Bulletin 800A — 16mm Push Buttons

• IEC style
• 16 mm mounting hole
• IP65 NEMA Type 13
• Internationally rated operators

Table of Contents
See below.

Table of Contents

16 mm Push Buttons
Specifications

### Specifications*

Electrical Ratings	
Maximum Contact Ratings	1 A, 125V AC 1 A, 250V AC resistive
Continuous 5 A (I_{th})	1 A, 28V DC resistive 1 mA, 5V DC low level 100 mA, 50 mV dry circuit
Mechanical Ratings	
UL Listed	File E14840 Guide NKCR
CSA Approved	LR1234 (operators), LR2923 (assembled panels)
IEC Compliance	IEC 144
Mechanical endurance	1 000 000 cycles
Contact material	Gold plate over silver
Contact bounce	3 ms (typical)
Electrical life	200 000 cycles at rated load
Dielectric strength	1000V RMS at sea level
Environment	
Temperature range **Note:** Operating temperature ranges below +32°F (0°C) are based on the absence of freezing moisture and liquids.	Operating: –20…+45°C (–4…+113°F) Storage: –30…+85°C (–22…+185°F)
NEMA Types	1, 3, 12, and 13; IEC 144, IP65
Construction	
Circuits	1 N.O. - 1 N.C., SPDT Double-break contacts
Contact terminals	Gold-plated, solderable, quick connect stabs 0.110 x 0.020 in. or PC board/wire wrap pin 0.020 x 0.030 in. (0.210 in. long) terminals
Lamp terminals	Tin-plated

∗ Performance Data — See Important-3 in the Industrial Controls catalog..
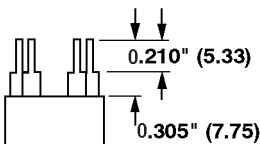
Termination

Units are available with quick-connect stab or PC board terminals.

Stab Terminations
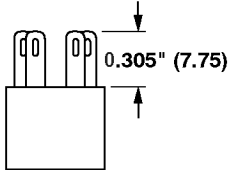
0.110 x 0.020 in. solderable stabs are compatible with AMP connector Part No. 61060-1 or equivalent. These connectors will accept one #18 or two #22 AWG wires maximum. Contact terminals are gold-plated and lamp terminals are tin-plated.

PC Board Pin Termination

0.020 x 0.030 in. (0.210 in. long) require a 0.036 in. diameter hole for direct PC board mount or quick-connect PC board pin sockets (**Cat. No. 800A-N66**).

Stab and PC Board Pin Circuit Layout

❋ Lamp terminals are not provided on knob or key selector switches.

Terminal Spacing — PC Pin Termination

Allen-Bradley

Push Buttons and Pilot Lights — Round, Square, and Rectangular Bezel
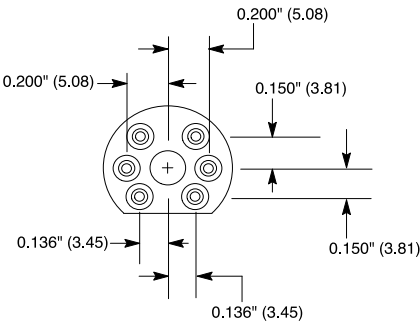
Round Bezel
Cat. No. 800A-T2AR24

Square Bezel
Cat. No. 800A-M2FR

Rectangular Bezel
Cat. No. 800A-L2CR24

Momentary Non-Illuminated Push Buttons

Contact Type	Operator Type	Termination	Color	Round Cat. No.	Square Cat. No.	Rectangular Cat. No.
1 N.O. - 1 N.C.	Extended	Stab	Red	800A-M2AR	800A-M2BR	800A-M2CR
			Green	800A-M2AG	800A-M2BG	800A-M2CG
		PC pin	Red	800A-C2AR	800A-C2BR	800A-C2CR
			Green	800A-C2AG	800A-C2BG	800A-C2CG
	Flush	Stab	Red	800A-M2ER	800A-M2FR	800A-M2GR
			Green	800A-M2EG	800A-M2FG	800A-M2GG
		PC pin	Red	800A-C2ER	800A-C2FR	800A-C2GR
			Green	800A-C2EG	800A-C2FG	800A-C2GG

