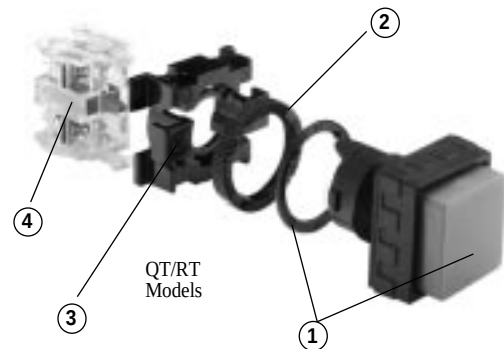
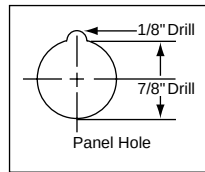
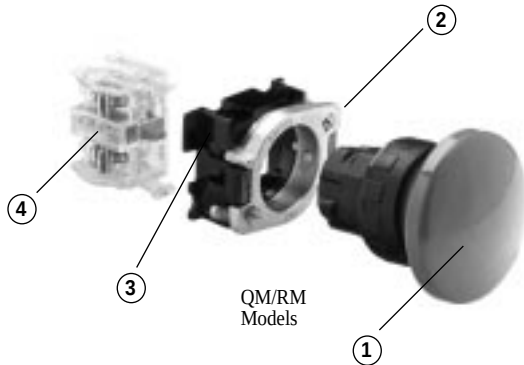


Pushbutton Switches, 22mm, Oil-Tight, Round

FEATURES

- Fits 7/8" (22mm) diameter holes
- Full size buttons
- Meets NEMA 1, 12 and 13
- Rugged heavy-duty metal bushing, or thermoplastic bushings for full installation
- Matte black beveled frame finish
- IP65 protection level
- Snap-block contacts
- 6A @ 600VAC
- Easy "no tool" mounting
- Choice of screw terminals or dual .110/.250 quick connects
- Double-break silver contacts standard, gold plated optional
- Stackable



INSTALLATION & ASSEMBLY

- Engage the operator (1) into the 22.5mm dia. mounting hole.
- Engage metal ring (2) with operator (bayonet lock). Tighten set screws against back of panel.
- Snap the contact blocks (4) on the support (3).
- Snap the support (3) complete with contact blocks (4) on the metal ring (2).

- Engage the operator and seal (1) into the 22.5mm dia. mounting hole.
- Mount back-up nut (2) on bushing and then tighten against panel.
- Snap the contact blocks (4) on the support (3).
- Snap the support (3) complete the contact blocks (4) onto operator (1).

MOMENTARY

Metal Bushings

Contact blocks not supplied, order separately.
(See page 6070.)

Model	Type
RM010(*)	Flush Button
RM020(*)	Extended Button
RM015(*)	Extended Guard

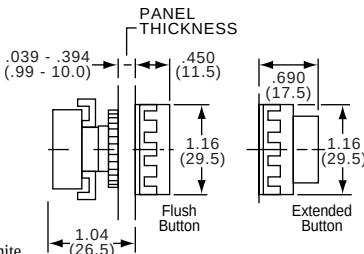
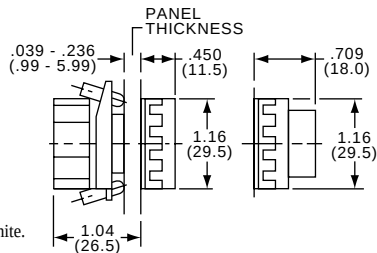
(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.
Note: Front beveled frame is black.

Thermoplastic Bushings (Threaded)

Contact blocks not supplied, order separately.
(See page 6070.)

Model	Type
RT010(*)	Flush Button
RT020(*)	Extended Button

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.
Note: Front beveled frame is black.

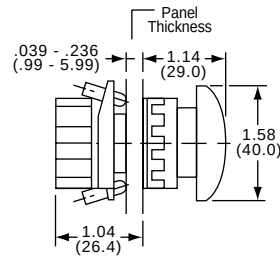


For complete product information, order Catalog 1308390

Pushbutton Switches, 22mm, Oil-Tight, Round or Mushroom or Dual Button



RM0502



MOMENTARY

Mushroom

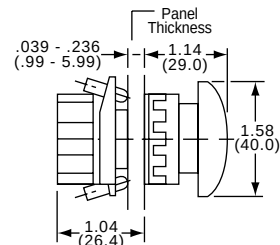
Contact blocks not supplied, order separately. (See page 6070.)

Model	Type	Bushing
RM0502	Mushroom, Red	Metal, Bayonet
RT0502	Mushroom, Red	Thermoplastic, Threaded Bushing
RM0500	Mushroom, Black	Metal, Bayonet
RT0500	Mushroom, Black	Thermoplastic, Threaded Bushing
RM0552	Mushroom, Red	Metal, Bayonet (Wobble)

Note: Front beveled frame is black.



RM0652



PUSH-TO-LOCK, TWIST-RELEASE

Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

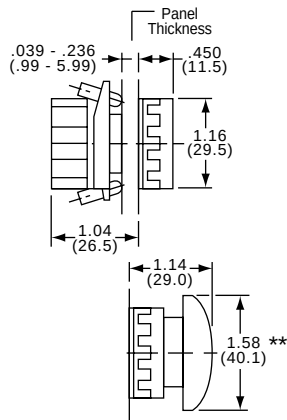
Note: Use F40/V40 for N.C. contacts, and FAO/VAO for N.O. contacts.

Model	Type	Arrow
RM0652	Mushroom, Red	White

Note: Front beveled frame is black.



RM030



MAINTAINED

Contact blocks not supplied, order separately. (See page 6070.)

Note: Use F40/V40 for N.C. contacts and FAO/VAO for N.O. contacts.

