Application

When properly mounted in a Type 7 & 9 enclosure, Bulletin 800H Type 7 & 9 operators are designed to meet the requirements of the National Electrical Code for Class I, Divisions 1 & 2, Groups B, C & D Hazardous Gas; Class II, Divisions 1 & 2, Groups E, F and G Hazardous Dust; and, Class III Hazardous Fiber Locations. In addition, the single-gang shallow base, Cat. No. 800H-IHZX7, meets Class I, Group B requirements. This Type 7 & 9 equipment is listed by Underwriters Laboratories, Inc.

Per National Electrical Code:
Zone 1: In Class I, Zone 1 locations, all wiring methods permitted for Class I, Division 1 locations and Class I, Zone 0 or Zone 1 locations, including requirements for sealing, shall be permitted.

Zone 2: In Class I, Zone 2 locations, all wiring methods permitted for Class I, Division 2, Class I, Division 1 or Division 2, and Class I, Zone 0 or Zone 1 locations, including requirements for sealing, shall be permitted.

Operator Construction

The Allen-Bradley line of hazardous location devices features copper-free (less than 0.4 of 1% copper content) die cast aluminum bushings and mounting rings, Type #316 stainless steel operating shafts and an O-ring seal for added corrosion resistance. These components mount into a threaded hole (3/4 in.-14 NPSM) in a suitable enclosure.

Bulletin 800H Type 7 & 9 components are available in two basic formats: standard barrel (Bulletin 800H) and long barrel (Bulletin 800HL). Standard barrel devices are suitable for mounting in panel thickness up to 1 in. thick. Long barrel devices are suitable for mounting in panel thickness greater than 1 in. and no thicker than 2-1/2 in. Both style operators offer a unique locking bracket, which provides an anti-turn feature to prevent the operator from coming loose. The mounting rings in front of the panel are knurled to provide a second way to tighten each unit into the panel.

Outdoor Use

Bulletin 800H Type 7 & 9 stations and enclosures are not configured for outdoor use as standard. A Type 3 rating is available, while maintaining Type 7 & 9 integrity of the enclosure, by the addition of a Type 3 sealing flange and an approved drain. The sealing flange that is shown in Figure 1 can be purchased as an option or as an accessory. A Type 4 rating can be achieved by using sealing nuts to seal the push button operators along with the sealing flange. Sealing nuts are available as accessories (see our website.)

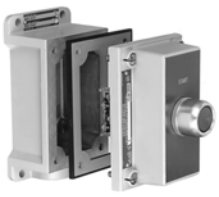
Elimination of Conduit Seal Off Requirement

Bulletin 800H Type 7 & 9 units can be installed with various sealing options. By using a flanged sealing well, these stations can be installed without a conduit seal off in most applications (subject to applicable codes and laws). The sealing wells that are shown in Figure 1 can be purchased as an option or as an accessory. Sealing wells have an integral Type 3 flange seal for outdoor applications.

Sealed switch contact blocks are another way to help eliminate the need for conduit seal fittings in most applications (subject to applicable codes and laws). Sealed switch contact blocks can be purchased as an option on assembled stations by changing the Bulletin No. from 800H to 800R. Sealed switch contact blocks can be ordered as an accessory (see our website). A push button station with a sealed switch contact block is shown in Figure 1.

Figure 1 - Sealing Options


Type 3 Flange Seal


Sealing Wells


Sealed Switch Contact Blocks

Notes:

Specifications (Bul. 800H)

ATTENTION: Performance data that is given in this publication is provided only as a guide for you to determine suitability and does not constitute a performance warranty of any kind. Such data may represent the results of accelerated testing at elevated stress levels, and you are responsible for correlating the data to actual application requirements. ALL WARRANTIES AS TO ACTUAL PERFORMANCE, WHETHER EXPRESS OR IMPLIED, ARE EXPRESSLY DISCLAIMED.

Table 1 - Electrical Ratings

Contact Ratings	See the contact ratings on page 6.
Dielectric Strength	2200V for 1 minute, 1300V for 1 minute (Logic Reed)
Electrical Design Lifecycles	1 000 000 at max. rated load, 200 000 at max. rated load (Logic Reed)

Table 2 - Mechanical Ratings

Vibration	10…2000 Hz 1.52 mm displacement (peak-to-peak) Max./10 G Max. (except Logic Reed)
Shock	1/2 cycle sine-wave for 11 ms ≥ 25 G (contact fragility) and no damage at 100 G
Degree of Protection	Type 7 & 9 Explosion Proof (Type 3 and Type 4 ratings available with accessories)
Mechanical Design Lifecycles	
Push Buttons	250 000 minimum
Potentiometers	100 000 minimum
All other devices	200 000 minimum
Contact Operation	Shallow and mini contact blocks: slow double make and break Logic Reed and sealed switch contact blocks: snap-action
Wire Guage/Terminal Screw Torque	# 18…12 AWG/6…8 lb•in
Typical Operating Forces	
Operators without contact blocks:	*Flush, extended, standard mushroom, jumbo mushroom:* 2.9 lb max. *Jumbo and extended aluminum mushroom head:* 3.95 lb maximum *Maintained selector switch:* 4.0 in•lb maximum
Spring-return Selector Switches	5 in•lb to stop, 0.2 in•lb to return
Illuminated Push Buttons and Push-to-test Pilot Lights	5.6 lb maximum
2-Position Push-Pull	9 lb maximum push or pull
3-Position Push-Pull	12 lb maximum push to in position or pull to center position (15 lb maximum pull to out position)
Contact Blocks	*800T-XA:* 1 lb *Logic Reed:* 1 lb maximum *Sealed Switch:* 3 lb maximum at 0.205 in. plunger travel *Stackable Sealed Switch:* 1 lb maximum

