycles	0.9 mm
ILSTB25030	4N	Brass	1,000,000 cycles	0.75 mm
ILSTB18050	6N	Brass	500,000 cycles	0.75 mm

**NANOT SERIES****Nano Size Tact Switches for SMT****Features / Benefits**

SMT and PIP versions
 2.1 x 1.65 x 0.55 mm & 2.2 x 1.7 x 1.65 mm form factor
 IP67

Typical Applications

Hearing aids
 Sport & health monitoring watches
 IoT
 Headsets

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
NANOT100AS	100 gf	Copper alloy	200,000 cycles	0.1 mm
NANOT160AS	160 gf	Copper alloy	300,000 cycles	0.1 mm
NANOT240AS	240 gf	Copper alloy	200,000 cycles	0.1 mm
NANOT240BP	240 gf	Copper alloy	200,000 cycles	0.1 mm
NANOT160BS	160 gf	Copper alloy	300,000 cycles	0.1 mm

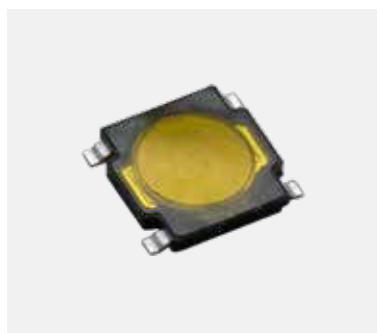
**PTS841 SERIES****Microminiature SMT Side Actuated****Features / Benefits**

3.6 x 3.5 form factor
 Height 1.25 mm
 IP40

Typical Applications

IoT devices
 Portable devices
 Remote controls
 Wearables

PART NUMBER	Operating Force	Operating Life	Ground	Termination Style	Pegs
PTS841 GM SMTR LFS	180 gf	100,000 cycles	No	Gull wing	No
PTS841 GMP SMTR LFS	180 gf	100,000 cycles	No	Gull wing	Yes
PTS841 GKP SMTR LFS	250 gf	100,000 cycles	No	Gull wing	Yes
PTS841 ESD GK SMTR LFS	250 gf	100,000 cycles	Yes	Gull wing	No
PTS841 ESD GMP SMTR LFS	180 gf	100,000 cycles	Yes	Gull wing	Yes

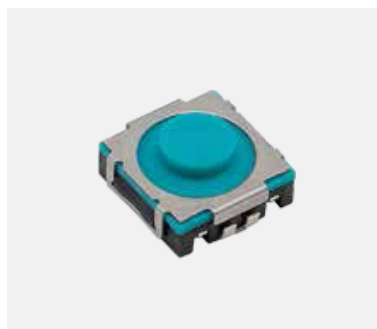
**RK SERIES****Microminiature SMT Top Actuated Tact Switches****Features / Benefits**

Low profile & microminiature package
SMT termination
Hard actuator

Typical Applications

Keyfob
Navigation
Health monitoring

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
RKA2SGM055SMTR LFS	0.55 mm	160 gf	500,000 cycles	0.2 mm
RKA2SGK055SMTR LFS	0.55 mm	250 gf	200,000 cycles	0.2 mm
RKB2SJK250SMTR LFS	2.5 mm	250 gf	50,000 cycles	0.2 mm
RKB2SJG250SMTR LFS	2.5 mm	400 gf	100,000 cycles	0.2 mm
RKC GG140 SMTR LFS	1.4 mm	450 gf	200,000 cycles	0.15 mm

**TLS SERIES****Soft Sound Tact Switches****Features / Benefits**

Soft sound and long travel
Soft actuator & pre-travel for an easier tolerance management with possible pre-load
SMT versions J leads

Typical Applications

Automotive interior controls

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
RKA2SGM055SMTR LFS	7N	Brass	500,000 cycles	0.9 mm
RKA2SGK055SMTR LFS	10N	Brass	300,000 cycles	0.9 mm
RKB2SJK250SMTR LFS	4N	Brass	1,000,000 cycles	0.9 mm
RKB2SJG250SMTR LFS	4N	Brass	1,000,000 cycles	0.75 mm
RKC GG140 SMTR LFS	6N	Brass	500,000 cycles	0.75 mm



K5AT SERIES

Illuminated Tact Switches

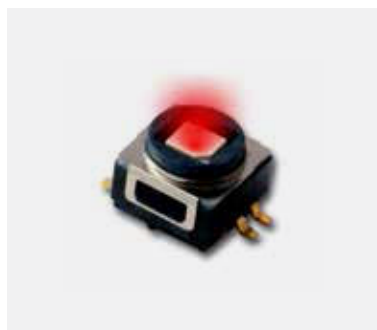
Features / Benefits

High bright LEDs
Reduced space usage on board

Typical Applications

Network infrastructure, servers
Medical

PART NUMBER	Operating Force	Contact Material	LED	Travel	Termination
K5AT WH 43 G	4 N	Gold	White	0.5 mm	SMT
K5AT GA 43 G	4 N	Gold	Green	0.5 mm	SMT



K8 SERIES

Lighted SMT Tact Switches with Rugged LED Mounting Process

Features / Benefits

LED qualified for automotive applications
Various LED options
No light perturbation
Sound and haptic
Various climatic classes

PART NUMBER	Operating Force	Operating Life	Travel
K8xx41G LFS*	4 N	300,000 cycles	0.45 ± 0.15 mm



K5V SERIES

Illuminated Tact Switches

Features / Benefits

High bright LEDs
Reduced space usage on board
Excellent ergonomics

Typical Applications

Network infrastructure, servers
Automotive
Medical

PART NUMBER	Operating Force	Contact Material	LED	Travel	Termination
K5V 1 BU 43 T	4 N	Gold	Blue	1.2 mm	PC thru-hole
K5V 1 BA 43 T P3	4 N	Gold	Blue-Amber	1.2 mm	PC thru-hole
K5V 1 YG 43 T	4 N	Gold	Yellow-Green	1.2 mm	PC thru-hole
K5V 5 WH 43 G	4 N	Gold	White	1.2 mm	SMT
K5V 4 BU 43 G P3	4 N	Gold	Blue	1.2 mm	SMT

