

Cam Description (2-Position)			
Target		Operator Function	
		Maintained and Spring Returned From Right	Spring Returned From Left
X	O	N.C.	N.O.
O	X	N.O.	N.C.

勝 特 力 材 料 886-3-5753170
胜特力电子(上海) 86-21-34970699
胜特力电子(深圳) 86-755-83298787
Http://www. 100y. com. tw

Note:X = Closed/O = Open

★ Key removable in locked position only.

‡ If no optional key code is specified, the standard key (**T100**) will be supplied.

§ Red, green, blue, yellow, orange, grey, and white non-illuminated selector switch knobs and lever knobs must be ordered separately.

♣ Logic Reed and small screw contact blocks must be ordered separately.

Δ Contact cartridge position code (Table e) must be L.

♦ Contact cartridge position code (Table e) must be --.

3-Position Selector Switch Units, Non-Illuminated

Contact Terminations

Operators come standard with stab terminations. For large screw contact terminations, add letter **K** to the end of the cat. no. Standard contact blocks with small screw terminations and Logic Reed contact blocks with stab terminations sold separately.



Standard Knob Operator
Cat. No. 800MR-JH2BB



Knob Lever Operator
Cat. No. 800MR-JK2BB

Contact Type	Color	Side	Contact	Operator Position			Operator Type M = Maintained S = Spring Return	Standard Knob	Knob Lever					
								Cat. No.	Cat. No.					
 1 N.O. - 1 N.C.	Black	Left	A B	O X	O O	X O	M M M	800MR-JH2BLA	800MR-JH2BLA					
							S→M M	800MR-JH4BLA	800MR-JK4BLA					
							M M←S	800MR-JH5BLA	800MR-JK5BLA					
							S→M←S	800MR-JH9BLA	800MR-JK9BLA					
 2 N.O. - 2 N.C.	Black	Left	A B	O X O X	O O O O	X O X O	M M M	800MR-JH2BB	800MR-JK2BB					
							S→M M	800MR-JH4BB	800MR-JK4BB					
							Right	A B				M M←S	800MR-JH5BB	800MR-JK5BB
												S→M←S	800MR-JH9BB	800MR-JK9BB

Note:X = Closed/O = Open

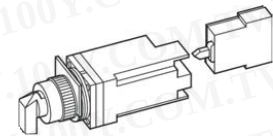


Cylinder Lock Operator
Cat. No. 800MR-J44BB

Contact Type	Side	Contact	Operator Position			Operator Type M = Maintained S = Spring Return	Cylinder Lock		
							Lock in All★	Lock in Center★	Lock in Right★
							Cat. No.	Cat. No.	Cat. No.
 1 N.O. - 1 N.C.	Left	A B	O X	O O	X O	M M M	800MR-J44BLA	800MR-J42BLA	800MR-J43BLA
						S→M M	—	800MR-J50BLA	800MR-J52BLA
						M M←S	—	800MR-J38BLA	—
						S→M←S	—	800MR-J631BLA	—
 2 N.O. - 2 N.C.	Left	A B	O X O X	O O O O	X O X O	M M M	800MR-J44BB	800MR-J42BB	800MR-J43BB
						S→M M	—	800MR-J50BB	800MR-J52BB
						M M←S	—	800MR-J38BB	—
	Right	A B				S→M←S	—	800MR-J631BB	—

Note:X = Closed/O = Open

★ Key removable in locked position only.



800MR – J H 2 B L A

a b c d e e₁ f

(Selector Switch)

800MR – J 41 B L A

a b c₁ c₂ d e e₁ f

(Cylinder Lock)

a		b			c		c ₁	
Operator Positions		Operator Color and Type§			Operator Function		Operator Function/Locking Position★	
Code	Description	Standard Knob	Description	Knob Lever	Code	Description	Code	Description
J	3-position selector switch	X	No knob	X	2	Maintained	41	Lock in left
J	3-position cylinder lock	H	Black	K	4	Spring return from left	42	Lock in center
		Blank	Key	Blank	5	Spring return from right	43	Lock in right
					9	Spring return from both	44	Lock in all positions
							45	Lock in left and center
							46	Lock in right and left
							47	Lock in right and center
							Spring Return From Left	
							Code	Description
							50	Lock in center
							52	Lock in right
							51	Lock in right and center
							Spring Return From Right	
							Code	Description
							69	Lock in left
							38	Lock in center
							73	Lock in left and center
							Spring Return From Left and Right	
							Code	Description
							631	Lock in center★