Table 3 - Environmental

Temperature Range **Note:** Operating temperatures below freezing are based on the absence of freezing moisture and liquids.	*Operating:* –4…13 °F (–20…55 °C) *Storage:* –40…185 °F (–40…85 °C)
Humidity	50% at 104 °F (40 °C)

Standard Contact Ratings

Maximum thermal continuous current I_{th} 10 A AC/2.5 A DC. Bulletin 800H Type 7 & 9 units with Cat. No. 800T-XA contacts have ratings as follows:

Table 4 - Standard Contact Ratings

Max. Operational Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 600	AC-15	A600	120…600	7200VA	720VA
			72…120	60 A	720VA
			24…28 ❶	60 A	10 A
DC 600	DC-13	Q600	28…600	69VA	
			24…28 ❶	2.5 A	

❶ For applications below 24V and 24 mA, PenTUFF™, Logic Reed, or stackable sealed switch contacts are recommended.

Sealed Switch Contact Ratings

Maximum continuous current I_{th} 5 A.

Table 5 - Sealed Switch Contact Ratings

Max. Operational Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 600	AC-15	B600	120…600	3600VA	360VA
			0…120	30 A	3 A
DC 300	DC-13	P300	24…300	138VA	
			0…28	5.0 A	

Stackable Sealed Switch Contact Ratings

Maximum continuous current I_{th} 3 A. Bulletin 800T units have control circuit ratings with sealed switch contact blocks as follows:

Table 6 - Stackable Sealed Switch Contact Ratings

Max. Operational Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 300	AC-15	C300	120…300	1800VA	180VA
			0…120	15 A	1.5 A
DC 150	DC-13	Q150	24…150	69VA	
			0…24	2.5 A	

Logic Reed Contact Ratings

Maximum: 150V AC, 0.15 A, 8VA and 30V DC, 0.06 A, 1.8VA.

Should only be used with resistive loads.

PenTUFF (Low Voltage) Contact Ratings

Minimum DC: 5V, 1 mA
Maximum thermal continuous current I_{th} 2.5 A AC/1.0 A DC.
Bulletin 800H units with Cat. No. 800T-XAV contacts have ratings as follows:

Table 7 - PenTUFF (Low Voltage) Contact Ratings

Max. Operational Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 300	AC-15	C300	120…300	1800VA	180VA
			0…120	15 A	1.5 A
DC 150	DC-13	R150	24…150	28VA	
			0…24	1.0 A	

Standards Compliance

UL508, UL698, UL1203, UL1604,
CSA C22.2 No. 14, CSA C22.2 No. 25, CSA C22.2 No. 30

Certifications

Enclosures:
UL Listed (File No. E71673 Guide No. NNNY)
CSA (File No. LR11924)

Devices:
UL Listed (File No. E10314 Guide No. NOIV)
CSA (File No. LR11924)

Notes:

Momentary Contact Push Buttons Units (Bul. 800H)

Non-Illuminated

Flush Head Unit
Cat. No. 800H-AP1A

Extended Head Unit
Cat. No. 800H-BP6B

Mushroom Head Unit
Cat. No. 800H-DP6A

800	H	–	AP	1		A
	a		*b*	*c*	*d*	*e*

a

Barrel Type

Code	Description
H	Standard barrel
HL	Long barrel

b

Operator Type

Code	Description
AP	Flush head
BP	Extended head
DP	Mushroom head
DPX	Mushroom head (less color cap)

c

Color Cap

Code	Description
Blank	Used only when operator type Code **DPX** (Table b) is ordered
1	Green
2	Black
3	Orange
4	Gray
6	Red
7	Blue
9	Yellow

d

Special Mushroom Head ❶

Code	Description
Blank	No special head
J	Jumbo mushroom head — plastic
L	Jumbo mushroom head — metal

❶ Special mushroom head options only apply to mushroom head operator type code **DP** (Table b).

e

Contact Blocks ❷

Standard

Code	Description
Blank	No contacts
D1	1 N.O.
D2	1 N.C.
D5	1 N.O. (Mini)
D6	1 N.C. (Mini)
A2	2 N.O.
A4	2 N.C.
A	1 N.O. - 1 N.C.
B	2 N.O. - 2 N.C.
H	3 N.O. - 3 N.C.
C	4 N.O. - 4 N.C.