**KSA / KSJ SERIES****High Performance Sealed Tact Switches****Features / Benefits**

Designed for automatic or manual insertion
 Cambered terminals to ensure self retention
 Large choice of caps

Typical Applications

Automotive
 Industrial
 Telecommunication networks

PART NUMBER	Operating Force	Contact Material	Operating Life	Travel
KSA0M411 LFTR	3 ± 0.75 N	Silver	100,000 cycles	0.6 ± 0.2 mm
KSA0M211 LFTR	1.4 ± 0.4 N	Silver	100,000 cycles	0.5 ± 0.2 mm
KSJ0M41180SH LFTR	3.3 ± 0.8 N	Silver	100,000 cycles	0.55 ± 0.25 mm

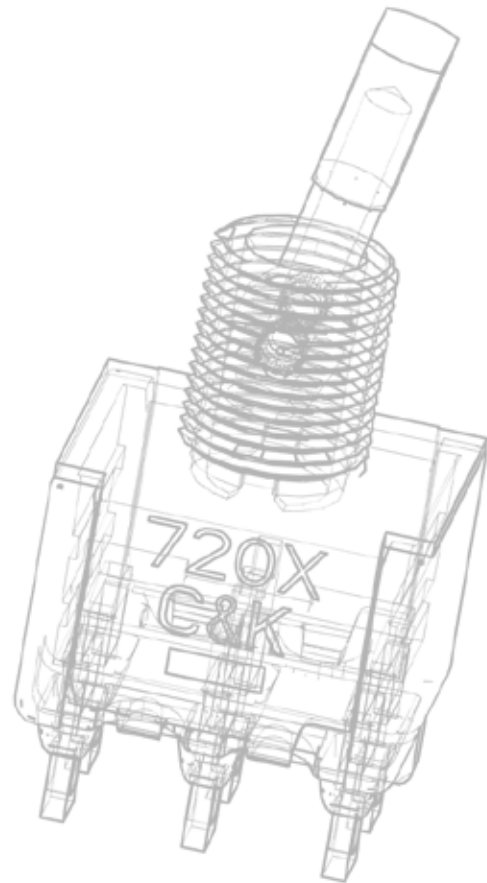
**PTS636 SERIES****6.0 x 3.5 Top Actuated****Features / Benefits**

6.0 x 3.5 mm footprint
 Multiple heights
 THT or SMT type
 Commercial grade

Typical Applications

IoT devices
 Home automation
 Remote controls

PART NUMBER	Total Height	Lead shape	Operating Force	Operating Life	Travel
PTS636 SK25 SMTR LFS	2.5 mm	Gull wing	250 ± 50 gf	100,000 cycles	$0.25 \text{ mm} \pm 0.1 \text{ mm}$
PTS636 SM43J SMTR LFS	4.3 mm	J lead	180 ± 50 gf	50,000 cycles	$0.30 \text{ mm} \pm 0.1 \text{ mm}$
PTS636 SL50 LFS	5.0 mm	THT	130 ± 50 gf	50,000 cycles	$0.30 \text{ mm} \pm 0.1 \text{ mm}$

**PRODUCT SELECTION GUIDE**

Toggle Switches

A toggle switch is an electrical switch that opens and closes an electrical circuit by moving a lever back and forth. C&K's large selection of toggle switches includes low voltage miniature, subminiature, and ultra-miniature models, on up to high power 25A versions. With printed circuit board, SMT and bushing options, C&K toggle switches feature vertical, right angle and vertical right angle mounting brackets.



SERIES	7000	MILITARY	E	ET	T	GT	9000	PT	ILT
Switch Type	Miniature	Miniature	Miniature	Sub-miniature	Sub-miniature	Ultraminiature	Power	Sealed power	Power
Poles / Throws	SPDT / DPDT / 3PDT / 4PDT	SPDT / DPDT	SPDT / DPDT / 3PDT	SPST / SPDT / DPDT	SPST / SPDT / DPDT	SPST / SPDT / DPST / DPDT	DPDT	SPST / SPDT / DPST / DPDT	SPST
Maximum Current: Silver / Gold	5 Amps	5 Amps	7.5 Amps 5 Amps	3 Amps 2 Amps	3 Amps 2 Amps	0.4 VA	10 Amps	25 Amps	20 Amps
Process Sealed			•	•		•		IP68	
PCB Mount Options									
Vertical	•	•	•	•	•	•	•		
Right Angle	•	•	•	•	•	•			
Vertical Right Angle	•	•	•	•	•	•	•		
Surface Mount Options									
Vertical						•			
Right Angle				•		•			
Panel Mount Options									
Rear Mount	•	•	•		•		•	•	•
Terminations									
PCB Thru-hole	•	•	•	•	•	•	•		
Wire Wrap	•		•	•	•				
Solder Lug	•	•	•		•		•	•	
Quick Connect	•		•				•	•	•
Screw Lug								•	
Other Available Options									
Support Brackets	•	•	•	•	•	•	•		
Snap-in Retention	•		•	•					
ESD Protection	•		•	•	•				
Tape & Reel				•		•			
Bushing Options									
10-48					•				
1/4-40	•	•	•		•		•		
15/32	•						•	•	
M6P 0.75 (Metric)	•								



7000 SERIES Miniature Toggle Switches

Features / Benefits

Multi-pole and multi-position
Wide variety of actuator and termination options
Epoxy terminal-seal compatible with bottom wash cleaning

Contact Rating:

Gold 0.4 VA max. @ 20 V AC or DC max.
Silver 5 AMPS @ 120 V AC or 28 V DC, 2 AMPS @ 250 V AC AC