Momentary Illuminated Push Buttons

Lamp Type and Volts	Contact Type	Operator Type	Termination	Color	Round Cat. No.	Square Cat. No.	Rectangular Cat. No.
Incandescent 24V AC/DC	1 N.O. - 1 N.C.	Extended	Stab	Red	800A-M2AR24	800A-M2BR24	800A-M2CR24
				Green	800A-M2AG24	800A-M2BG24	800A-M2CG24
			PC pin	Red	800A-C2AR24	800A-C2BR24	800A-C2CR24
				Green	800A-C2AG24	800A-C2BG24	800A-C2CG24
		Flush	Stab	Red	800A-M2ER24	800A-M2FR24	800A-M2GR24
				Green	800A-M2EG24	800A-M2FG24	800A-M2GG24
			PC pin	Red	800A-C2ER24	800A-C2FR24	800A-C2GR24
				Green	800A-C2EG24	800A-C2FG24	800A-C2GG24

Maintained Illuminated Push Buttons

Lamp Type and Volts	Contact Type	Operator Type	Termination	Color	Round Cat. No.	Square Cat. No.	Rectangular Cat. No.
Incandescent 24V AC/DC	1 N.O. - 1 N.C.	Extended	Stab	Red	800A-T2AR24	800A-T2BR24	800A-T2CR24
				Green	800A-T2AG24	800A-T2BG24	800A-T2CG24
			PC pin	Red	800A-F2AR24	800A-F2BR24	800A-F2CR24
				Green	800A-F2AG24	800A-F2BG24	800A-F2CG24
		Flush	Stab	Red	800A-T2ER24	800A-T2FR24	800A-T2GR24
				Green	800A-T2EG24	800A-T2FG24	800A-T2GG24
			PC pin	Red	800A-F2ER24	800A-F2FR24	800A-F2GR24
				Green	800A-F2EG24	800A-F2FG24	800A-F2GG24

Pilot Lights

Lamp Type and Volts	Contact Type	Operator Type	Termination	Color	Round Cat. No.	Square Cat. No.	Rectangular Cat. No.
Incandescent 24V AC/DC	1 N.O. - 1 N.C.	Extended	Stab	Red	800A-L2AR24	800A-L2BR24	800A-L2CR24
				Green	800A-L2AG24	800A-L2BG24	800A-L2CG24
			PC pin	Red	800A-E2AR24	800A-E2BR24	800A-E2CR24
				Green	800A-E2AG24	800A-E2BG24	800A-E2CG24
		Flush	Stab	Red	800A-L2ER24	800A-L2FR24	800A-L2GR24
				Green	800A-L2EG24	800A-L2FG24	800A-L2GG24
			PC pin	Red	800A-E2ER24	800A-E2FR24	800A-E2GR24
				Green	800A-E2EG24	800A-E2FG24	800A-E2GG24

Push Buttons and Pilot Lights — Round, Square, and Rectangular Bezel

800A –	M	2A	A	24	C
	a	*b*	*c*	*d*	*e*
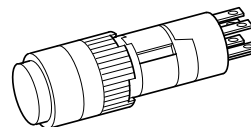
a

Operator and Termination Type	
Stab Type Termination∗	
Code	**Description**
M	Momentary push button
T	Maintained push button
L	Pilot light
PC Pin Type Termination✳	
Code	**Description**
C	Momentary push button
F	Maintained push button
E	Pilot light

b

Bezel and Head Type	
Extended Head	
Code	**Description**
2A	Round
2B	Square
2C	Rectangular

b (cont'd)

Bezel and Head Type	
Flush Head	
Code	**Description**
2E	Round
2F	Square
2G	Rectangular

c

Lens Cap	
Code	**Description**
--	Leave blank if no lens cap or lamp desired (Blank)
X	Used only when lamp and no lens cap is desired
A	Amber
B	Blue
C	Clear
G	Green
R	Red‡

d

Lamp Type and Voltage	
Non-Illuminated	
Code	**Description**
--	Non-illuminated — supplied without lamp (Blank)
Incandescent	
Code	**Description**
06	6V AC/DC
12	12V AC/DC
24	24V AC/DC

d (cont'd)