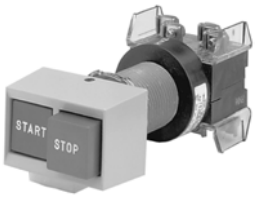
PenTUFF™ (Low Voltage)

Code	Description
D1V	1 N.O.
D2V	1 N.C.
AV	1 N.O. - 1 N.C.
BV	2 N.O. - 2 N.C.
HV	3 N.O. - 3 N.C.
CV	4 N.O. - 4 N.C.

❷ For sealed switch and Logic Reed contact blocks, consult your local Rockwell Automation sales office or Allen-Bradley distributor.

Dual Momentary Contact Push Button Units

800	H	–	DP	H	16	AAXX	64
	a		*b*	*c*	*d*	*e*	*f*



Dual Push Button Unit
Cat. No. 800H-DPH16AXX64

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Operator Type	
Code	**Description**
DP	Dual push button

c

Mounting	
Code	**Description**
H	Horizontal
B	Vertical

d

Color of Button	
Code	**Description**
16	Left green flush/right red extended
22	Left black flush/right black flush

e

Contact Blocks ❶		
Code	**Contact Arrangement**	
	Left button (horizontal) Top button (vertical)	**Right button (horizontal) Bottom button (vertical)**
AAXX	1 N.O. - 1 N.C.	1 N.O. - 1 N.C.
AAAA	2 N.O. - 2 N.C.	2 N.O. - 2 N.C.

❶ For sealed switch and Logic Reed contact blocks, consult your local Rockwell Automation sales office or Allen-Bradley distributor.

f

Marking		
Code	**Description**	
	Left button (horizontal) Top button (vertical)	**Right button (horizontal) Bottom button (vertical)**
Blank	No mark specified	No mark specified
64	START	STOP
50	ON	OFF
51	FORWARD	REVERSE
57	OPEN	CLOSE
66	UP	DOWN
99 ❷	Marking specified	Marking specified

❷ To order with special marking, please specify; seven characters maximum per button, single line only.

Illuminated

800	H	–	PPB	H	16	M	
	a		*b*	*c*	*d*	*e*	*f*

Extended Head with Guard
Cat. No. 800H-PPB16M

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Power Module Type	
Code	**Description**
PPB	Transformer (or dual input)
QPB	Full voltage/Universal

c

Illumination Options	
Code	**Description**
Blank	Incandescent
H	LED
Dual Input	
D	Diode type, incandescent ❶
T	Transformer — relay type, incandescent
TH	Transformer —relay type, LED

❶ Diode type dual input provides circuit isolation via opposing diodes. Not recommended for use with solid-state outputs and neon indicators.

d

Voltage	
Code	**Description**
Transformer	
16	120V AC 50/60 Hz
26	240V AC 50/60 Hz
46	480V AC 50/60 Hz
56	600V AC 50/60 Hz
Full Voltage — Incandescent	
24	24V AC/DC
10	120V AC/DC
20	240V AC/DC
Universal — LED	
2	12…130V AC/DC
Dual Input	
16	120V AC
24	24V AC/DC ❷

❷ Dual input diode only.

e

Lens Color	
Code	**Description**
Blank	No lens, with standard contacts 1 N.O. - 1 N.C.
X	No lens provided with any contacts ordered other than standard 1 N.O. - 1 N.C.
M	Multi-color ❸

❸ Multi-color insert packet includes amber, blue, green, red, and white.

f

Contact Blocks ❹	
Code	**Description**
Standard	
Blank	1 N.O. - 1 N.C.
X	No contacts
D1	1 N.O.
D2	1 N.C.
A2	2 N.O.
A4	2 N.C.
PenTUFF (Low Voltage)	
D1V	1 N.O.
D2V	1 N.C.
AV	1 N.O. - 1 N.C.

❹ For sealed switch and Logic Reed contact blocks, consult your local Rockwell Automation sales office or Allen-Bradley distributor.

Notes:

Non-illuminated

2-position

800	H	–	FPX		1	A1
	a		*b*	*c*	*d*	*e*

2-Position Push-Pull
Cat. No. 800H-FPX6A5

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Operator Type	
Code	**Description**
FPX	Push-pull unit

c

Head Type	
Code	**Description**
Blank	Mushroom head
J	Jumbo mushroom head ❶

d

Color Cap	
Code	**Description**
Blank	No cap
1	Green
2	Black
4	Gray (silver)
6	Red
7	Blue
9	Yellow (gold)

e

Contact Blocks			
Code	**Operator Position**		**Description**
	Out	**In**	
Standard			
Blank	—	—	No contacts
A1	0 X	X 0	1 N.O. - 1 N.C.L.B. ❶
A5	X X	0 0	2 N.C.L.B. ❶
D1	0	X	1 N.O.
D4	X	0	1 N.C.L.B. ❶
PenTUFF™ (Low Voltage)			
D1V	0	X	1 N.O.
AV	0 X	X 0	1 N.O. - 1 N.C.
Note: X = Closed/O = Open			

❶ Normally closed late break contact. When button is pushed from the OUT to the IN position, the mechanical detent action of the operator occurs before electrical contacts change state. When the button is pulled from the IN to the OUT position, the electrical contacts change state before the mechanical detent occurs.

