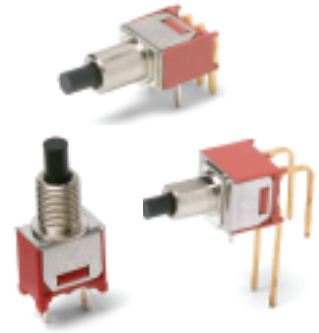


A

Pushbutton

Models Available

- **Telecommunications and networking equipment**
- **Computers and peripherals**
- **Instrumentation and controls**



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @
20 V AC or DC max. Q contact material: 1 AMP @
120 V AC or 28 V DC. See page A-17 for additional ratings.

ELECTRICAL LIFE: TP11, TP21 MODELS: 60,000 make-and-break cycles at full load. TP12 MODELS: 30,000 cycles.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @
2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or

EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with Q, B, P, R or G contact material are RoHS compliant. For the latest information regarding RoHS compliance, please go to: www.ittcannon.com/rohs.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0).

PLUNGER: Thermoplastic polyester (UL 94V-0).

CAP & FRAME: Nylon, black standard.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page A-21 for additional contact materials.

CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page A-17 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter

HARDWARE: Nut & Locking Ring: Brass nickel plated.
Lockwasher: Steel, nickel plated.

Build-A-Switch

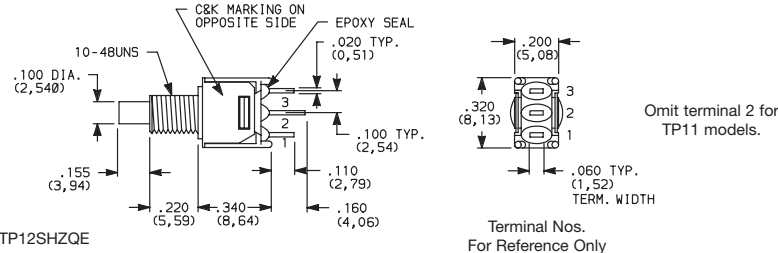
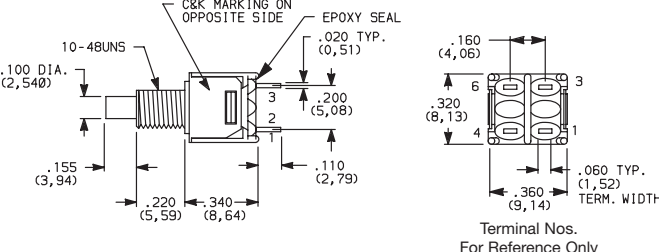
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-13 thru A-18. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all “bottom-wash” PCB cleaning methods.

The diagram illustrates a 16-pin connector layout. Lines from the pins point to the following specifications:

- Switch Function:**
 - TP11 SPST Off-Mom.
 - TP12 SPDT On-Mom.
 - TP21 DPST Off-Mom.
- Actuator or Bushing:**
 - SH .155" high plunger, threaded, .220" high bushing, flat
 - SH8 .155" high plunger, unthreaded, .220" high bushing, round
 - SH9 .155" high plunger, unthreaded, .220" high bushing, flat
 - J81 Snap-in with frame
 - LT .215" high plunger, threaded, .310" high bushing, flat
 - LT9 .215" high plunger, unthreaded, .310" high bushing, flat
 - MS9 .130" high plunger, .020" high bushing, round
- Terminations:**
 - A Right angle, PC thru-hole
 - C PC Thru-hole
 - Z Solder lug
 - AV Vertical right angle, PC thru-hole
 - V3 Vertical mount, v-bracket
 - W Wire wrap
- Contact Material:**
 - B Gold
 - K Gold, tin-lead
 - P Gold, matte-tin
 - Q Silver
 - G Gold over silver
 - L Gold over silver, tin lead
 - R Gold over silver, matte-tin
- Seal:**
 - E Epoxy
- Cap Color:**
 - 2 Black
 - NONE Models with no cap
 - 1 White
- Frame Color:**
 - 2 Black
 - NONE Models with no frame

C&K TP Series Tiny Pushbutton Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
		C&K marking on opposite side		C&K marking on opposite side		
SP	TP11	OFF	MOM.	OPEN	1-3	SPST
	TP12	ON	MOM.	2-1	2-3	SPDT
SPDT 						
DP	TP21	OFF	MOM.	OPEN	1-3,4-6	DPST
DPST 						

MOM. = Momentary
All models with all options when ordered with G, L, Q or R contact material.