c2		d		e		e1			f	
Key Codes‡		Cam Type		Contact Cartridge Position		Contact Cartridges			Contact Block Termination Type♣	
1T Master Series						Standard	Description			
Code	Key No.	Code	Description	Code	Description	Code	Left side	Right side	Code	Description
Blank	T100 (standard)	B	B cam	Blank	Both left and right	Blank	No contacts		Blank	Stab terminals
02	T101	K	K cam	L	Left	Δ A	1 N.O.-1 N.C.		K	Large screw
03	T102	P	P cam	R	Right	Δ A3	1 N.O.E.M.-1 N.C.L.B.			
04	T106	U	U cam			♦ B	1 N.O.-1 N.C.			
05	T107					♦ P1	2 N.O.	1 N.O.		
2T Master Series						♦ P2	2 N.C.	1 N.C.		
Code	Key No.					♦ P3	2 N.O.	1 N.C.		
07	T109					♦ P4	2 N.C.	1 N.O.		
08	T134					♦ P5	2 N.O.	2 N.O.		
09	T135					♦ P6	2 N.C.	2 N.C.		
10	T136					♦ P7	2 N.O.	1 N.O. - 1 N.C.		
14	T147					♦ P8	2 N.C.	1 N.O. - 1 N.C.		
						♦ P9	1 N.O.	1 N.C.		
						♦ T1	1 N.O. - 1 N.C.	1 N.C.		

Note:See Table 1 for cam and contact block selection.

- * Key removable in locked position only.
- ‡ If no optional key code is specified, the standard key (**T100**) will be supplied.
- § Red, green, blue, yellow, orange, grey, and white non-illuminated selector switch knobs and lever knobs must be ordered separately.
- ♣ Logic Reed and small screw contact blocks must be ordered separately.
- Δ Contact cartridge position code (Table e) must be **L** or **R**.
- ♦ Contact cartridge position code (Table e) must be **–**.

Table 1. Selector Switch Cam Targets

Note:X = Closed/O = Open			Cam Description							
Target			B		K		P		U	
			Left Side	Right Side	Left Side	Right Side	Left Side	Right Side	Left Side	Right Side
O	O	X	N.O.	N.O.	N.O.	—	N.O.	—	—	N.O.
X	O	O	N.C.	N.C.	—	N.O.	N.C.	N.O.	N.O.	—
O	X	X	N.O.E.M.	N.O.E.M.	—	N.C.L.B.	N.O.E.M.	N.C.L.B.	N.C.	—
X	X	O	N.C.L.B.	N.C.L.B.	N.C.L.B.	—	N.C.L.B.	—	—	N.C.
O	X	O	—	—	N.C.	N.C.	—	N.C.	—	—

4-Position Selector Switch Units, Non-Illuminated

Contact Terminations

Operators come standard with stab terminations. For large screw contact terminations, add letter **K** to the end of the cat. no. Standard contact blocks with small screw terminations and Logic Reed contact blocks with stab terminations sold separately.



Contact Type	Type	Volts	Lamp	Knob Color	Operator Position		Operator Type M = Maintained S = Spring Return	Standard Knob	Knob Lever
								Cat. No.	Cat. No.
	Full Voltage	24V AC/DC	Incandescent	Red	X O	O X	M M	800MR-24HA2BRA	800MR-24HL2BRA
							S→M‡	800MR-24HA4BRA	800MR-24HL4BRA
							M←S	800MR-24HA5BRA	800MR-24HL5BRA
	Transformer	120V AC★		Red	X O	O X	M M	800MR-16HA2BRA	800MR-16HL2BRA
							S→M‡	800MR-16HA4BRA	800MR-16HL4BRA
							M←S	800MR-16HA5BRA	800MR-16HL5BRA
	Full Voltage	24V AC/DC	LED	Red	X O	O X	M M	800MR-24HAL2BRA	800MR-24HLL2BRA
							S→M	800MR-24HAL5BRA	800MR-24HLL5BRA
							M←S	800MR-24HAL5BRA	800MR-24HLL5BRA
1 N.O. - 1 N.C.	Transformer	120V AC★		Red	X O	O X	M M	800MR-16HAL2BRA	800MR-16HLL2BRA
							S→M‡	800MR-16HAL4BRA	800MR-16HLL4BRA
							M←S	800MR-16HAL5BRA	800MR-16HLL5BRA

Note:X = Closed/O = Open

★ Transformers operate at 50/60 Hz.