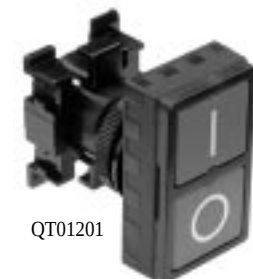
Model	Type
RM030(*)	Flush Button
RM0450	Mushroom, Black
RM0452	Mushroom, Red
RM0532	Push-Pull, Mushroom, Red

(*) Specify color by adding suffix number:

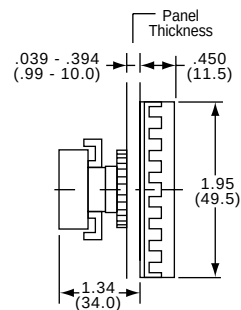
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.

** Note: RM0532 mushroom 35mm Dia. (1.38)



QT01201



MOMENTARY DUAL OPERATOR*

Threaded Thermoplastic bushing

Contact blocks not supplied, order separately. (See page 6070.)

Black buttons available.

Model	Color	Legend
QT01201	Green, Red	As Shown
QT012STSTH	Green, Red	Start & Stop Horizontal

*Not oil tight construction, not sealed; meets NEMA 1 only.

Note: Front beveled frame is black.

For complete product information, order Catalog 1308390

Pushbutton or Keylock or Selector Switches, 22mm, Oil-Tight

MOMENTARY



QM010



QT010

Metal Bushings

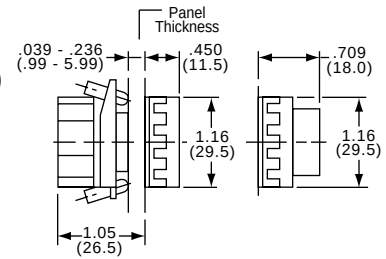
Contact blocks not supplied, order separately. (See page 6070.)

Model	Type
QM010(*)	Flush Button
QM020(*)	Extended Button

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.



Thermoplastic Bushings (Threaded)

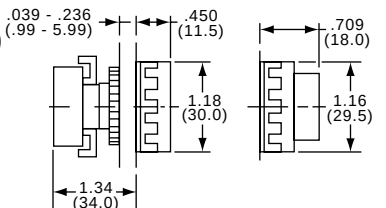
Contact blocks not supplied, order separately. (See page 6070.)

Model	Type
QT010(*)	Flush Button
QT020(*)	Extended Button

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.



RM3040

RM200/201 with 2 keys

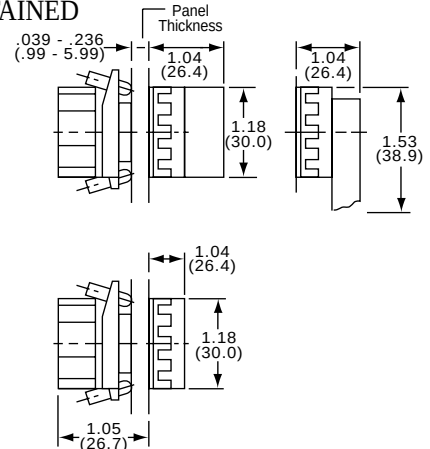
2 POSITION SELECTORS/KEYLOCK MAINTAINED

Metal Bushings

Contact blocks not supplied, order separately.
(See page 6070.)

Model	Action	Throw	CAM	Remove Key
RM4040	Maintained, Black	120°	1	Long Selector
RM3040	Maintained, Black	120°	1	Selector
RM200	Maintained	60°	1	⊙
RM201	Maintained	60°	1	⊙
RM250	Momentary, Right	60°	1	⊙
RM204	Maintained	120°	1	⊙
RM205	Maintained	120°	1	⊙
E1	Spare Key			⊗

Note: Front beveled frame is black.



6

Switches

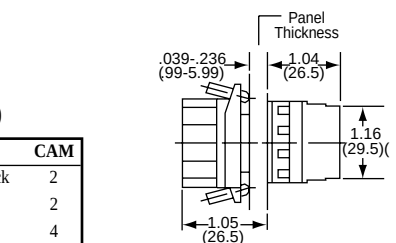
3 POSITION SELECTORS

Short Handle, Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

Model	Action	CAM	Model	Action	CAM
RM3100	Maintained, Black	2	RM3700	Momentary, Right Side, Black	2
RM3120	Maintained, Black	3	RM3800	Double Momentary, Black	2
RM3130	Maintained, Black	4	RM3830	Double Momentary, Black	4

Note: Front beveled frame is black.



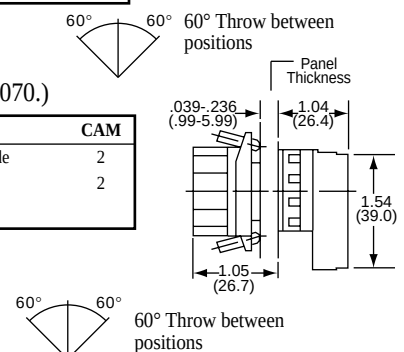
RM3100

Long Handle, Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

Model	Action	CAM	Model	Action	CAM
RM4100	Maintained	2	RM4700	Momentary, Right Side	2
RM4120	Maintained	3	RM4800	Double Momentary	2
RM4130	Maintained	4			

Note: Front beveled frame is black.



RM4100

For complete product information, order Catalog 1308390

Keylock or Pushbutton Switches, 22mm, Oil-Tight or Pilot Lights

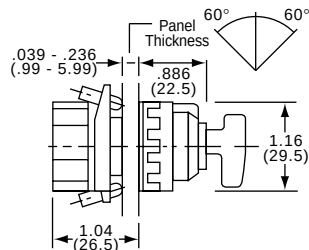
3 POSITION KEYLOCK SELECTOR
MAINTAINED OR MOMENTARY

Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)



Supplied with 2 keys



Model	Action	CAM	Remove Key	Model	Action	CAM	Remove Key
RM210	Maintained	2	⊙	RM243	Maintained	4	⊙
RM220	Maintained	2	⊙	RM270	Mom. Right Side	2	⊙
RM222	Maintained	3	⊙	RM272	Mom. Right Side	3	⊙
RM230	Maintained	2	⊙	RM273	Mom. Right Side	4	⊙
RM232	Maintained	3	⊙	RM280	Mom. Both Sides	2	⊙
RM233	Maintained	4	⊙	E1	Spare Key		⊙
RM240	Maintained	2	⊙				

Note: Front beveled frame is black.