ACTUATOR—SNAP-IN FRONT MOUNT

CAP COLOR

ACTUATOR OR BUSHING

FRAME COLOR

J81 SNAP-IN WITH FRAME



.615 (15,62)

.150 (3,81)

.090 (2,29)

.370 (9,40)

.320 (8,13)

.765 (19,43)

.450 SQ. (11,43)

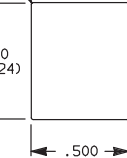
.005 R. MAX. (0,13) TYP.

.600 (15,24)

.500 (12,70)

PANEL THICKNESS .047 TO .125 (1,19) (3,18)

PANEL MOUNTING



OPTION CODE	CAP COLOR
2	BLACK
1	WHITE

OPTION CODE	FRAME COLOR
2	BLACK
NONE	No Frame Color (J80 option)

Cap and Frame Finish: matte. Other colors available, consult Customer Service Center.
NOTE: Available with Z, C, or W terminations.

NOTE: Caps & frames available separately, see page A-18.

C&K TP Series Tiny Pushbutton Switches



A

Pushbutton

SH .155" HIGH PLUNGER,
.220" HIGH BUSHING,
THREADED, FLAT

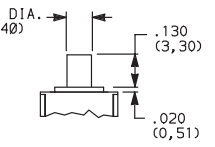
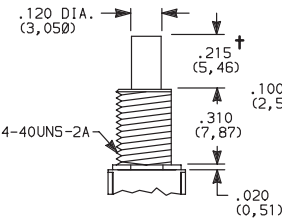
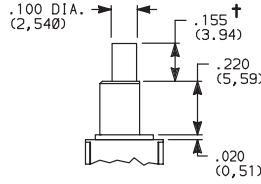
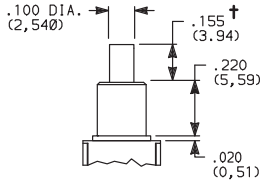
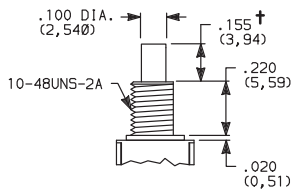
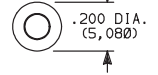
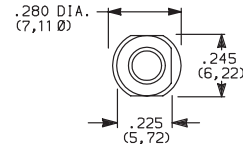
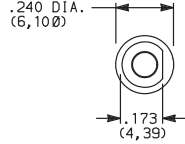
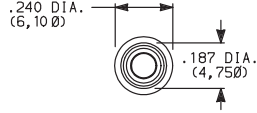
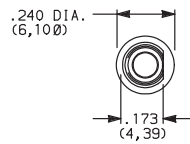
SH8 .155" HIGH PLUNGER,
.220" HIGH BUSHING,
UNTHREADED

SH9 .155" HIGH PLUNGER,
.220" HIGH BUSHING,
UNTHREADED, FLAT

LT .215" HIGH PLUNGER,
.310" HIGH BUSHING,
THREADED

MS9 .130" HIGH
PLUNGER

LT9 .215" HIGH PLUNGER,
.310" HIGH BUSHING,
UNTHREADED



Standard with Z, C, W terminations.

Standard with A, AV, V3 terminations.

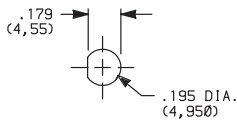
Not available with
Z terminations.

† Subtract .016 (0, 41) for models with A, AV or V3 terminations.

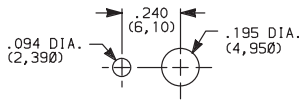
NOTE: Caps available for plunger options, see page A-18.

PANEL MOUNTING

10-48 BUSHING

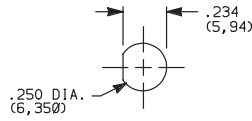


Without locking ring

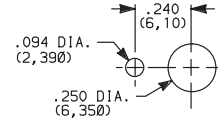


With standard locking ring

1/4 IN. BUSHING



Without locking ring

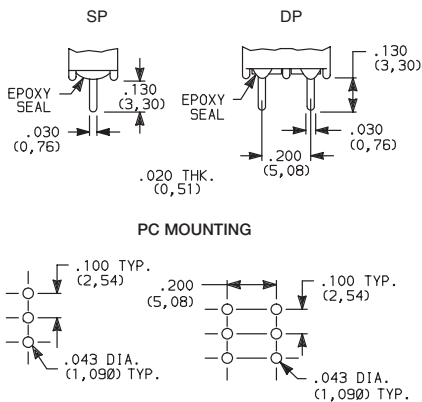


With standard locking ring

NOTE: One mounting nut, locking ring and lockwasher supplied standard with 10-48 threaded bushings (two nuts with 1/4-40 bushings).
Optional mounting nut and locking ring styles and finishes available separately, see section "Technical Data and Additional Hardware".