‡ Target tables are reversed from those shown.

3-Position Knob/Lever Type Selector Switch Units, Illuminated

Contact Terminations

Operators come standard with stab terminations. For large screw contact terminations, add letter **K** to the end of the cat. no. Standard contact blocks with small screw terminations and Logic Reed contact blocks with stab terminations sold separately.



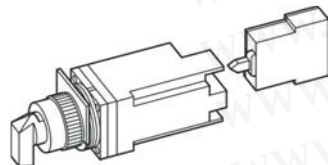
Standard Knob Operator
Cat. No. 800MR-24JA2BRA

Knob Lever Operator
Cat. No. 800MR-24JL2BRA

Contact Type	Type	Volts	Lamp	Knob Color	Operator Position			Operator Type M = Maintained S = Spring Return	Standard Knob	Knob Lever
									Cat. No.	Cat. No.
	Full Voltage	24V AC/DC	Incandescent	Red	X O	O O	O X	M M M	800MR-24JA2BRA	800MR-24JL2BRA
								S→M M	800MR-24JA4BRA	800MR-24JL4BRA
								S→M←S	800MR-24JA9BRA	800MR-24JL9BRA
	Transformer	120V AC§		Red	X O	O O	O X	M M M	800MR-16JA2BRA	800MR-16JL2BRA
								S→M M	800MR-16JA4BRA	800MR-16JL4BRA
								S→M←S	800MR-16JA9BRA	800MR-16JL9BRA
	Full Voltage	24V AC/DC	LED	Red	X O	O O	O X	M M M	800MR-24JAL2BRA	800MR-24JLL2BRA
								S→M M	800MR-24JAL4BRA	800MR-24JLL4BRA
								S→M←S	800MR-24JAL9BRA	800MR-24JLL9BRA
	Transformer	120V AC§		Red	X O	O O	O X	M M M	800MR-16JAL2BRA	800MR-16JLL2BRA
								S→M M	800MR-16JAL4BRA	800MR-16JLL4BRA
								S→M←S	800MR-16JAL9BRA	800MR-16JLL9BRA
1 N.O. - 1 N.C.										

Note:X = Closed/O = Open

§ Transformers operate at 50/60 Hz.



800MR – 24 H A L 2 B R A
a b c d e f g₁ g₂ h

(2-Position)

800MR – 24 J A L 2 B R A
a b c d e f₁ g₁ g₂ h

(3-Position)

a		b		c		
Input Voltage		Operator Positions		Operator Color and Type		
Full Voltage				Standard Knob	Description	Knob Lever
Code	Description			Code		Code
12	12V AC/DC	H	2-position	X	No knob	X
24	24V AC/DC	J	3-position	A	Red	L
10	120V AC★			B	Green	M
Transformer				D	Amber	P
Code	Description			Y	Clear	Z
16	120V AC 50/60 Hz					
26	240V AC 50/60 Hz					

d		e		f		f ₁	
Illumination Options		Operator Function		Cam Type (2-Position)		Cam Type (3-Position)	
Code	Description	Code	Description	Code	Description	Code	Description
Blank	Incandescent	2	Maintained	B	B cam	B	B cam
L	LED‡	4	Spring return from left	Note: For Target arrangements see Table 1.		K	K cam
		5	Spring return from right			P	P cam
		9	Spring return from both			U	U cam
						Note: For Target arrangements see Table 2.	