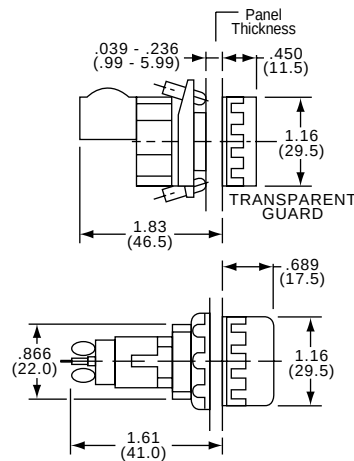


QM600
(RM600)

Metal Bushing



SR601
Threaded
Thermoplastic
Bushings Front lampable



PILOT LIGHTS (FULL VOLTAGE TYPE)

Lamps: order separately, miniature bayonet base.

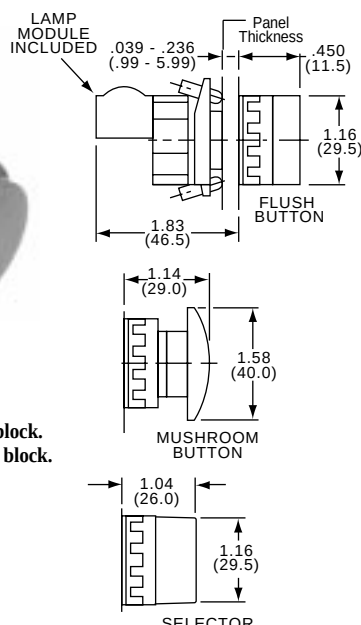
Lamps: use G3 1/2 on QM600(*), use T3 1/4 on SR601(*), RM600(*). Custom legends available.

Model	Type
QM600(*)	Square pilot light, metal bushing
SR601(*)	Round pilot light, plastic bushing screw turn
RM600(*)	Round pilot light, metal bushing

(*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.

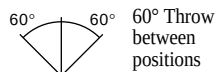


RM120



Application Note:

+V40/F40 used for N.C. contact block.
+VA0/FA0 used for N.O. contact block.



ILLUMINATED/ROUND MOMENTARY/MAINTAINED

Metal Bushing

Contact blocks not supplied, order separately. (See page 6070.)

Lamps: Use T-3 1/4 or G3 1/2 incandescent or neon lamps.

Model	Action	Type	Cam Type
RM120(*)	Momentary	Extended Button	
RM122(*)	Momentary	Guarded Button	
+ RM130(*)	Maintained	Flush Button	Push-On - Push-Off See Application Note
+ RM145(*)	Maintained	Mushroom	
RM150(*)	Momentary	Mushroom	
RM1652	Twist Release	Mushroom, Red	
Illuminated Selectors			
RM650(*)	Maintained	2-Pos. Selector**	1
RM653(*)	Maintained	3-Pos. Selector**	2

When operating from line voltage use step down transformers 5B0 or 570.

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

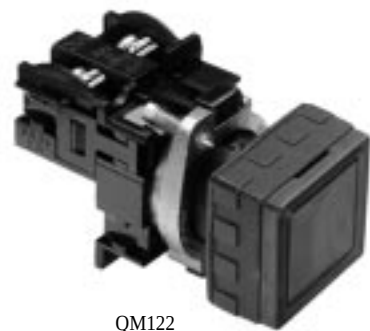
Note: RM145 and RM150 available only in red, yellow, green.

**Use G3 1/2 lamps only.

Note: Front beveled frame is black.

For complete product information, order Catalog 1308390

Pushbutton Switches, 22mm, Oil-Tight, Round or Square Buttons



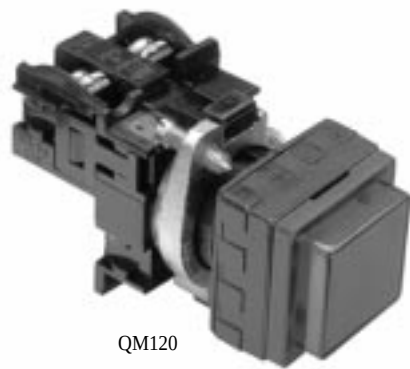
QM122

SQUARE, MOMENTARY ILLUMINATED

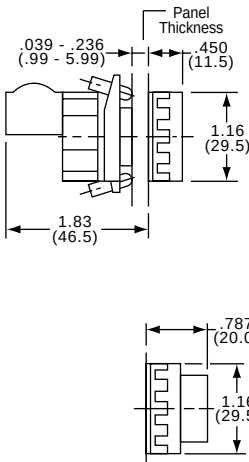
Metal Bushing
Contact blocks not supplied, order separately. (See page 6070.)
Lamp circuit isolated. Order lamps separately.
Custom legends available.

Model	Type
QM122(*)	Flush Button
QM120(*)	Extended Button

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.
Note: Front beveled frame is black.



QM120



ROUND, MOMENTARY ILLUMINATED

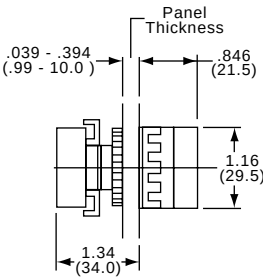


RT120

Thermoplastic
Contact blocks not supplied, order separately. (See page 6070.)
Lamps: use T-3 1/4 or G3 1/2 incandescent or neon lamps.

Model	Action	Type
RT120(*)	Momentary	Extended Button

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.
Note: Front beveled frame is black.



For complete product information, order Catalog 1308390

Standard Contact Blocks

An almost unlimited number of circuit control options are possible using various combinations of contact blocks. Up to twelve "V" or "F" family modular blocks may be used with any operator in the Reliant 22, 2200 or 6000 series, depending on circuit requirements and operator design. The exclusive SNAP-BLOC design permits assembly without the use of tools – no screws or hardware to get lost. Choose either screw terminals or dual

male .110"/.250" quick connect terminals. Plunger color indicates closure mode. The double break silver contacts are enclosed in a tough transparent polycarbonate housing, permitting visual inspection of contacts. Designed-in rocking action assures long, reliable life; over several million operations in normal use. Operating temperature range: -20°C to +70°C.

