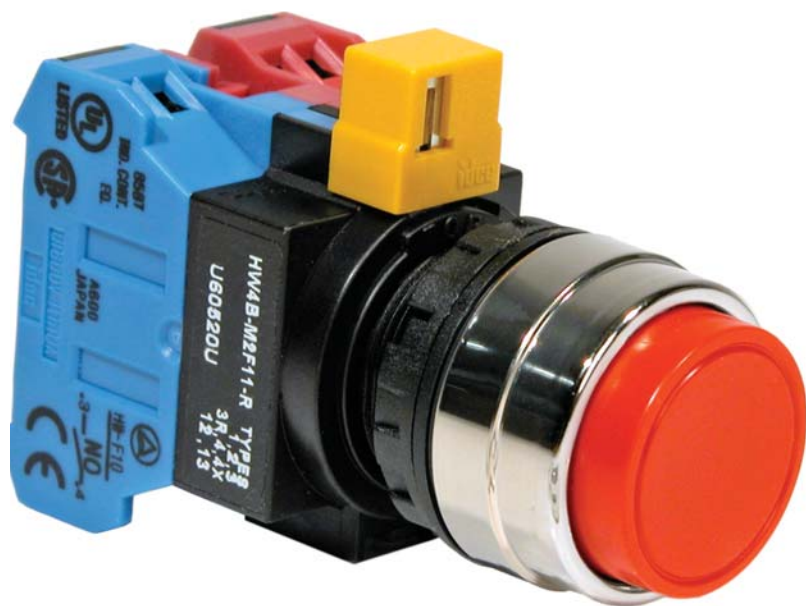


Switches & Pilot Devices



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Miniature Switches & Pilot Devices..... 442

NEW AP Series ø8-16mm 442

A8 Series ø8mm..... 446

ø16mm Switches & Pilot Devices..... 451

NEW XA E-Stops ø16mm 451

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ø22mm Switches & Pilot Devices..... 494

NEW XW E-Stops ø22mm 494

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TW Series ø22mm 561

NEW FB Series Enclosures..... 602

ø30mm Switches & Pilot Devices..... 604

NEW XN E-Stops ø30mm 604

TWTD Series ø30mm 610

Cam Switches - CS Series 640

Mono-Lever Switches - ARN Series 647

NEW LW Silhouette Series 650



For more information on this product family, visit our website.

Additional resources include:

- New and updated product information
- Downloadable software demos & upgrades
- Part configuration tool & cross reference
- Online stock check & ordering
- IDEC field sales & distributor search
- Online literature request
- Downloadable manuals & CAD drawings
- Manufacturer's suggested retail price list
- Product training schedule & locations
- Advertising & trade show schedules
- Press releases & FAQs

www.idec.com/switches

Selection Guide

Appearance	Product Series	Mounting Hole	Contact rating	Contact	Function	Page
	AP	ø8mm, ø10mm, ø12mm, ø16mm	N/A	N/A	Pilot light	442
	A8	ø8mm	1A	Fixed	Pushbutton, Pilot Light	446
	XA	ø16mm	5A	Removable	E-Stop	451
	A6		1A	Fixed	Pushbutton, Pilot Light, Selector Switch, Key Switch, E-Stop	457
	L6		5A	Removable	Pushbutton, Pilot Light, Selector Switch, Key Switch, E-Stop, Buzzer	471
	XW		5A	Removable	E-Stop	494
	HW	ø22mm	10A	Removable	Pushbutton, Pilot Light, Selector Switch, Key Switch, E-Stop, MonoLever	500
	TW		10A	Removable	Pushbutton, Pilot Light, Selector Switch, Key Switch, E-Stop	561
	FB		N/A	N/A	Enclosures	602

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

Selection Guide con't

Appearance	Product Series	Mounting Hole	Contact rating	Contact	Function	Page
	XN	ø30mm	5A	Removable	E-Stop	604
	TWTD		10A	Removable	Pushbutton, Pilot Light, Selector Switch, Key Switch, E-Stop	610
	CS		10A	fixed	Cam Switch	640
	ARN		10A	Removable	MonoLever	647
	LW Silhouette	ø25mm, □ 25 x 25mm	5A	Removable	Pushbutton, Pilot Light, Selector Switch, Key Switch	650

AP Series — Miniature Pilot Lights

Key features:

- Long service life, low maintenance
- Space saving miniature style
- Dome or flat lens models
- Built-in current-limiting resistor
- Five illumination colors: red, green, amber, yellow, and white
- Transformer (120V AC and 240V AC) and DC-DC Converter (110V DC) options on 12mm and 16mm units



UL Recognized
File No. E55996



CSA Certified
File No. LR21451



*AP8/AP1 series only.

Specifications

Lamp	Built-in LED with current limiting resistor
Operational Voltage	5, 6, 12, 24VDC (full voltage), 110/120, 220/240VAC, (with transformer) 110VDC (with converter)
Current Ratings	AP8: 5V DC/9mA, 12V DC/9mA, 24V DC/9mA, 12V AC/15mA, 24V AC/15mA AP1: 5V DC/9mA, 12V DC/9mA, 24V DC/9mA, 12V AC/15mA, 24V AC/15mA AP2: 6V DC/33mA, 12V DC/22mA, 24V DC/11mA AP6: 6V DC/33mA, 12V DC/22mA, 24V DC/11mA
Operating Temp.	-20°C to +55°C
Operating Humidity	45 to 85% RH
Insul. Resistance	100MΩ min. (500V DC megger) Between live and dead parts
Rev. Withstand Voltage	AP2/AP6: 100V AP1/AP8: 200V
Solder Terminal	Soldering 260°C maximum (5 sec.)
Degree of Protection	AP8: IP40 (dustproof) Other Series: IP65 (oiltight)

Optional Adaptors/Converters

	Transformer	DC-DC Converter
Applicable Units	AP2 & AP6 (with 6V LED only)	
Operating Voltage	110/120VAC 50/60 Hz 220/240VAC 50/60 Hz	110V DC (90 to 140V DC)
Power Consumption	1.6 VA maximum	1W maximum
Insulation Voltage	250 V AC	140V DC
Insulation Resistance	10MΩ min. (500V DC megger)	Between live and dead parts
Dielectric Strength	2,000V AC, 1 minute Between live/dead parts 2,000V AC, 1 minute Between terminals	2,000V AC, 1 minute Between live/dead parts 1,500V AC, 1 minute Between terminals



Available as one piece only (replacement LEDs are not available).

Miniature Pilot Lights

AP Miniature Pilot Lights - ø8 & ø10mm

Appearance	Lens Style	Operating Voltage	Part Numbers
 AP8 Series - ø8mm	Dome	5V DC +/- 5% 12V AC/DC +/- 10% 24V AC/DC +/- 10%	AP8M255-② AP8M211-② AP8M222-②
	Flat	5V DC +/- 5% 12V AC/DC +/- 10% 24V AC/DC +/- 10%	AP8M155-② AP8M111-② AP8M122-②
 AP1 Series - ø10mm	Dome	5V DC +/- 5% 12V AC/DC +/- 10% 24V AC/DC +/- 10%	AP1M255-② AP1M211-② AP1M222-②
	Flat	5V DC +/- 5% 12V AC/DC +/- 10% 24V AC/DC +/- 10%	AP1M155-② AP1M111-② AP1M122-②

② Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S*
Warm White	W
Cool White	PW
Yellow	Y

- 
 1. In place of ②, specify the color code.
 2. For dimensions, see page 445.
 3. For accessories, see page 444.

AP Miniature Pilot Lights - ø12 & ø16mm

Appearance	Lens Style	Operating Voltage	Part Numbers
 AP2 Series - ø12mm	Dome	6V DC +/- 5% 12V DC +/- 10% 24V DC +/- 10%	AP2M266-② AP2M211-② AP2M222-②
	Flat	6V DC +/- 5% 12V DC +/- 10% 24V DC +/- 10%	AP2M166-② AP2M111-② AP2M122-②
 AP6 Series - ø16mm	Dome	6V DC +/- 5% 12V DC +/- 10% 24V DC +/- 10%	AP6M266-② AP6M211-② AP6M222-②
	Flat	6V DC +/- 5% 12V DC +/- 10% 24V DC +/- 10%	AP6M166-② AP6M111-② AP6M122-②

② Color Codes

Color	Code
Amber	A
Green	G
Red	R
Warm White	W
Yellow	Y

- 
 1. In place of ②, specify the color code.
 2. For dimensions, see page 445.
 3. For accessories, see page 444.

Optional Transformers and DC-DC Converters (for AP2 and AP6 only)

Appearance	Style	Voltage	Part Numbers	
			Used with AP2 Series	Used with AP6 Series
	Transformer	110/120V AC 220/240V AC	AP2-0126D AP2-0246D	AP6-0126D AP6-0246D
	DC-DC Converter	110V DC (90–140V DC)	AP2-016DD	AP6-016DD

- 
 1. Optional Transformers and DC-DC converters snap onto the back of AP2 or AP6 pilot lights.
 2. Transformers and DC-DC Converters step down to 6V.
 3. For dimensions, see page 445.

Accessories — AP Series

Appearance	Description	Used With	Part Number
Locking Ring Wrench 	Made of metal. Used for tightening plastic locking ring during installation. Tightening torque should not exceed 3kgf-cm	Ø 16mm units	MT-001
		Ø 12mm units	MT-002
		Ø 10mm units	MT-003
		Ø 8mm units	MT-004
Mounting Hole Plug 	Made of rubber. Fills unused mounting holes to provide IP65 protection	Unused 8mm panel cutouts	AL-B8
		Unused 10mm panel cutouts	AL-B1
		Unused 12mm panel cutouts	AL-B2
		Unused 16mm panel cutouts	AL-B6
Transformer Removal Tool 		AP2 and AP6 snap on transformer and DC-DC converter	MT-100
Replacement Lenses 	Lenses (included with all units).	AP1M Flat	AP1M-L1-②
		AP1M Dome	AP1M-L2-②
		AP2M Flat	AP2M-L1-②
		AP2M Dome	AP2M-L2-②
		AP6M Flat	AP6M-L1-②
		AP6M Dome	AP6M-L2-②
Replacement Engraving Inserts 	Allow legends under flat lenses (included with all flat lens models).	AP1M Flat	AP1M-PN1W
		AP2M Flat	AP2M-P1-W
		AP6M Flat	AP6M-P1-W



1. In place of ②, specify the Lens Color Code.
2. Internal LED is fixed and cannot be removed or replaced.

② Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S*
White	W
Yellow	Y



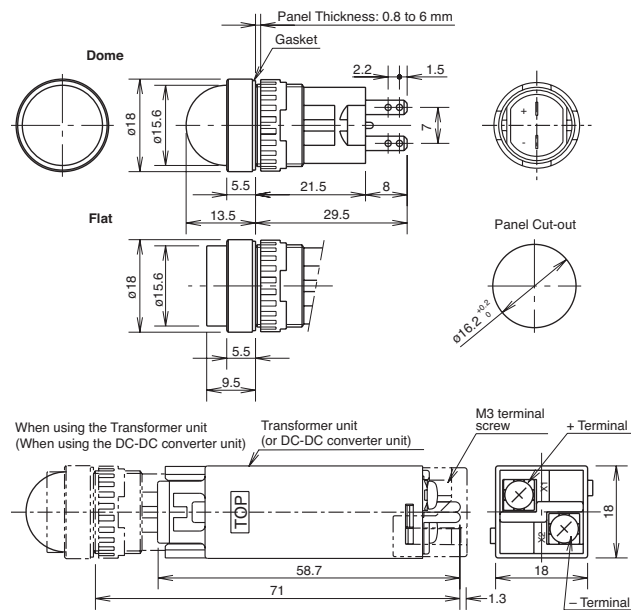
*Blue available in AP8/AP1 series only.

Dimensions — AP Series

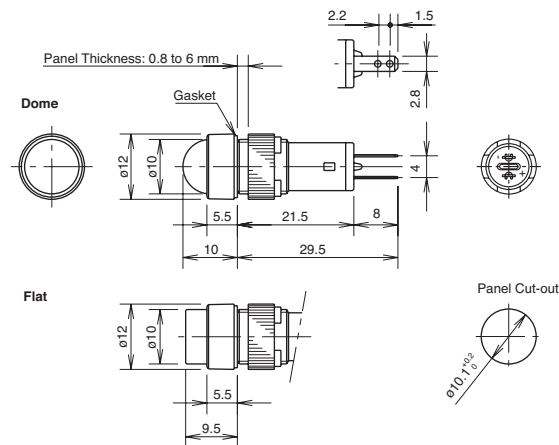
Pilot Lights (AP Series)

Style	AP8		AP1		AP2			AP6		
	Flat	Dome	Flat	Dome	Flat	Dome	w/ Adaptor or Converter	Flat	Dome	w/ Adaptor or Converter
Panel Cut-out	Ø 0.319" (+0.0118, -0) 8.1mm (+0.3, -0)		Ø 0.398" (+0.0118, -0) 10.1mm (+0.3, -0)		Ø 0.480" (+0.0118, -0) 12.2mm (+0.3, -0)			Ø 0.638" (+0.0118, -0) 16.2mm (+0.3, -0)		
Outside Dimension	Ø 0.386" (9.8mm)		Ø 0.472" (12mm)		Ø 0.551" (14mm)			Ø 0.709" (18mm)		

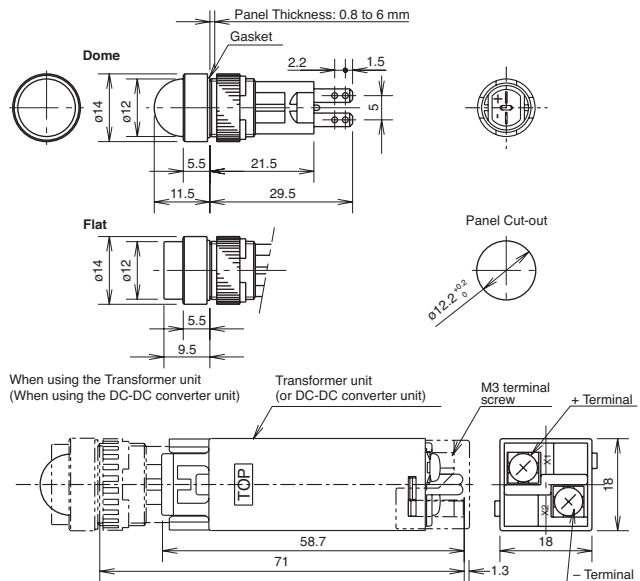
AP6



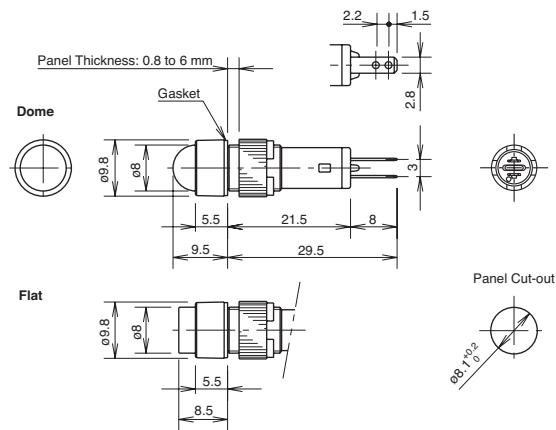
AP1



AP2



AP8



A8 Series — Miniature Switches and Pilot Devices: 8mm

Key features:

- 21/64" (8mm) round mounting hole
- Compact Design Saves Space
- Bright and Vivid Illumination
- Choice of Shapes and Functions
- Gold Clad Silver Contacts for reliable low level switching
- Snap action contacts
- IP40 (Dustproof) Construction



UL Listed
File No. E55996



CSA Certified
File No. LR21451

Specifications

LED Lamp Life	50,000 hours approximately (reduced to half of original intensity)
Contact Configuration	SPDT
Maximum Voltage	250V AC/DC
Thermal Current	3A
Contact Material	Gold-clad Silver
Terminal Style	Solder Tab Terminal
Operating Temperature	-25° to +55°C (no freezing)
Operating Humidity	45 to 85% RH
Contact Resistance	50mΩ maximum (initial value)
Insulation Resistance	100MΩ minimum (500V DC megger)
Vibration Resistance	5 to 55Hz, 0.75mm amplitude
Shock Resistance	Damage limits: 500m/sec ² (approx. 50G) Operating extremes: 200m/sec ² (approx. 20G)
Electrical Life	100,000 operations minimum
Mechanical Life	Maintained: 100,000 (1200 operations/hour) Momentary: 200,000 minimum
Degree of Protection	IP40 Enclosed/Dustproof
Soldering Temperature	20W/5 seconds or 260°C/3 seconds
Dielectric Strength	Switch Unit: 2,000V AC, 1 min. between live/dead part and terminals of different poles; 1,000V AC, 1 minute between terminals of the same pole; 1,500V AC, 1 minute between contact and lamp terminals. Illumination Unit: 2,000V AC, 1 min. between live part/ground

Contact Ratings

Operating Voltage		24V	120V	240V
AC 50/60Hz	Resistive	—	1.0A	0.5A
	Inductive	—	0.7A	0.5A
DC	Resistive	1.0A	0.2A	—
	Inductive	0.7A	0.1A	—

1. AC Inductive Load, PF = 0.6 – 0.7; DC Inductive Load, L/R = 7.
2. Minimum applicable load (reference value) is 5V AC/DC 3mA
(applicable range is subject to the operating conditions and load).

AB8 Non-Illuminated Pushbuttons (Assembled)

Non-Illuminated Pushbuttons

Style		Contact	Part Numbers	
			Momentary	Maintained
Round		SPDT	AB8M-M1-①	AB8M-A1-①
Square		SPDT	AB8Q-M1-①	AB8Q-A1-①
Rectangular		SPDT	AB8H-M1-①	AB8H-A1-①

- 
1. In place of ①, specify button color code from the table below.

2. For accessories, see page 449.

3. For dimensions, see page 450.

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

AL8 Illuminated Pushbuttons & Pilot Lights (Assembled)

Illuminated Pushbuttons

Style	Contact	Part Numbers		Pilot Light Part Number
		Momentary	Maintained	
Round	SPDT	AL8M-M11-②	AL8M-A11-②	AL8M-P1-②
Square	SPDT	AL8Q-M11-②	AL8Q-A11-②	AL8Q-P1-②
Rectangular	SPDT	AL8H-M11-②	AL8H-A11-②	AL8H-P1-②

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
White	W
Yellow	Y

- In place of ②, specify lens color code from table on the right.
- A replaceable LED lamp is included with the operator.
- Because the LED lamp does not contain an internal current limiting resistor, an external resistor must be added.
For recommended values, see table below.
- For accessories, see page 449.
- For dimensions, see page 450.

Replacement LEDs

Lens Color	LED Lamp	Part Number
Amber	Amber	LAD-SA
Green	Green	LAD-SG
Red	Red	LAD-SR
White	Yellow*	LAD-SY
Yellow	Yellow	LAD-SY

LED Voltage and Recommended Current Limiting Resistor

Voltage	External Resistor
5V DC	150Ω, 1/2W
6V DC	200Ω, 1/2W
12V DC	510Ω, 3/4W
24V DC	1.1kΩ, 3/4W

* White units use a white lens and a yellow LED.

LED Lamp Ratings: LED Specifications

LED Lamp	Forward Current I_f	Forward Voltage (Nominal) V_f	Reverse Voltage V_r	Operating Voltage & External Current Limiting Resistor (Recommended Value)
Amber	20mA	2.2V	4V	5V DC: 150Ω, 1/2w 6V DC: 200Ω, 1/2w 12V DC: 510Ω, 3/4w 24V DC: 1.1kΩ, 3/4w
Green	20mA	2.1V	4V	
Red	20mA	1.7V	4V	
Yellow	20mA	2.2V	4V	

When LED lamps are used at voltages other than those stated above, external resistor value, R, is determined by the following formula: $R = (\text{Operating Voltage} - V_f) / I_f$

Accessories

Appearance	Description	Used With		Part Number
Locking Ring Wrench 	Made of metal. Used for tightening plastic locking ring during installation. Tightening torque should not exceed 3kgf-cm	All units		MT-004
Lens Removal Tool 	Made of metal. Used for removing lens or button from the housing	Illuminated pushbuttons and pilot lights		MT-101
Lamp Holder Tool 	Made of rubber. Used for removing and replacing LED lamps in illuminated units	Illuminated pushbuttons and pilot lights		OR-66
Switch Guard 	Used to avoid operating the pushbutton inadvertently. Cover flips open 90°. Provides IP40 protection	Round & square units		AL-K8
		Rectangular units		AL-KH8
Terminal Cover 	Made of translucent nylon. Fits over and shields the terminals	All units		AL-V8
Adaptor Socket  AL-C8 AL-C8V shown attached	Plug-on adaptor with solder terminals, allows easy control unit replacement.	All units	AL-C8	
	Plug-on adaptor with PCB terminals, allows easy control unit replacement.		AL-C8V	
Mounting Hole Plug 	Made of rubber. Fills unused mounting holes to provide IP65 protection	Extra panel cutouts		AL-B8
Replacements LEDs 	LED lamp is included in every illuminated control unit. Replacement lamp is ordered separately. External current limiting resistor required.	Illuminated units and pilot lights		LAD-SR (red)
				LAD-SG (green)
				LAD-SA (amber)
				LAD-SY (yellow)
Replacement Engraving Inserts 		Illuminated pushbuttons and pilot lights	Round	AL8M-W
			Square	AL8Q-W
			Rectangular	AL8H-W
Replacement Lenses 		Illuminated pushbuttons and pilot lights	Round	AL8M-LK1-②
			Square	AL8Q-LK1-②
			Rectangular	AL8H-LK1-②
Replacement Buttons 		Non-Illuminated buttons	Round	AB8M-BK1-①
			Square	AB8Q-BK1-①
			Rectangular	AB8H-BK1-①



1. In place of ①, specify Button Color Code from the table.
2. In place of ②, specify Lens Color Code from table.

① Button Color Codes

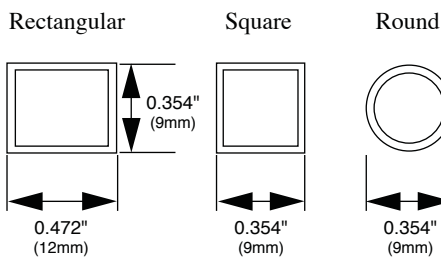
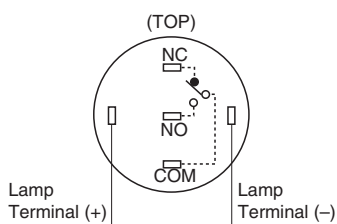
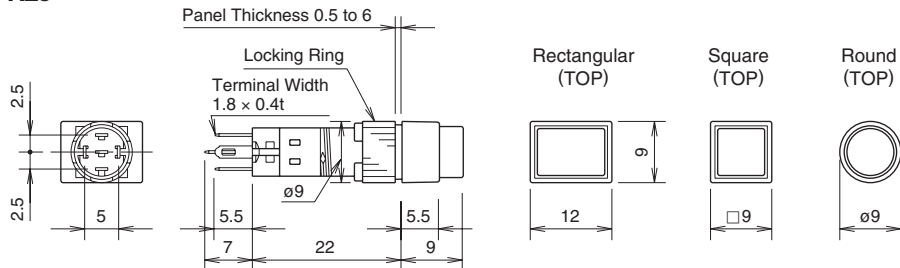
Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

② LED/Lens Color Codes

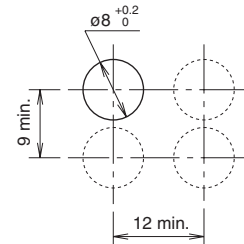
Color	Code
Amber	A
Green	G
Red	R
White	W
Yellow	Y

Dimensions

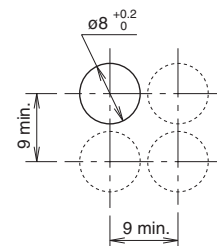
AΔ8



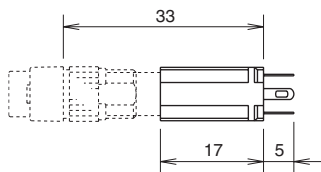
Panel Cut-Out (not drawn to scale) Rectangular



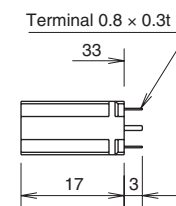
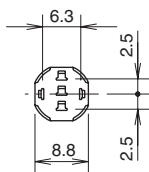
Round/Square



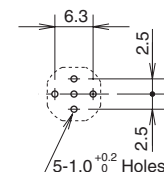
Terminal Sockets



Solder Terminal
(AL-C8)

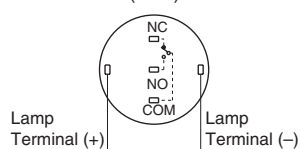


PC Board Terminal
(AL-C8V)



(PC Board Terminal
Mounting Hole Layout)

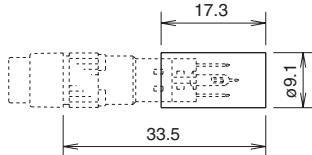
Terminal Arrangement (TOP)



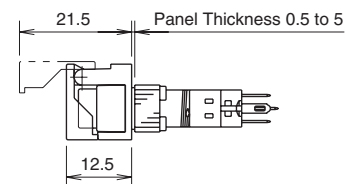
(Bottom View)

Terminal Cover

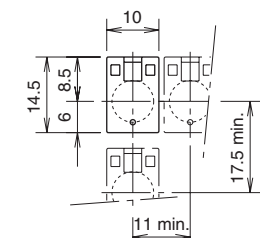
AL-V8, Ø 21/64" (8mm)



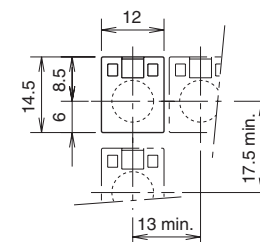
Switch Guard, Ø 21/64" (8mm)



For Round/Square Units (AL-K8)



For Rectangular Units (AL-KH8)



16mm XA E-Stops

Key features:

- Lead-free, RoHS compliant, (EU directive 2002/95/EC)
- The depth behind the panel is only 27.9mm for 1 to 4 contacts, illuminated and non-illuminated types.
- IDEC's original "Safe break action" ensures that the NC contacts open when the contact block is detached from the operator.
- 1 to 4NC main contacts and 1NO monitor contact
- Push-to-lock, Pull or Turn-to-reset operator
- Direct opening action mechanism (IEC60947-5-5, 5.2, IEC60947-5-1, Annex K)
- Safety lock mechanism (IEC60947-5-5, 6.2)
- Degree of protection IP65 (IEC60529)
- Two button sizes: ø29 and ø40mm
- UL, c-UL recognized. EN compliant
- UL NISD2 category emergency stop button (File# E305148)



CCC No. 2005010305150899

Specifications

Applicable Standards	IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5 UL508, CSA C22.2 No. 14
Operating Temperature	Non-illuminated: -25 to +60°C (no freezing), Illuminated: -25 to +55°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-45 to +80°C
Operating Force	Push-to-lock: 10.5N Pull-to-reset: 10N Turn-to-reset: 0.16N·m
Minimum Force Required for Direct Opening Action	60N
Min Operator Stroke Required for Direct Opening Action	4mm
Maximum Operator Stroke	4.5mm
Contact Resistance	50mΩ maximum (initial value)
Contact Material	Gold plated silver
Insulation Resistance	100MΩ minimum (500V DC megger)
Impulse Withstand Voltage	2.5kV
Pollution Degree	3 (inside LED unit: 2)
Operation Frequency	900 operations/hour
Shock Resistance	Operating extremes: 150m/s ² (15G), Damage limits: 1000m/s ² (100G)
Vibration Resistance	Operating extremes: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ² Damage limits: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ²
Mechanical Life	250,000 operations minimum
Electrical Life	100,000 operations minimum, (250,000 operations minimum @ 24V AC/DC, 100mA)
Degree of Protection	IP65 (IEC60529)
Terminal Style	Solder terminal, PC board terminal
Recommended Tightening Torque for Locking Ring	0.88N·m
Wire Size	16 AWG max
Soldering Conditions	310 to 350°C, 3 seconds maximum
Weight	ø29mm: 23g ø40mm: 28g

Part Numbers

Non-Illuminated XA E-Stop

Operator	Termination	Monitor Contacts	Main Contacts	Part Number
29mm Mushroom 	PCB Terminal	1NO	1NC	XA1E-BV311V-R
		—	2NC	XA1E-BV302V-R
		1NO	3NC	XA1E-BV313V-R
		—	4NC	XA1E-BV304V-R
	Solder Terminal	1NO	1NC	XA1E-BV311-R
		—	2NC	XA1E-BV302-R
		1NO	3NC	XA1E-BV313-R
		—	4NC	XA1E-BV304-R
40mm Mushroom 	PCB Terminal	1NO	1NC	XA1E-BV411V-R
		—	2NC	XA1E-BV402V-R
		1NO	3NC	XA1E-BV413V-R
		—	4NC	XA1E-BV404V-R
	Solder Terminal	1NO	1NC	XA1E-BV411-R
		—	2NC	XA1E-BV402-R
		1NO	3NC	XA1E-BV413-R
		—	4NC	XA1E-BV404-R

Illuminated XA E-Stop

Operator	Termination	Monitor Contacts	Main Contacts	Part Number
29mm Mushroom 	PCB Terminal	1NO	1NC	XA1E-LV311Q4V-R
		—	2NC	XA1E-LV302Q4V-R
		1NO	3NC	XA1E-LV313Q4V-R
		—	4NC	XA1E-LV304Q4V-R
	Solder Terminal	1NO	1NC	XA1E-LV311Q4-R
		—	2NC	XA1E-LV302Q4-R
		1NO	3NC	XA1E-LV313Q4-R
		—	4NC	XA1E-LV304Q4-R
40mm Mushroom 	PCB Terminal	1NO	1NC	XA1E-LV411Q4V-R
		—	2NC	XA1E-LV402Q4V-R
		1NO	3NC	XA1E-LV413Q4V-R
		—	4NC	XA1E-LV404Q4V-R
	Solder Terminal	1NO	1NC	XA1E-LV411Q4-R
		—	2NC	XA1E-LV402Q4-R
		1NO	3NC	XA1E-LV413Q4-R
		—	4NC	XA1E-LV404Q4-R



All illuminated XA E-Stops come with a replaceable 24V AC/DC LED.

Contact Ratings

Rated Insulation Voltage (Ui)		300V (illuminated part: 60V)			
Rated Current (Ith)		5A			
Rated Operating Voltage (Ue)		30V	125V	250V	
Rated Operating Current	Main Contacts (NC)	AC 50/60Hz	Resistive Load (AC-12)	—	3A
			Inductive Load (AC-15)	—	1.5A
		DC	Resistive Load (DC-12)	2A	0.4A
			Inductive Load (DC-13)	1A	0.22A
	Monitor Contacts (NO)	AC 50/60Hz	Resistive Load (AC-12)	—	1.2A
			Inductive Load (AC-14)	—	0.6A
		DC	Resistive Load (DC-12)	2A	0.4A
			Inductive Load (DC-13)	1A	0.22A



Minimum applicable load: 5V AC/DC, 1mA (reference value).
The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

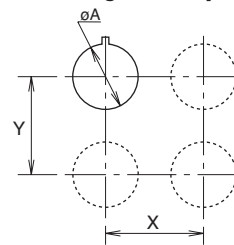
Illuminated Unit LED Ratings

Operating Voltage	Current
24V AC/DC $\pm 10\%$	11mA

Depth Behind the Panel

Depth (mm)	Description
27.9	1 - 4 contacts, both illuminated and non-illuminated

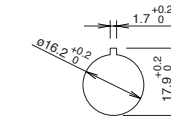
Mounting Hole Layout



Measurements

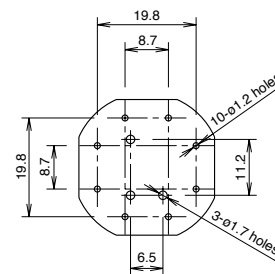
Model	ϕA	X & Y
$\phi 29\text{mm}$	$16.2^{+0.2}$	40mm min
$\phi 40\text{mm}$	$16.2^{+0.2}$	50mm min

Panel Cutout

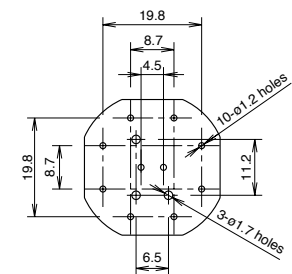


PC Board Layout - Bottom View

Non-Illuminated



Illuminated



Part Number Key

XA1E - L V 3 11 Q4 V - R

Illumination

B: Non-Illuminated
L: Illuminated

Contact Configuration

11: 1NO - 1NC
02: 2NC
13: 1NO - 3NC
04: 4NC

Terminal

Blank: solder tab
V: PCB

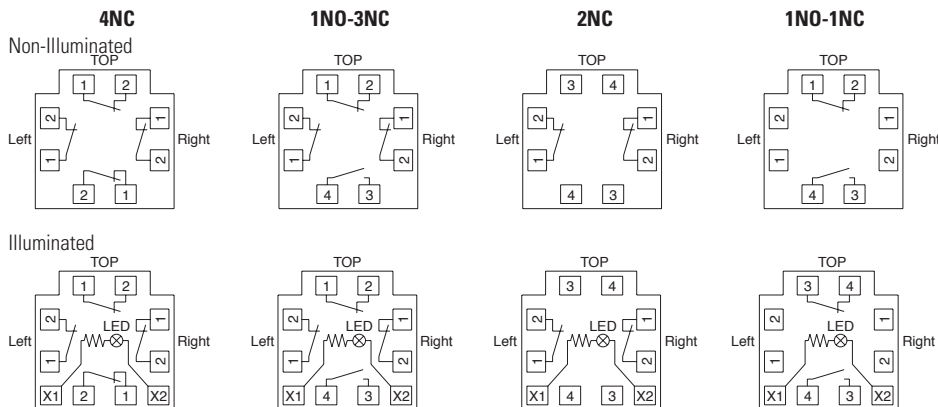
Mushroom Size

3: $\phi 29\text{mm}$
4: $\phi 40\text{mm}$

Voltage Code

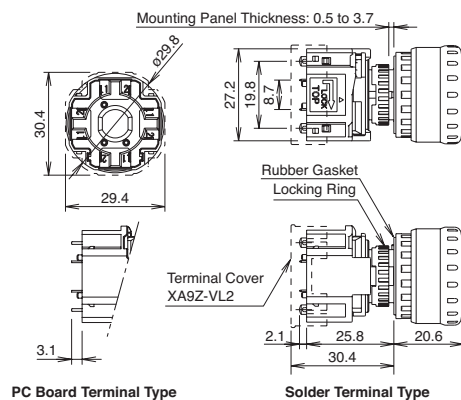
Blank: Non-illuminated
Q4: Illuminated 24V AC/DC

Terminal Arrangements (Bottom View)

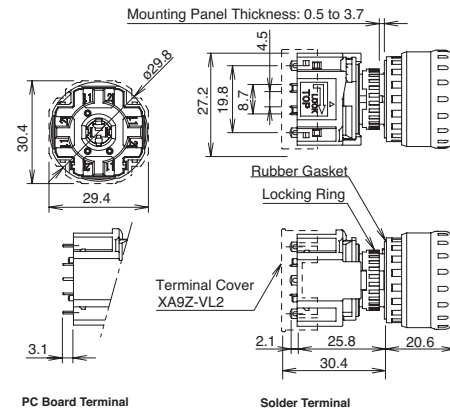


Dimensions (mm)

Non-Illuminated



Illuminated



Accessories

Description	Part Numbers
Replacement LED Unit: Solder Terminal	XA9Z-LED2R
Replacement LED Unit: PCB Terminal	XA9Z-LED2VR
Terminal Cover for contact block (solder terminal only)	XA9Z-VL2

Accessories: Shroud

Part Number	Applicable Standards
XA9Z-KG1	SEMI S2 Compliant (Approved by TUV)

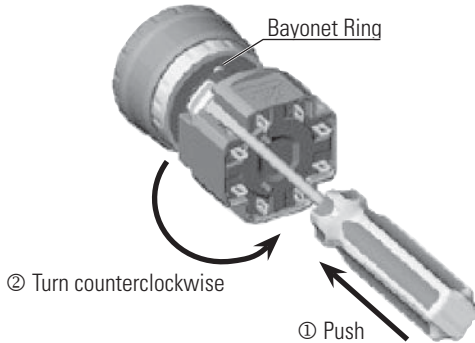
Accessories: Nameplates

Legend	Part Number	Inner Ø	Outer Ø	Available E-Stop Mushroom Size
(blank)	HAAV-0	16mm	43mm	29mm
"Emergency Stop"	HAAV-27	16mm	43mm	
(blank)	HAAV4-0	16mm	60mm	40mm
"Emergency Stop"	HAAV4-27	16mm	60mm	

Operating Instructions

Removing the Contact Block

First unlock the operator button. While pushing up the white bayonet ring, using a small screwdriver (width: 2.5 to 3 mm) if necessary, turn the contact block counterclockwise and pull out. **Do not exert excessive force when using a screwdriver, otherwise the bayonet ring may be damaged.**

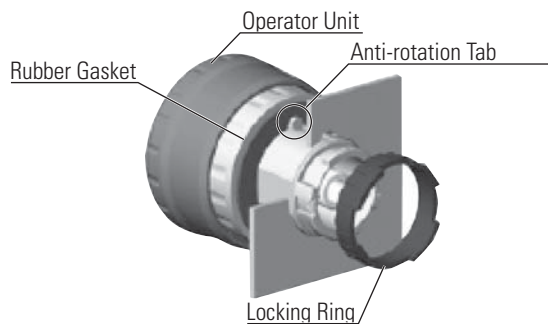


Notes for Removing the Contact Block

1. When the contact block is removed, the monitor contact (NO contact) is closed.
2. While removing the contact block, do not exert excessive force, otherwise the switch may be damaged.

Panel Mounting

Remove the locking ring from the operator and check that the rubber gasket is in place. Insert the operator from panel front into the panel hole. Face the side with the anti-rotation tab on the operator upward, and tighten the locking ring.

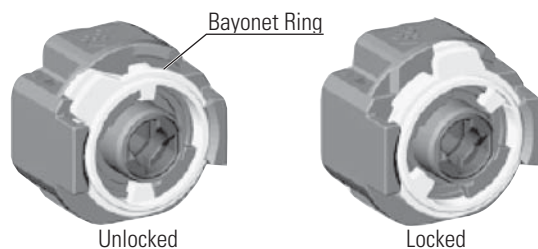


Notes for Panel Mounting

To mount XA emergency stop switches onto a panel, tighten the locking ring to a tightening torque of 0.88 N·m maximum using ring wrench MT-001. Do not use pliers. Do not exert excessive force, otherwise the locking ring may be damaged.

Installing the Contact Block

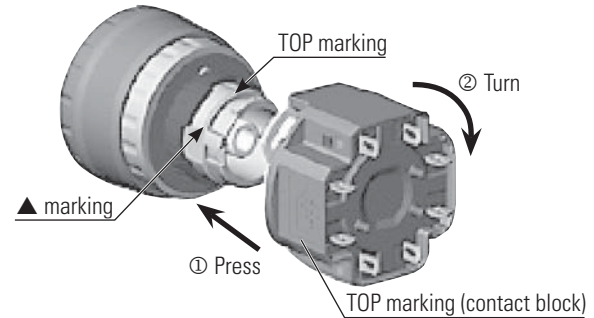
First turn the bayonet ring to the unlocked position.



Align the small ▲ marking on the edge of the operator base with the TOP marking on the contact block. Press the contact block onto the operator and turn the contact block clockwise until the bayonet ring clicks.

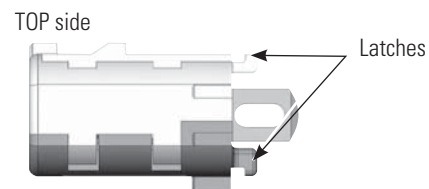
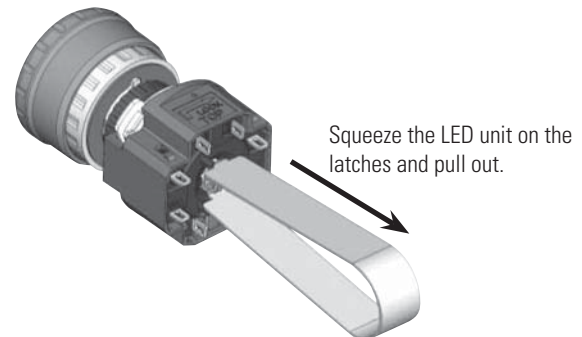
Notes for Installing the Contact Block

Check that the contact block is securely installed on the operator. When the emergency stop switch is properly assembled, the bayonet ring is in place as shown below.



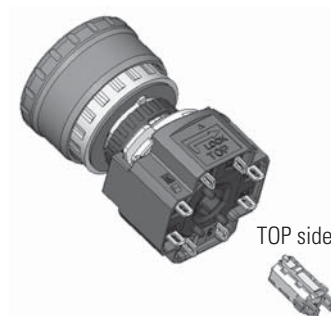
Removing the LED Unit

Pull out the LED unit while squeezing the latches on the LED unit using the LED unit removal tool (MT-101).



Installing the LED Unit

Align the top of the LED unit with the TOP marking on the contact block. Push the LED unit into the contact block.



Operating Instructions, continued

Wiring

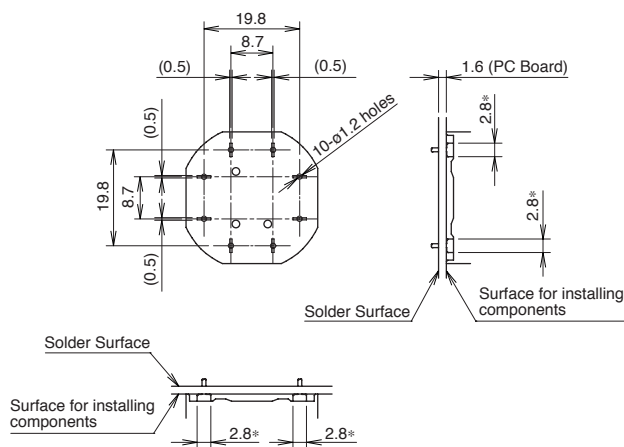
1. The applicable wire size is 16 AWG maximum.
2. Solder the terminal at a temperature of 310 to 350°C within 3 seconds using a soldering iron. Sn-Ag-Cu solder is recommended. When soldering, do not touch the switch with the soldering iron. Also ensure that no tensile force is applied to the terminals. Do not bend the terminals or apply excessive force to the terminals.
3. Use a non-corrosive rosin flux.
4. Because the terminal spacing is narrow, use protective tubes or heat shrinkable tubes to avoid burning of wire coating or short circuit.

PC Board Terminal Type

1. When mounting a contact block on a PC board, provide sufficient rotating space for the PC board when installing and removing the contact block.
2. When mounting an XA emergency stop switch on a PC board, make sure that the operator is securely installed.

About PC Board and Circuit Design

1. Use PC boards made of glass epoxy copper-clad laminated sheets of 1.6 mm in thickness, with double-sided through holes.
2. PC boards and circuits must withstand rated voltage and current, including instantaneous current and voltage at switching.
3. The minimum applicable load is 5V AC/DC, 1 mA.
4. Within the 2.8* mm areas shown in the figure below, terminals touch the PC board, resulting in possible short circuit on the printed circuit. When designing a PC board pattern, take this possibility into consideration.

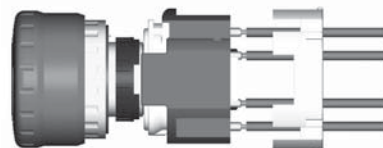


All dimensions in mm.

Installing Insulation Terminal Cover

To install the terminal cover (XA9Z-VL2), align the TOP marking on the terminal cover with TOP marking on the contact block, and press the terminal cover toward the contact block.

Note: For wiring, insert the wires into the holes in the terminal cover before soldering.



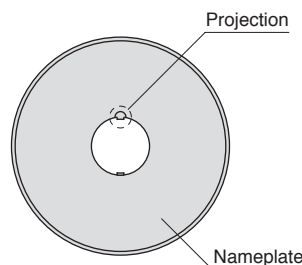
Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce.
When pressing the button, the NO monitor contacts will bounce.

When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

Nameplate

When anti-rotation is not required, remove the projection from the nameplate using pliers.



Handling

Do not expose the switch to excessive shock and vibration, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.



Safety Precautions



- Turn off power to the XA series emergency stop switch before starting installation, removal, wiring, maintenance, and inspection of the relays. Failure to turn power off may cause electrical shock or fire hazard.
- Use the LED unit removal tool when replacing the LED unit to avoid burning your hands.
- Use wires of the proper size to meet the voltage and current requirements, and solder the wires correctly. If soldering is incomplete, the wire may heat during operation, causing a fire hazard.

A6 Series — Miniature Switches and Pilot Devices: 16mm

Key features:

- 16mm (5/8") mounting hole
- LED illumination
- Compact design saves space
- Momentary, Maintained, Selectors, and E-Stops
- Gold-clad Silver contacts for reliable low level switching
- Snap action contacts
- IP40 (dustproof) or IP65 (oiltight) versions



UL Recognized
File No. E55996



CSA Certified
File No. LR21451



Specifications	Degree of Protection		IP40: Dustproof IP65 Watertight/Oiltight			
	Contact Configuration		SPDT, DPDT			
	Maximum Voltage		250V AC/DC			
	Thermal Current		3A			
	Minimum Applicable Load		5V AC/DC, 1mA			
	Contact Material		Gold-clad silver			
	Terminal Style		.110" Solder/ Quick Connect			
	Operating Temperature		-25° to +55°C (no freezing)			
	Operating Humidity		45 to 85% RH			
	Contact Resistance		50mΩ maximum (initial value)			
	Insulation Resistance		100MΩ minimum (500V DC megger)			
	Vibration Resistance		10 to 55Hz, amplitude 1.5mm p-p			
	Shock Resistance		Damage limits: 500m/sec² (approx. 50G) Operating extremes: 200m/sec² (approx. 20G)			
	Electrical Life		100,000 operations minimum (at full rated load)			
Contact Ratings	Mechanical Life		Maintained: 100,000 operations minimum Momentary: 1,000,000 operations minimum Selector/Keylock: 250,000 operations minimum			
	Dielectric Strength		Switch Unit: 2,000V AC, 1 min. between live/dead part and terminals of different poles; 1,000V AC, 1 minute between terminals of the same pole; 1,500V AC, 1 minute between contact and lamp terminals. Illumination Unit: 2,000V AC, 1 min. between live part/ground			
	Soldering Temperature		20W/5 seconds or 260°C/3 seconds			
	Operating Voltage		24V	120V	240V	
LED Lamp Ratings	AC (50/60Hz)	Resistive	—	1.0A	0.5A	
		Inductive	—	0.7A	0.5A	
	DC	Resistive	1.0A	0.2A	—	
		Inductive	0.7A	0.1A	—	
LED Lamp Ratings	Rated Voltage/Current		5V DC ±5%	6V AC/DC (±10%)	12V AC/DC (±10%)	24V AC/DC (±10%)
			8mA	AC: A, R, W, Y: 8mA G, S: 7mA DC: A, R, W, Y: 6mA G, S: 5mA	AC: 9mA DC: 8mA	AC: 9mA DC: 8mA



1. AC Inductive Load, PF = 0.6 – 0.7; DC Inductive Load, L/R = 7ms.
2. LED lamp contains a built-in current limiting resistor and a protection diode.
3. LED's don't "burn out." Luminance is reduced to 50% of initial intensity after being lit for 50,000 hours continuously.

AB6 Non-Illuminated Pushbuttons (Assembled)

Non-Illuminated Pushbuttons

Style	Contact	Part Number			
		Momentary		Maintained (Latching)	
		Dustproof (IP40)	Oiltight (IP65)	Dustproof (IP40)	Oiltight (IP65)
Standard Button Round 18mm 	SPDT DPDT	AB6M-M1-① AB6M-M2-①	AB6M-M1P-① AB6M-M2P-①	AB6M-A1-① AB6M-A2-①	AB6M-A1P-① AB6M-A2P-①
Square 18mm 	SPDT DPDT	AB6Q-M1-① AB6Q-M2-①	AB6Q-M1P-① AB6Q-M2P-①	AB6Q-A1-① AB6Q-A2-①	AB6Q-A1P-① AB6Q-A2P-①
Rectangular 18mm x 24mm 	SPDT DPDT	AB6H-M1-① AB6H-M2-①	AB6H-M1P-① AB6H-M2P-①	AB6H-A1-① AB6H-A2-①	AB6H-A1P-① AB6H-A2P-①
Oversize Button Round 23.5mm 	SPDT DPDT	—	AB6M-M1P-M① AB6M-M2P-M①	—	AB6M-A1P-M① AB6M-A2P-M①
Square 23.5mm 	SPDT DPDT	—	AB6Q-M1P-Q① AB6Q-M2P-Q①	—	AB6Q-A1P-Q① AB6Q-A2P-Q①
Rectangular 17.5 X 23.5mm 	SPDT DPDT	—	AB6Q-M1P-H① AB6Q-M2P-H①	—	AB6Q-A1P-H① AB6Q-A2P-H①

① Button Color Code

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y



1. In place of ①, specify Button Color Code from the table at right.
2. To order as sub-assembled, see page 459.
3. For accessories, see page 466.
4. For dimensions, see page 468.

AB6-V Pushlock Turn Reset

Shape	Operation	Contact	Part Number		Remarks
			Dustproof (IP40)	Oiltight (IP65)	
23.5mm Round Mushroom 	Pushlock Turn Reset	SPDT DPDT	AB6M-V1-R AB6M-V2-R	AB6M-V1P-R AB6M-V2P-R	1. Button available in red only. 2. Replacement button: order AB6M-V-R

Buzzer

Style	Shape	Voltage	Part Number
	Round (18mm)	12V DC	UZ6-11
		24V DC	UZ6-12

Buzzer Ratings

Frequency	2 kHz ± 500 Hz
Amplitude	80db @ 0.1m (at rated voltage)
Operating Voltage	6V AC/DC or 12 - 24V AC/DC ± 10%
Adjustable Cycle	55 to 600 cycles per minute
Current Draw	DC: 7mA, AC: 20mA
Life	1000 hrs. minimum
Insulation Voltage	60V AC/DC
Operating Temperature	-20 to 55 C (no freezing), 45 to 85% rh

AB6 Non-Illuminated Pushbuttons (Sub-Assembled)

Operator	+	Button	=	Completed Unit
				

Operators

Style	Contact	Operator	Part Number		
			Round	Square	Rectangular
Non-Illuminated Pushbuttons 	SPDT	Momentary	AB6M-M100	AB6Q-M100	AB6H-M100
		Maintained	AB6M-A100	AB6Q-A100	AB6H-A100
	DPDT	Momentary	AB6M-M200	AB6Q-M200	AB6H-M200
		Maintained	AB6M-A200	AB6Q-A200	AB6H-A200



Oversize rectangular button uses square operator.

Buttons

Description	Part Number	
	Button	
	Dustproof (IP40)	Oiltight (IP65)
Round 	AB6M-BK1-①	AB6M-BK2-①
Square 	AB6Q-BK1-①	AB6Q-BK2-①
Rectangular 	AB6H-BK1-①	AB6H-BK2-①
Round Oversize 	—	AB6M-BK2-M①
Square Oversize 	—	AB6Q-BK2-Q①
Rectangular Oversize 	—	AB6Q-BK2-H①

① Button Color Code

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y



1. In place of ①, specify Button Color Code from table.
2. Buttons which are rated IP65 include a waterproof rubber gasket.
3. For accessories, see page 466.

AL6 Illuminated Pushbuttons (Assembled)

LED Illuminated Pushbuttons

Description	Style	Contact	Part Numbers			
			Momentary		Maintained (Latching)	
			Dustproof (IP40)	Oiltight (IP65)	Dustproof (IP40)	Oiltight (IP65)
Standard Lens	Round (18mm lens) 	SPDT DPDT	AL6M-M1③-② AL6M-M2③-②	AL6M-M1③P-② AL6M-M2③P-②	AL6M-A1③-② AL6M-A2③-②	AL6M-A1③P-② AL6M-A2③P-②
	Square (18mm lens) 	SPDT DPDT	AL6Q-M1③-② AL6Q-M2③-②	AL6Q-M1③P-② AL6Q-M2③P-②	AL6Q-A1③-② AL6Q-A2③-②	AL6Q-A1③P-② AL6Q-A2③P-②
	Rectangular (18mm x 24mm lens) 	SPDT DPDT	AL6H-M1③-② AL6H-M2③-②	AL6H-M1③P-② AL6H-M2③P-②	AL6H-A1③-② AL6H-A2③-②	AL6H-A1③P-② AL6H-A2③P-②
Oversize Lens	Round (24mm lens) 	SPDT DPDT	—	AL6M-M1③P-M② AL6M-M2③P-M②	—	AL6M-A1③P-M② AL6M-A2③P-M②
	Square (24mm lens) 	SPDT DPDT	—	AL6Q-M1③P-Q② AL6Q-M2③P-Q②	—	AL6Q-A1③P-Q② AL6Q-A2③P-Q②
	Rectangular (18mm x 24mm lens) 	SPDT DPDT	—	AL6Q-M1③P-H② AL6Q-M2③P-H②	—	AL6Q-A1③P-H② AL6Q-A2③P-H②



1. In place of ②, specify Lens/LED Color Code from table below.
2. In place of ③, specify Voltage Code from table below.
3. Lamps also available in 5V DC, 6V AC/DC or 12 V AC/DC, change "4" using voltage/lamp codes (ie AL6M-M13-② uses 12V AC/DC LED).
4. LED lamp is included in unit and contains a current-limiting resistor and a protection diode. (External resistor not required.)
5. To order as sub-assembled, see page 461.
6. For accessories, see page 466.
7. For dimensions, see page 468.
8. Light independent of switch position.

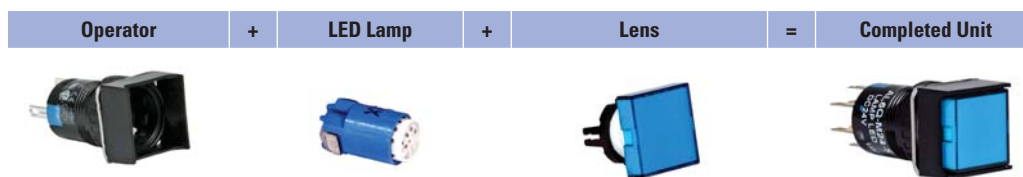
② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Warm White	W
Cool White	JW
Yellow	Y

③ Voltage Code

Voltage	Code
5V DC	1
6V AC/DC	2
12V AC/DC	3
24V AC/DC	4

AL6 Illuminated Pushbuttons (Sub-Assembled)



Operators

Style	Contact	Operator	Part Number		
			Round	Square	Rectangular
AL6 Illuminated Pushbuttons 	SPDT	Momentary	AL6M-M100	AL6Q-M100	AL6H-M100
		Maintained	AL6M-A100	AL6Q-A100	AL6H-A100
	DPDT	Momentary	AL6M-M200	AL6Q-M200	AL6H-M200
		Maintained	AL6M-A200	AL6Q-A200	AL6H-A200



Oversize rectangular button uses square operator.

Lenses

Unit	Part Number		
	Dustproof (IP40)	Oiltight (IP65)	
Size	Standard	Standard	Oversize
Round	AL6M-LK1-② 	AL6M-LK2-② 	AL6M-LK2-M ② 
Square	AL6Q-LK1-② 	AL6Q-LK2-② 	AL6Q-LK2-Q ② 
Rectangular	AL6H-LK1-② 	AL6H-LK2-② 	AL6Q-LK2-H ② 



1. In place of ②, specify Lens Color Code from table below.
2. Lenses which are rated IP65 include a waterproof rubber gasket.
3. For accessories, see page 466.

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Warm White	W
Cool White	JW
Yellow	Y

LED Lamps

Appearance	Rated Voltage	Part Number
	5V DC	LATD-5 ②
	6V AC/DC	LATD-6 ②
	12V AC/DC	LATD-1 ②
	24V AC/DC	LATD-2 ②



1. In place of ②, specify LED Color Code from table at left.

AL6 Pilot Lights (Assembled)

LED Pilot Lights

Description	Part Number	
	Dustproof (IP40)	Oiltight (IP65)
Round (18mm Lens) 	AL6M-P③-②	AL6M-P③P-②
Square (18mm Lens) 	AL6Q-P③-②	AL6Q-P③P-②
Rectangular (18mm x 24mm Lens) 	AL6H-P③-②	AL6H-P③P-②



1. In place of ②, specify Lens Color Code from table below.
2. In place of ③, specify Voltage Code from table below.
3. LEDs also available in 5V DC, 6V AC/DC or 12 V AC/DC, change "4" using voltage codes (ie AL6M-P3-② uses 12V AC/DC LED).
4. LED is included and contains built-in current limiting resistor and reverse polarity protection diode. (no external resistor required)
5. To order sub-assembled, see page 463.
6. For accessories, see page 466.
7. For dimensions, see page 468.
8. For one piece pilot lights and/or dome lens pilot lights, see AP series miniature pilot lights.

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Warm White	W
Cool White	JW
Yellow	Y

③ Voltage Code

Voltage	Code
5V DC	1
6V AC/DC	2
12V AC/DC	3
24V AC/DC	4

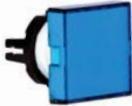
AL6 Pilot Lights (Sub-Assembled)

Operator	+	LED Lamp	+	Lens	=	Completed Unit
						

Operators

Style	Part Number		
	Round	Square	Rectangular
AL6 Pilot Lights			
	AL6M-P00	AL6Q-P00	AL6H-P00

Lenses

Degree of Protection	Part Number	
	Dustproof IP40	Oiltight IP65
Round	AL6M-LK1-② 	AL6M-LK3-② 
Square	AL6Q-LK1-② 	AL6Q-LK3-② 
Rectangular	AL6H-LK1-② 	AL6H-LK3-② 



1. In place of ②, specify Lens Color Code from table below.
2. Lenses which are rated IP65 include a waterproof rubber gasket.
3. For accessories, see page 466.

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Warm White	W
Cool White	JW
Yellow	Y

LED Lamps

Appearance	Rated Voltage	Part Number
	5V DC	LATD-5 ②
	6V AC/DC	LATD-6 ②
	12V AC/DC	LATD-1 ②
	24V AC/DC	LATD-2 ②



1. In place of ②, specify LED Color Code from table at left.

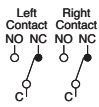
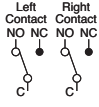
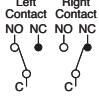
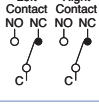
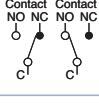
AS6 Selector and Keylock Switches

AS6 Selector Switches and Keylock Switches (2 & 3 Position)

Style		Function		Knob	Key
Round Selector 	2-Position 90°	Maintained		AS6M-2Y2P	AS6M-2KT2P①
		Spring Return Right		AS6M-21Y2P	AS6M-21KT2PB
Round Keylock 	3-Position 45°	Maintained		AS6M-3Y2P	AS6M-3KT2P①
		Spring Return Right → Center		AS6M-31Y2P	AS6M-31KT2P①
		Spring Return Left → Center		AS6M-32Y2P	AS6M-32KT2P①
		2-Way Return → Center		AS6M-33Y2P	AS6M-33KT2PD
Square Selector 	2-Position 90°	Maintained		AS6Q-2Y2P	AS6Q-2KT2P①
		Spring Return to Right		AS6Q-21Y2P	AS6Q-21KT2PB
Square Keylock 	3-Position 45°	Maintained		AS6Q-3Y2P	AS6Q-3KT2P①
		Spring Return Right → Center		AS6Q-31Y2P	AS6Q-31KT2P①
		Spring Return Left → Center		AS6Q-32Y2P	AS6Q-32KT2P①
		2-Way Return → Center		AS6Q-33Y2P	AS6Q-33KT2PD
Rectangular Selector 	2-Position 90°	Maintained		AS6H-2Y2P	AS6H-2KT2P①
		Spring Return Right		AS6H-21Y2P	AS6H-21KT2PB
Rectangular Keylock 	3-Position 45°	Maintained		AS6H-3Y2P	AS6H-3KT2P①
		Spring Return Right → Center		AS6H-31Y2P	AS6H-31KT2P①
		Spring Return Left → Center		AS6H-32Y2P	AS6H-32KT2P①
		2-Way Return → Center		AS6H-33Y2P	AS6H-33KT2PD

-  1. All models are IP65 and DPDT.
 2. In place of ①, specify Key Retention Code. See table on right.
 3. Available as assembled units only.
 4. For accessories, see page 466.
 5. For dimensions, see page 468.

Contact Operations (for all selectors)

Contents	Operator Position & Contact Operation	
2-pos. (DPDT)	Left	
	Right	
3-pos. (DPDT)	Left	
	Center	
	Right	

① Key Retention Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)

 Key cannot be removed in a spring return position.

Switch Engraving Order Form – A6 Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.
To insure engraving accuracy, fax it to your IDEC representative or Distributor.

Your Company:

Name:

Address:

PO:

Telephone:

Fax:

Email:

Part Number to be Engraved:

Please check one of the boxes below to indicate your choice of engraving options:

Rectangular Switch

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	6
☐	2	5/32	6
☐		1/8	6
☐	3	1/8	6
☐	4	N/A	

Square Switch

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	5
☐	2	5/32	5
☐		1/8	6
☐	3	1/8	6
☐	4	N/A	

Round Switch

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	3
☐		1/8	3
☐	2	5/32	Custom*
☐	3	1/8	Custom*
☐	4	3/32	Custom*

*Engraving is possible, but character size will be smaller than standard sizes.

-
1. Engraving is done on the button itself for non-Illuminated pushbuttons and on marking plate for illuminated pushbuttons and pilot lights.

2. Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1:

Line 2:

Line 3:

Line 4:

Sample Letter Sizes

1/8 Letters: OPEN

5/32 Letters: OPEN

For IDEC Internal Use Only:

Work Order #:

Accessories

Appearance		Description	Used With	Part Number
Locking Ring Wrench		Made of metal. Used for tightening plastic locking ring during installation. Tightening torque should not exceed 3kgf-cm	Ø 5/8" (16mm) units	MT-001
			Ø 31/64" (12mm) AP2M units	MT-002
			Ø 13/32" (10mm) AP1M units	MT-003
Lens Removal Tool		Made of metal. Used for removing lens or button from the housing	All pushbuttons and pilot lights	MT-101
Lamp Holder Tool		Made of rubber. Used for removing and replacing LED lamps in illuminated units	All illuminated pushbuttons and pilot lights	OR-77
Switch Guard		Prevents inadvertent switch operation. IP40 dust-tight. 90 degrees opening maintained	Round/Square	AL-K6
			Rectangular	AL-KH6
		Prevents inadvertent switch operation. IP65 oiltight 180 degrees opening, spring return	Round/Square	AL-K6SP
			Rectangular	AL-KH6SP
Terminal Cover		Made of translucent nylon. Fits over and shields the terminals	All 5/8" (16mm) units	AL-V6
Dust Cover		Fits over the lens or button to provide extra protection from dust (not applicable for oversize lenses or buttons).	All round units	AL-D6
			All square units	AL-DQ6
			All rectangular units	AL-DH6
Adaptor Socket		Plug-on terminal adaptor with solder terminals		AL-C6
		Plug-on terminal adaptor with PCB terminals	All 5/8" (16mm) units	AL-C6V
Mounting Hole Plug		Fills unused panel cutouts. Made of nitrile rubber. Push-in installation from front of panel. IP65 (oiltight).	Rubber	AL-B6
		Fills unused panel cutouts. Made of aluminum. Screw-on locking ring from inside of panel. IP65 (oiltight).	Aluminum	AL-BM6
		Round Mounting Hole Plug		LA9Z-BS6
		Square Mounting Hole Plug	Plastic (Applicable for flush mount switches only)	LA9Z-BS7
		Rectangular Mounting Hole Plug		LA9Z-BS8
Replacement LED Lamps		LED with built in current limiting resistor (with all illuminated assemblies).	5V DC	LATD-5 ②
			6V AC/DC	LATD-6 ②
			12V AC/DC	LATD-1 ②
			24V AC/DC	LATD-2 ②
Replacement Locking Ring		Fastens operators to panel (included with all operators).	All switches & pilot lights	HA9Z-LN
Anti-Rotation Ring		Prevents rotation of switches in panel (included with all operators).	All switches & pilot lights	AL6-LP
Replacement Engraving Inserts		Engraving plates to allow legends underneath translucent lenses (included with all lenses).	Round standard	AL6M-W
			Square standard	AL6Q-W
			Rectangular standard	AL6H-W
			Round oversize	AL6M-MW
			Square/rectangular oversize	AL6Q-QW
Replacement Keys		Pair of keys (#132). All key switches use same standard key.	All key selectors	AS6-SK

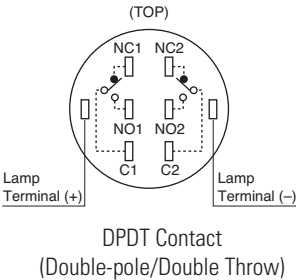
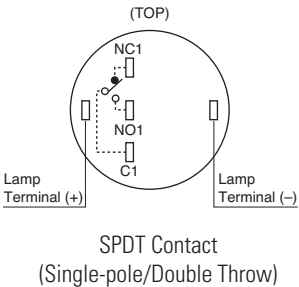
1. In place of ② specify color code. A=Amber, G=Green, Y=Yellow, R=Red, S=Blue, W=Warm White, JW=Cool White.
2. LEDs include built-in current limiting resistor and reverse polarity protection diode.

Appearance		Description	Used With	Part Number
Flush Bezel		ø24mm round, metal (aluminum color), panel cut-out ø20.2mm	Pushbuttons, pilot lights, illuminated pushbutton, selector switches, key selector switches and illuminated selector switches.  A6 Switch +  Flush Bezel =  Flush Switch	LA9Z-SM61
		ø24mm round, plastic (black), square panel cut-out ø20.2mm		LA9Z-S61B
		24mm square, plastic (black), panel cut-out 20.2 x 20.2mm		LA9Z-S71B
		24 x 30mm rectangular, plastic (black), rectangular panel cut-out ø20.2 x 26.2mm		LA9Z-S81B
Switch Guard w/ Flush Bezel (spring return)		Rectangular, plastic (black)		LA9Z-KS8

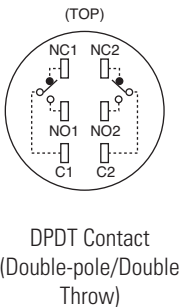
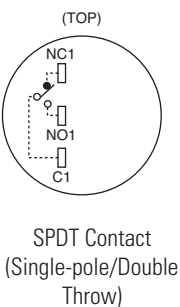
Schematics — A Series: 5/8" (16mm)

Terminal Arrangement (Top View)

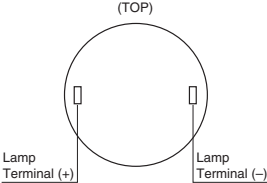
Illuminated Pushbuttons



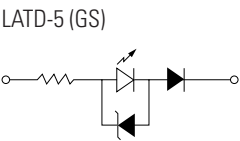
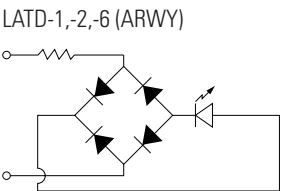
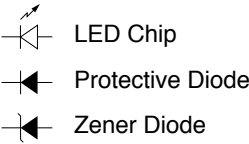
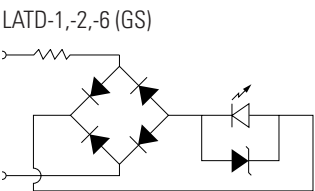
Non-illuminated Pushbuttons and Selector Switches



Pilot Lights

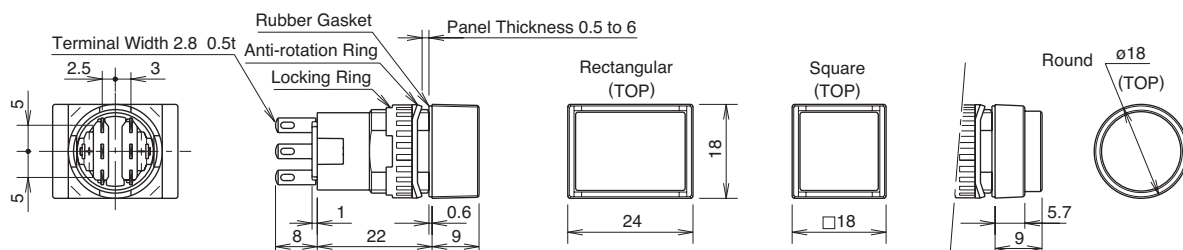


IDEC's Superbright LED Internal Circuits

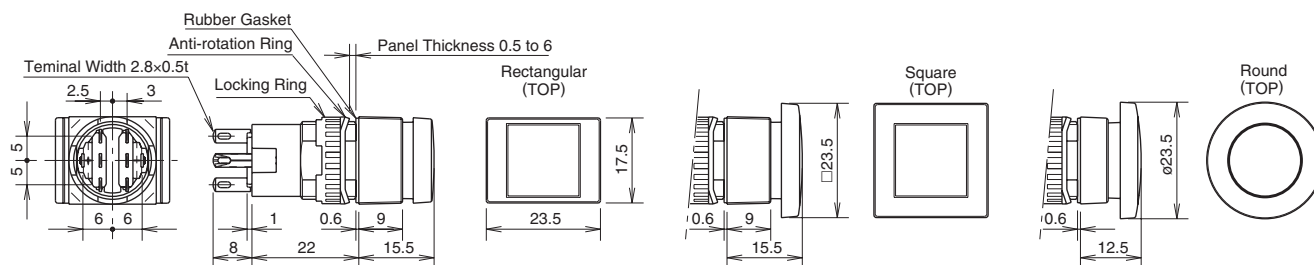


Dimensions (mm)

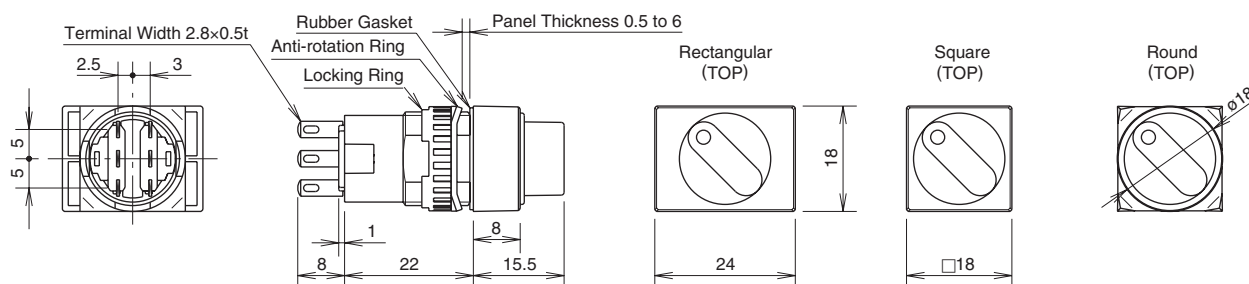
Pushbuttons, Ø 5/8" (16mm)



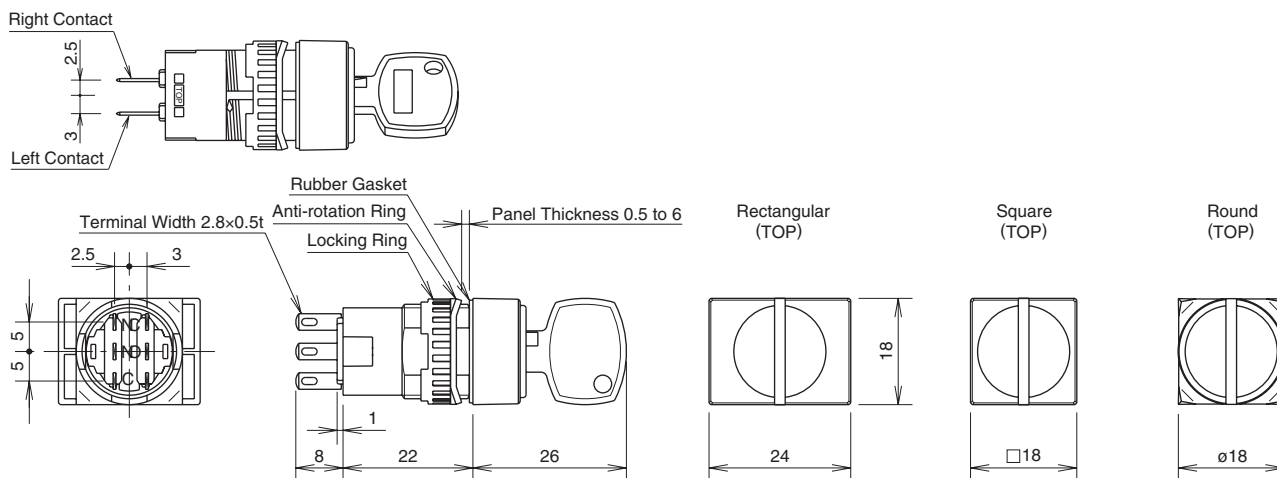
Oversize Lens



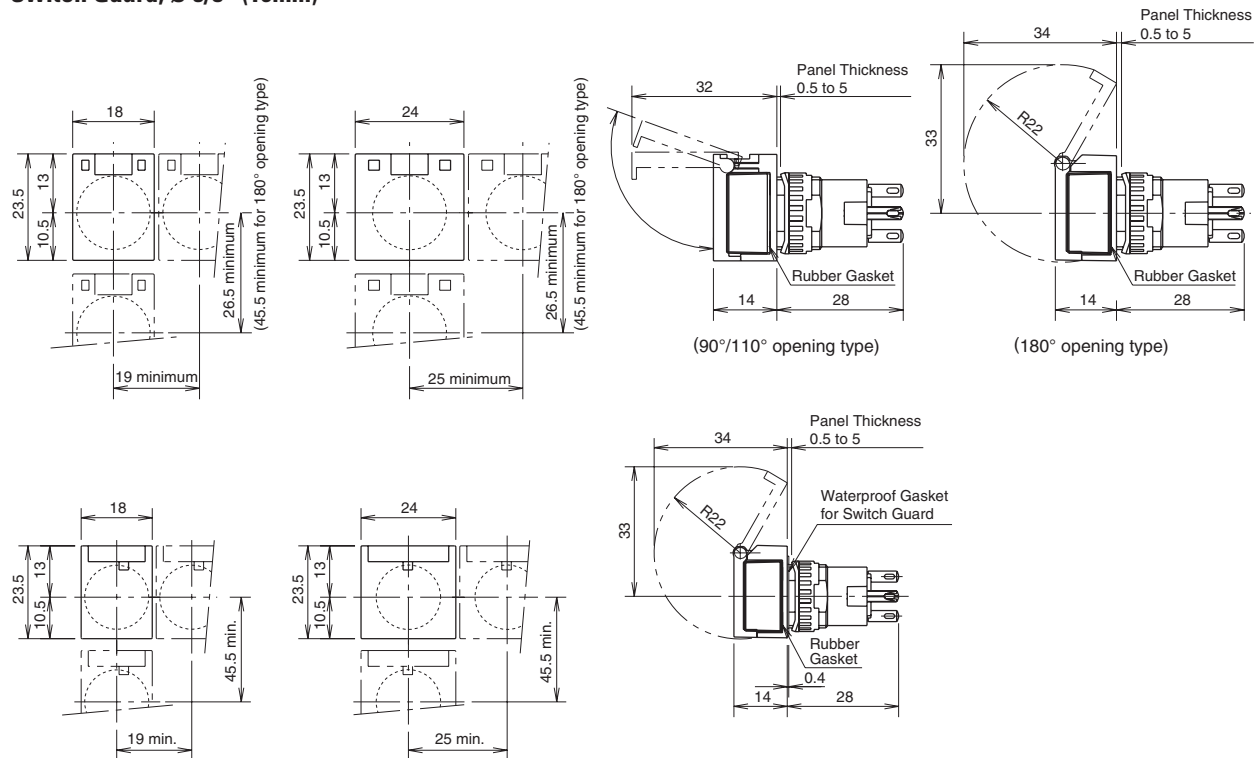
Selector Switches, Ø 5/8" (16mm)



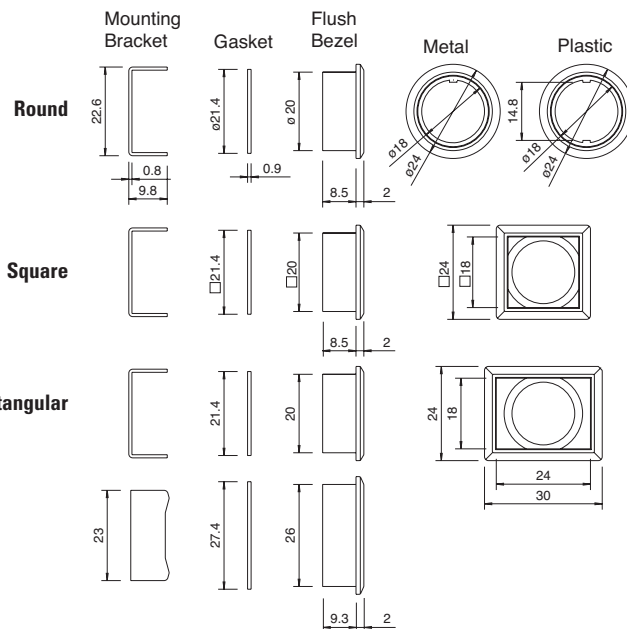
Key Selector Switches, Ø 5/8" (16mm)



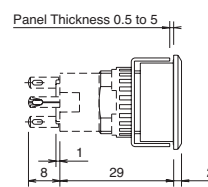
Switch Guard, Ø 5/8" (16mm)



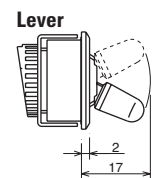
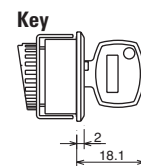
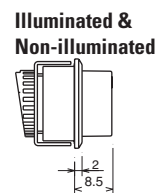
Flush Bezel



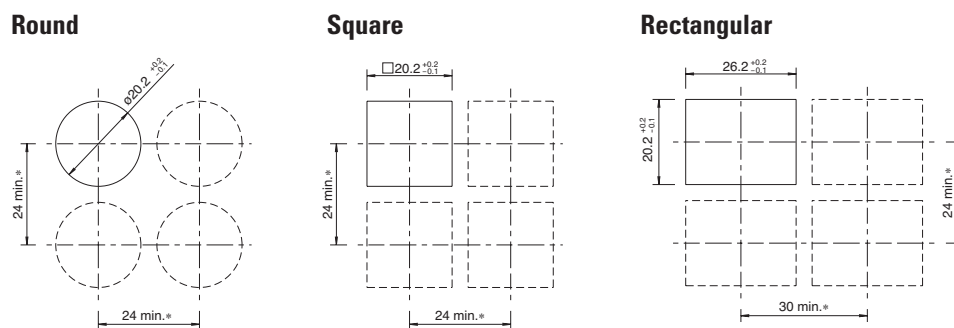
Flush Bezel with Switch



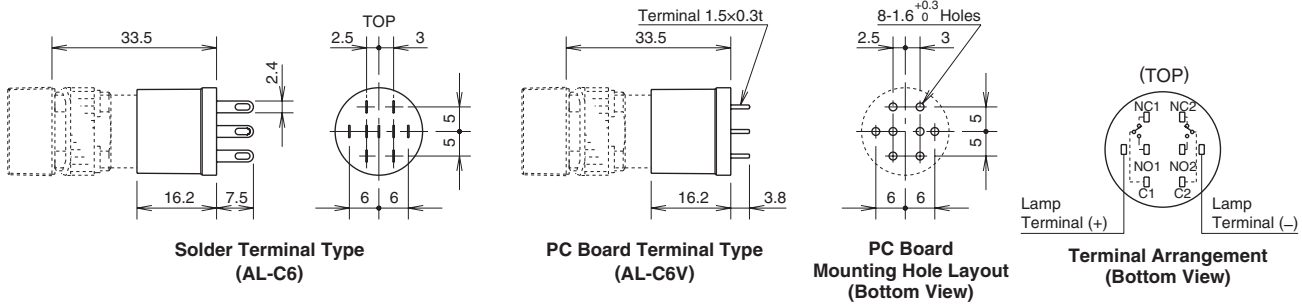
Selector Switches



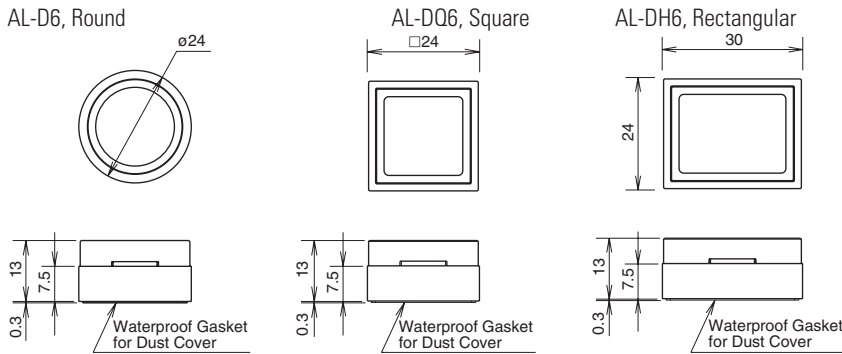
Flush Bezel Mounting Hole Layout



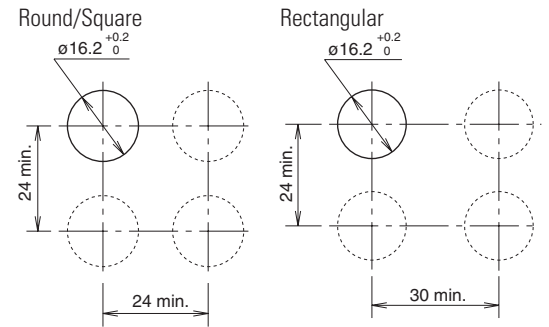
Terminal Sockets



Dust Covers



Panel Cut-Outs For Units w/Dust Cover



Marking Plates

Pushbuttons with Standard Size Lens

Style	Round—AL6M-W	Square—AL6Q-W	Rectangular—AL6H-W
Dimensions			
	Ø 5/8" (16mm)		
Outside (OD)	(13.8mm)	(13.8mm)	(OD1 x OD2) 13.8 x 19.8mm
Marking Area (a)	(12mm)	(12mm)	(a1 x a2) 12 x 18mm

Engraving must be made on the engraving area within 0.02" (0.5mm) deep.

