



PCB & MEC SWITCH SELECTION GUIDE

ZP

- Threaded 4.83mm metal bushing
- Single pole, double throw
- Solder lug or PC terminals
- Gold or silver plated contacts
- Epoxy sealed terminals



SP

- Plain or threaded bushing
- Washable snap-action momentary pushbutton
- Single or double pole
- Silver or gold plated contacts
- Internally sealed bushing with epoxy sealed terminals



9100/9200/9500

- Plain or threaded bushing
- Horizontal or vertical mounting
- Single pole, momentary with several plunger options
- Gold plated brass contacts
- Epoxy and O-ring sealed



18000

- Single or double pole
- Snap action momentary
- Tactile feedback
- Gold plated contacts
- Many terminal, mounting and special options available



SMT TP

- Surface mount, single pole
- Available with or without positioning pins
- Reflow solderable
- Protected against electrostatic discharge (ESD) up to 10KV
- Washable: Epoxy and O-ring sealed



TP

- Single or double pole
- Washable momentary pushbutton with single piece case
- Several contacts and terminal materials available
- Epoxy and O-ring sealed



TL

- Single or double pole
- Several lever and case style options
- Washable with single piece case
- Epoxy and O-ring sealed
- Several contact material options



SMT TL

- Surface mount, single pole with standard gold plated brass contacts
- With or without positioning pins
- Reflow solderable
- Protected against electrostatic discharge (ESD) up to 10KV
- Washable



S and SF

- Single or double pole
- Plain or insulated threaded bushing
- Gold or silver plated contact
- Optional ESD protection
- Internally sealed bushing
- Washable: epoxy sealed



21000N

- Single or double pole
- Threaded or smooth bushings, both with mounting plate
- Low profile – same height for single or double pole
- Silver or gold plated brass contacts
- Epoxy and O-ring sealed



ZL

- Single pole, 4.83mm threaded bushing
- Solder lug and straight PC terminals
- Gold plated or silver plated contacts
- Epoxy sealed terminals



7000

- 1, 2, 3 or 4 pole
- Several mounting configurations
- Wide variety of actuators
- Brass, silver or gold plated contacts with ratings to 6 amps
- VDE, UL and CSA approved



S and SR

- Single or double pole
- Straight or right angle PC terminals
- Washable: epoxy sealed
- Brass, silver or gold plated contacts
- Actuators available in a variety of colors



TR

- Single or double pole
- Variety of contact materials
- Straight, right angle or wire-wrap PC terminals
- Washable: epoxy and O-ring sealed



SMT TR

- Surface mount, single pole
- With or without positioning pins
- Reflow solderable
- Protected against electrostatic discharge (ESD) up to 10KV
- Washable



MBZ

- Movement differential $\leq 0.13\text{mm}$
- Available in NO, NC and change-over functions
- Solder lug or PC terminals
- Wide variety of actuators



MAB

- Movement differential $\leq 0.4\text{mm}$
- Available in NO, NC and change-over functions
- Solder lug, quick connect, PCB and screw terminals available
- Wide variety of actuator styles



MBB and MDB

- Movement differential $\leq 0.2\text{mm}$
- Available in NO, NC and change-over functions
- Solder lug, PC or quick connect terminals
- Plunger, hinge lever or roller lever actuators available



G

- Single or double pole, 2 or 3 positions
- Solder lug, straight PC or right angle terminals
- 6 different actuator length available
- Wide variety of contact materials



25000N

- Single or double pole
- Wave solderable
- Wide selection of actuator shapes and lengths
- UL 1054 approved



NK

- Single pole
- Straight or right angle PC terminals
- Stackable in X and Y directions
- Flushed and raised actuators positioning pins



TG

- Single pole
- Straight, right angle or wire-wrap terminal options
- Sealed: Single piece case, epoxy sealed terminals



SLB

- Single or double pole
- Positive spring loaded ball detent mechanism
- Vertical or right angle actuators
- Silver plated contacts and terminals



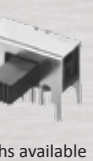
SMT TG

- Surface mount, single pole
- With or without positioning pins
- Reflow solderable
- Washable



M

- 1, 2, 4 and 6 pole
- Bifurcated wiping contact design
- Vertical and right angle actuators
- Many actuator styles and lengths available



MSS

- 1, 2 & 4 pole
- Bifurcated wiping contact design
- Gold or silver plated terminals with reinforced mounting legs
- Epoxy sealed



IKE

- Even and odd pole numbers
- Overall height from PCB: THR = 3.2mm, SMT = 3.8mm
- End-stackable
- Self-cleaning wiping contacts
- Raised or recessed actuators available



IKD

- Self-cleaning wiping contacts
- Gold plated terminals
- IR and vapor phase reflow soldering compatible
- Gull wing and J bend terminals
- Up to 12 number of ways
- Recessed actuators with top tape seal



NDS/DP/DA

- 1 to 12 positions
- Vertical, right angle or piano styles
- Raised or recessed, long or short actuators available
- Epoxy and top tape sealing options



IKH

- Low profile for very small PCB space requirements
- 1.27mm terminal to terminal pitch
- Process compatible
- Washable with standard tape seal



IKN

- Low profile with 2, 4, 6 and 8 positions
- Available in THR or SMT
- Overall height from PCB: THR = 4.0mm, SMT = 2.85mm
- Recessed actuator with positive detents
- Self-cleaning wipingsliding contacts



P36

- Available in THR or SMT
- Ultra compact with 10 or 16 positions
- 3 different actuator types
- Straight or right angle terminations
- Washable: solder and flux sealed



PT65

- Available in THR
- 4, 6, 8, 10 & 16 positions
- 4 different actuator types
- Up to 4 code options
- Straight or right angle terminals
- Washable, solder and flux sealed