Application Notes

1. Up to 6 contact blocks may be stacked and snap-mounted in either the upper and/or lower position on the back on any Reliant 22, Series 4000 or 6000 operator.
2. In order to maintain optimum insulating distances when contact blocks are stacked, wiring connections should be in same polarity for operation above 300VAC.
3. Blocks may be prewired and snapped into place for easier assembly.
4. Remove blocks by simply prying tabs. Small screwdriver is all that is necessary.

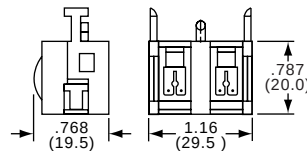
F&V Contact blocks are UL recognized. File Number E-45364
CSA LR-20785-19 CE MARK

ELECTRICAL CONTACT RATINGS

Condition	Function	Standard Series (600 VAC Max.)		
		120V	300V	600V
AC Operation	Inductive Loads	30A 6A	12A 6A	6A 6A
	Resistive Loads	3A 6A	1.2A 6A	0.6A 6A
DC Operation	Inductive & Resistive Loads	1.1A 1.1A	6A 6A	6A 6A
	Continuous Carry Break	6A 6A	6A 6A	6A 6A



F40



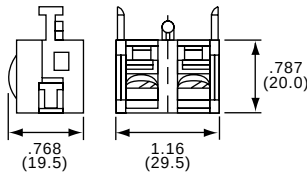
QUICK CONNECT

Model	Contacts	Plunger Color
F40	Normally Closed	Red
F50	Normally Open	Green
FA0	N.O. Early Make	Yellow
FR0	N.C. Late Break	Black

Note: FA0 and FR0 contacts "overlap."



V40



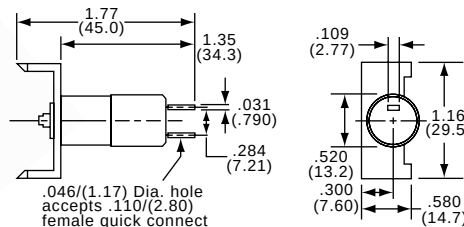
SCREW TERMINAL

Model	Contacts	Plunger Color
V40	Normally Closed	Red
V50	Normally Open	Green
VA0	N.O. Early Make	Yellow
VR0	N.C. Late Break	Black

Note: "V" Series is available with gold plated contacts; order V40G, V50G, VA0G, VR0G. Note: VAO and VRO contacts "overlap."



101B1



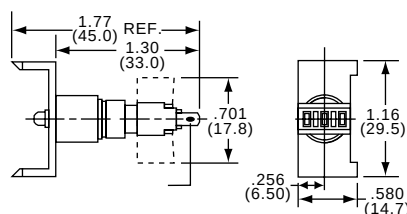
ELECTRONIC DUTY CONTACT BLOCKS

Hermetically sealed reed contact block for logic level use. Use with any pushbutton or with 2 or 3 position selector keylock, having cam type 4 or 5. Rating: 5VA (100ma @ 50 VDC max.) Contact resistance: 100 milliohms max.

Model	Contacts
101B1	SPST, Normally Closed
101C1	SPST, Normally Open
V50D	*Dummy Contact Block

Note: Unit accepts .110/(2.80) female quick connect.

*Note: Use dummy V50 block (shown) when used with selector operator. Order separately.



ALTERNATE ACTION MAINTAINED CONTACTS

Instrument grade double throw contacts
Converts any momentary pushbutton or mushroom operator to push-on/push-off control. 6A @ 125 VAC, 3A @ 250 VAC. Solder terminals or quick connect.

Model	Contacts	Action
106D1	SPDT	Push-On/Push-Off
206N1	DPDT	Push-On/Push-Off
406N1	4PDT	Push-On/Push-Off

For complete product information,
order Catalog 1308390

Series 6000 and Reliant'22 Contact Selection

1. Determine how many contacts are required for the application, and what contact closure sequence is needed for each contact.
- a. 2-Position Operators: There are only two practical possibilities for contact closure sequence. Using "O" to indicate an open and "X" to indicate a closed contact, the options are shown in the table to the right. All Reliant 22 and Series 6000 2-position selection selector and keylock operators provide these options.
- b. 3-Position Operators: There are six practical possibilities for contact closure sequence. Using "O" to indicate an open contact, and "X" to indicate a closed contact, the options are shown in the table to the right. Four different cam types are available to provide various combinations of contact closure sequence. Cam Type 2 (see table below) provides the most popular closure sequence, and Cam Type 3 provides all six possibilities, depending on the contact block models chosen. Note that each operator has an upper and lower contact block location, and that the cam profiles are different for upper and lower locations, except for Cam Type 2.
2. Make a truth table similar to that shown in the example at the bottom of the page, in which each contact required by the circuit of the application is represented. Up to 12 contacts may be used for each operator, depending on the sequences required and the types of contact blocks chosen.
3. Refer to the contact sequence table (below). Find the cam type that will provide all of the required contact closure sequences, and note which contact block model will be needed for each circuit contact.
4. Now refer to one of the tables on the next page to find the operator model that has the cam type needed in the application and that provides the desired features with respect to action (maintained or momentary) type of actuator (lever or key), etc.

2 Position Operators	
0	1
left	right
O	X
X	O

3 Position Operators		
2	0	1
left	center	right
O	O	X
X	O	O
O	X	X
X	X	O
O	X	O
X	O	X

CONTACT CLOSURE SEQUENCE CHART

Contact Blocks		2-Position Operators	
Model		CAM Type 1 upper & lower locations	
		0	1
V40 or F40	Red	X	O
V50 or F50	Green	O	X
VA0 or FA0	Yellow	O	-X
VR0 or FR0	Black	X	-O
I01B1		X	-O
I01C1		O	X

X = Closed O = Open

3-Position Operators									
CAM Type 2			CAM Type 3			CAM Type 4			
upper location	lower location		upper location	lower location		upper location	lower location		
2	0	1	2	0	1	2	0	1	
X	O	O	X	O	O	O	X	-X	X
O	O	X	O	O	X	X	O	O	O
O	X	-X	O	X	-X	X	O	O	O
X	-X	O	X	-X	O	O	X	-X	O
						O	X	-X	X
						X	O	O	O