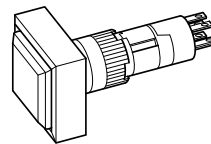| Lamp Type and Voltage	
LED§	
Code	**Description**
6L	6V AC/DC
2L	12V AC/DC
4L	24V AC/DC
0L	120V AC
Neon►	
Code	**Description**
10	120V AC
20	240V AC

e

Factory Assembly	
Code	**Description**
--	Leave blank for no factory assembly (Blank)
C	Completely assembled

Push Buttons and Pilot Lights, Large Square Bezel

800A –	M	2D	A	24	C
	a	*b*	*c*	*d*	*e*

a

Operator and Termination Type	
Stab Type Termination∗	
Code	**Description**
M	Momentary push button
T	Maintained push button
L	Indicating light
PC Pin Type Termination✳	
Code	**Description**
C	Momentary push button
F	Maintained push button
E	Indicating light

b

Bezel and Head Type	
Code	**Description**
2D	Extended head large square
2H	Flush head large square

c

Lens Cap	
Code	**Description**
--	Leave blank if no lens cap or lamp desired (Blank)
X	Used only when lamp and no lens cap is desired
A	Amber
B	Blue
C	Clear
G	Green
R	Red‡

d

Lamp Type and Voltage	
Non-Illuminated	
Code	**Description**
--	Non-illuminated — supplied without lamp (Blank)
Incandescent	
Code	**Description**
06	6V AC/DC
12	12V AC/DC
24	24V AC/DC

d (cont'd)

Lamp Type and Voltage	
LED§	
Code	**Description**
6L	6V AC/DC
2L	12V AC/DC
4L	24V AC/DC
0L	120V AC
Neon►	
Code	**Description**
10	120V AC
20	240V AC

e

Factory Assembly	
Code	**Description**
--	Leave blank for no factory assembly (Blank)
C	Completely Assembled

∗ 0.110 x 0.20 in. solderable stab terminals are compatible with AMP connector Part No. 61060-1 or equivalent.
✳ Compatible with PC pin connector Cat. No. 800A-N66. Available in packs of 50.
‡ Red flush head push buttons are not suitable for applications requiring extended head, or other unguarded buttons capable of being operated quickly in emergencies, and they may not comply with applicable codes or standards.
§ LEDs include internal current limiting resistors.
► Neon lamps are only available with clear, amber, or red lens cap.

Allen-Bradley

Selector Switches and Rotary Operators

Round Bezel, Knob Operator
Cat. No. 800A-H2AW

Square Bezel, Cylinder Lock
Cat. No. 800A-HC2B

Rectangular Bezel, Knob Operator
Cat. No. 800A-G2CW

2-Position Cylinder Lock and Knob Operated Selector Switches					Round	Square	Rectangular
		Operator Position					
Termination Type	Operator Type			Operator Function	Cat. No.	Cat. No.	Cat. No.
Stab	Key	O	X	Maintained in both positions	800A-HC2A	800A-HC2B	800A-HC2C
PC pin	Key	X	O		800A-GC2A	800A-GC2B	800A-GC2C
Stab	Knob	O	X		800A-H2AW	800A-H2BW	800A-H2CW
PC pin	Knob	X	O		800A-G2AW	800A-G2BW	800A-G2CW

Note: X = Closed/O = Open

3-Position Selector Switches						Round	Square	Rectangular
		Operator Position			Operator Function M = Maintained S = Spring Return			
Termination Type	Poles Per Position					Cat. No.	Cat. No.	Cat. No.
Solder lug	One	X O O	O X O	O O X	M M M	800A-JJ2AW	800A-JJ2BW	800A-JJ2CW
					S→M←S	800A-JB2AW	800A-JB2BW	800A-JB2CW
	Two	X O O	O X O	O O X	M M M	800A-JH2AW	800A-JH2BW	800A-JH2CW
					M M←S	800A-JR2AW	800A-JR2BW	800A-JR2CW
		X O O	O X O	O O X	S→M M	800A-JL2AW	800A-JL2BW	800A-JL2CW

Note: X = Closed/O = Open

Rotary Operators

The rotary operator kit provides a means to actuate rotary switches and potentiometers and maintains consistent panel appearance.
The kit contains all necessary hardware to accommodate potentiometers, or multi-run switches (Type W potentiometers are available through electronic component distributors or Grayhill Series 50 rotary switch elements). Dimensional requirements of elements must comply with the switch in figures 1 and 2 shown on this page. Potentiometer or switch not included.
Note: For operator dimensional information, refer to page 42.