UNIMEC - 154XX

- Available in THR
- IP54 Sealed
- Max 250 mA/120V/9W
- Double pole
- Momentary or latching
- 8 contact functions



MULTIMEC 3 series - 3C, 3E, 3F

- Available in THR or SMT
- IP67 Sealed
- 50mA/24VDC
- 10,000,000 operations
- LED option
- Single pole / momentary (NO)



MULTIMEC 5 series - 5E & 5G

- Available in THR or SMT
- IP67 Sealed
- 50mA/24VDC
- 10,000,000 operations
- LED option
- Single pole / momentary, NO or NC/NO



ILLUMEC - 4F

- Illuminated switch
- Available in THR or SMT
- 50mA/24VDC
- 10,000,000 operations
- Single pole / momentary
- Normally open functions



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ULTRAMEC - 6C

- Low profile
- J-bend
- IP67 Sealed
- 0.5 - 50mA/24VDC
- Single pole / momentary
- 3,000,000 operations





APEM
an IDEC company

MEC CAP SELECTION GUIDE

	NON-ILLUMINATED	NON-ILLUMINATED & ILLUMINATED		ILLUMINATED	
ROUND	1SS <ul style="list-style-type: none">• Ø6.5 mm• h=8.0-22.5 mm• Variable heights• 7 std color options• For 5E 	1JS <ul style="list-style-type: none">• Low cap perfect for under overlay• Ø9.6 mm• h=10.4 mm• 9 std color options 	1DS <ul style="list-style-type: none">• Ø9.6 mm• h=14.9 mm• Chamfer edge• 18 color options• Std legends available 	1GAS <ul style="list-style-type: none">• Flat cap perfect for under overlay• Ø11 mm• h=12.5 mm• 9 std color options 	1IS <ul style="list-style-type: none">• Fully-illuminated• Ø6.5 mm• h=10.4-22.5 mm• Variable heights• 2 std color options 
	Varimec round <ul style="list-style-type: none">• Ø5.2; 7.8; 11.6 mm• h=10.4-22.5 mm• Variable heights• 5 std color options• For 3E 	1US <ul style="list-style-type: none">• Panel sealed*• Rounded top• Ø10.6 mm• h=14.9 mm• 5 std color options*add 1UW for IP67 	1ZCS <ul style="list-style-type: none">• Rounded top• Ø14.3 mm• h=11.7 mm• 11 std color options• Std legends available 	1GCS <ul style="list-style-type: none">• Flat cap perfect for under overlay• Ø15 mm• h=12.5 mm• 9 std color options 	1LS <ul style="list-style-type: none">• Illuminated with lens• Ø6.5 mm• h=12.0-22.5 mm• Variable heights• Many color options 
	10G <ul style="list-style-type: none">• Ø11.5 mm• h=4.9 mm• Concave top• Antirotation cutout• for 6C/3C 	Controlmec 1Z <ul style="list-style-type: none">• Single cap for display navigation• Ø29.5 mm• h=12.0 mm• 4 std color options• Std legends available 	Controlmec 1ZW <ul style="list-style-type: none">• Panel sealed to IP67• For display navigation• Ø29.5 mm• h=12.3 mm• 4 std color options• Std legends available 	Aquamec <ul style="list-style-type: none">• Panel sealed to IP67• Ø10.6 mm• from front panel• h=14.3 mm• Total h=24.2-27.2 mm 	1ES <ul style="list-style-type: none">• Illuminated with lens• Ø9.6 mm• h=14.9 mm• 3 std color options• 5 lens color options 
SQUARE/RECTANGULAR	1ZA <ul style="list-style-type: none">• Rocker-action cap• 18.65 x 10.1 mm• h=12.2 mm• 10 std color options• Combinable with 1A/1H/1M 	10R/10RF <ul style="list-style-type: none">• Rounded or flat top• Ø30 mm• h=12.6/11.0 mm• 8 std color options• Std legends available 	10RM <ul style="list-style-type: none">• Metal plate front• Ø30 mm• h=11 mm• Frosted white• Std legends available 	Navimec <ul style="list-style-type: none">• Designed for display navigation• Ø34.25 mm• h=11.7/12.2 mm• Std legends available 	1FS <ul style="list-style-type: none">• Illuminated with lens• Ø9.6 mm• h=14.9 mm• 3 std color options• 5 lens color options• Std legends available 
	1M <ul style="list-style-type: none">• Rocker-action cap• 25.0 x 10.1 mm• h=12.2 mm• 4 std color options• Combinable with 1A/1H/1ZA 	1PS <ul style="list-style-type: none">• Concave top• 12.5 x 6.5 mm• h=15.7 mm• 9 std color options 	1XS <ul style="list-style-type: none">• Flat top• Rounded edges• 7.4 x 9.4 mm• h=18.5 mm• 5 std color options 	10C <ul style="list-style-type: none">• Concave top• Ø19.2 mm• h=13.7 mm• Consists of two pieces• Excellent for illumination 	1QS/1RS <ul style="list-style-type: none">• Rectan. or round lens• Concave cap• 12.5 x 6.5 mm• h=15.7 mm• 3 std color options 
	Varimec square <ul style="list-style-type: none">• 5.2; 7.8; 11.6 mm• h=10.4-22.5 mm• Variable heights• 5 std color options• For 3E 	1A <ul style="list-style-type: none">• Rocker-action cap• 12.5 x 10.1 mm• h=12.2 mm• 8 std color options• Combinable with 1H/1M/1ZA 	1B + 2C/2D <ul style="list-style-type: none">• Rocker-action cap• 15.1 x 15.1 mm• h=12.2 mm• 8 std color options• Std legends available 	1TS <ul style="list-style-type: none">• Panel sealed*• Rounded top• 10.6 x 10.6 mm• h=14.9 mm• 5 std color options*add 1TW for IP65 	1H <ul style="list-style-type: none">• Rocker-action cap• 12.5 x 10.1 mm• h=12.2 mm• 2 std color options• 5 std lens colors• Combinable with 1A/1M/1ZA 
	16300 <ul style="list-style-type: none">• Rounded top• 6.0 x 12.3 (15.1x15.1)• Various bezel options• h=16.9 or 20.5 mm• Std color & legend options• For Unimec 	10Q <ul style="list-style-type: none">• Flat top• 22 x 22 mm• h=11 mm• 8 std color options• Std legends available 	10QM <ul style="list-style-type: none">• Metal plate front• 22 x 22 mm• h=11 mm• Frosted white• Std legends available 	1KS <ul style="list-style-type: none">• Flat top• 14.3 x 14.3 mm• h=19.1 mm• 8 std color options• Bezel 2K option 	1KBS/1KCS <ul style="list-style-type: none">• Convex or concave top• 14.3 x 14.3 mm• h=20.2/20.1 mm• Bezel 2K option• Transparent lid frosted white lens 
	16700 <ul style="list-style-type: none">• Concave top• 14.9 x 14.9 mm• h=14.6 mm• 7 std color options• Std legends available• For Unimec 	1NS <ul style="list-style-type: none">• Teardrop-shaped cap• Ø9.6/ 13.3 x 11.0 mm• h=14.9 mm• 3 std color options• For indicating or navigating 	1VS <ul style="list-style-type: none">• Panel sealed*• Rounded top• 10.4 x 13.25 mm• h=14.9 mm• 5 std color options*add 1VW for IP65 	Rockermec <ul style="list-style-type: none">• Panel sealed to IP67• 28.0 x 10.6 mm• h=12.15 mm• 4 std color options• Std legends available• For 5E/3C 	1YS/1YAS <ul style="list-style-type: none">• For under overlay• Illuminated by chip LEDs on PCB• 15mm x 15 mm• h=12.5 mm• For 5E 
OTHER	2SS <ul style="list-style-type: none">• Extender• Black• h=5.0-10.0 mm• For 5G caps 	1WAS <ul style="list-style-type: none">• Ellipse-shaped• Convex• 6.5 x 12.5 mm• h=14.9 mm• 3 std color options 	1WDS <ul style="list-style-type: none">• Ellipse-shaped• Convex• 8.0 x 15.2 mm• h=14.9 mm• 3 std color options 	1WPS <ul style="list-style-type: none">• Ellipse-shaped• Concave• 6.5 x 12.5 mm• h=15.7 mm• 3 std color options 	