3-position

800	H	–	FPX		M	1	A7
	a		*b*	*c*	*d*	*e*	*f*

3-Position Push-Pull
Cat. No. 800H-FPXM6A7

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Operator Type	
Code	**Description**
FPX	Push-pull unit

c

Head Type	
Code	**Description**
Blank	Mushroom head
J	Jumbo mushroom head ❶

❶ Not valid with color cap option code **Blank** (Table e)

d

Operator Function			
Code	**Operator Position**		
	Out	**Center**	**In**
M	Momentary	Maintained	Maintained
N	Momentary	Maintained	Momentary

e

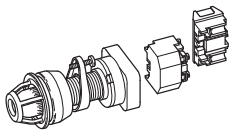
Color Cap	
Code	**Description**
Blank	No cap
1	Green
2	Black
4	Gray (silver)
6	Red
7	Blue
9	Yellow (gold)

f

Contact Blocks				
Standard				
Code	**Operator Position**			**Description**
	Out	**Center**	**In**	
Blank	—	—	—	No contacts
A	0 X	0 0	X 0	1 N.O. - 1 N.C.
A1	0 X	0 X	X 0	1 N.O. - 1 N.C.L.B.
A7	X X	0 X	0 0	1 N.C. - 1 N.C.L.B.
B6	X X	0 X	0 0	2 N.C. - 2 N.C.L.B.
PenTUFF (Low Voltage)				
AV	0 X	0 0	X 0	1 N.O. - 1 N.C.
Note: X = Closed/0 = Open				

Illuminated

2- and 3-position



800 H – FPX PH 16 M A1

a b c d e f g

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Operator Type	
Code	**Description**
FPX	Push-pull unit

c

Operator Function			
2-Position			
Code	**Description**		
Blank	Push-pull		
3-Position			
Code	**Operator Position**		
	Out	**Center**	**In**
M	Mom.	Main.	Main.
N	Mom.	Main.	Mom.

Note Mom. = Momentary
Main. = Maintained

d

Illumination Options	
Code	**Description**
Transformer	
P	Incandescent
PH	LED
Full Voltage	
Q	Incandescent
QH	Universal LED
Dual Input	
D	Dual input — diode ❶
DT	Dual input — transformer relay
DTH	Dual input transformer — relay LED

❶ Diode type dual input provides circuit isolation via opposing diodes. Not recommended for use with solid-state outputs and neon indicators.

e

Voltage	
Code	**Description**
Transformer	
16	120V AC 50/60 Hz
26	240V AC 50/60 Hz
46	480V AC 50/60 Hz
56	600V AC 50/60 Hz
Full Voltage — Incandescent	
24	24V AC/DC
10	120V AC/DC
20	240V AC/DC
Universal — LED	
2	12…130V AC/DC
Universal — LED	
16	120V AC
24	24V AC/DC ❷

❷ Dual input diode only.

f

Color Cap	
Code	**Description**
Blank	No lens with no contacts
X	No lens with contacts
M	Multi-color ❸

❸ Multi-color insert packet includes amber, blue, green, red, and white.

g

Contact Blocks	
Code	**Description**
Standard	
Blank	No contacts
D1	1 N.O.
D4	1 N.C.L.B. ❹
A	1 N.O. - 1 N.C.
A1	1 N.O. - 1 N.C.L.B. ❹
A2	2 N.O.
A5	2 N.C.L.B.
A7	1 N.C. - 1 N.C.L.B. ❹
PenTUFF Low Voltage	
D1V	1 N.O.
D2V	1 N.C.
AV	1 N.O. - 1 N.C.
Logic Reed	
D1R	1 N.O.
D2R	1 N.C.
AR	1 N.O. - 1 N.C.
A2R	2 N.O.
A4R	2 N.C.

❹ Normally closed late break contact. When button is pushed from the OUT to the IN position, the mechanical detent action of the operator occurs before electrical contacts change state. When the button is pulled from the IN to the OUT position, the electrical contacts change state before the mechanical detent occurs.

Table 1 - Target Selection

2-Position			Contact Description	3-Position			
g Code	Out	In		Out	Center	In	g Code
A, AV, R	0 X	X 0	N.O. N.C.	0 X	0 0	X 0	A, AV, AR
A1	0 X	X 0	N.O. N.C.L.B.	0 X	0 X	X 0	A1
A2	0 X	0 X	N.O. N.O.	— —	— —	— —	—
A5	X 0	X 0	N.C.L.B N.C.L.B.	— —	— —	— —	—
—	— —	— —	N.C. N.C.L.B.	X X	0 X	0 0	A7
D1, D1V, D1R	0	X	N.O.	—	—	—	—
D4	X	0	N.C.L.B.	—	—	—	—

Notes:

Non-illuminated

2-position

Standard Knob Operator
Cat. No. 800H-HP2KB6AXXX

Knob Lever Operator
Cat. No. 800H-HP17KB6AXXX

Metal Wing Lever Operator
Cat. No. 800H-HP11KBAXXX

800	H	–	HP	A	2	KB6	AXXX	(Knob/Wing Lever)
	a		*b*	*c*	*d*	*e*	*f*	
800	H	–	HP	31		KB6	AXXX	(Cylinder Lock)
	a		*b*	c_1	d_1	*e*	*f*	

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Number of Positions	
Code	**Description**
HP	2-position

c

Knob Insert Colors ❶	
Code	**Description**
Blank	White
X	Packet of colored inserts ❷
Metal Wing Lever Colors	
A	Red
Blank	Gray

❶ Each standard and knob lever operator is factory-assembled with a white insert. Other colors are available, factory-assembled, if ordered in quantities of 10 or more.