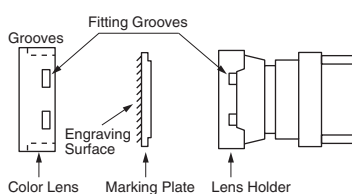
Pushbuttons with Oversize Lens

Style	Round—AL6M-MW	Square/Rectangular—AL6Q-QW
Dimensions		
Outside (OD)	Ø 0.491" (12.6mm)	0.491" (12.6mm)
Marking Area (a)	Ø 0.429" (11mm)	0.429" (11mm)

Replacing & and Marking Plate

Removal

Remove the lens holder assembly (lens, marking plate and holder) from the operator by holding the color lens recesses with the lens removal tool (Part No.MT-101) and pulling out. Remove marking plate by pushing the color lens from the rear to disengage the latches. Marking plate must be engraved on the side as shown in the figure on the right.



Installation

For illuminated pushbuttons:

1. Insert marking plate inside lens in correct direction
2. Press color lens on to lens holder to engage latches.
3. Insert lens holder into housing in correct direction.

Do not loosen spring on illuminated pushbutton units (except on pilot light units). The marking plate must be engraved on the front side as shown above.

L6 Series — Miniature Switches and Pilot Devices

Key features of the 5/8" L6 Series include:

- 5/8" (16mm) mounting holes
- Locking lever removable contact blocks
- Solder terminal or PCB terminal options
- Available assembled or as sub-components
- Worldwide approvals
- Incandescent or LED illumination
- Snap action contacts



UL Recognized
File No. E55996



CSA Certified
File No. LR21451

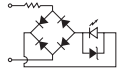


Registration No. R9551089 (E-stops)
Registration No. J9551458 (all other switches)
Registration No. R95650511 (Pilot Lights)



Contact Ratings	Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 N0.14					
	Operating Temperature	Operation: -25 to +55°C (without freezing), 45 to 85% RH Storage: -30 to +80°C (without freezing)					
	Vibration Resistance	5 to 55Hz, 1.0 peak-peak amplitude max					
	Shock Resistance	Operating limit: 100 m/sec ² (approximately 10G) Damage limit: 1000 m/sec ² (approximately 100G)					
	Mechanical Life	Momentary pushbuttons 2,000,000 operations minimum All others: 250,000 operations minimum					
	Degree of Protection	IP65 (conforming to IEC 60529)					
	Dielectric Strength	Switch unit: between live and ground: 2500 volt AC, 1 minute between terminals of different poles: 2500 volt AC, 1 minute between terminals of same pole: 1000 volt AC, 1 minute Illumination unit: between live part and ground: 2500 volt AC, 1 minute					
	Insulation Resistance	100MΩ minimum (using 500V DC megger)					
	Rated Insulation Voltage	250V AC/DC					
	Rated Thermal Current	Gold Contacts (pcb): 3A Silver Contacts (solder): 5A					
	Contact Resistance	50Ω maximum initial value					
	Rated Operating Current	Silver Contacts (Solder Terminals)			Gold Clad Contacts (PCB terminals)		
		30V	125V	250V	30V	125V	
		AC resistive	—	5A	2A	AC inductive	—
		AC inductive	—	2A	1.5A	DC resistive	0.1A
		DC resistive	3A	0.4A	—		
Lamp Ratings	Lamp Current Draw	DC inductive	1A	0.2A	—		
		Minimum Recommended Load (reference value for silver contacts)					
		5V AC/DC, 1mA					
		Terminal Style					
		0.110" Solder Tab /PCB					
		Contact Form					
		Snap Action, Double Throw					
	Contact Material	Solder Tab: Pure Silver /PCB: Gold Plated Silver					
	Electrical Life (at full load)	Momentary pushbuttons: 100,000 operations minimum (1800 operations / hour) All others: 100,000 operations minimum (1200 operations / hour)					
Lamp Ratings	Lamp Life	5V DC LED: 8mA					
		6V AC/DC LED: 7mA			6V AC/DC incandescent: 100 mA		
		12V AC/DC LED: 8mA			12V AC/DC incandescent: 50 mA		
		24V AC/DC LED: 8mA			24V AC/DC incandescent: 25 mA		
		120V AC = 8mA					

Built-in LED Lamp Ratings

Model	LFTD-5②	LFTD-1②	LFTD-2②	LFTD-H2②
Lamp Base	SX6S/8x5.4			
Rated Voltage	5V DC	12V AC/DC	24V AC/DC	120V AC
Operating Voltage	5V DC ±5%	12V AC/DC ±10%	24V AC/DC ±10%	120V AC ±5%
Current Draw	AC	9mA	9mA	8mA
	DC	8mA	8mA	—
Color Code ②	Specify a color code in place of ② in the Part No: A (amber), G (green), R (red), S (blue), W (white), Y (yellow)			
Lamp Base Color	Same as illumination color			
Voltage Marking	Stamped on the lamp base			
Life (reference value)	Approx. 50,000 hours			
Internal Circuit	A, R, W, Y	A, R, W, Y		 LED Chip  Protection Diode  Zener Diode
				
	G, S	G, S		
				

Non-Illuminated Pushbuttons (Assembled)

Non-Illuminated Pushbuttons

Style	Operation	Contact	Terminal Style	
			Solder Tab	PCB
	Momentary	SPDT	LA1B-M1C5-①	LA1B-M1C1V-①
		DPDT	LA1B-M1C6-①	LA1B-M1C2V-①
	Maintained	SPDT	LA1B-A1C5-①	LA1B-A1C1V-①
		DPDT	LA1B-A1C6-①	LA1B-A1C2V-①
	Momentary	SPDT	LA2B-M1C5-①	LA2B-M1C1V-①
		DPDT	LA2B-M1C6-①	LA2B-M1C2V-①
	Maintained	SPDT	LA2B-A1C5-①	LA2B-A1C1V-①
		DPDT	LA2B-A1C6-①	LA2B-A1C2V-①
	Momentary	SPDT	LA3B-M1C5-①	LA3B-M1C1V-①
		DPDT	LA3B-M1C6-①	LA3B-M1C2V-①
	Maintained	SPDT	LA3B-A1C5-①	LA3B-A1C1V-①
		DPDT	LA3B-A1C6-①	LA3B-A1C2V-①
	Momentary	SPDT	HA1B-M1C5-①	HA1B-M1C1V-①
		DPDT	HA1B-M1C6-①	HA1B-M1C2V-①
	Maintained	SPDT	HA1B-A1C5-①	HA1B-A1C1V-①
		DPDT	HA1B-A1C6-①	HA1B-A1C2V-①

Style	Operation	Contact	Terminal Style	
			Solder Tab	PCB
	Momentary	SPDT	HA1B-M2C5-①	HA1B-M2C1V-①
		DPDT	HA1B-M2C6-①	HA1B-M2C2V-①
	Maintained	SPDT	HA1B-A2C5-①	HA1B-A2C1V-①
		DPDT	HA1B-A2C6-①	HA1B-A2C2V-①
	Momentary	SPDT	HA2B-M1C5-①	HA2B-M1C1V-①
		DPDT	HA2B-M1C6-①	HA2B-M1C2V-①
	Maintained	SPDT	HA2B-A1C5-①	HA2B-A1C1V-①
		DPDT	HA2B-A1C6-①	HA2B-A1C2V-①
	Momentary	SPDT	HA2B-M2C5-①	HA2B-M2C1V-①
		DPDT	HA2B-M2C6-①	HA2B-M2C2V-①
	Maintained	SPDT	HA2B-A2C5-①	HA2B-A2C1V-①
		DPDT	HA2B-A2C6-①	HA2B-A2C2V-①
	Momentary	SPDT	HA1B-M3C5-①	HA1B-M3C1V-①
		DPDT	HA1B-M3C6-①	HA1B-M3C2V-①
	Maintained	SPDT	HA1B-A3C5-①	HA1B-A3C1V-①
		DPDT	HA1B-A3C6-①	HA1B-A3C2V-①

1. In place of ① specify Button Color Code from table.
2. Illuminated (translucent) style lenses also available, specify as such: instead of LA1B-M1C5-① use LA1B-M1C5L-② in place of ② (specify Lens Color Code from next page.)
3. PCB terminal models also available with silver contacts (change "1" or "2" to "5" or "6" respectively, ie LA1B-M1C1V-① becomes LA1B-M1C5V-①).

① Button Color Codes

Color	Code	Color	Code
Black	B	Blue	S
Green	G	White	W
Red	R	Yellow	Y

Non-Illuminated Pushbuttons (Sub-Assembled)



Operators

Style	Momentary	Maintained
Round	LA1L-MO	LA1L-AO
Square	LA2L-MO	LA2L-AO
Rectangular	LA3L-MO	LA3L-AO
Oversize Round	HA1B-MO	HA1B-AO
Oversize Square	HA2B-MO	HA2B-AO
Mushroom	HA1B-MOL	HA1B-AOL



1. In place of ① specify Button Color Code from table on right.
2. In place of ② specify Lens Color Code from table on right.
3. *requires HA1L-MO or HA1L-AO operator instead of HA1B-MO or HA1B-AO.
4. **requires HA2L-MO or HA2L-AO instead of HA2B-MO or HA2B-AO.

Buttons/Lenses

Style	Button	Lens
Round	AB6M-BK2-①	AL6M-LK2-②
Square	AB6Q-BK2-①	AL6Q-LK2-②
Rectangular	AB6H-BK2-①	AL6H-LK2-②
Oversize Round Flush	HA1A-B1-①	HA1A-L1-②*
Oversize Round Extended	HA1A-B2-①	—
Oversize Square Flush	HA2A-B1-①	HA2A-L1-②**
Oversize Square Extended	HA2A-B2-①	—
Mushroom	HA1A-B3-①	HA1A-L3-②

Contacts

Appearance	Contacts	Terminal Style	
		Solder Tab	PCB
Gold	SPDT DPDT	HA-C1 HA-C2	HA-C1V HA-C2V
Silver	SPDT DPDT	HA-C5 HA-C6	HA-C5V HA-C6V

Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

① Button Color Code

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

② Lens Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Yellow	Y
White	W

HA1B/HA1E E-Stop

Miniature Switches and Pilot Devices: 5/8"(16mm)

Key features of HA1B/HA1E Push Lock Turn Reset include:

- PCB or Solder Terminals
- Locking Lever Removable Contact Blocks
- Positive Action Contacts
- 1 or 2 form B (SPST-NC) Contacts
- IP65 Protection
- 16mm Mounting Hole
- Tamper Proof Construction



File No. DK95-00138



CSA
File No. LR21451



UL Recognized
File No. E55996



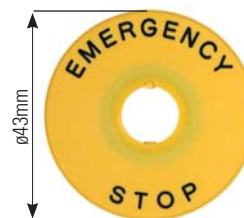
Direct
Opening
Action

Specifications

Contact Form		1 or 2 form B (SPST-NC)
Termination		PCB or Solder Terminal
Contact Material		Silver
Applicable Standards		EN60947-5-1, UL508, CSA 22.2. No. 14
Rated Insulation Voltage		250V AC/DC
Degree of Protection		IP65
Conditional Short-Circuit Current and Short-Circuit Protective Device		50 A (at 250V) 10A 250V Fuse, operation class M according to IEC269-1 and IEC269-2
Positive Opening Operation	Positive opening travel	3.4mm
	Minimum force required to achieve positive opening operation of all break contacts.	10.3 N (2 form B contacts)
	Maximum travel including travel beyond the minimum travel position	5.5mm
	Maximum frequency of actuation	1,200 operations/hour
Pollution Degree		3

Nameplates

HAAV-Yellow Plastic



	Part Number
Blank	HAAV-0
Engraved Emergency Stop	HAAV-27

Positive Action E-Stop

Appearance	Operation	Contact	Terminal Style	
			Solder Tab	PCB
	Pushlock/ Turn Reset	DPST(NC) (2 form B)	HA1B-V2E2R	HA1B-V2E2VR
		Short Body SPST-NC (1 form B) DPST-NC (2 form B)	HA1E-V2S1R HA1E-V2S2R	—



1. Button is non-removable, available in red and as complete assembled unit only.
2. E-Stop does not come with safety lever lock.

Buzzers (IP40)

Appearance	Operating Voltage	Terminal Style	
		Solder/ Tab	PCB
	6V AC/DC ± 10%	LA3Z-1X2	LA3Z-1X2V
	12V to 24 AC/DC ± 10%	LA3Z-1X4	LA3Z-1X4V

Buzzer Ratings

Frequency	2 khz ± 500 HZ
Amplitude	80db @ 0.1m (at rated voltage)
Operating Voltage	6V AC/DC or 12 - 24V AC/DC ± 10%
Adjustable Cycle	55 to 600 cycles per minute
Current Draw	DC: 7mA AC: 20mA
Life	1000 hrs. minimum
Insulation Voltage	60V AC/DC
Operating Temperature	-20 to 55°C (no freezing), 45 to 85% RH
Degree of Protection	IP40

Pilot Lights (Assembled)

Pilot Lights

Style	Terminal Style	
	Solder Tab	PCB
Round	LA1P-1C0③-②	LA1P-1C0③V-②
Square	LA2P-1C0③-②	LA2P-1C0③V-②
Rectangular	LA3P-1C0③-②	LA3P-1C0③V-②
Oversize Round	HA1P-1C0③-②	HA1P-1C0③V-②
Oversize Square	HA2P-1C0③-②	HA2P-1C0③V-②
Oversize Round Unibody	HA1P-1③-②	—
Oversize Square Unibody	HA2P-1③-②	—

② Lens/LED Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Voltage/Lamp Code

Voltage	Code
5V DC LED	1
6V AC/DC LED	2
12V AC/DC LED	3
24V AC/DC LED	4
120V AC LED	8
6V AC/DC Incandescent	5
12V AC/DC Incandescent	6
24V AC/DC Incandescent	7



1. In place of ② specify Lens/LED Color Code from table.
2. In place of ③ specify Voltage Code from table.
3. Lamps also available in 5VDC, 6V AC/DC, 12V AC/DC or 120V AC, change “4” or “7” using Voltage/Lamp Codes (ie LA1P-1C03-② uses 12V AC/DC LED).
4. Light independent of switch position.

Pilot Lights (Sub-Assembled)



Operators

Style	Part Number
Round	LA1P-0
Square	LA2P-0
Rectangular	LA3P-0
Oversize Round	HA1P-0
Oversize Square	HA2P-0
Oversize Round Unibody	HA1P-00
Oversize Square Unibody	HA2P-00

Lenses

Style	Part Number
Round	AL6M-LK3-②
Square	AL6Q-LK3-②
Rectangular	AL6H-LK3-②
Oversize Round	HA1A-P1-②
Oversize Square	HA2A-P1-②

In place of ② specify lens color code.

Lamps

Style	Voltage	Part Number
LED	5V DC 6V AC/DC 12V AC/DC 24V AC/DC 120 V AC	LFTD-5② LFTD-6② LFTD-1② LFTD-2② LFTD-H2②
Incandescent	6V AC/DC 12V AC/DC 24V AC/DC	LH-06 LH-14 LH-28

In place of ② specify LED color code from table below.

Terminals

Appearance	Solder Tab	PCB
	HA-C00	HA-C00V

Not required for unibody operators.

Lamp Holder

Appearance	Part Number
	HA9Z-AH

Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

② Lens/LED Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Yellow	Y
White	W

Illuminated Pushbuttons (Assembled)

Illuminated Pushbuttons

Style	Operation	Contact	Terminal Style	
			Solder Tab	PCB
Round 	Momentary	SPDT DPDT	LA1L-M1C5③-② LA1L-M1C6③-②	LA1L-M1C1③V-② LA1L-M1C2③V-②
	Maintained	SPDT DPDT	LA1L-A1C5③-② LA1L-A1C6③-②	LA1L-A1C1③V-② LA1L-A1C2③V-②
Square 	Momentary	SPDT DPDT	LA2L-M1C5③-② LA2L-M1C6③-②	LA2L-M1C1③V-② LA2L-M1C2③V-②
	Maintained	SPDT DPDT	LA2L-A1C5③-② LA2L-A1C6③-②	LA2L-A1C1③V-② LA2L-A1C2③V-②
Rectangular 	Momentary	SPDT DPDT	LA3L-M1C5③-② LA3L-M1C6③-②	LA3L-M1C1③V-② LA3L-M1C2③V-②
	Maintained	SPDT DPDT	LA3L-A1C5③-② LA3L-A1C6③-②	LA3L-A1C1③V-② LA3L-A1C2③V-②
Oversize Round 	Momentary	SPDT DPDT	HA1L-M1C5③-② HA1L-M1C6③-②	HA1L-M1C1③V-② HA1L-M1C2③V-②
	Maintained	SPDT DPDT	HA1L-A1C5③-② HA1L-A1C6③-②	HA1L-A1C1③V-② HA1L-A1C2③V-②
Oversize Square 	Momentary	SPDT DPDT	HA2L-M1C5③-② HA2L-M1C6③-②	HA2L-M1C1③V-② HA2L-M1C2③V-②
	Maintained	SPDT DPDT	HA2L-A1C5③-② HA2L-A1C6③-②	HA2L-A1C1③V-② HA2L-A1C2③V-②
Mushroom 	Momentary	SPDT DPDT	HA1L-M3C5③-② HA1L-M3C6③-②	HA1L-M3C1③V-② HA1L-M3C2③V-②
	Maintained	SPDT DPDT	HA1L-A3C5③-② HA1L-A3C6③-②	HA1L-A3C1③V-② HA1L-A3C2③V-②

② Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Yellow	Y
White	W

③ Voltage/Lamp Code

Voltage	Code
5V DC LED	1
6V AC/DC LED	2
12V AC/DC LED	3
24V AC/DC LED	4
120 V AC LED	8
6V AC/DC Incandescent	5
12V AC/DC Incandescent	6
24V AC/DC Incandescent	7



1. In place of ② specify Lens Color Code from table.
2. In place of ③ specify Voltage Code from table.
3. Lamps also available in 5V DC, 6V AC/DC, 12V AC/DC or 120V AC, change "4" or "7" using voltage/lamp codes (ie LA1P-1C03-② uses 12V AC/DC LED).
4. PCB terminal models also available with silver contacts change "1" or "2" to "5" or "6" respectively, (ie LA1L-M1C14V-① becomes LA1L-M1C54V-①).
5. Light independent of switch position.

Illuminated Pushbuttons (Sub-Assembled)

Terminals + Safety Lever Lock + Lamp Holder + Lamp + Operator + Lens = Completed Unit



Operators

Style	Momentary	Maintained
Round	LA1L-MO	LA1L-AO
Square	LA2L-MO	LA2L-AO
Rectangular	LA3L-MO	LA3L-AO
Oversize Round	HA1L-MO	HA1L-AO
Oversize Square	HA2L-MO	HA2L-AO
Mushroom	HA1B-MOL	HA1B-AOL

Lenses

Style	Part Number
Round	AL6M-LK2-②
Square	AL6Q-LK2-②
Rectangular	AL6H-LK2-②
Oversize Round	HA1A-L1-②
Oversize Square	HA2A-L1-②
Mushroom	HA1A-L3-②

Lamps

Style	Voltage	Part Number
LED	5V DC 6V AC/DC 12V AC/DC 24V AC/DC 120 V AC	LFTD-5② LFTD-6② LFTD-1② LFTD-2② LFTD-H2②
Incandescent	6V AC/DC 12V AC/DC 24V AC/DC	LH-06 LH-14 LH-28

Contacts

Appearance	Contacts	Terminal Style	
		Solder Tab	PCB
Gold	SPDT DPDT	HA-C10 HA-C20	HA-C10V HA-C20V
Silver	SPDT DPDT	HA-C50 HA-C60	HA-C50V HA-C60V

Lamp Holder

Appearance	Part Number
	HA9Z-AH

Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

② Lens/LED Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Yellow	Y
White	W



In place of ② specify lens color code.

Selector Switches (Assembled)

Selector Switches

Style		Position		Contact	Terminal Style	
					Solder Tab	PCB
Round 	90° 2-Position	Maintained		DPDT	LA1S-2C6	LA1S-2C2V
		Spring return from right		DPDT	LA1S-21C6	LA1S-21C2V
	45° 3-Position	Maintained		DPDT	LA1S-3C6	LA1S-3C2V
		Spring return from right		DPDT	LA1S-31C6	LA1S-31C2V
		Spring return from left		DPDT	LA1S-32C6	LA1S-32C2V
		2-Way spring return		DPDT	LA1S-33C6	LA1S-33C2V
Square 	90° 2-Position	Maintained		DPDT	LA2S-2C6	LA2S-2C2V
		Spring return from right		DPDT	LA2S-21C6	LA2S-21C2V
	45° 3-Position	Maintained		DPDT	LA2S-3C6	LA2S-3C2V
		Spring return from right		DPDT	LA2S-31C6	LA2S-31C2V
		Spring return from left		DPDT	LA2S-32C6	LA2S-32C2V
		2-Way spring return		DPDT	LA2S-33C6	LA2S-33C2V
Rectangular 	90° 2-Position	Maintained		DPDT	LA3S-2C6	LA3S-2C2V
		Spring return from right		DPDT	LA3S-21C6	LA3S-21C2V
	45° 3-Position	Maintained		DPDT	LA3S-3C6	LA3S-3C2V
		Spring return from right		DPDT	LA3S-31C6	LA3S-31C2V
		Spring return from left		DPDT	LA3S-32C6	LA3S-32C2V
		2-Way spring return		DPDT	LA3S-33C6	LA3S-33C2V
Oversize Round 	90° 2-Position	Maintained		DPDT	HA1S-2C6	HA1S-2C2V
		Spring return from right		DPDT	HA1S-21C6	HA1S-21C2V
	45° 3-Position	Maintained		DPDT	HA1S-3C6	HA1S-3C2V
		Spring return from right		DPDT	HA1S-31C6	HA1S-31C2V
		Spring return from left		DPDT	HA1S-32C6	HA1S-32C2V
		2-Way spring return		DPDT	HA1S-33C6	HA1S-33C2V

Contact Operations

(for all selectors)

Contacts	Operator Position and Contact Operation	
2-pos. (DPDT)	Left	
	Right	
3-pos. (DPDT)	Left	
	Center	
	Right	

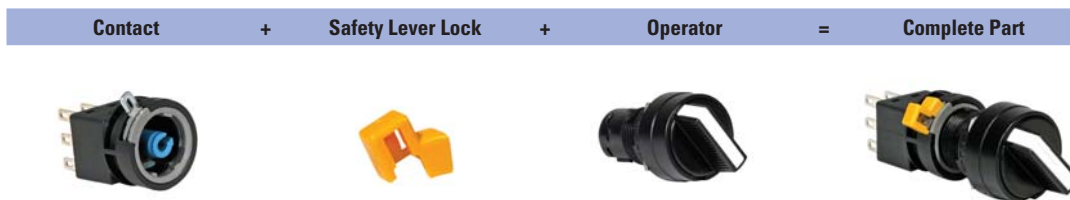


As viewed from front of switch.



1. All assembled selector switches use DPDT contacts.
2. For SPDT contacts see sub-components on next page.
3. PCB terminal models also available with silver contacts change "1" or "2" to "5" or "6" respectively, (ie LA1S-21C2V becomes LA1S-21C6V).

Selector Switches (Sub-Assembled)



Operators

Style	Position	Function	Part Number
Round 	2	Maintained Spring from right	LA1S-2Y LA1S-21Y
	3	Maintained Spring from right Spring from left Spring from both	LA1S-3Y LA1S-31Y LA1S-32Y LA1S-33Y
Square 	2	Maintained Spring from right	LA2S-2Y LA2S-21Y
	3	Maintained Spring from right Spring from left Spring from both	LA2S-3Y LA2S-31Y LA2S-32Y LA2S-33Y
Rectangular 	2	Maintained Spring from right	LA3S-2Y LA3S-21Y
	3	Maintained Spring from right Spring from left Spring from both	LA3S-3Y LA3S-31Y LA3S-32Y LA3S-33Y
Oversize Round 	2	Maintained Spring from right	HA1S-2Y HA1S-21Y
	3	Maintained Spring from right Spring from left Spring from both	HA1S-3Y HA1S-31Y HA1S-32Y HA1S-33Y

Contacts

Appearance	Contacts	Terminal Style	
		Solder Tab	PCB
	Gold	SPDT DPDT	HA-C1 HA-C2 HA-C1V HA-C2V
	Silver	SPDT DPDT	HA-C5 HA-C6 HA-C5V HA-C6V



1. All assembled switches listed on previous page use DPDT contacts.
2. SPDT Contacts for use on 2 position selector switch only

Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

Key Switches (Assembled)

Key Switches

Style		Position		Contact	Terminal Style	
					Solder Tab	PCB
Round 	90° 2-Position	Maintained		DPDT	LA1K-2C6③	LA1K-2C2V③
		Spring return from right		DPDT	LA1K-21C6B	LA1K-21C2VB
	45° 3-Position	Maintained		DPDT	LA1K-3C6③	LA1K-3C2V③
		Spring return from right		DPDT	LA1K-31C6③	LA1K-31C2V③
		Spring return from left		DPDT	LA1K-32C6③	LA1K-32C2V③
		2-Way spring return		DPDT	LA1K-33C6D	LA1K-33C2VD
Square 	90° 2-Position	Maintained		DPDT	LA2K-2C6③	LA2K-2C2V③
		Spring return from right		DPDT	LA2K-21C6B	LA2K-21C2VB
	45° 3-Position	Maintained		DPDT	LA2K-3C6③	LA2K-3C2V③
		Spring return from right		DPDT	LA2K-31C6③	LA2K-31C2V③
		Spring return from left		DPDT	LA2K-32C6③	LA2K-32C2V③
		2-Way spring return		DPDT	LA2K-33C6D	LA2K-33C2VD
Rectangular 	90° 2-Position	Maintained		DPDT	LA3K-2C6③	LA3K-2C2V③
		Spring return from right		DPDT	LA3K-21C6B	LA3K-21C2VB
	45° 3-Position	Maintained		DPDT	LA3K-3C6③	LA3K-3C2V③
		Spring return from right		DPDT	LA3K-31C6③	LA3K-31C2V③
		Spring return from left		DPDT	LA3K-32C6③	LA3K-32C2V③
		2-Way spring return		DPDT	LA3K-33C6D	LA3K-33C2VD
Oversize Round 	90° 2-Position	Maintained		DPDT	HA1K-2C6③	HA1K-2C2V③
		Spring return from right		DPDT	HA1K-21C6B	HA1K-21C2VB
	45° 3-Position	Maintained		DPDT	HA1K-3C6③	HA1K-3C2V③
		Spring return from right		DPDT	HA1K-31C6③	HA1K-31C2V③
		Spring return from left		DPDT	HA1K-32C6③	HA1K-32C2V③
		2-Way spring return		DPDT	HA1K-33C6D	HA1K-33C2VD

Contact Operations

(for all selectors)

Contacts	Operator Position and Contact Operation	
2-pos. (DPDT)	Left	
	Right	
3-pos. (DPDT)	Left	
	Center	
	Right	



As viewed from front of switch.

③ Key Retention Option Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)

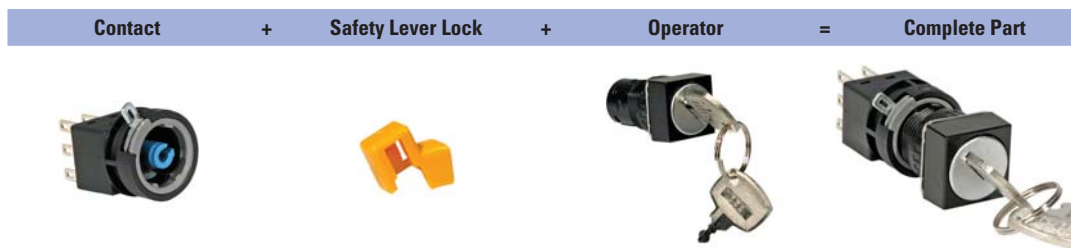


Key cannot be removed from a spring-return position.



- In place of ③ specify Key Retention Code from next page.
- All assembled key switches have DPDT contacts. For SPDT see sub-assembled on next page.
- PCB terminal models also available with silver contacts change "1" or "2" to "5" or "6" respectively, (ie LA1K-2C2V③ becomes LA1K-2C6V③).

Selector Switches (Sub-Assembled)



Operators

Style	Position	Function	Part Number
Round 	2	Maintained Spring from right	LA1K-2③ LA1K-21B
	3	Maintained Spring from right Spring from left Spring from both	LA1K-3③ LA1K-31③ LA1K-32③ LA1K-33D
Square 	2	Maintained Spring from right	LA2K-2③ LA2K-21B
	3	Maintained Spring from right Spring from left Spring from both	LA2K-3③ LA2K-31③ LA2K-32③ LA2K-33D
Rectangular 	2	Maintained Spring from right	LA3K-2③ LA3K-21B
	3	Maintained Spring from right Spring from left Spring from both	LA3K-3③ LA3K-31③ LA3K-32③ LA3K-33D
Oversize Round 	2	Maintained Spring from right	HA1K-2③ HA1K-21B
	3	Maintained Spring from right Spring from left Spring from both	HA1K-3③ HA1K-31③ HA1K-32③ HA1K-33D

Contacts

Appearance	Contacts	Terminal Style	
		Solder Tab	PCB
	Gold	SPDT DPDT	HA-C1 HA-C2 HA-C1V HA-C2V
	Silver	SPDT DPDT	HA-C5 HA-C6 HA-C5V HA-C6V

-  1. All assembled switches listed on previous page use DPDT contacts.
2. SPDT Contacts for use on 2 position selector switch only

Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

③ Key Retention Option Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)

-  Key cannot be removed from a spring-return position.

-  1. In place of ③ specify key removable code from table on right.
2. Operator includes two keys.

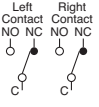
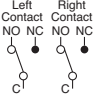
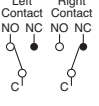
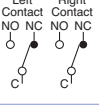
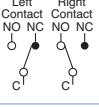
Illuminated Selector Switches (Assembled)

Illuminated Selector Switches

Style	Position	Contact	Terminal Style	
			Solder Tab	PCB
Round 	90° 2-Position	Maintained 	DPDT	LA1F-2C6③-② LA1F-2C2③V-②
		Spring return from right 	DPDT	LA1F-21C6③-② LA1F-21C2③V-②
	45° 3-Position	Maintained 	DPDT	LA1F-3C6③-② LA1F-3C2③V-②
		Spring return from right 	DPDT	LA1F-31C6③-② LA1F-31C2③V-②
		Spring return from left 	DPDT	LA1F-32C6③-② LA1F-32C2③V-②
		2-Way spring return 	DPDT	LA1F-33C6③-② LA1F-33C2③V-②
Square 	90° 2-Position	Maintained 	DPDT	LA2F-2C6③-② LA2F-2C2③V-②
		Spring return from right 	DPDT	LA2F-21C6③-② LA2F-21C2③V-②
	45° 3-Position	Maintained 	DPDT	LA2F-3C6③-② LA2F-3C2③V-②
		Spring return from right 	DPDT	LA2F-31C6③-② LA2F-31C2③V-②
		Spring return from left 	DPDT	LA2F-32C6③-② LA2F-32C2③V-②
		2-Way spring return 	DPDT	LA2F-33C6③-② LA2F-33C2③V-②
Rectangular 	90° 2-Position	Maintained 	DPDT	LA3F-2C6③-② LA3F-2C2③V-②
		Spring return from right 	DPDT	LA3F-21C6③-② LA3F-21C2③V-②
	45° 3-Position	Maintained 	DPDT	LA3F-3C6③-② LA3F-3C2③V-②
		Spring return from right 	DPDT	LA3F-31C6③-② LA3F-31C2③V-②
		Spring return from left 	DPDT	LA3F-32C6③-② LA3F-32C2③V-②
		2-Way spring return 	DPDT	LA3F-33C6③-② LA3F-33C2③V-②
Oversize Round 	90° 2-Position	Maintained 	DPDT	HA1F-2C6③-② HA1F-2C2③V-②
		Spring return from right 	DPDT	HA1F-21C6③-② HA1F-21C2③V-②
	45° 3-Position	Maintained 	DPDT	HA1F-3C6③-② HA1F-3C2③V-②
		Spring return from right 	DPDT	HA1F-31C6③-② HA1F-31C2③V-②
		Spring return from left 	DPDT	HA1F-32C6③-② HA1F-32C2③V-②
		2-Way spring return 	DPDT	HA1F-33C6③-② HA1F-33C2③V-②

Contact Operations

(for all selectors)

Contacts	Operator Position and Contact Operation	
2-pos. (DPDT)	Left	
	Right	
3-pos. (DPDT)	Left	
	Center	
	Right	



As viewed from front of switch.

② Lens/LED Color Codes

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	Yellow	Y
Red	R	White	W

③ Voltage/Lamp Code

Voltage	Code
5V DC LED	1
6V AC/DC LED	2
12V AC/DC LED	3
24V AC/DC LED	4
120V AC LED	8
6V AC/DC Incandescent	5
12V AC/DC Incandescent	6
24V AC/DC Incandescent	7



- In place of ② specify Lens/LED Color Code from table above.
- In place of ③ specify Voltage Code from table above.
- Lamps also available in 5V DC, 6V AC/DC, 12 V AC/DC or 120V AC, change "4" or "7" using voltage/lamp codes (ie LA1F-2C63-② uses 12V AC/DC LED).
- All switches listed have DPDT contacts. For SPDT see sub-assembled on next page.
- PCB terminal models also available with silver contacts change "1" or "2" to "5" or "6" respectively, (ie LA1F-2C24V-② becomes LA1F-2C64V-②).
- Light independent of switch position.

Illuminated Selector Switches (Sub-Assembled)



Operators

	Style	Position	Function	Part Number
Round		2	Maintained Spring from right	LA1F-20 LA1F-210
		3	Maintained Spring from right Spring from left Spring from both	LA1F-30 LA1F-310 LA1F-320 LA1F-330
		2	Maintained Spring from right	LA2F-20 LA2F-210
		3	Maintained Spring from right Spring from left Spring from both	LA2F-30 LA2F-310 LA2F-320 LA2F-330
Square		2	Maintained Spring from right	LA3F-20 LA3F-210
		3	Maintained Spring from right Spring from left Spring from both	LA3F-30 LA3F-310 LA3F-320 LA3F-330
		2	Maintained Spring from right	HA1F-20 HA1F-210
		3	Maintained Spring from right Spring from left Spring from both	HA1F-30 HA1F-310 HA1F-320 HA1F-330
Rectangular		2	Maintained Spring from right	LA3F-20 LA3F-210
		3	Maintained Spring from right Spring from left Spring from both	LA3F-30 LA3F-310 LA3F-320 LA3F-330
		2	Maintained Spring from right	HA1F-20 HA1F-210
		3	Maintained Spring from right Spring from left Spring from both	HA1F-30 HA1F-310 HA1F-320 HA1F-330
Oversize Round		2	Maintained Spring from right	HA1F-20 HA1F-210
		3	Maintained Spring from right Spring from left Spring from both	HA1F-30 HA1F-310 HA1F-320 HA1F-330
		2	Maintained Spring from right	HA1F-20 HA1F-210
		3	Maintained Spring from right Spring from left Spring from both	HA1F-30 HA1F-310 HA1F-320 HA1F-330

Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

Lamp Holder

Appearance	Part Number
	HA9Z-AH

Lamps

Style	Voltage	Part Number
LED 	5V DC	LFTD-5Ⓢ
	6V AC/DC	LFTD-6Ⓢ
	12V AC/DC	LFTD-1Ⓢ
	24V AC/DC	LFTD-2Ⓢ
	120V AC	LFTD-H2Ⓢ
Incandescent 	6V AC/DC	LH-06
	12V AC/DC	LH-14
	24V AC/DC	LH-28

In place of Ⓢ specify LED color code from table below.

Contacts

Appearance		Con- tacts	Terminal Style	
			Solder Tab	PCB
	Gold	SPDT DPDT	HA-C10 HA-C20	HA-C10V HA-C20V
	Silver	SPDT DPDT	HA-C50 HA-C60	HA-C50V HA-C60V

All assembled selectors on previous pages use DPDT contacts. SPDT contacts are for use only on two position selectors.

Lenses/Handles

Appearance	Part Number
Standard 	LA1A-F-Ⓢ
Oversize 	HA1A-F-Ⓢ

In place of Ⓢ specify lens color code from table.

Ⓢ Lens/LED Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
Yellow	Y
White	W

Pushbutton Selectors (Assembled)

Pushbutton Selectors

Style		Terminal Style	
		Solder Tab	PCB
	2 Position	HA1R-2C6-①	HA1R-2C2V-①
	3 Position	HA1R-3C6-①	HA1R-3C2V-①

- 
1. In place of ① specify Button Color Code.

2. PCB terminal models also available with silver contacts (change “1” or “2” to “5” or “6” respectively, ie HA1R-2C2V-① becomes HA1R-2C6V-①).

3. Pushed position, momentary only.

① Button Color Codes

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	Yellow	Y
Red	R	White	W

Contact Operation

Style	Operator Position					
	Left		Center		Right	
	Normal	Pushed	Normal	Pushed	Normal	Pushed
2 Position			—	—		
3 Position				Blocked		

Contact Operation

Contacts		Operator Position and Contact Information		
		Down	Center	Up
2-pos. (DPDT)	Maintained Spring from Top			
2-pos. (DPDT)	Spring Return from Bottom			
3-pos. (DPDT)	All models			

- 
- As viewed from front of switch.

Lever Switches

Style		Operation	Contacts	Terminal Type	
				Solder Tab	PCB
	2-Position	Maintained 	DPDT	LA1T-2C6	LA1T-2C2V
		Spring return from top 	DPDT	LA1T-21C6	LA1T-21C2V
		Spring return from bottom 	DPDT	LA1T-22C6	LA1T-22C2V
	3-Position	Maintained 	DPDT	LA1T-3C6	LA1T-3C2V
		Spring return from top 	DPDT	LA1T-31C6	LA1T-31C2V
		Spring return from bottom 	DPDT	LA1T-32C6	LA1T-32C2V
		Spring return from both 	DPDT	LA1T-33C6	LA1T-33C2V

- 
1. PCB terminal models also available with silver contacts (change “1” or “2” to “5” or “6” respectively, ie LA1T-2C2V becomes LA1T-2C6V).

2. Terminology: U = up, D = down, C = center.

Switch Engraving Order Form – L6 Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To insure engraving accuracy, fax it to your IDEC representative or Distributor.

Your Company: _____
 Name: _____
 Address: _____
 PO: _____

Telephone: _____
 Fax: _____
 Email: _____
 Part Number to be Engraved: _____

Please check one of the boxes below to indicate your choice of engraving options:

**Rectangular
Switch**

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	6
☐	2	5/32	6
☐		1/8	6
☐	3	1/8	6
☐	4	N/A	

**Square
Switch**

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	5
☐	2	5/32	5
☐		1/8	6
☐	3	1/8	6
☐	4	N/A	

**Round
Switch**

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	3
☐		1/8	3
☐	2	Custom*	
☐	3	Custom*	
☐	4	N/A	

*Engraving is possible, but character size will be smaller than standard sizes.



- Above mentioned specifications hold true for standard size pushbuttons (round, square and rectangular).
- Oversize pushbuttons and pilot lights allow you to engrave 1 additional character.
- Engraving is done on the button itself for non-illuminated push buttons and on marking plate for illuminated pushbuttons and pilot lights.
- Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____

Sample Letter Sizes

1/8 Letters: **OPEN**

5/32 Letters: **OPEN**

For IDEC Internal Use Only:

Work Order #: _____

Accessories

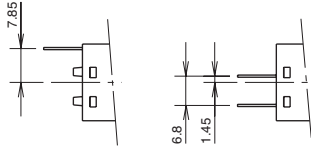
Part		Specifications		Part Number	Notes
Ring Wrench		Made of metal		MT-001	Used for tightening the plastic locking ring when installing the L6 series unit on a panel. Tightening torque should not exceed 9kgf cm when tightening the locking ring.
Lamp Holder Tool (Made of Rubber)		Made of rubber. Used for removing and replacing LED and incandescent lamps in illuminated units.		OR-44	Rubber tool used for replacing LED and incandescent lamps.
Lens Removal Tool		For illuminated pushbuttons and pilot lights.		MT-101	Used for removing the lens or button from the housing.
LED Lamp		5V DC 6V AC/DC 12V AC/DC 24V AC/DC 120V AC		LFTD-5Ⓢ LFTD-6Ⓢ LFTD-1Ⓢ LFTD-2Ⓢ LFTD-H2Ⓢ	T 1-3/4 miniature flange base. In place of Ⓢ specify LED Color Code (A, G, R, S, W, Y).
Incandescent Lamp		6V AC/DC 12V AC/DC 24V AC/DC		LH-06 LH-14 LH-28	0.5W, T 1-3/4 miniature flange base
Switch Guard		90 degrees opening maintained	Round/Square	AL-K6	Prevents inadvertent switch operation. IP40 dust-tight rated.
			Rectangular	AL-KH6	
		180 degrees opening, spring return	Round/Square	AL-K6SP	Prevents inadvertent switch operation. IP65 oiltight rated.
			Rectangular	AL-KH6SP	
Dust-proof Cover		For round units		AL-D6	Provides extra level of sealing for "front-panel" portion of switches. (Not applicable for units with oversize lenses or buttons).
		For square units		AL-DQ6	
		For rectangular units		AL-DH6	
Terminal Cover		Made of white nylon	All removable contacts	H6-VL2	Covers terminals to prevent possible electric shock.
			Unibody Pilot Lights	H6-PVL	
Mounting Hole Plug		Rubber		AL-B6	Fills unused panel cutouts. Made of nitrile rubber. Push-in installation from front of panel. IP65 (oiltight) rated.
		Aluminum		AL-BM6	Fills unused panel cutouts. Made of aluminum. Screw-on locking ring from inside of panel. IP65 (oiltight) rated.
Replacement Keys		for LA1K, LA2K, LA3K (#132)		AS6-SK	Pair of keys.
		for HA1K (#231) – oversize		KG9Z-SK	
Replacement Engraving Inserts			Round Square Rectangle Oversize Round Oversize Square Mushroom	AL6M-W AL6Q-W AL6H-W HA9Z-P1-W HA9Z-P2-W HA9Z-P13-W	
Replacement Locking Ring		All models		HA9Z-LN	
Replacement Anti-Rotation Ring			L6 standard	AL6-LP	Prevents rotation of switches in panel. (included with all assembled switches)
			L6 oversize	HA9Z-LP	
Replacement Selector Inserts				HA9Z-HC1-Ⓢ	Applicable to round oversize selectors only Ⓢ = (G, R, S, W, Y)
Replacement Safety Lever Lock				HA9Z-LS	

Appearance	Description	Used With	Part Number
 Flush Bezel	ø24mm round, metal (aluminum color), panel cut-out ø20.2mm	 L6 Switch + Flush Bezel = Flush Switch	LA9Z-SM61
	ø24mm round, plastic (black), panel cut-out ø20.2mm		LA9Z-S61B
	□24mm square, plastic (black), panel cut-out □20.2mm		LA9Z-S71B
	24 x 30mm rectangular, plastic (black), panel cut-out ø20.2 x 26.2mm		LA9Z-S81B
Switch Guard w/ Flush Bezel (spring return)	Rectangular, plastic (black)		LA9Z-KS8

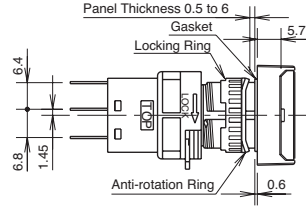
Flush bezels not applicable for oversize units.

Dimensions (mm)

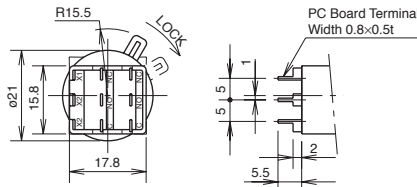
Pilot Lights (LA*P,) Pushbuttons (LA*B)



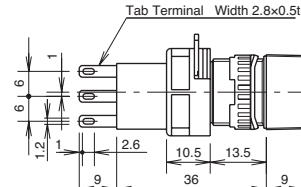
Illuminated Pushbuttons (LA*L)



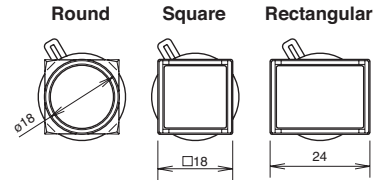
Note:
1. Pushbuttons do not have lamp terminals.
2. Pilot lights have only lamp terminals.



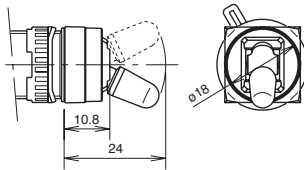
PC Board Terminal



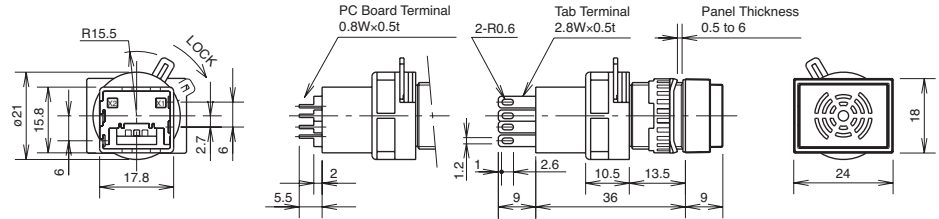
Solder/Tab Terminal



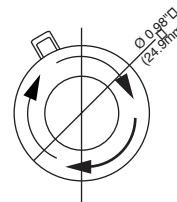
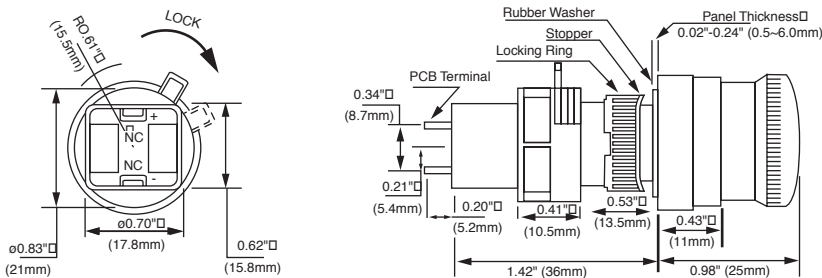
Lever Switches (LA1T)



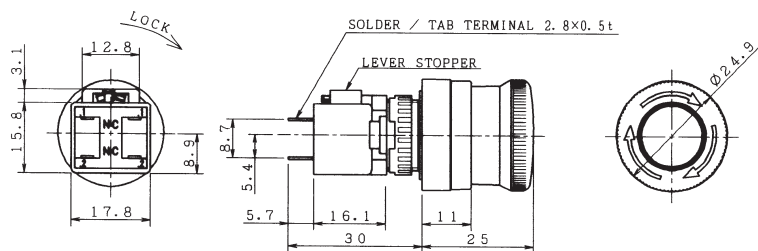
Buzzer (LA3Z)



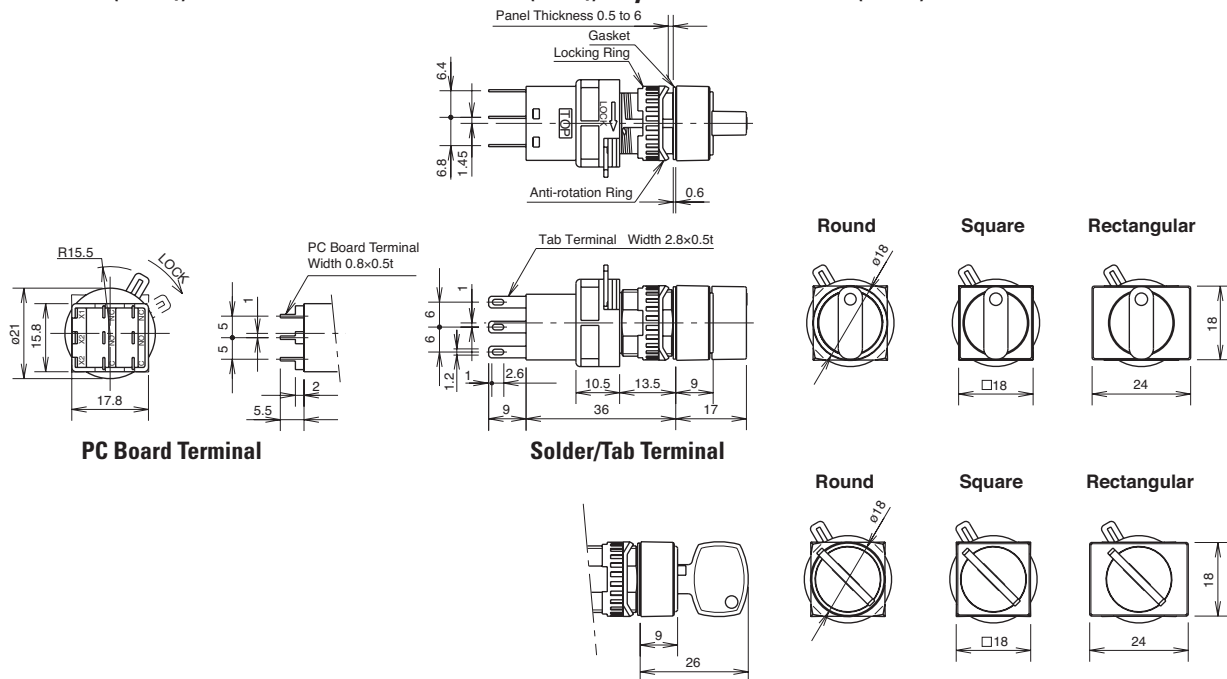
Emergency Stop Switch (HA1B)



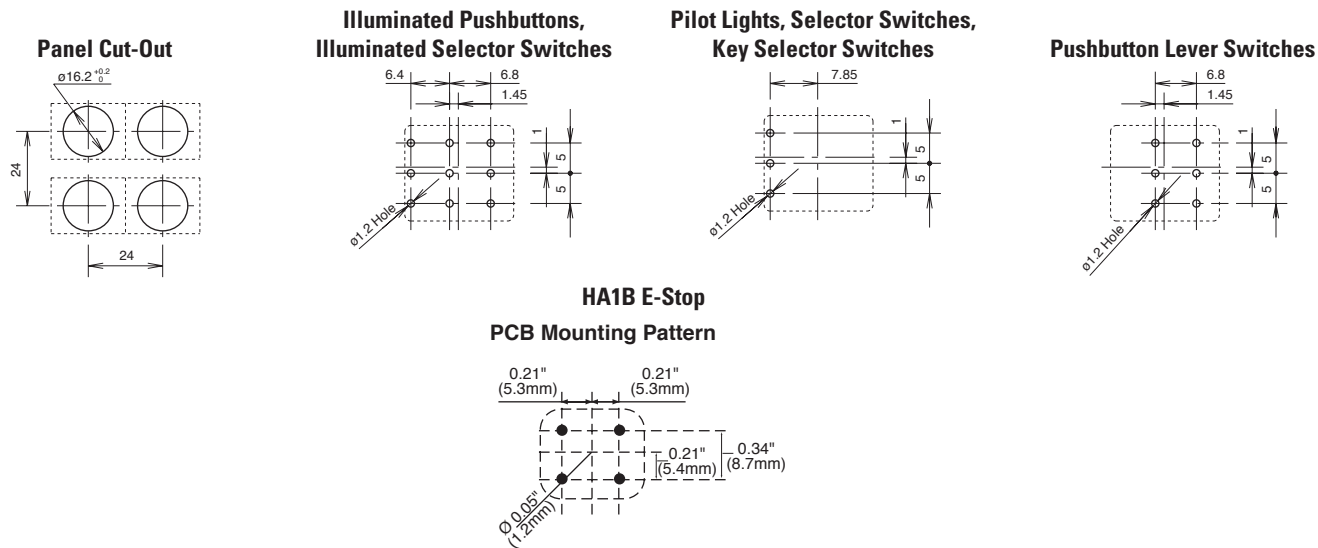
Emergency Stop Switch (HA1E) - Short Body Style



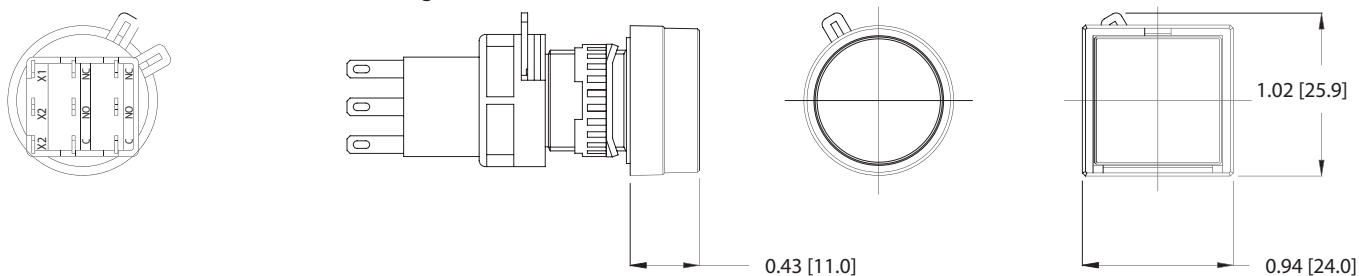
Selector Switches (LA*S,) Illuminated Selector Switches (LA*F,) Key Selector Switches (LA*K)



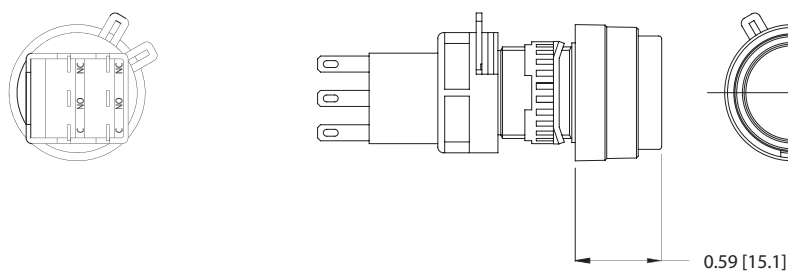
PC Board Drilling Layout (Bottom View)



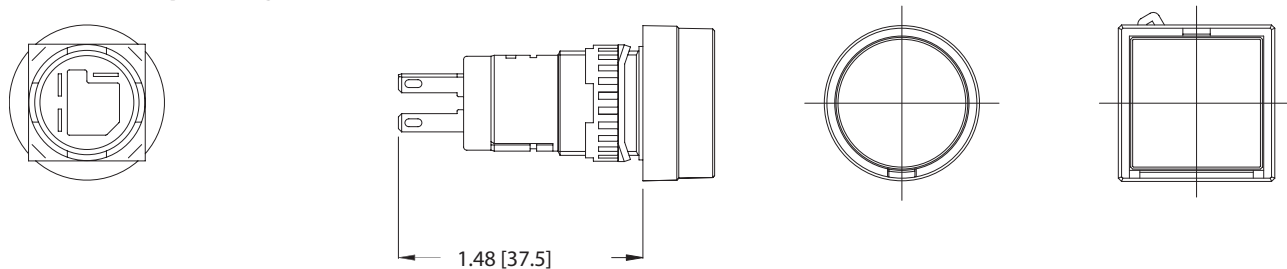
Enlarge Flush Pushbutton and Pilot Lights



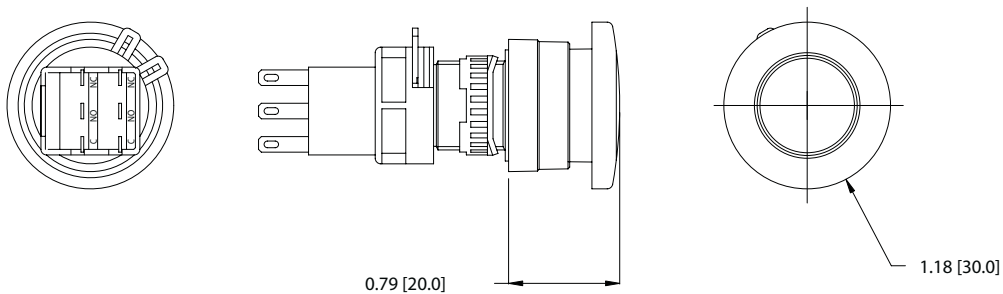
Enlarge Extended Non-Illuminated Pushbutton



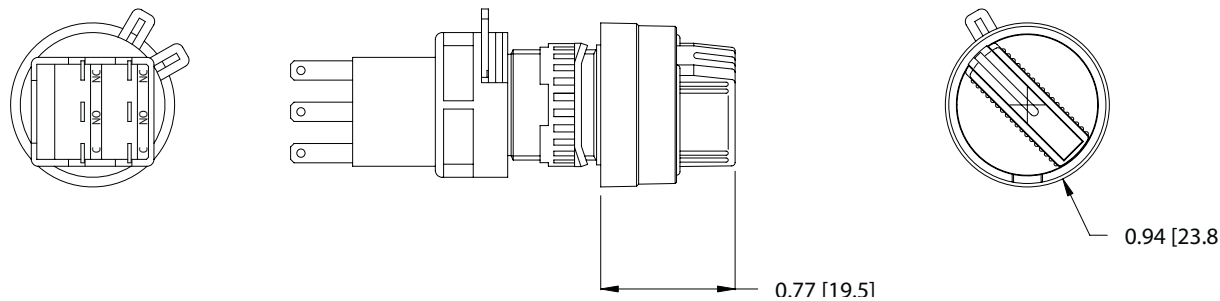
Enlarge Unibody Pilot Lights



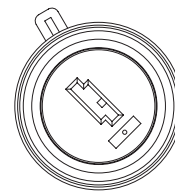
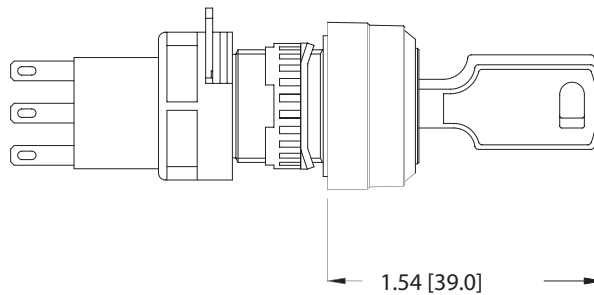
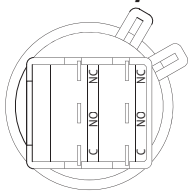
Mushroom Pushbuttons



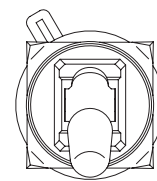
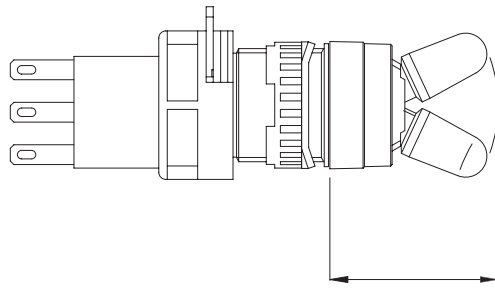
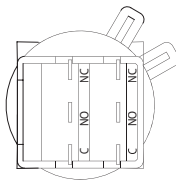
Enlarge Selector Switch



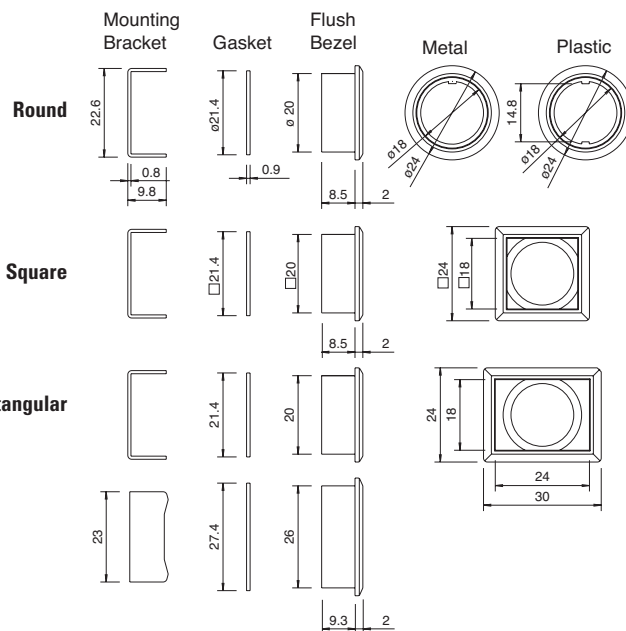
Oversize Key Switch



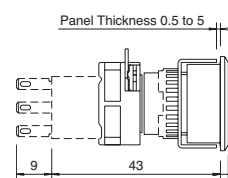
Lever Switch



Flush Bezel

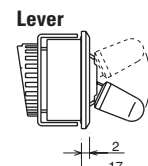
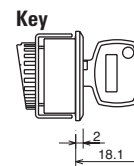
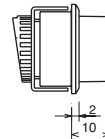


Flush Bezel with Switch



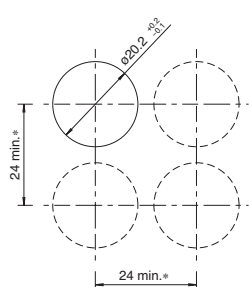
Selector Switches

Illuminated & Non-illuminated

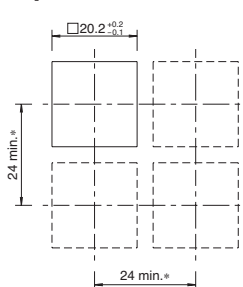


Flush Bezel Mounting Hole Layout

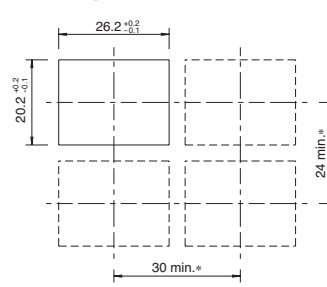
Round



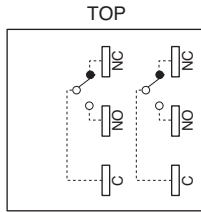
Square



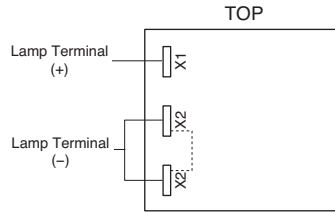
Rectangular



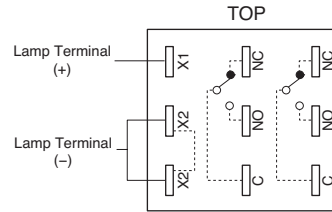
Terminal Configurations Non Illuminated Pushbutton



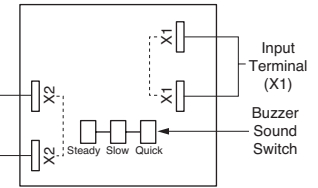
Pilot Lights



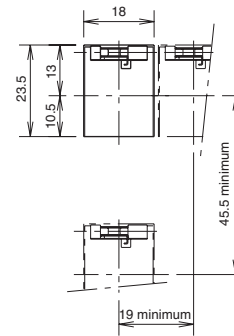
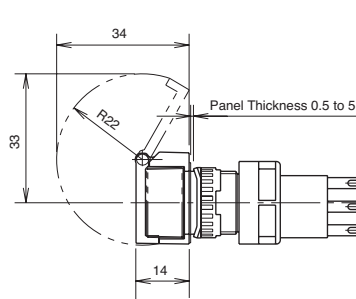
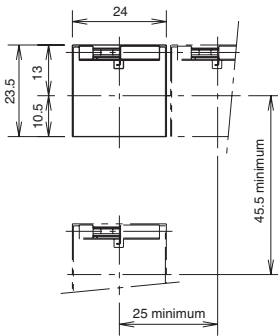
AL-K6SP Illuminated Pushbuttons



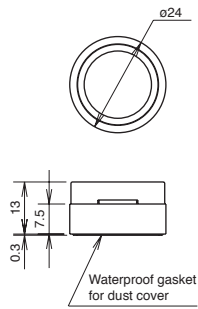
Buzzer



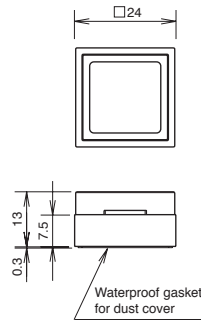
AL-KH6SP



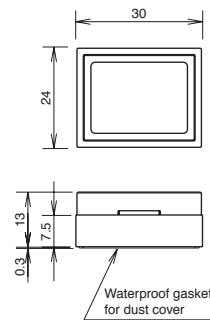
AL-D6



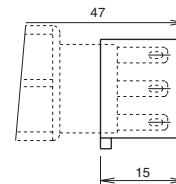
AL-DQ6



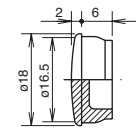
AL-DH6



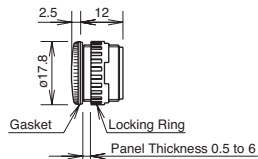
H6-VL2



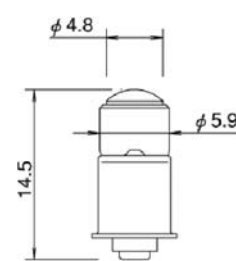
AL-B6



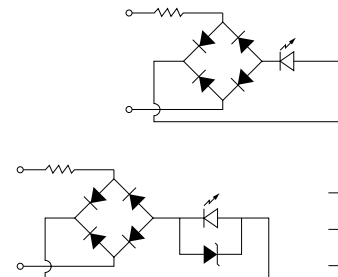
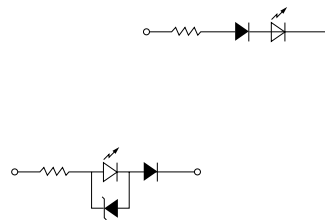
AL-BM6



LFTD

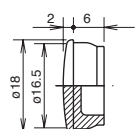


LED Lamp Internal Circuit



- LED Chip
- Protective Diode
- Zener Diode

AL-B6



General Instructions

Pushbutton Assembly

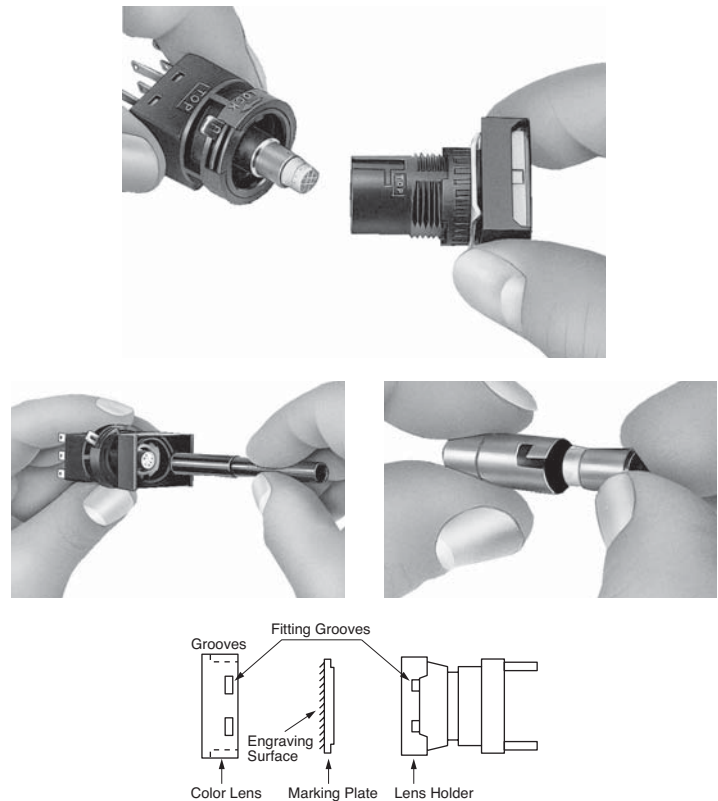
Lamp Installation

Lamps can be replaced in two ways:

1. If contacts are accessible (or pushbutton not installed in a panel) then it is easiest to first remove the contacts from the operator. This will allow easy access to the lamp/lamp-holder assembly. Grab lamp, depress slightly, and turn counter clockwise. Lamp can then be removed by pushing it back through the lamp holder.
2. If contacts are not accessible, then the lamp can be replaced by first removing the lens from the operator. Just pull lens straight out either with a fingernail or optional lens removal tool (MT-101). Lamp/lamp-holder assembly can then be removed with lamp removal tool (OR-44). Insert lamp removal tool through operator, depress slightly, turn counter clockwise, then pull lamp/lamp-holder assembly out. Lamp can then be removed by pushing it back through the lamp holder.

Engraving Lenses

All buttons and lenses can be engraved directly on the outside surface. Illuminated lenses also allow for engraving on a plate that is underneath the colored section of the lens. Remove the colored section of the lens by pulling on the edge while simultaneously unhooking it from the latches on the lens holder. The marking plate will then be accessible. It can then be engraved or a thin marked insert (such as mylar or paper) can be sandwiched between the marking plate and colored section of the lens.

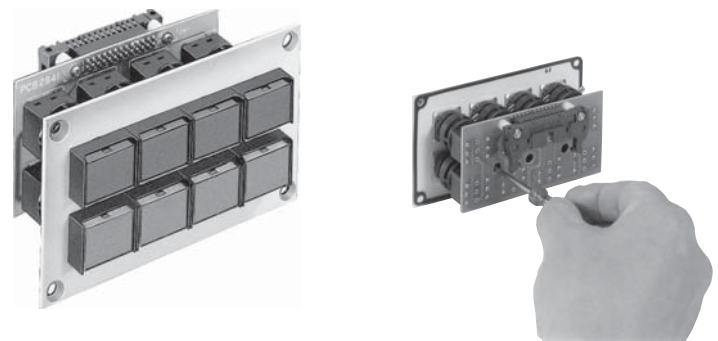


Panel Mounting

Before any unit can be mounted into a panel, the contact block must be removed. Slide metal locking lever and pull contact off. Loosen and remove the locking ring and square anti-rotation ring from the operator and insert operator through panel cutout from the front of the panel. Slide on anti-rotation ring and tighten locking ring, using locking ring wrench (MT-001). Slide contact block onto operator, observing TOP marking on both parts. Slide metal locking lever in direction indicated by LOCK. The yellow plastic safety lever lock can then be snapped onto the locking lever; this will prevent vibration or maintenance actions from releasing the contact from the operator.

PCB Mounting

Being able to separate the contacts from the operator allows for assembly of the front panel components (operator and lens) to be performed in tandem with the PC board assembly and soldering. For applications where multiple rows of push-buttons are mounted closely together, or where other components may obstruct access to the contact locking lever, be sure to include access holes in the PC board (refer to PC board layout dimensions for location). Also be sure to allow for space above and to the side of contact to ensure that no components block the contact block locking lever. PC board pins are designed to rest on the PCB, take this into consideration to ensure that pins do not short closely spaced traces.