Typical Applications

Telecommunications
Instrumentation
Medical equipment

PART NUMBER	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
7101SYZQE	SPDT On-None-On	Round, .420" high	.350" high, threaded keyway	Solder lug	Silver	100,000 cycles
7201SYZQE	DPDT On-None-On	Round, .420" high	.350" high, threaded keyway	Solder lug	Silver	100,000 cycles
7103SYZQE	SPDT On-Off-On	Round, .420" high	.350" high, threaded keyway	Solder lug	Silver	40,000 cycles
7101SYCQE	SPDT On-None-On	Round, .420" high	.350" high, threaded keyway	PC thru-hole	Silver	100,000 cycles
7101P3YZQE	SPDT On-None-On	Flatted, anti-rotation, .450" high	.350" high, threaded keyway	Solder lug	Silver	100,000 cycles



MILITARY SERIES MIL-S-83731 Toggle Switches

Features / Benefits

Qualified to MIL-S-83731
50 μ inch selective gold contact plating
Epoxy sealed terminals for process compatibility

Typical Applications

Industrial / Process control
Military / Aerospace
Commercial aircraft
Network systems
Mass transportation

PART NUMBER	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
M83731/9-231	SPDT On-None-On	Round, .420" high	.300" high, threaded keyway	Panel mount, Solder lug	Gold over nickel over silver over brass	20,000 cycles
M83731/9-211	SPDT On-Off-On	Round, .420" high	.300" high, threaded keyway	Panel mount, Solder lug	Gold over nickel over silver over brass	20,000 cycles
M83731/9-271	SPDT Mom-Off-Mom	Round, .420" high	.300" high, threaded keyway	Panel mount, Solder lug	Gold over nickel over silver over brass	20,000 cycles
M83731/9-261	SPDT On-None-Mom	Round, .420" high	.300" high, threaded keyway	Panel mount, Solder lug	Gold over nickel over silver over brass	20,000 cycles
M83731/10-231	DPDT On-None-On	Round, .420" high	.300" high, threaded keyway	Panel mount, Solder lug	Gold over nickel over silver over brass	20,000 cycles

**E SERIES****Sealed Miniature Toggle Switches****Features / Benefits**

Sealed against solder and cleaning process contaminants
 UL 94V-0 Nylon case and bushing
 ESD protection available

Contact Rating:

Gold 0.4 VA max. @ 20 V AC or DC max
 Gold over silver 0.4 VA MAX @20 V AC or DC MAX.,
 7.5 AMPS @125 V AC or 28 V DC, 3 AMPS @ 250 V AC DC
 Silver 7.5 AMPS @ 125 V AC or 28 V DC, 3 AMPS @ 250 V AC

Typical Applications

Telecommunications
 Instrumentation
 Medical equipment

PART NUMBERS	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
E101MD1ABE	SPDT, On-None-On	.300" high	.250" high, unthreaded	Right angle, PC thru-hole	Gold	40,000 cycles
E105SD1CBE	SPDT, Mom.-Off-Mom.	.500" high	.250" high, unthreaded	PC thru-hole	Gold	40,000 cycles
E101MD1AV2GE	SPDT, On-None-On	.300" high	.250" high, unthreaded	Vertical right angle, PC thru-hole	Gold over silver	40,000 cycles
E101MD1AQE	SPDT, On-None-On	.300" high	.250" high, unthreaded	Right angle, PC thru-hole	Silver	40,000 cycles
E103MD1ABE	SPDT, On-Off-On	.300" high	.250" high, unthreaded	Right angle, PC thru-hole	Gold	40,000 cycles

**ET SERIES****Sealed Subminiature Toggle Switches****Features / Benefits**

Sealed against solder and cleaning process contaminants
 ESD protection available
 Thru-hole and surface mount models
 Compact size and small footprint save PCB space

Contact Rating:

Gold 0.4 VA MAX. @ 20 V AC or DC MAX.
 Silver 3 AMPS @ 120 V AC or 28 V DC

Typical Applications

Telecommunications
 Instrumentation
 Medical equipment

PART NUMBER	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
ET01MD1SAPE	SPDT, On-None-On	.240" high	.177" high, unthreaded	Right angle, surface mount	Gold, matte tin	60,000 cycles
ET01MD1CBE	SPDT, On-None-On	.240" high	.177" high, unthreaded	PC thru-hole	Gold	60,000 cycles
ET01MD1ABE	SPDT, On-None-On	.240" high	.177" high, unthreaded	Right angle, PC thru-hole	Gold	60,000 cycles
ET08LD1CBE	SPDT, On-None-Mom.	.320" high	.177" high, unthreaded	PC thru-hole	Gold	30,000 cycles
ET21MD1AQE	DPDT, On-None-On	.240" high	.177" high, unthreaded	Right angle, PC thru-hole	Silver	60,000 cycles



T SERIES

Subminiature Toggle Switches

Features / Benefits

Compact size—small footprint
Single and double pole models
PC and panel mount options available

Contact Rating:

Gold 0.4 VA MAX. @ 20 V AC or DC MAX.
Silver options up to 3 AMPS @ 120 V AC or 28 V DC

Typical Applications

Telecommunications
Instrumentation
Medical equipment

PART NUMBER	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
T102SHZQE	SPDT Off-None-On	.370" high	.220" high, threaded, flat	Solder lug	Silver	30,000 cycles
T101MH9ABE	SPDT On-None-On	.210" high	.220" high, unthreaded, flat	Right angle, PC thru-hole	Gold	60,000 cycles
T105LH9ABE	SPDT Mom.-Off-Mom.	.290" high	.220" high, unthreaded, flat	Right angle, PC thru-hole	Gold	30,000 cycles
T101MH9AVBE	SPDT On-None-On	.210" high	.220" high, unthreaded, flat	Vertical right angle, PC thru-hole	Gold	60,000 cycles
T211MH9V3BE	DPDT On-On-On	.210" high	.220" high, unthreaded, flat	Vertical mount V-bracket	Gold	30,000 cycles



GT SERIES

Sealed Subminiature Toggle Switches

Features / Benefits

Sealed against solder and cleaning process contaminants
Ultraminiature size, smallest footprint available
Thru-hole and surface mount models
High temperature materials (UL 94V-0)
Contact material gold over nickel