❷ One insert of each color (blue, green, orange, red, and yellow).

c_1

Key Removal Position	
Code	**Description**
Maintained	
31	Key removal — left
32	Key removal — right
33	Key removal — both
Spring Return from Left	
42	Key removal — right ❸
Spring Return from Right	
48	Key removal — left

❸ Target tables are reversed.

d

Operator Type and Function	
Code	**Description**
Standard Knob	
2	Maintained
4	Spring return from left ❸
5	Spring return from right
Knob Lever	
17	Maintained
18	Spring return from left ❸
19	Spring return from right
Metal Wing Lever	
11	Maintained
15	Spring return from left ❸
16	Spring return from right

❸ Target tables are reversed.

d_1

Optional Keys			
Code	**D Series Key No.**	**Code**	**T Series Key No.**
Blank	D018 (std. key)	15	T112
03	D020	16	T115
04	D025	17	T324
05	D335	18	T382
06	D429	19	T404
07	D461	20	T171
08	D111	21	T484
09	D587	22	T547
10	D682	23	T569
11	D713	24	T692
12	D900	25	T752
13	D992	26	T178
14	D118	—	—

e

Cam Option	
Code	**Description**
KB6	Cam for maintained operators
KL8	Cam for spring return operators

f

Contact Blocks			
Code	**Contact Configuration**	**2-position**	
			
Standard			
Blank	No contacts	—	—
DXXX	1 N.O.	0	X
EXXX	1 N.C.	X	0
MXXX	2 N.O.	0 0	X X
NXXX	2 N.C.	X X	0 0
AXXX	1 N.O. - 1 N.C.	0 X	X 0
AAXX	2 N.O. - 2 N.C.	0 X 0 X	X 0 X 0
PenTUFF™ (Low Voltage)			
HXXX	1 N.O.	0	X
UXXX	1 N.C.	X	0
FXXX	1 N.O. - 1 N.C.	0 X	X 0
FFXX	2 N.O. - 2 N.C.	0 X 0 X	X 0 X 0

Note: X = Closed/0 = Open

3-position

Standard Knob Operator
Cat. No. 800H-JP2KB7AXXX

Knob Lever Operator
Cat. No. 800H-JP17KB7AXXX

Metal Wing Lever Operator
Cat. No. 800H-JP11KB7AXXX

800	**H**	**–**	**JP**		**2**	**KB7**	**AAXX**	**(Knob/Wing Lever)**
	a		*b*	*c*	*d*	*e*	*f*	
800	**H**	**–**	**JP**	**41**		**KB7**	**AAXX**	**(Cylinder Lock)**
	a		*b*	c_1	d_1	*e*	*f*	

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Number of Positions	
Code	**Description**
JP	3-position

c

Knob Insert Colors ❶	
Code	**Description**
Blank	White knob insert or cylinder lock operator
X	Packet of colored inserts ❷
Metal Wing Lever Colors	
A	Red
Blank	Grey

❶ Each standard and knob lever operator is factory-assembled with a white insert. Other colors are available, factory-assembled, if ordered in quantities of 10 or more.

❷ One insert of each color (blue, green, orange, red, and yellow).

c_1

Cylinder Lock Operator Locking Position	
Code	**Description**
Maintained Position	
41	Left
42	Center
43	Right
44	All
45	Left and center
46	Right and left
47	Right and center
Spring Return from Left	
50	Center
52	Right
51	Right and center
Spring Return from Right	
69	Left
38	Center
73	Left and center
Spring Return from Both	
631	Center

d

Operator Type and Function	
Code	**Description**
Standard Knob	
2	Maintained
4	Spring return from left
5	Spring return from right
91	Spring return from both
Knob Lever	
17	Maintained
18	Spring return from left
19	Spring return from right
20	Spring return from both
Metal Wing Lever ❸	
11	Maintained
15	Spring return from left
16	Spring return from right
141	Spring return from both

❸ Wing levers are not suitable with **KE7** cam code (Table 1).

d_1

Operator Type and Function	
Code	**Key Number**
Blank	D018 (standard key)

Note: See page 17 for additional key codes.

e

Cam Option	
Code	**Description**
KB7	Standard cam KB7
KA1	Cam KA1
KA7	Cam KA7

Note: For more cam descriptions, see Table 1.

f

Contact Block Options	
Code	**Description**
Blank	No contacts
AXXX	Two contact targets for a given cam as shown in the W (white side) column of Table 1.
AAXX	Two contact targets for a given cam as shown in the W (white side) column of Table 1 and 2 contact targets for the same cam as shown in the B (black side) column of Table 1. (One Cat. No. 800T-XA contact block per side. Two contact blocks total.)
AAAA	Four contact targets for a given cam as shown in the W (white side) column of Table 1 and 4 contact targets for the same cam as shown in the B (black side) column of Table 1. (Two Cat. No. 800T-XA contact blocks per side. Four contact blocks total.)