g1		g2				h	
Contact Cartridge Position		Contact Cartridges				Contact Block Termination Type♣	
Code	Description			Description		Code	Description
Blank	Both right and left	Code	Left side	Right side		Blank	Stab terminals
R	Right	Blank	No contacts			K	Large screw
		Δ	A	—	1 N.O.-1 N.C.		
		Δ♣	A2	—	2 N.O.		
		Δ	A3	—	1 N.O.E.M.- 1 N.C.L.B.		
		Δ♣	A4	—	2 N.C.		
		§♦	B	1 N.O.-1 N.C.	1 N.O.-1 N.C.		
		Δ♣	D1	—	1 N.O.		
		Δ♣	D2	—	1 N.C.		
		§♦	P1	2 N.O.	1 N.O.		
		§♦	P2	2 N.C.	1 N.C.		
		§♦	P3	2 N.O.	1 N.C.		
		§♦	P4	2 N.C.	1 N.O.		
		§♦	P5	2 N.O.	2 N.O.		
		§♦	P6	2 N.C.	2 N.C.		
		§♦	P7	2 N.O.	1 N.O.-1 N.C.		
		§♦	P8	2 N.C.	1 N.O.-1 N.C.		
		§♦	P9	1 N.O.	1 N.C		
		§♦	T1	1 N.O.-1 N.C.	1 N.C.		
		Note: See Table 1 for 2-position contact block selection. See Table 2 for 3-position contact block selection.					

* Only available with LED Illumination option.
‡ LEDs only available in red, green, amber and white. Knob color must match LED color, except clear knob supplied with white LED.

§ Only available with full voltage power module and standard stab terminations.
◆ Logic Reed and small screw contact blocks must be ordered separately.
△ Contact cartridge position code (Table g1) must be R.
◆ Contact cartridge position code (Table g1) must be -.
◆ Only available for 2-position selector switches.

Table 1. Selector Switch Cam Targets

Cam Description (2-Position)			
B			
Target		Operator Function	
		Maintained and Spring Return From Right	Spring Return From Left
X	O	N.C.	N.O.
O	X	N.O.	N.C.

Note:X = Closed/O = Open

Table 2. Selector Switch Cam Targets

Cam Description (3-Position)										
Target			B		K		P		U	
			Left Side	Right Side	Left Side	Right Side	Left Side	Right Side	Left Side	Right Side
O	O	X	N.O.	N.O.	N.O.	—	N.O.	—	—	N.O.
X	O	O	N.C.	N.C.	—	N.O.	N.C.	N.O.	N.O.	—
O	X	X	N.O.E.M.	N.O.E.M.	—	N.C.L.B.	N.O.E.M.	N.C.L.B.	N.C.	—
X	X	O	N.C.L.B.	N.C.L.B.	N.C.L.B.	—	N.C.L.B.	—	—	N.C.
O	X	O	—	—	N.C.	N.C.	—	N.C.	—	—

Note:X = Closed/O = Open

4-Position Knob/Lever Type Selector Switch Units, Illuminated

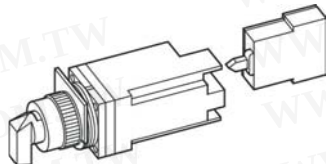
Contact Terminations

Operators come standard with stab terminations. For large screw contact terminations, add letter K to the end of the cat. no. Standard contact blocks with small screw terminations and Logic Reed contact blocks with stab terminations sold separately.



Contact Type	Type	Volts	Lamp	Color	Operator Position				Operator Type	Standard Knob	Knob Lever
										Cat. No.	Cat. No.
	Full Voltage	24V AC/DC	Incandescent	Red	O O X O	O O O X	O X O O	X O O O	Maintained in All Positions	800MR-24NA2QB	800MR-24NL2QB
		24V AC/DC	LED	Red	O O X O	O O O X	O X O O	X O O O		800MR-24NAL2QB	800MR-24NLL2QB
2 N.O. - 2 N.C.		120V AC	LED	Red	O O X O	O O O X	O X O O	X O O O		800MR-10NAL2QB	800MR-10NLL2QB

Note:X = Closed/O = Open



800MR – 24 N A L 2 Q B
a b c d e f g h

(4-Position)

a		b		c			d	
Input Voltage		Operator Positions		Operator Color and Type			Illumination Options	
Full Voltage				Standard Knob	Description	Knob Lever		
Code	Description	Code	Description	Code		Code	Code	Description
12	12V AC/DC	N	4-position†	X	No knob	X	Blank	Incandescent
24	24V AC/DC			A	Red	L	L	LED§
10	120V AC★			B	Green	M		
				D	Amber	P		
				Y	Clear	Z		

e		f				g		h	
Operator Function		Cam Type and Target Table				Contact Cartridges		Contact Block Termination Type♣	
		Q				Standard Block			
Code	Standard knob function	Target		Contact Type (Rear View)		Code	Description	Code	Description
2	Maintained					Left	Right	Blank	Stab terminals
		O	O	O	X	1 N.O.	—		
		O	O	X	O	1 N.C.	—		
		O	X	O	O	—	1 N.O.		
		X	O	O	O	—	1 N.C.		
		Note:X = Closed/ O = Open							

Note:X = Closed/ O = Open

- * Only available with LED Illumination option.
- ‡ Operator is maintained in all positions.
- § LEDs only available in red, green, amber and white. Knob color must match LED color, except clear knob supplied with white LED.
- ♣ Logic Reed contact blocks must be ordered separately.