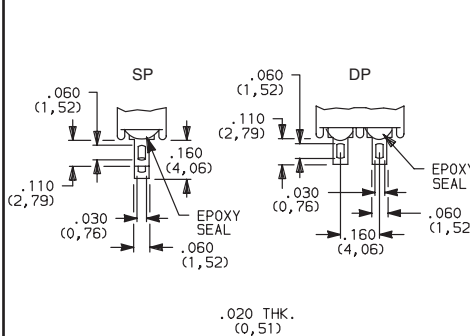
TERMINATIONS

C PC THRU-HOLE



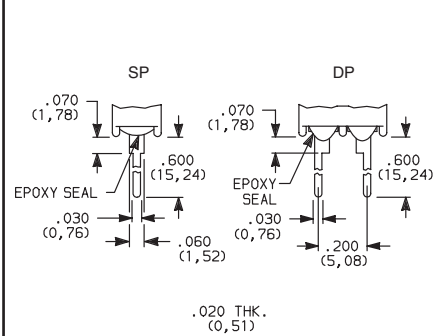
Omit center holes
for TP11 models

Z SOLDER LUG



Not available with MS9 bushing or K, L, P,
or R contact material.

W WIRE WRAP



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change





A

Pushbutton

C&K TP Series Tiny Pushbutton Switches

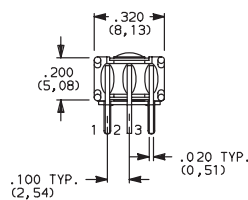
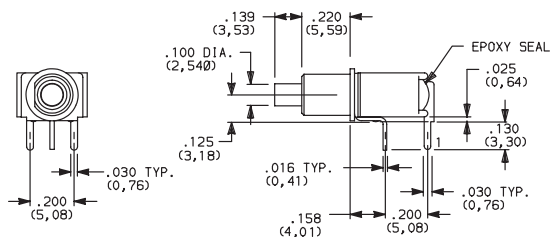
TERMINATIONS



A RIGHT ANGLE, PC THRU-HOLE

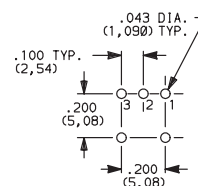


TP12SH9ABE
SPDT



TP11 Models:
omit terminal 2.

PC MOUNTING

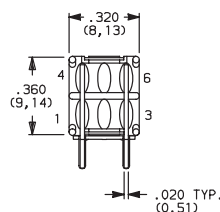
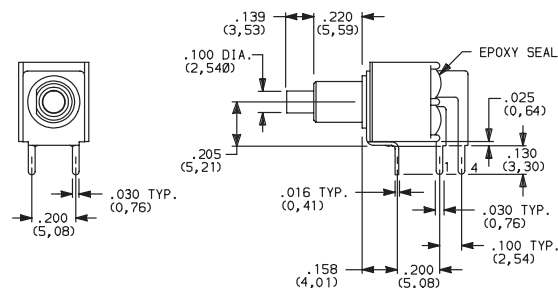


TP11 Models:
omit hole 2.

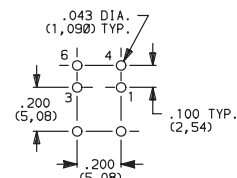
A RIGHT ANGLE, PC THRU-HOLE



TP21SH9ABE
DPST



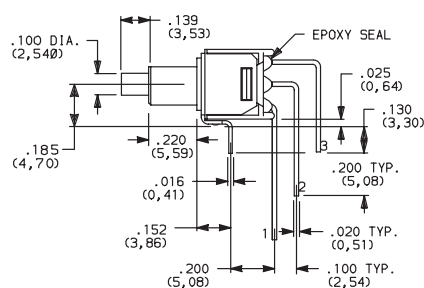
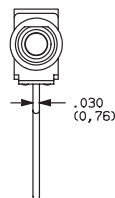
PC MOUNTING



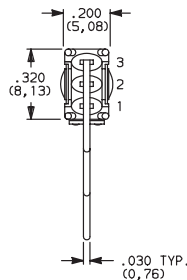
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



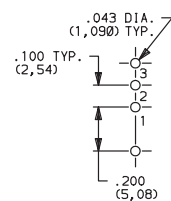
TP12SH9AVBE
SPDT



TP11 Models:
omit terminal 2.