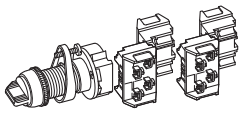
Table 1 - Cam and Contact Block Functionality Table

Contact Block Suffix Code	Contact Block Side	Circuits	Cam Codes																																									
			KB7 (Std.)			KA1			KA7			KC1			KC7			KD7			KE7			KQ1			KQ7			KR1			KR7			KT1			KT7			KU7		
C_ H_ B_ A_	White	A	X	0	0	X	0	0	0	0	X	0	0	X	X	0	0	0	0	X	X	0	0	X	0	X	X	0	X	X	0	X	X	0	X	0	0	X	X	0	0	X	0	0
		B	0	0	X	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	X	0	X	0	0	X	0	0	X	0	0	X	0	X	0	0	0	0	X	0	X	0
	Black	A	X	0	0	X	0	0	0	0	X	0	0	X	X	0	0	X	0	0	0	0	X	0	0	X	X	0	0	0	0	X	X	0	0	0	0	X	X	0	0	0	0	X
		B	0	0	X	0	X	0	0	X	0	X	0	0	0	0	X	0	X	0	X	X	0	0	X	0	0	X	0	X	X	0	0	X	X	X	X	0	0	X	X	X	X	0
	White	A	X	0	0	X	0	0	0	0	X	0	0	X	X	0	0	0	0	X	X	0	0	X	0	X	X	0	X	X	0	X	X	0	X	0	0	X	X	0	0	X	0	0
		B	0	0	X	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	X	0	X	0	0	X	0	0	X	0	0	X	0	X	0	0	0	0	X	0	X	0
	Black	A	X	0	0	X	0	0	0	0	X	0	0	X	X	0	0	X	0	0	0	0	X	0	0	X	X	0	0	0	0	X	X	0	0	0	0	X	X	0	0	0	0	X
		B	0	0	X	0	X	0	0	X	0	X	0	0	0	0	X	0	X	0	X	X	0	0	X	0	0	X	0	X	X	0	0	X	X	X	X	0	0	X	X	X	X	0

Note: X = Closed, 0 = Open

4-position

800	H	–	NP		2	KF4	AAXX	(Knob/Wing Lever)
	a		*b*	*c*	*d*	*e*	*f*	



800	H	–	NP	31		KF4	AAXX	(Cylinder Lock)
	a		*b*	c_1	d_1	*e*	*f*	

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Number of Positions	
Code	**Description**
NP	4-position

c

Knob Insert Colors ❶	
Code	**Description**
Blank	White
X	Packet of colored inserts ❷
Metal Wing Lever Colors	
A	Red
Blank	Gray

❶ Each standard and knob lever operator is factory-assembled with a white insert. Other colors are available, factory-assembled, if ordered in quantities of 10 or more.

❷ One insert of each color (blue, green, orange, red, and yellow).

c_1

Key Removal Position and Operator Function	
Code	**Description**
Maintained	
31	Key removal position 1
32	Key removal position 2
33	Key removal position 3
34	Key removal position 4
61	Key removal all positions
Spring Return from Position 1 to 2	
132	Key removal position 2
133	Key removal position 3
134	Key removal position 4
154	Key removal positions 2, 3, and 4
Spring Return from Position 4 to 3	
231	Key removal position 1
232	Key removal position 2
233	Key removal position 3
251	Key removal positions 1, 2, and 3

d

Operator Type and Function	
Code	**Description**
Standard Knob	
2	Maintained
3	Spring return position 1 to 2
9	Spring return from position 4 to 3
Knob Lever	
17	Maintained
29	Spring return from position 1 to 2
30	Spring return from position 4 to 3
Metal Wing Lever	
11	Maintained
13	Spring return from position 1 to 2
14	Spring return from position 4 to 3

d_1

Optional D-Series Keys ❸	
Code	**Description**
Blank	D018 (standard key)

❸ Devices are supplied with two keys. Replacement part number for standard D018 key is X-181170.

e

Cam Option	
Code	**Description**
KF4	F cam (standard)
KG4	G cam
KK4	K cam
KM4	M cam
KP4	P cam
KH4	Overlapping cam

f

Contact Block Options	
Code	**Description**
Blank	No contacts
AAXX	Two contact targets for a given cam as shown in the W (white side) column of Table 1 and two contact targets for the same cam as shown in the B (black side) column of Table 1. (One Cat. No. 800T-XA contact block per side. Two contact blocks total)
AAAA	Four contact targets for a given cam as shown in the W (white side) column of Table 1 and four contact targets for the same cam as shown in the B (black side) column of Table 1. (Two Cat. No. 800T-XA contact blocks per side. Four contact blocks total.)
PenTUFF (Low Voltage)	
FFXX	Two contact targets for a given cam as shown in the W (white side) column of Table 1 and two contact targets for the same cam as shown in the B (black side) column of Table 1. (One Cat. No. 800T-XAV contact block per side. Two contact blocks total)
FFFF	Four contact targets for a given cam as shown in the W (white side) column of Table 1 and four contact targets for the same cam as shown in the B (black side) column of Table 1. (Two Cat. No. 800T-XAV contact blocks per side. Four contact blocks total.)