Contact Blocks

Bulletin 800M contact blocks are available with quick connect type terminals and screw terminals with pressure plates (in two sizes). Each quick connect type termination will accept two 0.110 x 0.032 in. push-on connectors or one 0.250 x 0.032 in. connector. Each small screw terminal with pressure plate will accept a maximum of one #14 AWG wire or two #16 AWG wires. The large screw terminals with pressure plates are similar in size to the Bulletin 800T (full size) contact block terminals.



Cat. No. 800M-XA Cat. No. 800M-XAS Cat. No. 800M-XAK Cat. No. 800M-XAR

Contact Arrangement	Standard Block			Logic Reed Block‡
	Quick Connect Terminals	Small Screw Terminals with Pressure Plates	Large Screw Terminals with Pressure Plates	Quick Connect Terminals
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
1 N.O.	800M-XD1	800M-XD1S	800M-XD1K	800M-XD1R
1 N.C.	800M-XD2	800M-XD2S	800M-XD2K	800M-XD2R
1 N.O. - 1 N.C.	800M-XA	800M-XAS	800M-XAK	800M-XAR
2 N.O.	800M-XA2	800M-XA2S	800M-XA2K	800M-XA2R
2 N.C.	800M-XA4	800M-XA4S	800M-XA4K	800M-XA4R
1 N.O.E.M. - 1 N.C.L.B.	800M-XA3	800M-XA3S	800M-XA3K	—
1 N.C.L.B. - 1 N.C.	800M-XA7	800M-XA7S	800M-XA7K	—

‡ Screw terminals with pressure plates are not available.

Note:For contact block rating information see Standard Contact Ratings.

Color Caps

Non-Illuminated Devices



Flush Head Push Buttons



Extended Head Push Buttons



Mushroom Buttons



Push-Pull Units



Twist or Pull Release Caps

Color	Flush Head Push Buttons	Extended Head Push Buttons	Mushroom Buttons	Push-Pull Units	Twist or Pull Release Caps
	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Green	800MR-N41	800MR-N21	800MR-N56G	800MR-N160B	800MR-N30B
Black	800MR-N42	800MR-N22	800MR-N56B	800MR-N160H	800MR-N30H
Orange	800MR-N43	800MR-N23	800MR-N56O	800MR-N160F	800MR-N30F
Gray	800MR-N44	800MR-N24	800MR-N56GR	800MR-N160G	—
White	800MR-N45	800MR-N25	800MR-N56W	800MR-N160J	—
Red	800MR-N46	800MR-N26	800MR-N56R	800MR-N160A	800MR-N30A
Blue	800MR-N47	800MR-N27	800MR-N56BL	800MR-N160C	800MR-N30C
Yellow	800MR-N49	800MR-N29	800MR-N56Y	800MR-N160E	800MR-N30E

Illuminated Devices



Pilot Light



Push-to-Test Pilot Light and Illuminated Push Button



Push-Pull Unit



Mushroom Button



Twist or Pull Release Caps

Color	Pilot Lights	Push-to-Test Pilots and Illuminated Push Buttons	Illuminated Push-Pull Units	Illuminated Mushroom Buttons	Illuminated Twist or Pull Release Caps
	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Red	800MR-N1R	800MR-N2R	800MR-N159R	800MR-N156R	800MR-N20R
Green	800MR-N1G	800MR-N2G	800MR-N159G	—	800MR-N20G
Amber	800MR-N1A	800MR-N2A	800MR-N159A	800MR-N156A	800MR-N20A
Blue	800MR-N1B	800MR-N2B	800MR-N159B	800MR-N156B	800MR-N20B
White	800MR-N1W	800MR-N2W	800MR-N159W	800MR-N156W	—
Clear	800MR-N1C	800MR-N2C	800MR-N159C	800MR-N156C	800MR-N20C