Typical Applications

Telecommunications
Small instrumentation

PART NUMBER	Function	Mounting Style / Termination	Actuation	Contact Rating	Electrical Life
GT11MSABETR	SPDT, On-None-On	Right angle, surface mount	Horizontal	0.4 VA max. @ 20 V AC or DC max.	40,000 cycles
GT11MCBE	SPDT, On-None-On	PC thru-hole		0.4 VA max. @ 20 V AC or DC max.	40,000 cycles
GT23MAVBE	DPDT, On-Off-On	Right angle, PC thru-hole	Vertical	0.4 VA max. @ 20 V AC or DC max.	40,000 cycles
GT11MSCBETR	SPDT, On-None-On	Surface mount	Horizontal	0.4 VA max. @ 20 V AC or DC max.	40,000 cycles



9000 SERIES Power Toggle Switches

Features / Benefits

Power ratings up to 10 AMPS
Locking lever options available
Wide variety of actuator styles

Typical Applications

Shut-off switch
Small equipment
Industrial/ Process control
Professional instrumentation
Network systems

PART NUMBER	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
9221K1Z4QD	DPDT On-On	Locking lever, .680" high	.312" high, threaded keyway	Panel mount, Quick connect terminals	Silver	25,000 cycles
9221SH3Z4QD	DPDT On-On	Round, .410" high	.296" high, flat	Panel mount, Quick connect terminals	Silver	25,000 cycles
9201KAV2QE	DPDT On-On	Locking lever, .650" high	.312" high, threaded keyway	PCB mount, Vert. right angle, PC thru-hole	Silver	25,000 cycles
9201KZQE	DPDT On-On	Locking lever, .650" high	.312" high, threaded keyway	Panel mount, Solder lug	Silver	25,000 cycles



PT SERIES Sealed Power Toggle Switches

Features / Benefits

IP66 / IP68 versatile rating to withstand harsh outdoor environments, intense, wet weather, wind blown rain, dust, dirt
UL 61058-1 certified has global acceptance with no additional testing needed
Integrated panel seal for extra protection
Superior oil and fuel resistance
High strength, heat resistant housing designed for demanding applications subjected to vibration and harsh conditions

Typical Applications

Off-road, construction / agricultural vehicles
Material handling equipment
Articulating, scissor and bucket lift controls
Outdoor industrial equipment
Lift gate controls

PART NUMBER	Function	Actuator	Mounting Style / Termination	Contact Material	Electrical Life
PT101SSQ	SP, On-None-On	Standard	Screw terminal	Silver	10,000 cycles
PT103SQQ	SP, On-Off-On	Standard	Quick connect .250"	Silver	10,000 cycles
PT201SZQ	DP, On-None-On	Standard	Solder terminal	Silver	10,000 cycles
PT202SSQ	DP, On-None-Off	Standard	Screw terminal	Silver	10,000 cycles
PT208SSQ	DP, On-None-Mom	Standard	Screw terminal	Silver	10,000 cycles



ILT SERIES
Illuminated Toggle Switches

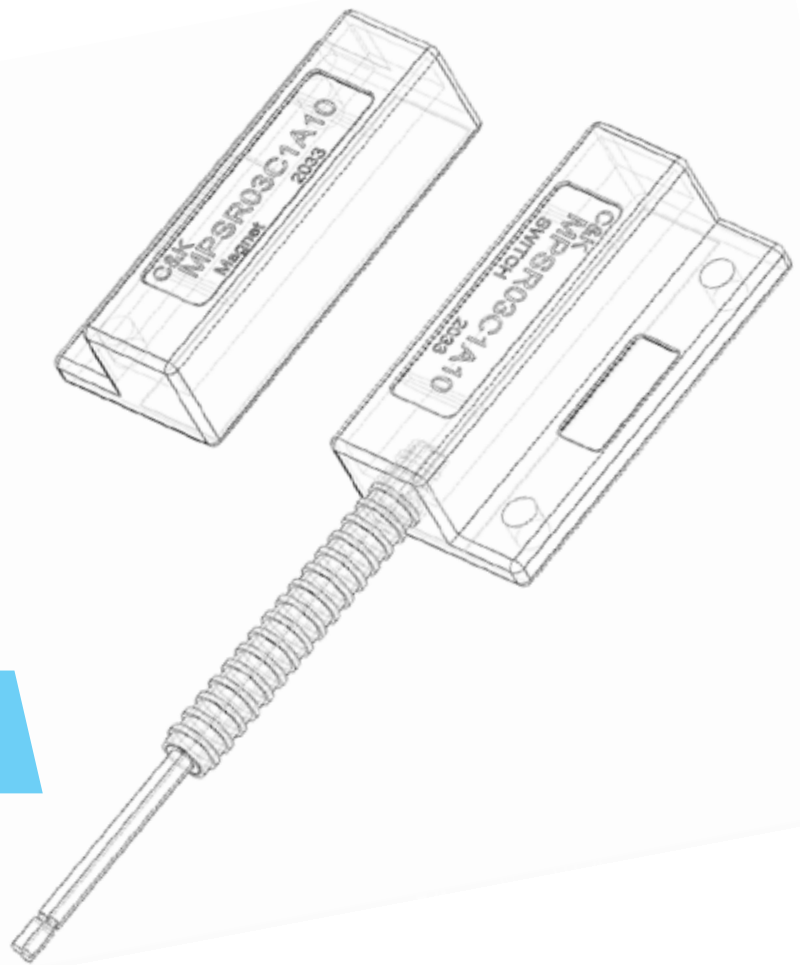
Features / Benefits

LED built in to toggle handle
6 LED color options to choose from
Electrical ratings up to 20 Amps