Rotary Operator Kits (Operator Only)			
Round	Square	Rectangular	Large Square
Cat. No.	Cat. No.	Cat. No.	Cat. No.
800A-P2AW	800A-P2BW	800A-P2CW	800A-P2DW

Approximate Dimensions
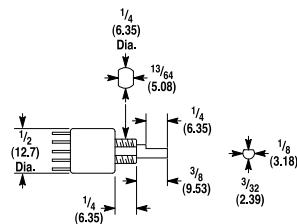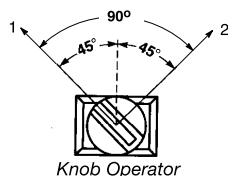
Figure 1 Rotary Switch
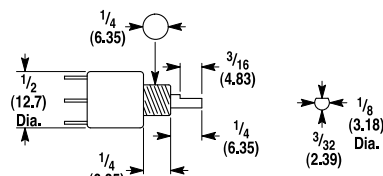
Figure 2 Potentiometer

2-Position Selector Switches and Rotary Operators

800A – **H** **2A** **W** (Selector Switch and
Potentiometer Operator)

a *b* *c*

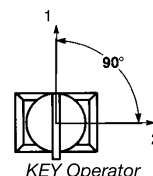800A – **GC** **2A** [ ] [ ] (Cylinder Lock)

a₁ *b* *c* *d*
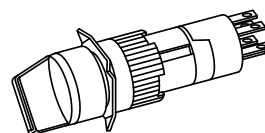
Selector Switch Information

Knob Operator

	X	O
(Terminal 1…2)	X	O
(Terminal 3…4)	O	X

Contact Function: X = Closed/O = Open

KEY Operator

a

Operator and Termination Type	
Standard Knob Selector Switch with Stab Terminals	
Code	Description
H	Maintained
K	Spring return from right
Standard Knob Selector Switch with Pin Terminals	
Code	Description
G	Maintained
R	Spring return from right
Potentiometer Operators	
Code	Description
P	Potentiometer, rotary switch operator (with knob only)

a₁

Operator and Termination Type	
Cylinder Lock with Stab Terminals	
Code	Description
HC	Maintained✱
Cylinder Lock with Pin Terminals	
Code	Description
GC	Maintained✱

b

Bezel Type	
Code	Description
2A	Round
2B	Square
2C	Rectangular
2D	Large square

c

Knob Insert Color✻	
Code	Description
A	Orange
B	Blue
G	Green
R	Red
W	White
Y	Yellow
--	Key (Blank)

d

Optional Key	
Code	Description
Blank	Standard key
01	Custom key #1
02	Custom key #2
03	Custom key #3
04	Custom key #4
05	Custom key #5
06	Custom key #6
07	Custom key #7

d (cont'd)

Optional Key	
Code	Description
08	Custom key #8
09	Custom key #9
10	Custom key #10
11	Custom key #11
12	Custom key #12
13	Custom key #13
14	Custom key #14
15	Custom key #15
16	Custom key #16
17	Custom key #17
18	Custom key #18
19	Custom key #19
20	Custom key #20
21	Custom key #21
22	Custom key #22
23	Custom key #23
24	Custom key #24

3-Position Selector Switches

Terminal Configuration for 800A-JB, JJ

Terminal Configuration for 800A-JH, JR, JL

Terminal Dimensions

.064 ±.005   .024 ±.005   .020 ±.004
.032 ±.004   .062 ±.004

Selector Operation

a
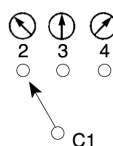
Operator and Termination Type	
Standard Knob Selector Switch with Solder Lug Terminals‡ (one pole per position)	
Code	Description
JB	Spring return — both
JJ	Maintained
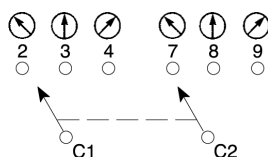
a (cont'd)