MEC SWITCH SELECTION GUIDE

	SWITCH	SPECIFICATIONS
UNIMEC	 154XX <ul style="list-style-type: none">• 12.6 x 12.6 mm (0.496" x 0.496")• h=15.7 mm (0.618")• Excellent when redundancy is required	<ul style="list-style-type: none">• TH• Max. 250 mA/ 120 V/ 9 W AC/ 6 W DC• Double pole• 8 contact functions• Momentary or latching• Min. 5,000,000 cycles lifetime• Temperature range: -40/+160 °C (-40/+320 °F)• IP54 sealing• Actuation force: 2.5 N• Travel: 1.8 mm (0.071")• Packed in tubes
MULTIMEC	 3C <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=6.4 mm (0.252")• Excellent for under overlay and over-mold	<ul style="list-style-type: none">• TH, SMD or TH RAS• 50 mA/ 24 VDC• single pole• Momentary• Normally open• 10,000,000 cycles lifetime• Temperature range: Switch -40/+160 °C (-40/+320 °F)• Temperature range: LED -40/min.+85 °C (-40/min. +185 °F)• IP67 sealing• Actuation force: 3.5 N• Travel: 1.0 mm (0.039")• Packed in tubes or tape & reel
	 3E <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=6.4 mm (0.252")• Keycaps for variable heights	
	 3F <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=10.4 mm (0.409")• Illumination option (incl RAS)	
ILLUMEC	 4F <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=10.4 mm (0.409")• Integrated chip-LEDs	<ul style="list-style-type: none">• Illuminated switch• TH or SMD• 50 mA/ 24 VDC• Single pole• Momentary• Normally open• 10,000,000 cycles lifetime• Temperature range: Switch -40/+160 °C (-40/+320 °F)• Temperature range: LED -40/min.+85 °C (-40/min. +185 °F)• IP67 sealing• Actuation force: 3.5 N• Travel: 1.0 mm (0.039")• Packed in tubes or tape & reel
MULTIMEC	 5E <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=6.4 mm (0.252")• Keycaps for variable heights	<ul style="list-style-type: none">• TH, SMD or non-illuminated TH RAS• 50 mA/ 24 VDC• Single pole• Momentary• 10,000,000 cycles lifetime• Temperature range: Switch -40/+160 °C (-40/+320 °F)• Temperature range: LED -40/min.+85 °C (-40/min. +185 °F)• IP67 sealing• Actuation force: 2.0 N, 3.5 N or 6.5 N• Quiet option with 2.0 N• Normally open or normally open/normally closed• Travel: 1.0 mm (0.039")• Packed in tubes or tape & reel
	 5G <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=6.4 mm (0.252")• Large range of keycaps	
	 5G illuminated <ul style="list-style-type: none">• 10 x 10 mm (0.394" x 0.394")• h=8.5 mm (0.335")• Integrated chip-LEDs	
ULTRAMEC	 6C <ul style="list-style-type: none">• 8 x 8 mm (0.315" x 0.315")• h=2.5 mm (0.098")• Excellent for when space is limited	<ul style="list-style-type: none">• Low profile• J-bend• 0.5 - 50 mA/ 24 VDC• Single pole• Momentary• Normally open• 3,000,000 cycles lifetime• Temperature range: -40/+85 °C (-40/+185°F)• IP67 sealing• Actuation force: Before soldering: 4.2 +/- 1.0 N After soldering: 3.7 +/- 0.7 N• Travel: 0.3 +/- 0.15 mm (0.012" +/- 0.006")• Packed in tape & reel