Typical Applications

Instrumentation
Medical equipment
Detection
Control panels
Heavy equipment

PART NUMBER	Function	Actuator	Bushing	Mounting Style / Termination	Contact Material	Electrical Life
ILT01	On-Off	Illuminated	12.2	Panel / Quick connect	Silver	10,000 cycles
ILT02	On-Off	Illuminated	12.2	Panel / Quick connect	Silver	10,000 cycles
ILT03	On-Off	Illuminated	12.2	Panel / Quick connect	Silver	10,000 cycles
ILT04	On-Off	Illuminated	12.2	Panel / Quick connect	Silver	10,000 cycles
ILT05	On-Off	Illuminated	12.2	Panel / Quick connect	Silver	10,000 cycles
ILT06	On-Off	Illuminated	12.2	Panel / Quick connect	Silver	10,000 cycles



PRODUCT SELECTION GUIDE

SENSOR PRODUCTS

C&K's proud history of product innovation continues with sensor solutions ideal for position and proximity sensing in a wide range of applications. Inherently robust with available IP ratings up to IP69, they are capable of millions of operations using magnetic actuation to provide contactless detection across hermetic barriers and distances up to 1". They're designed to be easy to install and easily customizable to fit the needs of applications ranging from automotive and industrial to construction, security and anti-tampering, and medical devices.



SERIES	MPS	MPSR
Actuation	Magnetic	Magnetic
Max Actuation Distance	1"	1"
Life Cycle	4,000,000	4,000,000
Contact Type	SPST N.O.	SPDT N.O. / N.C.
Max. Voltage	30 V	30V
Max. Switching Current	300 mA	200 mA
Housing	Plastic	Die-cast aluminum
IP Rating		IP69
Mounting	Surface mount (adhesive or flange)	Surface mount flange
Wiring	Insulated wire lead	Stainless steel hosed insulated wire lead
Standard Wire Lead Length	12"	72"



MPS SERIES
Magnetic Proximity Sensors

Features / Benefits

- Long life - 4M operations
- Sealed contacts
- Quality construction
- UL61058
- Quick & easy installation

Typical Applications

- 3.0 W max. @ 30 V DC or 30 V AC max. @ 0.3 AMP max
- 1.0 msec. max. operate time (including bounce)
- 1.0 AMP max. carry current

PART NUMBER

MPS45WGW

* Contact C&K for custom options availability

Function

SPST N.O. subminiature surface mount (adhesive or flange), side exit leads, 1" make gap



MPSR SERIES
Ruggedized Magnetic Proximity Sensors

Features / Benefits

- Long life - 4M+ operations
- Hermetically sealed contacts
- Form C (SPDT) contacts w/ 3 W rating
- IP69 Rating
- UL61058
- Quick & easy installation

Typical Applications

- Remote monitoring
- Anti-tamper detection
- Security

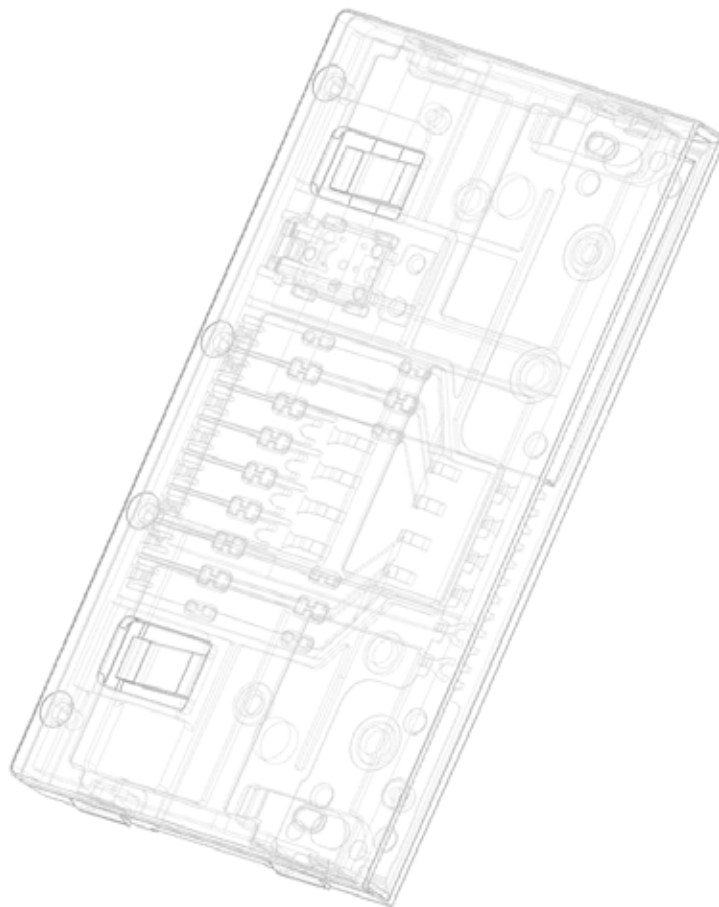
PART NUMBER

MPSR03C1A10

* Contact C&K for custom options availability

Function

Form C (SPDT N.O. / N.C.) 3 W / 30 VDC 72" Stainless steel hose w/ bare wire leads

**PRODUCT SELECTION GUIDE**

Smart Card Connectors

C&K's smart card connectors are EMV and PCI compliant, and offer full-size card acceptance as well as SIM/SAM cards. All smart card connectors are compatible with lead free SMT reflow soldering processes. Full-size smart card connectors feature up to 500,000 cycles lifetime, while SIM/SAM models range from 30,000 to 50,000 cycles.