22mm XW E-Stops

Key features:

- The depth behind the panel is only 48.7 mm for 1 to 4 contacts (with terminal cover) for illuminated and non-illuminated units.
- IDEC's original "Safe break action" ensures that the NC contacts open when the contact block is detached from the operator.
- 1 to 4NC main contacts and 1 or 2NO monitor contacts
- Push-to-lock, Pull or Turn-to-reset operator
- Safety lock mechanism (IEC60947-5-5, 6.2)
- Degree of protection IP65 (IEC60529)
- Fingersafe (IP20) terminals
- Two button sizes: ø40 and ø60 mm
- Push-ON illumination type available (40mm mushroom head)
- Direct opening action mechanism (IEC60947-5-5, 5.2, IEC60947-5-1, Annex K)
- RoHS compliant (EU directive 2002/95/EC).
- UL c-UL listed. EN compliant
- UL NISD category emergency stop device (File# E305148)



UL File #E68961



CCC No. 2005010305150897



Specifications

Applicable Standards	IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL508, CSA C22.2 No. 14
Operating Temperature	Non-illuminated: -25 to +60°C (no freezing), Illuminated: -25 to +55°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-45 to +80°C
Operating Force	Push-to-lock: 32N Pull-to-reset: 21N Turn-to-reset: 0.27N·m
Minimum Force Required for Direct Opening Action	80N
Min Operator Stroke Required for Direct Opening Action	4mm
Maximum Operator Stroke	4.5mm
Contact Resistance	50mΩ maximum (initial value)
Contact Material	Gold plated silver
Insulation Resistance	100MΩ minimum (500V DC megger)
Impulse Withstand Voltage	2.5kV
Pollution Degree	3
Operation Frequency	900 operations/hour
Shock Resistance	Operating extremes: 150m/s ² (15G), Damage limits: 1000m/s ² (100G)
Vibration Resistance	Operating extremes: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ² Damage limits: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ²
Mechanical Life	250,000 operations minimum
Electrical Life	100,000 operations minimum, (250,000 operations minimum @ 24V AC/DC, 100mA)
Degree of Protection	Operator: IP65 (IEC60529) Terminal: IP20 (when XW9Z-VL2MF is installed)
Terminal Style	M3.0 screw terminal
Recommended Tightening Torque for Locking Ring	2.0N·m
Wire Size	16 AWG max
Weight	ø40mm: 72g ø60mm: 81g

Part Numbers

Illumination	Operator Type	Monitor Contact	Main Contact	Part Number
Non-Illuminated 	40mm Mushroom	1NO	1NC	XW1E-BV411M-R
		—	2NC	XW1E-BV402M-R
		2NO	2NC	XW1E-BV422M-R
		1NO	3NC	XW1E-BV413M-R
		—	4NC	XW1E-BV404M-R
	60mm Mushroom 	1NO	1NC	XW1E-BV511M-R
		—	2NC	XW1E-BV502M-R
		2NO	2NC	XW1E-BV522M-R
		1NO	3NC	XW1E-BV513M-R
		—	4NC	XW1E-BV504M-R
Illuminated ¹ 	40mm Mushroom LED with built-in 24V AC/DC LED	1NO	1NC	XW1E-LV411Q4M-R
		—	2NC	XW1E-LV402Q4M-R
		2NO	2NC	XW1E-LV422Q4M-R
		1NO	3NC	XW1E-LV413Q4M-R
		—	4NC	XW1E-LV404Q4M-R
	40mm Mushroom Push-ON LED ²	1NO	2NC	XW1E-TV412Q4M-R



1. The light is independent of the position of the switch, except for push-on LED type.
2. The light only operates when the switch is pressed as it is internally wired.

Contact Ratings

Rated Insulation Voltage (Ui)			250V			
Rated Current (Ith)			5A			
Rated Operating Voltage (Ue)			30V	125V	250V	
Rated Operating Current	Main Contacts (NC)	AC 50/60Hz	Resistive Load (AC-12)	—	5A	3A
			Inductive Load (AC-15)	—	3A	1.5A
		DC	Resistive Load (DC-12)	2A	0.4A	0.2A
			Inductive Load (DC-13)	1A	0.22A	0.1A
	Monitor Contacts (NO)	AC 50/60Hz	Resistive Load (AC-12)	—	1.2A	0.6A
			Inductive Load (AC-14)	—	0.6A	0.3A
		DC	Resistive Load (DC-12)	2A	0.4A	0.2A
			Inductive Load (DC-13)	1A	0.22A	0.1A



Minimum applicable load: 5V AC/DC, 1mA (reference value).
The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

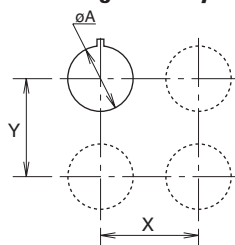
Illuminated Unit LED Ratings

Operating Voltage	Current
24V AC/DC ±10%	15mA

Depth Behind the Panel

Depth (mm)	Description
48.7	1 - 4 contacts, both illuminated and non-illuminated

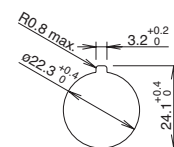
Mounting Hole Layout



Measurements

Size	øA	X & Y
40mm	22.3 ^{+0.4}	70mm min

Panel Cutout



Part Number Key

XW1E - L V 4 11 Q4M - R

Illumination

B: Non-Illuminated
L: Illuminated LED
T: Illuminated Push-ON LED

Mushroom Size

4: ø40mm
5: ø60mm
(non-illuminated only)

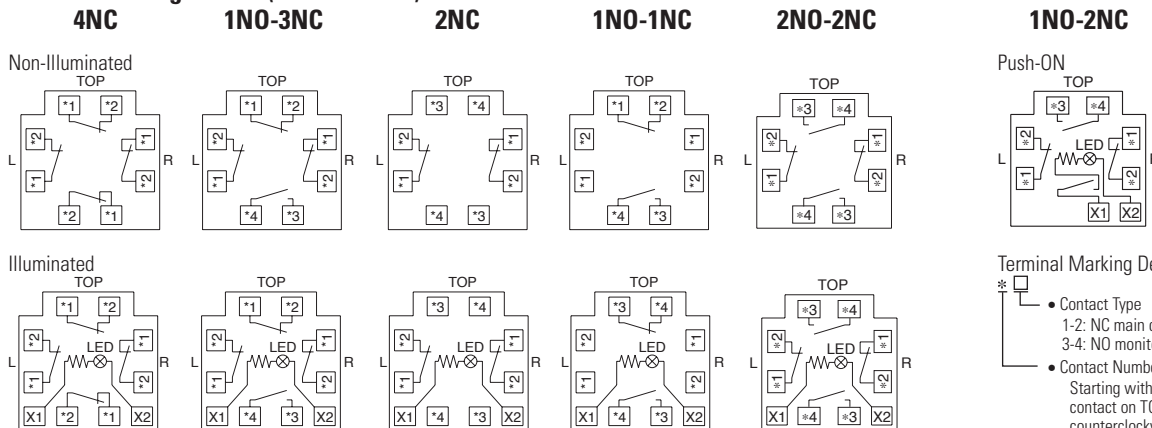
Contact Configuration

11: 1NO - 1NC
02: 2NC
13: 1NO - 3NC
04: 4NC
22: 2NO-2NC
12: 1NO-2NC (Push-ON LED only)

Voltage Code

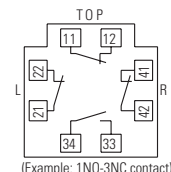
Blank: Non-illuminated
Q4: Illuminated 24V AC/DC

Terminal Arrangements (Bottom View)



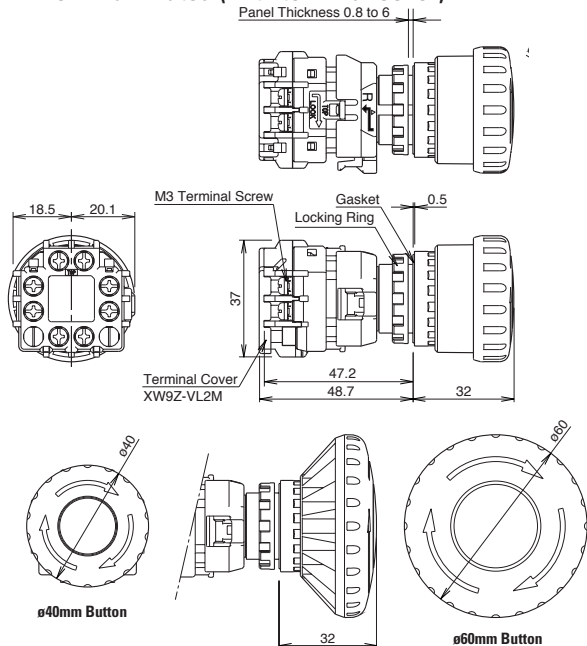
Terminal Marking Description

- Contact Type
1-2: NC main contact
3-4: NO monitor contact
- Contact Number (1-4)
Starting with the contact on TOP in a counterclockwise direction.
Note:
1: contact on the TOP
2: contact on the Left
3: contact on the Bottom
4: contact on the Right

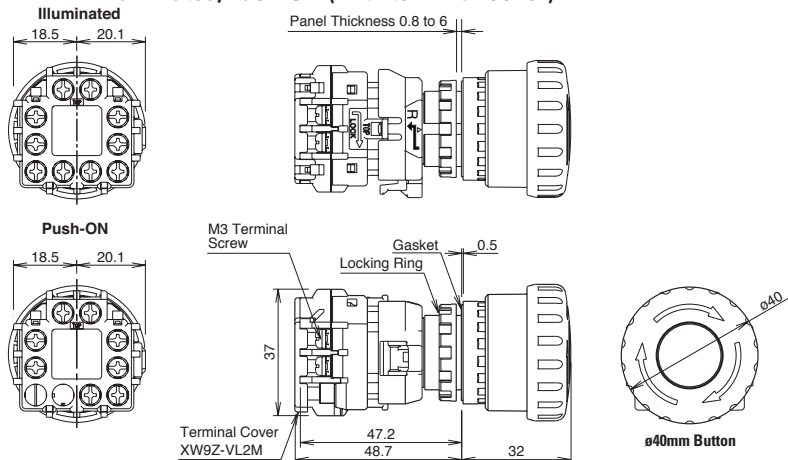


Dimensions (mm)

XW Non-Illuminated (with terminal cover)



XW LED Illuminated/Push-ON (with terminal cover)



Accessories: Terminal Covers

Model	Description	Part Numbers
	Terminal Cover for contact block	XW9Z-VL2M
	IP20 Fingersafe Cover	XW9Z-VL2MF

Accessories: Nameplates

	Legend	Part Number	Inner Ø	Outer Ø
	(blank)	HWAV-0	22mm	60mm
	“Emergency Stop”	HWAV-27	22mm	60mm
	“Emergency Stop”	HWAV5-0	22mm	80mm
	(blank)	HWAV5-27	22mm	80mm



Use 60mm nameplates for 40mm mushroom buttons and 80mm nameplates for 60mm mushroom buttons.

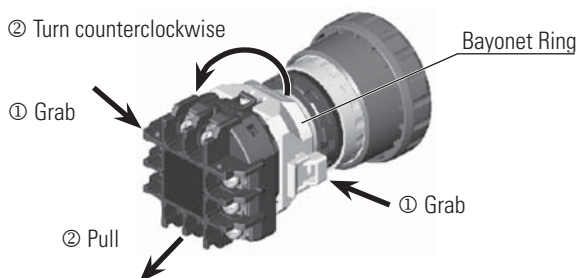
Accessories: Shrouds

	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG1	40mm Mushroom Head	SEMI S2-0703, 12.5.1 Compliant
	HW9Z-KG2	40mm, and 60mm Mushroom Head	SEMI S2-0703, 12.5.1 & SEMATECH Compliant
	HW9Z-KG3	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV)
	HW9Z-KG4	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) & SEMATECH

Operating Instructions

Removing the Contact Block

First unlock the operator button. Grab the bayonet ring ① and pull back the bayonet ring until the latch pin clicks ②, then turn the contact block counterclockwise and pull out ③.

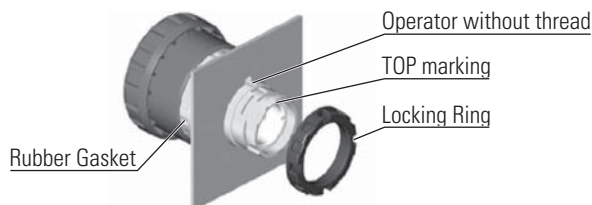


Notes for removing the contact block

1. When the contact block is removed, the monitor contact (NO contact) is closed.
2. While removing the contact block, do not exert excessive force, otherwise the switch may be damaged.
3. An LED lamp is built into the contact block for illuminated pushbuttons. When removing the contact block, pull the contact block straight to prevent damage to the LED lamp. If excessive force is exerted, the LED lamp may be damaged and fail to light.

Panel Mounting

Remove the locking ring from the operator and check that the rubber gasket is in place. Insert the operator from panel front into the panel hole. Face the side without thread on the operator with TOP marking upward, and tighten the locking ring using ring wrench MW9Z-T1 to a torque of 2.0 N·m maximum.

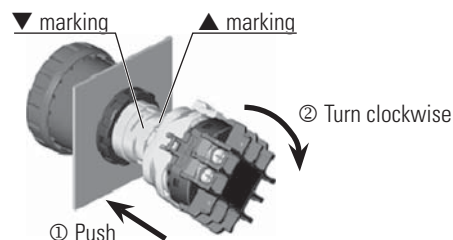


Notes for Panel Mounting

To prevent the XW emergency stop switch from rotating when resetting from the latched position, use of an anti-rotation ring (HW9Z-RL) or a nameplate is recommended.

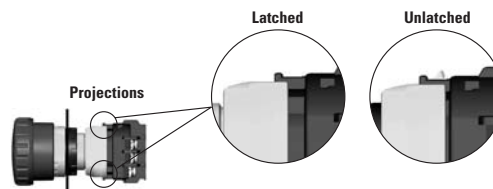
Installing the Contact Block

First unlock the operator button. Align the small t marking on the edge of the operator with the small s marking on the yellow bayonet ring. Hold the contact block, not the bayonet ring. Press the contact block onto the operator and turn the contact block clockwise until the bayonet ring clicks.



Notes for installing the contact block

Make sure that the bayonet ring is in the locked position. Check that the two projections on the bayonet ring are securely in place.



Wiring

The applicable wire size is 16 AWG maximum.

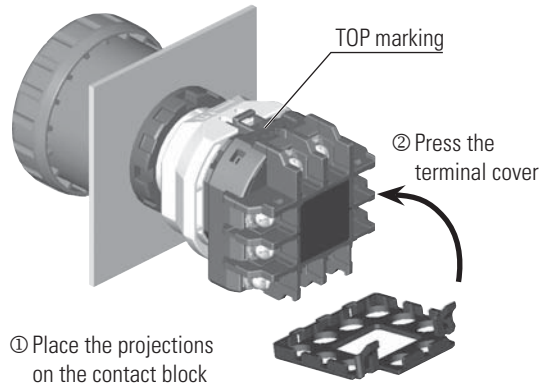
Screw Terminal

1. Wire thickness: AWG18 to 16
2. Tighten the M3 terminal screw to a tightening torque of 0.6 to 1.0 N·m.

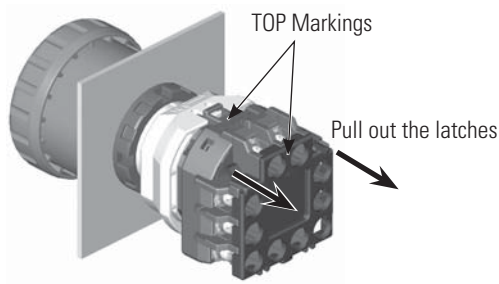
Installing and Removing Terminal Covers

XW9Z-VL2M

To install the terminal cover, align the TOP marking on the terminal cover with the TOP marking on the contact block. Place the two projections on the bottom side of the contact block into the slots in the terminal cover. Press the terminal cover toward the contact block.

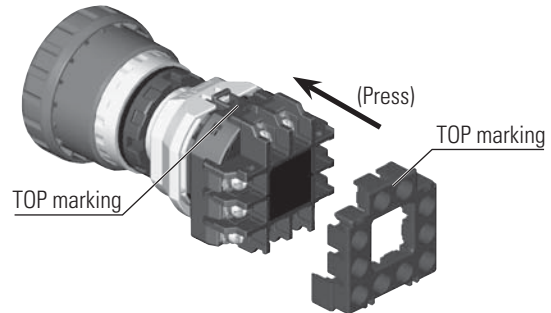


To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.



IP20 Protection Terminal Cover XW9Z-VL2MF

To install the IP20 protection cover, align the TOP marking on the cover with the TOP marking on the contact block, and press the cover toward the contact block.



1. Once installed, the XW9Z-VL2MF cannot be removed.
2. The XW9Z-VL2MF cannot be installed after wiring.
3. With the XW9Z-VL2MF installed, crimping terminals cannot be used.
4. Make sure that the XW9Z-VL2MF is securely installed. IP20 protection cannot be achieved when installed loosely, and electric shocks may occur.

Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce.

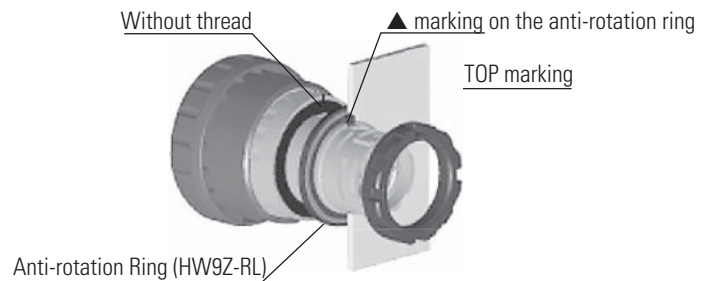
When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

LED Illuminated Switches

LED lamp is built into the contact block and cannot be replaced.

Installing the Anti-rotation Ring HW9Z-RL

Align the side without thread on the operator with TOP marking, the small s marking on the anti-rotation ring, and the recess on the mounting panel.



HW Series — 22mm IEC Style Global Pushbuttons

Key features include:

- Locking lever removable contact blocks
- Finger-safe IP20 contacts as standard, other terminal styles available
- Tamperproof construction
- All E-stops meet EN418 and are compliant with SEMI S2 standards
- Worldwide approvals
- Easy to assemble
- Choice of black plastic or metallic front bezels
- Incandescent or LED illumination
- Transformer or full voltage
- Slow make double break self cleaning contacts



HW: The Best Engineered Switch in the World

IDEC's HW switches are "The best engineered switch in the world" for a reason. Carrying the CE mark, UL, CSA, CCC (Chinese), and TUV approvals, these switches are designed for use in almost any part of the world.

lights, selector switches, and emergency stop switches.

All switches also incorporate mechanically keyed safety locking levers, ensuring correct installation and maintaining safety in high-vibration applications.

Complete with finger-safe contact blocks offering IP20 protection, these 7/8" (22mm) switches include illuminated and non-illuminated pushbuttons, pilot



File No. E68961



File No. LR92374



Registration No. R9551089 (E-stops)
Registration No. R50054316 (Dual Pushbuttons)
Registration No. J9650511 (Pilot Lights)
Registration No. J9551458 (all other switches)



TÜV Rheinland
Certificate No.
2005010305145656



Specifications

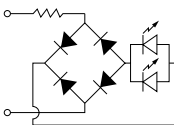
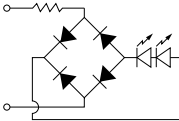
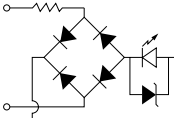
Electrical	Rated Operational Characteristics	AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB) DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC) DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)
	Maximum Inrush Current	40 A (40 ms)
	Rated Insulation Voltage	600V
	Rated Switching Over-Voltage	Less than 4kV, conforming to IEC60947-1
	Rated Impulse Withstanding Voltage	4kV for contact circuit, 2.5kV for lamp circuit
	Rated Thermal Current	10 Amp
	Minimum Switching Capacity	5 mA at 3V AC/DC
	Electrical Reliability	MTBF < 1 fault for 10 million operation cycles (3V DC, 5mA)
Mechanical	Lamp Ratings	Incandescent: 1 W LEDs: 6V/17mA max, 12V & 24V/11mA max, 120 & 240V/10mA max
	Contact Operation	Slow break NC or NO, self-cleaning
	Positive Action Operation (Emergency Stops with NC contacts)	5.5mm to 10mm travel to latch, 45N minimum force to latch 10mm maximum travel, 1,800 operations per hour maximum for a Pushlock Turn Reset 900 operations per hour maximum for a Push-Pull
	Operating Force	Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained) Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained)
	Recommended Terminal Torque	0.8 N m (7.1 in lb.)
	Applicable Wire Size	Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG
	Contact Resistance	Initial contact resistance of 50mΩ or less
	Contact Gap	4mm (NO and NC), 2mm (NO-EM and NC-LB)
	Horsepower Rating	Reference Value: 1/4 HP @ 120V (1ø non-reversing), 1HP @ 240V (3ø non-reversing)
	Contact Material	Silver (gold plated contacts available - contact IDEC)
	Operating Temperature	Operation: -25 to +50°C (without freezing), Storage: -40 to +70°C (without freezing)
	Vibration Resistance	10 to 55Hz, 98m/sec ² (10G) conforming to IEC6068-2-6
	Shock Resistance	980m/sec ² (100G) conforming to IEC6068-2-7
	Mechanical Life	Momentary pushbuttons: 5,000,000 (900 operations per hour), All other switches: 500,000

Standards & Approvals	Conforming to Standards		EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14					
	Approvals		CSA: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) UL: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) TÜV: pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB) pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)					
	File No. E89961 File No. LR92374 Registration No. R9551089 (E-stops) Registration No. R90054316 (Dual Pushbuttons) Registration No. J9650511 (Pilot Lights) Registration No. J9551458 (all other switches)		 TÜV Rheinland Certificate No. 2005010305145656					
	Electric Shock Protection		Class 0 conforming to IEC60536					
	Degree of Protection (conforming to IEC60529) (conforming to NEMA ICS6-110)		IP65 (from front of the panel) IP20 (Type HW-F contact block) NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (from front of panel)					
	Pollution Degree (conforming to IEC60947-1)		3 for switches not using a transformer, 2 for switches using a transformer					
Contact Ratings	External Short-Circuit Protection		10A 250V fuse conforming to IEC60269-1					
	Terminal Referencing		Conforming to CENELEC EN50005					
	Pushbuttons		Contact Block	Type HW-C/HW-F /HW-G				
	Illuminated Pushbuttons		Rated Insulation Voltage	600V				
	Selector Switches		Rated Continuous Current	10A				
Characteristics	Illuminated Selector Switches		Contact Ratings by Utilization Category	AC-15 (A600) DC-13 (P600)				
	Pushbutton Selectors		IEC 60947-5-1					
	Operational Voltage		24V	48V	50V	110V	220V	440V
	Operational Current	AC 50/60 Hz	AC-12 Control of resistive loads & solid state loads	10A	—	10A	10A	6A
		DC	AC-15 Control of electromagnetic loads (> 72VA)	10A	—	7A	5A	3A
			DC-12 Control of resistive loads & solid state loads	8A	5A	—	2.2A	1.1A
			DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A



For dimensions, see page 551.

LED Lamp Ratings (LSTD Type)

Model No.			LSTD-6②	LSTD-1②	LSTD-2②	LSTD-H2②	LSTD-M4②
Lamp Base			BA9S/13				
Rated Voltage			6V AC/DC	12V AC/DC	24V AC/DC	120V AC	240V AC
Voltage Range			6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%	120V AC ±5%	240V AC ±5%
Current Draw	AC	A, R, W: G, S:	17mA 8mA	11mA	11mA	10mA	10mA
	DC	A, R, W: G, S:	14mA 5.5mA	10mA	10mA	—	—
Color Code			A (amber), G (green), R (red), S (blue), W (white)				
Lamp Base Color			Same as illumination color				
Voltage Marking			Die stamped on the base				
Life (reference value)			Approx. 50,000 hours (The luminance reduces to 50% the initial intensity when used on complete DC.)				
Internal Circuit			A, R, W		A, R, W		
							
			G, S				
					 LED Chip  Protection Diode  Zener Diode		



In place of ②, specify the Lens/LED Color Code.

Non-illuminated Round Pushbuttons (Assembled)



Function	Contacts	Round Flush		Round Extended	
		Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary	Operator Only	HW1B-M1-①	HW4B-M1-①	HW1B-M2-①	HW4B-M2-①
	1NO	HW1B-M1F10-①	HW4B-M1F10-①	HW1B-M2F10-①	HW4B-M2F10-①
	1NC	HW1B-M1F01-①	HW4B-M1F01-①	HW1B-M2F01-①	HW4B-M2F01-①
	1NO-1NC	HW1B-M1F11-①	HW4B-M1F11-①	HW1B-M2F11-①	HW4B-M2F11-①
	2NO	HW1B-M1F20-①	HW4B-M1F20-①	HW1B-M2F20-①	HW4B-M2F20-①
	2NC	HW1B-M1F02-①	HW4B-M1F02-①	HW1B-M2F02-①	HW4B-M2F02-①
	2NO-2NC	HW1B-M1F22-①	HW4B-M1F22-①	HW1B-M2F22-①	HW4B-M2F22-①
Maintained	Operator Only	HW1B-A1-①	HW4B-A1-①	HW1B-A2-①	HW4B-A2-①
	1NO	HW1B-A1F10-①	HW4B-A1F10-①	HW1B-A2F10-①	HW4B-A2F10-①
	1NC	HW1B-A1F01-①	HW4B-A1F01-①	HW1B-A2F01-①	HW4B-A2F01-①
	1NO-1NC	HW1B-A1F11-①	HW4B-A1F11-①	HW1B-A2F11-①	HW4B-A2F11-①
	2NO	HW1B-A1F20-①	HW4B-A1F20-①	HW1B-A2F20-①	HW4B-A2F20-①
	2NC	HW1B-A1F02-①	HW4B-A1F02-①	HW1B-A2F02-①	HW4B-A2F02-①
	2NO-2NC	HW1B-A1F22-①	HW4B-A1F22-①	HW1B-A2F22-①	HW4B-A2F22-①

① Button Color Code

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y
Gray	N*

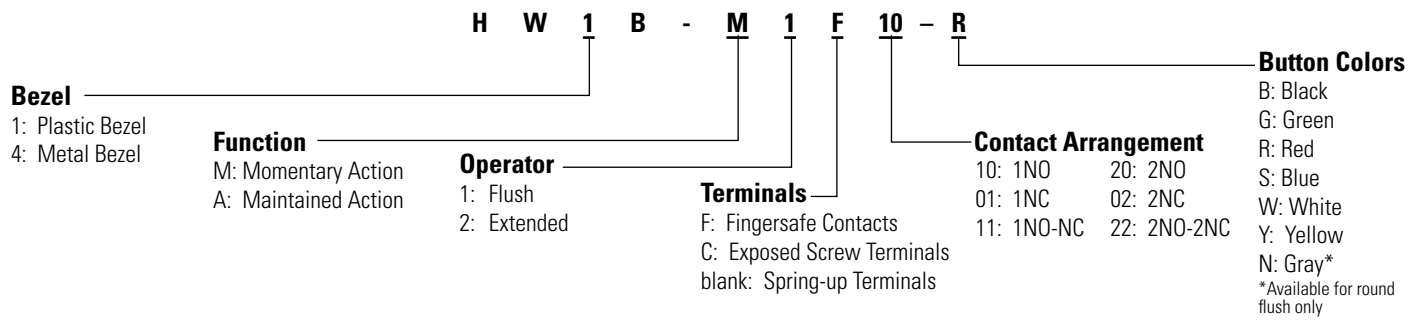


*Gray available for round flush only.

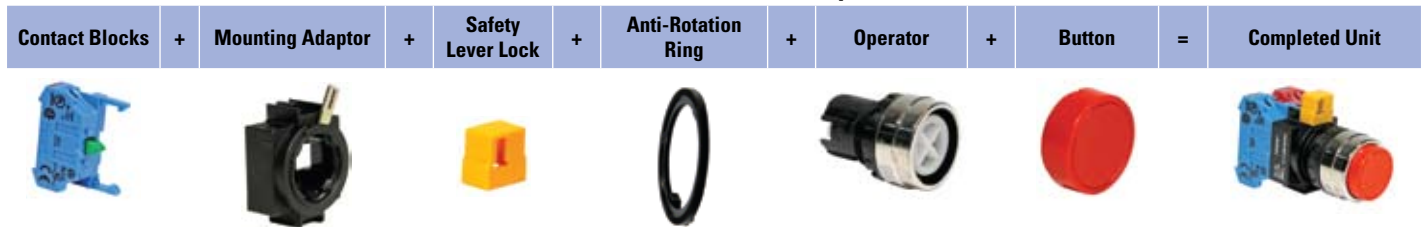


1. In place of ①, specify the Button Color Code from table below.
2. For nameplates and accessories, see page 546 and 549.
3. For dimensions, see page 551.
4. For contact assembly part numbers, see page 550.
5. All assembled part numbers in catalog include standard, fingersafe (HW-F...) contacts.
6. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
7. Operator only models include operator plus button.
8. Additional contact configurations available (up to 6 total contacts).

Part Number Structure



Non-illuminated Round Pushbuttons (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

- Used to mount contact blocks to operator.
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

Operators

Style		Plastic Bezel	Metal Bezel
	Momentary	HW1B-M0	HW4B-M0
	Maintained	HW1B-A0	HW4B-A0

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Buttons

Style	Part Number
Round Flush 	HW1A-B1-①
Round Extended 	HW1A-B2-①

1. In place of ①, specify the Button Color Code from table.

① Button Color Code

Color	Code	Color	Code
Black	B	White	W
Green	G	Yellow	Y
Red	R	Gray	N*
Blue	S		

*Gray available for round flush only.

Non-illuminated Mushroom Head Pushbuttons (Assembled)



Function	Contacts	ø29mm Mushroom Head		ø40mm Mushroom Head	
		Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary	Operator Only	HW1B-M3-①	HW4B-M3-①	HW1B-M4-①	HW4B-M4-①
	1NO	HW1B-M3F10-①	HW4B-M3F10-①	HW1B-M4F10-①	HW4B-M4F10-①
	1NC	HW1B-M3F01-①	HW4B-M3F01-①	HW1B-M4F01-①	HW4B-M4F01-①
	1NO-1NC	HW1B-M3F11-①	HW4B-M3F11-①	HW1B-M4F11-①	HW4B-M4F11-①
	2NO	HW1B-M3F20-①	HW4B-M3F20-①	HW1B-M4F20-①	HW4B-M4F20-①
	2NC	HW1B-M3F02-①	HW4B-M3F02-①	HW1B-M4F02-①	HW4B-M4F02-①
	2NO-2NC	HW1B-M3F22-①	HW4B-M3F22-①	HW1B-M4F22-①	HW4B-M4F22-①
Maintained	Operator Only	HW1B-A3-①	HW4B-A3-①	HW1B-A4-①	HW4B-A4-①
	1NO	HW1B-A3F10-①	HW4B-A3F10-①	HW1B-A4F10-①	HW4B-A4F10-①
	1NC	HW1B-A3F01-①	HW4B-A3F01-①	HW1B-A4F01-①	HW4B-A4F01-①
	1NO-1NC	HW1B-A3F11-①	HW4B-A3F11-①	HW1B-A4F11-①	HW4B-A4F11-①
	2NO	HW1B-A3F20-①	HW4B-A3F20-①	HW1B-A4F20-①	HW4B-A4F20-①
	2NC	HW1B-A3F02-①	HW4B-A3F02-①	HW1B-A4F02-①	HW4B-A4F02-①
	2NO-2NC	HW1B-A3F22-①	HW4B-A3F22-①	HW1B-A4F22-①	HW4B-A4F22-①



① Button Color Code



1. In place of ①, specify the Button Color Code from table.
2. *60mm mushroom available only in red, green, black, and yellow.
3. For nameplates and accessories, see page 546 and 549.
4. For dimensions, see page 551.
5. For contact assembly part numbers, see page 550.
6. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
7. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
8. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
9. Operator only models include operator plus button.
10. Additional contact configurations available (up to 6 total contacts).

Function	Contacts	ø60mm Mushroom Head
		Plastic Bezel
Momentary	Operator Only	HW1B-M5-①*
	1NO	HW1B-M5F10-①*
	1NC	HW1B-M5F01-①*
	1NO-1NC	HW1B-M5F11-①*
	2NO	HW1B-M5F20-①*
	2NC	HW1B-M5F02-①*
	2NO-2NC	HW1B-M5F22-①*

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

Part Number Structure

Bezel

1: Plastic Bezel
4: Metal Bezel
(Not available for 60mm mushroom)

Function

M: Momentary Action
A: Maintained Action
(Not available for 60mm jumbo mushroom pushbutton.)

Operator

3: ø29mm Mushroom
4: ø40mm Mushroom
5: ø60mm Mushroom

Terminals

F: Fingersafe Contacts
C: Exposed Screw Terminals
blank: Spring-up Terminals

Contact Arrangement

10: 1NO 20: 2NO
01: 1NC 02: 2NC
11: 1NO-NC 22: 2NO-2NC

Button Colors

B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Non-illuminated Mushroom Head Pushbuttons (Replacement Parts)

Contact Blocks	+	Mounting Adaptor	+	Safety Lever Lock	+	Anti-Rotation Ring	+	Operator	+	Button	=	Completed Unit

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator.
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Operators

Style		Plastic Bezel	Metal Bezel
ø29mm Mushroom ø40mm Mushroom	Momentary	HW1B-M0L	HW4B-M0L
	Maintained	HW1B-A0L	HW4B-A0L
ø60mm Jumbo Mushroom	Momentary	HW1B-M5-①*	—



- *60mm mushroom operator includes non-removable button (available in red, black, green and yellow only).
- For nameplates and accessories, see page 546 and 549.
- For dimensions, see page 551.

Buttons

Style	Part Number
ø29mm Mushroom Cap	HW1A-B3-①
ø40mm Mushroom Cap	HW1A-B4-①



- In place of ①, specify the Button Color Code from table.

① Button Color Code

Color	Code	Color	Code
Black	B	Blue	S
Green	G	White	W
Red	R	Yellow	Y



- HW1B-M5 available only in black, red, green and yellow.

Non-illuminated Square Pushbuttons (Assembled)



Function	Contacts	Square Flush	Square Extended
		Plastic Bezel	Plastic Bezel
Momentary	Operator Only	HW2B-M1-①	HW2B-M2-①
	1NO	HW2B-M1F10-①	HW2B-M2F10-①
	1NC	HW2B-M1F01-①	HW2B-M2F01-①
	1NO-1NC	HW2B-M1F11-①	HW2B-M2F11-①
	2NO	HW2B-M1F20-①	HW2B-M2F20-①
	2NC	HW2B-M1F02-①	HW2B-M2F02-①
	2NO-2NC	HW2B-M1F22-①	HW2B-M2F22-①
Maintained	Operator Only	HW2B-A1-①	HW2B-A2-①
	1NO	HW2B-A1F10-①	HW2B-A2F10-①
	1NC	HW2B-A1F01-①	HW2B-A2F01-①
	1NO-1NC	HW2B-A1F11-①	HW2B-A2F11-①
	2NO	HW2B-A1F20-①	HW2B-A2F20-①
	2NC	HW2B-A1F02-①	HW2B-A2F02-①
	2NO-2NC	HW2B-A1F22-①	HW2B-A2F22-①

① Button Color Code

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y



1. In place of ①, specify the Button Color Code from table.
2. For nameplates and accessories, see page 546 and 549.
3. For dimensions, see page 551.
4. For contact assembly part numbers, see page 550.
5. Square pushbuttons available in plastic bezel only.
6. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
7. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW2B-M1F11-R becomes HW1B-M111-R).
8. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
9. Operator only model includes operator and button.
10. Additional contact configurations available (up to 6 total contacts).

Part Number Structure

Function

M: Momentary Action
A: Maintained Action

Operator

1: Flush
2: Extended

Terminals

F: Fingersafe Contacts
C: Exposed Screw Terminals
blank: Spring-up Terminals

Contact Arrangement

10: 1NO 20: 2NO
01: 1NC 02: 2NC
11: 1NO-NC 22: 2NO-2NC

Button Colors

B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Non-illuminated Square Pushbuttons (Replacement Parts)

Contact Blocks	+	Mounting Adaptor	+	Safety Lever Lock	+	Anti-Rotation Ring	+	Operator	+	Button	=	Completed Unit

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

1. Used to mount contact blocks to operator.
2. IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

Operators

Style	Plastic Bezel
Square Flush Extended 	Momentary HW2B-M0
	Maintained HW2B-A0

2. For nameplates and accessories, see page 546 and 549.
3. For dimensions, see page 551.

Buttons

Style	Part Number
Square Flush 	HW2A-B1-①
Square Extended 	
	HW2A-B2-①

1. In place of ①, specify the Button Color Code from table.

① Button Color Code

Color	Code	Color	Code
Black	B	Blue	S
Green	G	White	W
Red	R	Yellow	Y

Non-illuminated E-Stop Pushbuttons (Assembled)



	Ø29mm Head Pushlock Turn Reset		Ø40mm Head Pushlock Turn Reset	
Contacts	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
<i>Operator Only</i>	<i>HW1B-V3</i> Ⓢ†	<i>HW4B-V3</i> Ⓢ†	<i>HW1B-V4</i> Ⓢ†	<i>HW4B-V4</i> Ⓢ†
1NO	HW1B-V3F10-Ⓢ†	HW4B-V3F10-Ⓢ†	HW1B-V4F10-Ⓢ†	HW4B-V4F10-Ⓢ†
1NC	HW1B-V3F01-Ⓢ†	HW4B-V3F01-Ⓢ†	HW1B-V4F01-Ⓢ†	HW4B-V4F01-Ⓢ†
1NO-1NC	HW1B-V3F11-Ⓢ†	HW4B-V3F11-Ⓢ†	HW1B-V4F11-Ⓢ†	HW4B-V4F11-Ⓢ†
2NO	HW1B-V3F20-Ⓢ†	HW4B-V3F20-Ⓢ†	HW1B-V4F20-Ⓢ†	HW4B-V4F20-Ⓢ†
2NC	HW1B-V3F02-Ⓢ†	HW4B-V3F02-Ⓢ†	HW1B-V4F02-Ⓢ†	HW4B-V4F02-Ⓢ†



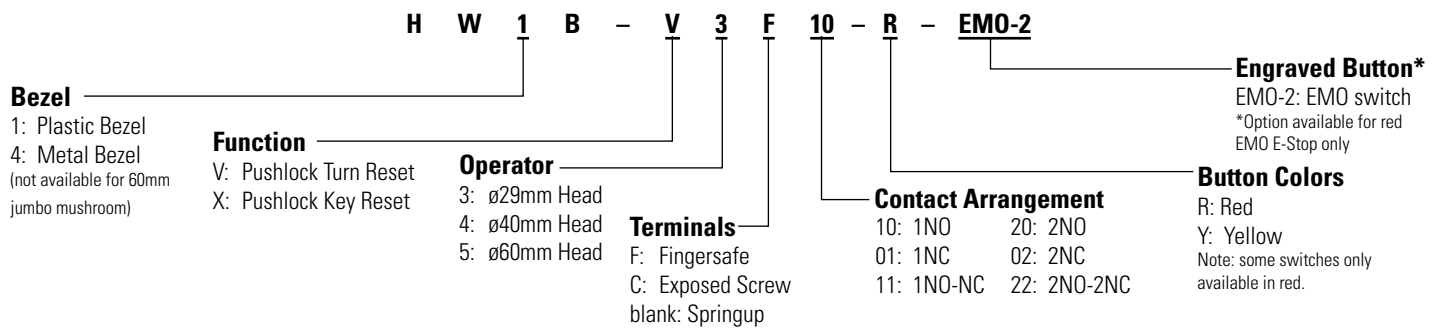
	Ø40mm Head EMO Pushlock Turn Reset		Ø40mm Head Pushlock Key Reset	
Contacts	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
<i>Operator Only</i>	<i>HW1B-V4R-EMO-2</i> *	<i>HW4B-V4R-EMO-2</i> *	<i>HW1B-X4R</i> *	<i>HW4B-X4R</i> *
1NO	HW1B-V4F10-R-EMO-2*	HW4B-V4F10-R-EMO-2*	HW1B-X4F10-R*	HW4B-X4F10-R*
1NC	HW1B-V4F01-R-EMO-2*	HW4B-V4F01-R-EMO-2*	HW1B-X4F01-R*	HW4B-X4F01-R*
1NO-1NC	HW1B-V4F11-R-EMO-2*	HW4B-V4F11-R-EMO-2*	HW1B-X4F11-R*	HW4B-X4F11-R*
2NO	HW1B-V4F20-R-EMO-2*	HW4B-V4F20-R-EMO-2*	HW1B-X4F20-R*	HW4B-X4F20-R*
2NC	HW1B-V4F02-R-EMO-2*	HW4B-V4F02-R-EMO-2*	HW1B-X4F02-R*	HW4B-X4F02-R*



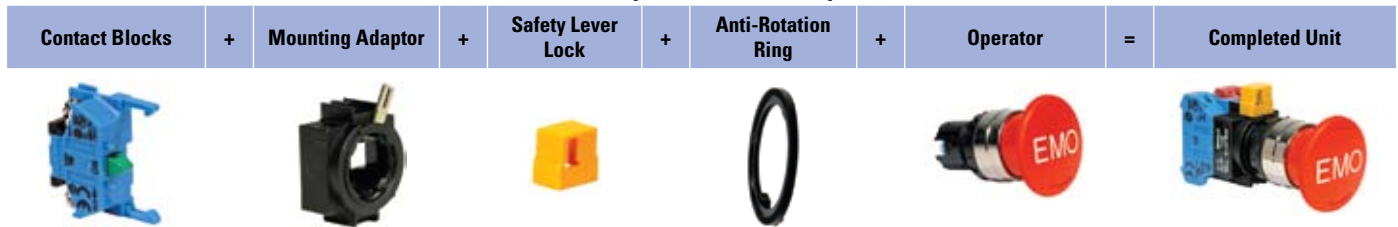
- * Available in Red only.
- † Available in red or yellow. Insert color code in place of Ⓢ (R: Red, Y: Yellow).
- For accessories, see page 549.
- For dimensions, see page 551.
- For nameplates and shrouds, see page 550.
- For contact assembly part numbers, see page 550.
- All HW series E-stops comply with EN418, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.
- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- Operator only models include operator and button.
- Additional contact configurations available (up to 6 total contacts).

	ø60mm Head Pushlock Turn Reset
Contacts	Plastic Bezel
<i>Operator Only</i>	<i>HW1B-V5R</i> *
1NO	HW1B-V5F10-R*
1NC	HW1B-V5F01-R*
1NO-1NC	HW1B-V5F11-R*
2NO	HW1B-V5F20-R*
2NC	HW1B-V5F02-R*

Part Number Structure



Non-illuminated E-Stop Pushbuttons (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

1. Used to mount contact blocks to operator.
2. IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

Operators

Style	Plastic		Metal
ø29mm Head Pushlock Turn Reset 	red	HW1B-V3R	HW4B-V3R
	yellow	HW1B-V3Y	HW4B-V3Y
ø40mm Head Pushlock Turn Reset 	red	HW1B-V4R	HW4B-V4R
	yellow	HW1B-V4Y	HW4B-V4Y
ø40mm Head EMO Pushlock Turn Reset* 		HW1B-V4R-EMO-2	HW4B-V4R-EMO-2
ø40mm Head Pushlock Key Reset* 		HW1B-X4R	HW4B-X4R
ø60mm Head Pushlock Turn Reset* 		HW1B-V5R	—

1. *Available in red only.
2. All E-Stop buttons are not removable from the operator.

Push Pull & Unibody E-Stop Pushbuttons (Assembled)



ø40mm Head Push-Pull		
Contacts	Plastic Bezel	Metal Bezel
Operator Only (Red)	HW1B-Y2R	HW4B-Y2R
Operator Only (Yellow)	HW1B-Y2Y	HW4B-Y2Y
1NO	HW1B-Y2F10-①†	HW4B-Y2F10-①†
1NC	HW1B-Y2F01-①†	HW4B-Y2F01-①†
1NO-1NC	HW1B-Y2F11-①†	HW4B-Y2F11-①†
2NC	HW1B-Y2F02-①†	HW4B-Y2F02-①†
2NO	HW1B-Y2F20-①†	HW4B-Y2F20-①†

ø40mm Unibody Pushlock Turn Reset*	
Contacts	Plastic Bezel
1NO-1NC	HW1E-BV4F11-R
2NC	HW1E-BV4F02-R
1NO-2NC	HW1E-BV412R-TK2093-1



Unibody Illuminated E-Stops*		
Contacts	LED	Incandescent
1NO-1NC	HW1E-LV4F11QD-R-③	HW1E-LV4F11Q-R-③
2NC	HW1E-LV4F02QD-R-③	HW1E-LV4F02Q-R-③
2NC (with push-on illumination)	HW1E-TV4F02QD-R-③	HW1E-TV4F11Q-R-③
1NO-1NC (with push-on illumination)	HW1E-TV4F11QD-R-③	HW1E-TV4F02Q-R-③

③ Full Voltage Code

Voltage	Code
6VAC/DC	6V
12VAC/DC	12V
24VAC/DC	24V
120V AC*	120V
240V AC*	240V



*LED only.

Terminal Numbering

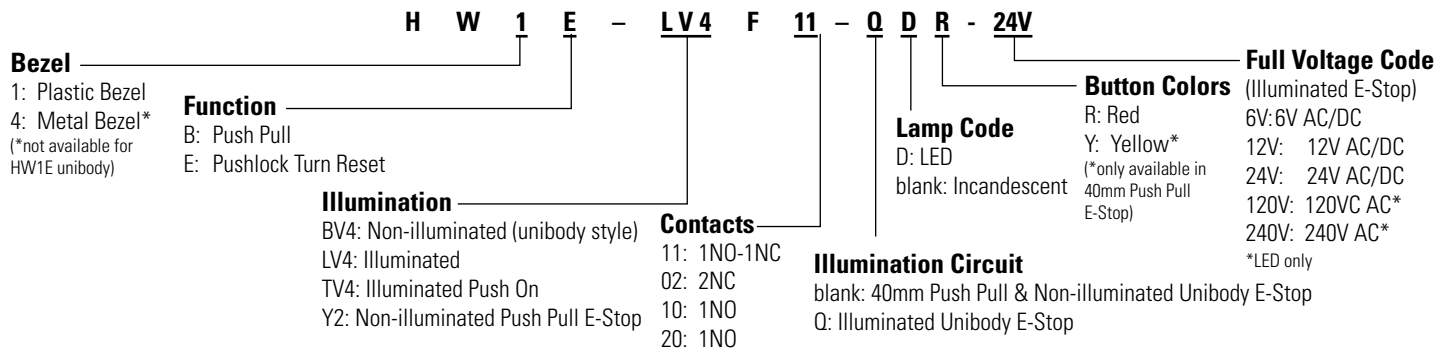
(Unibody only)

Models	Terminal Number
1NO-1NC	NO = 13/14, NC = 11/12
2NC	NC = 11/12, NC = 21/22
HW1E-L HW1E-T	Lamp + = X2, Lamp - = X1

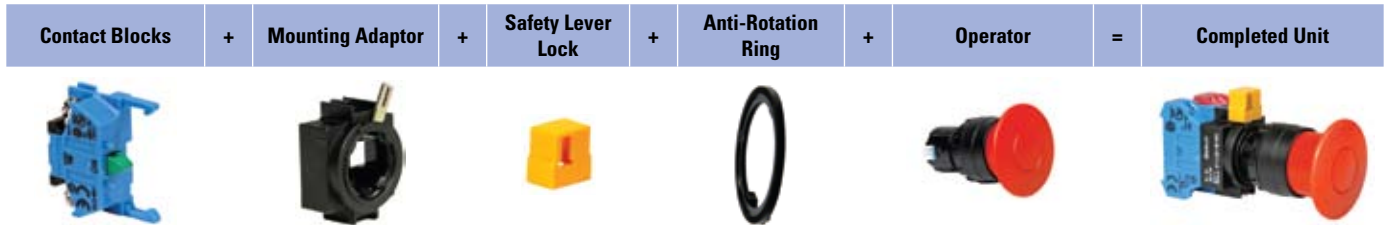


- * Available in Red only.
- † Available in red or yellow. Insert color code in place of ① (R: Red, Y: Yellow).
- In place of ③, specify Full Voltage Code.
- With single unit construction, the positive action contacts are integrated in the body of the switch. This provides an extra degree of safety and reliability for critical emergency stop functions.
- In the illuminated version, the light is independent of the switch action (except push-on LED model).
- For accessories, see page 549.
- For dimensions, see page 551.
- For nameplates and shrouds, see page 550.
- For contact assembly part numbers, see page 550.
- All HW Series E-Stop operators include non-removable color caps.
- All HW series E-Stops comply with EN418, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.
- All HW series E-Stop switches comply with SEMI S2 standards.
- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- Additional contact configurations available (up to 6 total contacts).

Part Number Structure



Illuminated & Non-illuminated E-Stop Pushbuttons (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator.
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Operators

Style		Part Number
ø40mm Head Push-Pull	Plastic	HW1B-Y2R
	Metal	HW4B-Y2R
	Plastic	HW1B-Y2Y
	Metal	HW4B-Y2Y



All E-Stop Buttons are not removable from the operator.



- There are no replacement parts for the HW1E unibody E-Stop.
- For illuminated unibody E-Stop, see page 550 for replacement lens.

E-Stop Stations



	29mm Pushlock Turn Reset		40mm Pushlock Turn Reset	
Contacts	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
1NO-1NC	FB1W-HW1B-V311R	FB1W-HW4B-V311R	FB1W-HW1B-V411R	FB1W-HW4B-V411R
2NC	FB1W-HW1B-V302R	FB1W-HW4B-V302R	FB1W-HW1B-V402R	FB1W-HW4B-V402R



	40mm Push-Pull Reset		40mm Pushlock Key Reset	
Contacts	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
1NO-1NC	FB1W-HW1B-Y211R	FB1W-HW4B-Y211R	FB1W-HW1B-X411R	FB1W-HW4B-X411R
2NC	FB1W-HW1B-Y202R	FB1W-HW4B-Y202R	FB1W-HW1B-X402R	FB1W-HW4B-X402R



	40mm EMO Pushlock Turn Reset	
Contacts	Plastic Bezel	Metal Bezel
1NO-1NC	FB1W-HW1B-V411R-EMO-2	FB1W-HW4B-V411R-EMO-2
2NC	FB1W-HW1B-V402R-EMO-2	FB1W-HW4B-V402R-EMO-2



1. Maximum of two contact blocks.
2. Box is supplied with yellow top and black bottom only.

Jumbo Dome Pilot Lights (Assembled)



Plastic Bezel

Jumbo Dome	LED	Operator Only	HW1P-5Q0
		Full Voltage 24V AC/DC	HW1P-5Q4-Ⓢ
	Incandescent	Operator Only	HW1P-5Q7*
		Full Voltage 24V AC/DC	HW1P-5Q7-Ⓢ



- 1. In place of Ⓢ, specify the Lens/LED Color Code.
- 2. *Incandescent operator comes with bulb.
- 3. Available with spring-up terminals and 24V only.
- 4. For nameplates and accessories, see page 546 and 549.
- 5. For dimensions, see page 551.

Ⓢ Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y



Actual Size



Jumbo Dome Replacement Parts

Description	Item	Part Number
Lens		Polycarbonate Lens HW1A-P5Ⓢ
LED Diffusing Lens*		
LED Lamps		LED Lamp LSTDB-2Ⓢ



- 1. In place of Ⓢ, specify the Lens/LED Color Code.
- 2. *Diffusing lens for LED models only.

Lamp Ratings

	Part Number	Operating Voltage	Rated Current	Power Consumption	Lamp Ratings
LED	LSTDB-2	24V AC/DC ±10%	15mA	0.36W	—
Incandescent	LSB-2		150mA	3.6W	24V, 0.15A



Pilot Lights (Assembled)



		Round Flush		Dome	
		Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Operator Only		HW1P-1FQ0-②	HW4P-1FQ0-②	HW1P-2FQ0-②	HW4P-2FQ0-②
Full Voltage		HW1P-1FQ④-②-③	HW4P-1FQ④-②-③	HW1P-2FQ④-②-③	HW4P-2FQ④-②-③
Transformer	120V AC	HW1P-1FH2④-②	HW4P-1FH2④-②	HW1P-2FH2④-②	HW4P-2FH2④-②
	240V AC	HW1P-1FM4④-②	HW4P-1FM4④-②	HW1P-2FM4④-②	HW4P-2FM4④-②
	480V AC	HW1P-1FT8④-②	HW4P-1FT8④-②	HW1P-2FT8④-②	HW4P-2FT8④-②
DC-DC Converter*	110V DC	HW1P-1D2D-②	—	HW1P-2D2D-②	—



		Square Flush
		Plastic Bezel
Operator Only		HW2P-1FQ0-②
Full Voltage		HW2P-1FQ④-②-③
Transformer	120V AC	HW2P-1FH2④-②
	240V AC	HW2P-1FM4④-②
	480V AC	HW2P-1FT8④-②
DC-DC Converter*	110V DC	HW2P-1D2D-②

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Code

Voltage	Code
6VAC/DC	6V
12VAC/DC	12V
24VAC/DC	24V
120V AC (LED only)	120V
240V AC (LED only)	240V

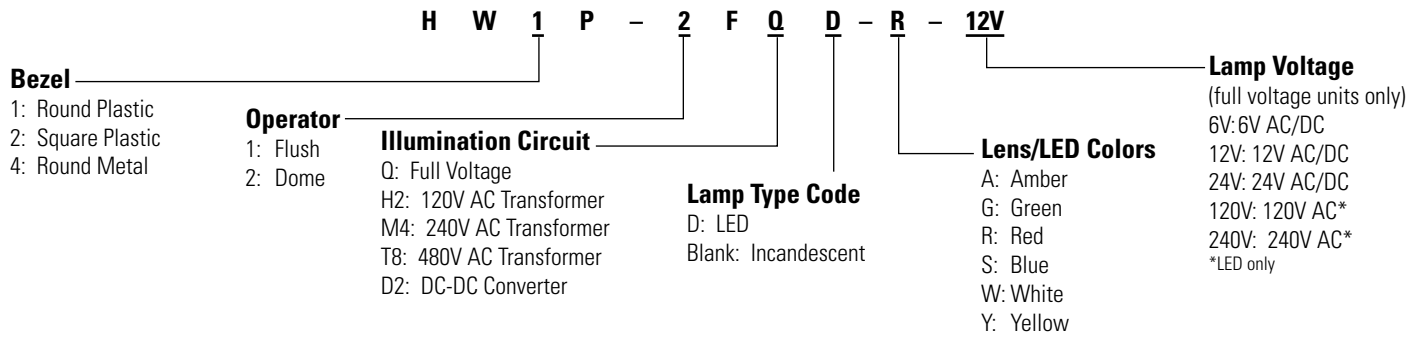
④ Lamp Type Code

Lamp	Code
Incandescent	Blank
LED	D



1. In place of ②, specify the Lens/LED Color Code from table below.
2. In place of ③ specify the Full Voltage Code from table below.
3. In place of ④ specify Lamp Type Code from table below.
4. *DC-DC converter voltage input from 90-140V DC, comes with spring-up terminals only.
5. DC-DC converter models with LED lamps only.
6. For nameplates and accessories, see page 546 and 549.
7. For dimensions, see page 551.
8. **Pilot lights do not come with anti-rotation ring.**
9. Operator models come with operator and lens.
10. **Yellow pilot light comes with white LED.**

Part Number Structure



Pilot Lights (Replacement Parts)



Transformer Units

Style	Voltage	Part Number
	120V AC	HW-FH20 HW-MH20*
	240V AC	HW-FM40 HW-MM40*
	480V AC	HW-FT80 HW-RT80*
	110V DC**	HW-RD0*

1. *With spring-up terminals - to use spring-up terminal type, must use transformer type operator designed for spring-up transformer.
2. ** DC-DC converter voltage input from 90-140V DC.

Lamps

Type	Voltage	Part Number
	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24

1. In place of ②, specify the LED Color Code.
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

② LED Color Code

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	White	W
Red	R		

For yellow lens use white LED.

Operators

Style	Type	Plastic Bezel	Metal Bezel
	Full Voltage	Standard	HW1P-1FQ0
		Spring-up Terminals	HW1P-1Q0
	Transformer	Standard	HW1P-10
		Spring-up Terminals	HW1P-100
	Full Voltage	Standard	HW1P-2FQ0
		Spring-up Terminals	HW1P-2Q0
	Transformer	Standard	HW1P-20
		Spring-up Terminals	HW1P-200
	Full Voltage	Standard	HW2P-1FQ0
		Spring-up Terminals	HW2P-1Q0
	Transformer	Standard	HW2P-10
		Spring-up Terminals	HW2P-100

1. Transformer type requires separate transformer & lamp. Must select correct transformer bases on standard or spring up terminal type. Use 6V lamps or LEDs.
2. Full voltage type only requires lamp.

Lenses

Style	Part Number
	HW1A-P1-③
	HW1A-P2-③
	HW2A-P1-③

In place of ③, specify the Lens Color Code.

③ Lens Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

For yellow lens use white LED.

Illuminated Round Pushbuttons (Assembled)



Illuminated Full Voltage Pushbuttons



	Contacts	Flush		Extended		Extended w/ Full Shroud	
		Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary	Operator Only	HW1L-M1-②	HW4L-M1-②	HW1L-M2-②	HW4L-M2-②	HW1L-MF2-②	HW4L-MF2-②
	1NO	HW1L-M1F10Q④-②-③	HW4L-M1F10Q④-②-③	HW1L-M2F10Q④-②-③	HW4L-M2F10Q④-②-③	HW1L-MF2F10Q④-②-③	HW4L-MF2F10Q④-②-③
	1NC	HW1L-M1F01Q④-②-③	HW4L-M1F01Q④-②-③	HW1L-M2F01Q④-②-③	HW4L-M2F01Q④-②-③	HW1L-MF2F01Q④-②-③	HW4L-MF2F01Q④-②-③
	1NO-1NC	HW1L-M1F11Q④-②-③	HW4L-M1F11Q④-②-③	HW1L-M2F11Q④-②-③	HW4L-M2F11Q④-②-③	HW1L-MF2F11Q④-②-③	HW4L-MF2F11Q④-②-③
	2NO	HW1L-M1F20Q④-②-③	HW4L-M1F20Q④-②-③	HW1L-M2F20Q④-②-③	HW4L-M2F20Q④-②-③	HW1L-MF2F20Q④-②-③	HW4L-MF2F20Q④-②-③
Maintained	Operator Only	HW1L-A1-②	HW4L-A1-②	HW1L-A2-②	HW4L-A2-②	HW1L-AF2-②	HW4L-AF2-②
	1NO	HW1L-A1F10Q④-②-③	HW4L-A1F10Q④-②-③	HW1L-A2F10Q④-②-③	HW4L-A2F10Q④-②-③	HW1L-AF2F10Q④-②-③	HW4L-AF2F10Q④-②-③
	1NC	HW1L-A1F01Q④-②-③	HW4L-A1F01Q④-②-③	HW1L-A2F01Q④-②-③	HW4L-A2F01Q④-②-③	HW1L-AF2F01Q④-②-③	HW4L-AF2F01Q④-②-③
	1NO-1NC	HW1L-A1F11Q④-②-③	HW4L-A1F11Q④-②-③	HW1L-A2F11Q④-②-③	HW4L-A2F11Q④-②-③	HW1L-AF2F11Q④-②-③	HW4L-AF2F11Q④-②-③
	2NO	HW1L-A1F20Q④-②-③	HW4L-A1F20Q④-②-③	HW1L-A2F20Q④-②-③	HW4L-A2F20Q④-②-③	HW1L-AF2F20Q④-②-③	HW4L-AF2F20Q④-②-③

Illuminated Transformer Pushbuttons



	Contacts	Flush		Extended		Extended w/ Full Shroud	
		Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary	Operator Only 1NO-1NC 2NO	HW1L-M1-②	HW4L-M1-②	HW1L-M2-②	HW4L-M2-②	HW1L-MF2-②	HW4L-MF2-②
		HW1L-M1F11③④-②	HW4L-M1F11③④-②	HW1L-M2F11③④-②	HW4L-M2F11③④-②	HW1L-MF2F11③④-②	HW4L-MF2F11③④-②
		HW1L-M1F20③④-②	HW4L-M1F20③④-②	HW1L-M2F20③④-②	HW4L-M2F20③④-②	HW1L-MF2F20③④-②	HW4L-MF2F20③④-②
	Maintained	Operator Only 1NO-1NC 2NO	HW1L-A1-②	HW4L-A1-②	HW1L-A2-②	HW4L-A2-②	HW1L-AF2-②
HW1L-A1F11③④-②			HW4L-A1F11③④-②	HW1L-A2F11③④-②	HW4L-A2F11③④-②	HW1L-AF2F11③④-②	HW4L-AF2F11③④-②
HW1L-A1F20③④-②			HW4L-A1F20③④-②	HW1L-A2F20③④-②	HW4L-A2F20③④-②	HW1L-AF2F20③④-②	HW4L-AF2F20③④-②



- In place of ②, specify Lens/LED Color Code from table.
- In place of ③ specify Voltage Code from table.
- In place of ④ specify Lamp Code from table.
- Light independent of switch position.
- For replacement part numbers, see page 517.
- For nameplates and accessories, see page 546 and 549.
- For dimensions, see page 551.
- For contact assembly part numbers, see page 550.
- Full voltage and transformer models use the same operator.
- Additional contact configurations available (up to 6 total contacts).
- Yellow pushbutton comes with white LED.**

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y



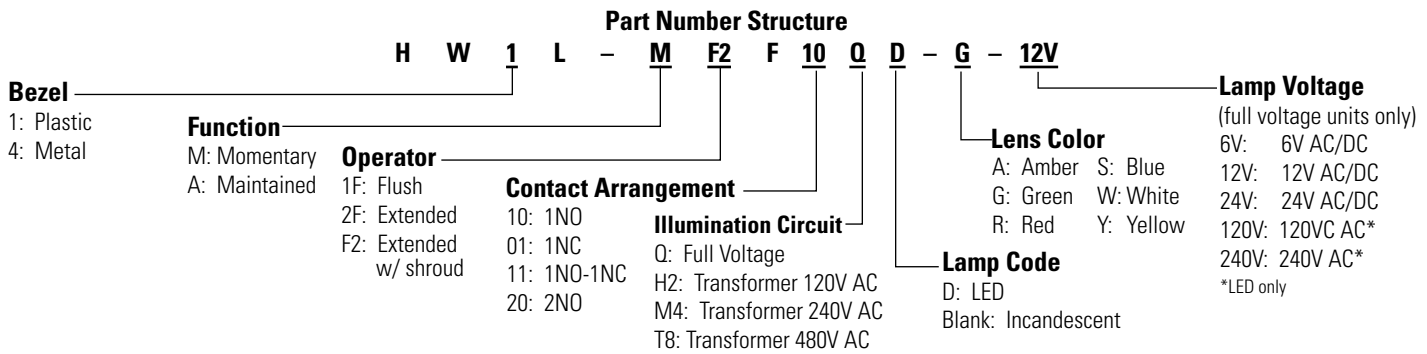
Yellow LED not available. Use white LED for yellow lens.

③ Voltage Code

Full Voltage Models		Transformer Models	
Voltage	Code	Voltage	Code
6V AC/DC	6V	120V AC	H2
12V AC/DC	12V	240V AC	M4
24V AC/DC	24V	480V AC	T8
120V AC (LED only)	120V		
240V AC (LED only)	240V		

④ Lamp Code

Lamp	Code
Incandescent	Blank
LED	D



Illuminated Round Pushbuttons (Replacement Parts)

Transformer*	+	Contact Blocks	+	Lead Holder	+	Mounting Adaptor	+	Safety Lever Lock	+	Lamp	+	Anti-Rotation Ring	+	Operator	+	Lens	=	Completed Unit



*Transformer not needed with full voltage models.

Lamp Circuit Components

Style	Description	Terminals	Part Number
Lead Holder	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.		HW-LH3
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	Fingersafe	HW-DA1FB
		Exposed	HW-DA1B
		Spring Up	HW-GA1
Full Voltage Adaptor	For use with even number of contacts.	Fingersafe	TW-DA1FB
		Exposed	TW-DA1B
Transformer Unit (6V secondary voltage)	120VAC	Fingersafe	TW-F126B
	240VAC		TW-F246B
	480VAC		TW-F486B
	120V	Spring Up	HW-T126
	240V		HW-T246
	480V		HW-L486
	120V	Exposed	TW-T126B
	240V		TW-T246B
	480V		TW-T486B
DC-DC Converter	110VDC		HW-L16D



HW-GA1 "Dummy Block with full voltage adaptor" does not require the use of HW-LH3.

Operators

Style			Plastic Bezel	Metal Bezel
Round Flush/Extended		Momentary	HW1L-M0	HW4L-M0
		Maintained	HW1L-A0	HW4L-A0
Extended with Full Shroud		Momentary	HW1L-MF0	HW4L-MF0
		Maintained	HW1L-AF0	HW4L-AF0

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
	Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)



- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CBL



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Lenses

Style	Part Number
Round Flush	HW1A-L1-②
Round Extended	HW1A-L2-②



In place of ②, specify the Lens Color Code from previous page.

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Lamps

Type	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



- In place of ②, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.

Illuminated Mushroom & Square Pushbuttons (Assembled)



		40mm Mushroom Head			Square Flush
		Contacts	Plastic Bezel	Metal Bezel	Plastic Bezel
Full Voltage	Momentary	Operator Only†	HW1L-M4-②	HW4L-M4-②	HW2L-M1-②
		1NO	HW1L-M4F10Q④-②-③	HW4L-M4F10Q④-②-③	HW2L-M1F10Q④-②-③
		1NC	HW1L-M4F01Q④-②-③	HW4L-M4F01Q④-②-③	HW2L-M1F01Q④-②-③
		1NO-1NC	HW1L-M4F11Q④-②-③	HW4L-M4F11Q④-②-③	HW2L-M1F11Q④-②-③
		2NO	HW1L-M4F20Q④-②-③	HW4L-M4F20Q④-②-③	HW2L-M1F20Q④-②-③
	Maintained	Operator Only†	HW1L-A4-②	HW4L-A4-②	HW2L-A1-②
		1NO	HW1L-A4F10Q④-②-③	HW4L-A4F10Q④-②-③	HW2L-A1F10Q④-②-③
		1NC	HW1L-A4F01Q④-②-③	HW4L-A4F01Q④-②-③	HW2L-A1F01Q④-②-③
		1NO-1NC	HW1L-A4F11Q④-②-③	HW4L-A4F11Q④-②-③	HW2L-A1F11Q④-②-③
		2NO	HW1L-A4F20Q④-②-③	HW4L-A4F20Q④-②-③	HW2L-A1F20Q④-②-③
Transformer	Momentary	1NO-1NC	HW1L-M4F11③④-②	HW4L-M4F11③④-②	HW2L-M1F11③④-②
		2NO	HW1L-M4F20③④-②	HW4L-M4F20③④-②	HW2L-M1F20③④-②
	Maintained	1NO-1NC	HW1L-A4F11③④-②	HW4L-A4F11③④-②	HW2L-A1F11③④-②
		2NO	HW1L-A4F20③④-②	HW4L-A4F20③④-②	HW2L-A1F20③④-②



- [†] Full voltage and transformer units use the same operator.
- In place of ②, specify the Lens/LED Color Code from table.
- In place of ③ specify the Voltage Code from table.
- In place of ④ specify Lamp Type Code from table.
- Light independent of switch position
- For nameplates and accessories, see page 546 and 549.
- For dimensions, see page 551.
- For contact assembly part numbers, see page 550.
- Additional contact configurations available (up to 6 total contacts).
- 10. Yellow pushbutton comes with white LED.**

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y*



- *40mm mushroom lenses not available in yellow.
- Yellow LED not available. Use white LED for yellow lens.

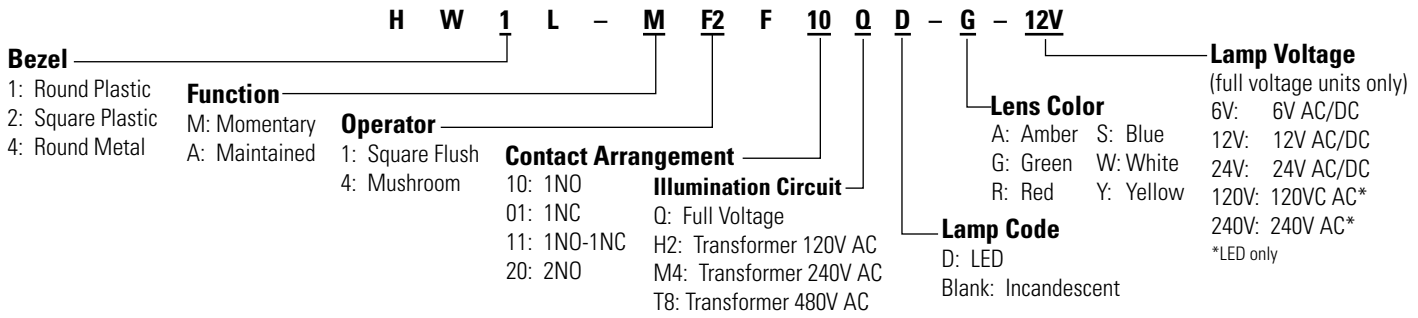
③ Voltage Code

Full Voltage Models		Transformer Models	
Voltage	Code	Voltage	Code
6V AC/DC	6V	120V AC	H2
12V AC/DC	12V	240V AC	M4
24V AC/DC	24V	480V AC	T8
120V AC (LED only)	120V		
240V AC (LED only)	240V		

④ Lamp Code

Lamp	Code
Incandescent	Blank
LED	D

Part Number Structure



Illuminated Mushroom & Square Pushbuttons (Replacement Parts)

Transformer*	+	Contact Blocks	+	Lead Holder	+	Adaptor†	+	Safety Lever Lock	+	Lamp	+	Anti-Rotation Ring	+	Operator	+	Lens	=	Completed Unit



*Transformer not needed with full voltage models.

Lamp Circuit Components

Style	Description	Terminals	Part Number
	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.		HW-LH3
	For use with odd number of contacts.	Fingersafe	HW-DA1FB
		Exposed	HW-DA1B
		Spring Up	HW-GA1
	For use with even number of contacts.	Fingersafe	TW-DA1FB
		Exposed	TW-DA1B
	120VAC	Fingersafe	TW-F126B
	240VAC		TW-F246B
	480VAC		TW-F486B
	120V	Spring Up	HW-T126
	240V		HW-T246
	480V		HW-L486
	120V	Exposed	TW-T126B
	240V		TW-T246B
	480V		TW-T486B
DC-DC Converter	110VDC		HW-L16D



HW-GA1 "Dummy Block with full voltage adaptor" does not require the use of HW-LH3.

Operators

Style			Plastic Bezel	Metal Bezel
ø40mm Mushroom		Momentary	HW1L-MOL	HW4L-MOL
		Maintained	HW1L-AOL	HW4L-AOL
Square		Momentary	HW2L-MO	
		Maintained	HW2L-AO	

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
	Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)



- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CBL



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Lenses

Style	Part Number
ø40mm Mushroom Lens	ALW4BLU-②*
Square Flush	HW2A-L1-②



- In place of ②, specify the Lens Color Code.
- *Mushroom lens not available in yellow.

Lamps

Type	Voltage	Part Number
	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



- In place of ②, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.

Selector Switches 2-Position (Assembled)



2-Position Selector Switches

Contact	Mounting	Operator Position		Handle	Maintained	Spring Return from Right
						
Operator Only				Knob Lever	HWⓈS-2T HWⓈS-2L	HWⓈS-21T HWⓈS-21L
1NO	1	0	X	Knob Lever	HWⓈS-2TF10 HWⓈS-2LF10	HWⓈS-21TF10 HWⓈS-21LF10
1NO-1NC	1	0	X	Knob Lever	HWⓈS-2TF11	HWⓈS-21TF11
	2	X	0		HWⓈS-2LF11	HWⓈS-21LF11
2NO	1	0	X	Knob Lever	HWⓈS-2TF20	HWⓈS-21TF20
	2	0	X		HWⓈS-2LF20	HWⓈS-21LF20
2NO-2NC	1	X	0	Knob Lever	HWⓈS-2TF22 HWⓈS-2LF22	HWⓈS-21TF22 HWⓈS-21LF22
	2	0	X			
	3	X	0			
	4	0	X			

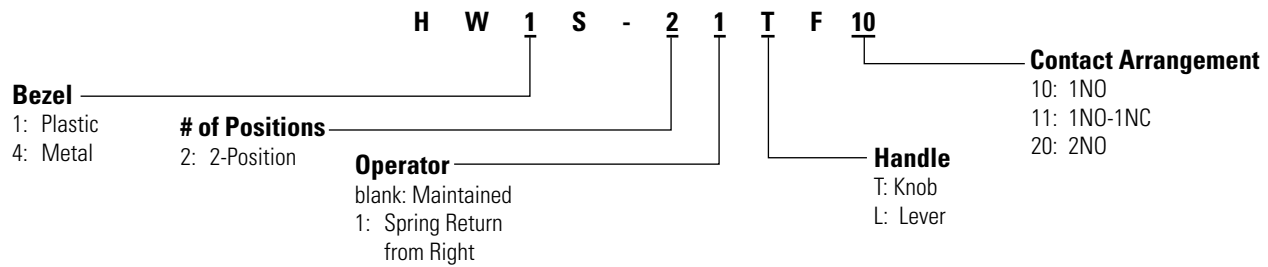


1. In place of Ⓢ enter 1 for plastic bezel or 4 for metal bezel.
2. For nameplates, see page 546.
3. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
4. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
5. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
6. Standard color for knob and lever is black.
7. Optional colors available for lever type. Must order in components. See next page for part numbers.
8. Additional contact configurations available (up to 6 total contacts).
9. For Truth Tables see page 558.

Ⓢ Bezel Type

Type	Code
Plastic	1
Metal	4

Part Number Structure



Selector Switches 2-Position (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Operators

Style	Description	Handle	Plastic Bezel	Metal Bezel
	Maintained	Knob	HW1S-2T	HW4S-2T
		Lever	HW1S-2	HW4S-2
	Spring Return from Right	Knob	HW1S-21T	HW4S-21T
		Lever	HW1S-21	HW4S-21



- Knob operator comes with black handle.
- To order lever type, lever and inserts must be ordered separately, along with lever operator. See part numbers below.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Levers & Inserts

Style	Part Number
	ASWHHL-①
	TW-HC1-①



Standard lever color is black. Standard insert color is white.

① Handle/Insert Color Code

Color	Code
Black*	B
Blue	S
Green	G
Red	R
Yellow	Y
White [†]	W



- * Lever color inserts not available in black.
- [†]Lever not available in white.

Selector Switches 3-Position (Assembled)



3-Position Selector Switches

Contact	Mounting	Operator Position			Handle	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way
		L	C	R					
<i>Operator Only</i>					<i>Knob Lever</i>	<i>HW⊙S-3T* HW⊙S-3L</i>	<i>HW⊙S-31T HW⊙S-31L</i>	<i>HW⊙S-32T HW⊙S-32L</i>	<i>HW⊙S-33T HW⊙S-33L</i>
1NO-1NC	1	0	X	X	Knob Lever	HW⊙S-3TF11 HW⊙S-3LF11	HW⊙S-31TF11 HW⊙S-31LF11	HW⊙S-32TF11 HW⊙S-32LF11	HW⊙S-33TF11 HW⊙S-33LF11
	2	0	0	X					
2NO	1	X	0	0	Knob Lever	HW⊙S-3TF20 HW⊙S-3LF20	HW⊙S-31TF20 HW⊙S-31LF20	HW⊙S-32TF20 HW⊙S-32LF20	HW⊙S-33TF20 HW⊙S-33LF20
	2	0	0	X					
2NC	1	0	X	X	Knob Lever	HW⊙S-3TF02 HW⊙S-3LF02	HW⊙S-31TF02 HW⊙S-31LF02	HW⊙S-32TF02 HW⊙S-32LF02	HW⊙S-33TF02 HW⊙S-33LF02
	2	X	X	0					
2NO-1NC	1	X	0	0	Knob	HW⊙S-3JTF21N1	—	—	—
	2	0	0	X					
	3	0	X	0					
2NO-2NC	1	X	0	0	Knob	HW⊙S-3TF22	HW⊙S-31TF22	HW⊙S-32TF22	HW⊙S-33TF22
	2	0	0	X					
	3	0	X	X					
	4	X	X	0					
2NO-2NC	1	0	0	X	Knob	HW⊙S-3STF22N9	—	—	—
	2	X	0	0					
	3	X	X	0					
	4	0	0	X					
4NO	1	X	0	0	Knob	HW⊙S-3TF40	HW⊙S-31TF40	HW⊙S-32TF40	HW⊙S-33TF40
	2	0	0	X					
	3	X	0	0					
	4	0	0	X					
4NO	1	X	0	0	Knob	HW⊙S-3STF40N2	—	—	—
	2	0	X	X					
	3	X	0	0					
	4	0	0	X					
4NC	1	0	X	X	Knob	HW⊙S-3TF04	HW⊙S-31TF04	HW⊙S-32TF04	HW⊙S-33TF04
	2	X	X	0					
	3	0	X	X					
	4	X	X	0					

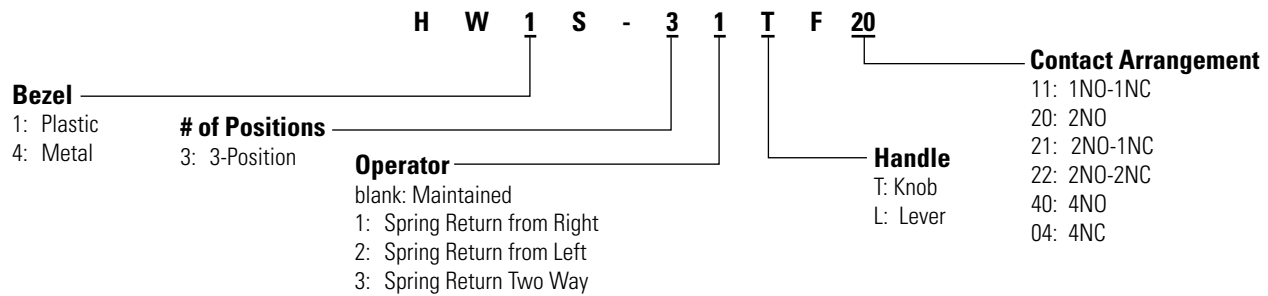
⑤ Bezel Type

Type	Code
Plastic	1
Metal	4

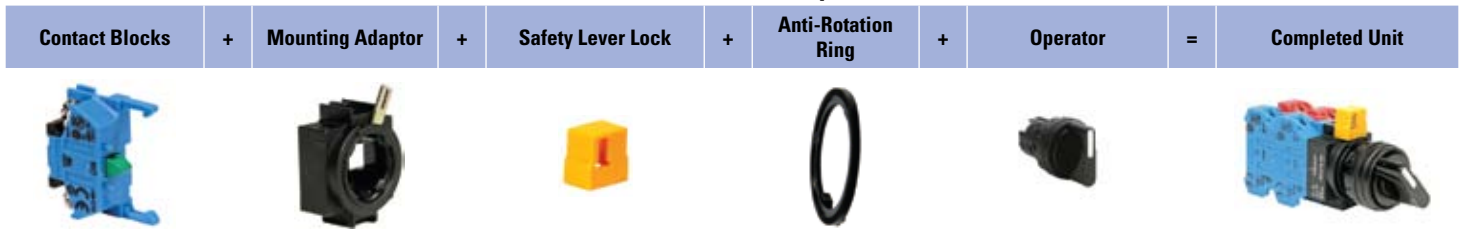


- In place of ⊙ enter 1 for plastic bezel or 4 for metal bezel.
- Knob operator includes black knob/lever operator includes black lever.
- * Three position operator is available with three different cams.
HW⊙S-3T: Maintained (standard cam)
HW⊙S-3ST: Maintained (S cam)
HW⊙S-3JT: Maintained (J cam)
- Operator cams are color coded (white=standard cam, red=S cam, black=J cam).
- For nameplates, see page 546.
- For contact assembly part numbers, see page 550.
- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- Standard color for knob and lever is black.
- Optional colors available for lever type. Must order in components. See next page for part numbers.
- Additional contact configurations available (up to 6 total contacts).
- For Truth Tables see page 558.