PANEL MOUNT SELECTION GUIDE

PUSHBUTTONS

ROCKERS

IX SERIES

- Tactile feedback
- Ø12mm panel cutout
- Sealed to IP67, IP69K
- Solid or illuminated
- NO or NC/NO



IM SERIES

- Snap-action, audible tactile feedback
- Ø12mm panel cutout
- Sealed to IP67
- NC+NO
- Multiple colors available



IP SERIES

- Solid and illuminated
- Tactile feedback
- Ø12mm panel cutout
- Round or square actuator
- Sealed to IP67 / IP69K
- Momentary or latching function



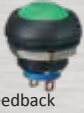
KR / KH SERIES

- Solid or illuminated
- Large color selection
- Laser etched symbols
- Sealed up to IP68 / IP69K
- KH: protection guard prevents accidental actuation



IS SERIES

- Threaded bushing
- Ø12mm panel cutout
- Variety of actuator colors
- Sealed to IP67
- Momentary (NO), tactile feedback
- Solder lug, quick-connect or PC terminals



IC SERIES

- Metal bushing
- Ø12mm panel cutout
- Sealed to IP67
- Round or square actuator
- Momentary (NO), tactile feedback
- Variety of actuator colors available



IB SERIES

- Snap-in mount
- Ø12mm panel cutout
- 13mm behind panel depth
- Sealed to IP54
- Momentary (NO), tactile feedback
- Solder lug, quick-connect or PC terminals



KL SERIES

- Solid or illuminated
- Single sided locking feature
- Sealed up to IP68 / IP69K
- Laser etched symbols
- Large color selection
- Unique rocker design



IZ SERIES

- Solid or illuminated
- Ø16mm panel cutout
- Rear mount
- Sealed to IP67
- Available in metal & plastic body, momentary or latching



IA SERIES

- Soft feel, membrane actuator
- Tactile feedback
- Ø16mm panel cutout
- Front panel sealed to IP67
- Variety of actuator colors



IL SERIES

- Solid or illuminated
- Ø12mm panel cutout
- Sealed to IP67
- Reduced bezel option available
- Available with solder lug, PC pins or wire leads



KG SERIES

- Solid or illuminated
- Raised protection bezel
- Sealed to IP65
- Standard symbols available
- Variety of color choices



IQ SERIES

- Solid or illuminated
- 16mm panel cutout
- Snap-in mount
- Sealed to IP54
- Momentary or latching
- Round or square bezel shape



IHS SERIES

- Hall effect
- Sealed to IP67
- Momentary (NO)
- Rated to 5 million cycles
- Ø12mm panel cutout



IHL SERIES

- Hall effect
- Linear 0.5 to 4.5V output
- Sealed to IP67
- Rated to 5 million cycles
- 3 different force ratings available
- Ø12mm panel cutout



2600 SERIES

- Solid or illuminated
- 16A 125VAC
- Single or double pole
- 3 rocker shapes
- Peak currents available



13000 SERIES

- 1/4" threaded bushing
- Single or double pole
- Silver or gold plated contacts
- Quick break momentary
- Several cap colors available



130000X778

- High performance
- Threaded bushing
- Double pole, double throw
- Fully sealed to IP67
- Solder lug or PC terminals
- Momentary, alternate



IR SERIES

- Solid or illuminated
- Ø16mm panel cutout
- Round or square bezel shape
- Sealed to IP67
- Momentary or latching or microswitch function



FM SERIES

- Solid or illuminated
- 16A 125VAC
- Single or double pole
- Protective boot available



FP SERIES

- 24, 26 & 30mm bushing
- Momentary or latching
- Pad printed or laser etched marking available
- Fully backlit legends
- Snap-in or threaded mounting



FD SERIES

- 24 & 26mm bushing
- Momentary or latching
- Fully backlit legends
- Snap-in or threaded bushing
- Threaded bushing sealed up to IP69K



13000 PUSH/PULL

- Unique ergonomic push-pull function
- 24.8mm red anodized aluminum actuator
- O-ring, epoxy sealed
- 4 A 24VDC; 2 or 3 poles



MT SERIES

- Single pole, double throw
- Rocker/Toggle function
- Rated up to 6A 125VAC
- Several actuator options
- Sealed to IP68
- Solder lug / straight PC



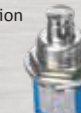
10400 SERIES

- Momentary with solder lug terminals
- Single or double pole
- Silver or gold plated contacts
- Optional color caps



8000 SERIES

- Momentary or alternate action
- Single or double pole
- Long bushing
- Numerous plunger, bushing & accessory options



1200 SERIES

- Up to 8A 125VAC
- Momentary NC or NO action
- Single pole
- Plastic or metal plunger
- Solder lug, quick-connect or screw terminals



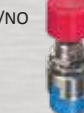
AS SERIES

- Snap-in, single pole
- 2 or 3 positions
- Sealed and double insulated
- Solder lug or PC terminals
- Several actuator colors



9400 & 9600 SERIES

- Momentary, NC, NO or NC/NO
- Two case lengths
- Sealing option
- Several plunger options
- Solder lug or PC terminals