Operator and Termination Type	
Standard Knob Selector Switch with Solder Lug Terminals‡ (two poles per position)	
Code	Description
JH	Maintained
JR	Spring return right
JL	Spring return left
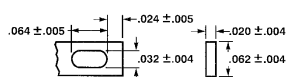
b

Bezel Type	
Code	Description
2A	Round
2B	Square
2C	Rectangular
2D	Large square

c
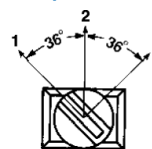
Knob Insert Color✻	
Code	Description
A	Orange
B	Blue
G	Green
R	Red
W	White
Y	Yellow

Note: Low security locks. Key interchangeability possible.
✱ Lock in left or right position. Key removable in either left or right position.
✻ **Special colors** — Selector switches and rotary kits are factory assembled with a white color insert as standard. Other colors are available factory assembled at no additional charge if ordered in quantities of five or more.
‡ Solder lug termination dimensions shown above are smaller than standard Bulletin 800A stab terminations.

AB Allen-Bradley

Modifications and Accessories
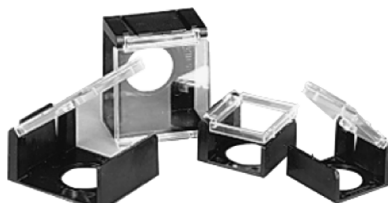### Closing Plugs

Cat. No. 800A-N1

Bulletin 800A closing plugs are designed to allow closure of an unoccupied operator opening on a panel or enclosure. This plug fits standard 16 mm openings and offers NEMA Type 13 rating when installed with the standard gasket and diecast mounting ring.

Description	Cat. No.
16 mm Closing Plug	800A-N1

Flip Covers

Cat. No. 800A-N42, -N12

Bulletin 800A operator flip covers offer nominal protection from unwanted operation while allowing operator visibility through a clear cover. The rectangular cover fits Bulletin 800A operators with square or rectangular bezels. Large square covers fit only large square push buttons.

Description	Cat. No.
Rectangular flip cover	800A-N42
Large square flip cover	800A-N12

PC (Printed Circuit) Board Pin Sockets

Cat. No. 800A-N66

These sockets are intended for use with PC pin style Bulletin 800A operators. Sockets can be secured directly to printed circuit boards providing mass termination benefits. Sockets can be secured to circuit boards by either soldering or with screw fasteners. Refer to the diagram on page 42.

Description	Cat. No.
PC (Printed Circuit) Board Pin Sockets	800A-N66

Note: Sold only in multiples of 50.

Rotary Operator Assembly Tool

Cat. No. 800A-N60

An assembly tool is recommended for rotary operators.

Description	Cat. No.
Rotary Operator Assembly Tool	800A-N60

Lamp Installation/Removal Tool

Cat. No. 800M-N5

Description	Cat. No.
Lamp Installation/Removal Tool	800M-N5

Custom Legend Kit

Cat. No. 800MS-N13

A legend marking kit is available to help create custom legend inserts. Each kit contains six grid sheets (four for use on the large square devices and two for use on the square, round, and rectangular devices). The grid sheets outline the working area available for adding a legend and also provides the necessary instructions and recommendations required to create custom legend inserts.

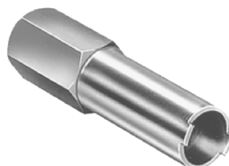| Description	Cat. No.
Custom Legend Kit	800MS-N13

Insulation Sleeve

Cat. No. 800A-N51

The insulation sleeve slips over the Bulletin 800A wiring terminals to provide electrical insulation from adjacent equipment.

Description	Cat. No.
Insulation Sleeve	800A-N51

Sold only in multiples of 20.

Mounting Ring Wrench

Cat. No. 800A-N50

This wrench simplifies the installation of the Bulletin 800A units and is recommended when close packing is required.

Description	Cat. No.
Mounting Ring Wrench	800A-N50

Modifications and Accessories, Continued
Large Square Color Lens Caps

Large square replacement lens caps include a white optic plate.