Part Number Structure



Selector Switches 3-Position (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

Operators

Style	Description	Handle	Plastic Bezel	Metal Bezel
	Maintained (standard cam)	Knob	HW1S-3T	HW4S-3T
		Lever	HW1S-3	HW4S-3
	Maintained (S cam)	Knob	HW1S-3ST	HW4S-3ST
	Maintained (J cam)	Knob	HW1S-3JT	HW4S-3JT
	Spring Return from Right (standard cam)	Knob	HW1S-31T	HW4S-31T
		Lever	HW1S-31	HW4S-31
	Spring Return from Left (standard cam)	Knob	HW1S-32T	HW4S-32T
		Lever	HW1S-32	HW4S-32
	2-Way Spring Return (standard cam)	Knob	HW1S-33T	HW4S-33T
		Lever	HW1S-33	HW4S-33

1. Knob operator comes with black handle.
2. Three position knob operator is available with three different cams.
3. Operator cams are color coded (white=standard cam, red=S cam, black=J cam).
4. To order lever type, lever and inserts must be ordered separately, along with lever operator. See part numbers below.

Levers & Inserts

Style	Part Number
	ASWHHL-①
	TW-HC1-①

Standard lever color is black. Standard insert color is white.

① Handle/Insert Color Code

Color	Code
Black*	B
Blue	S
Green	G
Red	R
Yellow	Y
White ¹	W

1. * Lever color inserts not available in black.
2. ¹Lever not available in white.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

1. Used to mount contact blocks to operator (first pair only).
2. IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Selector Switches 4- & 5-Position (Assembled)



4-Position Selector Switches

Contact	Mounting	Operator Position				Handle	Maintained
		1	2	3	4		
<i>Operator Only</i>						<i>Knob Lever</i>	HWⓈ S-4T HWⓈ S-4L
1NO- 2NC	1	X	0	0	0	Knob Lever	HWⓈ S-4TF12 HWⓈ S-4LF12
	2	0	X	0	0		
	3	0	0	X	0		
	4	0	0	0	0		
1NO- 3NC	1	0	X	X	X	Knob Lever	HWⓈ S-4TF13N6 HWⓈ S-4LF13N6
	2	0	X	0	0		
	3	0	0	X	0		
	4	0	0	0	X		
2NO- 2NC	1	X	0	0	0	Knob Lever	HWⓈ S-4TF22N3 HWⓈ S-4LF22N3
	2	0	X	0	0		
	3	0	0	X	0		
	4	0	0	0	X		

5-Position Selector Switch

Contact	Mounting	Operator Position					Handle	Maintained
		1 	2 	3 	4 	5 		
<i>Operator Only</i>							<i>Knob Lever</i>	<i>HW</i> Ⓢ S-5T <i>HW</i> Ⓢ S-5L
2NO- 2NC	1	X	0	0	0	0	Knob Lever	HWⓈ S-5TF22N3 HWⓈ S-5LF22N3
	2	0	X	0	0	0		
	3	0	0	0	X	0		
	4	0	0	0	0	X		

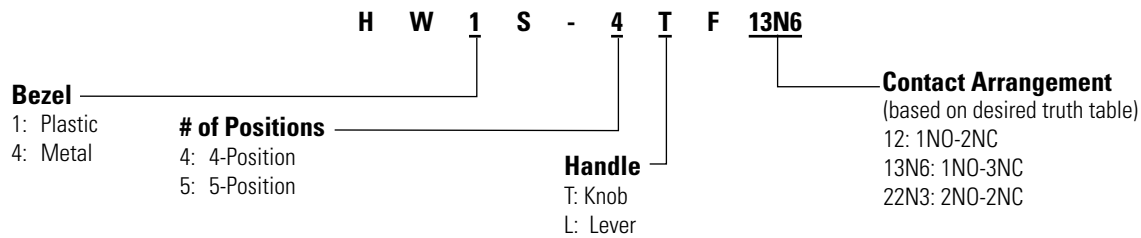


1. In place of Ⓢ enter 1 for plastic bezel or 4 for metal bezel.
2. Knob operator includes black knob/lever operator includes black lever.
3. For nameplates, see page 546.
4. For contact assembly part numbers, see page 550.
5. Five position circuit cannot be made to make five independent contact closures.
6. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
7. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
8. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
9. Standard color for knob and lever is black.
10. Optional colors available for lever type. Must order in components. See next page for part numbers.
11. Additional contact configurations available (up to 6 total contacts).
12. For Truth Tables see page 558.

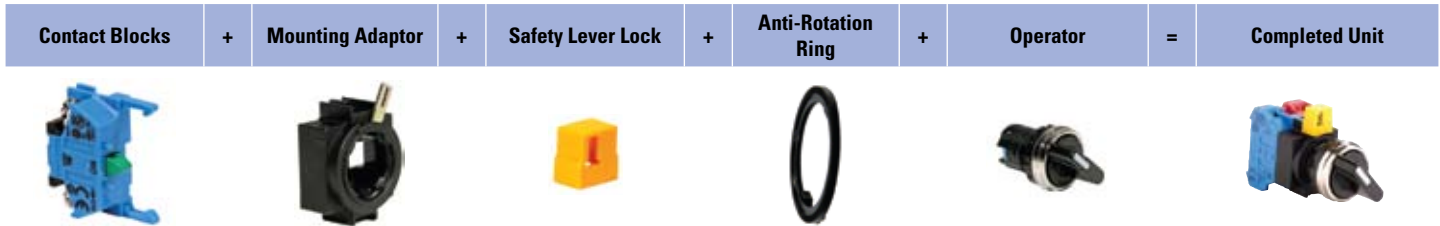
Ⓢ Bezel Type

Type	Code
Plastic	1
Metal	4

Part Number Structure



Selector Switches 4- & 5-Position (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Operators

Style	Position	Description	Handle	Plastic Bezel	Metal Bezel
	4	Maintained	Knob	HW1S-4T	HW4S-4T
			Lever	HW1S-4	HW4S-4
	5	Maintained	Knob	HW1S-5T	HW4S-5T
			Lever	HW1S-5	HW4S-5



- Knob operator comes with black handle.
- To order lever type, lever and inserts must be ordered separately, along with lever operator. See part numbers below.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Levers & Inserts

Style	Part Number
	ASWHHL-①
	TW-HC1-①



Standard lever color is black. Standard insert color is white.

① Handle/Insert Color Code

Color	Code
Black*	B
Blue	S
Green	G
Red	R
Yellow	Y
White†	W



- * Lever color inserts not available in black.
- † Lever not available in white.

Key Switches 2-Position (Assembled)



2-Position Key Switches

Contact	Mounting	Operator Position		Maintained	Spring Return from Right
		L	R		
Operator Only				HWⓈK-2A	HWⓈK-21B
1NO	1	0	X	HWⓈK-2AF10	HWⓈK-21BF10
1NO-1NC	1	0	X	HWⓈK-2AF11	HWⓈK-21BF11
	2	X	0		
2NO	1	0	X	HWⓈK-2AF20	HWⓈK-21BF20
	2	0	X		
2NO-2NC	1	0	X	HWⓈK-2AF22	HWⓈK-21BF22
	2	X	0		
	3	0	X		
	4	X	0		



1. In place of Ⓢ enter 1 for plastic bezel or 4 for metal bezel.
2. Key is removable in all maintained positions. Other key removable options available.
3. Two keys are supplied with all switches.
4. All standard operators are keyed alike.
5. Other key removable options available. See table below
6. For nameplates, see page 546.
7. For contact assembly part numbers, see page 550.
8. Key is retained in "Spring Return" position.
9. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
10. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
11. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
12. Additional contact configurations available (up to 6 total contacts).
13. For Truth Tables see page 558.

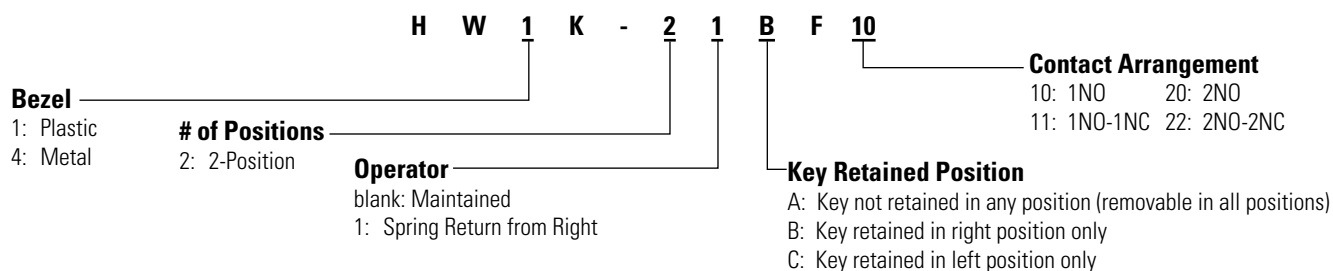
Ⓢ Bezel Type

Type	Code
Plastic	1
Metal	4

Key Removable Option Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only

Part Number Structure



Key Switches 2-Position (Replacement Parts)

Contact Assembly	+	Mounting Adaptor	+	Safety Lever Lock	+	Anti-Rotation Ring	+	Operator	=	Completed Unit

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Operators

Style	Description	Plastic Bezel	Metal Bezel
	Maintained	HW1K-2A	HW4K-2A
	Maintained, key removed left only	HW1K-2B	HW4K-2B
	Spring Return from Right	HW1K-21B	HW4K-21B



- Operator includes two keys.
- All standard operators are keyed alike.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Key Switches 3-Position (Assembled)



3-Position Key Switches

Contact	Mounting	Operator Position			Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two Way
								
Operator Only					HW⊙K-3A*	HW⊙K-31B	HW⊙K-32C	HW⊙K-33D
1NO-1NC	1	0	X	X	HW⊙K-3AF11	HW⊙K-31BF11	HW⊙K-32CF11	HW⊙K-33DF11
	2	0	0	X				
2NO	1	X	0	0	HW⊙K-3AF20	HW⊙K-31BF20	HW⊙K-32CF20	HW⊙K-33DF20
	2	0	0	X				
2NC	1	0	X	X	HW⊙K-3AF02	HW⊙K-31BF02	HW⊙K-32CF02	HW⊙K-33DF02
	2	X	X	0				
2NO-1NC	1	X	0	0	HW⊙K-3JAF21N1	—	—	—
	2	0	0	X				
	3	0	X	0				
2NO-2NC	1	X	0	0	HW⊙K-3AF22	HW⊙K-31BF22	HW⊙K-32CF22	HW⊙K-33DF22
	2	0	0	X				
	3	0	X	X				
	4	X	X	0				
2NO-2NC	1	0	0	X	HW⊙K-3SAF22N9	—	—	—
	2	X	0	0				
	3	X	X	0				
	4	0	0	X				
4NO	1	X	0	0	HW⊙K-3AF40	HW⊙K-31BF40	HW⊙K-32CF40	HW⊙K-33DF40
	2	0	0	X				
	3	X	0	0				
	4	0	0	X				
4NO	1	X	0	0	HW⊙K-3SAF40N2	—	—	—
	2	0	X	X				
	3	X	0	0				
	4	0	0	X				
4NC	1	0	X	X	HW⊙K-3AF04	HW⊙K-31BF04	HW⊙K-32CF04	HW⊙K-33DF04
	2	X	X	0				
	3	0	X	X				
	4	X	X	0				

⑤ Bezel Type

Type	Code
Plastic	1
Metal	4

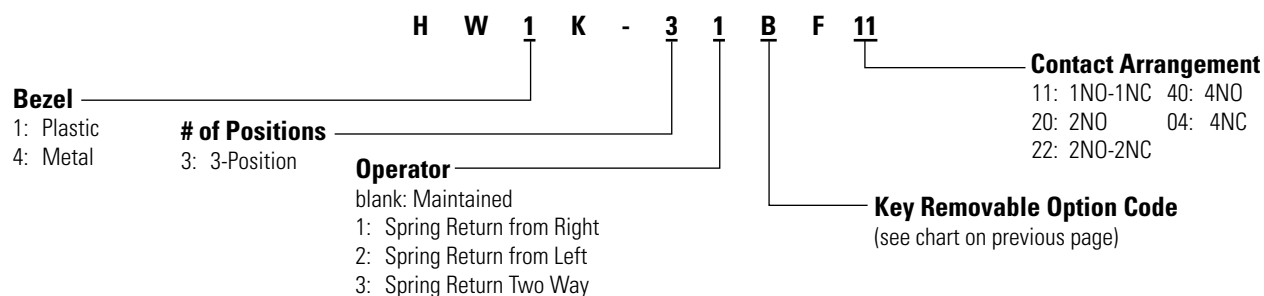


- In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
- Key is removable in all maintained positions. Other key removable options available.
- Two keys are supplied with all switches.
- All standard operators are keyed alike.
- Other key removable options available. See table to the right.
- * Operator is available with three different cams.
HW⊙K-3A: Maintained (standard cam)
HW⊙K-3SA: Maintained (Cam S)
HW⊙K-3JA: Maintained (Cam J)
- For nameplates, see page 546.
- For contact assembly part numbers, see page 550.
- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- Additional contact configurations available (up to 6 total contacts).
- For Truth Tables see page 558.

Key Removable Option Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)

Part Number Structure



Key Switches 3-Position (Replacement Parts)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

1. Used to mount contact blocks to operator (first pair only).
2. IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

Operators

Style	Description	Plastic Bezel	Metal Bezel
	Maintained (standard cam)	HW1K-3A	HW4K-3A
	Maintained (S cam)	HW1K-3SA	HW4K-3SA
	Maintained (J cam)	HW1K-3JA	HW4K-3JA
	Spring Return from Right (standard cam)	HW1K-31B	HW4K-31B
	Spring Return from Left (standard cam)	HW1K-32C	HW4K-32C
	2-Way Spring Return (standard cam)	HW1K-33D	HW4K-33D

1. Operator includes two keys.
2. All standard operators are keyed alike.
3. Other key removable options available. See table on previous page.

Illuminated Selector Switches 2-Position (Assembled)



2-Position Illuminated Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position		Type	Maintained		Spring Return from Right
							
Operator Only					HWⓈF-2②		HWⓈF-21②
1NO-1NC	1 2	O X	X O	Full Voltage	HWⓈF-2F11Q④-②-③		HWⓈF-21F11Q④-②-③
				Transformer	120V	HWⓈF-2F11H2④-②	HWⓈF-21F11H2④-②
					240V	HWⓈF-2F11M4④-②	HWⓈF-21F11M4④-②
					480V	HWⓈF-2F11T8④-②	HWⓈF-21F11T8④-②
2NO	1 2	O O	X X	Full Voltage	HWⓈF-2F20Q④-②-③		HWⓈF-21F20Q④-②-③
				Transformer	120V	HWⓈF-2F20H2④-②	HWⓈF-21F20H2④-②
					240V	HWⓈF-2F20M4④-②	HWⓈF-21F20M4④-②
					480V	HWⓈF-2F20T8④-②	HWⓈF-21F20T8④-②
2NO-2NC	1 2 3 4	O X O X	X O X O	Full Voltage	HWⓈF-2F22Q④-②-③		HWⓈF-21F22Q④-②-③
				Transformer	120V	HWⓈF-2F22H2④-②	HWⓈF-21F22H2④-②
					240V	HWⓈF-2F22M4④-②	HWⓈF-21F22M4④-②
					480V	HWⓈF-2F22T8④-②	HWⓈF-21F22T8④-②



1. In place of ② specify Lens/LED color code.
2. In place of ③ specify Full Voltage code.
3. In place of ④ specify Lamp code.
4. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
5. For nameplates, see page 546.
6. For contact assembly part numbers, see page 550.
7. Light is independent of switch position.
8. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
9. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
10. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- 11. Yellow selector switch comes with white LED.**
12. Additional contact configurations available (up to 6 total contacts).
13. For Truth Tables see page 558.

② Lens/LED Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Code

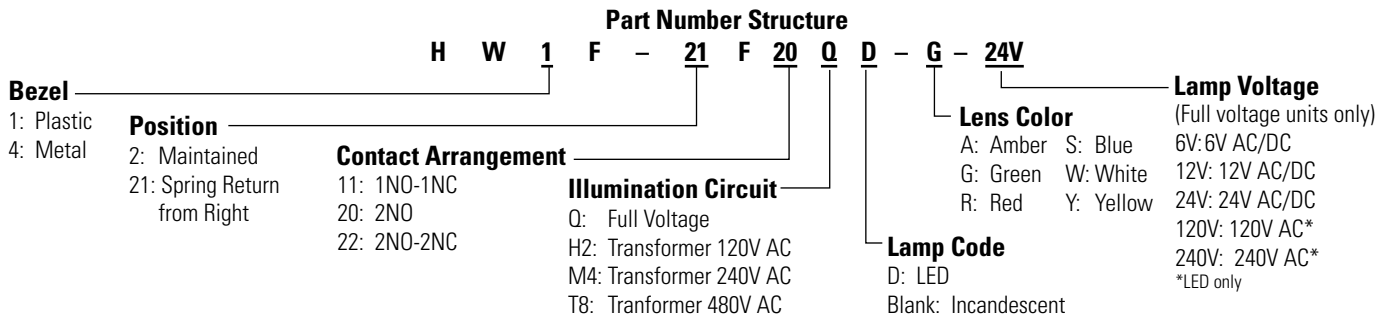
Full Voltage Models	
Voltage	Code
6VAC/DC	6V
12VAC/DC	12V
24VAC/DC	24V
120V AC (LED only)	120V
240V AC (LED only)	240V

④ Lamp Code

Lamp	Code
Incandescent	Blank
LED	D

⑤ Bezel Code

Type	Code
Plastic	1
Metal	4



Illuminated Selector Switches 2-Position (Replacement Parts)

Transformer*	+	Contact Blocks	+	Lead Holder	+	Mounting Adaptor	+	Safety Lever Lock	+	Lamp	+	Anti-Rotation Ring	+	Operator	+	Lens	=	Completed Unit



*Transformer not needed with full voltage models.

Lamp Circuit Components

Style	Description	Terminals	Part Number
Lead Holder 	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.		HW-LH3
Dummy Block with Full Voltage Adaptor 	For use with odd number of contacts.	Fingersafe	HW-DA1FB
		Exposed	HW-DA1B
		Spring Up	HW-GA1
Full Voltage Adaptor 	For use with even number of contacts.	Fingersafe	TW-DA1FB
		Exposed	TW-DA1B
Transformer Unit (6V secondary voltage) 	120VAC 240VAC 480VAC	Fingersafe	TW-F126B
			TW-F246B
			TW-F486B
	120V 240V 480V	Spring Up	HW-T126
			HW-T246
			HW-L486
	120V 240V 480V	Exposed	TW-T126B
			TW-T246B
			TW-T486B
DC-DC Converter	110VDC		HW-L16D



- HW-GA1 "Dummy Block with full voltage adaptor" does not require the use of HW-LH3.
- DC-DC converter features spring-up terminals.
- DC-DC converter applicable voltage range 90-140V DC.

Operators

Appearance	Description	Plastic Bezel	Metal Bezel
	Maintained	HW1F-2	HW4F-2
	Spring return from right	HW1F-21	HW4F-21



Illuminated knobs must be ordered separately.

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
	Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)

Contact Block Mounting Adaptor

Style	Part Number
	HW-CBL



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Illuminated Knob

Appearance	Part Number
	HW9Z-FDY-②



In place of ②, specify the Color Code.

② Lens/LED Color Code

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	White	W
Red	R	Yellow	Y

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Lamps

Type	Voltage	Part Number
	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



- In place of ②, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.
- Use white LED for yellow lens. Yellow LED not available.

Illuminated Selector Switches 3-Position (Assembled)



3-Position Illuminated Selector Switches

Style					Part Number					
Contact	Mounting	Operator Position			Type	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way	
		L 	C 	R 						
Operator Only						HWⓄF-3②	HWⓄF-31②	HWⓄF-32②	HWⓄF-33②	
1NO-1NC	1 2	O O	X O	X X	Full Voltage	HWⓄF-3F11Q④-②-③	HWⓄF-31F11Q④-②-③	HWⓄF-32F11Q④-②-③	HWⓄF-33F11Q④-②-③	
					Transformer	120V	HWⓄF-3F11H2④-②	HWⓄF-31F11H2④-②	HWⓄF-32F11H2④-②	HWⓄF-33F11H2④-②
						240V	HWⓄF-3F11M4④-②	HWⓄF-31F11M4④-②	HWⓄF-32F11M4④-②	HWⓄF-33F11M4④-②
						480V	HWⓄF-3F11T8④-②	HWⓄF-31F11T8④-②	HWⓄF-32F11T8④-②	HWⓄF-33F11T8④-②
2NO	1 2	O O	X O	O X	Full Voltage	HWⓄF-3F20Q④-②-③	HWⓄF-31F20Q④-②-③	HWⓄF-32F20Q④-②-③	HWⓄF-33F20Q④-②-③	
					Transformer	120V	HWⓄF-3F20H2④-②	HWⓄF-31F20H2④-②	HWⓄF-32F20H2④-②	HWⓄF-33F20H2④-②
						240V	HWⓄF-3F20M4④-②	HWⓄF-31F20M4④-②	HWⓄF-32F20M4④-②	HWⓄF-33F20M4④-②
						480V	HWⓄF-3F20T8④-②	HWⓄF-31F20T8④-②	HWⓄF-32F20T8④-②	HWⓄF-33F20T8④-②
2NC	1 2	O X	X X	X O	Full Voltage	HWⓄF-3F02Q④-②-③	HWⓄF-31F02Q④-②-③	HWⓄF-32F02Q④-②-③	HWⓄF-33F02Q④-②-③	
					Transformer	120V	HWⓄF-3F02H2④-②	HWⓄF-31F02H2④-②	HWⓄF-32F02H2④-②	HWⓄF-33F02H2④-②
						240V	HWⓄF-3F02M4④-②	HWⓄF-31F02M4④-②	HWⓄF-32F02M4④-②	HWⓄF-33F02M4④-②
						480V	HWⓄF-3F02T8④-②	HWⓄF-31F02T8④-②	HWⓄF-32F02T8④-②	HWⓄF-33F02T8④-②
2NO-2NC	1 2 3 4	X O O X	O O X X	O X X O	Full Voltage	HWⓄF-3F22Q④-②-③	HWⓄF-31F22Q④-②-③	HWⓄF-32F22Q④-②-③	HWⓄF-33F22Q④-②-③	
					Transformer	120V	HWⓄF-3F22H2④-②	HWⓄF-31F22H2④-②	HWⓄF-32F22H2④-②	HWⓄF-33F22H2④-②
						240V	HWⓄF-3F22M4④-②	HWⓄF-31F22M4④-②	HWⓄF-32F22M4④-②	HWⓄF-33F22M4④-②
						480V	HWⓄF-3F22T8④-②	HWⓄF-31F22T8④-②	HWⓄF-32F22T8④-②	HWⓄF-33F22T8④-②
4NO	1 2 3 4	X O X O	O O O O	O X O X	Full Voltage	HWⓄF-3F40Q④-②-③	HWⓄF-31F40Q④-②-③	HWⓄF-32F40Q④-②-③	HWⓄF-33F40Q④-②-③	
					Transformer	120V	HWⓄF-3F40H2④-②	HWⓄF-31F40H2④-②	HWⓄF-32F40H2④-②	HWⓄF-33F40H2④-②
						240V	HWⓄF-3F40M4④-②	HWⓄF-31F40M4④-②	HWⓄF-32F40M4④-②	HWⓄF-33F40M4④-②
						480V	HWⓄF-3F40T8④-②	HWⓄF-31F40T8④-②	HWⓄF-32F40T8④-②	HWⓄF-33F40T8④-②
4NC	1 2 3 4	O X O X	X X X X	X O X O	Full Voltage	HWⓄF-3F04Q④-②-③	HWⓄF-31F04Q④-②-③	HWⓄF-32F04Q④-②-③	HWⓄF-33F04Q④-②-③	
					Transformer	120V	HWⓄF-3F04H2④-②	HWⓄF-31F04H2④-②	HWⓄF-32F04H2④-②	HWⓄF-33F04H2④-②
						240V	HWⓄF-3F04M4④-②	HWⓄF-31F04M4④-②	HWⓄF-32F04M4④-②	HWⓄF-33F04M4④-②
						480V	HWⓄF-3F04T8④-②	HWⓄF-31F04T8④-②	HWⓄF-32F04T8④-②	HWⓄF-33F04T8④-②



- In place of ② specify Lens/LED color code.
- In place of ③ specify Full Voltage code.
- In place of ④ specify Lamp code.
- In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
- For nameplates, see page 546.
- For contact assembly part numbers, see page 550.
- Light is independent of switch position.
- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- Yellow selector switch comes with white LED.**
- Additional contact configurations available (up to 6 total contacts).
- For Truth Tables see page 558.

② Lens/LED Color

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Code

Full Voltage Models	
Voltage	Code
6VAC/DC	6V
12VAC/DC	12V
24VAC/DC	24V
120V AC (LED only)	120V
240V AC (LED only)	240V

④ Lamp Code

Lamp	Code
Incandescent	Blank
LED	D

⑤ Bezel Code

Type	Code
Plastic	1
Metal	4

Part Number Structure

Bezel
1: Plastic
4: Metal

Position
3: Maintained
31: Spring Return from Right
32: Spring Return from Left
33: Spring Return 2-Way

Contact Arrangement
11: 1NO-1NC
20: 2NO
02: 2NC
22: 2NO-2NC
40: 4NO
04: 4NC

Illumination Circuit
Q: Full Voltage
H2: Transformer 120V AC
M4: Transformer 240V AC
T8: Transformer 480V AC

Lens Color
A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Lamp Code
D: LED
Blank: Incandescent

Full Voltage Code
6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC*
240V: 240V AC*
*LED only

Part Number Structure: H W 1 F - 31 F 20 Q D - G - 24V

Illuminated Selector Switches 3-Position (Replacement Parts)

Transformer*	+	Contact Blocks	+	Lead Holder	+	Mounting Adaptor	+	Safety Lever Lock	+	Lamp	+	Anti-Rotation Ring	+	Operator	+	Lens	=	Completed Unit



*Transformer not needed with full voltage models.

Lamp Circuit Components

Style	Description	Terminals	Part Number
Lead Holder 	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.		HW-LH3
Dummy Block with Full Voltage Adaptor 	For use with odd number of contacts.	Fingersafe	HW-DA1FB
		Exposed	HW-DA1B
		Spring Up	HW-GA1
Full Voltage Adaptor 	For use with even number of contacts.	Fingersafe	TW-DA1FB
		Exposed	TW-DA1B
Transformer Unit (6V secondary voltage) 	120VAC 240VAC 480VAC	Fingersafe	TW-F126B
			TW-F246B
			TW-F486B
	120V 240V 480V	Spring Up	HW-T126
			HW-T246
			HW-L486
	120V 240V 480V	Exposed	TW-T126B
			TW-T246B
			TW-T486B
DC-DC Converter	110VDC		HW-L16D



- HW-GA1 "Dummy Block with full voltage adaptor" does not require the use of HW-LH3.
- DC-DC converter features spring-up terminals.
- DC-DC converter applicable voltage range 90-140V DC.

Operators

Appearance	Description	Plastic Bezel	Metal Bezel
	Maintained	HW1F-3	HW4F-3
	Spring return from right	HW1F-31	HW4F-31
	Spring return from left	HW1F-32	HW4F-32
	2-Way spring return	HW1F-33	HW4F-33



Illuminated knobs must be ordered separately.

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
	Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)

Contact Block Mounting Adaptor

Style	Part Number
	HW-CBL



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Illuminated Knob

Appearance	Part Number
	HW9Z-FDY-⊙



In place of ⊙, specify the Color Code.

② Lens/LED Color Code

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	White	W
Red	R	Yellow	Y

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Lamps

Type	Voltage	Part Number
LED 	6V AC/DC	LSTD-6⊙
	12V AC/DC	LSTD-1⊙
	24V AC/DC	LSTD-2⊙
	120V AC	LSTD-H2⊙
	240V AC	LSTD-M4⊙
Incandescent 	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



- In place of ⊙, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.
- Use white LED for yellow lens. Yellow LED not available.

Mono Lever Switches 2-Position (Assembled)



2-Position Mono Lever Switches

Description	Part Number	Description
HW1M Standard Lever	HW1M-F1010-20	Maintained up and down
	HW1M-F2020-20	Spring return up and down
	HW1M-F1010-40	Maintained up and down
	HW1M-F2020-40	Spring return up and down
	HW1M-F0101-20	Maintained right and left
	HW1M-F0202-20	Spring return right and left
	HW1M-F0101-40	Maintained right and left
	HW1M-F0202-40	Spring return right and left
HW1M-L Interlocking Lever	HW1M-LF1010-20	Maintained up and down
	HW1M-LF2020-20	Spring return up and down
	HW1M-LF1010-40	Maintained up and down
	HW1M-LF2020-40	Spring return up and down
	HW1M-LF0101-20	Maintained right and left
	HW1M-LF0202-20	Spring return right and left
	HW1M-LF0101-40	Maintained right and left
	HW1M-LF0202-40	Spring return right and left



1. All assembled part numbers in catalog include standard (HW-F...) contacts.
2. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
3. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
4. Additional contact configurations available (up to 6 total contacts).

Circuit Diagrams

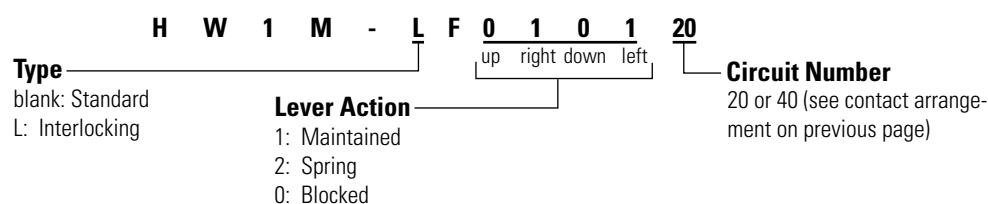
2 Position Left/Right

Circuit Number	Contact Mounting		Position		
	No.		Left	Center	Right
20	1	HW-F10	X	0	0
	2	HW-F10	0	0	X
40	1	HW-F10	X	0	0
	2	HW-F10	0	0	X
	3	HW-F10	X	0	0
	4	HW-F10	0	0	X

2 Position Up/Down

Circuit Number	Contact Mounting		Position		
	No.		Down	Center	Up
20	1	HW-F10	X	0	0
	2	HW-F10	0	0	X
40	1	HW-F10	X	0	0
	2	HW-F10	0	0	X
	3	HW-F10	X	0	0
	4	HW-F10	0	0	X

Part Number Structure



Mono Lever Switches 2-Position (Sub-assembled) Part Numbers

Contact Assembly	+	Mounting Adaptor	+	Safety Lever Lock	+	Anti-Rotation Ring	+	Operator	=	Completed Unit
										

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

- 
 1. Used to mount contact blocks to operator (first pair only).
 2. IDEC strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL
 Use with notched panel cutout to prevent unit rotation.	

Operators

Appearance	Description	Part Number
	Standard	Maintained Up/Down
		Spring return Up/Down
		Maintained Left/Right
		Spring return Left/Right
	Interlocking	Maintained Up/Down
		Spring return Up/Down
		Maintained Left/Right
		Spring return Left/Right

Replacement Parts

Item	Part Number
Black Cap 	HW9Z-CPM
Boot 	HW9Z-BLM (fits standard operator only)

Mono Lever Switches 3- & 4-Position (Assembled)



3-Position

Description	Part Number	Description
HW1M Standard Lever	HW1M-F0121-30	Maintained right and left, spring return down
	HW1M-F0222-30	Spring return right, down, left
HW1M-L Interlocking Lever	HW1M-LF0121-30	Maintained right and left, spring return down
	HW1M-LF0222-30	Spring return right, down, left

Circuit Diagram

Circuit Number	Contact Mounting		Position				
	No.		Down	Left	Center	Up	Right
30	1	HW-F01	0	0	0	0	X
	2	HW-F01	X	0	0	0	0
	3	HW-F10	0	X	0	0	0

4-Position

Description	Part Number	Description
HW1M Standard Lever	HW1M-F1111-22N9	Maintained all positions
	HW1M-F1212-22N9	Maintained up and down, spring left and right
	HW1M-2121-22N9	Spring up and down, main- tained left and right
	HW1M-2222-22N9	Spring return all positions
HW1M-L Interlocking Lever	HW1M-LF1111-22N9	Maintained all positions
	HW1M-LF1212-22N9	Maintained up and down, spring left and right
	HW1M-LF2121-22N9	Spring up and down, main- tained left and right
	HW1M-LF2222-22N9	Spring return all positions

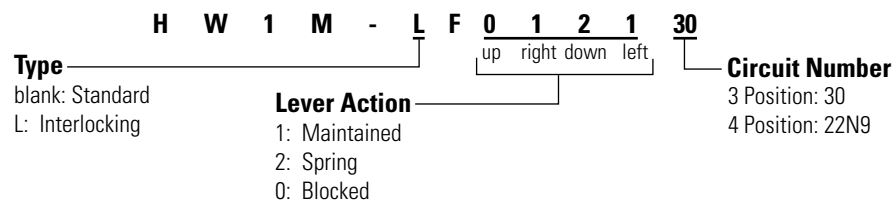
Circuit Diagram

Circuit Number	Contact Mounting		Position				
	No.		Down	Left	Center	Up	Right
22N9	1	HW-F01	0	0	0	0	X
	2	HW-F01	X	0	0	0	0
	3	HW-F10	0	X	0	0	0
	4	HW-F10	0	0	0	X	0



1. All assembled part numbers in catalog include standard (HW-F...) contacts.
2. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
3. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
4. Additional contact configurations available (up to 6 total contacts).

Part Number Structure



Mono Lever Switches 3 & 4-Position (Sub-assembled) Part Numbers

Contact Assembly	+	Mounting Adaptor	+	Safety Lever Lock	+	Anti-Rotation Ring	+	Operator	=	Completed Unit
										

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

- 
 1. Used to mount contact blocks to operator (first pair only).
 2. IDEC strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL
 Use with notched panel cutout to prevent unit rotation.	

Operators

Appearance	Description	Part Number
	Combination, 3 position	HW1M-0121
	Spring return, 3 position	HW1M-0222
	Maintained, 4 position	HW1M-1111
	Combination, 4 position	HW1M-1212
	Combination, 4 position	HW1M-2121
	Spring return, 4 position	HW1M-2222
	Combination, 3 position	HW1M-L0121
	Spring return, 3 position	HW1M-L0222
	Maintained, 4 position	HW1M-L1111
	Combination, 4 position	HW1M-L1212
	Combination, 4 position	HW1M-L2121
	Spring return, 4 position	HW1M-L2222

Replacement Parts

Item	Part Number
Black Cap 	HW9Z-CPM
Boot 	HW9Z-BLM (fits standard operator only)

Pushbutton Selectors (Assembled)



2-Position Pushbutton Selectors

				Operator Position				
				Left		Right		
Cam	Contacts	Mounting		Normal	Push	Normal	Push	Part Number
A	Operator Only							HW1R-2A-①
	1NO-1NC	1 2	HW-F10 HW-F01	0 X	X 0	0 0	X 0	HW1R-2AF11-①
	2NO	1 2	HW-F10 HW-F10	0 0	X X	0 X	X X	HW1R-2AF20-①
	2NO-2NC	1 2 3 4	HW-F10 HW-F01 HW-F10 HW-F01	0 X 0 X	X 0 X 0	0 0 0 0	X 0 X 0	HW1R-2AF22-①
D	Operator Only							HW1R-2D-①
	2NO	1 2	HW-F10 HW-F10	0 0	X 0	0 0	0 X	HW1R-2DF20-①
	2NO-2NC	1 2 3 4	HW-F10 HW-F10 HW-F01 HW-F01	0 0 X X	X 0 0 X	0 0 X X	0 X X 0	HW1R-2DF22N1-①
E	Operator Only							HW1R-2E-①
	2NO-2NC	1 2 3 4	HW-F10 HW-F10 HW-F01 HW-F01	0 0 0 X	X 0 0 X	0 0 X 0	0 X X 0	HW1R-2EF22N1-①
F	Operator Only							HW1R-2F-①
	2NO-2NC	1 2 3 4	HW-F10 HW-F10 HW-F01 HW-F01	0 0 0 X	0 X 0 0	0 0 X 0	X 0 0 0	HW1R-2FF22N1-①
N	Operator Only							HW1R-2N-①
	2NO-2NC	1 2 3 4	HW-F01 HW-F10 HW-F01 HW-F10	0 0 0 0	0 X 0 X	X 0 X 0	0 X 0 X	HW1R-2NF22N2-①
T	Operator Only							HW1R-2T-①
	2NO-2NC	1 2 3 4	HW-F10 HW-F10 HW-F01 HW-F01	0 0 X X	X X 0 0	X X 0 0	Blocked	HW1R-2TF22N1-①

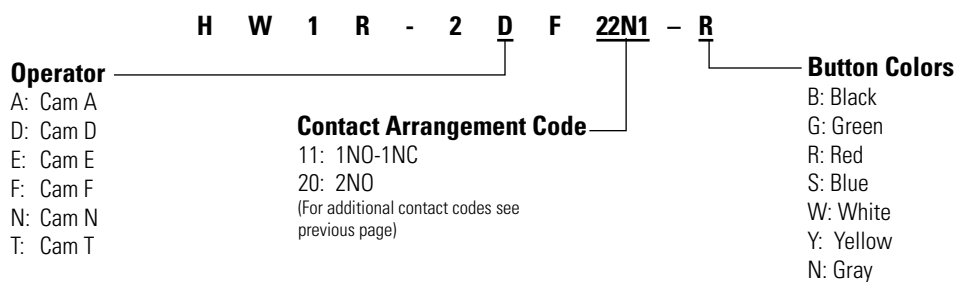
① Button Color Code

Color	Code	Color	Code
Black	B	White	W
Green	G	Yellow	Y
Red	R	Gray	N
Blue	S		



- All assembled part numbers in catalog include standard (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.
- Operator only models come with operator and button.
- Additional contact configurations available (up to 6 total contacts).

Part Number Structure



Pushbutton Selectors (Sub-assembled)



Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

(safety lever lock included)

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



Use with notched panel cutout to prevent unit rotation.

Operators

Appearance	Description	Part Number
	Cam A	HW1R-2A
	Cam D	HW1R-2D
	Cam E	HW1R-2E
	Cam F	HW1R-2F
	Cam N	HW1R-2N
	Cam T	HW1R-2T

Buttons

Style	Part Number
Round Flush	HW1A-B1-①



In place of ①, specify the Button Color Code from table below.

① Button Color Code

Color	Code	Color	Code
Black	B	White	W
Green	G	Yellow	Y
Red	R	Gray	N
Blue	S		

Dual Pushbutton Switches

Two pushbuttons and a pilot light are integrated into one space-saving ø22 mm control unit.

- Momentary and interlock types are available for pushbuttons. Interlock type prevents both buttons from being pressed at the same time.
- Pilot lights are available in full voltage and transformer with LED or incandescent lamps.
- IP40 protection, IP65 when using silicon cover.
- UL Listed, CSA approved, and EN compliant



Applications:

- Ideal for use as power switches and start/stop switches (available with I/ON and O/OFF markings on the buttons and a pilot light in the center).
- Interlock type prevents two pushbuttons from being pressed at the same time.

Dual Pushbutton Switches (Assembled) Part Numbers

Without Center Pilot Light

Operation Type	Button Style		Contact Arrangement		Part Number	④ Button Color Code	⑤ Legend Code
			Top Button	Bottom Button			
Momentary	Flush (top) Flush (bottom)		1NO	1NC	HW7D-B11F1001-④⑤	GR: Green (top) Red (bottom)	Blank: Without legend
			1NO	1NO	HW7D-B11F1010-④⑤		
			1NO-1NC	1NO-1NC	HW7D-B11F1111-④⑤		
			2NO	2NC	HW7D-B11F2002-④⑤		
			2NO	2NO	HW7D-B11F2020-④⑤		
	Flush (top) Extended (bottom)		1NO	1NC	HW7D-B12F1001-④⑤		
			1NO	1NO	HW7D-B12F1010-④⑤		
			1NO-1NC	1NO-1NC	HW7D-B12F1111-④⑤		
			2NO	2NC	HW7D-B12F2002-④⑤		
			2NO	2NO	HW7D-B12F2020-④⑤		
Interlock*	Flush (top) Flush (bottom)		1NO	1NC	HW7D-B21F1001-④⑤	WB: White (top) Black (bottom)	1: I/ON (top) O/OFF (bottom)
			1NO	1NO	HW7D-B21F1010-④⑤		
			1NO-1NC	1NO-1NC	HW7D-B21F1111-④⑤		
			2NO	2NC	HW7D-B21F2002-④⑤		
			2NO	2NO	HW7D-B21F2020-④⑤		
	Flush (top) Extended (bottom)		1NO	1NC	HW7D-B22F1001-④⑤		
			1NO	1NO	HW7D-B22F1010-④⑤		
			1NO-1NC	1NO-1NC	HW7D-B22F1111-④⑤		
			2NO	2NC	HW7D-B22F2002-④⑤		
			2NO	2NO	HW7D-B22F2020-④⑤		



1. *Interlock type prevents both top and bottom buttons from being pressed simultaneously.
2. Clear silicon rubber cover part number HW9Z-D7D.
3. Additional contact configurations available (up to 6 total contacts).

With Center Pilot Light

Operation Type	Button Style	Top Button	Bottom Button	Part Number
Flush (top) Flush (bottom) 	Flush (Top) Flush (Bottom)	1NO	1NC	HW7D-L11F1001②③-④⑤
		1NO	1NO	HW7D-L11F1010②③-④⑤
		1NO-1NC	1NO-1NC	HW7D-L11F1111②③-④⑤
		2NO	2NC	HW7D-L11F2002②③-④⑤
		2NO	2NO	HW7D-L11F2020②③-④⑤
	Flush (Top) Extended (Bottom)	1NO	1NC	HW7D-L12F1001②③-④⑤
		1NO	1NO	HW7D-L12F1010②③-④⑤
		1NO-1NC	1NO-1NC	HW7D-L12F1111②③-④⑤
		2NO	2NC	HW7D-L12F2002②③-④⑤
		2NO	2NO	HW7D-L12F2020②③-④⑤
Flush (top) Extended (bottom) 	Flush (Top) Flush (Bottom)	1NO	1NC	HW7D-L21F1001②③-④⑤
		1NO	1NO	HW7D-L21F1010②③-④⑤
		1NO-1NC	1NO-1NC	HW7D-L21F1111②③-④⑤
		2NO	2NC	HW7D-L21F2002②③-④⑤
		2NO	2NO	HW7D-L21F2020②③-④⑤
	Flush (Top) Extended (Bottom)	1NO	1NC	HW7D-L22F1001②③-④⑤
		1NO	1NO	HW7D-L22F1010②③-④⑤
		1NO-1NC	1NO-1NC	HW7D-L22F1111②③-④⑤
		2NO	2NC	HW7D-L22F2002②③-④⑤
		2NO	2NO	HW7D-L22F2020②③-④⑤



- *Interlock type prevents both top and bottom buttons from being pressed simultaneously.
- Clear silicon rubber cover part number HW9Z-D7D.
- All assembled part numbers in catalog include standard (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

② Pilot Light Illumination & Voltage Code

Full Voltage	
Voltage	Code
6V AC/DC, LED	Q2
12V AC/DC, LED	Q3
24V AC/DC, LED	Q4
120V AC, LED	Q8
6V AC/DC, Incandescent	Q5*
12V AC/DC, Incandescent	Q6*
24V AC/DC, Incandescent	Q7*
Step-Down Transformer (6V Secondary Lamp Voltage)	
Voltage	Code
120V AC, LED	H22
240V AC, LED	M42
480V AC, LED	T82
120V AC, Incandescent	H25*
240V AC, Incandescent	M45*
480V AC, Incandescent	T85*



*Only available for White Lens Pilot Lamp.

③ Pilot Lamp Color Code

Color	Code
Amber	A*
Green	G*
Red	R*
Blue	S*
White	W



*Only available in LED illumination.

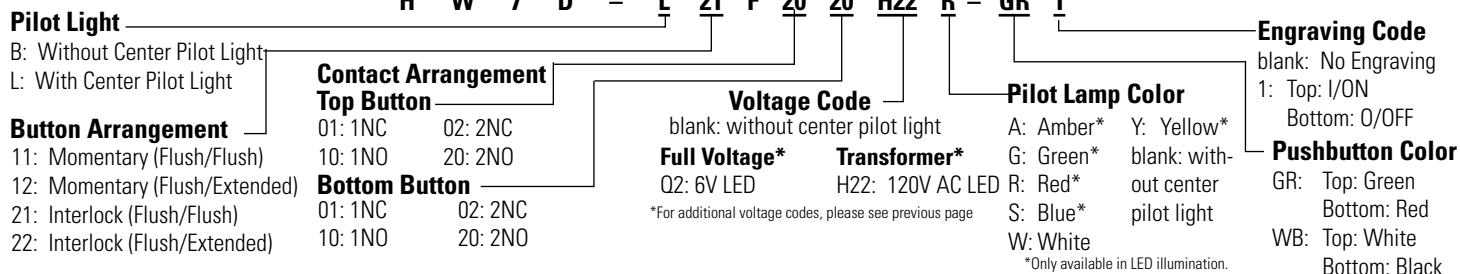
④ Pushbutton Color Code

Color	Code
Top Green	GR
Bottom Red	
Top White	WB
Bottom Black	

⑤ Engraving Codes

Engraving	Code
No Engraving	Blank
I/ON Top	1
O/OFF Bottom	

Part Number Structure



Dual Pushbutton Switches (Sub-assembled) Part Numbers



Lamp Circuit Components with Fingersafe Terminals

Style	Description	Part Number
Lead Holder	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.	HW-LH3
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	HW-DA1FB
Full Voltage Adaptor	For use with even number of contacts.	TW-DA1FB
Transformer Unit (6V secondary voltage)	120VAC 240VAC 480VAC	TW-F126B TW-F246B TW-F486B

Exposed and spring up terminals also available.

Contact Blocks

Style	Contacts	1NO	1NC	Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)		Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Dummy Block	TW-DB			Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)

Contact Block Mounting Adaptor

Style	Part Number
	Non-illuminated HW-CB2C
	Illuminated (with Pilot Light) HW-CBL

- Used to mount contact blocks to operator (first pair only).
- IDEC strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

- Use with notched panel cutout to prevent unit rotation.

Engraving Codes

Engraving	Code
No Engraving	Blank
I/ON	Top
O/OFF	Bottom

Lamps/Lens

Type	Voltage	Part Number
	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24
Non-illuminated		HW9Z-B7B
Illuminated		HW9Z-L7W

- In place of ②, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.

LED Color Code

Color	Code	Color	Code
Amber	A*	Blue	S*
Green	G*	White	W
Red	R*		

- Only for LED illumination.

Operators

Style	Button	Part Number
	Flush (top)	HW7D-*11④-⑤
	Flush (bottom)	
	Flush (top)	HW7D-*12④-⑤
	Extended (bottom)	
	Flush (top)	HW7D-*21④-⑤
	Flush (bottom)	
	Flush (top)	HW7D-*22④-⑤
	Extended (bottom)	

Instead of * insert:
B: Non-illuminated
L: Illuminated

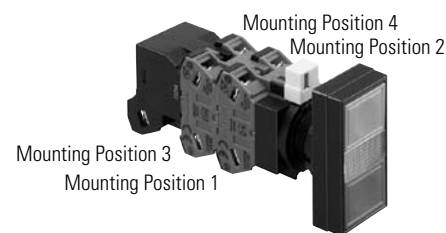
Pushbutton Color Code

Color	Code	Color	Code
Top	Green	Top	White
Bottom	Red	Bottom	Black

Contact Arrangement Chart

Contact Arrangement			Contact Block		Top Button		Bottom Button	
Top Button	Bottom Button	Contact Code	Mounting Position	Type	Normal	Push	Normal	Push
1NO	1NO	1010	1	NO		X		
			2	NO				X
1NO	1NC	1001	1	NO		X		
			2	NC			X	
1NC	1NO	0110	1	NC	X			
			2	NO				X
1NC	1NC	0101	1	NC	X			
			2	NC			X	
1NO	2NO	1020	1	NO		X		
			2	NO				X
			3	Dummy				
			4	NO				X
1NO	1NO-1NC	1011	1	NO		X		
			2	NO				X
			3	Dummy				
			4	NC			X	
1NO	2NC	1002	1	NO		X		
			2	NC			X	
			3	Dummy				
			4	NC			X	
1NC	2NO	0120	1	NC	X			
			2	NO				X
			3	Dummy				
			4	NO				X
1NC	1NO-1NC	0111	1	NC	X			
			2	NO				X
			3	Dummy				
			4	NC			X	
1NC	2NC	0102	1	NC	X			
			2	NC			X	
			3	Dummy				
			4	NC			X	
2NO	1NO	2010	1	NO		X		
			2	NO				X
			3	NO		X		
			4	Dummy				
2NO	1NC	2001	1	NO		X		
			2	NC			X	
			3	NO		X		
			4	Dummy				
1NO-1NC	1NO	1110	1	NO		X		
			2	NO				X
			3	NC	X			
			4	Dummy				
1NO-1NC	1NC	1101	1	NO		X		
			2	NO			X	
			3	NC	X			
			4	Dummy				

Contact Block Mounting Position Example



Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

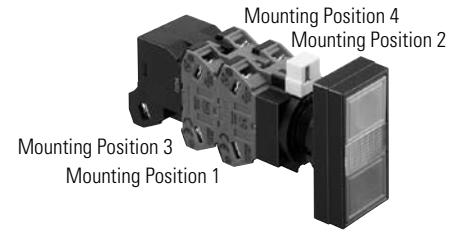


1. Transformers can have two or four contact blocks only.
2. Contact blocks 1 and 3 are actuated by the top button. Contact blocks 2 and 4 are actuated by the bottom button.

Contact Arrangement Chart (con't)

Contact Arrangement			Contact Block		Top Button		Bottom Button	
Top Button	Bottom Button	Contact Code	Mounting Position	Type	Normal	Push	Normal	Push
2NC	1NO	0210	1	NC	X			
			2	NO				X
			3	NC	X			
			4	Dummy				
2NC	1NC	0201	1	NC	X			
			2	NC			X	
			3	NC	X			
			4	Dummy				
2NO	2NO	2020	1	NO		X		
			2	NO				X
			3	NO		X		
			4	NO				X
2NO	1NO-1NC	2011	1	NO		X		
			2	NO				X
			3	NO		X		
			4	NC			X	
2NO	2NC	2002	1	NO		X		
			2	NC			X	
			3	NO		X		
			4	NC			X	
1NO-1NC	2NO	1120	1	NO		X		
			2	NO				X
			3	NC	X			
			4	NO				X
1NO-1NC	1NO-1NC	1111	1	NO		X		
			2	NO				X
			3	NC	X			
			4	NC			X	
1NO-1NC	2NC	1102	1	NO		X		
			2	NC			X	
			3	NC	X			
			4	NC			X	
2NC	2NO	0220	1	NC	X			
			2	NO				X
			3	NC	X			
			4	NO				X
2NC	1NO-1NC	0211	1	NC	X			
			2	NO				X
			3	NC	X			
			4	NC			X	
2NC	2NC	0202	1	NC	X			
			2	NC			X	
			3	NC	X			
			4	NC			X	

Contact Block Mounting Position Example



Contactor Reset Button



Reset Buttons (Assembled)

	Plastic Bezel	Metal Bezel
(Blank)	HW1B-M1RS-⓪T	HW4B-M1RS-⓪T
Engraved "R"	HW1B-M1RS-⓪T-ENG-R	HW4B-M1RS-⓪T-ENG-R

-
1. In place of ⓪ specify Button Color Code.

2. 130mm (5.1") overall length.

3. 16mm flat base for easy alignment

⓪ Button Color Code

Color	Code	Color	Code
Black	B	White	W
Green	G	Yellow	Y
Red	R	Gray	N
Blue	S		

Contactor Reset Button (Sub-assembled)



Rod

Appearance	Part Number
	HW9Z-RS-TK2141

Operator

Appearance	Plastic	Metal
	HW1B-M0	HW4B-M0

Button

Appearance	Part Number
	HW1A-B1-⓪

-
- In place of ⓪, specify the Button Color Code from table.

⓪ Button Color Code

Color	Code	Color	Code
Black	B	White	W
Green	G	Yellow	Y
Red	R	Gray	N
Blue	S		

Circuit Breakers

1. In place of ①, insert either the standard legend code from table below or custom engraving delimited by “ ”.
2. Standard engravings are available at no charge.
3. * HWAV-27 comes engraved “Emergency Stop” as shown in drawing.
4. † HWAV5-27 and HWAV5-0 for 60mm diameter E-Stops (80mm diameter nameplate).

1. To order engraved nameplates, add legend code to nameplate part number.
2. Character height based on the number of characters and size of nameplate. Standard character size is 3/16".
3. Nameplates with standard legends are the same list price as blank nameplates.
4. Nameplates have built-in anti-rotation feature for use with notched panel cut-outs. Additional anti-rotation ring (HW9Z-RL) is not necessary.

Nameplates Order Form — HW Series

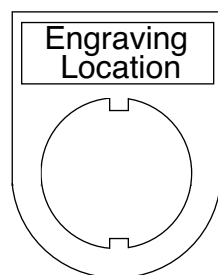
Copy this order form and use it to specify Letter Height, Custom Engravings, Location of Engraving on Nameplate, and Quantity Desired.

To insure engraving accuracy, fax it to your IDEC representative or Distributor.

Your Company: _____
 Name: _____
 Telephone: _____
 Fax & Email: _____

IDEC Rep/Distributor Contact: _____
 PO number (if known): _____
 IDEC Rep/Distributor Phone: _____
 IDEC Rep/Distributor Fax & Email: _____

HWAM Nameplate



Step 1.
Choose Letter Size - 7/64" or 1/8".
 Check the box for the letter size you want.
 Then write your lettering in box below the
 check boxes. Note: 1/8" size letters cannot
 exceed 9 characters.

Step 2.
Specify Quantity.
 Enter the number of nameplates
 desired in the box on the right.

Qty

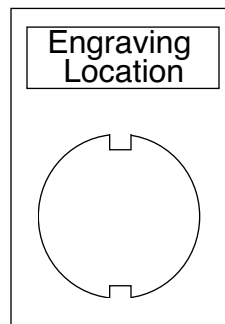
7/64"
 Letter Size ☐ 11 characters maximum
 (for 7/64" size letters)

1/8"
 Letter Size ☐ 9 characters maximum
 (for 7/8" size letters)

1	2	3	4	5	6	7	8	9	10	11
---	---	---	---	---	---	---	---	---	----	----

Sample Letter Sizes
 7/64" Letters: A B C D
 1/8" Letters: A B C D

HWAQ Nameplate



Step 1.
Choose Letter Size - 7/64" or 1/8".
 Check the box for the letter size you want.
 Then write your lettering in box below the
 check boxes. Note: 1/8" size letters cannot
 exceed 9 characters.

Step 2.
Specify Quantity.
 Enter the number of nameplates
 desired in the box on the right.

Qty

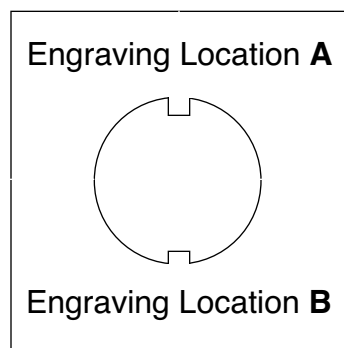
7/64"
 Letter Size ☐ 11 characters maximum
 (for 7/64" size letters)

1/8"
 Letter Size ☐ 9 characters maximum
 (for 7/8" size letters)

1	2	3	4	5	6	7	8	9	10	11
---	---	---	---	---	---	---	---	---	----	----

Sample Letter Sizes
 7/64" Letters: A B C D
 1/8" Letters: A B C D

HWAS Nameplate



Step 1.
Choose Letter Size - 3/32" or 1/8".
 Check the box for the letter size you want.
 Then write your lettering in box below the
 check boxes. Note: 1/8" size letters cannot
 exceed 9 characters.

Step 2.
Specify Quantity.
 Enter the number of nameplates
 desired in the box on the right.

Qty

Step 3.
Specify Location.
 Enter the location of engraving
 (A or B), in box on the right.

Location

3/32"
 Letter Size ☐ 20 characters maximum
 (for 3/32" size letters)

1/8"
 Letter Size ☐ 14 characters maximum
 (for 7/8" size letters)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Sample Letter Sizes
 3/32" Letters: A B C D
 1/8" Letters: A B C D

Switch Engraving Order Form – HW Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To insure engraving accuracy, fax it to your IDEC representative or Distributor.

Your Company: _____
 Name: _____
 Address: _____
 PO: _____

Telephone: _____
 Fax: _____
 Email: _____
 Part Number to be Engraved: _____

Please check one of the boxes below to indicate your choice of engraving options:



ø29mm, ø40mm Mushroom Head



	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	5
☐		1/8	6
☐	2	5/32	5
☐		1/8	6
☐	3	1/8	6
☐	4	3/32	5

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	5
☐		1/8	5
☐	2	5/32	5
☐		1/8	6
☐	3	1/8	5
☐	4	3/32	5

	# of Lines	Letter Height	Max. Characters Per Line
☐	Engraving Area 1	5/32	5
☐		1/8	5
☐	Engraving Area 2	5/32	7
☐		1/8	7



- Above mentioned specifications hold true for standard size pushbuttons (round and square).
- 'Engraving Area 2 can be engraved for 40mm mushroom Head non-illuminated push button only.
- Engraving is done on the button itself for non-illuminated push buttons and on marking plate for illuminated push buttons and pilot lights.
- Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____

Sample Letter Sizes

1/8 Letters: **OPEN**

5/32 Letters: **OPEN**

For IDEC Internal Use Only:

Work Order #: _____

Accessories

	Appearance	Description/Usage	Part Number	
Locking Ring Wrench		Metallic tool used to tighten the plastic locking ring when installing the HW series in a panel	MW9Z-T1	
Lamp/LED Removal Tool		Rubber tool makes lamp/LED removal easier.	OR-55	
Anti-Rotation Ring		Prevents rotation of switches in panel. (included with all assembled switches except pilot lights)	for notched panel cutout (standard)	HW9Z-RL
			for round panel cutout	LW9Z-L
Rubber Mounting Hole Plug		Black rubber plug fills unused 7/8" mounting holes in panel.	OB-31	
Metallic Mounting Hole Plug		For plugging unused 7/8" mounting holes in the panel. Tighten the attached locking ring to a torque of 12 kfg-cm maximum Degree of protection: IP66	LW9Z-BM	
Barrier		To prevent contact between adjacent lead wires when buttons or switches are tightly mounted close together.	HW-VL1	
Pushbutton Clear Boot		Used to cover and protect pushbuttons	Flush Pushbuttons	OC-31
		Operating temperature: -50 to +60°C	Extended Pushbuttons	OC-32
Padlock Cover		Plastic hinged padlockable cover to protect pushbuttons or selector switches. (Not intended for E-Stops) Degree of protection: IP65	HW9Z-KL1	
Tab Terminal Adapter		Tab #250 (6.35 x 0.8mm): Single tab	TW-FA1	
Mounting Adaptor		Used to mount round HW series (except Jumbo Mushroom, unibody, and square units) into a larger panel cut-out. (includes both pieces)	22 to 30mm	HW9Z-A30
			22 to 25mm	HW9Z-A25
Replacement Safety Lever Lock		Used to prevent contact mounting lever from moving due to heavy vibration or panel maintenance.	HW9Z-LS	
Reset Rod for Contactors Overload		5" rod used with HW1B-M0.	HW9Z-RS-TK2141	
Replacement Operator Washer		Provided with operator. Insert between bezel and locking ring.	HWM-WASHER	
Replacement Locking Ring		Plastic locking nut comes with all HW operators & assemblies.	Standard (plastic)	HW9Z-LN
			Optional (metal)	HW9Z-LNM
Switch Cover (Square)		Used only with round or square flush pushbuttons.	HW9Z-K1 (spring return) HW9Z-K11 (maintained cover)	
Replacement Keys		Pair of Keys (#231)	HW9Z-SKP	

	Appearance	Description/Usage	Part Number
Replacement Lens		HW Illuminated Unibody Replacement Lens	HWLV-LENSR
Replacement Jumbo Dome Lens		Polycarbonate Replacement Lens	HW1A-P5① ① = (A, G, R, S, W, Y)
Replacement Jumbo LED Diffusing Lens			HW9Z-PP5C
Replacement LED Lamps for HW Jumbo Dome		Replacement LED Lamp - applicable for jumbo pilot lights only	LSTD8-2① ① = (A, G, R, S, W, Y)
Rubber Cover for Dual Pushbuttons		Clear Silicon rubber cover	HW9Z-D7D
Barrier for Dual Pushbuttons		Plastic barrier. Used when mounting the HW7 units on 30mm horizontal centers, to prevent possible interconnections between adjoining terminals.	HW-VG1
EMO Sticker		Emergency stop nameplate sticker	HW9Z-EMO-NP-TK2120

E-Stop Shrouds

Style	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG1	40mm Mushroom Head	SEMI S2-0703, 12.5.1 Compliant
	HW9Z-KG2	40mm, and 60mm Mushroom Head	SEMI S2-0703, 12.5.1 & SEMATECH Compliant

Style	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG3	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV)
	HW9Z-KG4	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) & SEMATECH

Contact Assemblies

Standard Contact Assemblies

For use with Non-Illuminated Pushbuttons & E-Stops

Style	Contacts	Part Number
	1NO	HW-CBF10
	1NC	HW-CBF01
	1NO/1NC	HW-CBF11
	2NO	HW-CBF20
	2NC	HW-CBF02
	2NO/2NC	HW-CBF22
	1NO	HW-CB10
	1NC	HW-CB01
	1NO/1NC	HW-CB11
	2NO	HW-CB20
	2NC	HW-CB02
	2NO/2NC	HW-CB22

 Gold contact option is available for spring-up terminals. Add suffix "MAU" to end of part number. For example, HW-CB20 becomes HW-CB20-MAU.

Full Voltage Contact Assemblies

For use with Illuminated Pushbuttons.

Style	Contacts	Part Number
	1NO	HW-FL10Q0
	2NO	HW-FL20Q0
	1NO/1NC	HW-FL11Q0
	1NC	HW-FL01Q0
	2NC	HW-FL02Q0



Order lamp separately.

Transformer Contact Assemblies

For use with Illuminated Pushbuttons.

Style	Contacts	Part Number
120V AC with LED	1NO	HW-FL10H2-②
	2NO	HW-FL20H2-②
	1NC	HW-FL01H2-②
	1NO/1NC	HW-FL11H2-②
240V AC with LED	1NO	HW-FL10M4-②
	2NO	HW-FL20M4-②
	1NC	HW-FL01M4-②
	1NO/1NC	HW-FL11M4-②
480V AC with LED	1NO	HW-FL10T8-②
	2NO	HW-FL20T8-②
	1NC	HW-FL01T8-②
	1NO/1NC	HW-FL11T8-②
120V AC with Incandescent	1NO	HW-FL10H2
	2NO	HW-FL20H2
	1NC	HW-FL01H2
	1NO/1NC	HW-FL11H2
240V AC with Incandescent	1NO	HW-FL10M4
	2NO	HW-FL20M4
	1NC	HW-FL01M4
	1NO/1NC	HW-FL11M4

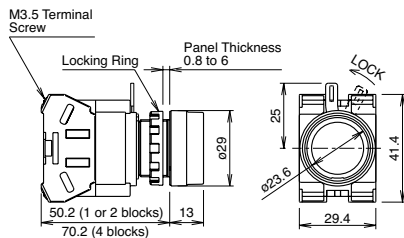


- In place of ②, specify the LED Color Code.
② = A, G, R, S, W or Y
- 6V LED or incandescent lamp included.

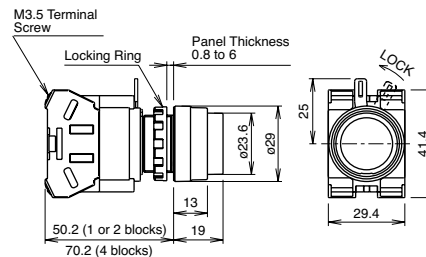
Dimensions (mm)

Non-illuminated Pushbuttons

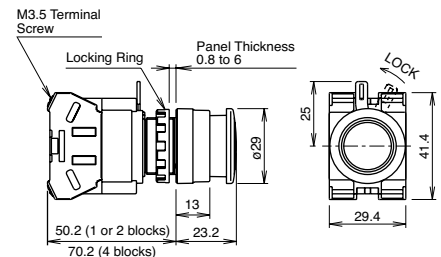
Flush (HW1B-M1, -A1)



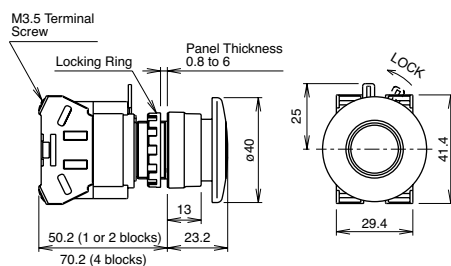
Extended (HW1B-M2, -A2)



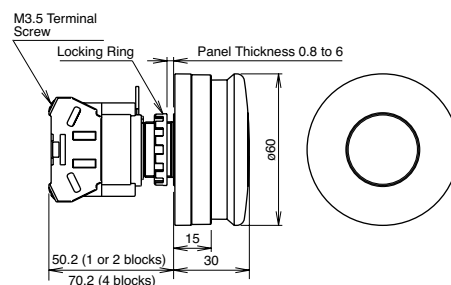
ø29mm Mushroom (HW1B-M3 -A3)



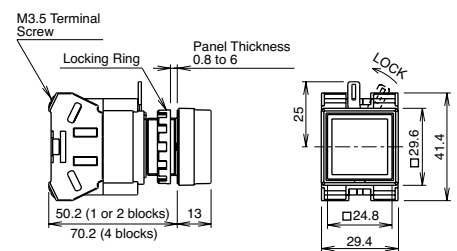
ø40mm Mushroom (HW1B-M4, -A4)



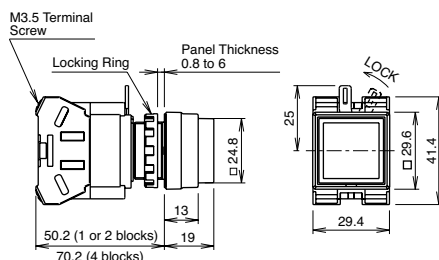
ø60mm Mushroom (HW1B-M5)



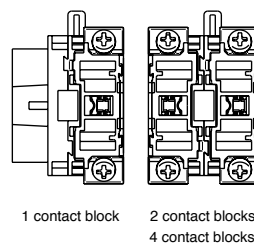
Square Flush (HW2B-M1, -A1)



Square Extended (HW2B-M2, -A2)

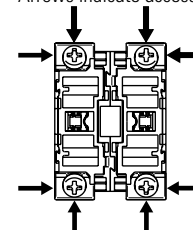


Contact Block (Bottom View)



Terminal Wiring

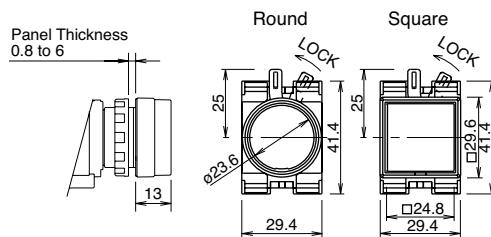
Arrows indicate access directions for wiring



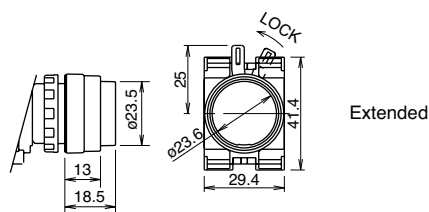
Dimensions (mm)

Operators

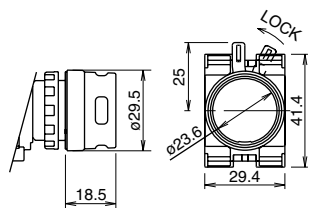
Flush (Round & Square)



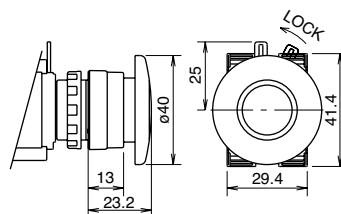
Extended



Extended with Full Shroud

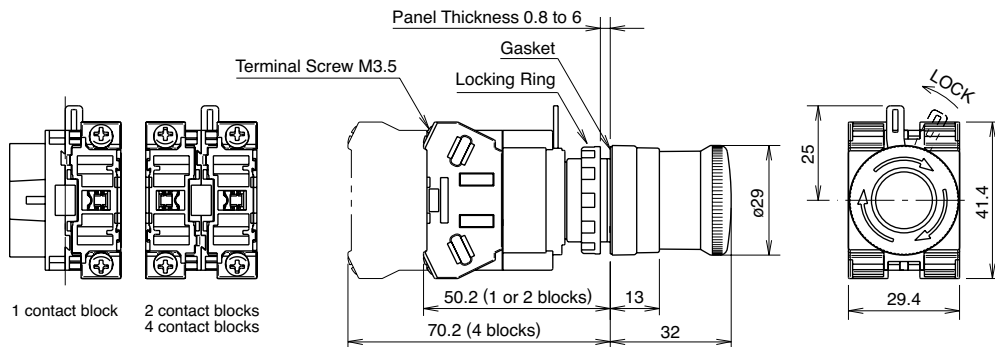


ø40mm Mushroom

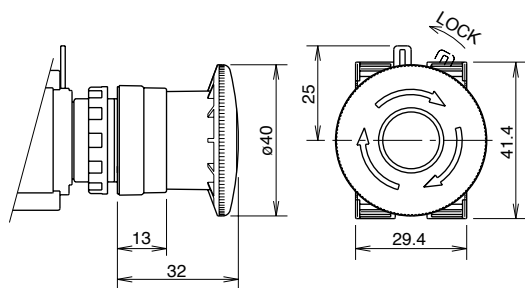


Emergency Stop Pushbuttons

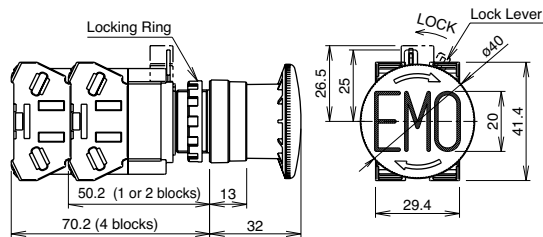
ø29mm Head Pushlock Turn Reset (HW1B-V3)



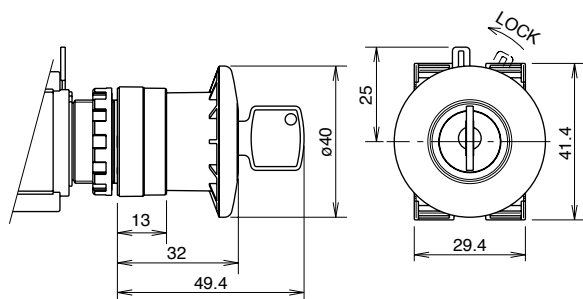
ø40mm Head Pushlock Turn Reset (HW1B-V4)



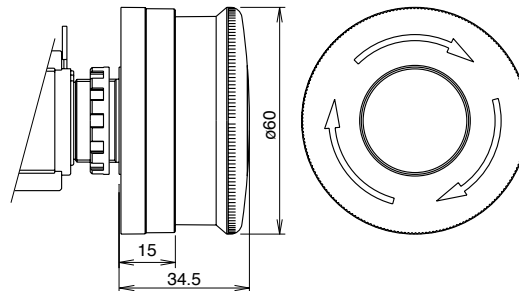
ø40mm Head EMO Pushlock Turn Reset (HW1B-V4)



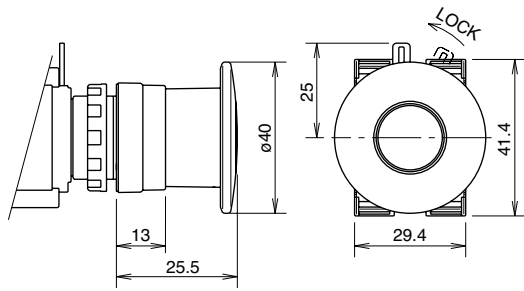
ø40mm Head Pushlock Key Reset (HW1B-X4)



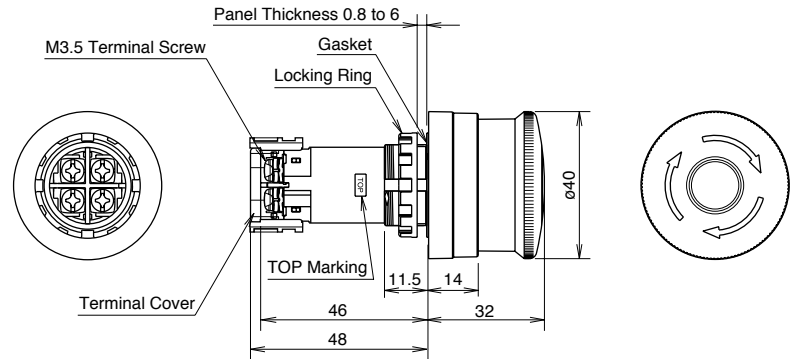
ø60mm Head Pushlock Turn Reset (HW1B-V5)



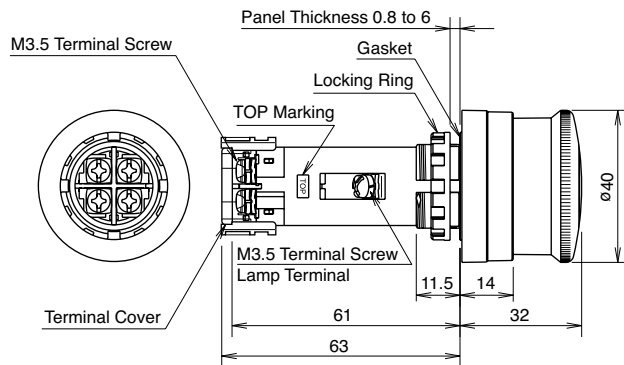
ø40mm Head Push-Pull (HW1B-Y2)



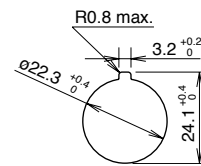
ø40mm Head Unibody Pushlock Turn Reset (HW1B-BV4)



Illuminated E-Stop Pushbuttons (HW1E-LV4)



Mounting Hole

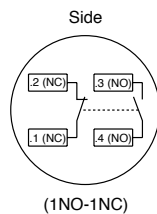


The minimum mounting centers shown below are applicable to E-Stop switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers for ease of wiring.