CCM01 SERIES

Full Size Card Connectors

Features / Benefits

Operating life up to 500,000 cycles
Up to 40 N card insertion force
EMV
Card detection sealed switch

Typical Applications

Transaction
Identification
POS

PART NUMBER	Number of Contacts	Termination	Operating Life	Card Insertion Force
CCM01-2327 LFT	8	SMT	600,000 cycles	40 N



CCM01 MK5 SERIES

Full Size Card Connectors

Features / Benefits

Operating life 500,000 cycles
Low profile 4 mm and 3.2 mm height
Card detection sealed switch

Typical Applications

Transaction
Identification
POS
MPOS

PART NUMBER	Cover	Number of Contacts	Termination	Operating life
CCM01-2563 LFT	Plastic	8	SMT	500,000 cycles
CCM01-2565 LFT	Plastic	8	SMT	500,000 cycles
CCM01-2663 LFT	Metal	8	SMT	500,000 cycles
CCM01-2664 LFT	Metal	8	SMT	500,000 cycles



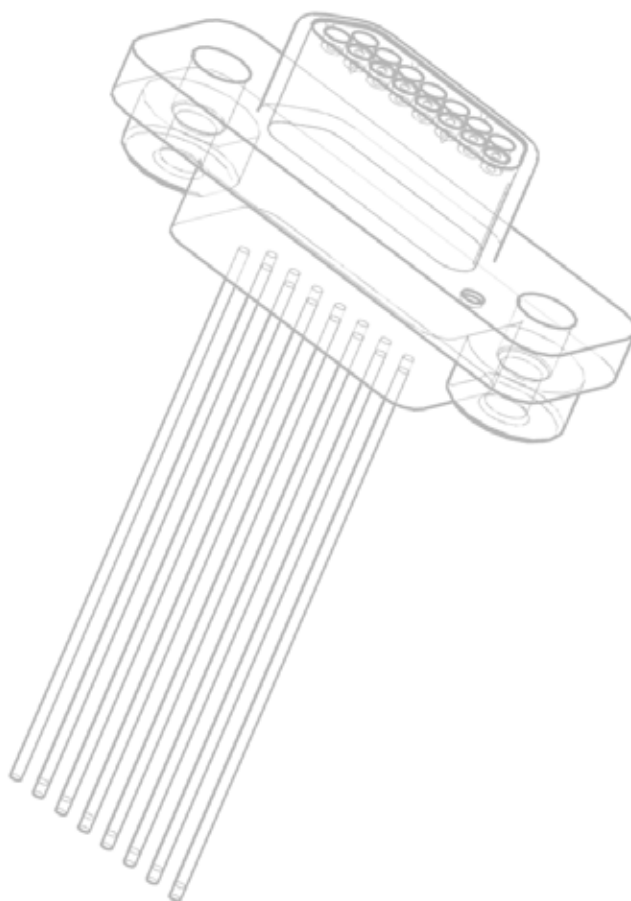
CCM03 SERIES

SIM / SAM Card Connectors

Features / Benefits

SIM / SAM card acceptance
Hinged and fixed covers
Compatible with pick and place and lead free soldering
6 or 8 contacts

PART NUMBER	Number of Contacts	Termination	Contact Plating	Cover	Card Presence Switch	Operating Life
CCM03-3003 LFT	8	SMT	Inlay	Hinged	Without	10,000 cycles
CCM03-3009 LFT	6	SMT	Gold	Hinged	Without	10,000 cycles
CCM03-3013 LFT	6	SMT	Gold	Hinged	With	10,000 cycles
CCM03-3754 LFT	6	SMT	Inlay	Fixed	With	10,000 cycles



PRODUCT SELECTION GUIDE

High Reliability Connectors

C&K's connectors are extremely reliable and high-performing, helping customers design the next generation of military, industrial, aerospace and space applications. The connectors are also highly configurable and available in a variety of sizes and formats. They can handle the harshest of environments, making them perfect for satellites, payload harnesses and launchers.



D-SUBMINIATURE CONNECTORS

C&K's full line of D*M and D*MA Series D-subminiature connectors are employed in satellites and launchers, and meet strict tests for outgassing and residual magnetism. Offered in a variety of contact layouts (including with coax, power or crimp contacts) and shell sizes, the D-sub connectors are available with non-removable and removable contacts, as well as in filtered, pin and socket, and interface configurations.



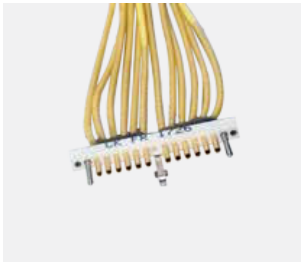
MICRO-D CONNECTORS

C&K's full line of MDM Series microminiature connectors are frequently employed to connect various modules within satellite systems. The MDM connectors utilize a proven Micropin™ contact system and are offered in a variety of contact layouts. To date, C&K is the only company that offers ESA-qualified rectangular micro-d microminiature connectors.



RECTANGULAR MICROMINIATURE CONNECTORS WITH REMOVABLE CONTACTS

Employed in various space equipment applications, C&K's MDMA rectangular microminiature feature removable crimp contacts compliant with ESA/ESCC specifications, along with the highly reliable Micropin™ twist pin contact system. The MDMA connectors are guaranteed to meet 'zero defect' criteria.



SINGLE IN-LINE MICROMINIATURE CONNECTORS

Utilized in satellites as a connection between PCBs, C&K's MTB1 micro-strip single in-line microminiature connectors also employ a high performance Micropin™ contact system and meet stringent requirements for outgassing and residual magnetism. The connectors are suitable for board-to-board, board-to-cable, and cable-to-cable applications. To date, C&K is the only company that offers ESA-qualified micro-strip single in-line microminiature connectors.



SPACE SPLICE CONTACTS

A compact, easy-to-use alternative to manual splicing, the one-way Space Splice high-reliability connectors deliver high radiation and temperature resistance, low residual magnetism, and low degassing, and — manufactured in accordance with ESA/ESCC specifications — meet the highest quality requirements for satellite, payload, and other harsh environment applications, including: laboratory, avionics, military, and medical equipment. An EPPL2 (ESA/ESCC European Preferred Part List Part 2) product, the series accepts the most popular cable gauges (AWG 20 – AWG 30) and employs removable, D*MA crimpable contact technology that allows for both manual and guiding-tool-assisted insertion.



INTERPOSER CONNECTORS

"Board-to-board" interconnect solderless solution specifically designed for the aerospace industry. Interposer uses C&K's proven Starclip contact technology - the electrical contact function is decoupled from the pressure applied by the spring, which therefore enables the connector to provide a stable, low-contact resistance, regardless of the force applied or distance moved. The interconnects are non-outgassing, with gold-plated contacts, and have an operating temperature range of -55°C to +125°C. They are compliant with CS FR051 C&K specification, according to ESA/ESCC code 3401.