Example: An "Off-On-Reset" circuit control requires a 3-position or 2-position keylock switch. The key is to be removable in the "OFF" and "ON" position and the "Reset" position must be momentary (spring return from right to center). All contacts are open in the "Off" position, and two contacts are closed in the "On" position. In the "Reset" position a third contact must close and one of the contacts

in the "on" position must open. This contact closure sequence is shown by the following truth table:

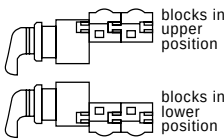
Contact Number	Off (2)	On (0)	Reset (1)
1	O	X	X
2	O	X	O
3	O	O	X

Referring to the Contact Closure Sequence Table, it is seen that cam Type 3 provides these sequences. In addition, the contact block models that should be used are given; model VA0 (or FA0 for contact No. 1, to be installed in the upper contact block location; model V40 (or F40) for contact No. 2, to be installed in the lower

contact block location; and model V50 (or F50) for contact No. 3, which may be used in either the upper or lower contact block location, behind one of the other two blocks. Reference to the operator model listings shows that model RM272 provides cam Type 3 and has desired momentary action and key removability.

SELECTOR & KEYLOCK OPERATORS

ALCOSWITCH selector and keylock operators, in combination with the contact blocks listed on page 6070, are designed to fulfill the circuit requirements of almost any 2- or 3-position control application. Each operator has two locations (upper and lower) into which contact blocks may be snap-mounted. Up to size contact blocks may be stacked in each location, the maximum number depending on the contact block models chosen and the contact closure sequences required. (Note: only one logic level block may be used in each location.)



For complete product information, order Catalog 1308390

Pushbutton Switches, 30mm, Round or Mushroom Buttons



M60102

FLUSH GUARD MOMENTARY

Metal Bushing

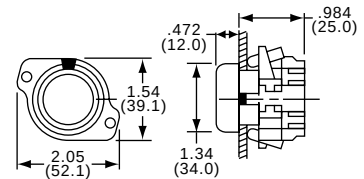
Replaces T6010

Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details
M6010(*)	Momentary

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.



M60200

EXTENDED BUTTON MOMENTARY

Metal Bushing

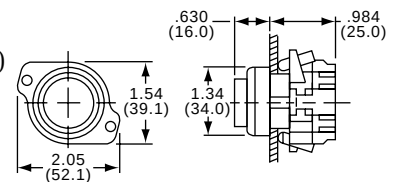
Replaces T6020

Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details
M6020(*)	Momentary

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.



M60572

MUSHROOM HEAD MOMENTARY PUSH MAINTAINED

Metal Bushing

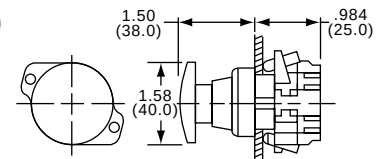
Replaces T6020/M6050

Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details	Color
M6057(*)	Momentary	(*)
M60532	Push-Pull	Red
M60652	Push-Lock/Twist To Release	Red

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.



M60582

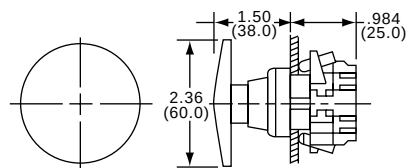
LARGE MUSHROOM HEAD MOMENTARY PUSH

Metal Bushing

Replaces T6051/M6051

Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details	Color
M60582	Momentary	Red



M60802

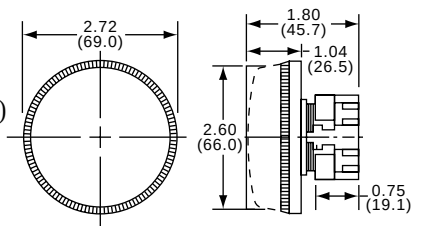
LARGE GUARDED MUSHROOM HEAD MOMENTARY PUSH

Metal Bushing. Heavy duty metal bushing and guard.

Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details
M6080(*)	Momentary

(*) Specify color by adding suffix number: (0) Black, (2) Red, (5) Green.

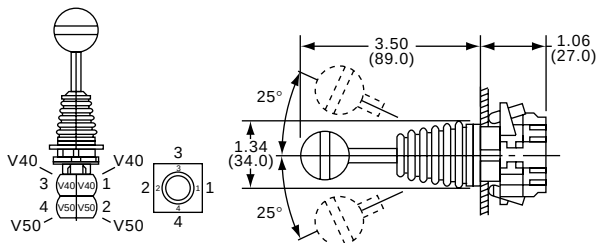


For complete product information, order Catalog 1308390

Selector Switches or Joysticks, 30mm, Oil-Tight



M65500



5-POSITION JOYSTICK (4 Active & Center-Off)

Metal Bushing
Maintained or momentary model with or without mechanical latch. Inherent design requires use of two N.O. and N.C. Contact blocks not supplied, order separately. (See page 6070.) Supplied with legend plate (1-2-3-4), black knob.

CONTACT ARRANGEMENT

Contact blocks should be placed as shown. All contacts are held open in neutral position. Each number contact closed when activated. Model M6531- is similar to M65510, but has only two active positions, requires one N.O. and one N.C. contact block.

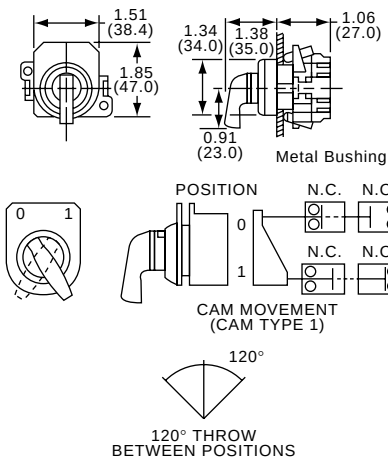
Note: All positions are mutually exclusive and action must pass through neutral for all changes of operator level.