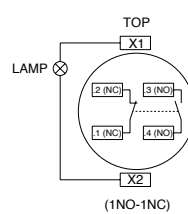
Unit	Vertical Spacing	Horizontal Spacing
HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2	50 mm	50 mm
HW1B-V5	60 mm	60 mm

Terminal Arrangement (Bottom View)

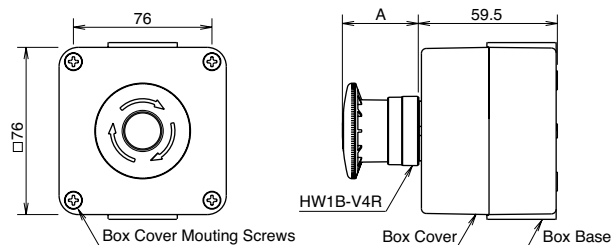
HW1E-BV4



HW1E-LV4

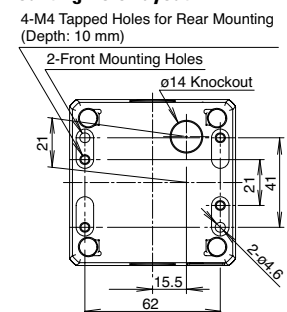


Emergency Stop Stations



Operator	Dimension A (mm)
Pushlock Turn Reset	32
Pushlock Key Reset	32 (Key inserted: 49.4)
Push Pull	25.5

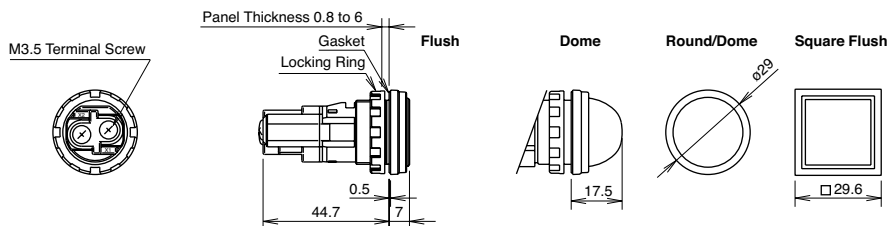
Mounting Hole Layout



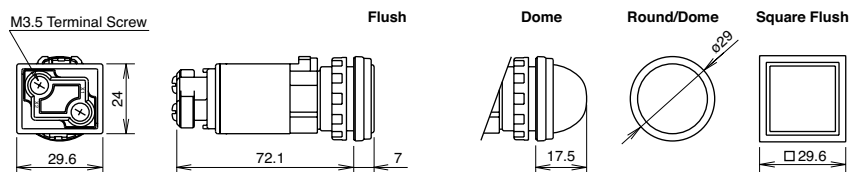
Dimensions (mm)

Pilot Lights

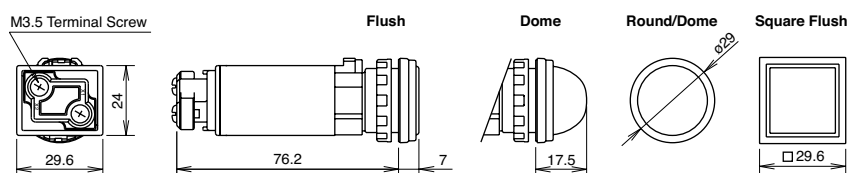
Full Voltage



Transformer

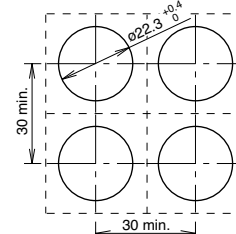


DC-DC Converter



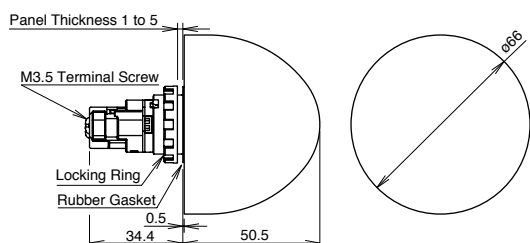
Mounting Hole Layout

Close mounting on 30mm centers
Degree of protection: IP65

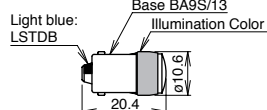


When mounting transformer or DC-DC converter type units on 30mm centers vertically and horizontally, keep the ambient temperature below 40°C.

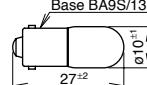
Jumbo Dome Pilot Lights



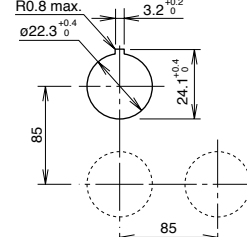
LED Lamp LSTDB



Incandescent Lamp LSB



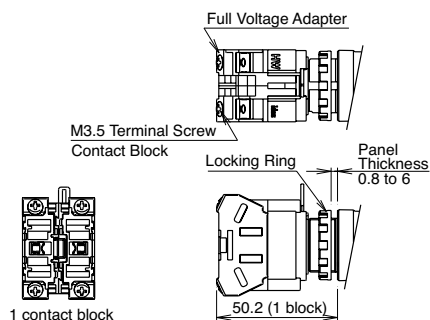
Mounting Hole Layout



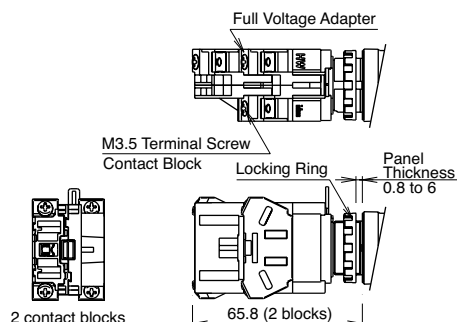
Illuminated Pushbuttons

Full Voltage Models

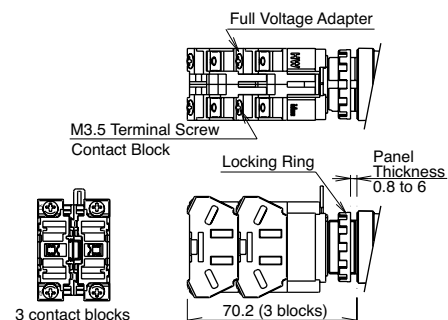
1 Contact Block



2 Contact Blocks



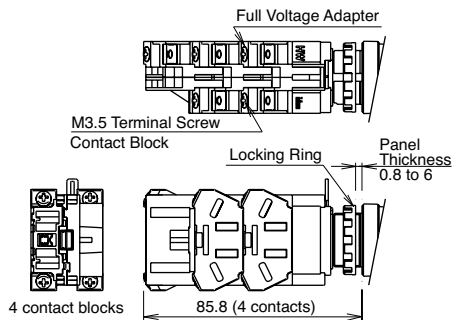
3 Contact Blocks



Dimensions (mm)

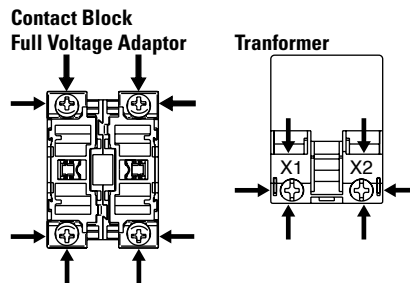
Illuminated Pushbuttons con't

4 Contact Blocks

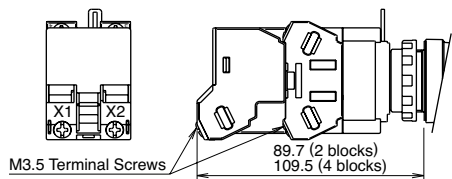


Terminal Wiring

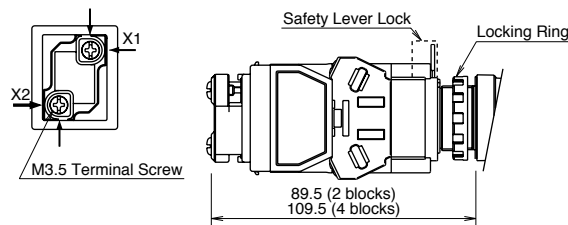
Arrows indicate access directions for wiring.



Transformer Models

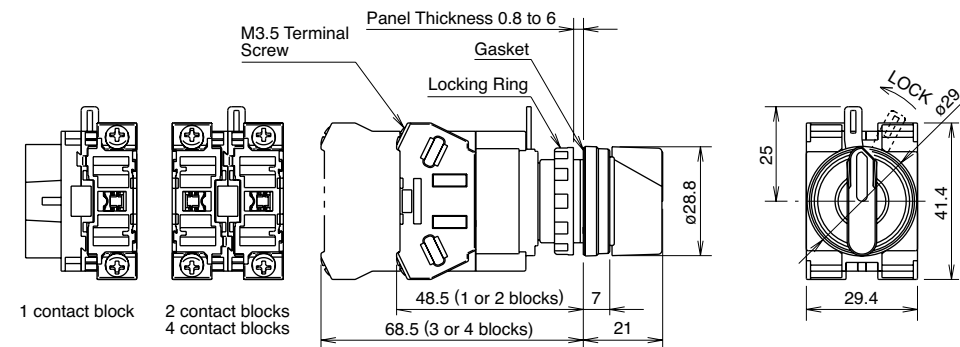


DC-DC Converter Models



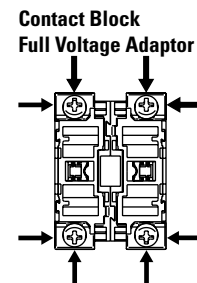
Non-illuminated Selector & Key Switches

Knob Operator

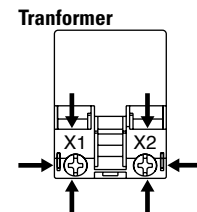
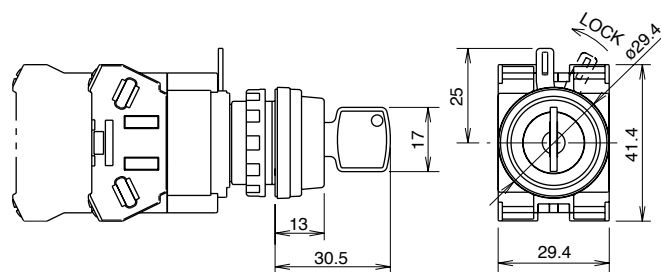


Terminal Wiring

Arrows indicate access directions for wiring.

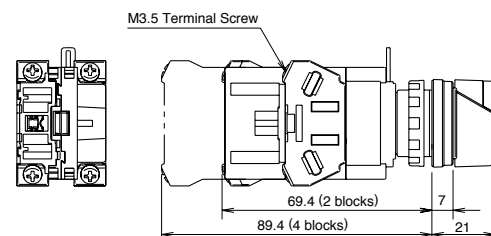


Key Operator

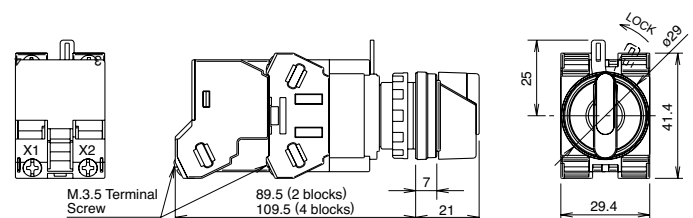


Illuminated Selector Switches

Full Voltage Model

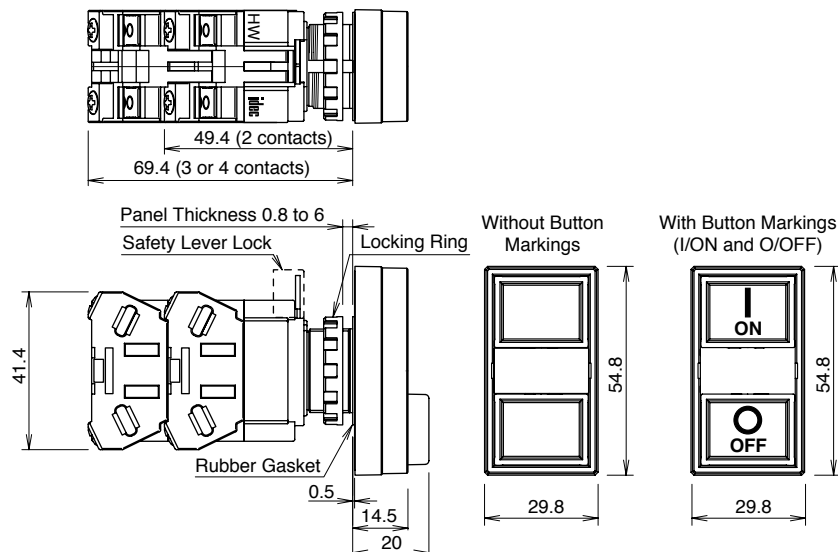


Transformer Model

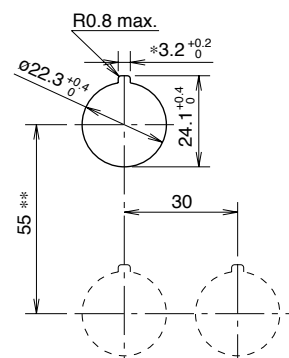


Dual Pushbutton

Without Pilot Light



Mounting Hole Layout



-The 3.2 mm recess is for preventing rotation and is not necessary when a nameplate or anti-rotation ring is not used.

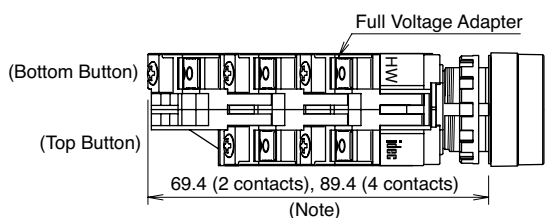
-When using the safety lever lock, determine the vertical spacing in consideration of convenience for installing and removing the safety lever lock.

-Recommended vertical spacing: 100 mm

-The minimum mounting centers are applicable to switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers for ease of wiring.

With Pilot Light

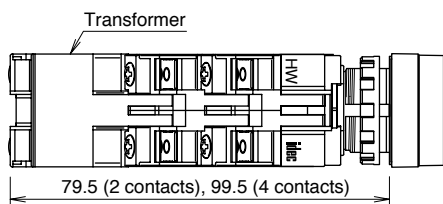
Full Voltage



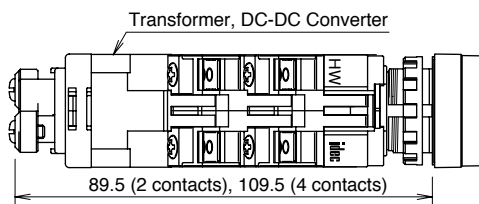
The depth of a 3-contact model depends on the combination of contact blocks at top and bottom pushbuttons.

Top Button	1 contact block	2 contact blocks
Bottom Button	2 contact blocks	1 contact block
Depth	89.4 mm	69.4 mm

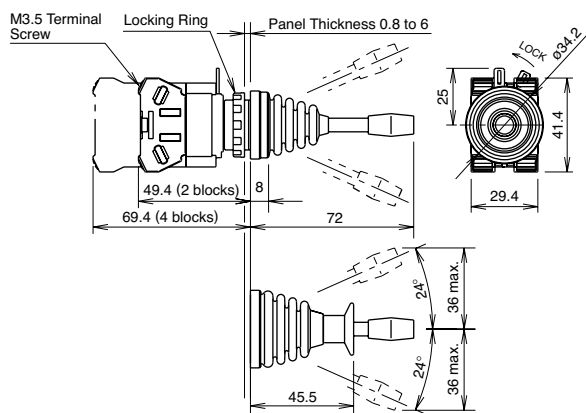
Transformer (240V minimum)



Transformer (480V)



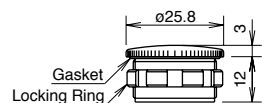
Monolever



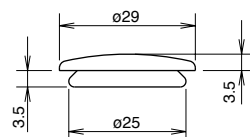
Dimensions (mm)

Accessory Dimensions

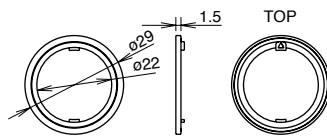
LW9Z-BM
Metallic Mounting Hole Plug



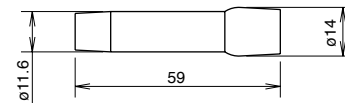
OB-31
Rubber Mounting Hole Plug



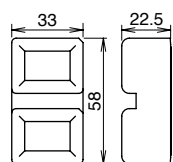
HW9Z-RL
Anti-Rotation Ring



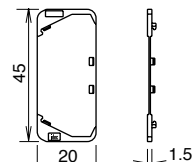
OR-55
Lamp/LED Removal Tool



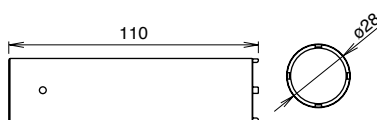
HW9Z-D7D
Dual Pushbutton Rubber Cover



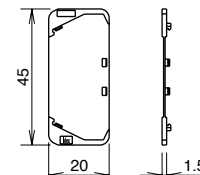
HW-VG1
Dual Pushbutton Barrier



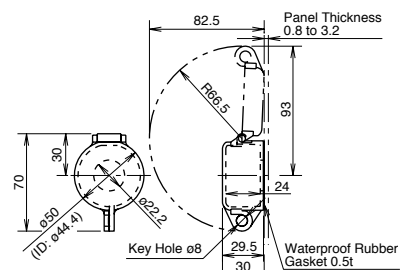
MW9Z-T1
Locking Ring Wrench



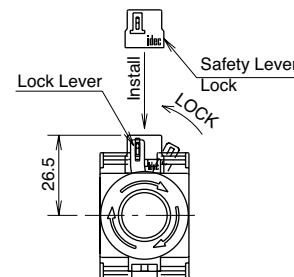
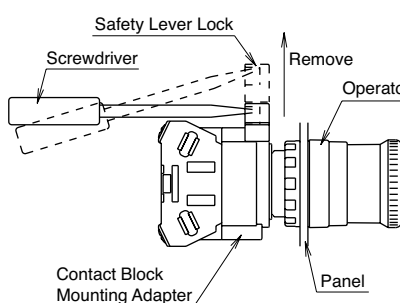
HW-VL1
Barrier



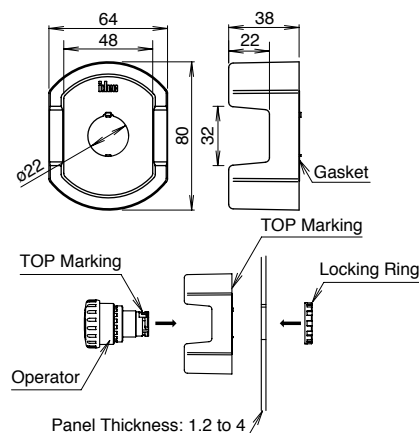
HW9Z-KL1
Padlock Cover



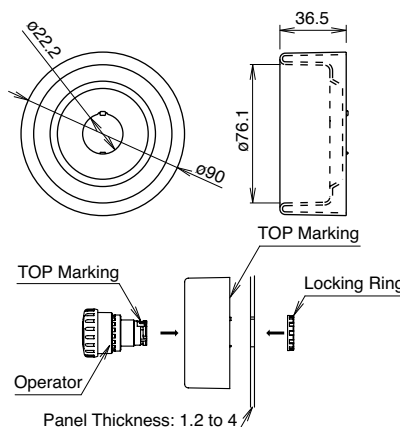
HWLS-TK1971
Safety Lever Lock



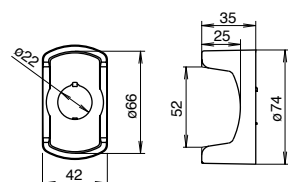
HW9Z-KG1



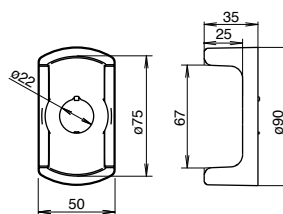
HW9Z-KG2



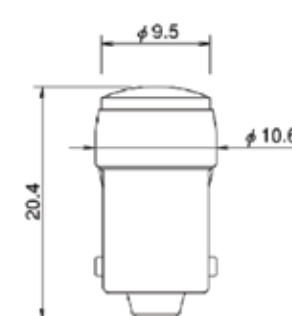
HW9Z-KG3



HW9Z-KG4



LSTD



Switches & Pilot Lights

Display Lights

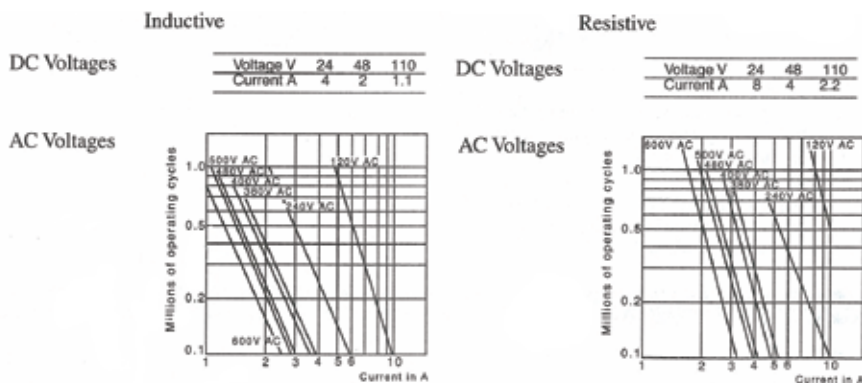
Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

Specification Charts



Conforming to IED 947-5-1 Appendix C.
Utilization categories AC-15 and DC-13.
Operation rate: 1,800 op. hour
Load factor:
Inductive 0.4 ± 0.05
Resistive 0.9 ± 0.05

2 Position Selector Switches

	Contact	Mounting Position	Operator Position	
			Left	Right
HW1S-2T HW1K-2* HW1F-2	HW-F10 (NO)	L	O	X
		R	O	X
	HW-F01 (NC)	L	X	O
		R	X	O
	HW-F10R (NO-EM)	L	O	X
		R	O	X
	HW-F01R (NC-LB)	L	X	O
		R	X	O

Operator Truth Tables

3 Position Selector Switches can't

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
HW1S-3JT HW1K-3J*	HW-F10 (NO)	L	X	O	O
		R	O	O	X
	HW-F01 (NC)	L	O	X	O
		R	O	X	O
	HW-FC10R (NO-EM)	L	X	O	X
		R	X	O	X
	HW-F01R (NC-LB)	L	O	X	X
		R	X	X	O

3 Position Selector Switches

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
HW1S-3T HW1K-3* HW1F-3	HW-F10 (NO)	L	X	O	O
		R	O	O	X
	HW-F01 (NC)	L	O	X	X
		R	X	X	O
	HW-F10R (NO-EM)	L	X	O	O
		R	O	O	X
	HW-F01R (NC-LB)	L	O	X	X
		R	X	X	O

4 Position Selector Switches

	Contact	Mounting Position	Operator Position			
			1	2	3	4
HW1S-4T	HW-F10 (NO)	L	X	O	O	O
		R	O	O	O	X
	HW-F01 (NC)	L	O	O	X	O
		R	O	X	O	O
	HW-F10R (NO-EM)	L	X	X	O	X
		R	X	O	X	X
	HW-F01R (NC-LB)	L	O	X	X	X
		R	X	X	X	O

5 Position Selector Switches

	Contact	Mounting Position	Operator Position				
			1	2	3	4	5
HW1S-5T	HW-F10 (NO)	L	X	O	O	O	O
		R	O	O	O	O	X
	HW-F01 (NC)	L	O	O	O	X	O
		R	O	X	O	O	O
	HW-F10R (NO-EM)	L	X	X	X	O	X
		R	X	O	X	X	X
	HW-F01R (NC-LB)	L	O	X	X	X	X
		R	X	X	X	X	O



1. Mounting position indicates which side of operator each contact should be mounted (as viewed from the front of the panel).
2. *For key removable code see page 528.
3. HW1S-3T is identified by white plungers on the operator.
4. HW1S-3ST is identified by red plungers on the operator.
5. HW1S-3JT is identified by black plungers on the operator.

HW Safety Precautions

Turn off power to HW series control units before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.

To avoid the possibility of burning yourself, use the lamp holder tool when replacing lamps.

For wiring, use wires of a proper size to meet voltage and current requirements. Tighten the M3.5 terminal screws to a tightening torque of 1.0 to 1.3 N·m. Failure to tighten terminal screws may cause overheating and fire.

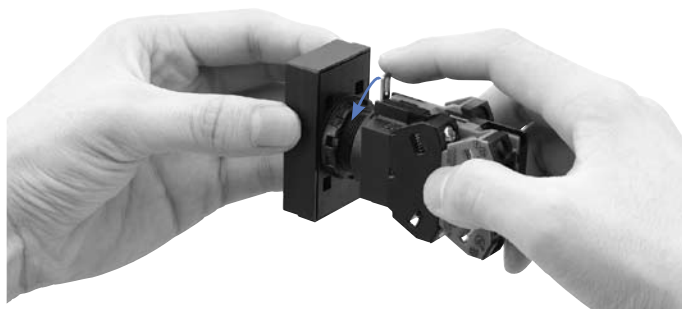
HW General Instructions

Panel Mounting

Remove the contact block assembly from the operator (for transformer type pilot lights, remove the transformer from the illumination unit). Remove the locking ring from the operator. Insert the operator into the panel cut-out from the front, tighten the locking ring from the back, then install the contact block assembly to the operator.

Removing and Installing the Contact Block Assembly

1. To remove the operator from the contact block, turn the locking lever in the direction of the arrow shown below. The operator can now be removed.
2. To reinstall, place the TOP markings on the operator and the contact block mounting adapter in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.



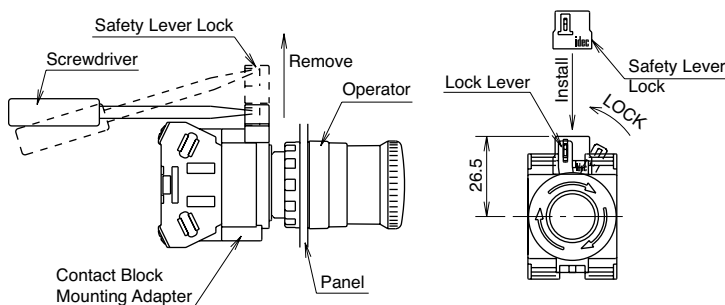
Notes for Panel Mounting

1. When mounting the operator onto a panel, use the optional locking ring wrench (MW9Z-T1) to tighten the locking ring. Tightening torque must not exceed 2.0 N·m. Do not use pliers. Excessive tightening will damage the locking ring.
2. For the contact blocks and transformers housing LED and incandescent lamps, make sure not to press the lamps too hard, otherwise the lamp socket may be damaged.

Safety Lever Lock

IDEC strongly recommends using the safety lever lock (HW9Z-LS, yellow) to prevent heavy vibration or maintenance personnel from unlocking the contact assembly.

1. HW series can be mounted vertically with a minimum spacing of 55 mm but spacing should be determined to ensure easy operation (recommended minimum spacing: 100 mm).
2. Mount the control unit onto the panel, lock the lever, and push in the safety lever lock to install.
3. When the spacing is narrower than the recommended value, with the lever unlocked, mount the safety lever lock and insert the contact unit to the operator. Then, lock the lever and strongly push in the safety lever lock to install.
4. To remove the safety lever lock, insert a flat screwdriver into the safety lever and push upwards.



Dual Pushbutton Instructions

Replacement of Lens

Removing

Remove the lens by inserting a screwdriver into the recess of the lens through the bezel.

Installing

Install the lens in the recess between the buttons by pressing against the bezel.



Dual Pushbuttons Instructions con't

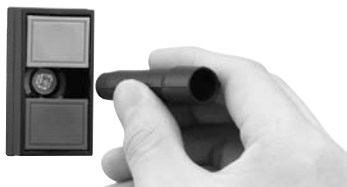
Replacement of Lamps

Lamps can be replaced by using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block assembly from the operator unit.

Removing the Lamps from the Front of the Panel

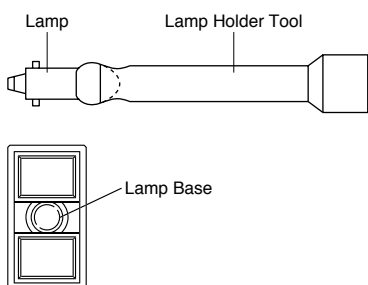
Removal

1. To remove, slip the lamp holder tool onto the lamp head lightly. Then push slightly, and turn the lamp holder tool counterclockwise.



Installation

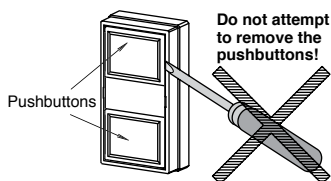
1. To install, insert the lamp head into the lamp holder tool, and hold the lamp as shown in the figure below.
2. Place the pins on the lamp base to the grooves in the lamp socket. Insert the lamp and turn it clockwise.



About Pushbutton Switches

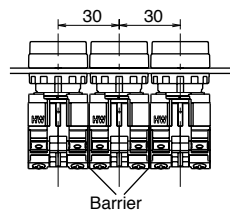
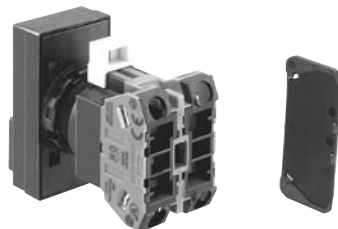
The pushbuttons cannot be removed or replaced!

Do not attempt to remove using a flat screwdriver or pinners, otherwise the pushbuttons may be damaged.

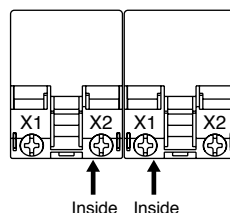


Narrow Mounting

When mounting the units closely in a horizontal row on 30mm centers, use optional barriers to prevent interconnection between adjoining terminals. The barriers can be attached simply by pressing them onto the sides of contact blocks.



When mounting transformer type illuminated units closely in a horizontal row on 30-mm centers, insert solid wires or stranded wires into inside of the terminal screw on the transformer (see figure on the right) to prevent short circuit between adjoining terminals.



Tightening Torque for Terminal Screws

Tighten the M3.5 terminal screws to a torque of 1.0 to 1.3 N·m.

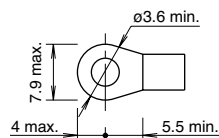
Installation of LED Illuminated Units

When using full voltage type LED illuminated units, provide protection against electrical noise, if necessary.

Applicable Wiring

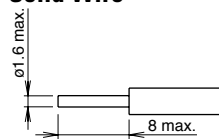
The applicable wire size is 2 mm² maximum. (solid wire ø1.6mm² maximum) One or two wires can be connected.

Applicable Crimping Terminal

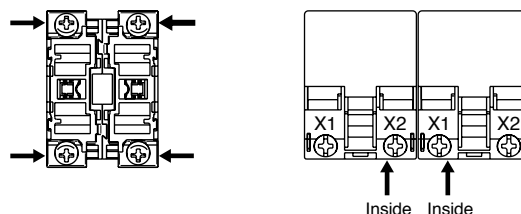


Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

Solid Wire



Note: When connecting wires to contact blocks or transformers in the direction shown below, keep the insulation stripping length 6.6 mm at the maximum.



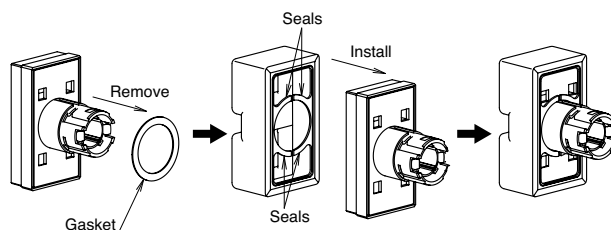
Installing the Rubber Cover

When using the HW7D pushbuttons in places where the pushbuttons are subjected to water splash or an excessive amount of dust, make sure to use the HW9Z-D7D rubber boot (IP65) which is ordered separately.

Notes for Installing the Rubber Cover

Remove the gasket from the operator, and install the rubber boot on the operator. Pull out the seals of the rubber boot and place them around the operator sleeve as shown. Make sure that the seals are not twisted or tucked inside and that the gasket does not remain, otherwise the normal waterproof and dustproof characteristics are not ensured.

1. Remove the gasket.
2. Install the rubber boot on the pushbuttons.
3. Rubber boot is installed.



TW Series – 22mm NEMA Style Pushbuttons



TW NEMA Style Switches with snap-on contacts

Key features include:

- Corrosion resistant octagonal chrome plated locking bezel
- Snap-on 10A contact blocks
- Incandescent or LED illumination
- Slow make, double break, self cleaning contacts
- Modular construction for maximum flexibility
- NEMA 4X and IP65 watertight/oiltight panel
- Available assembled or as sub-components
- Large M3.5 screw terminals with captive sems plate

IDEC has your 22mm switching needs covered.

Button styles include flush, extended, mushroom, or square and all bodies are crafted from fracture-resistant nylon.

All illuminated units feature two lense styles, one that maximizes light dispersion, the other accommodates direct lens engraving.

Self cleaning contact mechanisms allow for a wide current rating, 5mA to 10A, which reduces the need for various contact materials.

When looking for a 22mm switch that is durable, easy to use, and versatile, then IDEC's TW series is your solution.



UL Listed
File No. E70646



CSA Approved
File No. LR21451



File No. DK95-01696



Specifications	Conforming to Standards		EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14							
	Approvals		 File No. E70646  File No. LR21451  Certificate No. 2030010305027380  TÜV Rheinland  Registration No: J9551802 (E-Stops) Registration No: J9551803 (All other switches) Registration No: J9551804 (Pilot Lights) CSA: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) UL: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) TÜV: pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB) pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)							
	Operating Temperature		Operation: −25 to +50°C (without freezing), Storage: −40 to +80°C (without freezing)							
	Vibration Resistance		5 to 55Hz, 100m/sec² (10g) conforming to IEC6068-2-6							
	Shock Resistance		1000m/sec² (100g) conforming to IEC6068-2-7							
	Electric Shock Protection		Class 0 conforming to IEC60536							
	Degree of Protection (conforming to IEC60529) (conforming to NEMA ICS6-110)		IP65 from front of the panel; (IP54 for key switches) IP20 (Type HW-F contact block) NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (NEMA 1, 2, 3R, 5, 12, 13 for key switches)							
	Mechanical Life		Momentary pushbuttons: 5,000,000 (900 operations per hour) All other switches: 500,000							
	Pollution Degree (conforming to IEC60947-1)		3 for switches not using a transformer, 2 for switches using a transformer							
	Rated Operational Characteristics		AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB) DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC) DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)							
	Rated Insulation Voltage		600V							
	Rated Switching Over-Voltage		Less than 4kV, conforming to IEC60947-1							
	Rated Impulse Withstanding Voltage		4kV for contact circuit, 2.5kV for lamp circuit							
	Rated Thermal Current		10 Amp							
	Minimum Switching Capacity		5 mA at 3V AC/DC							
	Contact Operation		Slow break NC or slow make NO, self-cleaning							
	Recommended Terminal Torque		0.8 N m (7.1 in lb.)							
	External Short-Circuit Protection		10A 250V fuse conforming to IEC60269-1							
	Applicable Wire Size		Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG							
	Contact Resistance		Initial contact resistance of 50mΩ or less							
	Contact Gap		4mm (NO and NC), 2mm (NO-EM and NC-LB)							
	Electrical Reliability		MTBF < 1 fault for 10 million operation cycles (3V DC, 5mA)							
	Lamp Ratings		Incandescent: 1 W LEDs: 6V: 17mA max, 12/24V: 11mA max, 120/240V: 10mA max							
	Horsepower Rating		1/4 HP @ 120V (single-phase, non-reversing motor); 1 HP @ 240V (3 phase, non-reversing motor)							
	Maximum Inrush Current		40 A (40 ms)							
	Contact Material		Silver							
	Contact Ratings	Pushbuttons		Contact Block				Type HW-C/HW-F		
Illuminated Pushbuttons		Rated Insulation Voltage				600V				
Selector Switches		Rated Continuous Current				10A				
Illuminated Selector Switches Pushbutton Selectors		Contact Ratings by Utilization Category IEC 60947-5-1				AC-15 (A600) DC-13 (P600)				
Characteristics	Contact Ratings by Utilization Category									
	Operational Voltage				24V	48V	50V	110V	220V	440V
	Operational Current	AC50/60Hz	AC-12 Control of resistive loads and solid state loads		10A	—	10A	10A	6A	2A
			AC-15 Control of electromagnetic loads (> 72VA)		10A	—	7A	5A	3A	1A
		DC	DC-12 Control of resistive loads and solid state loads		8A	5A	—	2.2A	1.1A	—
			DC-13 Control of electromagnets		5A	2A	—	1.1A	0.6A	—

Non-Illuminated Pushbuttons (Assembled)



Assembled Pushbuttons

A B () W 1 10 () - B

Function

B: Momentary
O: Maintained
K: Key On/Off Lock

Bezel Shape

Blank: Octagonal
F: Full Shroud
G: Mushroom Shroud
Q: Square

Button Color

B: Black G: Green W: White
R: Red S: Blue Y: Yellow

Terminal Style

Blank: Standard
N: Fingersafe (IP20)

Contact Arrangement

10: 1NO 01: 1NC
20: 2NO 02: 2NC
11: 1NO-1NC 22: 2NO-2NC

Button Shape

1: Flush
2: Extended
3: Mushroom Head Ø 29mm
4: Mushroom Head Ø 40mm

Series Designation

W: TW Series

 To be used for interpreting part numbers only, not for part number development.

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

Non-Illuminated Pushbuttons (Assembled) continued

Non-Illuminated Pushbuttons

Style	Contacts	Momentary Action	Maintained Action
Flush	1NO 1NC 1NO-1NC 2NO 2NC	ABW110-① ABW101-① ABW111-① ABW120-① ABW102-①	AOW110-① AOW101-① AOW111-① AOW120-① AOW102-①
Extended	1NO 1NC 1NO-1NC 2NO 2NC	ABW210-① ABW201-① ABW211-① ABW220-① ABW202-①	AOW210-① AOW201-① AOW211-① AOW220-① AOW202-①
Recessed	1NO 1NC 1NO-1NC 2NO 2NC	ABFW110-① ABFW101-① ABFW111-① ABFW120-① ABFW102-①	AOFW110-① AOFW101-① AOFW111-① AOFW120-① AOFW102-①
Extended with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFW210-① ABFW201-① ABFW211-① ABFW220-① ABFW202-①	AOFW210-① AOFW201-① AOFW211-① AOFW220-① AOFW202-①
Ø 29mm Mushroom Head	1NO 1NC 1NO-1NC 2NO 2NC	ABW310-① ABW301-① ABW311-① ABW320-① ABW302-①	AOW310-① AOW301-① AOW311-① AOW320-① AOW302-①
Ø 40mm Mushroom Head	1NO 1NC 1NO-1NC 2NO 2NC	ABW410-① ABW401-① ABW411-① ABW420-① ABW402-①	AOW410-① AOW401-① AOW411-① AOW420-① AOW402-①
Ø 40mm Mushroom Head with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGW410-① ABGW401-① ABGW411-① ABGW420-① ABGW402-①	AOGW410-① AOGW401-① AOGW411-① AOGW420-① AOGW402-①
Square Flush	1NO 1NC 1NO-1NC 2NO 2NC	ABQW110-① ABQW101-① ABQW111-① ABQW120-① ABQW102-①	AQW110-① AQW101-① AQW111-① AQW120-① AQW102-①
Square Extended	1NO 1NC 1NO-1NC 2NO 2NC	ABQW210-① ABQW201-① ABQW211-① ABQW220-① ABQW202-①	AQW210-① AQW201-① AQW211-① AQW220-① AQW202-①
Keylock Push On/Off	1NO 1NC 1NO-1NC 2NO 2NC	AKW210 AKW201 AKW211 AKW220 AKW202	—

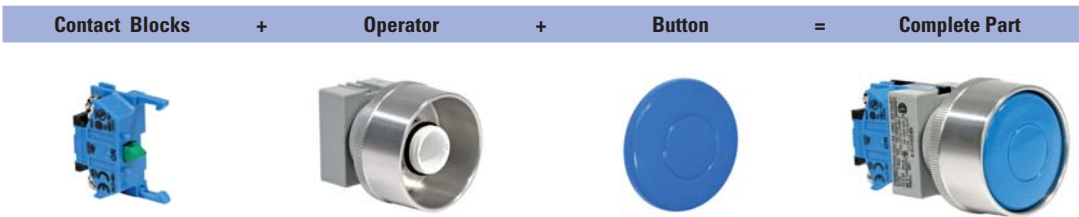
① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y
White	W



1. In place of ①, specify the Button Color Code from table.
2. For sub-assembled part numbers, see next page.
3. For accessories, see page 593.
4. For dimensions, see page 595.
5. Keyed switches are supplied with two keys. All units are keyed alike.

Non-Illuminated Pushbuttons (Sub-Assembled)



Operators

Style	Part Number	
	Momentary	Maintained
Round Flush/Extended	ABW-100	AOW-100
Round with Full Shroud/ Recessed	ABFW-200	AOFW-200
Ø 40mm, Ø 29mm Mushroom Head	ABW-300	AOW-300
Ø 40mm Mushroom Head with Full Shroud	ABGW-400	AOGW-400
Square Flush/Extended	ABQW-100	AQW-100
Keylock Push On/Off	—	AKW-200

Buttons

Style	Part Number
Round Flush	ABW1B-①
Round Extended	ABW2B-①
Ø 29mm Mushroom	ABW3B-①
Ø 40mm Mushroom	ABW4B-①
Square Flush	ABQW1B-①
Square Extended	ABQW2B-①

In place of ① specify the button color code from table

Contact Blocks

Style	Part Number	
	1NO	1NC
Standard Exposed Screw	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)
Fingersafe (IP20), CE marked	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
Dummy Block	TW-DB	

- 1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
- 2. Use of early and late break contacts creates a make before break function

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y
White	W

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

E-Stops (Assembled)



Assembled E-Stops

A V (L) W 4 (B) (99) 11 (D) (N) - R - (24V)

Function

V: Pushlock Turn Reset
Y: Push-Pull
X: Pushlock Key Reset

Illumination

Blank: None
L: Illuminated

Series Designation

W: TW Series

Button/Lens Size

3: 29mm Mushroom
4: 40mm Mushroom

Lens Type

(illuminated units only)

Blank: Standard (ribbed)
B: Engravable (smooth with insert)

Illuminated Circuit

(illuminated unit only)

99: Full Voltage (lamp determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage

(full voltage illuminated units only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC (LED only)
240V: 240V AC (LED only)

Button/Lens Color

A: Amber R: Red W: White
G: Green S: Blue Y: Yellow
B: Black

Contact Terminal Style

Blank: Standard
N: Fingersafe (IP20)

Lamp Type

(illuminated units only)

Blank: Incandescent
D: LED

Contact Arrangement

10: 1NO 01: 1NC
20: 2NO 02: 2NC
11: 1NO/1NC 22: 2NO/2NC



To be used for interpreting part numbers only, not for part number development.

E-Stops (Assembled) continued

Non-Illuminated E-Stops

Style	Contacts	Part Number
Ø 40mm Pushlock Turn Reset* 	1NO	AVW410-R*
	1NC	AVW401-R*
	1NO-1NC	AVW411-R*
	2NO	AVW420-R*
	2NC	AVW402-R*
Ø 29mm Pushlock Turn Reset* 	1NO	AVW310-R*
	1NC	AVW301-R*
	1NO-1NC	AVW311-R*
	2NO	AVW320-R*
	2NC	AVW302-R*
Ø 40mm Push-Pull 	1NO	AYW410-①
	1NC	AYW401-①
	1NO-1NC	AYW411-①
	2NO	AYW420-①
	2NC	AYW402-①
Ø 40mm Pushlock Key Reset * 	1NO	AXW410- R*
	1NC	AXW401- R*
	1NO-1NC	AXW411- R*
	2NO	AXW420- R*
	2NC	AXW402- R*

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V (LED only)
240V AC	240V (LED only)

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486



Transformers step down to 6V.

⑤ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

1. *Available in Red only.
 2. In place of ①, specify the Button Color Code from table.
 3. For sub-assembled part numbers, see next page.
 4. For accessories, see page 593.
 5. For dimensions, see page 595.

Illuminated E-Stops

Style	Type	Contacts	Part Number
Ø 40mm Pushlock Turn Reset Type 	Transformer	1NO-1NC 2NO 2NC	AVLW4 ④ 11⑤-R* AVLW4 ④ 20⑤-R* AVLW4 ④ 02⑤-R*
	Full Voltage	1NO-1NC 2NO 2NC	AVLW49911⑤-R*-③ AVLW49920⑤-R*-③ AVLW49902⑤-R*-③
Ø 29mm Pushlock Turn Reset 	Transformer	1NO-1NC 2NO 2NC	AVLW3④11⑤-R* AVLW3④20⑤-R* AVLW3④02⑤-R*
	Full Voltage	1NO-1NC 2NO 2NC	AVLW39911⑤-R*-③ AVLW39920⑤-R*-③ AVLW39902⑤-R*-③
Ø 40mm Push-Pull 	Transformer	1NO-1NC 2NO 2NC	AYLW4 ④ 11⑤-② AYLW4 ④ 20⑤-② AYLW4 ④ 02⑤-②
	Full Voltage	1NO-1NC 2NO 2NC	AYLW49911⑤-②-③ AYLW49920⑤-②-③ AYLW49902⑤-②-③

1. *Available in red only.
 2. In place of ②, specify the Lens Color Code (see table above).
 3. In place of ③, specify the Full Voltage Code (lamp voltage) (see table above).
 4. In place of ④, specify the Transformer Voltage Code (see table above).
 5. In place of ⑤, specify the Lamp Type Code from table above.
 6. For sub-assembly part numbers, see next page.
 7. For accessories, see page 593.
 8. For dimensions, see page 595.

E-Stops (Sub-Assembled)



*Not applicable for full voltage units

Operators

Style	Part Number	
	Non-Illuminated	Illuminated
Ø 29/Ø 40mm Push-lock Turn Reset 	AVW-300	AVLW3-0600
Ø 40mm Push-Pull 	AYW-400	AYLW4-0600
Ø 40mm Pushlock Key Reset 	AXW-300	—

Buttons

Style	Part Number
Ø 40mm Pushlock Turn Reset 	AVW4B-R*
Ø 29mm Pushlock Turn Reset 	AVW3B-R*
Ø 40mm Push-Pull 	AYW4B-①
Ø 40mm Pushlock Key Reset 	AXW4B-R*



- *Available in Red only
- In place of ①, specify the button color code from table.

Contact Blocks

Style	Voltage	Part Number
LED 	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent 	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



- In place of ②, specify the LED color code.
- The LED contains a current-limiting resistor and a protection diode.

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W

Illuminated E-Stops (Sub-Assembled) continued

Lenses

Style	Part Number	
	Standard	Engravable
Ø 29mm Head Pushlock Turn Reset 	AVLW3LU-R*	AVLW3BLU-R*
Ø 40mm Head Pushlock Turn Reset 	AVLW4LU-R*	AVLW4BLU-R*
Ø 40mm Head Push Pull 	AYLW4LU-②	AYLW4BLU-②



1. In place of ②, specify the lens color code from table on previous page.
2. *Available only in red
3. Standard lenses have ribbed pattern, Engravable lenses are smooth and include an engraving insert.

Lamp Circuit Components

Style	Application	Part Number
Short Lamp Holder 	Used with a Half-size Transformer and one contact block	TW-LH1
Long Lamp Holder 	Used with Full-size Transformer and two contact blocks Used with Half-size Transformer and three contact blocks Used with Full Voltage Adaptor and two contact blocks	TW-LH2
Lead Holder 	Used with TW-LH2 holder when using four contact blocks	HW-LH3

Transformers/Full Voltage Modules

Style	Description	Part Number
Full Size Transformer 	120V AC	TW-T126B
	Standard 240V AC	TW-T246B
	480V AC	TW-T486B
	Fingersafe 120V AC	TW-F126B
	240V AC	TW-F246B
Half Size Transformer 	120V AC	TW-T126SB
	240V AC	TW-T246SB
Full voltage model (use with even number of contacts) 	Standard	TW-DA1B
	Fingersafe	TW-DA1FB
Full voltage model (use with odd number of contacts) 	Standard	HW-DA1B
	Fingersafe	HW-DA1FB



All Transformers step down to 6V (use 6V lamp).

Contact Blocks

Style	Part Number	
	1NO	1NC
Standard Exposed Screw 	HW-C10	HW-C01
	HW-C10R (early make)	HW-C01R (late break)
Fingersafe (IP20), CE marked 	HW-F10	HW-F01
	HW-F10R (early make)	HW-F01R (late break)
Dummy Block 	TW-DB	



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

Pilot Lights (Assembled)



Assembled Pilot Lights

A P (Q) W 1 (B) (99) (D) - R - (24V)

Function

P: Pilot Light

Bezel Shape

Blank: Octagonal (round lenses)
Q: Square

Series Designation

W: TW Series

Lens Shape

1: Flat
2: Dome

Lens Type

Blank: Standard (ribbed)
B: Engravable (smooth with insert included)

Illumination Circuit

- 99: Full Voltage (lamp determines voltage)
- 126: 120V AC Step Down Transformer
- 246: 240V AC Step Down Transformer
- 486: 480V AC Step Down Transformer

Lamp Voltage

(Full Voltage Units Only)

- 6V: 6V AC/DC
- 12V: 12V AC/DC
- 24V: 24V AC/DC
- 120V: 120V AC (LED only)
- 240V: 240V AC (LED only)

Lens Color Code

- A: Amber
- G: Green
- R: Red
- S: Blue
- W: White
- Y: Yellow

Lamp Type

Blank: Incandescent
D: LED



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. All transformers step down to 6V.

Pilot Lights (Assembled) continued

Assembled Pilot Lights

Style		Type	Voltage	Part Number
Round Flat		Transformer	120VAC 240VAC 480VAC	APW1126④-② APW1246④-② APW1486④-②
		Full Voltage	—	APW199④-②-③
Dome		Transformer	120VAC 240VAC 480VAC	APW2126④-② APW2246④-② APW2486④-②
		Full Voltage	—	APW299④-②-③
Square Flat		Transformer	120VAC 240VAC 480VAC	APQW1B126④-② APQW1B246④-② APQW1B486④-②
		Full Voltage	—	APQW1B99④-②-③

- 
1. In place of ②, specify the Lens Color Code from table below.

2. In place of ③, specify the Full Voltage Code from table below.

3. In place of ④, specify the Lamp Type Code from table below.

4. For accessories, see page 593.

5. For dimensions, see page 595.

6. For sub-assembly part numbers, see next page.

7. Yellow pilot light comes with white LED.

② Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

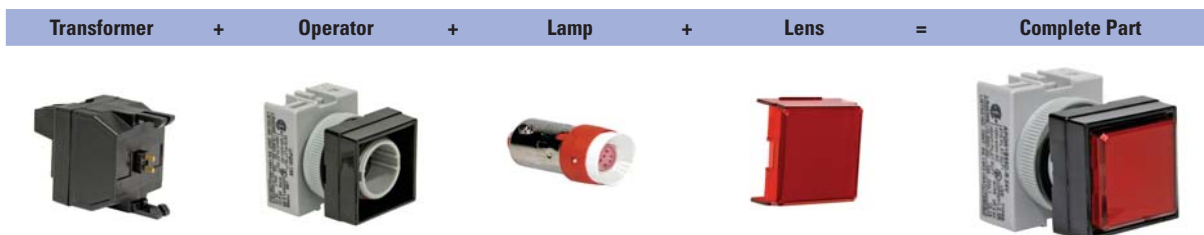
③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V (LED only)
240V AC	240V (LED only)

④ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

Pilot Lights (Sub-Assembled)



* Transformer not required for full voltage units.

Operators

Style	Part Number
Round Dome/Flat	APW-199
Square	UPQW-199



Same operator is used for full voltage as for transformer completed units.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.
3. Yellow LED not available. Use white LED.

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y



If clear lens is desired, use white marking lens and remove engraving insert

Transformers

Style	Description	Part Number
	120V AC	TW-T126B
	240V AC	TW-T246B
	480V AC	TW-T486B
Fingersafe	120V AC	TW-F126B
	240V AC	TW-F246B
	480V AC	TW-F486B



All Transformers step down to 6V (use 6V lamp).

Lenses

Style	Part Number	
	Standard	Engravable
Dome	APW2LU-②	—
Round Flat	APW1LU-②	APW1BLU-②
Square Flat	—	APQW1BLU-②



1. In place of ②, specify the Lens Color Code from table.
2. Standard lenses have a ribbed lens to enhance light dispersion. Marking lenses are smooth and include an engraving insert.

Illuminated Pushbuttons (Assembled)



Assembled Illuminated Pushbuttons

A L (F) W 2 (B) 99 11 (D) (N) - R - (24V)

Function

L: Momentary Action
OL: Maintained Action

Bezel Shape

Blank: Octagonal (round lenses)
F: Full Shroud (round lenses)
Q: Square

Series Designation

W: TW series

Lens Shape/Size

2: Standard Extended (round or square)
3: 29mm Mushroom
4: 40mm Mushroom

Lens Type

Blank: Standard (ribbed)
B: Engravable (smooth with insert)

Illumination Circuit

99: Full Voltage (lamp determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage

(Full Voltage Units Only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC (LED only)
240V: 240V AC (LED only)

Lens Code

A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Contact Terminal Style

Blank: Standard
N: Fingersafe

Lamp Type

Blank: Incandescent Lamp
D: LED Lamp

Contact Arrangement

10: 1NO 01: 1NC
20: 2NO 02: 2NC
11: 1NO-1NC 22: 2NO-2NC



- 1. Use only when interpreting part numbers. Do not use for developing part numbers.
- 2. Transformers step down to 6V.

Illuminated Pushbuttons (Assembled)

Illuminated Pushbuttons

Style		Contacts	Part Number	
			Momentary	Maintained
 Extended Lens	Transformer	1NO-1NC 2NO 2NC	ALW2 ④ 11⑤-② ALW2 ④ 20⑤-② ALW2 ④ 02⑤-②	AOLW2 ④ 11⑤-② AOLW2 ④ 20⑤-② AOLW2 ④ 02⑤-②
	Full Voltage	1NO-1NC 2NO 2NC	ALW29911⑤-②-③ ALW29920⑤-②-③ ALW29902⑤-②-③	AOLW29911⑤-②-③ AOLW29920⑤-②-③ AOLW29902⑤-②-③
 Extended Lens with Full Shroud	Transformer	1NO-1NC 2NO 2NC	ALFW2 ④ 11⑤-② ALFW2 ④ 20⑤-② ALFW2 ④ 02⑤-②	AOLFW2 ④ 11⑤-② AOLFW2 ④ 20⑤-② AOLFW2 ④ 02⑤-②
	Full Voltage	1NO-1NC 2NO 2NC	ALFW29911⑤-②-③ ALFW29920⑤-②-③ ALFW29902⑤-②-③	AOLFW29911⑤-②-③ AOLFW29920⑤-②-③ AOLFW29902⑤-②-③
 ø29mm Mushroom Lens	Transformer	1NO-1NC 2NO 2NC	ALW3 ④ 11⑤-② ALW3 ④ 20⑤-② ALW3 ④ 02⑤-②	AOLW3 ④ 11⑤-② AOLW3 ④ 20⑤-② AOLW3 ④ 02⑤-②
	Full Voltage	1NO-1NC 2NO 2NC	ALW39911⑤-②-③ ALW39920⑤-②-③ ALW39902⑤-②-③	AOLW39911⑤-②-③ AOLW39920⑤-②-③ AOLW39902⑤-②-③
 ø40mm Mushroom Lens	Transformer	1NO-1NC 2NO 2NC	ALW4 ④ 11⑤-② ALW4 ④ 20⑤-② ALW4 ④ 02⑤-②	AOLW4 ④ 11⑤-② AOLW4 ④ 20⑤-② AOLW4 ④ 02⑤-②
	Full Voltage	1NO-1NC 2NO 2NC	ALW49911⑤-②-③ ALW49920⑤-②-③ ALW49902⑤-②-③	AOLW49911⑤-②-③ AOLW49920⑤-②-③ AOLW49902⑤-②-③
 Square Extended	Transformer	1NO-1NC 2NO 2NC	ALQW2B ④ 11⑤-② ALQW2B ④ 20⑤-② ALQW2B ④ 02⑤-②	AOLQW2B ④ 11⑤-② AOLQW2B ④ 20⑤-② AOLQW2B ④ 02⑤-②
	Full Voltage	1NO-1NC 2NO 2NC	ALQW2B9911⑤-②-③ ALQW2B9920⑤-②-③ ALQW2B9902⑤-②-③	AOLQW2B9911⑤-②-③ AOLQW2B9920⑤-②-③ AOLQW2B9902⑤-②-③

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

1. Mushroom lenses not available in yellow.
2. Yellow pushbutton comes with white LED.

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V (LED only)
240V AC	240V (LED only)

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486

- Transformers step down to 6V (use 6V lamp).

⑤ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

1. In place of ②, specify the Lens Color Code (see table). Mushroom lenses not available in yellow.
2. In place of ③, specify the Full Voltage Code (lamp voltage) (see table).
3. In place of ④, specify the Transformer Voltage Code (see table).
4. In place of ⑤, specify the Lamp Type Code from table.
5. For sub-assembly part numbers, see next page.
6. For accessories, see page 593.
7. For dimensions, see page 595.
8. Light is independent of switch position.
9. Yellow pushbutton comes with white LED.

Illuminated Pushbuttons (Sub-Assembled)

Transformer/ Adaptor*	+	Contacts	+	Lamp Holder	+	Operator	+	Lamp	+	Lens	=	Complete Part

*Not applicable for full voltage units

Operators

Style		Part Number	
		Momentary	Maintained
Extended		ALW-0600	AOLW-0600
Extended with Full Shroud		ALFW-0600	AOLFW-0600
ø29mm/ø40mm Mushroom		ALW3-0600	AOLW3-0600
Square/Extended		ALQW-2B0600	AOLQW-2B0600

Lenses

Style		Part Number	
		Standard	Engravable
Round Extended		ALW2LU-②	ALW2BLU-②
ø 29mm Mushroom Head*		ALW3LU-②	ALW3BLU-②
ø 40mm Mushroom Head*		ALW4LU-②	ALW4BLU-②
Square Extended		—	ALQW2BLU-②

1. In place of ②, specify the lens color code from table on the bottom right.
 2. *Mushroom lens not available in yellow.
 3. Standard lenses have ribbed pattern, Engravable lenses are smooth and include an engravable insert.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



1. In place of ②, specify the LED color code.
 2. The LED contains a current-limiting resistor and a protection diode.

Lamp Circuit Components

Style	Application	Part Number
Short Lamp Holder	Used with a Half-size Transformer and one contact block	TW-LH1
Long Lamp Holder	Used with Full-size Transformer and two contact blocks Used with Half-size Transformer and three contact blocks Used with Full Voltage Adaptor and two contact blocks	TW-LH2
Lead Holder	Used with TW-LH2 holder when using four contact blocks	HW-LH3

② LED/Lens Color Codes

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	White	W
Red	R	Yellow	Y



Yellow LED not available. Use white LED.

Illuminated Pushbuttons (Sub-Assembled) continued

Contact Blocks

Style	Part Number	
	1NO	1NC
Standard Exposed Screw 	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)
Fingersafe (IP20), CE marked 	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
Dummy Block 	TW-DB	

-  1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

Transformers/Full Voltage Modules

Style	Description	Part Number
Full Size Transformer 	120V AC	TW-T126B
	Standard 240V AC	TW-T246B
	480V AC	TW-T486B
	Fingersafe 120V AC	TW-F126B
	240V AC	TW-F246B
	480V AC	TW-F486B
Half Size Transformer 	120V AC	TW-T126SB
	240V AC	TW-T246SB
Full voltage model (use with even number of contacts) 	Standard	TW-DA1B
	Fingersafe	TW-DA1FB
Full voltage model (use with odd number of contacts) 	Standard	HW-DA1B
	Fingersafe	HW-DA1FB

-  All Transformers step down to 6V (use 6V lamp).

Non-Illuminated Selector Switches (Assembled)



Assembled Selector Switches

A S W 3 (1) (L) 20 (N) – 304

Function

S: Selector Switch

Series Designation

W: TW Series

Number of Positions

- 2: 2-Position
- 3: 3-Position
- 4: 4-Position
- 5: 5-Position

Spring Return Action

- Blank: Maintained
- 1: Spring return from Right (2 or 3 position)
- 2: Spring return from Left (2 or 3 position)
- 3: 2-Way spring return from Left and Right (3 position only)

Circuit Number

(Standard circuits shown on following pages and 585.)

Contacts Terminal Style

- Blank: standard
- N: Fingersafe (IP20)

Contact Arrangement Code

- | | |
|-------------|-------------|
| 10: 1NO | 01: 1NC |
| 20: 2NO | 02: 2NC |
| 40: 4NO | 04: 4NC |
| 11: 1NO-1NC | 22: 2NO-2NC |

Operator Style Code

- Blank: Knob Operator
- L: Lever Operator
- K: Key Operator



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom contact configurations available.
3. Custom key removable codes available.
4. Portions of part number inside () are optional.

Non-Illuminated Selector Switches (Assembled) continued

2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position			Maintained	Spring Return from Right	Spring Return from Left
		L 	R 				
1NO	1 2	0 0	X 0	Knob Lever Key	ASW210 ASW2L10 ASW2K10	ASW2110 ASW21L10 ASW21K10	ASW2210 ASW22L10 ASW22K10
1NC	1 2	X 0	0 0	Knob Lever Key	ASW201-116 ASW2L01-116 ASW2K01-116	ASW2101-116 ASW21L01-116 ASW21K01-116	ASW2201-116 ASW22L01-116 ASW22K01-116
1NO 1NC	1 2	X 0	0 X	Knob Lever Key	ASW211 ASW2L11 ASW2K11	ASW2111 ASW21L11 ASW21K11	ASW2211 ASW22L11 ASW22K11
2NO	1 2	0 0	X X	Knob Lever Key	ASW220 ASW2L20 ASW2K20	ASW2120 ASW21L20 ASW21K20	ASW2220 ASW22L20 ASW22K20
2NC	1 2	X X	0 0	Knob Lever Key	ASW202-104 ASW2L02-104 ASW2K02-104	ASW2102-104 ASW21L02-104 ASW21K02-104	ASW2202-104 ASW22L02-104 ASW22K02-104
2NO 2NC	1 2 3 4	0 X 0 X	X 0 X 0	Knob Lever Key	ASW222 ASW2L22 ASW2K22	ASW2122 ASW21L22 ASW21K22	ASW2222 ASW22L22 ASW22K22
2NO 2NC	1 2 3 4	0 0 X X	X X 0 0	Knob Lever Key	ASW222-111 ASW2L22-111 ASW2K22-111	ASW2122-111 ASW21L22-111 ASW21K22-111	ASW2222-111 ASW22L22-111 ASW22K22-111



Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

Non-Illuminated Selector Switches (Assembled) continued

3-Position Selector Switches

Style					Part Number			
Contact	Mounting	Operator Position			Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way
		L	C	R				
2NO	1	X	0	0	Knob Lever Key	ASW320	ASW3120	ASW3220
	2	0	0	X		ASW3L20 ASW3K20	ASW32L20 ASW32K20	ASW3320 ASW33L20 ASW33K20
2NC	1	0	X	X	Knob Lever Key	ASW302	ASW3102	ASW3202
	2	X	X	0		ASW3L02 ASW3K02	ASW32L02 ASW32K02	ASW3302 ASW33L02 ASW33K02
2NO 2NC	1	X	0	0	Knob Lever Key	ASW322 ASW3L22 ASW3K22	ASW3122 ASW31L22 ASW31K22	ASW3222 ASW32L22 ASW32K22
	2	0	0	X				
	3	0	X	X				
	4	X	X	0				
2NO 2NC	1	X	0	X	Knob Lever Key	ASW322-309 ASW3L22-309 ASW3K22-309	ASW3122-309 ASW31L22-309 ASW31K22-309	ASW3222-309 ASW32L22-309 ASW32K22-309
	2	X	X	0				
	3	0	X	0				
	4	0	0	X				
2NO 2NC	1	0	X	0	Knob Lever Key	ASW322-310 ASW3L22-310 ASW3K22-310	ASW3122-310 ASW31L22-310 ASW31K22-310	ASW3222-310 ASW32L22-310 ASW32K22-310
	2	0	0	X				
	3	0	X	0				
	4	0	0	X				
4NO	1	X	0	0	Knob Lever Key	ASW340 ASW3L40 ASW3K40	ASW3140 ASW31L40 ASW31K40	ASW3240 ASW32L40 ASW32K40
	2	0	0	X				
	3	X	0	0				
	4	0	0	X				
4NC	1	0	X	X	Knob Lever Key	ASW304 ASW3L04 ASW3K04	ASW3104 ASW31L04 ASW31K04	ASW3204 ASW32L04 ASW32K04
	2	X	X	0				
	3	0	X	X				
	4	X	X	0				



- The truth table indicates the operating position of contact block when the operator is switched to that position.
X = On (closed contacts)
0 = Off (open contacts)
X—X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these two positions.
- All knob and lever selector switches come in black. Other colors are available by ordering the knob or lever separately.
- Every key selector switch uses an identical key. The key is removable in any maintained position.
- Custom contact configurations are available, see page 585.

4-Position Selector Switch

Style						Maintained	
Contact	Mounting	Operator Position					Part Number
		1	2	3	4		
2NO	1	X	0	0	0	Knob Lever	ASW422-411 ASW4L22-411
	2	0	X	0	0		
2NC	3	0	0	X	0		
	4	0	0	0	X		

5-Position Selector Switch

Style							Maintained	
Contact	Mounting	Operator Position						Part Number
		1	2	3	4	5		
2NO	1	X	0	0	0	0	Knob Lever	ASW522-501 ASW5L22-501
	2	0	X	0	0	0		
2NC	3	0	0	0	X	0		
	4	0	0	0	0	X		

Non-illuminated Selector Switches (Sub-Assembled)



- *Not needed with key type switches.
- *Knob type shown.

Operators

Style	Positions	Description	Part Number
	2	Maintained	ASW200
		Spring return from right	ASW2100
		Spring return from left	ASW2200
	3	Maintained, Cam 1	ASW300-1
		Maintained, Cam 2	ASW300-2
		Maintained, Cam 3	ASW300-3
		Spring return from right, Cam 1	ASW3100-1
		Spring return from right, Cam 2	ASW3100-2
		Spring return from left, Cam 1	ASW3200-1
		Spring return from left, Cam 2	ASW3200-2
		Spring return from left/right, Cam 1	ASW3300-1
		Spring return from left/right, Cam 2	ASW3300-2
	2	Maintained	ASW400
		Maintained, Cam 1	ASW400-1
		Maintained, Standard cam	ASW500
		Maintained, Cam 1	ASW500-1
	3	Maintained	ASW2K00
		Spring return from right	ASW21K00
		Spring return from left	ASW22K00
		Maintained, Cam 1	ASW3K00-1
		Maintained, Cam 2	ASW3K00-2
		Maintained, Cam 3	ASW3K00-3
		Spring return from right, Cam 1	ASW31K00-1
		Spring return from right, Cam 2	ASW31K00-2
		Spring return from left, Cam 1	ASW32K00-1
		Spring return from left, Cam 2	ASW32K00-2
		Spring return from left/right, Cam 1	ASW33K00-1
		Spring return from left/right, Cam 2	ASW33K00-2



- Two keys are supplied with every key switch, all are keyed alike, and removable from any maintained position.
- Locking rings are included with all operators. Order knobs, levers, and color inserts separately.
- Different cams produce different contact actions. For details, see contact arrangement charts, page 585.
- Key switch operator supplied with black sleeve.

① Handle/Insert Color Codes

Color	Code
Black*	B
Blue	S
Green	G
Red	R
Yellow	Y
White†	W



- *Color inserts not available in black.
†Knob and lever not available in white.

Handles and Inserts

Style	Part Number
Knob 	ASWHHY-①
Lever 	ASWHHL-①
Color Insert 	TW-HC1-①

Contact Blocks

Style	Part Number	
	1NO	1NC
Standard Exposed Screw 	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)
Fingersafe (IP20), CE marked 	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
Dummy Block 	TW-DB	



- Push rod color code:
Green = NO contact block
Red = NC contact block.
- Dummy blocks (no contacts) are used with an odd number of contact blocks.

Replacement Parts

Key Switch Black Sleeve	AKW2B-B
-------------------------	---------

Illuminated Selector Switches (Assembled)



Assembled Illuminated Selector Switches

Function ————— **A SL**

SL:Illuminated Selector Switch

Series Designation ————— **W**

W: TW series

Number of Positions ————— **2 (2)**

2: 2-Position
3: 3-Position

Spring Return Action ————— **99 11**

Blank: Maintained
1: Spring return from Right
2: Spring return from Left
3: Two-Way spring return from Left and Right

Illumination Circuit ————— **(D) (N) - (103) - R - (24V)**

99: Full Voltage (lamp determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage
(Full Voltage Units Only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC (LED only)
240V: 240V AC (LED only)

Lens Color Code

A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Contact Circuit Number

Standard circuits are listed on the following pages and 585.

Contact Terminal Style

Blank: Standard
N: Fingersafe

Lamp Type

Blank: Incandescent Lamp
D: LED Lamp

Contact Arrangement

10: 1NO	01: 1NC
20: 2NO	02: 2NC
40: 4NO	04: 4NC
11: 1NO-1NC	22: 2NO-2NC

1. Use only when interpreting part numbers. Do not use for developing part numbers.

2. All transformers step down to 6V (use 6V lamp).

Illuminated Selector Switches(Assembled) continued

Illuminated 2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position		Lamp Circuit Type	Maintained	Spring Return from Right	Spring Return from Left
		L	R				
1NO 1NC	1	O	X	Transformer	ASLW2 ① 11④-②	ASLW21 ① 11④-②	ASLW22 ① 11④-②
	2	X	O	Full Voltage	ASLW29911④-②-③	ASLW219911④-②-③	ASLW229911④-②-③
2NO	1	O	X	Transformer	ASLW2 ① 20④-②	ASLW21 ① 20④-②	ASLW22 ① 20④-②
	2	O	X	Full Voltage	ASLW29920④-②-③	ASLW219920④-②-③	ASLW229920④-②-③
2NC	1	X	O	Transformer	ASLW2 ① 02④-104-②	ASLW21 ① 02④-104-②	ASLW22 ① 02④-104-②
	2	X	O	Full Voltage	ASLW29902④-104-②-③	ASLW219902④-104-②-③	ASLW229902④-104-②-③
2NO 2NC	1	O	X	Transformer Full Voltage	ASLW2 ① 22④-② ASLW29922④-②-③	ASLW21 ① 22④-② ASLW219922④-②-③	ASLW22 ① 22④-② ASLW229922④-②-③
	2	X	O				
	3	O	X				
	4	X	O				

① Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486



Transformers step down to 6V (use 6V lamp).

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

Illuminated 3-Position Selector Switches, Maintained and Spring Return from Right

Style					Lamp Circuit Type	Part Number			
Contact	Mounting	Operator Position				Maintained	Spring Return From Right	Spring Return from Left	Spring Return Two-Way
									
2NO	1	X	O	O	Transformer Full Voltage	ASLW3 ① 20④-②	ASLW31 ① 20④-②	ASLW32 ① 20④-②	ASLW33 ① 20④-②
	2	O	O	X		ASLW39920④-②-③	ASLW319920④-②-③	ASLW329920④-②-③	ASLW339920④-②-③
2NC	1	O	X	X	Transformer Full Voltage	ASLW3 ① 02④-②	ASLW31 ① 02④-②	ASLW32 ① 02④-②	ASLW33 ① 02④-②
	2	X	X	O		ASLW39902④-②-③	ASLW319902④-②-③	ASLW329902④-②-③	ASLW339902④-②-③
2NO 2NC	1	X	O	O	Transformer Full Voltage	ASLW3 ① 22④-② ASLW39922④-②-③	ASLW31 ① 22④-② ASLW319922④-②-③	ASLW32 ① 22④-② ASLW329922④-②-③	ASLW33 ① 22④-② ASLW339922④-②-③
	2	O	O	X					
	3	O	X	X					
	4	X	X	O					
2NO 2NC	1	X	O	X	Transformer Full Voltage	ASLW3 ① 22④-309-② ASLW39922④-309-②-③	ASLW31 ① 22④-309-② ASLW319922④-309-②-③	ASLW32 ① 22④-309-② ASLW329922④-309-②-③	ASLW33 ① 22④-309-② ASLW339922④-309-②-③
	2	X	X	O					
	3	O	X	O					
	4	O	O	X					
2NO 2NC	1	O	X	O	Transformer Full Voltage	ASLW3 ① 22④-310-② ASLW39922④-310-②-③	ASLW31 ① 22④-310-② ASLW319922④-310-②-③	ASLW32 ① 22④-310-② ASLW329922④-310-②-③	ASLW33 ① 22④-310-② ASLW339922④-310-②-③
	2	O	O	X					
	3	O	X	O					
	4	O	O	X					
4NO	1	X	O	O	Transformer Full Voltage	ASLW3 ① 40④-② ASLW39940④-②-③	ASLW31 ① 40④-② ASLW319940④-②-③	ASLW32 ① 40④-② ASLW329940④-②-③	ASLW33 ① 40④-② ASLW339940④-②-③
	2	O	O	X					
	3	X	O	O					
	4	O	O	X					
4NC	1	O	X	X	Transformer Full Voltage	ASLW3 ① 04④-② ASLW39904④-②-③	ASLW31 ① 04④-② ASLW319904④-②-③	ASLW32 ① 04④-② ASLW329904④-②-③	ASLW33 ① 04④-② ASLW339904④-②-③
	2	X	X	O					
	3	O	X	X					
	4	X	X	O					

1. In place of ①, specify the Transformer Voltage Code.
2. In place of ②, specify the Lens/LED Color Code.
3. In place of ③, specify the Full Voltage Code.
4. In place of ④ specify Lamp Type Code
5. For custom contact configurations, see page 585.
6. Light is independent of switch position.
7. Yellow selector switch comes with white LED.

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V (LED only)
240V AC	240V (LED only)

④ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

Illuminated Selector Switches (Sub-Assembled)



*Full voltage units use a full voltage adaptor (TW-DA1B) instead of a transformer.

†Lamp holder is not included with operators, order separately.

Lead holder is used when using 3 or more contact blocks. Order separately.

Operators

Style	Positions	Description	Part Number
	2	Maintained	ASLW200
		Spring return from right	ASLW2100
		Spring return from left	ASLW2200
	3	Maintained, cam 1	ASLW300-1
		Maintained, cam 2	ASLW300-2
		Maintained, cam 3	ASLW300-3
		Spring return from right, cam 1	ASLW3100-1
		Spring return from right, cam 2	ASLW3100-2
		Spring return from left, cam 1	ASLW3200-1
		Spring return from left, cam 2	ASLW3200-2
		Spring return from left/right, cam 1	ASLW3300-1
		Spring return from left/right, cam 2	ASLW3300-2



Different cams produce different contact action. For details, see Contact Arrangements on page 585.

Lenses (Knobs)

Description	Part Number
Knob 	ASLWLU-②



In place of ②, specify the lens color code from table.

Lamps

Style	Voltage	Part Number
	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24



1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y



Yellow LED not available. Use white LED

Illuminated Selector Switches (Sub-Assembled) continued

Contact Blocks

Style	Part Number	
	1NO	1NC
Standard Exposed Screw 	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)
Fingersafe (IP20), CE marked 	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
Dummy Block 	TW-DB	

-  1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

Lamp Circuit Components

Style	Application	Part Number
Short Lamp Holder 	Used with a Half-size Transformer and one contact block	TW-LH1
Long Lamp Holder 	Used with Full-size Transformer and two contact blocks Used with Half-size Transformer and three contact blocks Used with Full Voltage Adaptor and two contact blocks	TW-LH2
Lead Holder 	Used with TW-LH2 holder when using four contact blocks	HW-LH3

Transformers/Full Voltage Modules

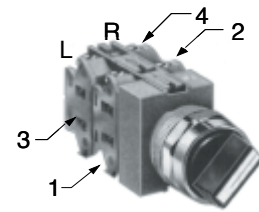
Style	Description	Part Number
	Full Size Transformer	
	Standard 120V AC	TW-T126B
	Standard 240V AC	TW-T246B
	Standard 480V AC	TW-T486B
	Fingersafe 120V AC	TW-F126B
	Fingersafe 240V AC	TW-F246B
	Fingersafe 480V AC	TW-F486B
	Half Size Transformer	
	120V AC	TW-T126SB
	240V AC	TW-T246SB
	Full voltage model (use with even number of contacts)	
	Standard	TW-DA1B
	Fingersafe	TW-DA1FB
	Full voltage model (use with odd number of contacts)	
	Standard	HW-DA1B
	Fingersafe	HW-DA1FB

-  All Transformers step down to 6V (use 6V lamp).

Contact Arrangement Charts

How to Read Contact Arrangement Charts

To determine contact block mounting position, first make sure the selector switch is oriented as shown on the right



Contact Arrangement

Type and quantity of switch contacts

Circuit Number

* N/D = No designation required

Contact Block Mounting Position

Position or mounting contact blocks on operator

Operator Position

Truth table indicates the operating position of contact block when operator is switched to that position.

Contact Block Part Number

Part number to use when ordering sub-assembly contact blocks, as required for use with corresponding mounting position

Contact Arrangement Chart: 2-Position Selector Switches

Style		Mounting Position	Operator Position		Contact Block Part Number	Description	Operator Part Number		
Contact	Circuit Number						Maintained	Spring Ret. from Rt.	Spring Ret. from Lt.
							 	 	 