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9201KZQE	91	E101MD1ABE	89
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9221SH3Z4QD	91	E103MD1ABE	89
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A20605RNCQK	45	ENCOS16DS5C	46
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AP2D200TWBE	35	EP11SD1AVBE	32
AP2D300SZBE	35	EP11SD1CBE	32
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ATP19-SL3-624-B0DA-03Q	37	FDSE002R	9
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ATP22-SL3-312-B0SA-03Q	37	FP11SPA1B1TP03	33
ATP22-SL3-724-B0SE-03Q	37	FP11SPC1B1TP00	33
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CCM01-2563 LFT	97	HDP001R	8
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CCM01-2664 LFT	97	ILSTB18010	81
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JS102011SAQN	50	KSC841J OL LFS	76
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K12GO BK 1.5 6/12N	23	KSJ0VD1860SH LFTR	11
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K12SA S 1.5 3N C LFTX	12	KSS221G LFS	75
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KMR73N1G LFS	71	LCS011T05QDC	60
KMS221G LFS	72	LCS051P00PDC	60
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KMT011NGJ LHS	71	M83731/9-211	88
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PTS840ESDPSMTR LFS	74	TP11SH8ABE	32
PTS840GKPSMTR LFS	74	TP11SH9ABE	32
PTS840GMPSMTR LFS	74	TP11SH9CBE	32
PTS840PSMTR LFS	74	TP11SHZQE	32
PTS841 ESD GK SMTR LFS	82	TP12SH9ABE	32
PTS841 ESD GMP SMTR LFS	82	V80212MA08Q	54
PTS841 GKP SMTR LFS	82	V80212MS02Q	54
PTS841 GM SMTR LFS	82	V80212S205Q	54
PTS841 GMP SMTR LFS	82	Y101132C203NQ	65
PVA1EEH1 3.5N V2	34	Y1011U2C203NQ	65
PVA1OAH1 1.2N V2	34	Y201132C203NQ	65
PVA2EEH3 1.2N V2	34	ZMA00A150L04PC	58
PVA2OAH5 1.7N V2	34	ZMA03A150A03PC	58
R10815RS02Q	45	ZMA03A150S07EC	58
R20407RR03Q	45	ZMW00AP00PCAA	59
R20507RR02Q	45	ZMW00AT10SCAA	59
RB-231X2	13	ZPA00A150P00T	59
RB-441-45	13		
RKA2SGK055SMTR LFS	83		
RKA2SGM055SMTR LFS	83		
RKB2SJG250SMTR LFS	83		
RKB2SJK250SMTR LFS	83		
RKC GG140 SMTR LFS	83		

Products Only

C&K Components, Inc. (C&K) warrants its products against defects in manufacturing if the products are used for the purpose for which they were manufactured and sold. C&K will, at its option, repair or replace any of its products with a manufacturing defect. This warranty shall expire one year from the date of shipment. THIS WARRANTY IS IN LIEU OF ALL WARRANTIES, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE HEREBY EXCLUDED. SPECIFICATIONS AND PRODUCT LITERATURE REFERRING TO, ATTACHED TO OR FURNISHED WITH PRODUCTS ARE DESCRIPTIVE ONLY AND SHALL NOT BE TREATED AS WARRANTIES. The purchaser or subsequent owner or user's sole and exclusive right or remedy shall be limited to the furnishing of replacements for products found defective by C&K. No oral waiver or modification of this warranty shall have any effect whatsoever, regardless of by whom such waiver or modification is given.

This warranty is void if any modification is made on the warranted product, regardless of whether the modification causes or contributes to the alleged defect. All modifications are made at the risk of the party making the modification. Purchaser indemnifies and holds harmless from all claims or causes of action arising from modifications made to products which are not under the control of C&K. If purchaser buys and resells the product, purchaser agrees to inform its customers that C&K makes no express or implied warranties because of the modification. C&K's warranty is also void if product failure results from acts or omissions of persons other than C&K, or from accident, acts of nature, abuse, misuse or misapplication of the product.

Customer Communication

15 Riverdale Ave. Newton, MA 02458.

For product information, inquiries & quotes, order or contract amendment handling customer feedback, customer complaints: Contact Customer Service 617.969.3700, Fax 617.969.6600, Web Address: www.ck-components.com

Terms and Conditions of Sale with Limitations of Remedy and Liability

1. The warranty provided above, or any warranty duly provided by C&K, shall constitute the sole remedy of purchaser and any subsequent owner or user of the product; and shall be the sole liability of C&K, whether in contract, tort, strict liability, under warranty or otherwise. In no event shall C&K's liability exceed the amount of the purchase price paid to C&K by the purchaser for the allegedly defective product. C&K shall not be liable under any circumstance for special, indirect or circumstantial damages, including loss of profit or production.

2. Purchaser and any subsequent owner of the product shall have no claim against C&K for any labor, downtime or expenses of any kind arising from any C&K default whatsoever, including delay shipment.

3. No agreements of sale or contract shall exist between C&K and purchaser until accepted by C&K. All such agreements shall be deemed to take place in Massachusetts, regardless of the origin or destination of the product.

4. Notwithstanding any term or condition imposed or set forth by purchaser's documents or purchase order, C&K objects and takes exception to any provision therein which conflicts with or is in addition to C&K's Terms and Conditions of Sale with Limitations of Remedy and Liability. C&K's performance of any purchase order is conditional upon the purchaser accepting all C&K's said terms, conditions and limitations. Failure of the purchaser to object to these Terms and Conditions of Sale with Limitations of Remedy and Liability within seven (7) days shall constitute full and final acceptance thereof by purchaser.

5. Purchaser agrees to notify all subsequent owners and users taking through purchaser of these Terms and Conditions of Sale with Limitations of Remedy and Liability and, failing to do so, shall indemnify and hold C&K harmless from all claims or causes of action by such persons which are applicable to said terms, conditions and limitations.