18000 SERIES

- Snap-action momentary
- Tactile feedback
- Snap-in panel or PC mount
- Single and double pole models
- Numerous terminal and special options available



MP SERIES

- Two-step pushbutton
- Sealed to IP68
- 1 million lifecycles
- UV and hydrocarbon resistant membrane



7000 SERIES

- Single or double pole
- Rocker or Paddle style
- Wide variety of actuators
- Actuator and bezel color options



4700 & 4800 SERIES

- 6A 125VAC
- Alternate action
- Single or double pole
- Full actuator return
- Multiple actuator colors



1400N SERIES

- Momentary pushbutton
- Butt action contacts, double break
- Solder lug, straight PC and quick-connect terminals
- Snap-in mounting, square plunger



ZP SERIES

- Ø4.83mm tiny pushbutton
- Single or double throw
- Momentary contacts
- Solder lug and straight PC terminals



S & SR SERIES

- Single or double pole
- Rocker or Paddle style
- Silver or gold plated contacts
- Different actuator styles and colors





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PANEL MOUNT SELECTION GUIDE

TOGGLES

12000X778

- High performance toggle
- Mil STD 3950 & 83731
- 15/32" threaded bushing
- Sealed to IP67
- Double shelled case & pinned lever



3500 SERIES

- Industrial grade and fully sealed
- 15A 28VDC
- Single or double pole
- 15/32" bushing
- Front sealed to IP67 or IP69K
- Variety of lever styles



5000 & 5000M SERIES

- Miniature toggle with 17 different actuator styles
- 1, 2, 3 and 4 pole
- 12 terminal types
- 8 functions including maintained and momentary



55000 SERIES

- VDE approved
- Miniature toggle with 2 bushing options
- 17 different actuator styles
- 2 functions including maintained and momentary



CT SERIES

- High volume, cost effective
- 100,000 lifecycles
- Three terminal options
- Rated up to 10A at 250VAC
- Front panel sealed to IP67



600H & 600NH

- 15A 250VAC
- 1, 2 and 3 pole
- 2 and 3 maintained or momentary positions
- Metal or insulated lever
- Locking lever options



11000 SERIES

- Robust, threaded bushing
- 2 position toggle
- 1, 2, 3 and 4 pole
- Several front panel sealing options
- CECC approved



12000 SERIES

- 15/32" threaded bushing
- 1, 2, 3 and 4 pole
- DPDT, 3PDT, 4PDT
- Several locking lever and front panel sealing options
- Peak current versions available



3600NF

- 6A 250VAC
- Single or double pole
- Fully sealed to IP67
- Locking lever options
- UL approval on select models



1600 & 1700

- Single or double pole
- Reduced behind panel space requirement
- Wiping contacts
- Optional insulated lever



6000 SERIES

- 6A 30VDC
- 1, 2, 3 and 4 pole
- Solder, screw or quick-connect terminals
- Sealing and locking lever options



10600 SERIES

- 3A 24VDC
- Single or double pole
- 2 & 3 positions
- Large, threaded bushing



4400 & 4600

- 4A 250VAC
- 1, 2 and 3 pole
- High current/voltage rating in a small case
- Solder lug or quick-connect
- UL, CSA, VDE



ZL SERIES

- Single pole
- Ø4.83 mm threaded bushing
- Silver or gold plated contacts
- Epoxy sealed
- Additional actuator lengths available



1000 SERIES

- 6A 30VDC
- Single pole, 2 & 3 positions
- Optional insulated levers
- Metal lever & bushing
- Variety of actuators



SEALING BOOTS

- Prevents dust, sand, water & ice from blocking lever action
- Several color choices
- Compatible with front sealing options K & X408
- Supplied with sealing ring or washer, when necessary



MSG TOGGLE GUARDS

- For 12000, 3500 & 6000 series toggles
- No distortion or break in case of crushing
- Marking & sealing options
- Resistant to harsh environments



METAL TOGGLE GUARDS

- For 12000, 3500, 600H & 6000 series toggles
- Different shapes for bushing or switch guard styles & colors
- Cap engraving available



ANTI VANDAL

AV SERIES - 16mm

- Momentary (NO) or latching
- Flat or curved actuator
- Marking available
- Sealed to IP65
- Variety of sizes, shapes & material



AV SERIES - 19mm

- Momentary (NO) or latching
- Flat or curved actuator
- Sealed up to IP65
- Anti-vandal or security
- Marking, illumination options



AV SERIES - 22mm

- Anti-vandal or security
- Momentary (NO, NC+NO) or latching
- IP65, IP67 or IP69K sealing
- Several actuator style
- Marking, illumination options



AV SERIES - 24mm

- Large Ø24mm actuator
- Momentary (NC/NO) or latching
- Front panel sealing to IP65
- Marking & colors available
- Flat, curved or recessed actuators



AV SERIES - 30mm

- Large Ø30mm bushing
- Momentary NC/NO
- Panel sealing up to IP67
- IK06 impact resistant
- 1 million mechanical lifecycles
- Large illuminated ring in 7 different colors



AV SERIES - 250V

- Ø16, 19 or 22mm bushing
- Latching action
- Flat or curved actuators
- Optional sealing up to IP65
- Nickel plated or stainless steel actuator and bushing



PIEZO

PBA SERIES

- High performance
- Available in Ø16, 19, 22 or 30mm
- Sealed up to IP68 & IP69K
- Metal surface with ring or dot illumination
- ATEX approved version available



CAPACITIVE

CP

- Momentary or latching
- Auto-calibration
- Ø16, 19 or 22mm bushings
- No moving mechanical parts to wear out