1NO	N/D	1	O	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	O	TW-DB				
1NC	116	1	X	O	HW-C01	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	O	TW-DB				
1NO 1NC	N/D	1	O	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-C01				
	103	1	X	O	HW-C01	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-C10				
1NO-EM 1NC-LB	600	1	O	X	HW-C10R	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-C01R				
	601	1	X	O	HW-C01R	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-C10R				
2NO	N/D	1	O	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-C10				
2NC	104	1	X	O	HW-C01	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-C01				
2NO 2NC	N/D	1	O	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-C01				
		3	O	X	HW-C10				
		4	X	O	HW-C01				
	111	1	O	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-C10				
		3	X	O	HW-C01				
		4	X	O	HW-C01				



1. NO-EM, NC-LB = Early Make, Late Break.
N/D = No circuit number designation required in assembled selector switch part number.
2. X = On (closed contacts) O = Off (Open contacts)

Contact Arrangement Chart: 3-Position Selector Switches

Style		Mounting Position	Operator Position			Contact Block Part Number	Description	Operator Part Number			
Contact	Circuit Number							Maintained	Spring Return from Right	Spring Return from Left	Two-Way
											
1NO 1NC	202	1	X	0	0	HW-C10	Knob/Lever Key	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	X	X	0	HW-C01	Illuminated Knob				
	203	1	0	X	X	HW-C01	Knob/Lever Key	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-C10	Illuminated Knob				
	302	1	X	0	X	HW-C10	Knob/Lever Key	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X	X	0	HW-C01	Illuminated Knob				
	303	1	0	X	0	HW-C01	Knob/Lever Key	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-C10	Illuminated Knob				
2NO	N/D	1	X	0	0	HW-C10	Knob/Lever Key	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-C10	Illuminated Knob				
	301	1	X	0	X	HW-C10	Knob/Lever Key	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-C10	Illuminated Knob				
2NC	304	1	0	X	0	HW-C01	Knob/Lever Key	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X	X	0	HW-C01	Illuminated Knob				
	N/D	1	0	X	X	HW-C01	Knob/Lever Key	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	X	X	0	HW-C01	Illuminated Knob				
2NO 2NC	N/D	1	X	0	0	HW-C10	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-C10					
		3	0	X	X	HW-C01					
		4	X	X	0	HW-C01					
	210	1	0	X	X	HW-C01	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-C10					
		3	0	X	X	HW-C01					
		4	0	0	X	HW-C10					
	308	1	X	0	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X	X	0	HW-C01					
		3	X	0	X	HW-C10					
		4	X	X	0	HW-C01					
	309	1	X	0	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X	X	0	HW-C01					
		3	0	X	0	HW-C01					
		4	0	0	X	HW-C10					
	310	1	0	X	0	HW-C01	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-C10					
		3	0	X	0	HW-C01					
		4	0	0	X	HW-C10					

1. Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
2. N/D = No circuit number designation required in assembled part number.
3. X = On (closed contacts) 0 = Off (open contacts). X X Overlapping contacts remain on (closed) when switch is moved between these two positions.

Contact Arrangement Chart: 3-Position Selector Switches

Style		Mounting Position	Operator Position			Contact Block Part Number	Description	Operator Part Number			
Contact	Circuit Number							Maintained	Spring Return from Right	Spring Return from Left	Two-Way
											
4NO	N/D	1	X	0	0	HW-C10	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-C10					
		3	X	0	0	HW-C10					
		4	0	0	X	HW-C10					
	305	1	X	0	X	HW-C10	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-C10					
		3	X	0	X	HW-C10					
		4	0	0	X	HW-C10					
4NC	N/D	1	0	X	X	HW-C01	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	X	X	0	HW-C01					
		3	0	X	X	HW-C01					
		4	X	X	0	HW-C01					
	314	1	0	X	0	HW-C01	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X	X	0	HW-C01					
		3	0	X	0	HW-C01					
		4	X	X	0	HW-C01					

1. Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
2. N/D = No circuit number designation required in assembled part number.
3. X = On (closed contacts) 0 = Off (open contacts). X X Overlapping contacts remain on (closed) when switch is moved between these two positions.

Custom Selector Switch Building Guide

To build a custom selector switch, follow these steps.

Step 1

How many positions of the switch are needed?

of positions
(2, 3, 4, 5)

Step 2

How many contacts should there be?

of isolated contacts
(maximum 6)

Step 3

Fill in the Truth Table

(X = closed, 0 = open)

		Knob Position				
		1	2	3	4	5
Contacts	1					
	2					
	3					
	4					
	5					
	6					

Step 4

If building a 2 position selector, skip this step. (2 position selectors have only one cam)

If building a 3, 4, or 5 position selector, determine appropriate cam as follows:

- Look at Row 1 from above table and locate an identical row in the operator truth tables (See next page).
- Repeat for all rows. The user must find one operator that contains all rows from above table.
- Record the operator cam version.

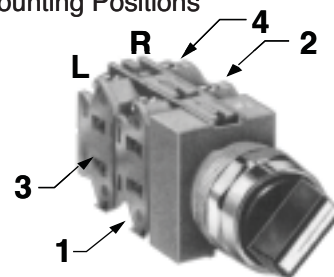
Step 5

Build by placing appropriate contact in appropriate mounting position for each desired row on operator cam truth table. "L" and "R" refer to mounting on left or right side of operator as viewed from the front of the panel.

Step 6

Develop an assembly part number (if necessary) as follows: follow standard numbering nomenclature for selector switches (see pages 577 or 581. In place of the "Circuit Number" indicate the cam number and contact arrangement as such ASW322-3-OELCXX, where "3" is the cam number, and contact arrangement "OELCXX" calls out individual contact mounting locations in order (see diagram above). O=NO, C=NC, E=NO-EM, L=NC-LB, X= no contact. Part number must designate all 6 possible mounting locations.

Mounting Positions



Caution: Before putting any custom selector switch into use, the user should use an ohmmeter to test for desired performance.
1. For Operator Truth Tables, see next page.

Operator Truth Tables

Use the following tables to build custom selector switches.

2 Position Selector Switches

	Contact	Mounting Position	Operator Position	
			Left	Right
ASW200 ASLW200 ASW2K00	HW-C10 (NO)	L	O	X
		R	O	X
	HW-C01 (NC)	L	X	O
		R	X	O
	HW-C10R (NO-EM)	L	O	X
		R	O	X
	HW-C01R (NC-LB)	L	X	O
		R	X	O

3 Position Selector Switches

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASW300-1 ASW3K00-1 ASLW300-1	HW-C10 (NO)	L	X	O	O
		R	O	O	X
	HW-C01 (NC)	L	O	X	X
		R	X	X	O
	HW-C10R (NO-EM)	L	X	O	O
		R	O	O	X
	HW-C01R (NC-LB)	L	O	X	X
		R	X	X	O

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASW300-2 ASW3K00-2 ASLW300-2	HW-C10 (NO)	L	X	O	X
		R	O	O	X
	HW-C01 (NC)	L	O	X	O
		R	X	X	O
	HW-C10R (NO-EM)	L	X	O	X
		R	O	O	X
	HW-C01R (NC-LB)	L	O	X	O
		R	X	X	O

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASW300-3 ASW3K00-3 ASLW300-3	HW-C10 (NO)	L	X	O	O
		R	O	O	X
	HW-C01 (NC)	L	O	X	O
		R	O	X	O
	HW-C10R (NO-EM)	L	X	O	X
		R	X	O	X
	HW-C01R (NC-LB)	L	O	X	X
		R	X	X	O

4 Position Selector Switches

	Contact	Mounting Position	Operator Position			
			1	2	3	4
ASW400	HW-C10 (NO)	L	X	O	O	O
		R	O	X	O	O
	HW-C01 (NC)	L	O	X	X	X
		R	X	O	X	X
	HW-C10R (NO-EM)	L	X	O	O	O
		R	O	X	O	O
	HW-C01R (NC-LB)	L	O	X	X	X
		R	X	O	X	X

	Contact	Mounting Position	Operator Position			
			1	2	3	4
ASW400-1	HW-C10 (NO)	L	X	O	O	O
		R	O	O	O	X
	HW-C01 (NC)	L	O	O	X	O
		R	O	X	O	O
	HW-C10R (NO-EM)	L	X	X	O	X
		R	X	O	X	X
	HW-C01R (NC-LB)	L	O	X	X	X
		R	X	X	X	O

5 Position Selector Switches

	Contact	Mounting Position	Operator Position				
			1	2	3	4	5
ASW500	HW-C10 (NO)	L	X	O	O	O	O
		R	O	X	O	O	O
	HW-C01 (NC)	L	O	O	X	X	X
		R	O	O	O	X	X
	HW-C10R (NO-EM)	L	X	O	O	O	O
		R	O	X	O	O	O
	HW-C01R (NC-LB)	L	O	X	X	X	X
		R	X	O	X	X	X

	Contact	Mounting Position	Operator Position				
			1	2	3	4	5
ASW500-1	HW-C10 (NO)	L	X	O	O	O	O
		R	O	O	O	O	X
	HW-C01 (NC)	L	O	O	O	X	O
		R	O	X	O	O	O
	HW-C10R (NO-EM)	L	X	X	X	O	X
		R	X	O	X	X	X
	HW-C01R (NC-LB)	L	O	X	X	X	X
		R	X	X	X	X	O

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

Nameplates — TW Series

Faceplates

	NWAL	NWAQL	NWAS	EMERGENCY STOP
	Part Number			
Nameplate (blank)	NWAL-OB (black) NWAL-OR (red)	NWAQL-OB (black) NWAQL-OR (red)	NWAS-OB	NWAR-0
Nameplate (engraved)	NWAL-①	NWAQL-①	NWAS-①	NWAR-27†

1. In place of ①, insert either the Standard Legend Code from table below or custom engraving delimited by " ".
2. Standard engravings are available at no charge.
3. NWAR-27 comes marked "Emergency Stop" as shown in drawing.

Standard Legend Codes

Pushbuttons				Pushbuttons/Selector Switches				Selector Switches	
Legend	Code	Legend	Code	Legend	Code	Legend	Code	Legend	Code
AUTO	101	OPEN	116	AUTO-MAN	201			AUTO-MAN-OFF	301
CLOSE	102	OUT	117	CLOSE-OPEN	202			AUTO-OFF-MAN	302
DOWN	103	RAISE	118	DOWN-UP	203			CLOSE-OFF-OPEN	303
EMERG.STOP	104	RESET	119	FAST-SLOW	204			DOWN-OFF-SLOW	304
FAST	105	REVERSE	120	FOR-REV	205	REV-FOR	216	FAST-OFF-SLOW	305
FORWARD	106	RUN	121	HAND-AUTO	206	RUN-JOG	217	FOR-OFF-REV	306
HAND	107	SLOW	122	HIGH-LOW	207	RUN-SAFE	218	LEFT-OFF-RIGHT	307
HIGH	108	START	123	JOG-RUN	208	SAFE-RUN	219	LOWER-OFF-RAISE	308
IN	109	STOP	124	LEFT-RIGHT	209	SLOW-FAST	220	OFF-MAN-AUTO	309
INCH	110	STOP	125	LOWER-RAISE	210	START-STOP	221	OFF-SLOW-FAST	310
JOG	111	TEST	126	MAN-AUTO	211	STOP-START	222	OFF-1-2	311
LOW	112	UP	127	OFF-ON	212	UP-DOWN	223	OPEN-OFF-CLOSE	312
LOWER	113	I (Int'l On)	150	ON-OFF	213			SLOW-OFF-FAST	313
OFF	114	O (Int'l Off)	151	OPEN-CLOSE	214			SUMMER-OFF-WINTER	314
ON	115	EMO	152	RAISE-LOWER	215			UP-OFF-DOWN	315
								1-OFF-2	316
								HAND-OFF-AUTO	317

1. To order engraved nameplates, add legend code to nameplate part number.
Character height based on the number of characters and size of nameplate. Standard character size is 3/16".
2. Nameplates with standard legends are the same list price as blank nameplates.

Nameplate Order Form on next page.

Custom Engraved Nameplates Order Form — TW Series

Copy this order form and use it to specify Letter Height, Custom Engravings, Location of Engraving on Nameplate, and Quantity Desired.
To ensure engraving accuracy, fax it to your IDEC representative. or Distributor.

Your Company Name: _____

IDEC Rep/Distributor Contact: _____

Your Name: _____

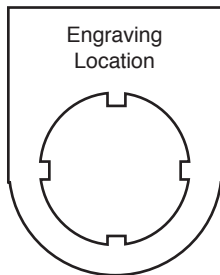
PO number (if known): _____

Telephone: _____

IDEC Rep/Distributor Phone: _____

Fax & Email: _____

IDEC Rep/Distributor Fax & Email: _____

NWAL**Step 1.**

Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 9 characters.

Step 2.

Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

7/64"
Letter Size

☐

11 characters max
(for 7/64" size letters)

1/8"
Letter Size

☐

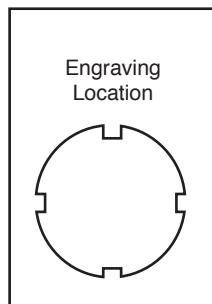
9 characters max
(for 1/8" size letters)

1	2	3	4	5	6	7	8	9	10	11

Sample Letter Sizes

7/64" Letters: A B C D

1/8" Letters: A B C D

NWAQL**Step 1.**

Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 9 characters.

Step 2.

Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

7/64"
Letter Size

☐

11 characters max
(for 7/64" size letters)

1/8"
Letter Size

☐

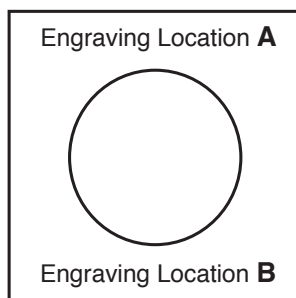
9 characters max
(for 1/8" size letters)

1	2	3	4	5	6	7	8	9	10	11

Sample Letter Sizes

7/64" Letters: A B C D

1/8" Letters: A B C D

NWAS**Step 1.**

Choose Letter Size - 1/8" or 3/32".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 14 characters.

Step 2.

Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

Step 3.

Specify Location.

Enter the location of engraving (A or B), in the box on the right.

3/32"
Letter Size

☐

20 characters max
(for 3/32" size letters)

1/8"
Letter Size

☐

14 characters max
(for 1/8" size letters)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Sample Letter Sizes

3/32" Letters: A B C D

1/8" Letters: A B C D

Switch Engraving Order Form – TW Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To insure engraving accuracy, fax it to your IDEC representative or Distributor.

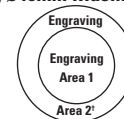
Your Company: _____
 Name: _____
 Address: _____
 PO: _____

Telephone: _____
 Fax: _____
 Email: _____
 Part Number to be Engraved: _____

Please check one of the boxes below to indicate your choice of engraving options:



ø29mm, ø40mm Mushroom Head



	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	6
☐		1/8	6
☐	2	5/32	6
☐		1/8	5
☐	3	1/8	6
☐	4	3/32	5

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	5
☐		1/8	6
☐	2	5/32	5
☐		1/8	6
☐	3	1/8	5
☐	4	3/32	5

		# of Lines	Letter Height	Max. Characters Per Line
☐	Engraving Area 1	1	5/32	5
☐			1/8	5
☐	Engraving Area 2	1	5/32	7
☐			1/8	7



- Above mentioned specifications hold true for standard size pushbuttons (round and square).
- *Engraving Area 2 can be engraved for 40mm mushroom Head non-Illuminated push button only.
- Engraving is done on the button itself for non-Illuminated push buttons and on marking plate for illuminated push buttons and pilot lights.
- Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____

Sample Letter Sizes

1/8 Letters: **OPEN**

5/32 Letters: **OPEN**

For IDEC Internal Use Only:

Work Order #: _____

Accessories

TW Series Accessories

Appearance		Description/Usage	Part Number
Lamp Removal Tool		Rubber tool used to install or remove LED's and incandescent lamps	OR-55
Contact Block Remover		Used to remove contact blocks, transformers, lenses, and adaptors. Can also be used to determine panel thickness adjustment.	TW-KC1
Nut Locking Wrench		Used in OR-14 locking wrench to tighten locking nuts inside square bezel	TW-KQ2
Metal Bezel		Chrome plated bezels tighten onto operator (replacement for damaged bezels)	Standard octagonal units (chrome-pl.) AW-R8
			Full shroud octagonal units (chrome-pl.) AW-RF8
			Full shroud mushroom head units Ø 40mm AW-G4
Plastic Bezel		Black plastic bezels for square buttons (replacement for damaged bezels)	Round flush units (black plastic) AW-RP1B
			Round extended units (black plastic) AW-FP1B
			Square units (black plastic) AW-Q1B
			Square units with full shroud (black plastic) AW-QF1B
Boot/Cover		Used to cover and protect pushbuttons	Waterproof lens cover for square pilot lights APW00LN
			Waterproof lens cover for square illuminated buttons APW00L
			Clear boot for round flush units OC-31
			Clear boot for round extended units OC-32
			In place of asterisk, specify Rubber Boot color: B (black), G (green), R (red), Y (yellow) - (nitril rubber) OCW-11
Anti-Rotation Ring		Ring to prevent operator base from rotating in the mounting hole. Used when nameplate is not used	OGL-31
Mounting Hole Plug		Black rubber plug fills unused mounting holes in panel.	OB-31
Metallic Mounting Hole Plug		For plugging unused mounting holes in the panel. Tighten the attached locking ring to a torque of 12 kfg-cm maximum Degree of protection: IP66	LW9Z-BM
Replacement Keys		Pair of keys (#0)	TW-SK
Replacement Black Sleeve for Keyswitch			AKW2B-B
Metal Button Guard		Used on flush buttons to prevent inadvertent actuation	OLW-C

Switches & Pilot Lights

Display Lights

Relays & Sockets

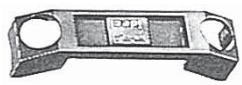
Timers

Terminal Blocks

Circuit Breakers

Appearance	Description/Usage	Part Number
Terminal Tab Adaptor 	Quick- connect terminals #250 (17/64" x 3/64") single tab	TW-FA1
Lock-out Adaptor 	Used to provide lock-out protection for pushbuttons and knob selector switches: • Up to Ø 40mm mushroom head size (Padlock not included.)	HW9Z-KL1
TW to TWTD Adaptor 	Used to mount TW series control unit (except square units) Ø 7/8" (22mm) into a Ø 1-13/64" (30mm) panel cut-out.	TWN-A1R8
Replacement Marking Plates 	White plastic engraving plate for use on all illuminated units (included in each lens). May be used to capture printed mylar insert (not supplied by IDEC) under lens face.	Round Pushbutton (Ø14mm)
		Round Pilot Light (Ø 14mm)
		Mushroom Pushbutton (Ø 14mm)
		Square Pilot Light (q 21mm)
		Square Pushbutton (q 21mm)

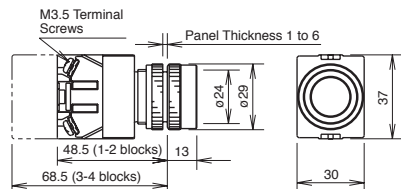
Fingersafe Covers for TW Series

Appearance	Description	Used with	Part Number
	Fingersafe terminal cover, adds 6mm to overall depth	APW and UPQW full voltage pilot lights	APS-PVL
	Fingersafe terminal cover, adds 3.5mm to overall depth. One required for each contact, only for rear-most terminals	Non-illuminated pushbuttons and selectors	HW-VL2
	Fingersafe terminal cover, adds 3mm to overall depth	APW and UPQW transformer pilot lights, and illuminated pushbuttons and illuminated selectors	HW-VL3
	Fingersafe terminal cover for contacts.	Full voltage illuminated pushbuttons and selectors	HW-VL4
	Fingersafe terminal cover for full voltage adaptor, adds 3 mm to depth	Full voltage illuminated pushbuttons and selectors	HW-VL5
	Fingersafe terminal cover for half size transformer adaptor, adds 3 mm to depth	Illuminated pushbuttons and selectors	HW-VL6

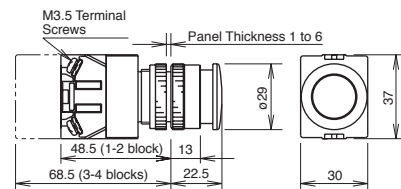
Dimensions

Pushbuttons

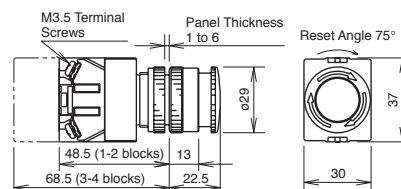
Flush



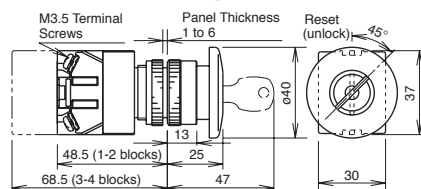
29mm Mushroom



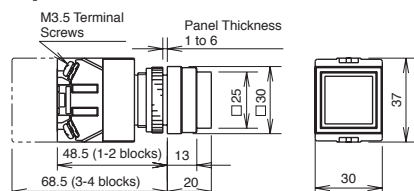
29mm Push-Lock-Turn-Reset



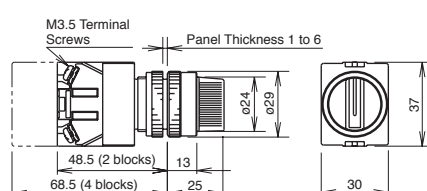
40mm Pushlock Key reset



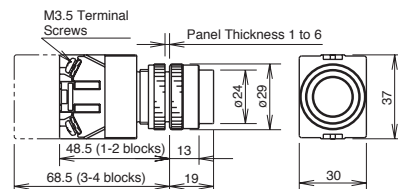
Square Extended



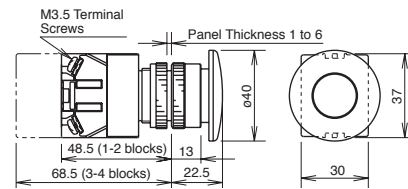
Selector Switches



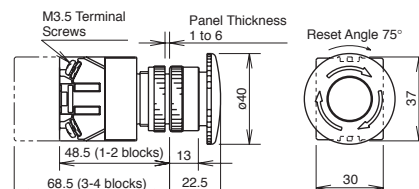
Extended



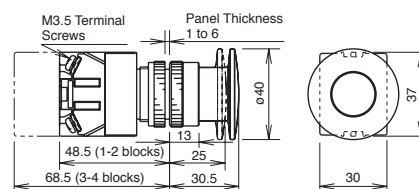
40mm Mushroom



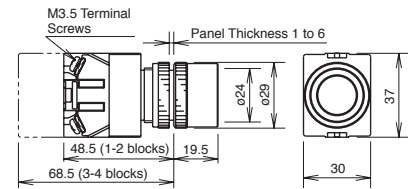
40mm Push-Lock-Turn-Reset



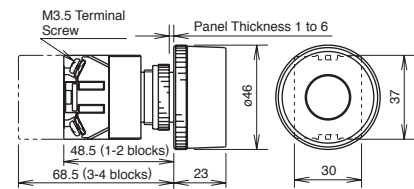
40mm Push-Pull



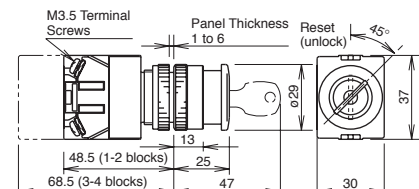
Extended with Full Shroud



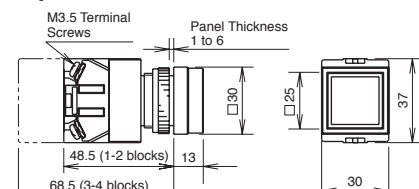
Mushroom with Full Shroud



Keylock Push On/Off



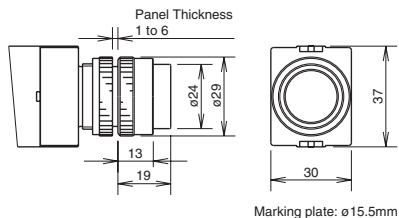
Square Flush



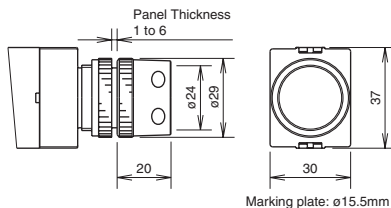
Dimensions continued

Illuminated Pushbuttons

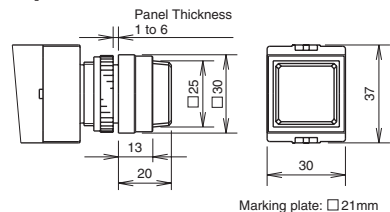
Extended



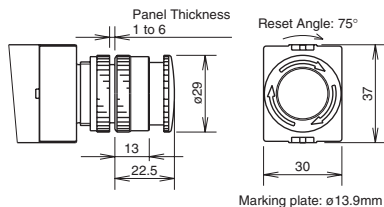
Extended with Full Shroud



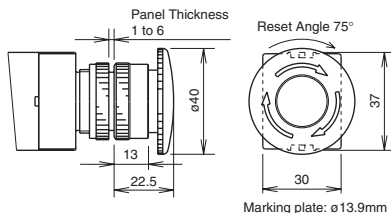
Square Extended



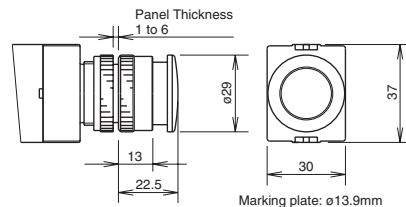
29mm Push-Turn-Reset



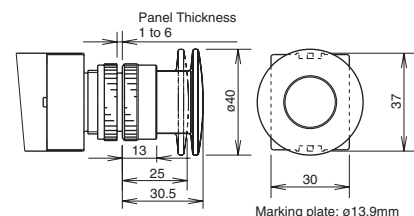
40mm Push-Turn-Reset



Mushroom

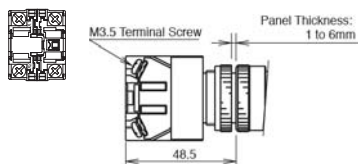


Push-Pull

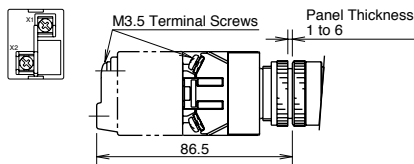


Illuminated Selector Switches

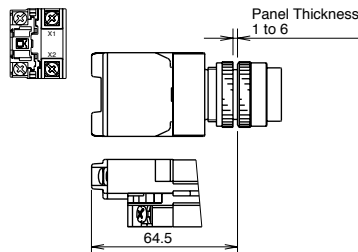
1 Contact Block with Full Voltage Adaptor



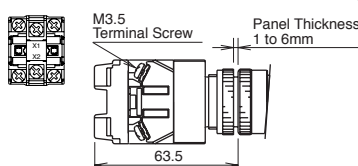
Transformer (2 blocks)



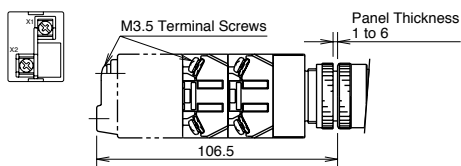
1 Contact Block with Half Size Transformer



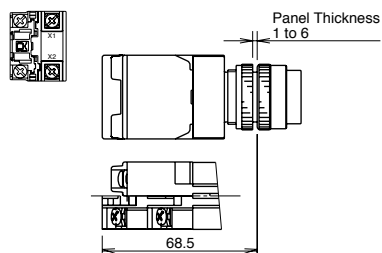
2 Contact Blocks with Full Voltage Adaptor



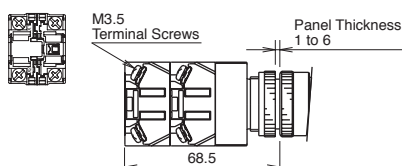
Transformer (4 blocks)



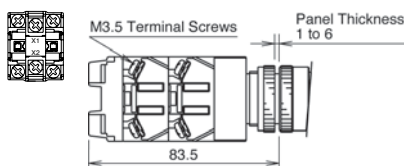
2 Contact Blocks with Half Size Transformer



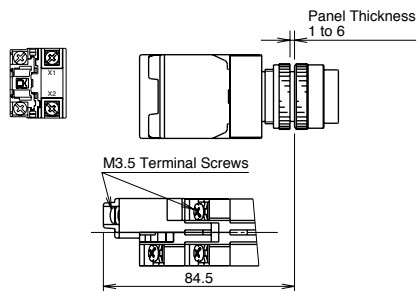
3 Contact Blocks with Full Voltage Adaptor



4 Contact Blocks with Full Voltage Adaptor



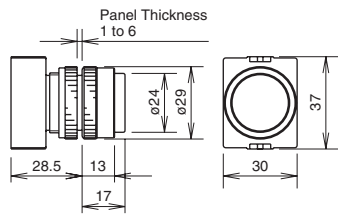
3 Contact Blocks with Half Size Transformer



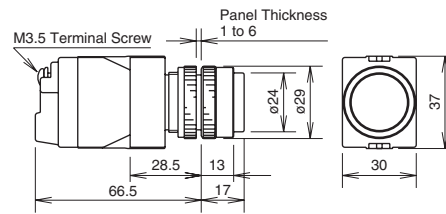
Dimensions continued

Pilot Lights

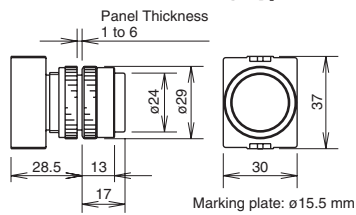
Round Flush APW1 Full Voltage



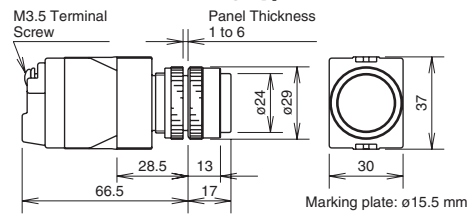
Round Flush APW1 Transformer



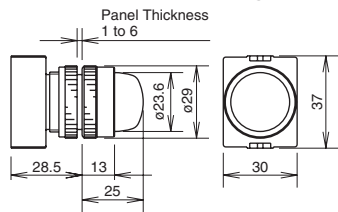
Round Flush Marking Type APW1B Full Voltage



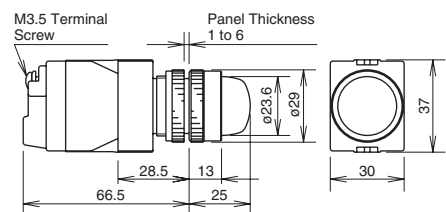
Round Flush Marking Type APW1B Transformer



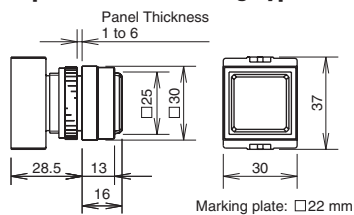
Dome APW2 Full Voltage



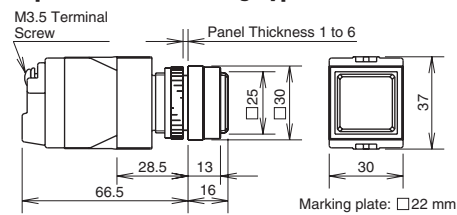
Dome APW2 Transformer



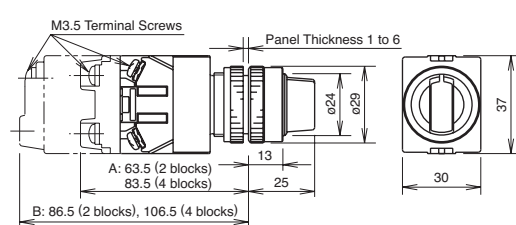
Square Flush Marking Type APQW1B Full Voltage



Square Flush Marking Type APQW1B Transformer



Illuminated Selector Switches



Dimensions continued

Panel Cut-Out

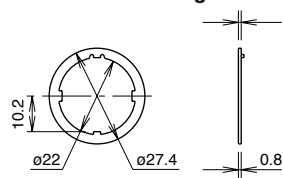
Diagram	Part	Dimension			
		A	B	C	D
	Pushbuttons	Ø 0.137" (3.5mm)	1.95" (50mm); 1.76" (45mm) minimum	Ø 0.878" (22.3mm)	1.17" (30mm) Std. Octagonal > 1.56" (40mm) Large Mushroom
	Pilot Light				
	Illuminated Pushbuttons				
	Selector Switches				
	Illuminated Selector Switches				1.17" (30mm) *See note.

1. The Ø 0.137" (Ø 3.5mm) recess is necessary when either the nameplate or anti-rotation ring is used.
2. * >1.404" (36mm) for 2- or 3-position.
>1.95" (50mm) for 4- or 5-position.

Accessory Dimensions

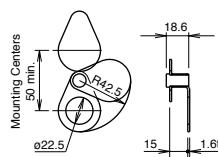
OGL-31

Anti-Rotation Ring



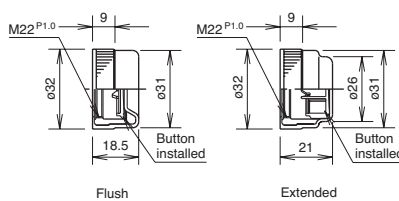
OLW-C

Metal Button Guard



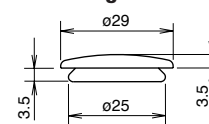
OCW-11

Pushbutton Rubber Boot



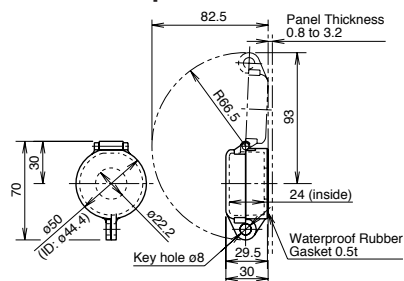
OB-31

Mounting Hole Rubber Plug



HW9Z-KL1

Lock-out Adaptor



AW-RP1B

Round Plastic Bezel



AW-FP1B

Round Plastic w/Full Shroud



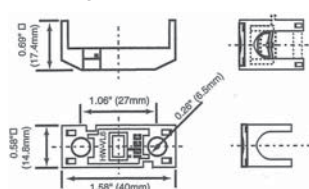
AW-QF1B

Square Full Shroud

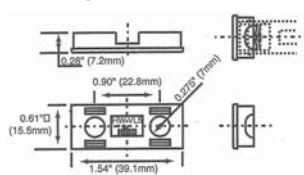


Finger-Safe Cover Dimensions

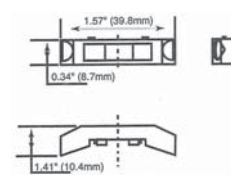
HW-VL6



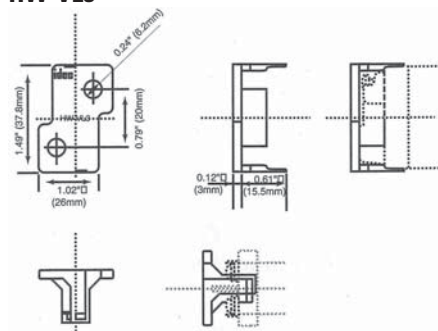
HW-VL5



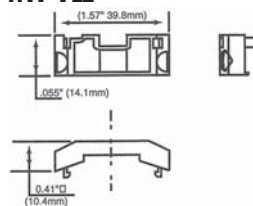
HW-VL4



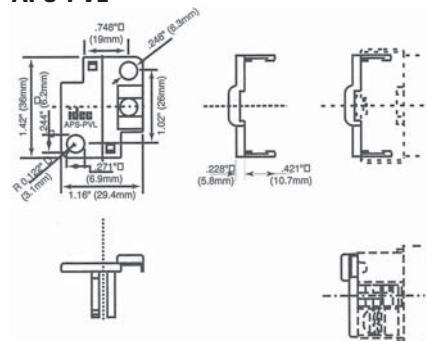
HW-VL3



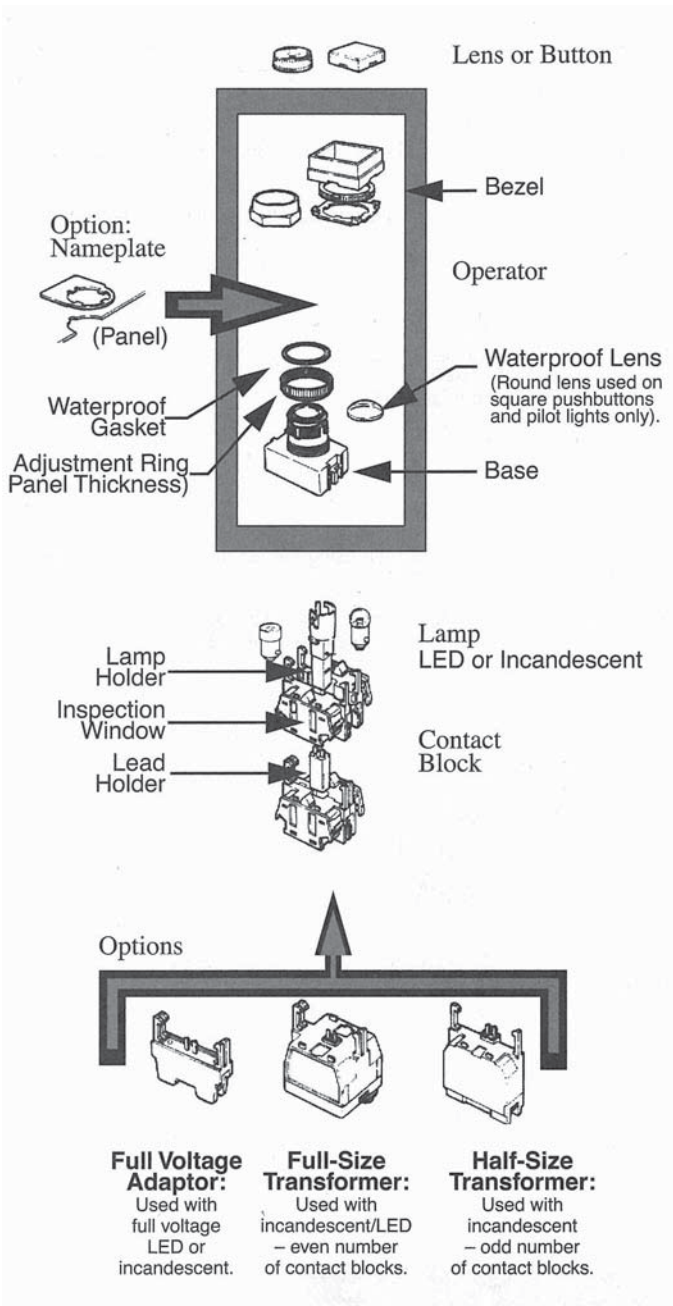
HW-VL2



APS-PVL



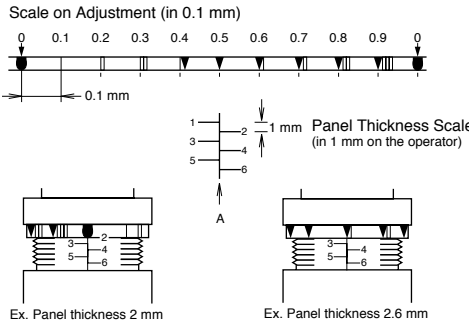
Component Construction and General Instructions — TW Series



Instructions for Switches and Pilot Devices

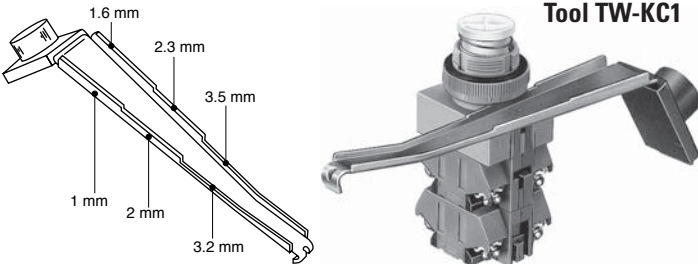
TW Series: Adjustment for Panel Thickness

The panel thickness ring provides adjustment from 0.04" to 0.24" (1 to 6mm) in 0.004" (0.1mm) increments. Rotate the ring until the markings around the periphery are aligned for the desired thickness, as shown below.



Note: When a nameplate or an anti-rotation ring is used, add 0.03" (0.8mm) to the panel thickness dimension.

An adjustment for panel thicknesses shown below can be made quickly by using the contact block remover tool.



Instructions continued

Pilot Lights and Pushbuttons

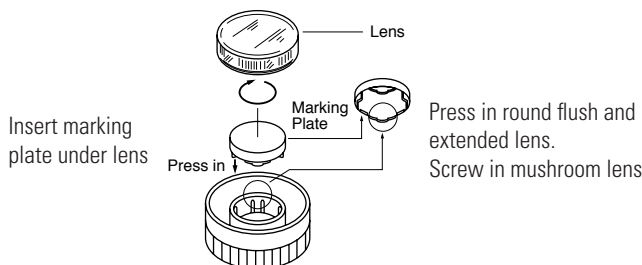
IMPORTANT: Install the body of the TW control unit with the panel thickness scale facing up.

Octagonal and Round Bezels

Octagonal and round bezels screw into the operator. Use a locking ring wrench (optional) for secure tightening and easy removal. Round flush and extended buttons snap onto the operator base. Mushroom buttons screw onto the operator base.

Every round lens can be used with or without legend markings. Engraving can be done on a white translucent plate which is placed in the lens, or clear mylar can be printed and placed in the lens.

Round Marking Unit

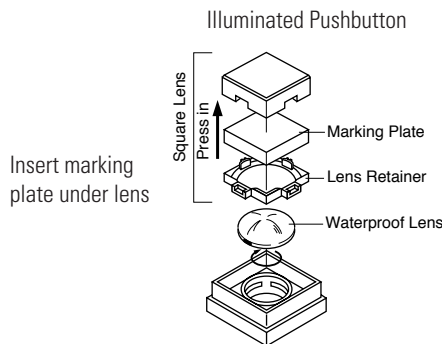
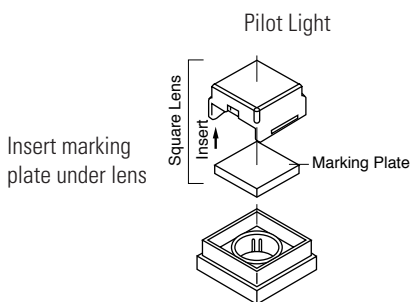


Square Bezels

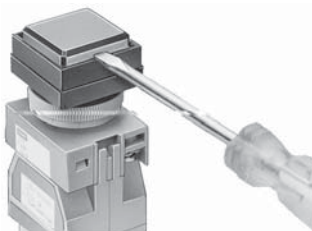
Square bezels are installed in a 3-step procedure. First install the base plate from the front. Then install the lock nut using the nut locking wrench (optional). Finally, install the square bezel, which snap-fits onto the base plate. Square buttons also snap onto the operator base.

Every square lens can be used with or without legend markings. Engraving can be done on a white translucent plate which is placed in the lens, or clear mylar can be printed and placed in the lens. Square units include a round waterproof lens which screws into the operator. The square outer lens snaps on.

Square Marking Units



To remove square lens from operator, place a screwdriver under the indentation on the side of the lens. To remove the marking plate, place a screwdriver under the indentation and lift out the plate. The lens retainer can be removed by pressing a 3/16" screwdriver into one of the recesses.



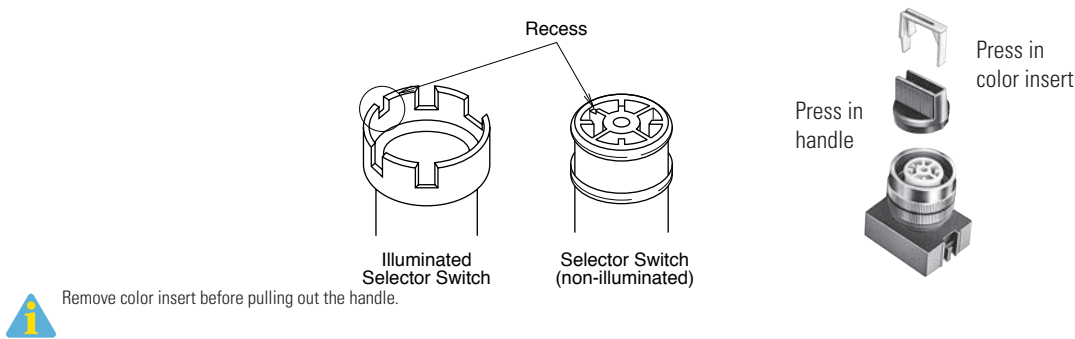
Marking Plate Engraving Area

Shape	Engraving Area	Used With	Part Number
Round	Ø 0.55" (14mm)	Illuminated pushbuttons	ALW2B
	Ø 0.55" (14mm)	Pilot lights	APW2B
Mushroom	Ø 0.55" (14mm)	Illuminated mushroom	ALW3B
Square	□ 0.83" (21mm)	Square pilot lights	APQW1B
Square	□ 0.83" (21mm)	Square illuminated pushbuttons	ALQW2B

Instructions continued

Selector Switches

The operator shaft of each unit has a recess to identify in which direction to install the handle. Align the handle with the recess. Press color insert (TW-HC1) into the handle and then press handle into the operator, as shown below.



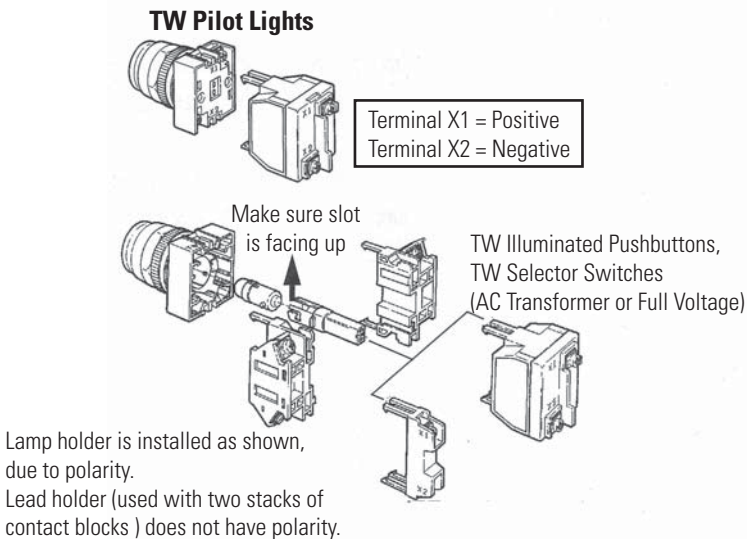
Standard Operating Positions

2-Position, 90°	3-Position, 45°	4-Position, 45°	5-Position, 30°

Positions: Non-Illuminated 3-Position Operators

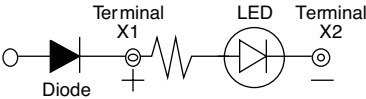
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Installation



Installation of LED Illuminated Units

AC transformers are recommended for use in areas subjected to inductive noise. When using full voltage types, install a protection diode as shown below. (Diode with DC power supply to protect against surges and noise.)



Make sure that LED illuminated units are installed with correct polarity, as indicated at the terminals.

Enclosures for XW, HW & TW 22mm Switches and Pilot Devices

Key features:

- Three compact sizes (mm): 76 x 76, 140 x 76 and 200 x 76
- Available in 1, 2, 3, 4 or 5 mounting hole configurations
- Easy installation: panel, wall or frame mountable
- Polycarbonate enclosure cover and base, stainless steel screws
- UL Listed, RoHS Compliant
- IP65 and Nema Type 4X rated (when installed with IP65 or Nema Type 4X unit)
- Class II electric shock protection (when installed with applicable unit)
- Ideal for high temperatures (-25 to 60°C) and corrosive environments



Specifications

Operating Conditions	Ambient temperature	-25 to +60°C (no freezing)
	Relative humidity	45 to 85%RH (no condensation)
	Storage temperature	-40 to +80°C (no freezing)
	Degree of pollution	3
Degree of Protection	IP65 (when IP65 switches and pilot devices are installed) NEMA Type 4X Indoor Use Only (when Type 4X switches and pilot devices are installed)	
Electric Shock Protection	Class II (when class II switches and pilot devices are installed)	
Material	Cover and base	Polycarbonate
	Cover mounting screws	Stainless steel
Applicable Switches and Pilot Devices	HW, TW and XW series switches, pilot devices and accessories (see note below)	
Weight (approx.)	76mm type: 125g (FB1W-111Z) 140mm type: 184g (FB2W-211Z) 200mm type: 243g (FB3W-311Z)	



Choose switches, pilot devices and accessories that match the mounting hole centers, effective depth behind the cover, and the thickness of the cover where switches and pilot devices are installed (3 mm). Enclosures with 30 or 36mm mounting hole centers may limit the knob orientation of selector switches because the contact blocks can be mounted in one direction only on these mounting centers.

Enclosure Part Numbers

Size (mm)	Description	Part Number	Distance Between Hole Centers (mm)
76 x 76 x 59.5	Enclosure 1 hole, Yellow	FB1W-111Y	—
	Enclosure 1 hole, Beige	FB1W-111Z	—
140 x 76 x 59.5	Enclosure 2 hole, Beige	FB2W-211Z	50
	Enclosure 3 hole, Beige	FB2W-312Z	30
200 x 76 x 59.5	Enclosure 3 hole, Beige	FB3W-311Z	50
	Enclosure 4 hole, Beige	FB3W-413Z	36
	Enclosure 5 hole, Beige	FB3W-512Z	30

Accessories

Description	Part Number
Plug Adaptor 13.5mm	HW9Z-PG135
Mounting Bracket	FB9Z-PK1

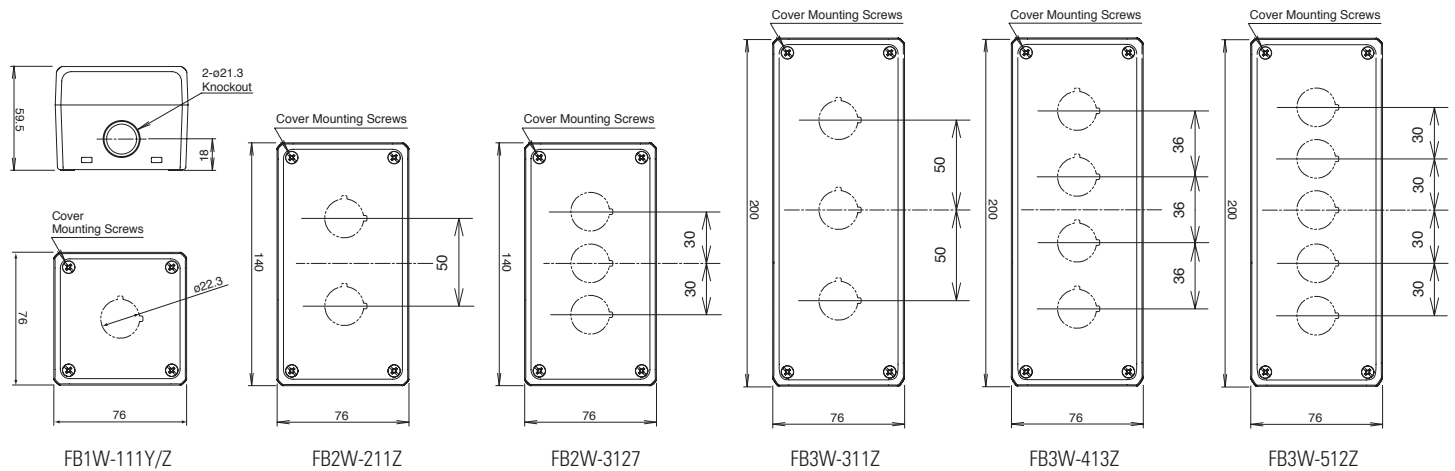


Connectors and nuts are not supplied with accessories.

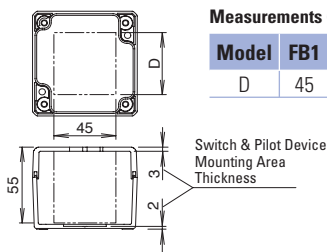
Switch and Pilot Device Accessories

Series	Description	Part Number
HW Series	Nameplate	HWAM, HWAQ, HWAS, HWAV
	Marking plate for nameplate	HWNP
	Anti-rotation ring	HW9Z-RL
	EMO switch guard	HW9Z-KG1, HW9Z-KG2, HW9Z-KG3, HW9Z-KG4
	Switch cover	HW9Z-K1, HW9Z-K11
	Pushbutton clear boot	OC-31, OC-32
	Padlock cover	HW9Z-KL1
XW Series E-Stops	Nameplate	HWAV
	EMO switch guard	HW9Z-KG1, HW9Z-KG2, HW9Z-KG3, HW9Z-KG4
	Anti-rotation ring	HW9Z-RL
TW Series	Nameplate	NWA, NWAQ, NWAAS-0, NWAAL-0, NWAQL-0, NWAIV
	Anti-rotation ring	OGL-31
	Metal button guard	OLW-C
	Pushbutton clear boot	OC-31, OC-32
	Button cover	OCW-11
	Padlock cover	HW9Z-KL1

External Dimensions (mm)

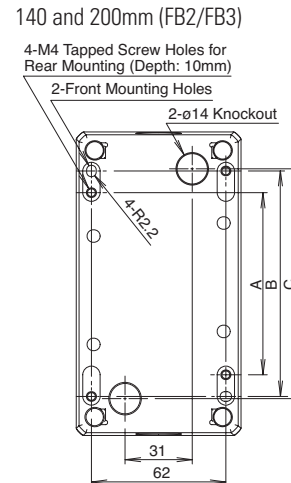
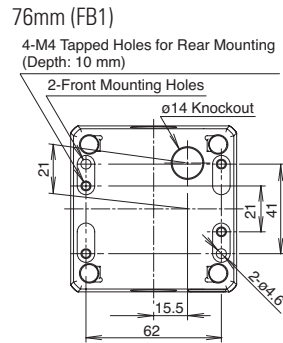


Internal Dimensions (mm)



Measurements (mm)			
Model	FB1	FB2	FB3
D	45	92	150

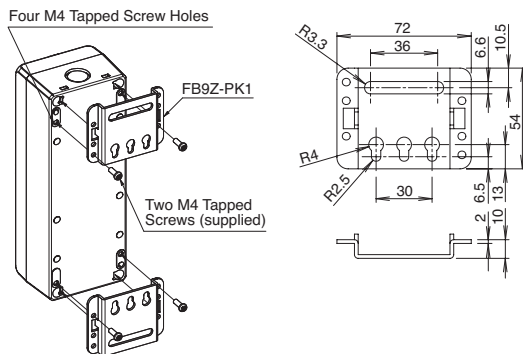
External Back Dimensions (mm)



Model	FB2	FB3
A	84	144
B	104	164
C	106	166

Mounting

FB9Z-PK1 Frame Mounting Adapter



Mounting Hole Dimensions

Model	FB1	FB2	FB3	FB2/FB3
		50mm Mounting Centers	36/50mm Mounting Centers	30mm Mounting Centers
Shape				

30mm XN E-Stops

Key features:

- Plastic bezel, metallic padlock and flush bezel available
- Install up to 20 padlocks (XN4E)
- ø40, ø44 or ø60mm Mushroom heads available
- IDEC's original "safe break action" ensures that the contacts stay open when the contact block is detached from the operator.
- Safety-lock mechanism (IEC60947-5-5, 6.2)
- 2-in-1: Push-to-lock, Pull/Turn-to-Reset
- Push-ON LED model allows E-Stops to be illuminated only when latched
- Direct Opening Action mechanism (IEC60947-5-5, 5.2, IEC60947-5-1, Annex K)
- Very short panel depth
- Degree of protection IP65 (IEC60529)
- RoHS compliant (EU directive 2002/95/EC).
- XN4E series complies with OSHA and ISO 12100-2:2003 standards
- UL, c-UL listed, EN compliant
- UL NISD category emergency type device (File# E305148)



File No. E68961

Specifications

Applicable Standards	IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL508, UL991, CSA C22.2 No. 14	
Operating Temperature	Non-illuminated: -25 to +60°C (no freezing), Illuminated: -25 to +55°C (no freezing)	
Operating Humidity	45 to 85% RH (no condensation)	
Storage Temperature	-45 to +80°C	
Operating Force	XN1E, XN5E Push-to-lock: 32N Pull-to-reset: 21N Turn-to-reset: 0.27 N·m	XN4E Push-to-lock: 32N Pull-to-reset: N/A Turn-to-reset: 0.4 N·m
Minimum Force Required for Direct Opening Action	80N	
Min Operator Stroke Required for Direct Opening Action	4mm	
Maximum Operator Stroke	4.5mm	
Contact Resistance	50mΩ maximum (initial value)	
Contact Material	Gold plated silver	
Insulation Resistance	100MΩ minimum (500V DC megger)	
Impulse Withstand Voltage	2.5kV	
Pollution Degree	3	
Operation Frequency	900 operations/hour	
Shock Resistance	Operating extremes: 150m/s ² (15G), Damage limits: 1000m/s ² (100G)	
Vibration Resistance	Operating extremes: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ² Damage limits: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ²	
Mechanical Life	250,000 operations minimum	
Electrical Life	100,000 operations minimum, (250,000 operations minimum @ 24V AC/DC, 100mA)	
Degree of Protection	Operator: IP65 (IEC60529) Terminal: IP20 (when XW9Z-VL2MF is installed)	
Terminal Style	M3.0 screw terminal	
Recommended Tightening Torque for Locking Ring	2.5N·m	
Wire Size	16 AWG max	
Weight	XN1E: Plastic bezel: 83g (ø40 mm), 93g (ø60 mm) XN5E: Flush bezel: 89g XN4E: Padlock type: 20g	

Part Numbers

XN1E Plastic Bezel Type E-Stops

Illumination	Operator Type	Main Contact	Monitor Contact	Part Number
Non-Illuminated 	40mm Mushroom	1NC	1NO	XN1E-BV411MR
		2NC	—	XN1E-BV402MR
		2NC	2NO	XN1E-BV422MR
		3NC	1NO	XN1E-BV413MR
		4NC	—	XN1E-BV404MR
	60mm Mushroom	1NC	1NO	XN1E-BV511MR
		2NC	—	XN1E-BV502MR
		2NC	2NO	XN1E-BV522MR
		3NC	1NO	XN1E-BV513MR
		4NC	—	XN1E-BV504MR
Illuminated 	40mm Mushroom LED (24V AC/DC)	1NC	1NO	XN1E-LV411Q4MR
		2NC	—	XN1E-LV402Q4MR
		2NC	2NO	XN1E-LV422Q4MR
		3NC	1NO	XN1E-LV413Q4MR
		4NC	—	XN1E-LV404Q4MR
	40mm Mushroom Push-ON LED (24V AC/DC)	2NC	1NO	XN1E-TV412Q4MR

XN4E Padlock Type E-Stops

Illumination	Operator Type	Main Contact	Monitor Contact	Part Number
Non-Illuminated 	44mm Mushroom	1NC	1NO	XN4E-BL411MR
		2NC	-	XN4E-BL402MR
		2NC	2NO	XN4E-BL422MR
		3NC	1NO	XN4E-BL413MR
		4NC	-	XN4E-BL404MR
Illuminated 	44mm Mushroom LED (24V AC/DC)	1NC	1NO	XN4E-LL411Q4MR
		2NC	-	XN4E-LL402Q4MR
		2NC	2NO	XN4E-LL422Q4MR
		3NC	1NO	XN4E-LL413Q4MR
		4NC	-	XN4E-LL404Q4MR
	44mm Mushroom Push-ON LED (24V AC/DC)	2NC	1NO	XN4E-TL412Q4MR

XN5E Flush Bezel Type E-Stops

Illumination	Operator Type	Main Contact	Monitor Contact	Part Number
Non-Illuminated 	40mm Mushroom	1NC	1NO	XN5E-BV411MR
		2NC	-	XN5E-BV402MR
		2NC	2NO	XN5E-BV422MR
		3NC	1NO	XN5E-BV413MR
		4NC	-	XN5E-BV404MR
Illuminated 	40mm Mushroom LED (24V AC/DC)	1NC	1NO	XN5E-LV411Q4MR
		2NC	-	XN5E-LV402Q4MR
		2NC	2NO	XN5E-LV422Q4MR
		3NC	1NO	XN5E-LV413Q4MR
		4NC	-	XN5E-LV404Q4MR
	40mm Mushroom Push-ON LED (24V AC/DC)	2NC	1NO	XN5E-TV412Q4MR

Contact Ratings

Rated Insulation Voltage (Ui)				250V		
Rated Current (Ith)				5A		
Rated Operating Voltage (Ue)				30V	125V	250V
Rated Operating Current	Main Contacts (NC)	AC 50/60Hz	Resistive Load (AC-12)	—	5A	3A
			Inductive Load (AC-15)	—	3A	1.5A
		DC	Resistive Load (DC-12)	2A	0.4A	0.2A
			Inductive Load (DC-13)	1A	0.22A	0.1A
	Monitor Contacts (NO)	AC 50/60Hz	Resistive Load (AC-12)	—	1.2A	0.6A
			Inductive Load (AC-14)	—	0.6A	0.3A
		DC	Resistive Load (DC-12)	2A	0.4A	0.2A
			Inductive Load (DC-13)	1A	0.22A	0.1A

1. Minimum applicable load: 5V AC/DC, 1mA (reference value).
2. The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

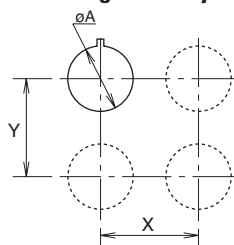
Illuminated Unit LED Ratings

Model	Operating Voltage	Current
XN	24V AC/DC ±10%	15mA

Depth Behind the Panel

Model	Depth (mm)	Description
XN1E	47.7	1 - 4 contacts, plastic bezel
XN5E	60.4	1 - 4 contacts, flush bezel
XN4E	61.4	1 - 4 contacts, padlock

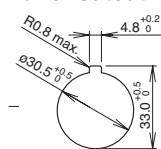
Mounting Hole Layout



Measurements

Size	øA	X & Y
XN1E, XN5E	30.5 ^{+0.5}	70mm min
XN4E	30.5	For XN4E, determine the values according to the size and number of padlocks and hasp.

Panel Cutout



Part Numbers

XN1E - L V 4 02 Q4 MR

Bezel

- 1: Plastic Bezel
- 4: Padlock
- 5: Flush Bezel

Illumination

- XN1E, XN5E
 - BV: Non-Illuminated
 - LV: Illuminated LED
 - TV: Illuminated Push-ON LED
- XN4E
 - BL: Non-Illuminated
 - LL: Illuminated LED
 - TL: Illuminated Push-ON LED

Mushroom Size

- 4: ø40mm: XN1E, XN5E
- ø44mm: XN4E
- 5: ø60mm (XN1E non-illuminated only)

Contact Configuration*

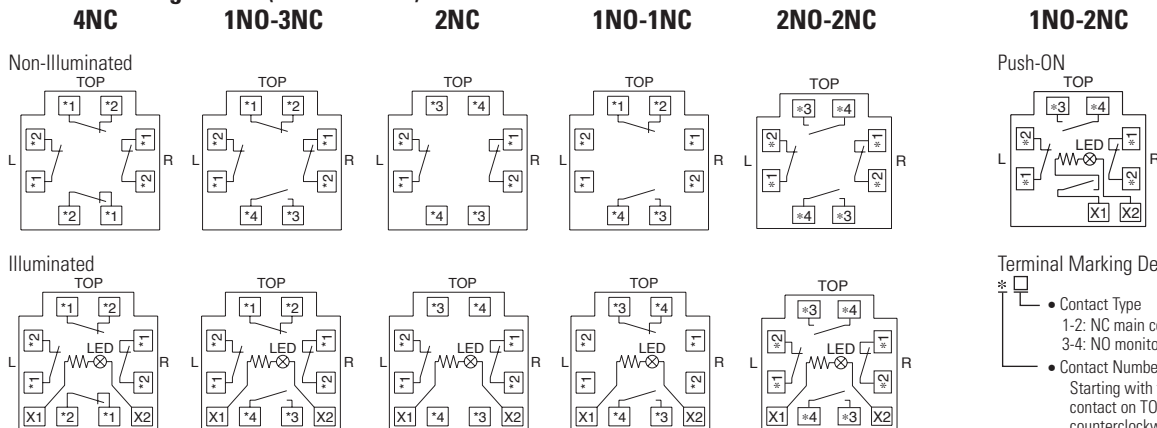
- 11: 1NO - 1NC
- 02: 2NC
- 13: 1NO - 3NC
- 22: 2NO - 2NC
- 04: 4NC
- 12: 1NO-2NC (Push-ON LED only)

Voltage Code

- Blank: Non-Illuminated
- Q4: 24V AC/DC (Illuminated & Push-ON LED type)

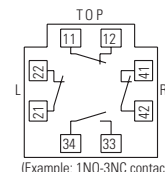
*Contact IDEC for additional configurations.

Terminal Arrangements (Bottom View)



Terminal Marking Description

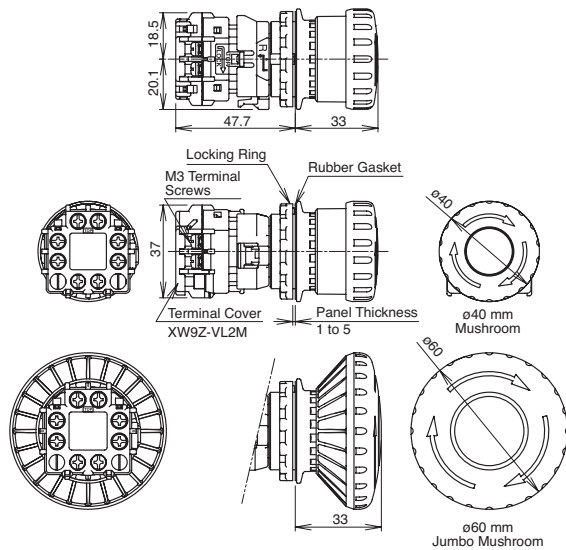
- Contact Type
 - 1-2: NC main contact
 - 3-4: NO monitor contact
 - Contact Number (1-4)
 - Starting with the contact on TOP in a counterclockwise direction.
- Note:
- 1: contact on the TOP
 - 2: contact on the Left
 - 3: contact on the Bottom
 - 4: contact on the Right



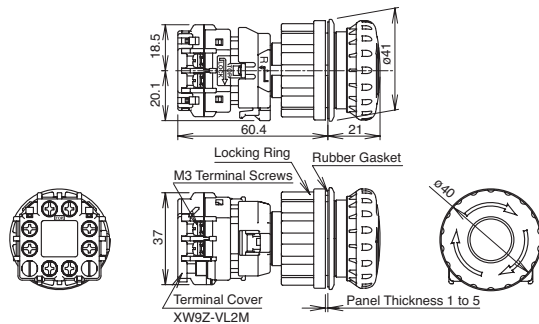
(Example: 1NO-3NC contact)

Dimensions

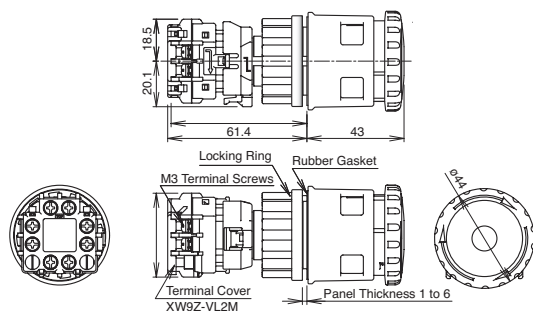
XN1E Non-Illuminated (with terminal cover)



XN5E Non-Illuminated (with terminal cover)



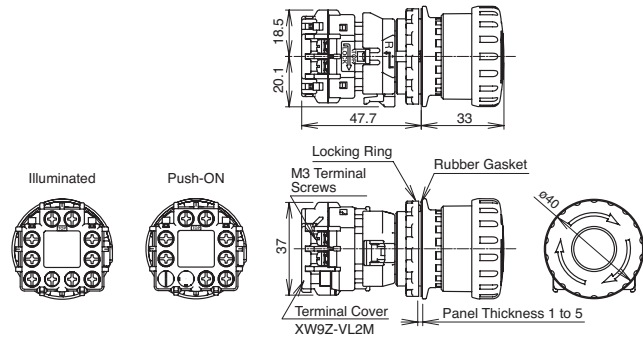
XN4E Non-Illuminated (with terminal cover)



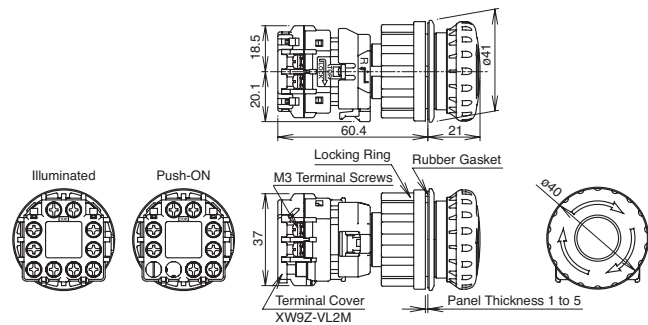
Accessories

Model	Description	Part Number
	Locking Ring Wrench	XN9Z-T1
	Locking Ring Twist Wrench	TWST-T1
	Lockout Hasp	XN9Z-HASP421

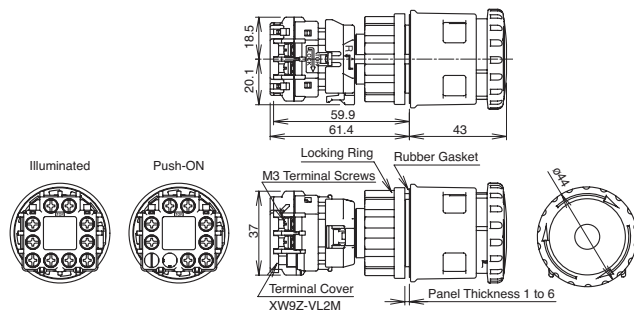
XN1E Illuminated/Push-ON (with terminal cover)



XN5E Illuminated (with terminal cover)



XN4E Illuminated (with terminal cover)



Nameplates

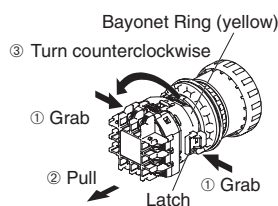
Description	Part No.	Legend	Mounting Panel Thickness
	HNAV-0	(blank)	XN4E: 1.0 to 4.5 mm
	HNAV-27	EMERGENCY STOP	XN1E, XN5E: 1.0 to 3.5 mm

Model	Description	Part Number
	Terminal Cover for Contact Block	XW9Z-VL2M
	IP20 Fingersafe Cover	XW9Z-VL2MF

Operating Instructions

Removing the Contact Block

First unlock the operator button. Grab the yellow bayonet ring ① and pull back the bayonet ring until the latch pin clicks ②, then turn the contact block counterclockwise and pull out ③.

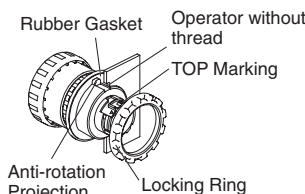


Notes for removing the contact block

1. Do not attempt to remove the contact block while the operator is latched, otherwise the switch may be damaged.
2. When the contact block is removed, the monitor contact (NO contact) is closed.
3. While removing the contact block, do not use excessive force, otherwise the switch may be damaged.
4. An LED lamp is built into the contact block for illuminated pushbuttons. When removing the contact block, pull the contact block straight to prevent damage to the LED lamp. If excessive force is used, the LED lamp may be damaged and fail to light.

Panel Mounting

Remove the locking ring from the operator and check that the rubber gasket is in place. Insert the operator from panel front into the panel hole. Face the side without thread on the operator with TOP marking upward, and tighten the locking ring using ring wrench XN9Z-T1 or TWST-T1 to a torque of 2.5 N·m maximum.



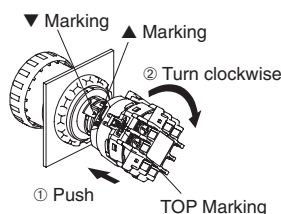
When using a nameplate

When using a nameplate HNAV-□, break the projection from the nameplate using pliers.



Installing the Contact Block

First unlock the operator button. Align the small ▼ marking on the edge of the operator with the small ▲ marking on the yellow bayonet ring. Hold the contact block, not the bayonet ring. Press the contact block onto the operator and turn the contact block clockwise until the bayonet ring clicks.



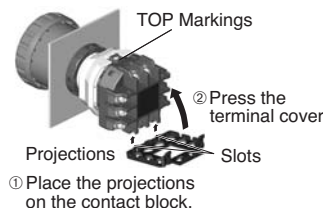
Notes for installing the contact block

1. Do not attempt to install the contact block when the operator is latched, otherwise the switch may be damaged.
2. Make sure that the bayonet ring is in the locked position.

Installing & Removing Terminal Covers

XW9Z-VL2M

To install the terminal cover, align the TOP marking on the terminal cover with the TOP marking on the contact block. Place the two projections on the bottom side of the contact block into the slots in the terminal cover. Press the terminal cover

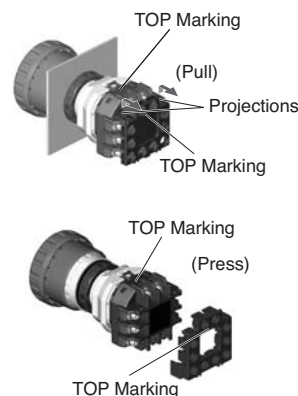


toward the contact block.

To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.

IP20 Fingersafe Terminal Cover XW9Z-VL2MF

To install the IP20 fingersafe terminal cover, align the TOP marking on the cover with the TOP marking on the contact block, and press the cover toward the contact block.



1. Once installed, the XW9Z-VL2MF cannot be removed.
2. With the XW9Z-VL2MF installed, crimping terminals cannot be used.
3. The XW9Z-VL2MF cannot be installed after wiring.
4. Make sure that the XW9Z-VL2MF is securely installed. IP20 cannot be achieved when installed loosely, and electric shock may occur.

Notes for Operation

When using the XN emergency stop switches in safety-related part of a control system, observe safety standards and regulations of the relevant country or region. Also be sure to perform a risk assessment before operation.

Wiring

Tighten the M3 terminal screws to a torque of 0.6 to 1.0 N·m.

Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce.

When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

LED Illuminated Switches

LED lamp is built into the contact block and cannot be replaced.

Handling

Do not expose the switch to excessive shocks and vibrations, for example by operating the switch with tools. Otherwise the switch may be deformed or damaged, causing malfunction or operation failure.

Screw Terminal Type

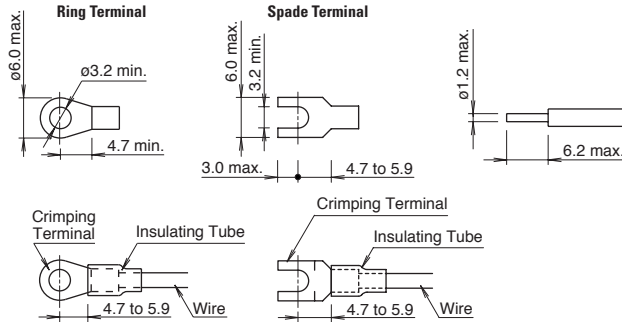
1. AWG18 to 16
2. Tighten the M3 terminal screw to a tightening torque of 0.6 to 1.0 N·m.

Operating Instructions, continued

Screw Terminal Type

1. Wire thickness: 0.75 to 1.25 mm² (AWG18 to 16)

Applicable Crimping Terminals



Solid Wire

Be sure to install an insulating tube on the crimping terminal.

2. Tighten the M3 terminal screw to a tightening torque of 0.6 to 1.0 N·m.

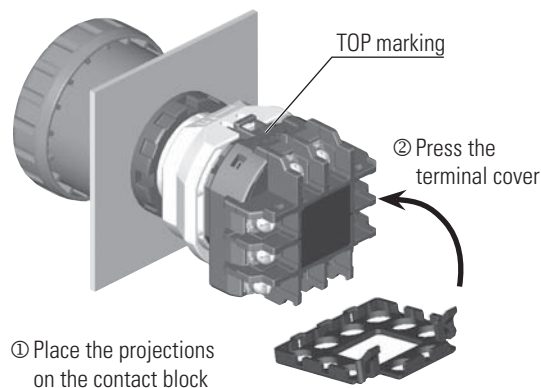
Connector Type

1. Connector shape
Tyco Electronics, D-2000 series
Part No. 1376009-1 (tab header, board mount)
2. Applicable connectors (to be supplied by user)
Tyco Electronics, D-2000 series
Part No. 1-1318119-4 (receptacle housing)
Tyco Electronics, D-2000 series
Part No. 1318107-1 (receptacle contact)
3. To prepare correct receptacles for the connector type, read the instruction sheet and catalog of Tyco Electronics and understand the installation and wiring method.
4. Fasten the cable so that the connector is not pulled.
Otherwise the switch may be deformed and damaged, causing malfunction or operation failure.

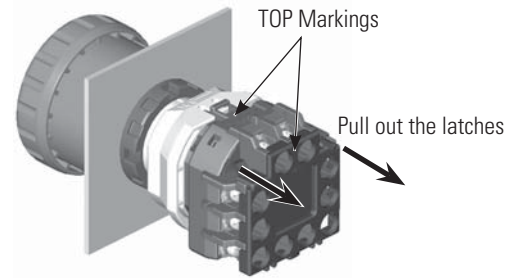
Installing and Removing Terminal Covers

XW9Z-VL2M

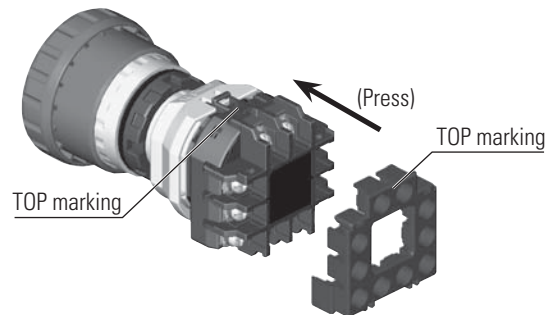
To install the terminal cover, align the TOP marking on the terminal cover with the TOP marking on the contact block. Place the two projections on the bottom side of the contact block into the slots in the terminal cover. Press the terminal cover toward the contact block.