Cat. No. 800A-N10A

Description	Cat. No.
Amber w/optic plate	800A-N10A
Blue w/optic plate	800A-N10B
Clear w/optic plate	800A-N10C
Green w/optic plate	800A-N10G
Red w/optic plate	800A-N10R

Lens Caps

Replacement lens caps are available. Lens caps are packaged in multiples of five. Lens caps must be ordered in multiples of five only.
Example: (5) Catalog Number **800A-N20A**.

	Round	Square	Rectangular
Color	Cat. No.	Cat. No.	Cat. No.
Amber	800A-N20A	800A-N20A	800A-N20A
Blue	800A-N20B	800A-N20B	800A-N20B
Clear	800A-N20C	800A-N20C	800A-N20C
Green	800A-N20G	800A-N20G	800A-N20G
Red	800A-N20R	800A-N20R	800A-N20R

White Diffuser Inserts

Diffuser inserts, for improved legend legibility on illuminated surfaces, are available as a prescored sheet. The cat. no. as listed in the table below represents one sheet of six pieces. Diffuser inserts must be ordered in multiples of five. **Example:** (30) Round Diffuser Inserts would be (5) Catalog Number **800A-N25** .

Description	Cat. No.
Round diffuser insert	800A-N25
Square diffuser insert	800A-N35
Rectangular diffuser insert	800A-N45
Large square diffuser insert	800A-N11

Replacement Lamps

Use the table below to order replacement lamps. The cat. no. as listed represents one lamp. Lamps can only be ordered in multiples of ten. **Example:** (20) six volt lamps would be ordered as (20) Catalog Number **800M-N15**. White LEDs operating on 24V AC/DC are available. Consult your local Allen-Bradley distributor.

Lamp	Type	Operator Voltage	ANSI Number		Cat. No.
Incandescent∗	Full voltage and transformer	6.3	86		800M-N15
	Full voltage	14	73		800M-N16
		24	85		800M-N17
Neon❋	—	120	—		800A-N110
		240	—		800A-N120
LED‡	Full voltage	6 AC/DC	—	§	800T-N60**x**
		12 AC/DC	—	§	800T-N61**x**
		24 AC/DC	—	§	800T-N62**x**
		120 AC	—	§	800T-N64**x**

∗ Wedge base (ANSI #85) incandescent lamps are subject to significantly shortened lamp life during 24V DC operation. Use wedge base LEDs for longer lamp life.

❋ Resistors are supplied with unit and must be connected in series with lamp. 120V neons use a 47K, 1/4 watt resistor, 240V neons require two 47K, 1/4 watt resistors; typical forward current 1.2 mA.

‡ LEDs have built-in current limiting resistors.

§ To complete the cat. no. replace the **x** with the first letter of the desired color: **A**mber, **G**reen or **R**ed.

Visit our website: www.ab.com/catalogs
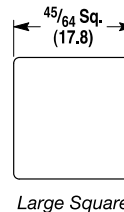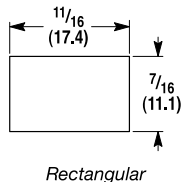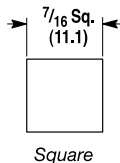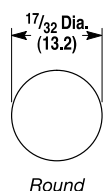
Allen-Bradley

Legend Inserts for Large Square Units

Standard legend inserts are only available for the large square units as listed below. To order, select the desired cat. no. from the table below.
Note: Standard legend inserts are not available for round, square or rectangular units, a custom legend kit (Cat. No. 800MS-N13) is recommended.