Model	Action				
M65310	Momentary, No Latch	(On)	Off	(On)	
M65500	Maintained, No Latch	On	On	Off	On
M65510	Momentary, No Latch	(On)	(On)	Off	(On)
M65810	Momentary w/Latch	(On)	(On)	Off	(On)

(On) indicates momentary position.



M64022



2-POSITION SELECTOR MAINTAINED

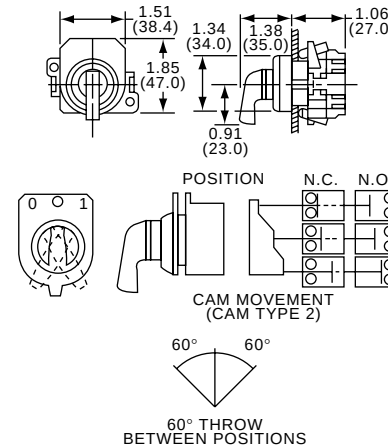
Metal Bushing
Contact blocks not supplied, order separately. (See page 6070.) Legend plate included. Replaces T6402 Series.

Model	Action	Lever	Position Number
M6402(*)	Maintained	Long	0 1

(*) Specify color by adding suffix number: (0) Black, (2) Red.



M64120



3-POSITION SELECTOR MAINTAINED OR MOMENTARY

Metal Bushing
Contact blocks not supplied, order separately. (See page 6070.) Legend plate included. Replaces T6400 Series.

Model	Action	Lever	Cam	Position Number
M6410(*)	Maintained	Long	2	2 0 1
M6412(*)	Maintained	Long	3	2 0 1
M6470(*)	Mom. 1 Side	Long	2	2 0 ← 1
M6480(*)	Mom. 2 Sides	Long	2	2 → 0 ← 1

(*) Specify color by adding suffix number: (0) Black, (2) Red.

For complete product information, order Catalog 1308390

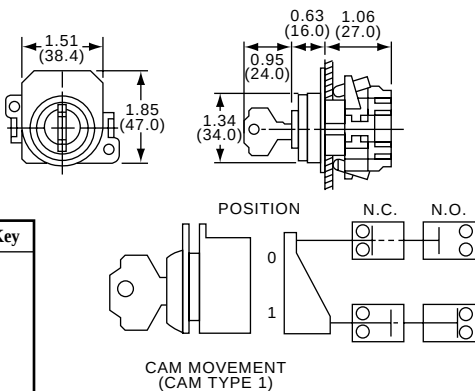


M6200

2 POSITION KEY SELECTOR
MAINTAINED OR MOMENTARY

Metal Bushing
Supplied with two keys and legend plate.
Contact blocks not supplied, order separately.
(See page 6070) Replaces T6200 Series.

Model	Action	Cam	Position Number		Throw	Remove Key
M6200	Maintained	1	0	1	60°	
M6201	Maintained	1	0	1	60°	
M6250	Momentary	1	0	← 1	60°	
G001	Additional Keys					
	← Indicates momentary return position					

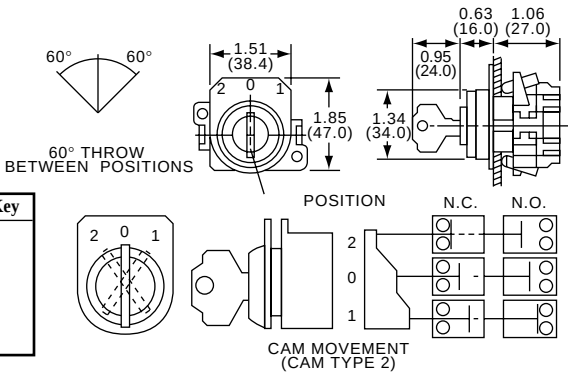


M6270

3 POSITION KEY SELECTOR
MAINTAINED OR MOMENTARY

Metal Bushing
Supplied with two keys and legend plate.
Contact blocks not supplied, order separately.
(See page 6070.) Replaces T6200 Series.

Model	Action	Cam	Position Number			Remove Key
M6210	Maintained	2	2	0	1	⊖
M6270	Mom. 1 Side	2	2	0 ←	1	⊗
M6280	Mom. 2 Sides	2	2	→ 0 ←	1	⊖
G001	Additional Keys	← Indicates momentary return position				



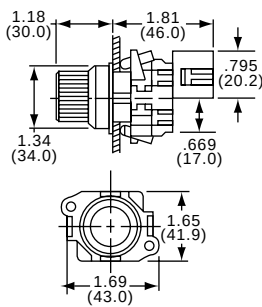
M61202406

ILLUMINATED EXTENDED BUTTON MOMENTARY

Metal Bushing
miniature bayonet base lamps. Lamp circuit is isolated. Contact blocks not supplied, order separately. (See page 6070) Replaces T6120.

Model	Special Details
M6120(*)406	Momentary

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (9) White.



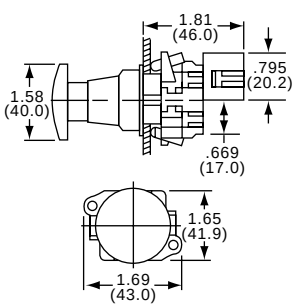
M61502406

ILLUMINATED MUSHROOM
MAINTAINED OR MOMENTARY

Metal Bushing
Contact block not supplied, order separately. (See page 6070.)
Uses miniature bayonet base lamps. Lamp circuit is isolated.
(Replaces T6150)

Model	Special Details
M6150(*)406	Momentary
M6153(*)406	Maintained, Push-Pull

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (9) White.



For complete product information, order Catalog 1308390

Pushbutton Switches, 16mm, Illuminated

FEATURES:

Command Series Illuminated Pushbuttons are instrument-grade switches having snap-acting double break contacts, silver clad and gold plated to satisfy the requirements of logic level and power switching. **Contacts are electrically independent of one another and are isolated from the lamp circuit.** Tactile feel is excellent and maintained models have latching feature for visible indication of status. Uses T1-3/4 midget flanged base lamp, relampable from front of panel. Legends may be provided using printed transparent tape affixed to inner button. Oiltight models meet NEMA 1, 12 & 13 requirements. UL Recognized, File E-51302, CSA LR-20479

Note: Recommended panel thickness 4mm max.