Table 1 - Selector Switch Cam Targets

Contact Block Suffix Code		Contact Block Side	Circuits	Cam Codes																							
				KF4				KG4				KK4 ❶				KM4 ❶				KP4				KN4 ❷			
↑ AAAA FFFF ↓	↑ AAAA FFFF ↓	White	A	X	0	0	0	X	X	0	0	0	0	X	X	X	0	0	0	0	0	0	X	0	X	0	0
			B	0	X	0	0	0	0	X	0	X	X	0	0	0	X	X	0	0	X	0	0	0	0	0	X
		Black	A	0	0	0	X	X	0	0	0	X	0	0	X	0	0	0	X	0	0	X	X	0	0	X	0
			B	0	0	X	0	0	0	0	X	0	X	X	0	0	X	0	0	X	0	0	0	X	0	0	0
		White	A	X	0	0	0	X	X	0	0	0	0	X	X	X	0	0	0	0	0	0	X	0	X	0	0
			B	0	X	0	0	0	0	X	0	X	X	0	0	0	X	X	0	0	X	0	0	0	0	0	X
		Black	A	0	0	0	X	X	0	0	0	X	0	0	X	0	0	0	X	0	0	X	X	0	0	X	0
			B	0	0	X	0	0	0	0	X	0	X	X	0	0	X	0	0	X	0	0	0	X	0	0	0

❶ Not available with wing lever operator.

❷ Overlapping cam.

Note: X = Closed, 0 = Open For additional targets and overlapping cams, see Publication 800T-2.8.

Notes:

Pilot Light Devices (Bul. 800H)

Transformer Type Pilot Light
Cat. No. 800H-PP16M

Push-to-test Pilot Light
Cat. No. 800H-PPT16M

Pigtail Pilot Light
Cat. No. 800H-LP24M

800 H – PP T 16 M
a b c d e f

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Power Module Type	
Code	**Description**
PP	Transformer (or dual input)
QP	Full voltage/Universal
LP	Pigtail — full voltage ❶
LPK	Pigtail — full voltage ❶ (for dual push buttons)

❶ Lamp test option is not available with pigtail.

c

Lamp Test Options	
Code	**Description**
Blank	No test option
T	Push-to-test
D	Dual input — diode ❷
DT	Dual input — transformer relay ❷

❷ Only available with power module type code **PP** (Table b).

d

Illumination Option	
Code	**Description**
Blank	Incandescent
H	LED ❸

❸ LED illumination option is not available with diode-type dual-input lamp test options.

e

Voltage	
Code	**Description**
Transformer	
16	120V AC, 50/60 Hz
26	240V AC, 50/60 Hz
46	480V AC, 50/60 Hz
56	600V AC, 50/60 Hz
Full Voltage — Incandescent	
24	24V AC/DC
10	120V AC/DC
20	240V AC/DC
Universal — LED	
2	12…130V AC/DC
Dual Input	
16	120V AC
24	24V AC/DC ❹
Pigtail	
24	24V AC/DC
10	120V AC/DC
20	240V AC/DC

❹ Dual input diode only.

f

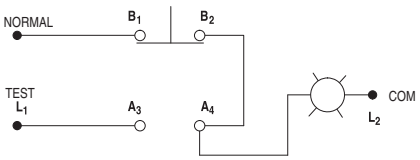
Lens Color	
Code	**Description**
Blank	No lens with no contacts
M	Multi-color ❺

❺ Multi-color insert packet includes amber, blue, green, red, and white.

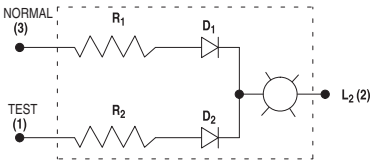
Typical Pilot Light Wiring Diagrams

See applicable codes and laws.

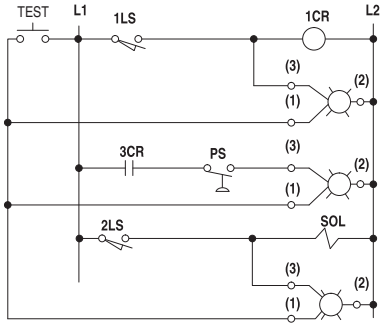
Push-to-test Pilot Light Device



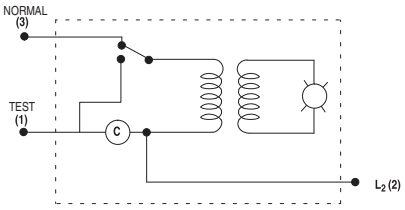
Dual Input Diode Pilot Device



Dual Input Pilot Light Typical Application



Dual Input Pilot Light Transformer Type Device



Notes:

Potentiometer Units ❶❷

Potentiometer Units
Cat. No. 800H-UP24

800 H – UP 13

a *b*

a

Barrel Type	
Code	**Description**
H	Standard barrel
HL	Long barrel

b

Resistance ❸	
Code	**Description**
13	1 kΩ
19	2.5 kΩ
24	5 kΩ
29	10 kΩ

❶ Single-turn operation with 312° rotation.
❷ Rated for 300V AC/DC, 2W maximum.
❸ For operator only (no resistive element), order **catalog number 800H-NP37** which is for use with Type J potentiometers having a shaft length of 7/8 in. (22.2 mm) and a shaft diameter of 1/4 in. (6.3 mm).