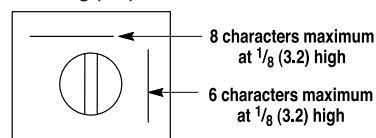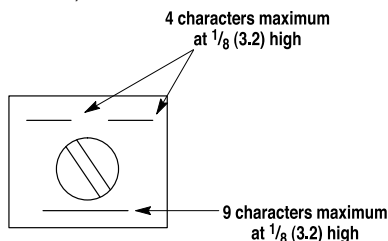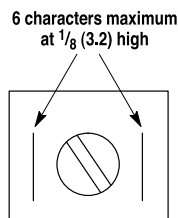| Marking	Cat. No.	Marking	Cat. No.
CLOSE	800MS-WC01	RAISE	800MS-WC14
DOWN	800MS-WC02	RESET	800MS-WC15
FAST	800MS-WC03	REV	800MS-WC16
FORWARD	800MS-WC23	RUN	800MS-WC17
HIGH	800MS-WC04	SLOW	800MS-WC18
IN	800MS-WC06	START	800MS-WC19
INCH	800MS-WC07	STOP	800MS-WC20
JOG	800MS-WC08	EMERG STOP	800MS-WC24
LOW	800MS-WC05	TEST	800MS-WC21
LOWER	800MS-WC11	UP	800MS-WC22
OFF	800MS-WC09	1ST SPEED	800MS-WC25
ON	800MS-WC10	2ND SPEED	800MS-WC26
OPEN	800MS-WC13	3RD SPEED	800MS-WC27
OUT	800MS-WC12	4TH SPEED	800MS-WC28
PUSH-TO-TEST	800MS-WC29	—	—

Legend Character Guidelines (Working Area)

The following approximate dimensions provide a guideline for determining the maximum usable legend area. The maximum thickness for legend films should not exceed 0.005 in. (0.127 mm). Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

$17/32$ Dia. (13.2)

Round

$7/16$ Sq. (11.1)

Square

$11/16$ (17.4)

$7/16$ (11.1)

Rectangular

$45/64$ Sq. (17.8)

Large Square

Legend Markings

Large square selector switches and rotary operators may be engraved per the diagram below. Specify cat. no. and custom engraving. Character dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

6 characters maximum at $1/8$ (3.2) high

4 characters maximum at $1/8$ (3.2) high

9 characters maximum at $1/8$ (3.2) high

8 characters maximum at $1/8$ (3.2) high

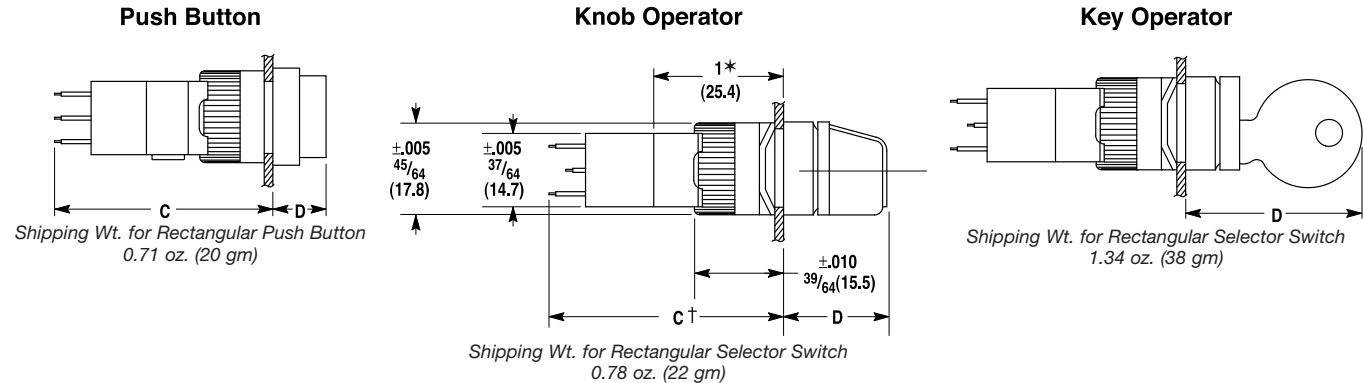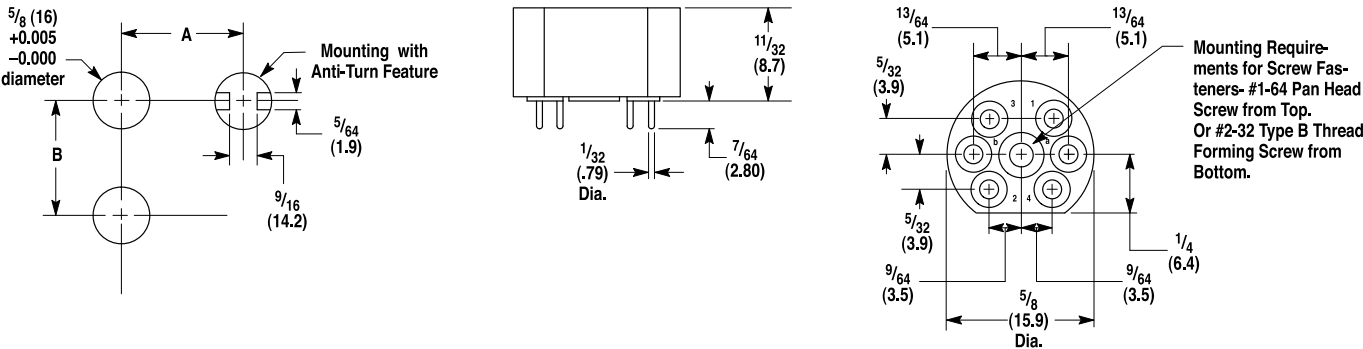6 characters maximum at $1/8$ (3.2) high