To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.

IP20 Protection Terminal Cover
XW9Z-VL2MF

To install the IP20 protection cover, align the TOP marking on the cover with the TOP marking on the contact block, and press the cover toward the contact block.



1. Once installed, the XW9Z-VL2MF cannot be removed.
2. The XW9Z-VL2MF cannot be installed after wiring.
3. With the XW9Z-VL2MF installed, crimping terminals cannot be used. Use solid wires.
4. Make sure that the XW9Z-VL2MF is securely installed. IP20 cannot be achieved when installed loosely, and electric shocks may occur.

Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce.

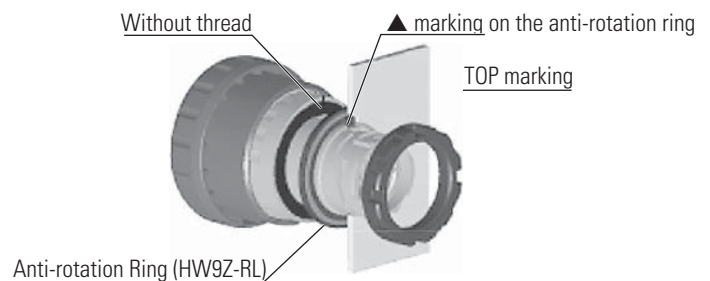
When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

LED Illuminated Switches

An LED lamp is built into the contact block and cannot be replaced.

Installing the Anti-rotation Ring
HW9Z-RL

Align the side without thread on the operator with TOP marking, the small marking on the anti-rotation ring, and the recess on the mounting panel.



TWTD Series — Full Size NEMA Pushbuttons



TWTD Series: Heavy duty switches built to last

Key features include:

- Variety of button sizes up to 2 9/16" (65mm)
- Rugged construction includes chrome plated zinc locking ring die cast zinc mounting threads, screw mounted contact blocks
- LED or incandescent illumination
- Transformer or full voltage
- Transparent contact windows
- Slow make, double break self-cleaning contacts
- Modular construction for maximum flexibility
- Double nickel plated terminal screws
- Available assembled or as sub-components
- NEMA 4x and IP65 watertight/oiltight panel
- Large M3.5 screw terminals with captive sems plate

The rugged series of TWTD switches offers both variety and durability in an attractive design.

With button sizes up to 2 9/16" (65mm), chrome plated zinc locking rings, die cast zinc mounting threads, steel anti-rotation rings, and self cleaning contacts, the TWTDs are here to stay.

The TWTD series also offers either LED or incandescent illumination in full voltage and transformer models.

Transparent contact windows allow the viewing of IDEC's self cleaning slow-make/slow-break contacts.

Regardless of your switching needs, the TWTD series provides the kind of long lasting, industrial strength quality you've come to expect from IDEC.



UL Listed
File No. E70646



File No. LR48366



Ref No. 117617MC



Certificate No.
2005010305145658

Specifications

Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14
Approvals	CSA: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) UL: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) TÜV: pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB) pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)
Operating Temperature	Operation: -25 to +50°C (without freezing) Storage: -40 to +70°C (without freezing)
Vibration Resistance	10 to 55Hz, 98m/sec ² (10g) conforming to IEC6068-2-6
Shock Resistance	980m/sec ² (100g) conforming to IEC6068-2-7
Electric Shock Protection	Class 0 conforming to IEC60536
Degree of Protection	IP65 (from front of the panel) (conforming to IEC60529) IP54 (key switches) NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (conforming to NEMA ICS6-110)
Mechanical Life	Momentary pushbuttons: 5,000,000 (900 operations per hour) All other switches: 500,000
Pollution Degree (conforming to IEC60947-1)	3 for switches not using a transformer 2 for switches using a transformer

Mechanical-Electrical Specifications

Rated Operational Characteristics	AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB) DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC) DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)
Rated Insulation Voltage	600V
Rated Switching Overvoltage	Less than 4kV, conforming to IEC60947-1
Rated Impulse Withstanding Voltage	4kV for contact circuit 2.5kV for lamp circuit
Rated Thermal Current	10 Amp
Minimum Switching Capacity	5 mA at 3V AC/DC
Contact Operation	Slow break NC or NO, self-cleaning
Operating Force	Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained) Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained)
Terminal Referencing	Conforming to CENELEC EN50005
Recommended Terminal Torque	0.8 N m (7.1 in lb.)
External Short-Circuit Protection	10A 250V fuse conforming to IEC60269-1
Applicable Wire Size	Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG
Contact Resistance	Initial contact resistance of 50mΩ or less
Contact Gap	4mm (NO and NC) 2mm (NO-EM and NC-LB)
Lamp Ratings	Incandescent: 1 W LEDs: 6V: 17mA, 12V: 11mA, 24V: 11mA, / 120, 240V: 10mA
Maximum Inrush Current	40 A (40 msec)
Contact Material	Silver

Contact Ratings

Contact Ratings by Utilization Category IEC 60947-5-1			AC-15 (A600)					
			DC-13 (P600)					
Contact Ratings by Utilization Category								
Operational Voltage			24V	48V	50V	110V	220V	440V
Operation Current	AC 50/60 Hz	AC-12 Control of resistive loads & solid state loads	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72VA)	10A	—	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads & solid state loads	8A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—

Non-Illuminated Pushbuttons (Assembled)



Assembled Pushbuttons

A B () D 1 10 N - R

Function

B: Momentary
O: Maintained
V: Pushlock Turn Reset
Y: Push-Pull

Bezel Shape

Blank: Octagonal
F: Full Shroud
G: Mushroom Shroud
P: Neoprene Boot

Series Designation

D: TWTD Series

Button Color

B: Black G: Green W: White
R: Red S: Blue Y: Yellow

Contact Arrangement

10: 1NO 01: 1NC
20: 2NO 02: 2NC
11: 1NO-1NC 22: 2NO-2NC

Button Shape

1: Flush
2: Extended
3: Mushroom ø 40mm
4: Jumbo Mushroom ø 65mm



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom contact configurations available, contact IDEC for details.

Non-Illuminated Pushbuttons (Assembled)

Non-Illuminated Pushbuttons

Style	Contacts	Momentary	Maintained
Flush	1NO 1NC 1NO-1NC 2NO 2NC	ABD110N-① ABD101N-① ABD111N-① ABD120N-① ABD102N-①	AOD110N-① AOD101N-① AOD111N-① AOD120N-① AOD102N-①
Extended	1NO 1NC 1NO-1NC 2NO 2NC	ABD210N-① ABD201N-① ABD211N-① ABD220N-① ABD202N-①	AOD210N-① AOD201N-① AOD211N-① AOD220N-① AOD202N-①
Extended with Neoprene Boot†	1NO 1NC 1NO-1NC 2NO 2NC	ABPD210N-① ABPD201N-① ABPD211N-① ABPD220N-① ABPD202N-①	AOPD210N-① AOPD201N-① AOPD211N-① AOPD220N-① AOPD202N-①
Recessed	1NO 1NC 1NO-1NC 2NO 2NC	ABFD110N-① ABFD101N-① ABFD111N-① ABFD120N-① ABFD102N-①	AOFD110N-① AOFD101N-① AOFD111N-① AOFD120N-① AOFD102N-①
Extended with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFD210N-① ABFD201N-① ABFD211N-① ABFD220N-① ABFD202N-①	AOFD210N-① AOFD201N-① AOFD211N-① AOFD220N-① AOFD202N-①
ø 40mm Mushroom Head	1NO 1NC 1NO-1NC 2NO 2NC	ABD310N-① ABD301N-① ABD311N-① ABD320N-① ABD302N-①	AOD310N-① AOD301N-① AOD311N-① AOD320N-① AOD302N-①
ø 40mm Mushroom Head with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGD310N-① ABGD301N-① ABGD311N-① ABGD320N-① ABGD302N-①	AOGD310N-① AOGD301N-① AOGD311N-① AOGD320N-① AOGD302N-①
ø 65mm Jumbo Mushroom Head	1NO 1NC 1NO-1NC 2NO 2NC	ABD410N-① ABD401N-① ABD411N-① ABD420N-① ABD402N-①	AOD410N-① AOD401N-① AOD411N-① AOD420N-① AOD402N-①
ø 65mm Jumbo Mushroom Head with Shallow Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGD410N-① ABGD401N-① ABGD411N-① ABGD420N-① ABGD402N-①	AOGD410N-① AOGD401N-① AOGD411N-① AOGD420N-① AOGD402N-①
ø 65mm Jumbo Mushroom Head With Deep Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFD410N-① ABFD401N-① ABFD411N-① ABFD420N-① ABFD402N-①	AOFD410N-① AOFD401N-① AOFD411N-① AOFD420N-① AOFD402N-①

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y
White	W

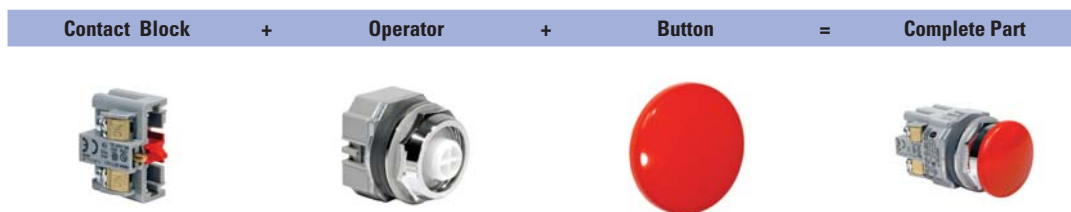


- 65mm Jumbo mushroom not available in white.
- Neoprene boot is not available in blue or white.



- In place of ①, specify the Button Color Code.
- For sub-assembly part numbers, see next page.
- For accessories, see page 632.
- †Neoprene boot available only in Black (B), Green (G), Red (R) and Yellow (Y).

Non-Illuminated Pushbuttons (Sub-Assembled)



Operators

	Style	Part Number	
		Momentary	Maintained
Flush/Extended		ABD-100	AOD-100
Extended with Full Shroud		ABFD-200	AOFD-200
ø 40mm Mushroom/ø 65mm Jumbo Mushroom		ABD-300	AOD-300
ø 40mm Mushroom with Full Shroud		ABGD-300	AOGD-300
ø 65mm Jumbo Mushroom with Shallow Shroud		ABGD-400	AOGD-400
ø 65mm Jumbo Mushroom with Deep Shroud		ABFD-400	AOFD-400

Buttons and Lenses

Style		Part Number
Flush		ABD1BN-①
Extended		ABD2BN-①
ø 40mm Mushroom		ABD3BN-①
ø 65mm Jumbo Mushroom		ABD4BN-①



In place of ①, specify the Button Color Code. (See table previous page)

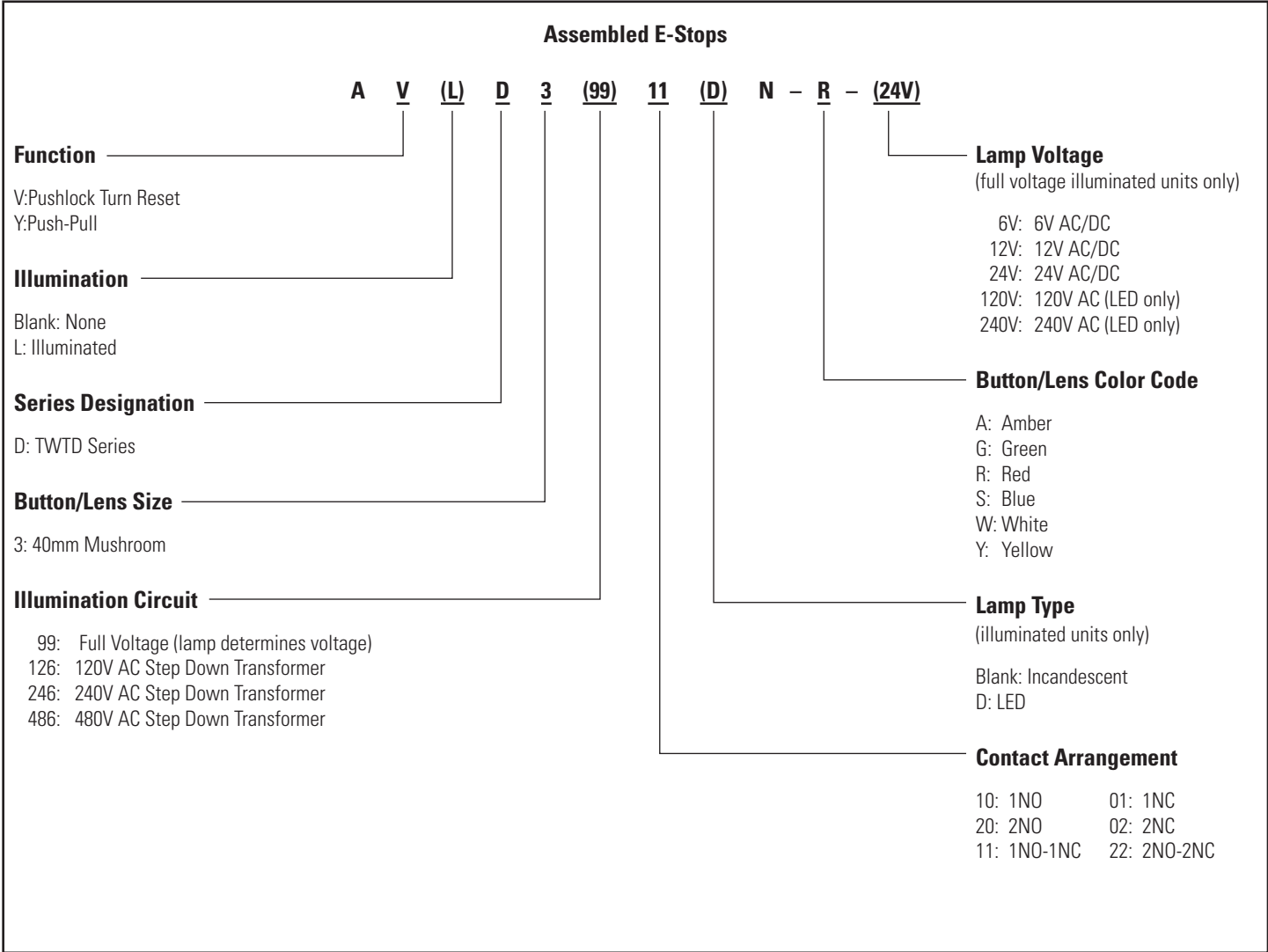
Contact Blocks

Style	Part Number	
	1NO	1NC
	BST-010	BST-001
	BST-010S (early make)	BST-001S (late break)
Dummy Block	BST-D	



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts.

E-Stops (Assembled)



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom contact configurations available, contact IDEC for details.

E-Stops (Assembled)

E-Stop Switches

Style	Contacts	Part Number
ø 40mm Pushlock Turn Reset  Non-Illuminated	1NO 1NC 1NO-1NC 2NO 2NC	AVD310N-R* AVD301N-R* AVD311N-R* AVD320N-R* AVD302N-R*
ø 40mm Illuminated Pushlock Turn Reset  Full Voltage	1NO-1NC 2NO 2NC	AVLD39911ⓈN-R-③* AVLD39920ⓈN-R-③* AVLD39902ⓈN-R-③*
ø 40mm Push-Pull  Non-Illuminated	1NO 1NC 1NO-1NC 2NO 2NC	AYD310N-① AYD301N-① AYD311N-① AYD320N-① AYD302N-①
ø 40mm Push-Pull  Full Voltage	1NO-1NC 2NO 2NC	AYLD39911ⓈN-②-③** AYLD39920ⓈN-②-③** AYLD39902ⓈN-②-③**
ø 40mm Momentary Push-Pull (3-position)  Full Voltage	1NO-1NC 1NC-1LB†	AYLD229911ⓈN-②-③-TK962 AYLD229902SⓈN-②-③-TK962
ø 40mm Momentary Push-Pull (3-position)  Transformer	1NO-1NC 2NO 2NC	AYLD3 ④ 11ⓈN-②** AYLD3 ④ 20ⓈN-②** AYLD3 ④ 02ⓈN-②**
ø 40mm Momentary Push-Pull (3-position)  Full Voltage	1NO-1NC 1NC-1LB†	AYLD229911ⓈN-②-③-TK962 AYLD229902SⓈN-②-③-TK962
ø 40mm Momentary Push-Pull (3-position)  Transformer	1NO-1NC 2NO 2NC	AYLD22 ④ 11ⓈN-②-TK962 AYLD22 ④ 02SⓈN-②-TK962

Unibody E-Stops

Style	Contacts	Part Number
ø 40mm Pushlock Turn Reset (available in Red only) 	1NO-1NC 2NC	HN1E-BV4F11-R* HN1E-BV4F02-R*
Illuminated ø 40mm Pushlock Turn Reset (available in Red only) 	1NO-1NC 2NC	HN1E-LV4F11QⓈ-R-③ HN1E-LV4F02QⓈ-R-③

- In place of ①, specify the button color code.
- In place of ②, specify the lens color code.
- In place of ③, specify the Full Voltage (lamp voltage) Code.
- In place of ④, specify the transformer voltage code.
- In place of ⑤, specify the Lamp Type code.
- With single unit construction, the positive action contacts are integrated in the body of the switch. This provides an extra degree of safety and reliability for critical emergency stop functions.

- HN1E series E-stops comply with EN418, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.
- 3 position push-pull available in spring return to center only.
- *Available in red only.
- **Not available in blue.
- †The most common configuration for motor starting applications.
- For sub-assembly part numbers, see next page.
- For nameplates and accessories, see page 634 and 632.
- For dimensions, see page 637.

3 Position Push-Pull†

Contact	Push	Center	Pull
NC (BST-001)	0	0	X
NC-LB (BST-001S)	0	X	X
NO (BST-010)	X	0	0
NO-EM (BST-010S)	X	X	0

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V (LED only)

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486



Transformers step down to 6V.

⑤ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

E-Stops (Sub-Assembled)



* Not required for full voltage units (full voltage clips used instead).

Operators

Style	Part Number
ø 40mm Pushlock Turn Reset	AVD-300
Illuminated ø 40mm Pushlock Turn Reset	AVLD3-0600N
ø 40mm Push-Pull	AYD-3100
Illuminated ø 40mm Push-Pull	2 pos AYLD-0600 3 pos AYLD22TK962-0B01

Buttons and Lenses

Style	Part Number
Button for Pushlock Turn Reset E-Stop (ø 40mm, red only)	AVN3B-R
Lens for Illuminated Pushlock Turn Reset E-Stop (ø 40mm, red only)	AVLN3LU-R
Button for Push-Pull E-Stop (ø 40mm)	AYD3BN-①
Lens for Illuminated Push-Pull E-Stop (ø 40mm)	2 pos* AYLD3L-② 3 pos AYLD2L-②



1. In place of ①, specify the Button Color Code. (See table below)
2. In place of ②, specify the LED Color Code.
3. *Not available in blue.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24
	120V AC	L-120L



1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y

② LED Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W

Contact Blocks

Style	Part Number	
	1NO	1NC
All Control Units	BST-010	BST-001
	BST-010S (early make)	BST-001S (late break)
Dummy Block	BST-D	



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts.

Full Voltage Clips

Primary Voltage (50/60Hz)	Part Number
Full Voltage Clips (2 required for each unit)	APD-F

Transformers

Description	Primary Voltage (50/60Hz)	Part Number
	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486



6V secondary voltage (uses 6V lamp).

Pilot Lights (Assembled)



Assembled Pilot Lights

A P D 1 126 D N - R - ()

Function

P: Pilot Light

Series Designation

D: TWTD Series

Lens Shape

1: Dome

Rated Operational Voltage (Primary)

Transformer Type Full Voltage Type
126: 120V AC 99: Full Voltage
246: 240V AC
486: 480V AC

Lamp Voltage

(full voltage illuminated units only)

6V: 6V AC/DC

12V: 12V AC/DC

24V: 24V AC/DC

120V: 120V AC (LED only)

240V: 240V AC (LED only)

Lens Color Code

A: Amber

G: Green

R: Red

S: Blue

W: White

Y: Yellow

Lamp Type

Blank: Incandescent

D: LED



Use only when interpreting part numbers. Do not use for developing part numbers.

LED and Incandescent Pilot Lights

Style	Operating Voltage	Part Number	
		LED	Incandescent
Transformer Dome 	120V AC 240V AC 480V AC	APD1126DN-② APD1246DN-② APD1486DN-②	APD1126N-② APD1246N-② APD1486N-②
Full Voltage Dome 	—	APD199DN-②-③	APD199N-②-③

② Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V (LED only)



1. In place of ②, specify the Lens/LED Color Code.
2. In place of ③, specify the Full Voltage Code (lamp voltage).
3. Yellow pilot light comes with white LED.

Pilot Lights (Sub-Assembled)



* Not required for full voltage units (full voltage clips used instead).

One Each from Left Column	plus	One Selection from Right Column
---------------------------	------	---------------------------------

Operators

Style	Part Number
Transformer	APD-006
Full Voltage	APD-199



Full voltage operator comes with full voltage clips.

Lenses

Style	Part Number
Dome Lens	APN106LN-②



1. In place of ②, specify the Lens Color Code.
2. LED and incandescent lenses differ in shade only. Some colors have only one shade.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24
	120V AC	L-120L



1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

Full Voltage Clips

Primary Voltage (50/60Hz)	Part Number
	APD-F



Required for all full voltage models. Two pieces each.

Transformers

Description	Primary Voltage (50/60Hz)	Part Number
LED	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486



6V secondary voltage (use 6V lamp).

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y



Yellow lens only. Yellow LED not available, use white LED.

Illuminated Pushbuttons (Assembled)



Assembled Illuminated Pushbuttons

	A	L	()	D	2	126	11	(D)	N	-	R	-	()	
Function														Lamp Voltage (full voltage only)
L: Momentary Action OL: Maintained Action														6V: 6V AC/DC 12V: 12V AC/DC 24V: 24V AC/DC 120V: 120V AC 240V: 240V AC (LED only)
Bezel Shape														Lens Color Code
Blank: Octagonal F: Full Shroud														A: Amber G: Green R: Red S: Blue W: White Y: Yellow
Series Designation														Lamp Type
D: TWTD Series														Blank: Incandescent D: LED
Lens Shape														Contact Arrangement
2: Extended 3: Mushroom ø 40mm														20: 2NO 02: 2NC 11: 1NO-1NC
Rated Operational Voltage (Primary)														
Transformer Type Full Voltage Type 126: 120V AC 99: Full Voltage 246: 240V AC 486: 480V AC														



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. All transformers and AC Adaptors step down to 6V.

Illuminated Pushbuttons (Assembled)

Illuminated Pushbuttons

Style	Contacts	Part Number	
		Momentary	Maintained
Extended Lens 	Full Voltage	1NO-1NC 2NO 2NC	ALD29911ⓈN-②-③ ALD29920ⓈN-②-③ ALD29902ⓈN-②-③ AOLD29911ⓈN-②-③ AOLD29920ⓈN-②-③ AOLD29902ⓈN-②-③
	Transformer	1NO-1NC 2NO 2NC	ALD2 ④ 11ⓈN-② ALD2 ④ 20ⓈN-② ALD2 ④ 02ⓈN-② AOLD2 ④ 11ⓈN-② AOLD2 ④ 20ⓈN-② AOLD2 ④ 02ⓈN-②
Extended Lens with Full Shroud 	Full Voltage	1NO-1NC 2NO 2NC	ALFD29911ⓈN-②-③ ALFD29920ⓈN-②-③ ALFD29902ⓈN-②-③ AOLFD29911ⓈN-②-③ AOLFD29920ⓈN-②-③ AOLFD29902ⓈN-②-③
	Transformer	1NO-1NC 2NO 2NC	ALFD2 ④ 11ⓈN-② ALFD2 ④ 20ⓈN-② ALFD2 ④ 02ⓈN-② AOLFD2 ④ 11ⓈN-② AOLFD2 ④ 20ⓈN-② AOLFD2 ④ 02ⓈN-②
ø 40mm Mushroom Lens 	Full Voltage	1NO-1NC 2NO 2NC	ALD39911ⓈN-②-③ ALD39920ⓈN-②-③ ALD39902ⓈN-②-③ AOLD39911ⓈN-②-③ AOLD39920ⓈN-②-③ AOLD39902ⓈN-②-③
	Transformer	1NO-1NC 2NO 2NC	ALD3 ④ 11ⓈN-② ALD3 ④ 20ⓈN-② ALD3 ④ 02ⓈN-② AOLD3 ④ 11ⓈN-② AOLD3 ④ 20ⓈN-② AOLD3 ④ 02ⓈN-②



1. In place of ②, specify the Lens Color Code.
2. In place of ③, specify the Full Voltage Code (lamp voltage).
3. In place of ④, specify the Transformer Voltage Code.
4. In place of ⑤, specify the Lamp Type Code.
5. Light is independent of switch position.
6. Yellow pushbutton comes with white LED only.

② Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V (LED only)

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486



6V secondary voltage
(uses 6V lamp).

⑤ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

Illuminated Pushbuttons (Sub-Assembled)



*Not required for full voltage types (full voltage types use APD-F full voltage clips).

Operators

Style		Part Number	
		Momentary	Maintained
Extended		ALD-0600	AOLD-0600
Extended with Full Shroud		ALFD-0600	AOLFD-0600
40mm Mushroom		ALD-0600	AOLD-0600

Lamps

Style	Voltage	Part Number
	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24
	120V AC	L-120L

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

Yellow lens only. Yellow LED not available, use white LED.

1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

Contact Blocks

Style		Part Number	
		1NO	1NC
	All Control Units	BST-010	BST-001
		BST-010S (early make)	BST-001S (late break)
Dummy Block		BST-D	

1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Transformers

Description	Primary Voltage (50/60Hz)	Part Number
	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486

6V secondary voltage (use 6V lamp).

Lenses

Style	Part Number
	ALN06LU-②
	ALN3LU-②

In place of ②, specify the Lens Color Code.

Full Voltage Clips

Style	Part Number
Full Voltage Clips (2 required for each unit)	APD-F

Required for all full voltage models.

Non-Illuminated Selector Switches (Assembled)



Assembled Selector Switches

A S D 2 () () 11 N - ()

Function

S: Selector Switch

Series Designation

D: TWTD Series

Number of Positions

2: 2-Position
3: 3-Position

Spring Return Action

Blank: Maintained
1: Spring return from Right
2: Spring return from Left
3: 2-Way spring return from Left and Right

Circuit Number

(See Circuit # column of Selector Switch Contact Arrangement Chart on beginning on page 629.)

Contact Arrangement Code

10: 1NO 01: 1NC
20: 2NO 02: 2NC
40: 4NO 04: 4NC
11: 1NO-1NC 22: 2NO-2NC

Operator Style Code

Blank: Knob Operator
L: Lever Operator
K: Key Operator

1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom key removal codes available. Please contact IDEC for details.

Non-Illuminated Selector Switches (Assembled)

Non-Illuminated 2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position			Maintained	Spring Return from Right	Spring Return from Left
		L 	R 				
1NO	1 2	0 0	X 0	Knob Lever Key	ASD210N ASD2L10N ASD2K10N	ASD2110N ASD21L10N ASD21K10N	ASD2210N ASD22L10N ASD22K10N
1NC	1 2	X 0	0 0	Knob Lever Key	ASD201N-116 ASD2L01N-116 ASD2K01N-116	ASD2101N-116 ASD21L01N-116 ASD21K01N-116	ASD2201N-116 ASD22L01N-116 ASD22K01N-116
1NO 1NC	1 2	X 0	0 X	Knob Lever Key	ASD211N ASD2L11N ASD2K11N	ASD2111N ASD21L11N ASD21K11N	ASD2211N ASD22L11N ASD22K11N
2NO	1 2	0 0	X X	Knob Lever Key	ASD220N ASD2L20N ASD2K20N	ASD2120N ASD21L20N ASD21K20N	ASD2220N ASD22L20N ASD22K20N
2NC	1 2	X X	0 0	Knob Lever Key	ASD202N-104 ASD2L02N-104 ASD2K02N-104	ASD2102N-104 ASD21L02N-104 ASD21K02N-104	ASD2202N-104 ASD22L02N-104 ASD22K02N-104
2NO 2NC	1 2 3 4	0 X 0 X	X 0 X 0	Knob Lever Key	ASD222N ASD2L22N ASD2K22N	ASD2122N ASD21L22N ASD21K22N	ASD2222N ASD22L22N ASD22K22N
2NO 2NC	1 2 3 4	0 0 X X	X X 0 0	Knob Lever Key	ASD222N-111 ASD2L22N-111 ASD2K22N-111	ASD2122N-111 ASD21L22N-111 ASD21K22N-111	ASD2222N-111 ASD22L22N-111 ASD22K22N-111



- The truth table indicates the operating position of contact block when the operator is switched to that position.
X = On (closed contacts) 0 = Off (open contacts)
X—X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these two positions.
- All knob and lever selector switches come in black. Other colors are available by ordering the knob or lever separately.
- Custom contact arrangements available, see page 629 or call IDEC for details.

Non-Illuminated 3-Position Selector Switches

Style						Part Number			
Contact	Mounting	Operator Position				Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way
		L 	C 	R 					
2NO	1 2	X O	O O	O X	Knob Lever Key	ASD320N ASD3L20N ASD3K20N	ASD3120N ASD31L20N ASD31K20N	ASD3220N ASD32L20N ASD32K20N	ASD3320N ASD33L20N ASD33K20N
2NC	1 2	O X	X X	X O	Knob Lever Key	ASD302N ASD3L02N ASD3K02N	ASD3102N ASD31L02N ASD31K02N	ASD3202N ASD32L02N ASD32K02N	ASD3302N ASD33L02N ASD33K02N
2NO 2NC	1 2 3 4	X O O X	O O X X	O X X O	Knob Lever Key	ASD322N ASD3L22N ASD3K22N	ASD3122N ASD31L22N ASD31K22N	ASD3222N ASD32L22N ASD32K22N	ASD3322N ASD33L22N ASD33K22N
2NO 2NC	1 2 3 4	X X O O	O X X O	X O O X	Knob Lever Key	ASD322N-309 ASD3L22N-309 ASD3K22N-309	ASD3122N-309 ASD31L22N-309 ASD31K22N-309	ASD3222N-309 ASD32L22N-309 ASD32K22N-309	ASD3322N-309 ASD33L22N-309 ASD33K22N-309
2NO 2NC	1 2 3 4	O O O O	X O X O	O X O X	Knob Lever Key	ASD322N-310 ASD3L22N-310 ASD3K22N-310	ASD3122N-310 ASD31L22N-310 ASD31K22N-310	ASD3222N-310 ASD32L22N-310 ASD32K22N-310	ASD3322N-310 ASD33L22N-310 ASD33K22N-310
4NO	1 2 3 4	X O X O	O O O O	O X O X	Knob Lever Key	ASD340N ASD3L40N ASD3K40N	ASD3140N ASD31L40N ASD31K40N	ASD3240N ASD32L40N ASD32K40N	ASD3340N ASD33L40N ASD33K40N
4NC	1 2 3 4	O X O X	X X X X	X O X O	Knob Lever Key	ASD304N ASD3L04N ASD3K04N	ASD3104N ASD31L04N ASD31K04N	ASD3204N ASD32L04N ASD32K04N	ASD3304N ASD33L04N ASD33K04N

Non-Illuminated Selector Switches (Sub-Assembled)

Contact Blocks + Operator + Knob or Lever* + Color Insert* = Complete Part†



1. *Not needed with key type switches.
2. †Knob type shown.

Operators

Appearance	Position	Description	Part Number
Knob/Lever 	2	Maintained	ASD200
		Spring return from right	ASD2100
		Spring return from left	ASD2200
	3	Maintained, Cam 1 Maintained, Cam 2	ASD300-1 ASD300-2
		Spring return from right, Cam 1 Spring return from right, Cam 2	ASD3100-1 ASD3100-2
		Spring return from left, Cam 1 Spring return from left, Cam 2	ASD3200-1 ASD3200-2
		Spring return from left/right, Cam 1 Spring return from left/right, Cam 2	ASD3300-1 ASD3300-2
Key 	2	Maintained	ASD2K00-RA
		Spring return from right	ASD21K00-RL
		Spring return from left	ASD22K00
	3	Maintained, Cam 1 Maintained, Cam 2	ASD3K00-1 ASD3K00-2
		Spring return from right, Cam 1 Spring return from right, Cam 2	ASD31K00-1-RLC ASD31K00-2-RLC
		Spring return from left, Cam 1 Spring return from left, Cam 2	ASD32K00-1-RRC ASD32K00-2-RRC
		Spring return from left/right, Cam 1 Spring return from left/right, Cam 2	ASD33K00-1-RC ASD33K00-2-RC



1. Order knobs, levers, color inserts separately (see below).
2. For key switches, keys are removable in all maintained positions. Other options available, contact IDEC for details.
3. See page 631 "Operator Truth Tables" for details of difference between cams.

① Color Codes

Knob/Lever Color	Code
Black	B
Blue	S
Green	G
Red	R
Yellow	Y
White	W



1. Knob/Lever not available in white.
2. Color inserts not available in Black.
3. Lever not available in yellow.

Handles and Inserts

	Style	Part Number
Knob		ASDHY-①
		ASDHHL-①*
Color Insert		TW-HC1-①



1. In place of ①, specify the Color Code.
*Not available in yellow.

Contact Blocks

Style	Part Number	
	1NO	1NC
	BST-010	BST-001
	BST-010S (early make)	BST-001S (late break)
	BST-D	
Dummy Block	BST-D	



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S results in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Illuminated Selector Switches (Assembled)



Assembled Illuminated Selector Switches

A SL D 2 (2) 99 11 D N - 111 - R - 24

Function

SL: Illuminated Selector Switch

Series Designation

D: TWTD series

Number of Positions

2: 2-Position
3: 3-Position

Spring Return Action

Blank: Maintained
1: Spring return from Right
2: Spring return from Left
3: Two-Way spring return from Left and Right

Rated Operational Voltage (Primary)

Transformer Type	Full Voltage Type
126: 120V AC	99: Full Voltage
246: 240V AC	
486: 480V AC	

Contact Arrangement Code

20: 2NO	02: 2NC
40: 4NO	04: 4NC
11: 1NO-1NC	22: 2NO-2NC

Lamp Voltage

(Full Voltage Units Only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC
240V: 240V AC (LED only)

Lens Color Code

A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Circuit Code Number

See Circuit # column of Selector Switch Contact Arrangement Charts on page 629.

Lamp Type

Blank: Incandescent Lamp
D: LED Lamp



Use only when interpreting part numbers. Do not use for developing part numbers.

Illuminated Selector Switches(Assembled)

Illuminated 2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position		Lamp Circuit Type	Maintained	Spring Return from Right	Spring Return from Left
		L	R				
1NO	1	O	X	Transformer	ASLD2 ④11⑤N-②	ASLD21 ④11⑤N-②	ASLD22 ④11⑤N-②
	2	X	O	Full Voltage	ASLD29911⑤N-②-③	ASLD219911⑤N-②-③	ASLD229911⑤N-②-③
2NO	1	O	X	Transformer	ASLD2 ④20⑤N-②	ASLD21 ④20⑤N-②	ASLD22 ④20⑤N-②
	2	O	X	Full Voltage	ASLD29920⑤N-②-③	ASLD219920⑤N-②-③	ASLD229920⑤N-②-③
2NC	1	X	O	Transformer	ASLD2 ④02⑤N-104-②	ASLD21 ④02⑤N-104-②	ASLD22 ④02⑤N-104-②
	2	X	O	Full Voltage	ASLD29902⑤N-104-②-③	ASLD219902⑤N-104-②-③	ASLD229902⑤N-104-②-③
2NO 2NC	1	O	X	Transformer Full Voltage	ASLD2 ④22⑤N-② ASLD29922⑤N-②-③	ASLD21 ④22⑤N-② ASLD219922⑤N-②-③	ASLD22 ④22⑤N-② ASLD229922⑤N-②-③
	2	X	O				
	3	O	X				
	4	X	O				
2NO 2NC	1	O	X	Transformer Full Voltage	ASLD2 ④22⑤N-111-② ASLD29922⑤N-111-②-③	ASLD21 ④22⑤N-111-② ASLD219922⑤N-111-②-③	ASLD22 ④22⑤N-111-② ASLD229922⑤N-111-②-③
	2	O	X				
	3	X	O				
	4	X	O				

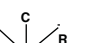
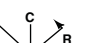
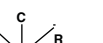
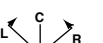
② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V (LED only)

Illuminated 3-Position Selector Switches, Maintained and Spring Return

Style						Part Number			
Contact	Mounting	Operator Position			Lamp Circuit Type	Maintained	Spring Return From Right	Spring Return from Left	Spring Return Two-Way
									
2NO	1	X	O	O	Transformer Full Voltage	ASLD3 ④ 20⑤N-②	ASLD31 ④ 20⑤N-②	ASLD32 ④ 20⑤N-②	ASLD33 ④ 20⑤N-②
	2	O	O	X		ASLD39920⑤N-②-③	ASLD319920⑤N-②- ③	ASLD329920⑤N-②-③	ASLD339920⑤N-②-③
2NC	1	O	X	X	Transformer Full Voltage	ASLD3 ④ 02⑤N-②	ASLD31 ④ 02⑤N-②	ASLD32 ④ 02⑤N-②	ASLD33 ④ 02⑤N-②
	2	X	X	O		ASLD39902⑤N-②-③	ASLD319902⑤N-②-③	ASLD329902⑤N-②-③	ASLD339902⑤N-②-③
2NO 2NC	1	X	O	O	Transformer Full Voltage	ASLD3 ④ 22⑤N-② ASLD39922⑤N-②-③	ASLD31 ④ 22⑤N-② ASLD319922⑤N-②-③	ASLD32 ④ 22⑤N-② ASLD329922⑤N-②-③	ASLD33 ④ 22⑤N-② ASLD339922⑤N-②-③
	2	O	O	X					
	3	O	X	X					
	4	X	X	O					
2NO 2NC	1	X	O	X	Transformer Full Voltage	ASLD3 ④ 22⑤N-309-② ASLD39922⑤N-309-②-③	ASLD31 ④ 22⑤N-309-② ASLD319922⑤N-309-②-③	ASLD32 ④ 22⑤N-309-② ASLD329922⑤N-309-②-③	ASLD33 ④ 22⑤N-309-② ASLD339922⑤N-309-②-③
	2	X	X	O					
	3	O	X	O					
	4	O	O	X					
2NO 2NC	1	O	X	O	Transformer Full Voltage	ASLD3 ④ 22⑤N-310-② ASLD39922⑤N-310-②-③	ASLD31 ④ 22⑤N-310-② ASLD319922⑤N-310-②-③	ASLD32 ④ 22⑤N-310-② ASLD329922⑤N-310-②-③	ASLD33 ④ 22⑤N-310-② ASLD339922⑤N-310-②-③
	2	O	O	X					
	3	O	X	O					
	4	O	O	X					
4NO	1	X	O	O	Transformer Full Voltage	ASLD3 ④ 40⑤N-② ASLD39940⑤N-②-③	ASLD31 ④ 40⑤N-② ASLD319940⑤N-②-③	ASLD32 ④ 40⑤N-② ASLD329940⑤N-②-③	ASLD33 ④ 40⑤N-② ASLD339940⑤N-②-③
	2	O	O	X					
	3	X	O	O					
	4	O	O	X					
4NC	1	O	X	X	Transformer Full Voltage	ASLD3 ④ 04⑤N-② ASLD39904⑤N-②-③	ASLD31 ④ 04⑤N-② ASLD319904⑤N-②-③	ASLD32 ④ 04⑤N-② ASLD329904⑤N-②-③	ASLD33 ④ 04⑤N-② ASLD339904⑤N-②-③
	2	X	X	O					
	3	O	X	X					
	4	X	X	O					



- In place of ②, specify the Lens/LED Color Code, in place of ③, specify the Full Voltage (lamp voltage) Code, in place of ④, specify the Transformer Voltage Code and in place of ⑤ specify the Lamp Type Code.
- The truth table indicates the operating position of contact block when the operator is switched to that position.
X = On (Closed Contacts) O = Off (Open Contacts)
X—X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these positions
- Yellow selector switch comes with white LED.

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486



Transformers step down to 6V (use 6V lamp).

⑤ Lamp Type Codes

Lamp	Code
Incandescent	Blank
LED	D

Light is independent of switch position.

Illuminated Selector Switches (Sub-Assembled)

Transformer*	+	Contact Block	+	Operator	+	Lamp	+	Lens	=	Complete Part
--------------	---	---------------	---	----------	---	------	---	------	---	---------------



*Not required for full voltage units (use APD-F full voltage clips instead).

Operators

Style	Position	Description	Part Number
Operator	2	Maintained	ASLD200
	3	Maintained, Cam 1 Maintained, Cam 2	ASLD300-1 ASLD300-2
	2	Spring return from right	ASLD2100
		Spring return from left	ASLD2200
	3	Spring return from right, Cam 1	ASLD3100-1
		Spring return from right, Cam 2	ASLD3100-2
		Spring return from left, Cam 1	ASLD3200-1
		Spring return from left, Cam 2	ASLD3200-2
	3	Spring return from left/right, Cam 1	ASLD3300-1
		Spring return from left/right, Cam 2	ASLD3300-2

Contact Blocks

Style	Part Number	
	1NO	1NC
	BST-010	BST-001
	BST-010S (early make)	BST-001S (late break)
	BST-D	
Dummy Block	BST-D	



- Dummy blocks (no contacts) are used with an odd number of contact blocks.
- Combining BST-010S and BST-001S results in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Full Voltage Clips

Style	Part Number
Full Voltage Clips (2 required for each unit)	APD-F



Required for all full voltage models.

Transformers

Description	Primary Voltage (50/60Hz)	Part Number
	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486



6V secondary voltage.

② LED/Lens Color Codes

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	White	W
Red	R	Yellow	Y



Yellow lens only. Yellow LED not available, use white LED.

Lenses

Description	Part Number
Knob	ASLNHU-①

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24
	120V AC	L-120L

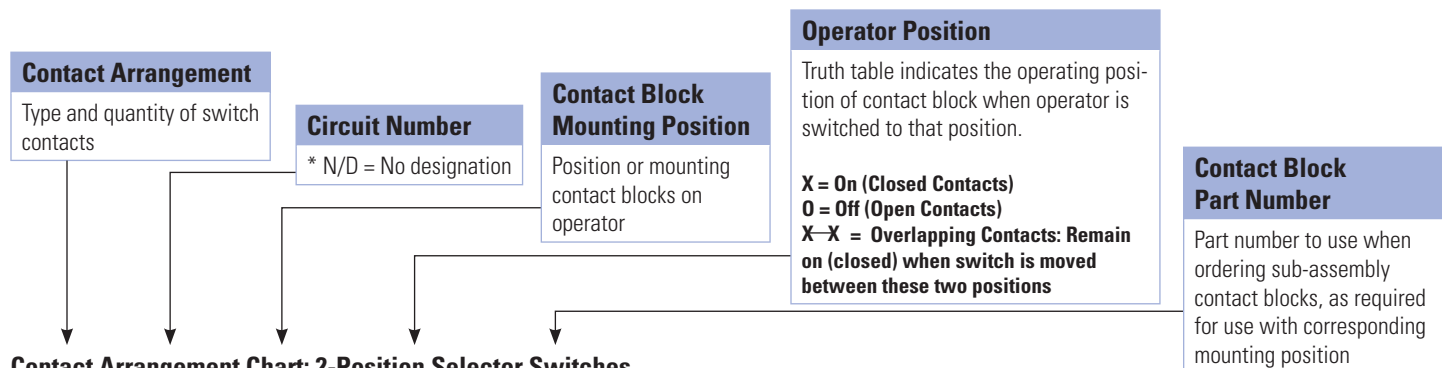


- In place of ②, specify the LED color code.
- The LED contains a current-limiting resistor and a protection diode.

Contact Arrangement Charts

How to Read Contact Arrangement Charts

To determine contact block mounting position, first make sure the selector switch is oriented as shown on the right



Contact Arrangement Chart: 2-Position Selector Switches

Style		Mounting Position	Operator Position		Contact Block Part Number	Description	Operator Part Number		
Contact	Circuit Number						Maintained	Spring Return from Right	Spring Return from Left
									
1NO	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	O	BST-D	Illuminated Knob			
1NC	116	1	X	O	BST-001	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	O	BST-D	Illuminated Knob			
1NO 1NC	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	O	BST-001	Illuminated Knob			
	103	1	X	O	BST-001	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	X	BST-010	Illuminated Knob			
1NO-EM 1NC-LB	600	1	O	X	BST-010S	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	O	BST-001S	Illuminated Knob			
	601	1	X	O	BST-001S	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	X	BST-010S	Illuminated Knob			
2NO	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	X	BST-010	Illuminated Knob			
2NC	104	1	X	O	BST-001	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	O	BST-001	Illuminated Knob			
2NO 2NC	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	O	BST-001	Illuminated Knob			
		3	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		4	X	O	BST-001	Illuminated Knob			
	110	1	X	O	BST-001	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	X	BST-010	Illuminated Knob			
		3	X	O	BST-001	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		4	O	X	BST-010	Illuminated Knob			
	111	1	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	X	BST-010	Illuminated Knob			
		3	X	O	BST-001	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		4	X	O	BST-001	Illuminated Knob			
4NO	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	O	X	BST-010	Illuminated Knob			
		3	O	X	BST-010	Illuminated Knob			
		4	O	X	BST-010	Illuminated Knob			

Contact Arrangement Chart: 3-Position Selector Switches

Style		Mounting Position	Operator Position			Contact Block Part Number	Description	Operator Part Number			
Contact	Circuit Number							Maintained	Spring Return from Right	Spring Return from Left	Two-Way
											
1NO 1NC	202	1	X	O	O	BST-010	Knob/Lever Key	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	X	X	O	BST-001	Illuminated Knob				
	203	1	O	X	X	BST-001	Knob/Lever Key	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	O	O	X	BST-010	Illuminated Knob				
	302	1	X	O	X	BST-010	Knob/Lever Key	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	X	X	O	BST-001	Illuminated Knob				
	303	1	O	X	O	BST-001	Knob/Lever Key	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	O	O	X	BST-010	Illuminated Knob				
2NO	N/D	1	X	O	O	BST-010	Knob/Lever Key	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	O	O	X	BST-010	Illuminated Knob				
	301	1	X	O	X	BST-010	Knob/Lever Key	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	O	O	X	BST-010	Illuminated Knob				
2NC	304	1	O	X	O	BST-001	Knob/Lever Key	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	X	X	O	BST-001	Illuminated Knob				
	N/D	1	O	X	X	BST-001	Knob/Lever Key	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	X	X	O	BST-001	Illuminated Knob				
2NO 2NC	N/D	1	X	O	O	BST-010	Knob/Lever Key Illuminated Knob	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	O	O	X	BST-010					
		3	O	X	X	BST-001					
		4	X	X	O	BST-001					
	210	1	O	X	X	BST-001	Knob/Lever Key Illuminated Knob	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	O	O	X	BST-010					
		3	O	X	X	BST-001					
		4	O	O	X	BST-010					
	308	1	X	O	X	BST-010	Knob/Lever Key Illuminated Knob	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	X	X	O	BST-001					
		3	X	O	X	BST-010					
		4	X	X	O	BST-001					
	309	1	X	O	X	BST-010	Knob/Lever Key Illuminated Knob	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	X	X	O	BST-001					
		3	O	X	O	BST-001					
		4	O	O	X	BST-010					
	310	1	O	X	O	BST-001	Knob/Lever Key Illuminated Knob	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	O	O	X	BST-010					
		3	O	X	O	BST-001					
		4	O	O	X	BST-010					

1. Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
2. N/D = No circuit number designation required in assembled part number.
3. X = On (closed contacts) O = Off (open contacts). X-X Overlapping contacts remain on (closed) when switch is moved between these two positions.

Contact Arrangement Chart: 3-Position Selector Switches

Style		Mounting Position	Operator Position			Contact Block Part Number	Description	Operator Part Number			
Contact	Circuit Number							Maintained	Spring Return from Right	Spring Return from Left	Two-Way
											
4NO	N/D	1	X	O	O	BST-010	Knob/Lever Key Illuminated Knob	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	O	O	X	BST-010					
		3	X	O	O	BST-010					
		4	O	O	X	BST-010					
	305	1	X	O	X	BST-010	Knob/Lever Key Illuminated Knob	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	O	O	X	BST-010					
		3	X	O	X	BST-010					
		4	O	O	X	BST-010					
4NC	N/D	1	O	X	X	BST-001	Knob/Lever Key Illuminated Knob	ASD300-1 ASD3K00-1 ASLD300-1	ASD3100-1 ASD31K00-1 ASLD3100-1	ASD3200-1 ASD32K00-1 ASLD3200-1	ASD3300-1 ASD33K00-1 ASLD3300-1
		2	X	X	O	BST-001					
		3	O	X	X	BST-001					
		4	X	X	O	BST-001					
	314	1	O	X	O	BST-001	Knob/Lever Key Illuminated Knob	ASD300-2 ASD3K00-2 ASLD300-2	ASD3100-2 ASD31K00-2 ASLD3100-2	ASD3200-2 ASD32K00-2 ASLD3200-2	ASD3300-2 ASD33K00-2 ASLD3300-2
		2	X	X	O	BST-001					
		3	O	X	O	BST-001					
		4	X	X	O	BST-001					

1. Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
2. N/D = No circuit number designation required in assembled part number.
3. X = On (closed contacts) O = Off (open contacts). X—X Overlapping contacts remain on (closed) when switch is moved between these two positions.

Operator Truth Tables

Use the following tables to build custom selector switches.

2 Position Selector Switches

	Contact	Mounting Position	Operator Position	
			Left	Right
ASD200	BST-010 (NO)	L	O	X
		R	O	X
	BST-001 (NC)	L	X	O
		R	X	O
	BST-010S (NO-EM)	L	O	X—
		R	O	X—
	BST-001S (NC-LB)	L	X—	O
		R	X—	O

3 Position Selector Switches

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASD300-1 ASLD300-1 ASD3K00-1	BST-010 (NO)	L	X	O	O
		R	O	O	X
	BST-001 (NC)	L	O	X—X	
		R	X—X	O	
	BST-010S (NO-EM)	L	X—	O	O
		R	O	O	X
	BST-001S (NC-LB)	L	O	X—X	
		R	X—X	O	

3 Position Push/Pull Switches

	Contact	Operator Position		
		Pull	Normal	Push
AYLD22	BST-010 (NO)	O	O	X
	BST-001 (NC)	X	O	O
	BST-010S (NO-EM)	O	X	X
	BST-001S (NC-LB)	X	X	O

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASD300-2 ASLD300-2 ASD3K00-2	BST-010 (NO)	L	X	O	X
		R	O	O	X
	BST-001 (NC)	L	O	X	O
		R	X—X	O	
	BST-010S (NO-EM)	L	X—	O	X—
		R	O	O	X
	BST-001S (NC-LB)	L	O	X—	O
		R	X—X	O	

Accessories — TWTD Series

TWTD Series Accessories

Appearance	Description/Usage		Part Number
Lamp Removal Tool		Rubber tool used to install or remove LED's and incandescent lamps	OR-55
Metal Bezel		Standard octagonal units (chrome-pl.).	OG-81
		Extended, non-illuminated (chrome-pl.).	OG-82
		Extended, illuminated (chrome-pl.).	OG-83L
		Jumbo Mushroom Shallow Shroud	ABN4G
		Jumbo Mushroom Deep Shroud	ABN4F
Plastic Bezel		Black plastic locking ring/bezel	OGP11B
Boot/Cover		In place of $\textcircled{D}$, specify Rubber Boot color: B (black), G (green), R (red), Y (yellow)	OC-11 $\textcircled{D}$
		Flush units (clear plastic -40° to +60°C).	OC-121
		Extended units (clear plastic -40° to +60°C).	OC-122
Anti-Rotation Ring		Plastic washer For nameplates or panels that should not be scratched.	OGL-D1T
		Thrust washer/Anti-rotation ring for use with notched panel cutout.	OGL-D1S
Mounting Hole Plug		Plastic with locking nut attached.	OBP-11
		Metal with locking nut attached	OB-11
		Grey rubber (-5° to +60°C)	OB-13
Terminal Tab Adaptor		Tab #250 17/64" x 3/64" (6.35mm x 0.8mm): Single tab	TW-FA1
Full Voltage Adaptor		Used on all full voltage illuminated units. Two required per unit. (M3.5 screw and saddle)	APD-F
Lock Out Adaptor		Used to provide lockout protection for TWTD pushbuttons and knob selectors. ø 1-13/64" (30mm)	OL-KL1
Replacement Keys		Pair of keys (#0)	TW-SK

Fingersafe Covers for TWTD Series

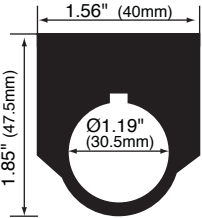
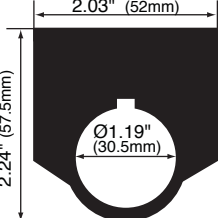
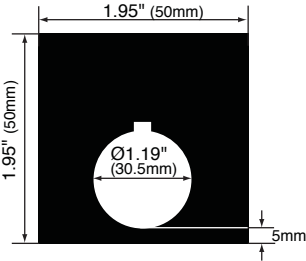
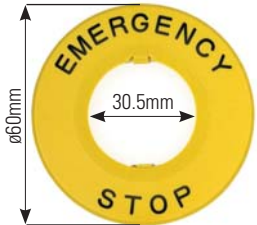
Appearance	Description	Used with	Part Number
	Fingersafe terminal cover, for full voltage pilot lights, adds 3mm to overall depth	APD199... full voltage pilot lights	APD-PVL
	Fingersafe terminal cover, for contact blocks, adds 3mm to overall depth	Non-Illuminated pushbuttons ABD..., and AOD...	N-VL2
	Fingersafe terminal cover, adds 1.5mm to overall depth	Transformer pilot lights and illuminated units	N-VL3
	Fingersafe terminal cover, adds 4 mm to depth	Full voltage illuminated pushbuttons	N-VL4

 Dimensions on page 637.

Switches & Pilot Lights
Display Lights
Relays & Sockets
Timers
Terminal Blocks
Circuit Breakers

Nameplates — TWTD Series

Faceplates

	NALD	NAKD	NAQD	HNAV
Dimensions				
Description	Part Number			
Nameplate (blank)	NALD-B (black) NALD-R (red)	NAKD-B (black) NAKD-R (red)	NAQD-B (black) NAQD-R (red)	HNAV-0
Nameplate (engraved)	NALD-Ⓢ	NAKD-Ⓢ	NAQD-Ⓢ	HNAV-27 "Emergency Stop"

1. Nameplates are made of 0.031" aluminum. Lettering is white letters engraved on black background.
2. In place of Ⓢ, insert either the standard legend code from table below or custom engraving delimited by " ".
3. HNAV available in yellow only.

Standard Legend Codes

Pushbuttons				Pushbuttons/Selector Switches				Selector Switches	
Legend	Code	Legend	Code	Legend	Code	Legend	Code	Legend	Code
AUTO	101	OPEN	116	AUTO-MAN	201			AUTO-MAN-OFF	301
CLOSE	102	OUT	117	CLOSE-OPEN	202			AUTO-OFF-MAN	302
DOWN	103	RAISE	118	DOWN-UP	203			CLOSE-OFF-OPEN	303
EMERG.STOP*	104	RESET	119	FAST-SLOW	204			DOWN-OFF-SLOW	304
FAST	105	REVERSE	120	FOR-REV	205	REV-FOR	216	FAST-OFF-SLOW	305
FORWARD	106	RUN	121	HAND-AUTO	206	RUN-JOG	217	FOR-OFF-REV	306
HAND	107	SLOW	122	HIGH-LOW	207	RUN-SAFE	218	LEFT-OFF-RIGHT	307
HIGH	108	START	123	JOG-RUN	208	SAFE-RUN	219	LOWER-OFF-RAISE	308
IN	109	STOP*	124	LEFT-RIGHT	209	SLOW-FAST	220	OFF-MAN-AUTO	309
INCH	110	STOP	125	LOWER-RAISE	210	START-STOP	221	OFF-SLOW-FAST	310
JOG	111	TEST	126	MAN-AUTO	211	STOP-START	222	OFF-1-2	311
LOW	112	UP	127	OFF-ON	212	UP-DOWN	223	OPEN-OFF-CLOSE	312
LOWER	113	I (Int'l On)	150	ON-OFF	213			SLOW-OFF-FAST	313
OFF	114	O (Int'l Off)	151	OPEN-CLOSE	214			SUMMER-OFF-WINTER	314
ON	115	EMO	152	RAISE-LOWER	215			UP-OFF-DOWN	315
								1-OFF-2	316
								HAND-OFF-AUTO	317

1. *Available in Red as standard legend code 104 and 124. To order engraved nameplate and codes, add legend code to nameplate part number. Character height based on the number of characters, space and size of nameplate. Standard character size is 3/16".
2. Nameplates with standard legends are the same list price as blank nameplates. Special engravings, additional cost.

To specify engraving instructions, use the Nameplate order form on next page.

Custom engraved Nameplates Order Form — TWTD Series

Copy this order form and use it to specify Letter Height, Custom Engravings, Location of Engraving on Nameplate, and Quantity Desired. To ensure engraving accuracy, fax it to your IDEC representative, or Distributor.

Your Company Name: _____

IDEC Rep/Distributor Contact: _____

Your Name: _____

PO number (if known): _____

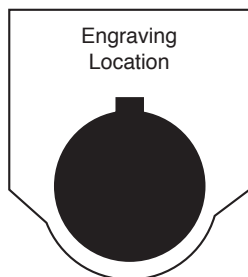
Telephone: _____

IDEC Rep/Distributor Phone: _____

Fax & Email: _____

IDEC Rep/Distributor Fax & Email: _____

NALD Nameplate



Step 1.

Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 13 characters.

Sample Letter Sizes

7/64" Letters: A B C D

1/8" Letters: A B C D

7/64"
Letter Size

☐

11 characters max
(for 7/64" size letters)

1/8"
Letter Size

☐

9 characters max
(for 1/8" size letters)

Step 2.

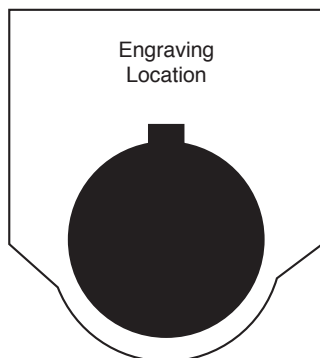
Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				

NAKD Nameplate



Step 1.

Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 9 characters.

Step 2.

Specify Quantity.

Enter the number of nameplates desired in the box on the right.

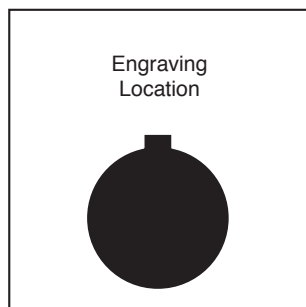
Qty

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			

Sample Letter Sizes

1/8" Letters: A B C D

NAQD Nameplate



Step 1.

Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 16 characters.

7/64"
Letter Size

☐

20 characters max
(for 7/64" size letters)

1/8"
Letter Size

☐

16 characters max
(for 1/8" size letters)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

Sample Letter Sizes

3/32" Letters: A B C D

1/8" Letters: A B C D

Step 2.

Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

Switch Engraving Order Form – TWTD Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To insure engraving accuracy, fax it to your IDEC representative or Distributor.

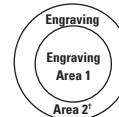
Your Company: _____
 Name: _____
 Address: _____
 PO: _____

Telephone: _____
 Fax: _____
 Email: _____
 Part Number to be Engraved: _____

Please check one of the boxes below to indicate your choice of engraving options:



ø29mm, ø40mm Mushroom Head



	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	7
☐		1/8	8
☐	2	5/32	7
☐		1/8	8
☐	3	1/8	8
☐	4	Custom*	

*Engraving is possible, but character size will be smaller than standard sizes.



	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	7
☐		1/8	8
☐	2	5/32	7
☐		1/8	8
☐	3	1/8	8
☐	4	Custom*	

*Engraving is possible, but character size will be smaller than standard sizes.

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	3/4	4
☐		5/16	5
☐	2	5/16	5
☐		1/4	6
☐	3	5/32	8
☐		1/8	9
☐	4	1/8	9

	# of Lines	Letter Height	Max. Characters Per Line
☐	Engraving Area 1	5/32	5
☐		1/8	5
☐	Engraving Area 2	5/32	7
☐		1/8	7

- Above mentioned specifications hold true for standard size push-buttons (round and square).
- *Engraving Area 2 can be engraved for 40mm mushroom head n on-illuminated pushbutton only.
- Engraving is done on the button itself for non-illuminated push buttons and on marking plate for illuminated push buttons and pilot lights.
- Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____

Sample Letter Sizes

1/8 Letters: **OPEN**

5/32 Letters: **OPEN**



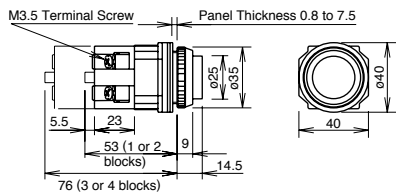
All engraving is 5/8mm wide.

For IDEC Internal Use Only:

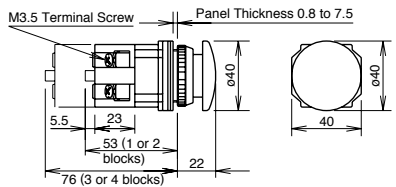
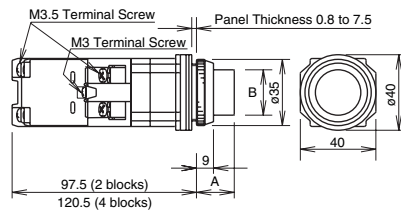
Work Order #: _____

Dimensions

Pushbutton



Mushroom Pushbutton w/Full Shroud

Illuminated Pushbuttons
w/AC Adapter
w/Transformer

Illuminated Pushbuttons	Dimension A	Dimension B
Flush w/Full Shroud	0.975" (25mm) 0.995" (25.5mm)	ø 0.936" (24mm) ø 0.936" (24mm)
Extended w/Full Shroud	0.741" (19mm) 0.761" (19.5mm)	ø 0.936" (24mm) ø 0.936" (24mm)
ø 1.56" (40mm) Mushroom Pushlock Turn Reset, Push-Pull	*0.975" (25mm) **0.975" (25mm)	ø 1.56" (40mm) ø 1.56" (40mm)

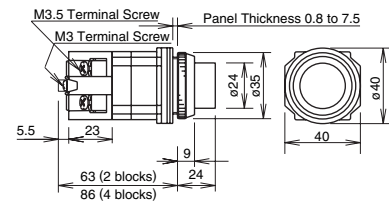
*Dimension when operator is in reset position.
 **Dimension when operator is in pull position.

Pushbuttons	Dimension A	Dimension B
Flush	0.351" (9mm)	ø 0.975" (25mm)
Extended	0.566" (14.5mm)	ø 0.975" (25mm)
Extended w/Full Shroud	0.663" (17mm)	ø 1.11" (28.5mm)
Mushroom	0.858" (22mm)	ø 1.56" (40mm)
Mushroom w/Full Shroud	0.936" (24mm)	ø 1.87" (48mm)
Jumbo Mushroom	1.13" (29mm)	ø 2.54" (65mm)
Mushroom, Pushlock Turn Reset and Push-Pull	*0.975" (25mm) **0.975" (25mm)	ø 1.56" (40mm) ø 1.56" (40mm)

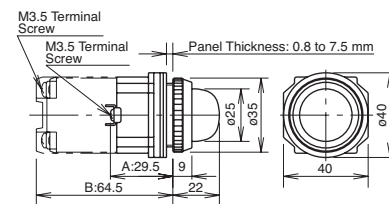


*Dimension when operator is in reset position.
 **Dimension when operator is in pull position.

Full Voltage

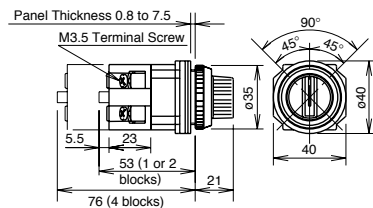


Pilot Lights

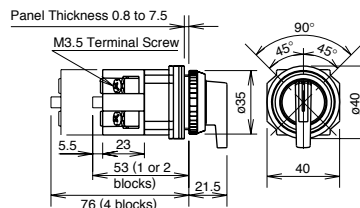


Selector Switches

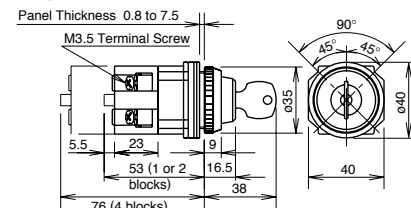
Knob



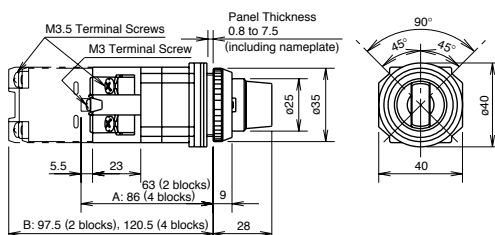
Lever



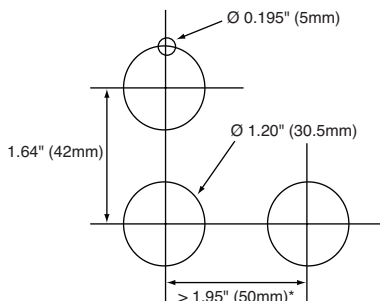
Key



Illuminated Knob



Selector Switches Panel Cut-Out

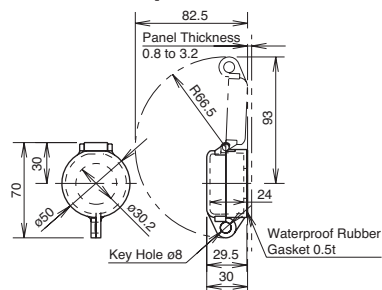


1. *Jumbo Mushroom < 2.61" (66mm)
2. Minimum mounting centers are applicable to switches with one stack of contact blocks. When mounting two stacks of contact blocks, minimum centers should allow for access to wiring.
3. The ø 0.195" (ø 5mm) recess is necessary when either the nameplate or anti-rotation ring is used.

Illuminated Selector Switches

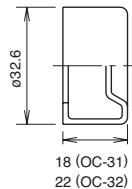
OL-KL1

Lock-Out Adapter



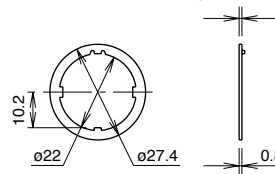
OC-31

Pushbutton Clear Boot



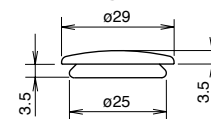
OGL-31

Anti-Rotation Ring



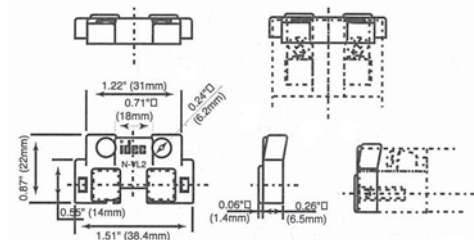
OB-31

Mounting Hole Rubber Plug

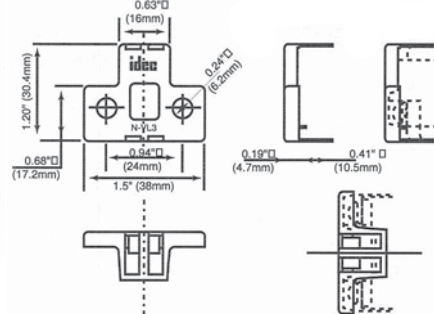


Finger-Safe Cover

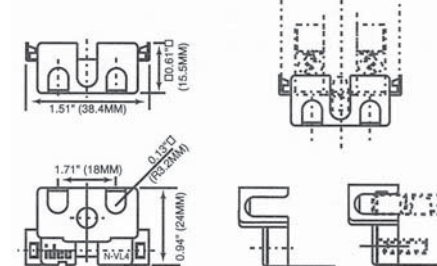
N-VL2



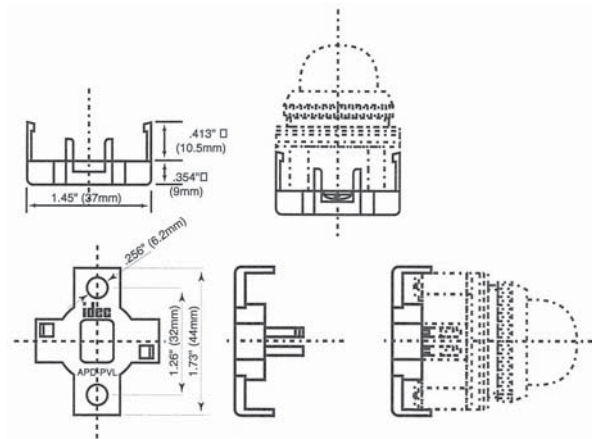
N-VL3



N-VL4



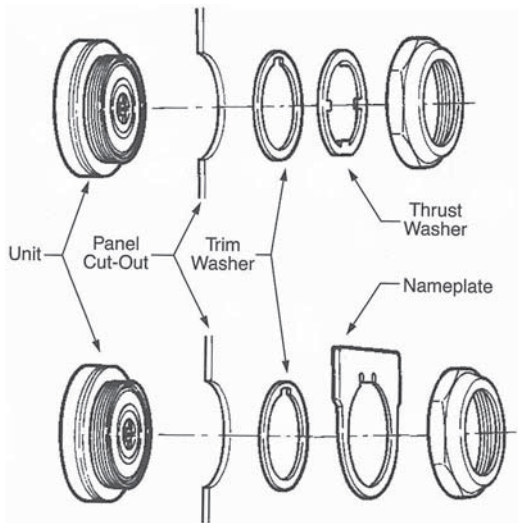
APD-PVL



Operating Instructions

Adjustment for Panel Thickness

Each unit is shipped with several waterproof gaskets which are 0.06" (1.5mm) and 0.12" (3mm) thick. Combine the gaskets for a dimension approximately equal to panel thickness and install between the bezel and the body of the unit.



A trim washer must be used with a thrust washer or a nameplate to prevent the control unit from rotating in the mounting hole. When using anti-rotation rings (trim washer with thrust washer or nameplate), install as shown below.

Selector Switches

The operator shaft of each unit has a recess to identify in which direction to install the handle. Align the handle with the recess. Press color insert (TW-HC1) into the Standard Operating Positions.

Standard Operation Positions

2-Position, 90°	3-Position, 45°

Non-Illuminated 3-Position Operators

--	--	--

Installation of TWTD Series Units

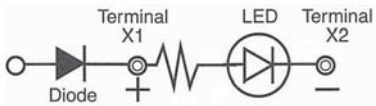
TWTD Pilot Lights

TWTD Illuminated Pushbuttons
TWTD Selector Switches
(Transformer or Full Voltage)

Terminal X1 = Positive
Terminal X2 = Negative

Installation of LED Illuminated Units

Transformer units are recommended for use in areas subjected to inductive noise. When using full voltage types, install a protection diode as shown below. Use diode with AC power supply to protect against reverse polarity. Use with DC power supply to protect against surges and noise.

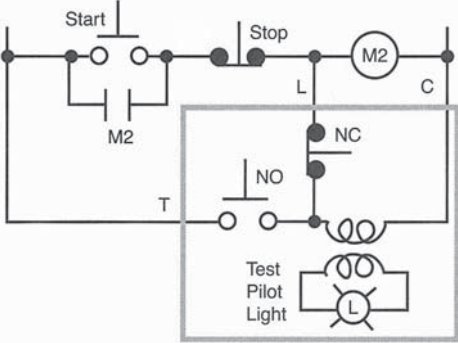


Make sure that LED illuminated units are installed with correct polarity, as indicated at the terminals.

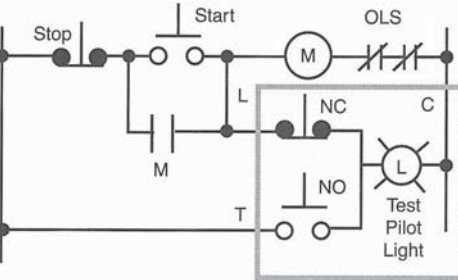
Application Example For Push-To-Test Pilot Light

A typical application of illuminated pushbuttons is a push-to-test pilot light which can be used to check the lamp/LED circuit.

Transformer/AC-Adapter Circuit



Full Voltage Circuit



CS Series — Heavy Duty Cam Switches

Key features of the CS Series include:

- Wide variety of heavy-duty oiltight cam switches
- Operators available up to 12 positions
- Switches made with a double circuit contact block
- Contact blocks rated 600V, 10A
- Ideal for ammeter/voltmeter applications
- Built to order — not available in subcomponents
- UL listed and CSA certified
- NEMA Type 4, 13



UL Listed
File No. E68961



CSA Certified
File No. LR48366

Contact Ratings

Rated Thermal Current			10A			
AC	Break Current		120V/5A	240V/3A	480V/2A	600V/1A
DC	Resistive	Break Current	24V/8A	110V/8A	220V/1A	440V/0.45A
	Inductive	Break Current	24V/5A	110V/1.2A	220V/0.45A	440V/0.20A
		Make Current (A)	Rated amperage x 1.1			
Electrical Life			500,000 operations minimum (at full rated load)			
Mechanical Life			5,000,000 (at no load)			

CS Series

Operator					
Series	Appearance	Cam Angle	Position	Maximum Contacts To Be Mounted	Handle Styles
ACSNO		30°	Up to 12	1 to 10 decks; Up to 20 contacts	YB, SB, PB, FB
		45°	Up to 8		
		60°	Up to 6		
		90°	Up to 4		
ACSNK		30°	Up to 12	1 to 10 decks; Up to 20 contacts	HB or standard key
		45°	Up to 8		
		60°	Up to 6		
		90°	Up to 4		
UCSQO		30°	Up to 12	1 to 10 decks; Up to 20 contacts	YB, SB, PB, FB
		45°	Up to 8		
		60°	Up to 6		
		90°	Up to 4		
UCSQM		45° Spring return	Only 3	1 to 3 decks; Up to 6 contacts	YB, SB, PB, FB



1. Do not use spring return (SR) for more than six contacts.
2. Two identical keys come with ACSNK unit. Specify "H" for handle key option.
3. For handle styles, see page 645.

Illuminated Selector Switches (Assembled)

Assembled Illuminated Selector Switches

ACSNO – 3 6 6 – () SB – C3013

Series

ACSNO = Standard Cam Switch (30mm)
ACS NK = Key Cam Switch (30mm)
UCSQO = Cam Switch (5 hole mounting)
UCSQM = 3 Position Spring Return Cam Switch (5 hole mounting)

Number of Levels (Decks)

1 through 10
Note: One level contains two independent contacts.*

Number of Positions

2 through 12

Angle

3 = 30° (12 position max)
4 = 45° (8 position max)
6 = 60° (6 position max)
9 = 90° (4 position max)

Contact Arrangement

1. For standard contact arrangements, use designations on page 642.
2. For custom contact arrangements, omit contact arrangement designation and complete the blank order form on page 644.

Handle

YB = Knob, Small
SB = Lever, Small
PB = Lever, Large
FB = Knob, Large
HB = Handle Key (ACS NK only)
Blank = Standard Key (ACS NK only)

Spring Return Action

Blank: Maintained
RO = Spring return from left (2, 3 or 4 position, 45° only)
OR = Spring return from right (2, 3 or 4 position, 45° only)
RR = Return from right and left (3 pos, 45° only)



1. *Contact blocks may contain two independent contacts, (a four position switch with four independent contacts only requires two contact blocks).

2. *Caution: switches with 180° or more of rotation may require separate blocks for each contact due to cam overlapping.