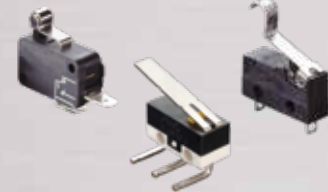
CG

- Momentary
- Auto-calibration
- Under panel mounting
- Long-life adhesive
- Dot illumination, color & marking options

SNAP-ACTION

MA, MB, MD

- Compact micro switches
- Leaf spring mechanism
- 10,000 lifecycles
- Different actuator styles



PUSHWHEELS

DP, SH, PICO

- Threaded bushing selections
- Compact, cylinder shape
- Single pole, single throw NC+NO
- Solder lug or PC terminals





LED INDICATOR SELECTION GUIDE

Q6 Series

- Panel mount Ø6mm
- Red, green, yellow, blue, orange & white LED
- Bi-color, hyper bright & super bright LED
- Prominent, recessed & flush bezels
- Bright/black chrome or satin grey finish
- 7 types of termination
- Panel sealed to IP67
- Voltage 2VDC to 28VAC/DC



Q8 Series

- Panel mount Ø8mm
- Red, green, yellow, blue, orange & white LED
- Bi/Tri-color, hyper bright & super bright LED
- Prominent, recessed & flush bezels
- Bright/black chrome or satin grey finish
- 9 types of termination
- Panel sealed to IP67
- Voltage 2VDC to 220VAC



Q10 Series

- Panel mount Ø10mm
- Red, green, yellow, blue, orange & white LED
- Bi/Tri-color, hyper bright & super bright LED
- Chamfered flush bezel
- 316L Stainless steel or anodized aluminum bezel
- Rear epoxy termination
- Panel sealed to IP67
- Voltage 2VDC to 28VAC/DC



Q12 & 12.7 Series

- Panel mount Ø12mm or Ø12.7mm
- Red, green, yellow, blue, orange & white LED
- Bi/Tri-color, hyper bright & super bright LED *
- Prominent, recessed & flush bezels *
- Bright/black chrome or satin grey finish
- 3 types of termination
- Panel sealed to IP67
- Voltage 2VDC to 220VAC *Flush bezel with limited LED color options



Q14 Series

- Panel mount Ø14mm
- Red, green, yellow, blue, orange & white LED
- Bi/Tri-color, hyper bright & super bright LED
- Prominent, recessed & flush bezels
- Bright/black chrome or satin grey finish
- 7 types of termination
- Panel sealed to IP67
- Voltage 2VDC to 220VAC *Custom options available



Q16 Series

- Panel mount Ø16mm
- Red, green, yellow, blue, orange & white LED
- Bi/Tri-color, hyper bright & super bright LED
- Prominent, recessed & flush bezels
- Bright/black chrome, satin grey finish or black plastic
- 7 types of termination
- Panel sealed to IP67
- Voltage 2VDC to 220VAC *Custom options available



Q19 Series

- Panel mount Ø19mm
- Red, green, yellow, blue, orange & white LED
- Bi/Tri-color, hyper bright & super bright LED
- Prominent, extra prominent, recessed & flush bezels
- Bright/black chrome or satin grey finish
- 7 types of termination
- Panel sealed to IP67
- Voltage 2VDC to 220VAC



Q22 Series

- Panel mount Ø22mm
- Red, green, yellow, blue & white LED
- Bi/Tri-color & super bright LED
- Prominent, recessed, flush & chamfer bezels
- 5 types of termination
- Panel sealed to IP67
- Chrome, stainless steel, plastic or anodized aluminum finish
- Voltage 2VDC to 220VAC *Daisy chain & lamp test options available



QRM Series

- Rear Panel Mount Ø6, Ø8 & Ø14mm
- Red, green, yellow, blue & white LED
- Bi/Tri-color, hyper bright & super bright LED
- Protected bezel
- Black chrome or anodized aluminum finish
- 2 types of termination (Ø14 - wire termination only)
- Panel sealed to IP67; rear end epoxy sealed
- Voltage 2VDC to 28VDC



QS Series

- Panel mount Ø6, Ø8, Ø10 & Ø12mm
- Red, green, yellow, blue & white LED
- Bi/Tri-color, hyper bright LED
- Snap in LED indicators
- Push on tab or wire terminals
- Voltage 2VDC to 220VAC



For typical replacement of filament and neon indicators, offering long service life & high reliability.

QH Series

- Full LED halo illumination
- Single, dual and RGB colors available
- Designed to integrate with Ø16, Ø19 & Ø22mm panel cutout switches & indicators
- Oversized Ø22mm version for APEM's range of Emergency Stop switches
- Panel sealed to IP67
- Zero behind panel depth
- Anti rotation pin
- 200mm 26AWG UL1061 wire termination



Based LEDs

- Ba9, E10, MG & MF
- Voltages 6VAC/DC to 230VAC
- Screw or bayonet cap
- T1½ midget groove & midget flange
- Red, green, yellow, blue & white LED



For typical replacement of filament and neon based lamps, offering long service life and high reliability.