16 mm Push Buttons
Approximate Dimensions

Approximate Dimensions and Shipping Weights

Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

Mounting Dimensions

5/8 (16) +0.005 −0.000 diameter

A

B

Mounting with Anti-Turn Feature

5/64 (1.9)

9/16 (14.2)

11/32 (8.7)

1/32 (.79) Dia.

7/64 (2.80)

13/64 (5.1)

13/64 (5.1)

5/32 (3.9)

5/32 (3.9)

9/64 (3.5)

9/64 (3.5)

5/8 (15.9) Dia.

1/4 (6.4)

Mounting Require- ments for Screw Fas- teners- #1-64 Pan Head Screw from Top. Or #2-32 Type B Thread Forming Screw from Bottom.

Push Button

C

D

Shipping Wt. for Rectangular Push Button 0.71 oz. (20 gm)

Knob Operator

1✱ (25.4)

±.005 45/64 (17.8)

±.005 37/64 (14.7)

±.010 39/64 (15.5)

C †

D

Shipping Wt. for Rectangular Selector Switch 0.78 oz. (22 gm)

Key Operator

D

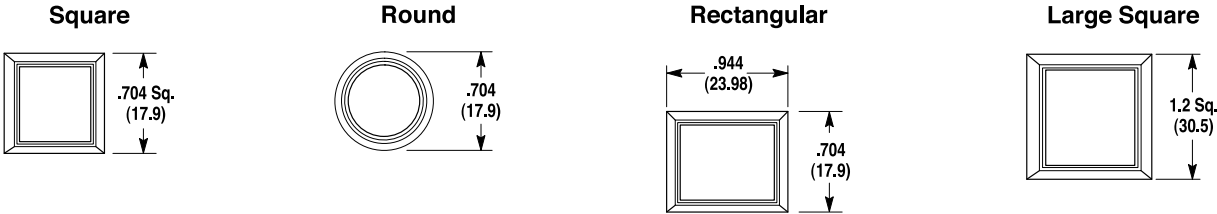*Shipping Wt. for Rectangular Selector Switch 1.34 oz. (38 gm)*

✱ Rotary switch depth without switch element or potentiometer.
❄ Rotary switch operator only will vary in length behind panel according to element selection.

Panel Thickness Requirements — Devices will accommodate panel thicknesses from 1/16…3/16 in. (1.6…4.8 mm).
Mounting Torque Range — 10…12 lb-in. (1.1…1.3 N•m)

Operator	Dimension A	Dimension B	Dimension C	Dimension D		
				Push Button	Knob	Key
Round	23/64 (9.1)	23/64 (9.1)	1-3/4 (44.5)	13/32 (10.3)	3/4 (19.1)	1-11/32 (34.1)
Square						
Rectangular	61/64 (24.2)					
Large Square	1-13/64 (30.6)	1-13/64 (30.6)		35/64 (13.9)		

Square

.704 Sq. (17.9)

Round

.704 (17.9)

Rectangular

.944 (23.98)

.704 (17.9)

Large Square

1.2 Sq. (30.5)

Wiring Diagrams
(See Applicable Codes and Laws)

Push Buttons

1 ── 2
4 ── 3
a (+) ──○── b (−)

Selector Switches

1 ── 2
4 ── 3

Visit our website: www.ab.com/catalogs

Allen-Bradley