PC MOUNTING



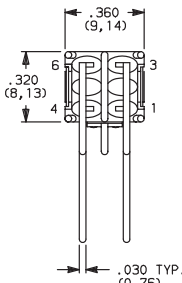
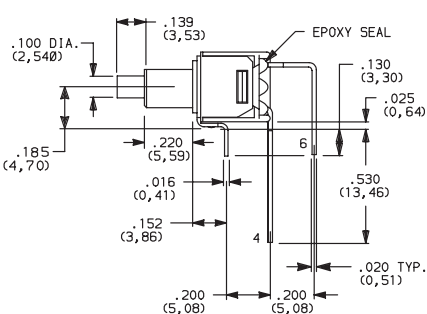
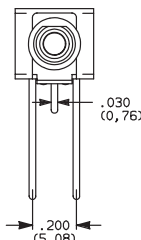
TP11 Models:
omit hole 2.

NOTE: Terminal bend radii and lead-in manufacturing option.

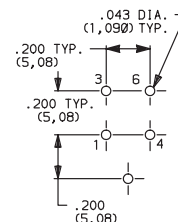
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



TP21SH9AVBE
DPST



PC MOUNTING



NOTE: Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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C&K TP Series Tiny Pushbutton Switches



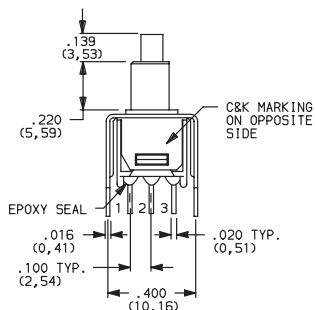
A

Pushbutton

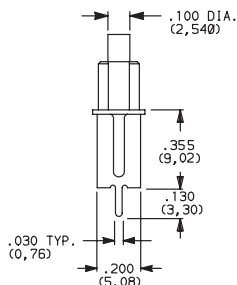
TERMINATIONS



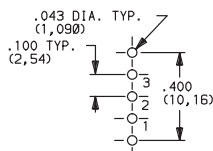
V3 VERTICAL MOUNT, V-BRACKET



TP11 Models:
omit terminal 2.



PC MOUNTING

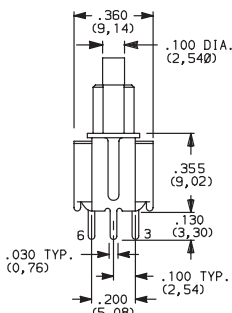
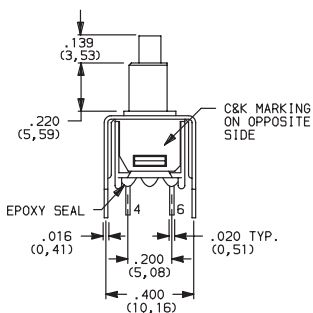


TP11 Models:
omit terminal 2.

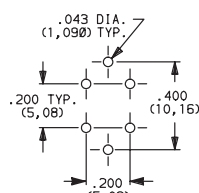


TP12SH9V3BE
SPDT

V3 VERTICAL MOUNT, V-BRACKET



PC MOUNTING



TP21SH9V3BE
DPST

CONTACT MATERIAL



OPTION CODE	CONTACT MATERIAL	RoHS COMPLIANT *	RoHS COMPATIBLE *	TERMINAL PLATING	RATINGS	
B	GOLD ¹	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
K		NO	YES	TIN-LEAD ⁶		
P		YES	YES	MATTE-TIN ⁷		
Q	SILVER ^{4,5}	YES	YES	SILVER ⁵	POWER	1 AMP @ 120 V AC OR 28 V DC.
G	GOLD OVER SILVER ^{2,3}	YES	YES	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.
L		NO	YES	TIN-LEAD ⁶		
R		YES	YES	MATTE-TIN ⁷		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with tin-lead alloy over nickel plate.

⁷ TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with P, R, Q, B or G contact material are RoHS compliant. For the latest information regarding RoHS compliance, please go to: www.ittcannon.com/rohs.