LED INDICATOR SELECTION GUIDE

QRM NV SERIES - NVIS COMPATIBLE

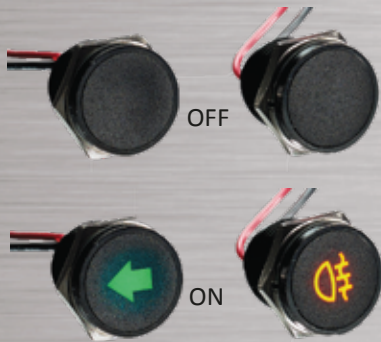
- Rear panel mount Ø8mm
- Protected bezel
- Black chrome finish
- Termination by 200mm wires or rigid pin
- IP67 sealed to EN60529
- Voltage 2VDC to 28VAC/DC
- NVIS compliant to MIL std 3009
- NVIS green A or B, NVIS red



- NVIS yellow A or B, NVIS white
- High temperature NVG filters
- Rear end epoxy sealed
- Operating temperature range -40°F to +185°F
- Storage temperature range -67°F to +212°F
- Max panel thickness 3.5mm, Torque 60cNm
- Standard hardware: nut, spring washer & O-ring
- Custom dress nut available on request

CUSTOMIZATION

Secret-Until-Lit polycarbonate insert legends on Q16 & Q22



- Custom luminosity
- Custom voltages
- Special finishes
- Multi voltages

Engraving available on Q14, Q16, Q19 & Q22



- Custom LED options
- Reverse voltage protection

Cable length, wire gauge and connector options



Please contact APEM for all your custom requirements

SERIES	Q6	Q8	Q10	Q12	Q14	Q16	Q19	Q22	QRM	QS
Panel cut-out	6 mm	8 mm	10 mm	12 / 12.7 mm	14 mm	16 mm	19 mm	22 mm	6, 8, 14 mm	6, 8, 10, 12 mm
Voltage range	2VDC - 28VAC/DC	2VDC - 220VAC	2VDC - 220VAC	2VDC - 220VAC	2VDC - 220VAC	2VDC - 220VAC	2VDC - 220VAC	2VDC - 220VAC	2VDC - 28VDC	
Sealing	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	
Bezel style										
Prominent	✓	✓		✓	✓	✓	✓	✓		
Recessed		✓		✓	✓	✓	✓	✓		
Flush	✓	✓	✓	✓	✓	✓	✓	✓		
Chamfer										
Terminal options										
Solder lugs / fastons	✓	✓		✓	✓	✓	✓	✓		✓
Pins	✓	✓		✓	✓	✓	✓	✓	✓	
Wires	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bezel finish										
Bright / black chrome	✓	✓		✓	✓	✓	✓	✓	✓	
Satin chrome	✓			✓	✓	✓	✓	✓		
Stainless steel / anodized aluminum			✓		✓	✓		✓		
Type of illumination										
Fixed light	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Flashing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bi-color	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tri-color		✓	✓	✓	✓	✓	✓	✓	✓	
Night vision									*	
LED colors										
Standard	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Super bright	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hyper bright	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

* limited options with flush

* NV available in 8 & 14 mm



JOYSTICK SELECTION GUIDE

THUMB CONTROLS

TS series

- Hall effect technology
- Many different handle & mounting options
- One or two axis
- Pushbutton, LED & USB options
- Fully sealed up to IP67 & IP69K



FR series

- Hall effect technology
- 3 position, on-off-on analog output
- 3 million lifecycles
- Sealed up to IP67



HS series

- 5-way switching w/ center pushbutton option
- Mom-off-mom
- Tactile feedback
- Connectorized housing
- Fully sealed to IP67



CW series

- Hall effect technology
- Miniature design
- Single axis
- Spring return to center
- 3 million lifecycles



TW series

- Hall effect technology
- Single axis
- Spring return to center
- 5 million lifecycles
- Electronics sealed up to IP67



HR series

- 5 million lifecycles (w/o detents)
- Electronics sealed to IP68
- Backlighting option
- EMI/RFI shielding
- Detent & friction hold options available



NV series

- 4 or 5-direction switching
- Sealed up to IP69K
- Compact and low profile
- Positive tactile feedback
- Actuator shape & color options



FINGERTIP

HF series

- Hall effect technology
- Up to three axis
- Sealed up to IP67
- CAN bus, CANopen & USB options
- 5 million lifecycles



3000 series

- Hall effect technology
- <20mm below panel
- Robust design
- Up to three axis
- Up to 10 million lifecycles



PC series

- Analog or USB
- Optional IP65 sealing
- Proportional control
- Custom configured to order
- Lightweight, one hand operation



BH / BL series

- Hall effect technology
- Single axis
- Sealed up to IP67
- 10 million lifecycles
- Two lever heights with custom color & design options



BF / BD series

- Hall effect technology
- Single axis
- Sealed up to IP67
- Spring & detent lever options
- Two lever heights



M series

- Potentiometer technology
- Friction centering option
- 17 handle options
- Up to three axis
- Shallow mounting



8000 series

- Switching technology
- Robust design
- One or two axis
- Optional center detect
- Up to 1AMP operation



1000 series

- Switching technology
- Single or double pole
- One or two axis
- V3 or V4 switches
- Bush or screw mount option



1000HE series

- Switching technology
- One or two axis
- Switches up to 10A
- Sealed up to IP67
- Single or double pole



NZ series

- Switching technology
- Ultra compact
- Two axis toggle design
- Panel sealed up to IP67
- 11.9 bush mounting



4000 series

- Potentiometer technology
- Metal mechanism
- Up to 3 axis
- Open or closed body
- Above panel sealed up to IP65



SN series

- Hall effect technology
- 12 bit resolution
- Single axis
- Friction centering
- Ball race bearings



JOYSTICK SELECTION GUIDE

HAND GRIP

XD series

- Hall effect technology
- SIL 2 compatible
- SAE CAN bus J1939-71
- 10 million lifecycles
- Compact at 60mm below panel



FG series

- Custom configured
- Fixed Grip™ style
- TS series options
- USB outputs
- Operator presence paddle option for oval handle



MS series

- Hall effect technology
- Several handle options
- Up to three axis
- Redundant outputs
- CAN bus J1939 & USB output options



HJ series

- Hall effect technology
- Rugged all metal gimble
- Up to three axis
- 5 million lifecycles
- CAN bus J1939, CANopen & USB output options



TH series

- Hall effect technology
- Single axis
- Friction positioning
- Mechanical detents
- CAN bus J1939 & USB output options