MATERIAL SPECIFICATIONS:

ContactsGold plate over silver clad

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
5 A @ 250 VAC or 24 VDC (Resistive)
Initial Contact Resistance20 Milliohms max.
Insulation Resistance100 Megohms min.
Dielectric Strength1,500 VAC
Life Expectancy100,000 Operations @ rated current

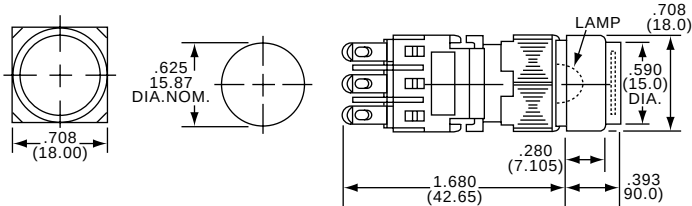
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)

ROUND



164EL11



Non-Oiltight	Oiltight	Contact	Action
164EL11	165EL11	1 N.O. & N.C.	Momentary
164EL22	165EL22	2 N.O. & N.C.	Momentary
164EL33	165EL33	3 N.O. & N.C.	Momentary
164EL511	165EL511	1 N.O. & N.C.	Push on/Push off
164EL522	165EL522	2 N.O. & N.C.	Push on/Push off
164EL533	165EL533	3 N.O. & N.C.	Push on/Push off

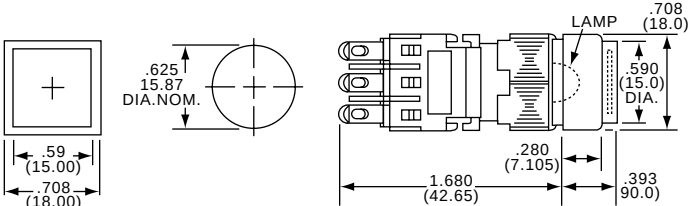
Application Note: For lens sets and lamps, see page 6077

SQUARE

Lens set and lamps not supplied.



164SL11



Non-Oiltight	Oiltight	Contact	Action
164SL11	165SL11	1 N.O. & N.C.	Momentary
164SL22	165SL22	2 N.O. & N.C.	Momentary
164SL33	165SL33	3 N.O. & N.C.	Momentary
164SL511	165SL511	1 N.O. & N.C.	Push on/Push off
164SL522	165SL522	2 N.O. & N.C.	Push on/Push off
164SL533	165SL533	3 N.O. & N.C.	Push on/Push off

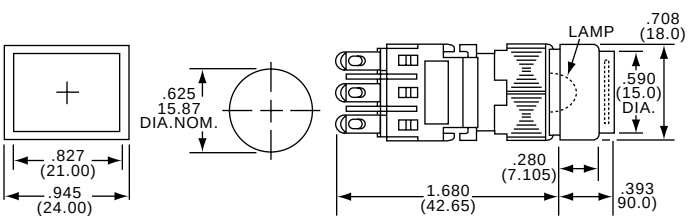
Application Note: For lens sets and lamps, see page 6077

RECTANGULAR

Lens set and lamps not supplied.



164TL11



Non-Oiltight	Oiltight	Contact	Action
164TL11	165TL11	1 N.O. & N.C.	Momentary
164TL22	165TL22	2 N.O. & N.C.	Momentary
164TL33	165TL33	3 N.O. & N.C.	Momentary
164TL511	165TL511	1 N.O. & N.C.	Push on/Push off
164TL522	165TL522	2 N.O. & N.C.	Push on/Push off
164TL533	165TL533	3 N.O. & N.C.	Push on/Push off

Application Note: For lens sets and lamps, see page 6077

Selector or Keylock Switches, 16mm

FEATURES:

Command Series Selector & Keylock Switches are 2 & 3-position rotary types with snap-cutting double break contacts. All models have 90° throw. Contacts are silver-clad and gold-plated to provide reliable operation at logic levels as well as for power switching applications. Contacts are electrically isolated from one another. Keylock types are supplied with two keys. Oiltight models meet NEMA 1, 12 & 13 requirements. PC/Wirewrap terminations also available. Consult factory.

UL Recognized File E-51302

CSA LR-20479

MATERIAL SPECIFICATIONS:

ContactsGold plate over silver clad

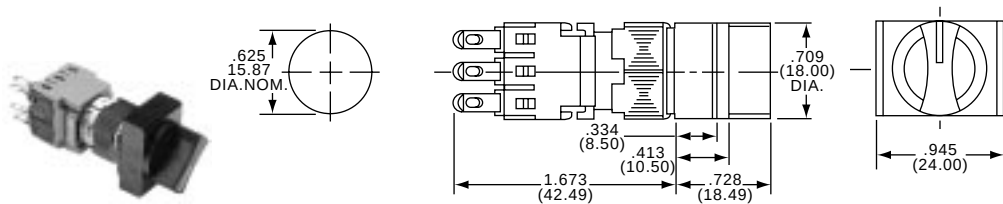
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
 5 A @ 250 VAC or 24 VDC (Resistive)
 Initial Contact Resistance20 Milliohms max.
 Insulation Resistance100 Megohms min.
 Dielectric Strength1,500 VAC
 Life Expectancy100,000 Operations at rated current

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)

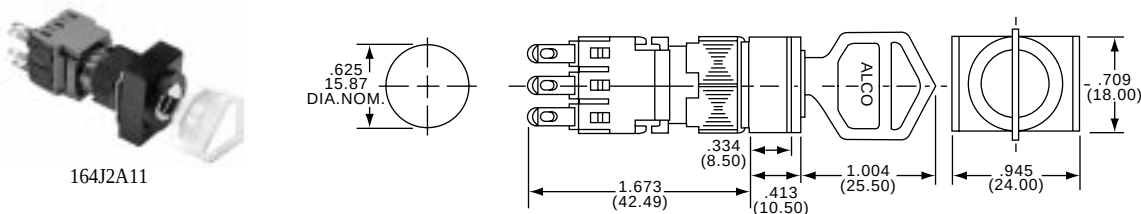
SELECTORS



164P2B11

Non-Oiltight	Oiltight	Contact	Action
164P2B11	165P2B11	1N.O. & N.C.	2 Pos. Maintained
164P2B22	165P2B22	2N.O. & N.C.	2 Pos. Maintained
164P2B33	165P2B33	3N.O. & N.C.	2 Pos. Maintained
164P0B22		2N.O. & N.C.	2 Pos. Momentary Right
164P0B33		3N.O. & N.C.	2 Pos. Momentary Right
164P3B22	165P3B22	2N.O. & N.C.	3 Pos. Center Off/Maintained
164P3B33	165P3B33	3N.O. & N.C.	3 Pos. Center Off