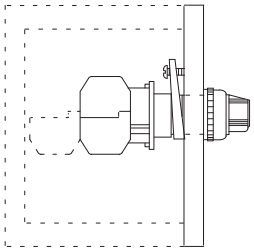
Notes:

Station Design Guidelines (Bul. 800H)

(Also see Applicable Codes and Standards)

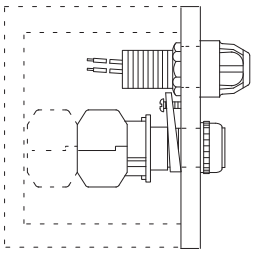
1. Push-to-test pilot lights, illuminated push buttons, push-to-pull units, 4-position selector switches, and all operators with two contact blocks that are fastened along side one another or with a power module and contact block along side one another must be installed in a single-hole cover. Illuminated operators that use the Universal LED module must also be installed in a single-hole cover.
2. Dual push button units can only be installed in a single-hole cover or the specially designed two-hole cover (catalog number 800H-NP33), which can accommodate the dual push button and the special pigtail pilot light (catalog number 800H-LPK10R).
3. When two components are installed in one cover, contact blocks are restricted to one side of the operator. Contact blocks of each operator must face each other.
4. One level of contact blocks is maximum in a shallow base or deep base when used with a sealing well. Contact blocks, except sealed switch type, can be mounted two deep in other bases.
5. If sealed switch contact blocks or a sealing well are used, a deep enclosure is required.
6. Push buttons/pilot lights:
   a. START push buttons should be green or black flush, installed to the left or above STOP push buttons.
   b. EMERGENCY STOP push buttons should be a red mushroom.
   c. STOP push buttons should be red extended, installed to the right or below START push button.
   d. STOP push buttons should be installed in the last position (bottom or right) of each unit when required.
   e. Pilot lights should be installed in the first position (top or left side) of each unit when required.

Design Guideline #1



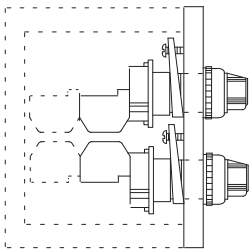
Push-to-test pilot lights, illuminated push buttons, push-pull units, 4-position selector switches, all operators with two contact blocks that are fastened along side one another or with a power module and contact block along side one another must be installed in a single-hole cover. Illuminated operators that use the Universal LED module must also be installed in a single-hole cover.

Design Guideline #2



Dual push button units can only be installed in a single-hole cover or the specially designed two-hole cover (catalog number 800H-NP33), which can accommodate the dual push button and the special pigtail pilot light (catalog number 800H-LPK10R).

Design Guideline #3



When two components are installed in one cover, contact blocks are restricted to one side of the operator. Contact blocks of each operator must face each other.

Design Guideline #4

One level of contact blocks is maximum in a shallow base or deep base when used with a sealing well. Contact blocks, except sealed switch type, can be mounted two deep in other bases.

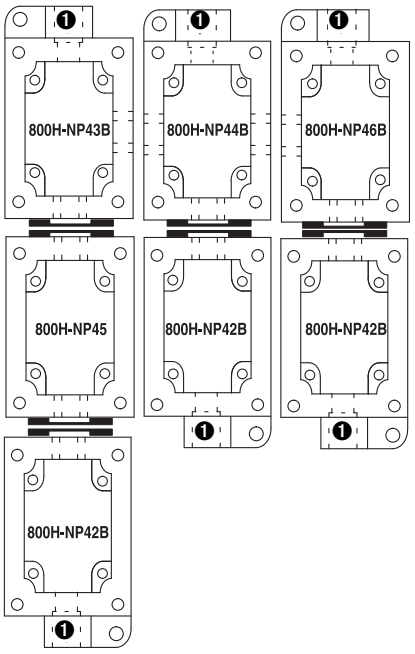
Bases for Multi-gang Stations

Example:
7-gang base with 1-in. through-feed conduit consists of:

- 3-catalog number 800H-NP42B
- 1-catalog number 800H-NP43B
- 1-catalog number 800H-NP44B
- 1-catalog number 800H-NP45
- 1-catalog number 800H-NP46B
- 6-catalog number 800H-NP7

Plus up to four 1-in. plugs (catalog number 800H-NP11) to close unused conduit openings.

WARNING: Do not assemble more than eight enclosure gangs together, to avoid exceeding the internal volume for which the flame path of these enclosures is designed.



❶ 1-in. conduit through-feed (all gangs).