CJ series

- Hall effect technology
- One & two axis
- CAN bus J1939 & USB output options
- Operator presence paddle option



AG series

- Hall effect technology
- Agriculture style
- Customizable faceplate
- CAN bus J1939, CANopen & analog output options



USB CONTROLS

IP Desktop

- Hall effect technology
- Three axis
- Twelve pushbuttons
- Standard USB interface
- Windows "game controller"



RS series

- Hall effect technology
- 12 bit resolution
- Three axis
- Six tactile pushbuttons
- Standard USB interface



VM Desktop

- Hall effect technology
- Three axis
- Jog / shuttle dial
- 27 pushbuttons
- Standard USB interface



IPD Ultima

- Hall effect technology
- Three axis
- 10 LED pushbuttons
- 2 buttons on joystick
- Standard USB interface



MJ & FJ Desktop

- Black & gray color options
- Analog output available
- Standard USB interface
- Customizable



TRACKBALLS

DT225 trackball

- Ergonomic desktop design
- 2.25" diameter Thermoset phenolic ball
- USB outputs



LP150 series trackball

- 1.50" ball diameter ball in black or backlit illumination
- Panel mount design
- USB 2.0 protocol
- Additional button strips available



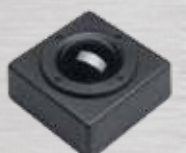
R200 series trackball

- Removable bezel with 2.00" diameter ball
- Stainless steel shafts & bearings
- Optional illumination & pushbuttons



P200 series trackball

- 2.00" ball diameter ball
- Panel mount design
- USB 2.0 protocol
- Additional button strips available





APEM
an IDEC company

EMERGENCY STOP SWITCH SELECTION GUIDE

A01ES-D Series

- Panel Mount $\varnothing 16\text{mm}$
- IP65 panel sealed
- Certified to EN60947-5-5
- Push to shut-off, twist to release actuators
- Up to 2 pole positive break
- Contact rating AC-15 1.5A 250VAC / 6A 250VAC
- Five different prominent actuators
- Operating temperature -20°C to $+55^{\circ}\text{C}$
(-4°F to $+131^{\circ}\text{F}$)



A02ES-I Series

- Panel mount $\varnothing 22\text{mm}$
- Panel sealed up to IP65
- Certified to EN60947-5-5
- Push to lock / pull or twist to release actuators
- Up to 3 poles
- Contact rating AC-12, 3A 240VAC / DC-12, 8A 24VAC
- Mechanical life: 250,000 cycles with one contact block
- Illuminated model available



ES Series

- Panel mount $\varnothing 22\text{mm}$ (2pole) & 28mm (3 pole)
- Customizable anodized metal actuator
- Push/Pull ON/ON function
- Locked/unlocked status indicator
- Up to 3 poles
- Sealed up to IP69K
- IK10 impact resistant
- NC and NC/NO options
- Mechanical life: 100,000 cycles



A02ES-H Series

- Panel mount $\varnothing 22\text{mm}$
- Panel sealed up to IP65
- Certified to EN60947-5-5
- Push to lock / pull or twist to release actuators
- 2 pole NC + 1 pole NO
- Contact rating AC-12, 3A 250VAC / DC-12, 2A 30VDC
- Mechanical life: 250,000 cycles with one contact block
- Illuminated model available





INDUSTRIAL CONTROL SWITCH SELECTION GUIDE

A01 Series Pushbuttons & Indicators

- Panel mount Ø16mm
- Rectangle, square & round bezels
- Up to 4 pole changeover
- Contact rating 6A 250VAC
- Sealed up to IP65, rear panel IP40
- 6VDC to 48VDC LEDs, bi-color options
- LED - 60,000 hours to 75% relative luminosity



A01 Series Keylocks & Selectors

- Panel mount Ø16mm
- Panel sealed up to IP65
- Up to 4 pole changeover
- Contact rating 6A 250VAC
- Non-removable key positions
- Maintained & momentary functions



A1 Series - Aluminum Pushbuttons & Indicators

- Panel mount Ø22mm
- Panel sealed up to IP65
- Up to 4 pole changeover
- Contact rating 6A 250VAC
- 6VDC to 48VDC LEDs, bi-color options
- Engraved screens or legend inserts
- LED - 60,000 hours to 75% relative luminosity



A02 Series Pushbuttons & Indicators

- Panel mount Ø22 or Ø30mm
- Panel sealed up to IP65
- Contact rating 16A 250VAC
- Latching & momentary functions
- 6VDC to 48VDC LEDs, bi-color options
- Engraved screens or legend inserts
- LED - 60,000 hours to 75% relative luminosity



A02 Series Keylocks & Selectors

- Panel mount Ø22 or Ø30mm
- Panel sealed up to IP65
- Custom engraving & molded key
- Non-removable key positions
- Maintained & momentary functions
- Contact rating 16A 250VAC



A03 Series Pushbuttons & Indicators

- Panel mount Ø22 or Ø30mm
- Panel sealed up to IP65, rear panel IP40
- Latching & momentary functions
- Contact rating 6A 250VAC
- 6VDC to 48VDC LEDs, bi-color options
- LED - 60,000 hours to 75% relative luminosity



A3 Series - Aluminum Pushbuttons & Indicators

- Panel mount Ø30mm
- Panel sealed up to IP65
- Up to 4 pole changeover
- Latching & momentary functions
- Chemically etched aluminum screens or polyester inserts
- Contact rating 6A 250 VAC
- Illuminated



LK Series Keylocks

- Panel mount Ø19mm
- 5 tumbler single sided bitted key
- 1 or 2 pole options, 4 positions
- Overmolded key option
- Maintained & momentary functions
- 45° or 90° indexing with multiple key pull positions