6. No product shall be returned to C&K without its prior permission. No cancellations or reschedules to open orders are permitted within factory lead time. Orders are to be scheduled for delivery within 12 months from order date.

7. Delivery schedules are subject to prior sale and circumstances in effect at the time the purchase order is accepted by C&K. C&K shall not be held responsible for delays in delivery due to strikes; work stoppages; fires; floods; accidents; inability to obtain materials, fuels or transportation; government edict; civil unrest or any other cause unavoidable or beyond the control of C&K. C&K shall not be liable for any damages or costs based upon late delivery including instances where C&K has been informed in advance of the consequences.

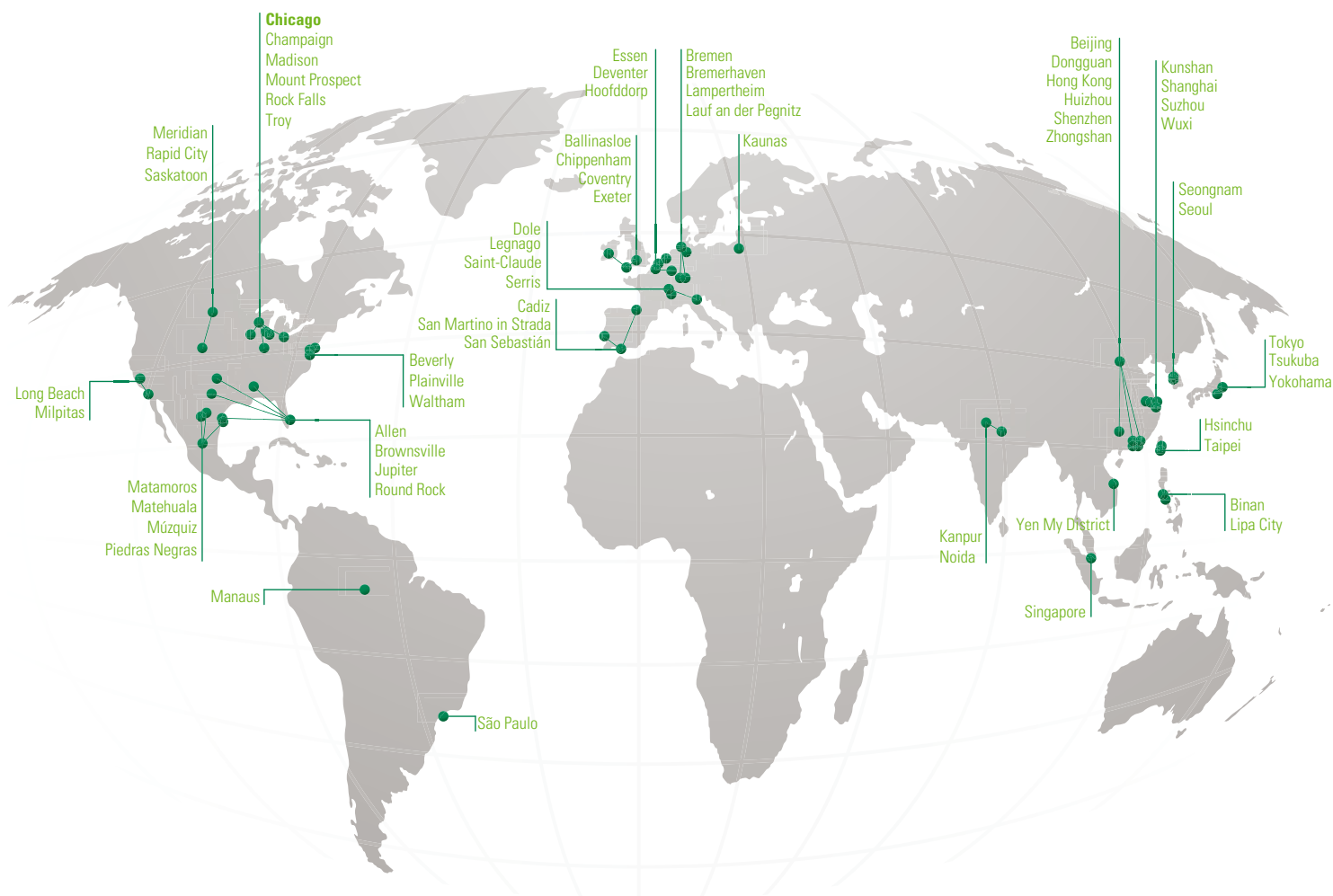
8. Unless otherwise agreed by C&K, all payments shall be in U.S. currency in immediate funds. Payment terms, unless otherwise agreed by C&K, shall be as specified on C&K's invoices. All amounts remaining unpaid beyond said terms shall accrue interest at the rate of one and one-half (1-1/2) percent per month or the highest lawful interest rate, whichever is lesser, until paid in full. C&K's prices are exclusive of sales, excise, use, occupation, value-added or any other taxes levied on sales transactions. Purchaser must pay all such applicable taxes unless it provides C&K with a valid, current exemption certificate. C&K shall have no obligation to contest or withhold such taxes on behalf of the purchaser.

9. Unless otherwise specified, all shipments are F.O.B. shipping point. Loading or special packaging charges shall be for the account of purchaser. Title to and possession of the product, including all risk of loss, shall pass to purchaser upon delivery to the carrier at the point of shipment.

10. C&K retains a security interest in all products shipped to secure payment of the purchase price and all other amounts owed by purchaser to C&K. Purchaser agrees to cooperate with C&K in protecting this security interest.

11. Any and all indemnities for the benefit of C&K hereunder shall include attorneys' fees and costs, including third party and expert witness fees. Furthermore, purchaser shall reimburse C&K for its costs and attorneys' fees in collecting any sums owed by purchaser to C&K, or for enforcing these Terms and Conditions of Sale with Limitations of Remedy and Liability.

LOCAL RESOURCES FOR A GLOBAL MARKET



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