Replacement Selector Switch Knobs



Selector Knob
Cat. No. 800MR-NG



Selector Knob Lever
Cat. No. 800MR-NK



Selector Knob
Cat. No. 800MR-LB



Selector Knob Lever
Cat. No. 800MR-LM

Knobs

Color	Selector Switch Knobs, Non-Illuminated		Color	Selector Switch Knobs, Illuminated	
	Standard Knob	Knob Lever		Standard Knob	Knob Lever
	Cat. No.	Cat. No.		Cat. No.	Cat. No.
Gray	800M-NG	800M-NT		—	—
Red	800M-NA	800M-NL		—	—
Green	800M-NB	800M-NM	Red	800M-LA	800M-LL
Blue	800M-NC	800M-NN	Amber	800M-LD	800M-LP
Yellow	800M-NE	800M-NR	Clear	800M-LY	800M-LZ
Orange	800M-NF	800M-NS	Green	800M-LB	800M-LM
Black	800M-NH	800M-NK	—	—	—
White	800M-NJ	800M-NV	—	—	—

Bul. 800MB Color Chip Kits

Description		Type of Unit	Color	Cat. No.
 Color Chip Kits These kits are available for replacement on backlit style devices. A packet of color chips containing one of each color is included in each kit.	Cat. No. 800MSIN10	Full-face illuminated	Amber	800MS-N10A
			Blue	800MS-N10B
			Clear	800MS-N10C
			Green	800MS-N10G
			Red	800MS-N10R
		Non-illuminated	Blue	800MS-N12B
			Grey	800MS-N12GR
			Green	800MS-N12G
			Orange	800MS-N12O
			Red	800MS-N12R
			White	800MS-N12W
			Yellow	800MS-N12Y

Boots

Description		Cat. No.	
	Insulation Boot When properly combined with a Bulletin 800MR unit, this device meets CSA grounding requirements.	800M-N18	
Description		Color	Cat. No.
	Rubber Boot These accessories are used as dust covers. They can be added to flush and extended head push button units (illuminated and non-illuminated) to protect against foreign materials from reaching the opening between the button and the mounting ring.	Black	800MR-N8
		Red	800MR-N9
		Green	800MR-N10
		Blue	800MR-N11
		Yellow	800MR-N12
Cat. No. 800MRIN9		Clear	800MR-N14

Miscellaneous

	Description	Cat. No.
	Extended Mounting Ring This mounting ring protects against accidental push button operation.	800MR-N4
 (Padlock not included)	Padlocking Cover Stainless steel mounting bracket with clear plastic cover. Guards against unauthorized operation. Used with round design push buttons and selector switches (not for use with wing lever). Also available for 2-position push-pull units (button must be in the depressed position when the cover is closed).	800MR-N6

	Description	Cat. No.
	Locking Ring Wrench This device is used to tighten and loosen mounting rings properly in the 800MR family.	800MR-N3
	Hole Closing Plug Wherever an enclosure or flush plate with more than the required number of openings is used, this neat-appearing plug can be supplied to close the unused openings.	800M-N1
	Lamp Remover This tool can be used to remove and install wedge based lamps in Illuminated selector switches.	800M-N5
	Connectors Used with wire sizes AWG 18...22. The connectors come in packages of 100 pieces.	* 800M-NT2
	Guard for Illuminated Push Buttons This device is used to prevent accidental operation of illuminated push buttons.	800MR-N93
	Mounting Ring This device is a retaining ring used to keep an operator in the panel when removing the guard ring to service the light bulb.	40167-287-02
	Lens Remover This device makes it easier to remove the lens.	800MS-N9

* These must be ordered in multiples of 100.

	Description	Style	Color	Cat. No.
 Cat. No. 800MS-N16 (Grey) Cat. No. 800MB-N16 (Black)	Additional Bezels These bezels fit square traditional and backlit styles.		Grey	800MS-N16
			Black	800MB-N16
 Cat. No. 800MS-N17		Flush button backlit	Grey	800MS-N17
			Black	800MB-N17
		Extended button backlit	Grey	800MS-N18
			Black	800MB-N18
	Description	Type	Cat. No.	
	Legend Insert Do-It-Yourself Kits These kits contain material necessary to create transparent backlit legend inserts	Legend marking start package	800MS-N13	

Replacement Lamps

Replacement Incandescent and Light Emitting Diode (LED) Lamps