All models  with all options when ordered with R, G, L or Q contact material.

B contact material standard with A, AV, V3 & W terminations.

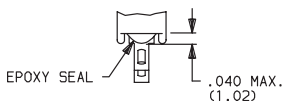
Q contact material standard with C & Z terminations

P, R, K, L contact materials not available with Z terminations.

SEAL



E EPOXY SEAL



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change





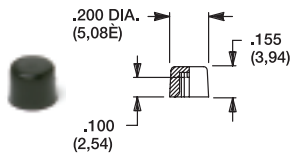
A

Pushbutton

C&K TP Series Tiny Pushbutton Switches

AVAILABLE HARDWARE

Cap, .100" DIA. Plungers

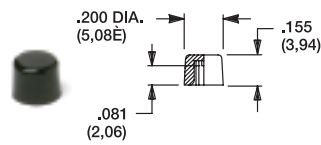


PART NO.

508101000 WHITE
508102000 BLACK

Material: Nylon
Finish: Gloss

Cap, .100" DIA. Plungers (Recommended for S9 plunger)

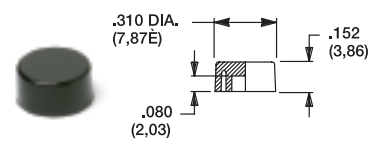


PART NO.

538701000 WHITE
538702000 BLACK

Material: Nylon
Finish: Gloss

Cap, .100" DIA. Plungers

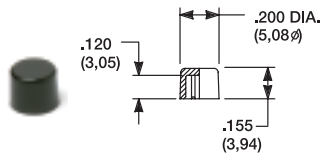


PART NO.

465801000 WHITE
465802000 BLACK

Material: Nylon
Finish: Gloss

Cap, .120" DIA. Plungers

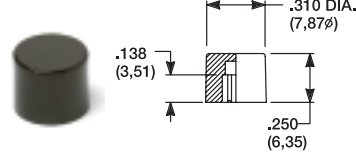


PART NO.

708901000 WHITE
708902000 BLACK

Material: Nylon
Finish: Gloss

Cap, .120" DIA. Plungers

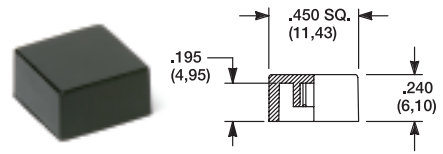


PART NO.

801801000 WHITE
801802000 BLACK

Material: Nylon
Finish: Gloss

Cap, J81 option only



PART NO.

484601000 WHITE
484602000 BLACK

Material: Nylon
Finish: Gloss

PART NO.

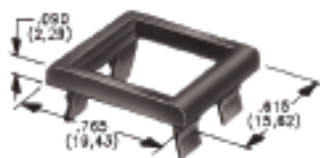
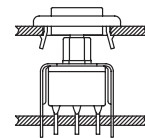
798201000 WHITE
798202263 BLACK

Material: Nylon
Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".
Other cap colors available, consult Customer Service Center.

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



.047" (1,19) PANEL THK.

PART NO.
432502263

.062" (1,57) PANEL THK.

PART NO.
432602263

.090" (2,29) PANEL THK.

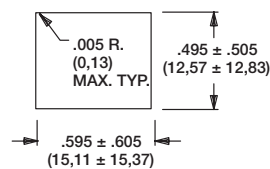
PART NO.
432702263

.125" (3,18) PANEL THK.

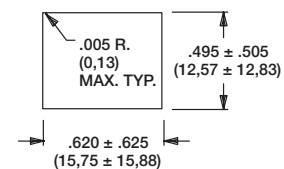
PART NO.
432802263 BLACK

PANEL MOUNTING

For part numbers
432502263, 432602263

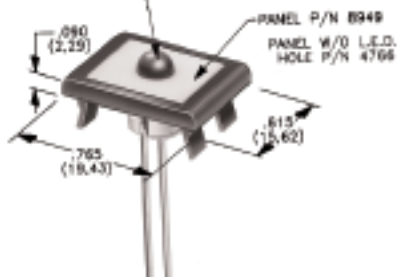


For part numbers
432702263, 432802263



Panel Inserts

LED (.200 DIA. [5,08E]) SNAPS
SECURELY INTO INSERT (P/N 8949).
HEIGHT DEPENDS ON LED USED.



Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**

PANEL INSERT
WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change