KEYLOCKS



164J2A11

2 Position Keylocks				3 Position Keylocks			
Non-Oiltight	Oiltight	Contact	Action	Non-Oiltight	Oiltight	Contact	Action
164J2A11	165J2A11	1N.O. & N.C.	Maintained, key pull left	164J3A22	165J3A2	2N.O. & N.C.	Maintained, key pull left
164J2A22	165J2A22	2N.O. & N.C.	Maintained, key pull left	164J3A33	165J3A33	3N.O. & N.C.	Maintained, key pull left
164J2A33	165J2A33	3N.O. & N.C.	Maintained, key pull left	164J3E22	165J3E22	2N.O. & N.C.	Maintained, key pull center
164J2B11	165J2B11	1N.O. & N.C.	Maintained, key pull both	164J3E33	165J3E33	3N.O. & N.C.	Maintained, key pull center
164J2B22	165J2B22	2N.O. & N.C.	Maintained, key pull both	164J3C22	165J3C22	2N.O. & N.C.	Maintained, key pull all
164J2B33	165J2B33	3N.O. & N.C.	Maintained, key pull both	164J3C33	165J3C33	3N.O. & N.C.	Maintained, key pull all
164J0A11		1N.O. & N.C.	Momentary right, key pull left	164J7A22	165J7A22	2N.O. & N.C.	Momentary right, key pull left
164J0A22		2N.O. & N.C.	Momentary right, key pull left				
164J0A33		3N.O. & N.C.	Momentary right, key pull left				

Application Note: Spare key part number for 164J-165J Series is **164KA**

For complete product information, order Catalog 1308390

Pilot Light Indicators or Lens Sets, 16mm

FEATURES

Command Series Pilot Light Indicators match the appearance of both lighted and unlighted Command Series pushbuttons. The same lens buttons are snapped into place and legends may be easily inserted. Illumination is from T - 1 3/4 midget flange based lamps, which are installed from the front panel. Lenses and lamps are ordered separately and be sure to specify color. Oiltight models meet NEMA 1, 12 & 13 requirements. UL File No. E-51302 CSA LR-20479

TYPICAL PERFORMANCE CHARACTERISTICS:

LAMP DISSIPATION 1.2W MAX.
Insulation Resistance100 Megohms min.
Dielectric Strength1,500 VAC

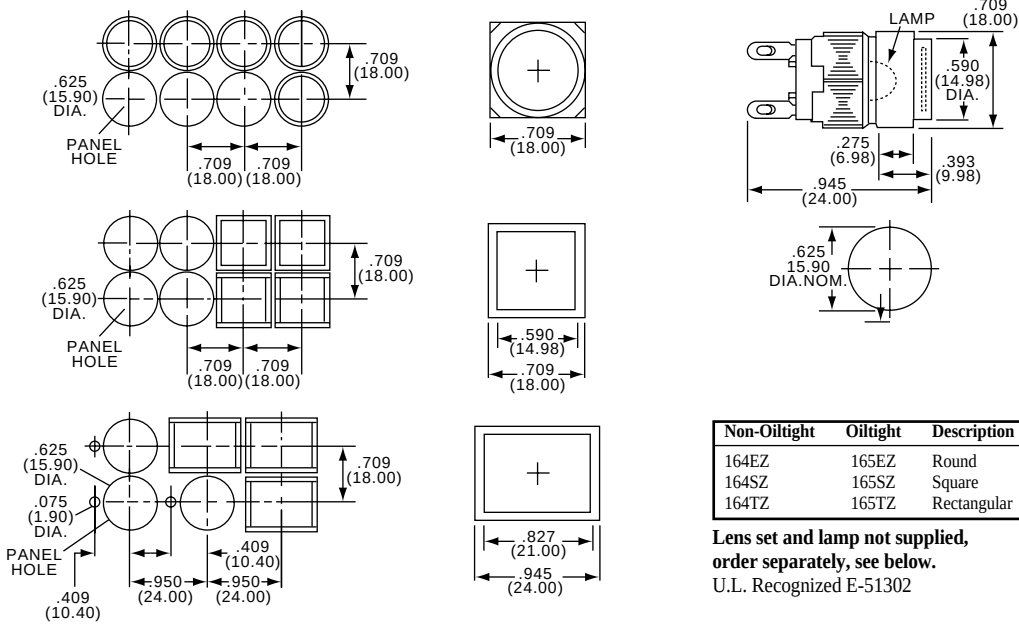
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)

PILOT LIGHT INDICATORS



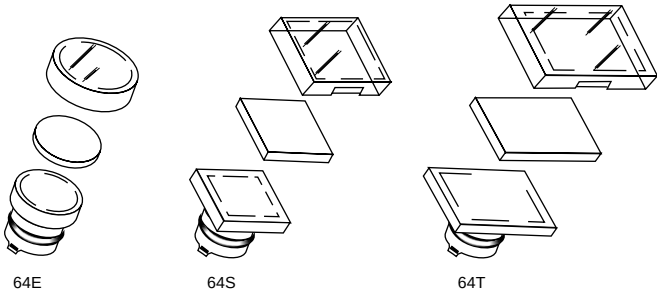
164EZ



LENS SET



64E



Model	Description
64E(*)	Round lens set
64S(*)	Square lens set
64T(*)	Rectangular lens set
All fit oiltight and non-oiltight indicators.	
(*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White/Clear.	

Application Note:
Lens sets include, button, diffuser and cap.

For complete product information, order Catalog 1308390