3. Key retainable in every 45° position (45, 90, 180, 225, 270, 315, 360).

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

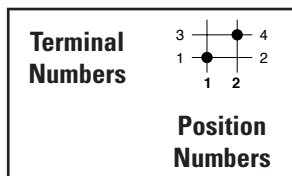
USA: 800-262-IDEC

Canada: 888-317-IDEC

641

Contact Arrangements

Standard Arrangements



C-1001



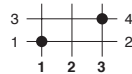
C-1002



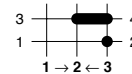
C-1014



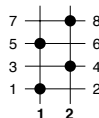
C-1005



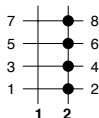
C-1008



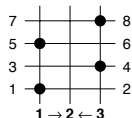
C-2001



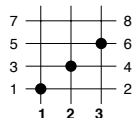
C-2002



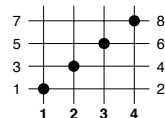
C-2006



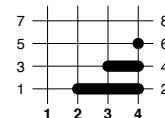
C-2004



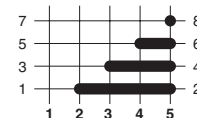
C-2008



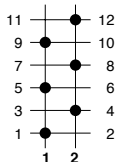
C-2009



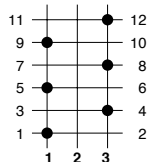
C-2027



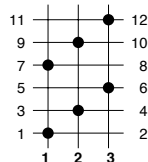
C-3001



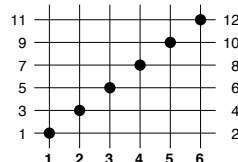
C-3002



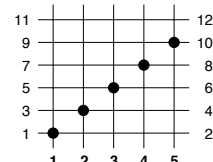
C-3005



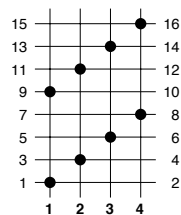
C-3013



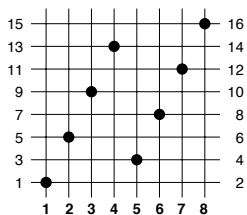
C-3016



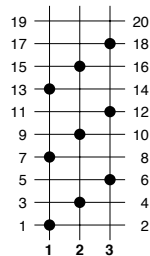
C-4001



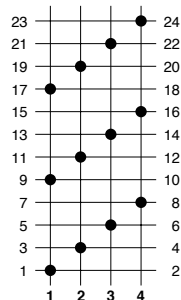
C-4002



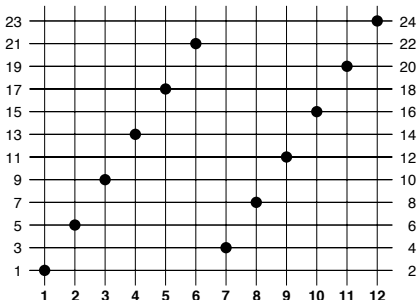
C-5001



C-6001



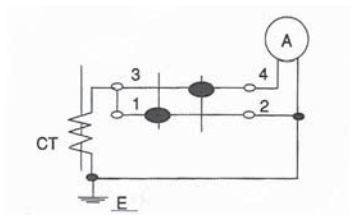
C-6002



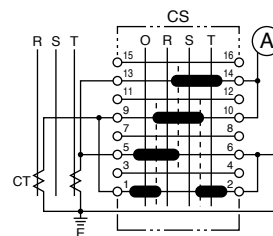
Contact Arrangements continued

Ammeter Switching

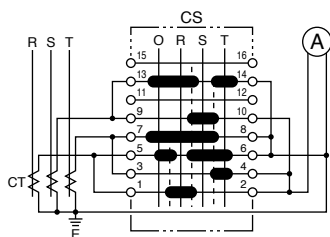
C-1012



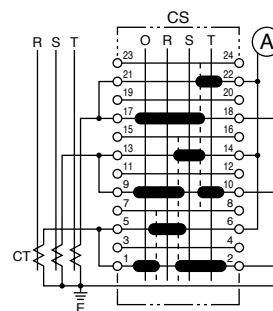
C-4007



C-4003

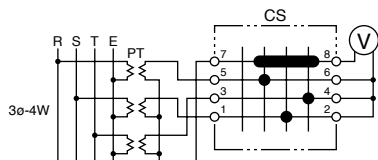


C-6003

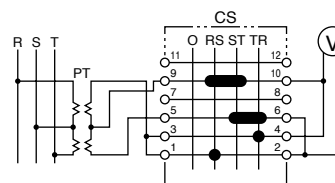


Voltmeter Switching

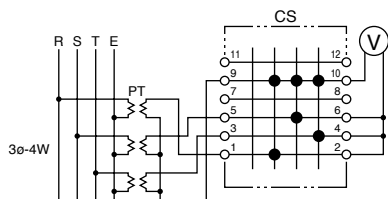
C-2022



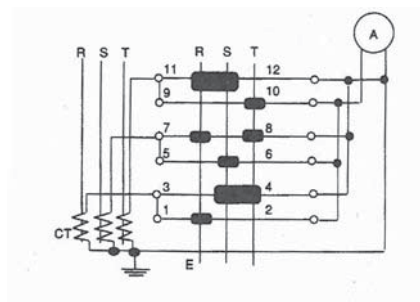
C-3008



C-3009



C-3007



Order Form (Custom Contact Arrangement)

Series

ACSNO
ACSNO
UCSQO
UCSQM

*Number of Decks

Specify Qty = 1, 2, 3, 4,
5, 6, 7, 8, 9, or 10

*Note: One Deck can drive two independent contacts.

Number of Positions

Unit	Angle	Positions
ACSNO ACSNO* UCSQO	30° only	9, 10, 11, 12
	30° or 45° only	7 or 8
	30°, 45° or 60°	5 or 6
	30°, 45°, 60°, 90°	2, 3, or 4
UCSQM	45° only	3 only

 * ACSNO keys only remove at 45°.

Angle

3 = 30°
4 = 45°
6 = 60°
9 = 90°

Spring Return

Blank = Maintained
RO = Spring return from left
 (3 or 4 position, 45°)
OR = Spring return from right
 (3 or 4 position, 45°)
RR = Return from right and left
 (3 position, 45°)

**UCSQM is available in spring-return
version only.**

Handle

ACSNO, UCSQO, UCSQM:

YB = Knob, Small
SB = Lever, Small
PB = Lever, Large
FB = Knob, Large

ACSNO:

HB = Handle Key (option)
Blank = Standard Key

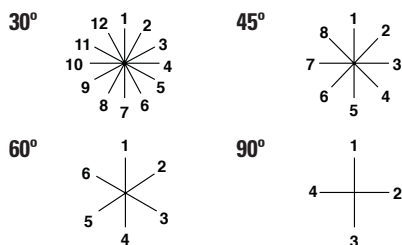
 For handle styles, see page 645.

Contact Arrangement Table

Cams	Terminal Numbers	Position											
		1	2	3	4	5	6	7	8	9	10	11	12
Deck 1	1 and 2												
	3 and 4												
Deck 2	5 and 6												
	7 and 8												
Deck 3	9 and 10												
	11 and 12												
Deck 4	13 and 14												
	15 and 16												
Deck 5	17 and 18												
	19 and 20												
Deck 6	21 and 22												
	23 and 24												
Deck 7	25 and 26												
	27 and 28												
Deck 8	29 and 30												
	31 and 32												
Deck 9	33 and 34												
	35 and 36												
Deck 10	37 and 38												
	39 and 40												

 To specify non-standard arrangements (designation not on preceding pages), fill in this table using the following symbols.
X = Closed contact (break before make) **O** = Open contact **X-X** = Overlapping contact (remain on when switch is moved between two positions)

Specifying Nameplate (Optional)



Specifying Legends

Position

1 _____
 2 _____
 3 _____
 4 _____
 5 _____
 6 _____



If no engraving information is provided,
a blank nameplate will be supplied.

1 _____
 2 _____
 3 _____
 4 _____
 5 _____
 6 _____

Accessories — CS Series

Replacement Handles

					
Part Number	CSH-YB	CSH-SB	CSH-PB	CSH-FB	CSH-H2B
Dimensions	0.79"D x 1.61"H	0.79"D x 1.97"H	1.58"D x 1.97"H	1.58"D x Ø 1.97"	0.95"D x 2.28"H
Applicable Models	ACSNO, UCSQO, UCSQM				ACSNK

Replacement Nameplates

Size & Shape □ 2.52" (64mm) Black Aluminum			
Part Number	CQ	CQM	CQN
Applicable Models	UCSQO	UCSQM	ACSNO, ACSNK

- 
1. Extra cost for engraving, 3/16" min. letter height, Legends maximum ten characters.

2. Blank nameplates are supplied with all cam switches (they need not be ordered separately).

Wiring Clips

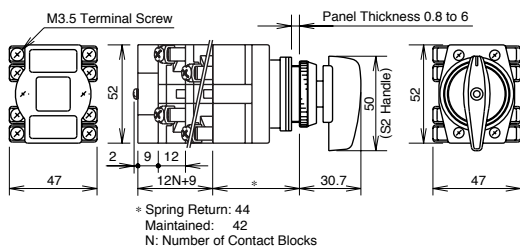
Part Number	Contact Block Jumpers
CJ-1 	Between decks
CJ-2 	Same deck

Replacement Keys

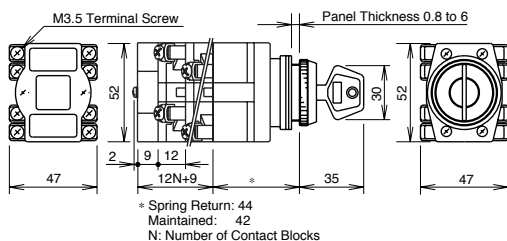
Part Number	
K301 	Pair of keys (#301)

Dimensions/Terminal Arrangements/Mounting Holes

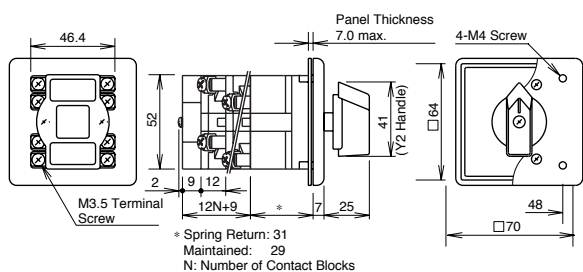
ACSNO



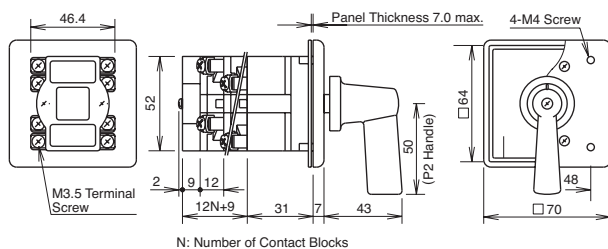
ACSNO



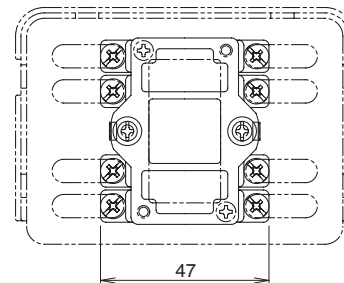
UCSQO



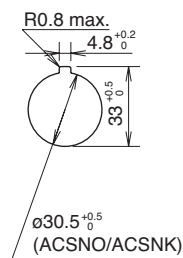
UCSQM



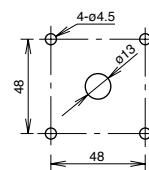
Terminal Arrangement



Mounting Holes



UCSQO UCSQM



ARN Series — Mono-Lever Switches

Mono-Lever Switches Ø 1-13/64" (30mm)
Contact Blocks Rated for 600V, 10A
Key features of the ARN Series include:

- Available in 2-, 3-, and 4-positions.
- Maintained and spring-return modes available.
- Models available with interlock mechanism to prevent inadvertent actuation.



Specifications

Operating Temperature		-25° to 50°C (without freezing)
Insulation Resistance		100MΩ
Contact Rating	Rated Voltage: Current	110VDC: 3A 24V AC/DC: 10A 120VAC: 10A 240VAC: 6A 480VAC: 2A 600VAC: 1A
	Insulation Voltage	600V AC/DC
	Rated Thermal Current	10A
	Electrical Life	Over 500,000 operations

Part Numbering Guide (Assembled)

ARN

① Style

4

② Number of Contact Blocks

—

1012

③ Lever Action

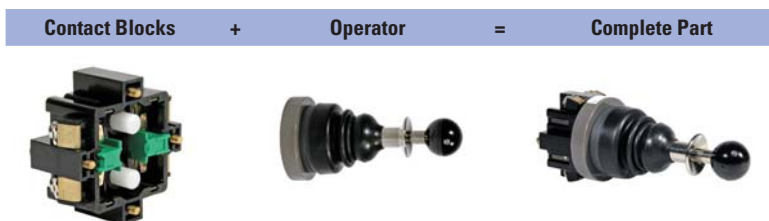
—

10.00.02.11

④ Contact Arrangement

	Description	Code	Remarks
① Style	Standard Lever	ARN	Interlocking lever prevents inadvertent operation.
	Short Lever	ARNS	
	Interlocking Lever	ARNL	
② No. of Contact Blocks	—	1	Each contact block contains two independent contacts.
		2	
		3	
		4	
③ Lever Action	Blocked	0	Specify in this order: Up.Right.Down.Left
	Maintained	1	
	Spring Return	2	
④ Contact Arrangement	No contacts	00	Specify the number of contacts to be activated in all active (non-blocked) positions: Up.Right.Down.Left For blocked positions use code: 00
	1 NO contact	10	
	1 NC contact	01	
	1 NO and 1 NC contact	11	
	2 NO contacts	20	

Mono-Lever Switches (Sub-Assembled)



Standard Mono-Lever Operators

Operator Type	Lever Operation Mode	Part Number
Standard Lever	2-Position manual return 3-Position manual return 4-Position manual return	ARNO-1010-B
		ARNO-1110-B
		ARNO-1111-B
	2-Position spring return 3-Position spring return 4-Position spring return	ARNO-2020-B
		ARNO-2220-B
		ARNO-2222-B
Short Lever	2-Position manual return 3-Position manual return 4-Position manual return	ARNSO-1010-B
		ARNSO-1110-B
		ARNSO-1111-B
	2-Position spring return 3-Position spring return 4-Position spring return	ARNSO-2020-B
		ARNSO-2220-B
		ARNSO-2222-B
Interlocking Lever	2-Position manual return 3-Position manual return 4-Position manual return	ARNLO-1010-B
		ARNLO-1110-B
		ARNLO-1111-B
	2-Position spring return 3-Position spring return 4-Position spring return	ARNLO-2020-B
		ARNLO-2220-B
		ARNLO-2222-B

Contact Blocks

Item	Contact Arrangement	Part Number
	2NO contacts 1NO & 1NC contact 2NC contacts 1NO early make contact	BR-1E BR-2E BR-3E BR-1EM



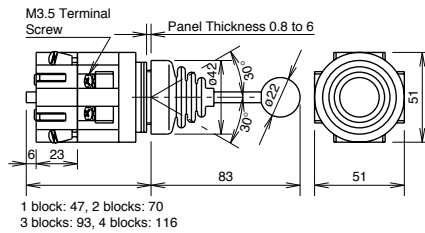
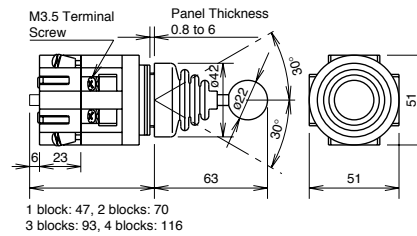
To calculate the number of contact blocks required, add the number of NO and NC contacts on each pair of adjoining positions (up + right, right + down, down + left, and left + up). The largest of the four sums is the number of contact blocks required. Up to four contact blocks can be mounted.

Replacement Parts

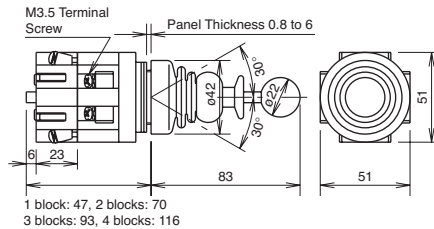
Item	Part Number
Bellows	ARNO, ARNSO (standard & short lever) ARN-BL
	ARNLO (Interlocking) ARNL-BL (comes in 2 pieces)
Knob (ball)	All Models Knob (ball) ARNB-B

Dimensions — ARN Series

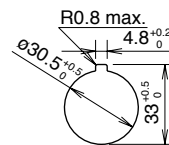
ARNO

**ARNSO**

ARNLO



ARNO
ARNSO
ARNLO



LW Silhouette Series

Bezel projects only 2mm from front of panel!

Key features:

- PC board mount, solder or screw terminals available.
- Round metallic or plastic bezels are available.
- Collective mounting saves space.
- Pushbuttons, pilot lights, illuminated pushbuttons, selector switches, key selector switches, and illuminated selector switches.
- Square pushbuttons also available with switchguards.
- Key selector switches with high-security lock mechanism.
- Separate contacts with a locking lever enable easy installation even when mounted collectively.
- Gold (gold-clad silver) or silver contacts.
- Degree of protection: IP65 (IEC 60529)
- UL recognized and CSA certified. EN compliant



File No. E55996



File No. 166730
(LR21451)



TÜV Rheinland

Specifications

General Specifications	Operating Temperature		−25 to +60°C (no freezing), Illuminated units: −25 to +50°C
	Storage Temperature		−40 to +80°
	Operating Humidity		45 to 85% RH (no condensation)
	Contact Resistance		50 mΩ maximum (initial value)
	Insulation Resistance		100 MΩ minimum (500V DC megger)
	Dielectric Strength	Switch Unit	Between live part and ground: 2,500V AC, 1 minute Between terminals of different poles: 2,500V AC, 1 minute Between terminals of the same poles: 1,000V AC, 1 minute
		Illumination Unit	Between live part and ground: 2,500V AC, 1 minute
	Vibration Resistance		Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
	Shock Resistance		Damage limits: 1,000 m/s ² (100G) Operating extremes: 100 m/s ² (10G)
	Mechanical Life (minimum operations)		Momentary: 1,000,000
			Maintained: 500,000
			Selector switches: 250,000
			Key selector switches: 100,000
	Electrical Life (minimum operations)		Illuminated selector switches: 250,000
			Momentary: 100,000 ¹
			Maintained: 100,000 ²
			Selector switches: 100,000 ²
	Degree of Protection		Key selector switches: 100,000 ²
			Illuminated selector switches: 100,000 ²
	Terminal Style		Solder/tab terminal #110 PC board terminal Screw terminal



1. Switching frequency 1,800 operations/hour.
2. Switching frequency 900 operations/hour.

Contact Ratings	Gold Contacts	Maximum Voltage			250V AC/DC		
		Thermal Current			3A		
		Operating Voltage			125V AC	30V DC	
		Operating Current (resistive load)			0.1A	0.1A	
		Contact Material			Gold-clad silver		
	Silver Contacts	Operating Voltage			30V	125V	250V
		Operating Current	AC 50/60Hz	Resistive Load	—	3A	2A
				Inductive Load	—	2A	1.5A
			DC	Resistive Load	2A	0.4A	—
				Inductive Load	1A	0.2A	—
		Thermal Current			5A		
		Contact Material			Silver		



-
1. AC inductive load: PF = 0.6 to 0.7

2. DC inductive load: L/R = 7 ms max.

3. Minimum applicable load (reference value): 5V AC/DC, 1mA

LED Lamp Ratings (LSTD Type)

Model No.	LSTD-6②	LSTD-1②	LSTD-2②	LSTD-H2②	LSTD-M4②
Lamp Base	BA9S/13				
Rated Voltage	6V AC/DC	12V AC/DC	24V AC/DC	120V AC	240V AC
Voltage Range	6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%	120V AC ±5%	240V AC ±5%
Current Draw	AC	A, R, W, Y: 17mA G, S: 8mA	11mA	11mA	10mA
	DC	A, R, W, Y: 14mA G, S: 5.5mA	10mA	10mA	—
Color Code	A (amber), G (green), R (red), S (blue), W (white), Y (yellow)				
Lamp Base Color	Same as illumination color				
Voltage Marking	Die stamped on the base				
Life (reference value)	Approx. 50,000 hours (The luminance reduces to 50% the initial intensity when used on complete DC.)				
Internal Circuit	A, R, W		A, R, W		
	G, S				

-
- In place of ②, specify the Lens/LED Color Code.

Part Numbers

Non-illuminated Round Pushbuttons with Metal Bezel

Shape	Operation	Contact Material	Contact	Part Numbers		
				Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Flush 	Momentary	Gold	SPDT	LW6MB-M1C1L①	LW6MB-M1C1VL①	—
			DPDT	LW6MB-M1C2L①	LW6MB-M1C2VL①	LW6MB-M1C2ML①
			3PDT	LW6MB-M1C3L①	LW6MB-M1C3VL①	—
		Silver	SPDT	LW6MB-M1C5L①	—	—
			DPDT	LW6MB-M1C6L①	—	LW6MB-M1C6ML①
			3PDT	LW6MB-M1C7L①	—	—
	Maintained	Gold	SPDT	LW6MB-A1C1L①	LW6MB-A1C1VL①	—
			DPDT	LW6MB-A1C2L①	LW6MB-A1C2VL①	LW6MB-A1C2ML①
			3PDT	LW6MB-A1C3L①	LW6MB-A1C3VL①	—
		Silver	SPDT	LW6MB-A1C5L①	—	—
			DPDT	LW6MB-A1C6L①	—	LW6MB-A1C6ML①
			3PDT	LW6MB-A1C7L①	—	—
Round Extended 	Momentary	Gold	SPDT	LW6MB-M2C1L①	LW6MB-M2C1VL①	—
			DPDT	LW6MB-M2C2L①	LW6MB-M2C2VL①	LW6MB-M2C2ML①
			3PDT	LW6MB-M2C3L①	LW6MB-M2C3VL①	—
		Silver	SPDT	LW6MB-M2C5L①	—	—
			DPDT	LW6MB-M2C6L①	—	LW6MB-M2C6ML①
			3PDT	LW6MB-M2C7L①	—	—
	Maintained	Gold	SPDT	LW6MB-A2C1L①	LW6MB-A2C1VL①	—
			DPDT	LW6MB-A2C2L①	LW6MB-A2C2VL①	LW6MB-A2C2ML①
			3PDT	LW6MB-A2C3L①	LW6MB-A2C3VL①	—
		Silver	SPDT	LW6MB-A2C5L①	—	—
			DPDT	LW6MB-A2C6L①	—	LW6MB-A2C6ML①
			3PDT	LW6MB-A2C7L①	—	—

1. In place of ① insert button color from table
2. For replacement part numbers see page 666.

① Button Color Code

Color	Code
Amber	A
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

Non-illuminated Round / Square Pushbuttons with Black Plastic Bezel

Shape	Operation	Contact Material	Contact	Part Numbers		
				Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Flush 	Momentary	Gold	SPDT	LW6B-M1C1L①	LW6B-M1C1VL①	—
			DPDT	LW6B-M1C2L①	LW6B-M1C2VL①	LW6B-M1C2ML①
			3PDT	LW6B-M1C3L①	LW6B-M1C3VL①	—
		Silver	SPDT	LW6B-M1C5L①	—	—
			DPDT	LW6B-M1C6L①	—	LW6B-M1C6ML①
			3PDT	LW6B-M1C7L①	—	—
	Maintained	Gold	SPDT	LW6B-A1C1L①	LW6B-A1C1VL①	—
			DPDT	LW6B-A1C2L①	LW6B-A1C2VL①	LW6B-A1C2ML①
			3PDT	LW6B-A1C3L①	LW6B-A1C3VL①	—
		Silver	SPDT	LW6B-A1C5L①	—	—
			DPDT	LW6B-A1C6L①	—	LW6B-A1C6ML①
			3PDT	LW6B-A1C7L①	—	—
Round Extended 	Momentary	Gold	SPDT	LW6B-M2C1L①	LW6B-M2C1VL①	—
			DPDT	LW6B-M2C2L①	LW6B-M2C2VL①	LW6B-M2C2ML①
			3PDT	LW6B-M2C3L①	LW6B-M2C3VL①	—
		Silver	SPDT	LW6B-M2C5L①	—	—
			DPDT	LW6B-M2C6L①	—	LW6B-M2C6ML①
			3PDT	LW6B-M2C7L①	—	—
	Maintained	Gold	SPDT	LW6B-A2C1L①	LW6B-A2C1VL①	—
			DPDT	LW6B-A2C2L①	LW6B-A2C2VL①	LW6B-A2C2ML①
			3PDT	LW6B-A2C3L①	LW6B-A2C3VL①	—
		Silver	SPDT	LW6B-A2C5L①	—	—
			DPDT	LW6B-A2C6L①	—	LW6B-A2C6ML①
			3PDT	LW6B-A2C7L①	—	—
Square Flush 	Momentary	Gold	SPDT	LW7B-M1C1L①	LW7B-M1C1VL①	—
			DPDT	LW7B-M1C2L①	LW7B-M1C2VL①	LW7B-M1C2ML①
			3PDT	LW7B-M1C3L①	LW7B-M1C3VL①	—
		Silver	SPDT	LW7B-M1C5L①	—	—
			DPDT	LW7B-M1C6L①	—	LW7B-M1C6ML①
			3PDT	LW7B-M1C7L①	—	—
	Maintained	Gold	SPDT	LW7B-A1C1L①	LW7B-A1C1VL①	—
			DPDT	LW7B-A1C2L①	LW7B-A1C2VL①	LW7B-A1C2ML①
			3PDT	LW7B-A1C3L①	LW7B-A1C3VL①	—
		Silver	SPDT	LW7B-A1C5L①	—	—
			DPDT	LW7B-A1C6L①	—	LW7B-A1C6ML①
			3PDT	LW7B-A1C7L①	—	—
Square Flush with Guard 	Momentary	Gold	SPDT	LW7GB-M1C1L①	LW7GB-M1C1VL①	—
			DPDT	LW7GB-M1C2L①	LW7GB-M1C2VL①	LW7GB-M1C2ML①
			3PDT	LW7GB-M1C3L①	LW7GB-M1C3VL①	—
		Silver	SPDT	LW7GB-M1C5L①	—	—
			DPDT	LW7GB-M1C6L①	—	LW7GB-M1C6ML①
			3PDT	LW7GB-M1C7L①	—	—
	Maintained	Gold	SPDT	LW7GB-A1C1L①	LW7GB-A1C1VL①	—
			DPDT	LW7GB-A1C2L①	LW7GB-A1C2VL①	LW7GB-A1C2ML①
			3PDT	LW7GB-A1C3L①	LW7GB-A1C3VL①	—
		Silver	SPDT	LW7GB-A1C5L①	—	—
			DPDT	LW7GB-A1C6L①	—	LW7GB-A1C6ML①
			3PDT	LW7GB-A1C7L①	—	—

① Button Color Code

Color	Code
Amber	A
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y



1. In place of ① insert button color from table
2. For replacement part numbers see page 666.

Round / Square Pilot Lights with Metal Bezel

Shape	Lamp	Part Numbers		
		Solder/Tab Terminal (Unibody Type)	PC Board Terminal (Separate Type)	Screw Terminal (Unibody Type)
Round Flush 	LED	LW6MP-1③②	LW6MP-1C0③V②	LW6MP-1③M②
Round Extended 	LED	LW6MP-2③②	LW6MP-2C0③V②	LW6MP-2③M②

Round / Square Pilot Lights with Black Plastic Bezel

Shape	Lamp	Part Numbers		
		Solder/Tab Terminal (Unibody Type)	PC Board Terminal (Separate Type)	Screw Terminal (Unibody Type)
Round Flush 	LED	LW6P-1③②	LW6P-1C0③V②	LW6P-1③M②
Round Extended 	LED	LW6P-2③②	LW6P-2C0③V②	LW6P-2③M②
Square Flush 	LED	LW7P-1③②	LW7P-1C0③V②	LW7P-1③M②
Square Extended 	LED	LW7P-2③②	LW7P-2C0③V②	LW7P-2③M②



Yellow pilot light comes with white LED.

② Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Voltage Code

Voltage	Code
6V AC/DC	2
12V AC/DC	3
12V AC/DC	4
120V AC	5
240V AC	6



- Every pilot light contains an LED lamp (LSTD) of the specified color and voltage.
- For replacement part numbers see page 666.

Illuminated Round Pushbuttons with Metal Bezel

Shape	Lamp	Operation	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	LED	Momentary	Gold	SPDT	LW6ML-M1C1③②	LW6ML-M1C1③V②	—
				DPDT	LW6ML-M1C2③②	LW6ML-M1C2③V②	LW6ML-M1C2③M②
				3PDT	LW6ML-M1C3③②	LW6ML-M1C3③V②	—
			Silver	SPDT	LW6ML-M1C5③②	—	—
				DPDT	LW6ML-M1C6③②	—	LW6ML-M1C6③M②
				3PDT	LW6ML-M1C7③②	—	—
		Maintained	Gold	SPDT	LW6ML-A1C1③②	LW6ML-A1C1③V②	—
				DPDT	LW6ML-A1C2③②	LW6ML-A1C2③V②	LW6ML-A1C2③M②
				3PDT	LW6ML-A1C3③②	LW6ML-A1C3③V②	—
			Silver	SPDT	LW6ML-A1C5③②	—	—
				DPDT	LW6ML-A1C6③②	—	LW6ML-A1C6③M②
				3PDT	LW6ML-A1C7③②	—	—
	LED	Momentary	Gold	SPDT	LW6ML-M2C1③②	LW6ML-M2C1③V②	—
				DPDT	LW6ML-M2C2③②	LW6ML-M2C2③V②	LW6ML-M2C2③M②
				3PDT	LW6ML-M2C3③②	LW6ML-M2C3③V②	—
			Silver	SPDT	LW6ML-M2C5③②	—	—
				DPDT	LW6ML-M2C6③②	—	LW6ML-M2C6③M②
				3PDT	LW6ML-M2C7③②	—	—
		Maintained	Gold	SPDT	LW6ML-A2C1③②	LW6ML-A2C1③V②	—
				DPDT	LW6ML-A2C2③②	LW6ML-A2C2③V②	LW6ML-A2C2③M②
				3PDT	LW6ML-A2C3③②	LW6ML-A2C3③V②	—
			Silver	SPDT	LW6ML-A2C5③②	—	—
				DPDT	LW6ML-A2C6③②	—	LW6ML-A2C6③M②
				3PDT	LW6ML-A2C7③②	—	—

② Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Voltage Code

Voltage	Code
6V AC/DC	2
12V AC/DC	3
24V AC/DC	4
120V AC	5
240V AC	6



1. In place of ② insert Lens/LED color code from table.
2. In place of ③ insert Voltage code from table.
3. Every illuminated pushbutton contains an LED lamp (LSTD) of the specified color and voltage.
4. For replacement part numbers see page 666.

Illuminated Round / Square Pushbuttons with Black Plastic Bezel

Shape	Lamp	Operation	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	LED	Momentary	Gold	SPDT	LW6L-M1C1③②	LW6L-M1C1③V②	—
				DPDT	LW6L-M1C2③②	LW6L-M1C2③V②	LW6L-M1C2③M②
				3PDT	LW6L-M1C3③②	LW6L-M1C3③V②	—
			Silver	SPDT	LW6L-M1C5③②	—	—
				DPDT	LW6L-M1C6③②	—	LW6L-M1C6③M②
				3PDT	LW6L-M1C7③②	—	—
		Maintained	Gold	SPDT	LW6L-A1C1③②	LW6L-A1C1③V②	—
				DPDT	LW6L-A1C2③②	LW6L-A1C2③V②	LW6L-A1C2③M②
				3PDT	LW6L-A1C3③②	LW6L-A1C3③V②	—
			Silver	SPDT	LW6L-A1C5③②	—	—
				DPDT	LW6L-A1C6③②	—	LW6L-A1C6③M②
				3PDT	LW6L-A1C7③②	—	—



Yellow pushbutton comes with white LED.

Shape	Lamp	Operation	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Extended 	LED	Momentary	Gold	SPDT	LW6L-M2C1③②	LW6L-M2C1③V②	—
				DPDT	LW6L-M2C2③②	LW6L-M2C2③V②	LW6L-M2C2③M②
				3PDT	LW6L-M2C3③②	LW6L-M2C3③V②	—
			Silver	SPDT	LW6L-M2C5③②	—	—
				DPDT	LW6L-M2C6③②	—	LW6L-M2C6③M②
				3PDT	LW6L-M2C7③②	—	—
		Maintained	Gold	SPDT	LW6L-A2C1③②	LW6L-A2C1③V②	—
				DPDT	LW6L-A2C2③②	LW6L-A2C2③V②	LW6L-A2C2③M②
				3PDT	LW6L-A2C3③②	LW6L-A2C3③V②	—
			Silver	SPDT	LW6L-A2C5③②	—	—
				DPDT	LW6L-A2C6③②	—	LW6L-A2C6③M②
				3PDT	LW6L-A2C7③②	—	—
Square Flush 	LED	Momentary	Gold	SPDT	LW7L-M1C1③②	LW7L-M1C1③V②	—
				DPDT	LW7L-M1C2③②	LW7L-M1C2③V②	LW7L-M1C2③M②
				3PDT	LW7L-M1C3③②	LW7L-M1C3③V②	—
			Silver	SPDT	LW7L-M1C5③②	—	—
				DPDT	LW7L-M1C6③②	—	LW7L-M1C6③M②
				3PDT	LW7L-M1C7③②	—	—
		Maintained	Gold	SPDT	LW7L-A1C1③②	LW7L-A1C1③V②	—
				DPDT	LW7L-A1C2③②	LW7L-A1C2③V②	LW7L-A1C2③M②
				3PDT	LW7L-A1C3③②	LW7L-A1C3③V②	—
			Silver	SPDT	LW7L-A1C5③②	—	—
				DPDT	LW7L-A1C6③②	—	LW7L-A1C6③M②
				3PDT	LW7L-A1C7③②	—	—
Square Flush with Switch Guard 	LED	Momentary	Gold	SPDT	LW7GL-M1C1③②	LW7GL-M1C1③V②	—
				DPDT	LW7GL-M1C2③②	LW7GL-M1C2③V②	LW7GL-M1C2③M②
				3PDT	LW7GL-M1C3③②	LW7GL-M1C3③V②	—
			Silver	SPDT	LW7GL-M1C5③②	—	—
				DPDT	LW7GL-M1C6③②	—	LW7GL-M1C6③M②
				3PDT	LW7GL-M1C7③②	—	—
		Maintained	Gold	SPDT	LW7GL-A1C1③②	LW7GL-A1C1③V②	—
				DPDT	LW7GL-A1C2③②	LW7GL-A1C2③V②	LW7GL-A1C2③M②
				3PDT	LW7GL-A1C3③②	LW7GL-A1C3③V②	—
			Silver	SPDT	LW7GL-A1C5③②	—	—
				DPDT	LW7GL-A1C6③②	—	LW7GL-A1C6③M②
				3PDT	LW7GL-A1C7③②	—	—

② Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Voltage Code

Voltage	Code
6V AC/DC	2
12V AC/DC	3
24V AC/DC	4
120V AC	5
240V AC	6



1. In place of ② insert Lens/LED color code from table.
2. In place of ③ insert Voltage code from table.
3. Every illuminated pushbutton contains an LED lamp (LSTD) of the specified color and voltage.
3. For replacement part numbers see page 666.
4. Yellow pushbutton comes with white LED.

Non-illuminated Round Selector Switches with Metal Bezel

Shape	Operatio	Position	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round (Knob Operator) 	90° 2-position Maintained		Gold	SPDT	LW6MS-2C1	LW6MS-2C1V	—
				DPDT	LW6MS-2C2	LW6MS-2C2V	LW6MS-2C2M
				3PDT	LW6MS-2C3	LW6MS-2C3V	—
			Silver	SPDT	LW6MS-2C5	—	—
				DPDT	LW6MS-2C6	—	LW6MS-2C6M
				3PDT	LW6MS-2C7	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW6MS-21C1	LW6MS-21C1V	—
				DPDT	LW6MS-21C2	LW6MS-21C2V	LW6MS-21C2M
				3PDT	LW6MS-21C3	LW6MS-21C3V	—
			Silver	SPDT	LW6MS-21C5	—	—
				DPDT	LW6MS-21C6	—	LW6MS-21C6M
				3PDT	LW6MS-21C7	—	—
	45° 3-position Maintained		Gold	DPDT	LW6MS-3C2	LW6MS-3C2V	LW6MS-3C2M
				3PDT	LW6MS-3C3	LW6MS-3C3V	—
			Silver	DPDT	LW6MS-3C6	—	LW6MS-3C6M
				3PDT	LW6MS-3C7	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW6MS-31C2	LW6MS-31C2V	LW6MS-31C2M
				3PDT	LW6MS-31C3	LW6MS-31C3V	—
			Silver	DPDT	LW6MS-31C6	—	LW6MS-31C6M
				3PDT	LW6MS-31C7	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW6MS-32C2	LW6MS-32C2V	LW6MS-32C2M
				3PDT	LW6MS-32C3	LW6MS-32C3V	—
			Silver	DPDT	LW6MS-32C6	—	LW6MS-32C6M
				3PDT	LW6MS-32C7	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW6MS-33C2	LW6MS-33C2V	LW6MS-33C2M
				3PDT	LW6MS-33C3	LW6MS-33C3V	—
			Silver	DPDT	LW6MS-33C6	—	LW6MS-33C6M
				3PDT	LW6MS-33C7	—	—
Round (Lever Operator) 	90° 2-position Maintained		Gold	SPDT	LW6MS-2LC1	LW6MS-2LC1V	—
				DPDT	LW6MS-2LC2	LW6MS-2LC2V	LW6MS-2LC2M
				3PDT	LW6MS-2LC3	LW6MS-2LC3V	—
			Silver	SPDT	LW6MS-2LC5	—	—
				DPDT	LW6MS-2LC6	—	LW6MS-2LC6M
				3PDT	LW6MS-2LC7	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW6MS-21LC1	LW6MS-21LC1V	—
				DPDT	LW6MS-21LC2	LW6MS-21LC2V	LW6MS-21LC2M
				3PDT	LW6MS-21LC3	LW6MS-21LC3V	—
			Silver	SPDT	LW6MS-21LC5	—	—
				DPDT	LW6MS-21LC6	—	LW6MS-21LC6M
				3PDT	LW6MS-21LC7	—	—
	45° 3-position Maintained		Gold	DPDT	LW6MS-3LC2	LW6MS-3LC2V	LW6MS-3LC2M
				3PDT	LW6MS-3LC3	LW6MS-3LC3V	—
			Silver	DPDT	LW6MS-3LC6	—	LW6MS-3LC6M
				3PDT	LW6MS-3LC7	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW6MS-31LC2	LW6MS-31LC2V	LW6MS-31LC2M
				3PDT	LW6MS-31LC3	LW6MS-31LC3V	—
			Silver	DPDT	LW6MS-31LC6	—	LW6MS-31LC6M
				3PDT	LW6MS-31LC7	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW6MS-32LC2	LW6MS-32LC2V	LW6MS-32LC2M
				3PDT	LW6MS-32LC3	LW6MS-32LC3V	—
			Silver	DPDT	LW6MS-32LC6	—	LW6MS-32LC6M
				3PDT	LW6MS-32LC7	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW6MS-33LC2	LW6MS-33LC2V	LW6MS-33LC2M
				3PDT	LW6MS-33LC3	LW6MS-33LC3V	—
			Silver	DPDT	LW6MS-33LC6	—	LW6MS-33LC6M
				3PDT	LW6MS-33LC7	—	—



1. For replacement part numbers see page 666.
2. For contact operation see page 676.

Non-illuminated Round Selector Switches with Black Plastic Bezel

Shape	Operatio	Position	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
 Round (Knob Operator)	90° 2-position Maintained		Gold	SPDT	LW6S-2C1	LW6S-2C1V	—
				DPDT	LW6S-2C2	LW6S-2C2V	LW6S-2C2M
				3PDT	LW6S-2C3	LW6S-2C3V	—
			Silver	SPDT	LW6S-2C5	—	—
				DPDT	LW6S-2C6	—	LW6S-2C6M
				3PDT	LW6S-2C7	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW6S-21C1	LW6S-21C1V	—
				DPDT	LW6S-21C2	LW6S-21C2V	LW6S-21C2M
				3PDT	LW6S-21C3	LW6S-21C3V	—
			Silver	SPDT	LW6S-21C5	—	—
				DPDT	LW6S-21C6	—	LW6S-21C6M
				3PDT	LW6S-21C7	—	—
	45° 3-position Maintained		Gold	DPDT	LW6S-3C2	LW6S-3C2V	LW6S-3C2M
				3PDT	LW6S-3C3	LW6S-3C3V	—
			Silver	DPDT	LW6S-3C6	—	LW6S-3C6M
				3PDT	LW6S-3C7	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW6S-31C2	LW6S-31C2V	LW6S-31C2M
				3PDT	LW6S-31C3	LW6S-31C3V	—
			Silver	DPDT	LW6S-31C6	—	LW6S-31C6M
				3PDT	LW6S-31C7	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW6S-32C2	LW6S-32C2V	LW6S-32C2M
				3PDT	LW6S-32C3	LW6S-32C3V	—
			Silver	DPDT	LW6S-32C6	—	LW6S-32C6M
				3PDT	LW6S-32C7	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW6S-33C2	LW6S-33C2V	LW6S-33C2M
				3PDT	LW6S-33C3	LW6S-33C3V	—
			Silver	DPDT	LW6S-33C6	—	LW6S-33C6M
				3PDT	LW6S-33C7	—	—
 Round (Lever Operator)	90° 2-position Maintained		Gold	SPDT	LW6S-2LC1	LW6S-2LC1V	—
				DPDT	LW6S-2LC2	LW6S-2LC2V	LW6S-2LC2M
				3PDT	LW6S-2LC3	LW6S-2LC3V	—
			Silver	SPDT	LW6S-2LC5	—	—
				DPDT	LW6S-2LC6	—	LW6S-2LC6M
				3PDT	LW6S-2LC7	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW6S-21LC1	LW6S-21LC1V	—
				DPDT	LW6S-21LC2	LW6S-21LC2V	LW6S-21LC2M
				3PDT	LW6S-21LC3	LW6S-21LC3V	—
			Silver	SPDT	LW6S-21LC5	—	—
				DPDT	LW6S-21LC6	—	LW6S-21LC6M
				3PDT	LW6S-21LC7	—	—
	45° 3-position Maintained		Gold	DPDT	LW6S-3LC2	LW6S-3LC2V	LW6S-3LC2M
				3PDT	LW6S-3LC3	LW6S-3LC3V	—
			Silver	DPDT	LW6S-3LC6	—	LW6S-3LC6M
				3PDT	LW6S-3LC7	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW6S-31LC2	LW6S-31LC2V	LW6S-31LC2M
				3PDT	LW6S-31LC3	LW6S-31LC3V	—
			Silver	DPDT	LW6S-31LC6	—	LW6S-31LC6M
				3PDT	LW6S-31LC7	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW6S-32LC2	LW6S-32LC2V	LW6S-32LC2M
				3PDT	LW6S-32LC3	LW6S-32LC3V	—
			Silver	DPDT	LW6S-32LC6	—	LW6S-32LC6M
				3PDT	LW6S-32LC7	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW6S-33LC2	LW6S-33LC2V	LW6S-33LC2M
				3PDT	LW6S-33LC3	LW6S-33LC3V	—
			Silver	DPDT	LW6S-33LC6	—	LW6S-33LC6M
				3PDT	LW6S-33LC7	—	—



1. For replacement part numbers see page 666.
2. For contact operation see page 676.

Non-illuminated Square Selector Switches with Black Plastic Bezel

Shape	Operation	Position	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Square (Knob Operator) 	90° 2-position Maintained		Gold	SPDT	LW7S-2C1	LW7S-2C1V	—
				DPDT	LW7S-2C2	LW7S-2C2V	LW7S-2C2M
				3PDT	LW7S-2C3	LW7S-2C3V	—
			Silver	SPDT	LW7S-2C5	—	—
				DPDT	LW7S-2C6	—	LW7S-2C6M
				3PDT	LW7S-2C7	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW7S-21C1	LW7S-21C1V	—
				DPDT	LW7S-21C2	LW7S-21C2V	LW7S-21C2M
				3PDT	LW7S-21C3	LW7S-21C3V	—
			Silver	SPDT	LW7S-21C5	—	—
				DPDT	LW7S-21C6	—	LW7S-21C6M
				3PDT	LW7S-21C7	—	—
	45° 3-position Maintained		Gold	DPDT	LW7S-3C2	LW7S-3C2V	LW7S-3C2M
				3PDT	LW7S-3C3	LW7S-3C3V	—
			Silver	DPDT	LW7S-3C6	—	LW7S-3C6M
				3PDT	LW7S-3C7	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW7S-31C2	LW7S-31C2V	LW7S-31C2M
				3PDT	LW7S-31C3	LW7S-31C3V	—
			Silver	DPDT	LW7S-31C6	—	LW7S-31C6M
				3PDT	LW7S-31C7	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW7S-32C2	LW7S-32C2V	LW7S-32C2M
				3PDT	LW7S-32C3	LW7S-32C3V	—
			Silver	DPDT	LW7S-32C6	—	LW7S-32C6M
				3PDT	LW7S-32C7	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW7S-33C2	LW7S-33C2V	LW7S-33C2M
				3PDT	LW7S-33C3	LW7S-33C3V	—
			Silver	DPDT	LW7S-33C6	—	LW7S-33C6M
				3PDT	LW7S-33C7	—	—
Square (Lever Operator) 	90° 2-position Maintained		Gold	SPDT	LW7S-2LC1	LW7S-2LC1V	—
				DPDT	LW7S-2LC2	LW7S-2LC2V	LW7S-2LC2M
				3PDT	LW7S-2LC3	LW7S-2LC3V	—
			Silver	SPDT	LW7S-2LC5	—	—
				DPDT	LW7S-2LC6	—	LW7S-2LC6M
				3PDT	LW7S-2LC7	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW7S-21LC1	LW7S-21LC1V	—
				DPDT	LW7S-21LC2	LW7S-21LC2V	LW7S-21LC2M
				3PDT	LW7S-21LC3	LW7S-21LC3V	—
			Silver	SPDT	LW7S-21LC5	—	—
				DPDT	LW7S-21LC6	—	LW7S-21LC6M
				3PDT	LW7S-21LC7	—	—
	45° 3-position Maintained		Gold	DPDT	LW7S-3LC2	LW7S-3LC2V	LW7S-3LC2M
				3PDT	LW7S-3LC3	LW7S-3LC3V	—
			Silver	DPDT	LW7S-3LC6	—	LW7S-3LC6M
				3PDT	LW7S-3LC7	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW7S-31LC2	LW7S-31LC2V	LW7S-31LC2M
				3PDT	LW7S-31LC3	LW7S-31LC3V	—
			Silver	DPDT	LW7S-31LC6	—	LW7S-31LC6M
				3PDT	LW7S-31LC7	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW7S-32LC2	LW7S-32LC2V	LW7S-32LC2M
				3PDT	LW7S-32LC3	LW7S-32LC3V	—
			Silver	DPDT	LW7S-32LC6	—	LW7S-32LC6M
				3PDT	LW7S-32LC7	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW7S-33LC2	LW7S-33LC2V	LW7S-33LC2M
				3PDT	LW7S-33LC3	LW7S-33LC3V	—
			Silver	DPDT	LW7S-33LC6	—	LW7S-33LC6M
				3PDT	LW7S-33LC7	—	—



1. For replacement part numbers see page 666.
2. For contact operation see page 676.

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers

Round Key Selector Switches with Metal Bezel (2-Position and 3-Position)

Shape	Operation	Position	Key Retained at ●	Contact Material	Contact	Part Numbers		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	90° 2-position Maintained	A		Gold	SPDT	LW6MK-2C1A	LW6MK-2C1VA	—
					DPDT	LW6MK-2C2A	LW6MK-2C2VA	LW6MK-2C2MA
					3PDT	LW6MK-2C3A	LW6MK-2C3VA	—
				Silver	SPDT	LW6MK-2C5A	—	—
					DPDT	LW6MK-2C6A	—	LW6MK-2C6MA
					3PDT	LW6MK-2C7A	—	—
		B		Gold	SPDT	LW6MK-2C1B	LW6MK-2C1VB	—
					DPDT	LW6MK-2C2B	LW6MK-2C2VB	LW6MK-2C2MB
					3PDT	LW6MK-2C3B	LW6MK-2C3VB	—
				Silver	SPDT	LW6MK-2C5B	—	—
					DPDT	LW6MK-2C6B	—	LW6MK-2C6MB
					3PDT	LW6MK-2C7B	—	—
		C		Gold	SPDT	LW6MK-2C1C	LW6MK-2C1VC	—
					DPDT	LW6MK-2C2C	LW6MK-2C2VC	LW6MK-2C2MC
					3PDT	LW6MK-2C3C	LW6MK-2C3VC	—
				Silver	SPDT	LW6MK-2C5C	—	—
					DPDT	LW6MK-2C6C	—	LW6MK-2C6MC
					3PDT	LW6MK-2C7C	—	—
	90° 2-position Spring Return from Right	B		Gold	SPDT	LW6MK-21C1B	LW6MK-21C1VB	—
					DPDT	LW6MK-21C2B	LW6MK-21C2VB	LW6MK-21C2MB
					3PDT	LW6MK-21C3B	LW6MK-21C3VB	—
				Silver	SPDT	LW6MK-21C5B	—	—
					DPDT	LW6MK-21C6B	—	LW6MK-21C6MB
					3PDT	LW6MK-21C7B	—	—
		A		Gold	DPDT	LW6MK-3C2A	LW6MK-3C2VA	LW6MK-3C2MA
					3PDT	LW6MK-3C3A	LW6MK-3C3VA	—
				Silver	DPDT	LW6MK-3C6A	—	LW6MK-3C6MA
					3PDT	LW6MK-3C7A	—	—
		B		Gold	DPDT	LW6MK-3C2B	LW6MK-3C2VB	LW6MK-3C2MB
					3PDT	LW6MK-3C3B	LW6MK-3C3VB	—
				Silver	DPDT	LW6MK-3C6B	—	LW6MK-3C6MB
					3PDT	LW6MK-3C7B	—	—
		C		Gold	DPDT	LW6MK-3C2C	LW6MK-3C2VC	LW6MK-3C2MC
					3PDT	LW6MK-3C3C	LW6MK-3C3VC	—
				Silver	DPDT	LW6MK-3C6C	—	LW6MK-3C6MC
					3PDT	LW6MK-3C7C	—	—
	45° 3-position Maintained	D		Gold	DPDT	LW6MK-3C2D	LW6MK-3C2VD	LW6MK-3C2MD
					3PDT	LW6MK-3C3D	LW6MK-3C3VD	—
				Silver	DPDT	LW6MK-3C6D	—	LW6MK-3C6MD
					3PDT	LW6MK-3C7D	—	—
		E		Gold	DPDT	LW6MK-3C2E	LW6MK-3C2VE	LW6MK-3C2ME
					3PDT	LW6MK-3C3E	LW6MK-3C3VE	—
				Silver	DPDT	LW6MK-3C6E	—	LW6MK-3C6ME
					3PDT	LW6MK-3C7E	—	—
		G		Gold	DPDT	LW6MK-3C2G	LW6MK-3C2VG	LW6MK-3C2MG
					3PDT	LW6MK-3C3G	LW6MK-3C3VG	—
				Silver	DPDT	LW6MK-3C6G	—	LW6MK-3C6MG
					3PDT	LW6MK-3C7G	—	—
		H		Gold	DPDT	LW6MK-3C2H	LW6MK-3C2VH	LW6MK-3C2MH
					3PDT	LW6MK-3C3H	LW6MK-3C3VH	—
				Silver	DPDT	LW6MK-3C6H	—	LW6MK-3C6MH
					3PDT	LW6MK-3C7H	—	—

*Key is retained in ● and removable in ○ position.

Shape	Operation	Position	Key Retained at ●	Contact Material	Contact	Part Numbers		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	45° 3-position Spring Return from Right	B		Gold	DPDT	LW6MK-31C2B	LW6MK-31C2VB	LW6MK-31C2MB
					3PDT	LW6MK-31C3B	LW6MK-31C3VB	—
				Silver	DPDT	LW6MK-31C6B	—	LW6MK-31C6MB
					3PDT	LW6MK-31C7B	—	—
		D		Gold	DPDT	LW6MK-31C2D	LW6MK-31C2VD	LW6MK-31C2MD
					3PDT	LW6MK-31C3D	LW6MK-31C3VD	—
				Silver	DPDT	LW6MK-31C6D	—	LW6MK-31C6MD
					3PDT	LW6MK-31C7D	—	—
		G		Gold	DPDT	LW6MK-31C2G	LW6MK-31C2VG	LW6MK-31C2MG
					3PDT	LW6MK-31C3G	LW6MK-31C3VG	—
				Silver	DPDT	LW6MK-31C6G	—	LW6MK-31C6MG
					3PDT	LW6MK-31C7G	—	—
	45° 3-position Spring Return from Left	C		Gold	DPDT	LW6MK-32C2C	LW6MK-32C2VC	LW6MK-32C2MC
					3PDT	LW6MK-32C3C	LW6MK-32C3VC	—
				Silver	DPDT	LW6MK-32C6C	—	LW6MK-32C6MC
					3PDT	LW6MK-32C7C	—	—
		D		Gold	DPDT	LW6MK-32C2D	LW6MK-32C2VD	LW6MK-32C2MD
					3PDT	LW6MK-32C3D	LW6MK-32C3VD	—
				Silver	DPDT	LW6MK-32C6D	—	LW6MK-32C6MD
					3PDT	LW6MK-32C7D	—	—
		H		Gold	DPDT	LW6MK-32C2H	LW6MK-32C2VH	LW6MK-32C2MH
					3PDT	LW6MK-32C3H	LW6MK-32C3VH	—
				Silver	DPDT	LW6MK-32C6H	—	LW6MK-32C6MH
					3PDT	LW6MK-32C7H	—	—
	45° 3-position Spring Return Two-way	D		Gold	DPDT	LW6MK-33C2D	LW6MK-33C2VD	LW6MK-33C2MD
					3PDT	LW6MK-33C3D	LW6MK-33C3VD	—
				Silver	DPDT	LW6MK-33C6D	—	LW6MK-33C6MD
					3PDT	LW6MK-33C7D	—	—



1. Key is retained in ● position and removable in ○ position.
2. Two keys are supplied.
3. Key cylinder face material: Metal
4. To select different key numbers, specify numbers from 501 to 515 after the part number. When a key number is not specified, key number 500 is supplied as the default key.
Example: LW6MK-2C1A-501
500 (default key) to 515
5. For replacement part numbers see page 666.
6. For Contact Operation chart see page 676.

Key Selector Switches with Black Plastic Bezel (2-Position and 3-Position)

Shape	Operation	Position	Key Retained at ●	Contact Material	Contact	Part Numbers		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	90° 2-position Maintained	A		Gold	SPDT	LW6K-2C1A	LW6K-2C1VA	—
					DPDT	LW6K-2C2A	LW6K-2C2VA	LW6K-2C2A
					3PDT	LW6K-2C3A	LW6K-2C3VA	—
				Silver	SPDT	LW6K-2C5A	—	—
					DPDT	LW6K-2C6A	—	LW6K-2C6A
					3PDT	LW6K-2C7A	—	—
		B		Gold	SPDT	LW6K-2C1B	LW6K-2C1VB	—
					DPDT	LW6K-2C2B	LW6K-2C2VB	LW6K-2C2B
					3PDT	LW6K-2C3B	LW6K-2C3VB	—
				Silver	SPDT	LW6K-2C5B	—	—
					DPDT	LW6K-2C6B	—	LW6K-2C6B
					3PDT	LW6K-2C7B	—	—
		C		Gold	SPDT	LW6K-2C1C	LW6K-2C1VC	—
					DPDT	LW6K-2C2C	LW6K-2C2VC	LW6K-2C2C
					3PDT	LW6K-2C3C	LW6K-2C3VC	—
				Silver	SPDT	LW6K-2C5C	—	—
					DPDT	LW6K-2C6C	—	LW6K-2C6C
					3PDT	LW6K-2C7C	—	—
	90° 2-position Spring Return from Right	B		Gold	SPDT	LW6K-21C1B	LW6K-21C1VB	—
					DPDT	LW6K-21C2B	LW6K-21C2VB	LW6K-21C2B
					3PDT	LW6K-21C3B	LW6K-21C3VB	—
				Silver	SPDT	LW6K-21C5B	—	—
					DPDT	LW6K-21C6B	—	LW6K-21C6B
					3PDT	LW6K-21C7B	—	—
		A		Gold	DPDT	LW6K-3C2A	LW6K-3C2VA	LW6K-3C2A
					3PDT	LW6K-3C3A	LW6K-3C3VA	—
				Silver	DPDT	LW6K-3C6A	—	LW6K-3C6A
					3PDT	LW6K-3C7A	—	—
		B		Gold	DPDT	LW6K-3C2B	LW6K-3C2VB	LW6K-3C2B
					3PDT	LW6K-3C3B	LW6K-3C3VB	—
				Silver	DPDT	LW6K-3C6B	—	LW6K-3C6B
					3PDT	LW6K-3C7B	—	—
		C		Gold	DPDT	LW6K-3C2C	LW6K-3C2VC	LW6K-3C2C
					3PDT	LW6K-3C3C	LW6K-3C3VC	—
				Silver	DPDT	LW6K-3C6C	—	LW6K-3C6C
					3PDT	LW6K-3C7C	—	—
	45° 3-position Maintained	D		Gold	DPDT	LW6K-3C2D	LW6K-3C2VD	LW6K-3C2D
					3PDT	LW6K-3C3D	LW6K-3C3VD	—
				Silver	DPDT	LW6K-3C6D	—	LW6K-3C6D
					3PDT	LW6K-3C7D	—	—
		E		Gold	DPDT	LW6K-3C2E	LW6K-3C2VE	LW6K-3C2E
					3PDT	LW6K-3C3E	LW6K-3C3VE	—
				Silver	DPDT	LW6K-3C6E	—	LW6K-3C6E
					3PDT	LW6K-3C7E	—	—
		G		Gold	DPDT	LW6K-3C2G	LW6K-3C2VG	LW6K-3C2G
					3PDT	LW6K-3C3G	LW6K-3C3VG	—
				Silver	DPDT	LW6K-3C6G	—	LW6K-3C6G
					3PDT	LW6K-3C7G	—	—
		H		Gold	DPDT	LW6K-3C2H	LW6K-3C2VH	LW6K-3C2H
					3PDT	LW6K-3C3H	LW6K-3C3VH	—
				Silver	DPDT	LW6K-3C6H	—	LW6K-3C6H
					3PDT	LW6K-3C7H	—	—

*Key is retained in ● and removable in ○ position.

Shape	Operation	Position	Key Retained at ●	Contact Material	Contact	Part Numbers		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	45° 3-position Spring Return from Right	B		Gold	DPDT	LW6K-31C2B	LW6K-31C2VB	LW6K-31C2B
					3PDT	LW6K-31C3B	LW6K-31C3VB	—
				Silver	DPDT	LW6K-31C6B	—	LW6K-31C6B
					3PDT	LW6K-31C7B	—	—
		D		Gold	DPDT	LW6K-31C2D	LW6K-31C2VD	LW6K-31C2D
					3PDT	LW6K-31C3D	LW6K-31C3VD	—
				Silver	DPDT	LW6K-31C6D	—	LW6K-31C6D
					3PDT	LW6K-31C7D	—	—
		G		Gold	DPDT	LW6K-31C2G	LW6K-31C2VG	LW6K-31C2G
					3PDT	LW6K-31C3G	LW6K-31C3VG	—
				Silver	DPDT	LW6K-31C6G	—	LW6K-31C6G
					3PDT	LW6K-31C7G	—	—
	45° 3-position Spring Return from Left	C		Gold	DPDT	LW6K-32C2C	LW6K-32C2VC	LW6K-32C2C
					3PDT	LW6K-32C3C	LW6K-32C3VC	—
				Silver	DPDT	LW6K-32C6C	—	LW6K-32C6C
					3PDT	LW6K-32C7C	—	—
		D		Gold	DPDT	LW6K-32C2D	LW6K-32C2VD	LW6K-32C2D
					3PDT	LW6K-32C3D	LW6K-32C3VD	—
				Silver	DPDT	LW6K-32C6D	—	LW6K-32C6D
					3PDT	LW6K-32C7D	—	—
		H		Gold	DPDT	LW6K-32C2H	LW6K-32C2VH	LW6K-32C2H
					3PDT	LW6K-32C3H	LW6K-32C3VH	—
				Silver	DPDT	LW6K-32C6H	—	LW6K-32C6H
					3PDT	LW6K-32C7H	—	—
	45° 3-position Spring Return Two-way	D		Gold	DPDT	LW6K-33C2D	LW6K-33C2VD	LW6K-33C2D
					3PDT	LW6K-33C3D	LW6K-33C3VD	—
				Silver	DPDT	LW6K-33C6D	—	LW6K-33C6D
					3PDT	LW6K-33C7D	—	—



- Key is retained in ● position and removable in ○ position.
- Two keys are supplied.
- Key cylinder face: Metal
- To select different key numbers, specify numbers from 501 to 515 after the part number. When a key number is not specified, key number 500 is supplied as the default key.
Example: LW6MK-2C1A-501
- 500 (default key) to 515
- For replacement part numbers see page 666.
- For Contact Operation chart see page 676.

Illuminated Round Selector Switches with Metal or Black Plastic Bezel

Shape	Operation	Position	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	90° 2-position Maintained		Gold	SPDT	LW6MF-2C1③②	LW6MF-2C1③V②	—
				DPDT	LW6MF-2C2③②	LW6MF-2C2③V②	LW6MF-2C2③M②
				3PDT	LW6MF-2C3③②	LW6MF-2C3③V②	—
			Silver	SPDT	LW6MF-2C5③②	—	—
				DPDT	LW6MF-2C6③②	—	LW6MF-2C6③M②
				3PDT	LW6MF-2C7③②	—	—
	90° 2-position spring Return from Right		Gold	SPDT	LW6MF-21C1③②	LW6MF-21C1③V②	—
				DPDT	LW6MF-21C2③②	LW6MF-21C2③V②	LW6MF-21C2③M②
				3PDT	LW6MF-21C3③②	LW6MF-21C3③V②	—
			Silver	SPDT	LW6MF-21C5③②	—	—
				DPDT	LW6MF-21C6③②	—	LW6MF-21C6③M②
				3PDT	LW6MF-21C7③②	—	—
	45° 3-position Maintained		Gold	DPDT	LW6MF-3C2③②	LW6MF-3C2③V②	LW6MF-3C2③M②
				3PDT	LW6MF-3C3③②	LW6MF-3C3③V②	—
				3PDT	LW6MF-3C7③②	—	—
			Silver	DPDT	LW6MF-3C6③②	—	LW6MF-3C6③M②
				3PDT	LW6MF-3C7③②	—	—
				3PDT	LW6MF-3C7③②	—	—
	45° 3-position spring Return from Right		Gold	DPDT	LW6MF-31C2③②	LW6MF-31C2③V②	LW6MF-31C2③M②
				3PDT	LW6MF-31C3③②	LW6MF-31C3③V②	—
				3PDT	LW6MF-31C7③②	—	—
			Silver	DPDT	LW6MF-31C6③②	—	LW6MF-31C6③M②
				3PDT	LW6MF-31C7③②	—	—
				3PDT	LW6MF-31C7③②	—	—
	45° 3-position spring Return from Left		Gold	DPDT	LW6MF-32C2③②	LW6MF-32C2③V②	LW6MF-32C2③M②
				3PDT	LW6MF-32C3③②	LW6MF-32C3③V②	—
				3PDT	LW6MF-32C7③②	—	—
			Silver	DPDT	LW6MF-32C6③②	—	LW6MF-32C6③M②
				3PDT	LW6MF-32C7③②	—	—
				3PDT	LW6MF-32C7③②	—	—
	45° 3-position spring Return Two-way		Gold	DPDT	LW6MF-33C2③②	LW6MF-33C2③V②	LW6MF-33C2③M②
				3PDT	LW6MF-33C3③②	LW6MF-33C3③V②	—
				3PDT	LW6MF-33C7③②	—	—
			Silver	DPDT	LW6MF-33C6③②	—	LW6MF-33C6③M②
				3PDT	LW6MF-33C7③②	—	—
				3PDT	LW6MF-33C7③②	—	—
	90° 2-position Maintained		Gold	SPDT	LW6F-2C1③②	LW6F-2C1③V②	—
				DPDT	LW6F-2C2③②	LW6F-2C2③V②	LW6F-2C2③M②
				3PDT	LW6F-2C3③②	LW6F-2C3③V②	—
			Silver	SPDT	LW6F-2C5③②	—	—
				DPDT	LW6F-2C6③②	—	LW6F-2C6③M②
				3PDT	LW6F-2C7③②	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW6F-21C1③②	LW6F-21C1③V②	—
				DPDT	LW6F-21C2③②	LW6F-21C2③V②	LW6F-21C2③M②
				3PDT	LW6F-21C3③②	LW6F-21C3③V②	—
			Silver	SPDT	LW6F-21C5③②	—	—
				DPDT	LW6F-21C6③②	—	LW6F-21C6③M②
				3PDT	LW6F-21C7③②	—	—
	45° 3-position Maintained		Gold	DPDT	LW6F-3C2③②	LW6F-3C2③V②	LW6F-3C2③M②
				3PDT	LW6F-3C3③②	LW6F-3C3③V②	—
				3PDT	LW6F-3C7③②	—	—
			Silver	DPDT	LW6F-3C6③②	—	LW6F-3C6③M②
				3PDT	LW6F-3C7③②	—	—
				3PDT	LW6F-3C7③②	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW6F-31C2③②	LW6F-31C2③V②	LW6F-31C2③M②
				3PDT	LW6F-31C3③②	LW6F-31C3③V②	—
				3PDT	LW6F-31C7③②	—	—
			Silver	DPDT	LW6F-31C6③②	—	LW6F-31C6③M②
				3PDT	LW6F-31C7③②	—	—
				3PDT	LW6F-31C7③②	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW6F-32C2③②	LW6F-32C2③V②	LW6F-32C2③M②
				3PDT	LW6F-32C3③②	LW6F-32C3③V②	—
				3PDT	LW6F-32C7③②	—	—
			Silver	DPDT	LW6F-32C6③②	—	LW6F-32C6③M②
				3PDT	LW6F-32C7③②	—	—
				3PDT	LW6F-32C7③②	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW6F-33C2③②	LW6F-33C2③V②	LW6F-33C2③M②
				3PDT	LW6F-33C3③②	LW6F-33C3③V②	—
				3PDT	LW6F-33C7③②	—	—
			Silver	DPDT	LW6F-33C6③②	—	LW6F-33C6③M②
				3PDT	LW6F-33C7③②	—	—
				3PDT	LW6F-33C7③②	—	—

② Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Voltage Code

Voltage	Code
6V AC/DC	2
12V AC/DC	3
24V AC/DC	4
120V AC	5
240V AC	6



1. In place of ② insert Lens/LED color code from table.
2. In place of ③ insert Voltage code from table.
3. Every illuminated selector switch contains an LED lamp (LSTD) of the specified color and voltage.
3. For replacement part numbers see page 666.
4. For Contact Operation chart see page 676.
5. Yellow selector switch comes with white LED.

Illuminated Square Selector Switches with Black Plastic Bezel

Shape	Operation	Position	Contact Material	Contact	Part Numbers		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
	90° 2-position Maintained		Gold	SPDT	LW7F-2C1③②	LW7F-2C1③V②	—
				DPDT	LW7F-2C2③②	LW7F-2C2③V②	LW7F-2C2③M②
				3PDT	LW7F-2C3③②	LW7F-2C3③V②	—
			Silver	SPDT	LW7F-2C5③②	—	—
				DPDT	LW7F-2C6③②	—	LW7F-2C6③M②
				3PDT	LW7F-2C7③②	—	—
	90° 2-position Spring Return from Right		Gold	SPDT	LW7F-21C1③②	LW7F-21C1③V②	—
				DPDT	LW7F-21C2③②	LW7F-21C2③V②	LW7F-21C2③M②
				3PDT	LW7F-21C3③②	LW7F-21C3③V②	—
			Silver	SPDT	LW7F-21C5③②	—	—
				DPDT	LW7F-21C6③②	—	LW7F-21C6③M②
				3PDT	LW7F-21C7③②	—	—
	45° 3-position Maintained		Gold	DPDT	LW7F-3C2③②	LW7F-3C2③V②	LW7F-3C2③M②
				3PDT	LW7F-3C3③②	LW7F-3C3③V②	—
			Silver	DPDT	LW7F-3C6③②	—	LW7F-3C6③M②
				3PDT	LW7F-3C7③②	—	—
	45° 3-position Spring Return from Right		Gold	DPDT	LW7F-31C2③②	LW7F-31C2③V②	LW7F-31C2③M②
				3PDT	LW7F-31C3③②	LW7F-31C3③V②	—
			Silver	DPDT	LW7F-31C6③②	—	LW7F-31C6③M②
				3PDT	LW7F-31C7③②	—	—
	45° 3-position Spring Return from Left		Gold	DPDT	LW7F-32C2③②	LW7F-32C2③V②	LW7F-32C2③M②
				3PDT	LW7F-32C3③②	LW7F-32C3③V②	—
			Silver	DPDT	LW7F-32C6③②	—	LW7F-32C6③M②
				3PDT	LW7F-32C7③②	—	—
	45° 3-position Spring Return Two-way		Gold	DPDT	LW7F-33C2③②	LW7F-33C2③V②	LW7F-33C2③M②
				3PDT	LW7F-33C3③②	LW7F-33C3③V②	—
			Silver	DPDT	LW7F-33C6③②	—	LW7F-33C6③M②
				3PDT	LW7F-33C7③②	—	—

② Color Code

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Voltage Code

Voltage	Code
6V AC/DC	2
12V AC/DC	3
24V AC/DC	4
120V AC	5
240V AC	6



1. In place of ② insert Lens/LED color code from table.
2. In place of ③ insert Voltage code from table.
3. Every illuminated selector switch contains an LED lamp (LSTD) of the specified color and voltage.
4. For replacement part numbers see page 666.
5. Yellow selector switch comes with white LED.

Replacement Parts Operators

Pilot Lights

Shape	Terminals	Part Number
Round	Solder Tab	LW6ⓈP-00
	Screw	LW6ⓈP-00M
	PC Board	LW6ⓈP-0
Square	Solder Tab	LW7P-00
	Screw	LW7P-00M
	PC Board	LW7P-0



In place of Ⓢ insert Bezel Code.

Non-illuminated & Illuminated Pushbuttons

Shape	Function	Part Number
Round	Maintained	LW6ⓈL-A0
	Momentary	LW6ⓈL-M0
Square	Maintained	LW7L-A0
	Momentary	LW7L-M0
Square with Guard	Maintained	LW7GL-A0
	Momentary	LW7GL-M0



In place of Ⓢ insert Bezel Code.

Non-illuminated Selector Switches

Position	Shape	Function	Handle	Part Number
2-Position	Round	Maintained	Knob	LW6ⓈS-2Y
			Lever	LW6ⓈS-2L
		Spring Return from Right	Knob	LW6ⓈS-21Y
			Lever	LW6ⓈS-21L
	Square	Maintained	Knob	LW7S-2Y
			Lever	LW7S-2L
		Spring Return from Right	Knob	LW7S-21Y
			Lever	LW7S-21L
3-Position	Round	Maintained	Knob	LW6ⓈS-3Y
			Lever	LW6ⓈS-3L
		Spring Return from Right	Knob	LW6ⓈS-31Y
			Lever	LW6ⓈS-31L
		Spring Return from Left	Knob	LW6ⓈS-32Y
			Lever	LW6ⓈS-32L
		Two-way Spring Return	Knob	LW6ⓈS-33Y
			Lever	LW6ⓈS-33L
	Square	Maintained	Knob	LW7S-3Y
			Lever	LW7S-3L
		Spring Return from Right	Knob	LW7S-31Y
			Lever	LW7S-31L
		Spring Return from Left	Knob	LW7S-32Y
			Lever	LW7S-32L
		Two-way Spring Return	Knob	LW7S-33Y
			Lever	LW7S-33L

Ⓢ Bezel Code

	Code
blank	Black Plastic Bezel
M	Metal Bezel



In place of Ⓢ insert Bezel Code.

Illuminated SelectorSwitches

Position	Shape	Function	Part Number
2-Position	Round	Maintained	LW6ⓈF-20
		Spring Return from Right	LW6ⓈF-210
	Square	Maintained	LW7F-20
		Spring Return from Right	LW7F-210
3-Position	Round	Maintained	LW6ⓈF-30
		Spring Return from Right	LW6ⓈF-310
		Spring Return from Left	LW6ⓈF-320
		Two-way Spring Return	LW6ⓈF-330
	Square	Maintained	LW7F-30
		Spring Return from Right	LW7F-310
		Spring Return from Left	LW7F-320
		Two-way Spring Return	LW7F-330

 In place of Ⓢ insert Bezel Code.

Key Selector Switches

Position	Shape	Function	Part Number
2-Position	Round	Maintained	LW6ⓈK-2
		Spring Return from Right	LW6ⓈK-21
3-Position	Round	Maintained	LW6ⓈK-3Ⓢ
		Spring Return from Right	LW6ⓈK-31Ⓢ
		Spring Return from Left	LW6ⓈK-32Ⓢ
		Two-way Spring Return	LW6ⓈK-33Ⓢ

 1. In place of Ⓢ insert Bezel Code.
2. In place of Ⓢ insert Key Removable Option Code.

Ⓢ Bezel Code

	Code
blank	Black Plastic Bezel
M	Metal Bezel

Ⓢ Key Removable Option Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)

Switches & Pilot Lights
Display Lights
Relays & Sockets
Lens/Buttons*

Shape	Material	Part Number	Color Code
Lens (Round Flush) 	Polyarylate	LW1A-L1-②	Specify color code in place of ② in the part number. A: amber C: clear G: green R: red S: blue Y: yellow Note: Use a clear lens for white illumination or for white (W) or black (B) buttons.
Lens (Round Extended) 	Polyarylate	LW1A-L2-②	
Lens (Square Flush) 	Polyarylate	LW2A-L1-②	
Lens for Pilot Lights (Round Extended) 	Polyarylate	LW1A-P2-②	
Lens for Pilot Lights (Square Extended) 	Polyarylate	LW2A-P2-②	
Illuminated Selector Knob Operator 	Plastic	LW9Z-FD6②	Specify a lens color code in place of ② in the Ordering part number. A: amber, G: green, R: red, S: blue, W: white, Y: yellow



*Marking plate included with lens.

Timers
Terminal Blocks
Marking Plates

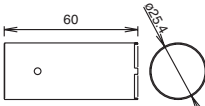
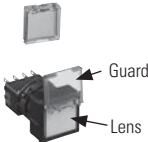
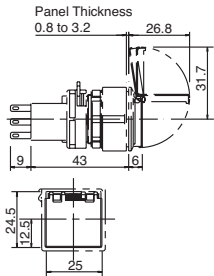
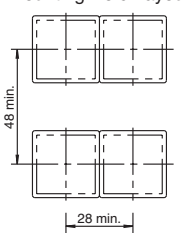
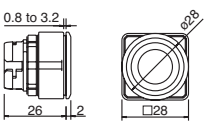
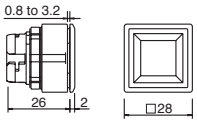
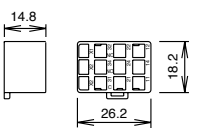
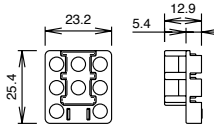
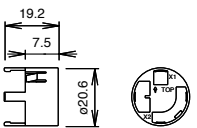
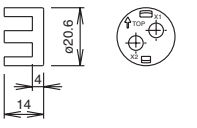
Shape	Material	Part Number	Color Code
Marking Plate (Round) 	Acrylic	LW9Z-P1W	For round flush pushbuttons, round flush illuminated pushbuttons, and round extended pilot lights.
Marking Plate (Square) 	Acrylic	LW9Z-P2W	For square flush pushbuttons, square flush illuminated pushbuttons, and square extended pilot lights.
Marking Plate (Round Extended) 	Acrylic	LW9Z-P12W	For round extended pushbuttons and round extended illuminated pushbuttons.

Miscellaneous

Shape	Material	Part Number	Color Code
Locking Ring 	Plastic	LW9Z-LN	Black
Spare Key 	Metal	LW9Z-SK-500	Standard – default key
		LW9Z-SK-④	Specify a key number 501 to 515 in place of ④ in the part number.

Circuit Breakers

Accessories

Shape	Material	Part Number	Description	Dimensions (mm)
Locking Ring Wrench 	Metal (nickel-plated brass)	LW9Z-T1	Used to tighten the locking ring when installing into a panel. Tightening torque: 1.2 N·m	
Lamp Holder Tool 	Rubber	OR-55	Used to install and remove LED lamps.	
Lens Removal Tool 	Rubber (Ring: metal)	MT-S01	Used to remove the lenses.	
Switch Guard with Lens (for Square Flush Lens) Spring Return Type 	Plastic (Guard: transparent)	LW9Z-KS7◎	Switch guard accessory comes with lens. Cannot be used with maintained types (momentary buttons only). Specify a lens color code in place of ◎ in the part number. A: amber, C: clear, G: green, R: red, S: blue, Y: yellow Use a clear lens for white illumination or for white (W) or black (B) buttons. Note: Determine mounting centers to ensure easy operation.	 
Round Mounting Hole Plug 	Plastic (black)	LW9Z-BS6	Degree of protection: IP65 Panel thickness: 0.8 to 3.2 mm See page 675 for mounting hole layout.	
Square Mounting Hole Plug 	Plastic (black)	LW9Z-BS7	Degree of protection: IP65 Panel thickness: 0.8 to 3.2 mm See page 675 for mounting hole layout.	
Terminal Cover For Solder/Tab Terminal 	Plastic (translucent)	LW-VL2	For separate solder/tab terminal units only.	
Terminal Cover For Screw Terminal 	Plastic (black)	LW-VL2M	For separate screw terminal units only.	
Terminal Cover For Solder/Tab Terminal 	Plastic (translucent)	LW-PVL	For unibody solder/tab terminal pilot lights only.	
Terminal Cover For Screw Terminal 	Plastic (translucent)	LW-PVLM	For unibody screw terminal pilot lights only.	

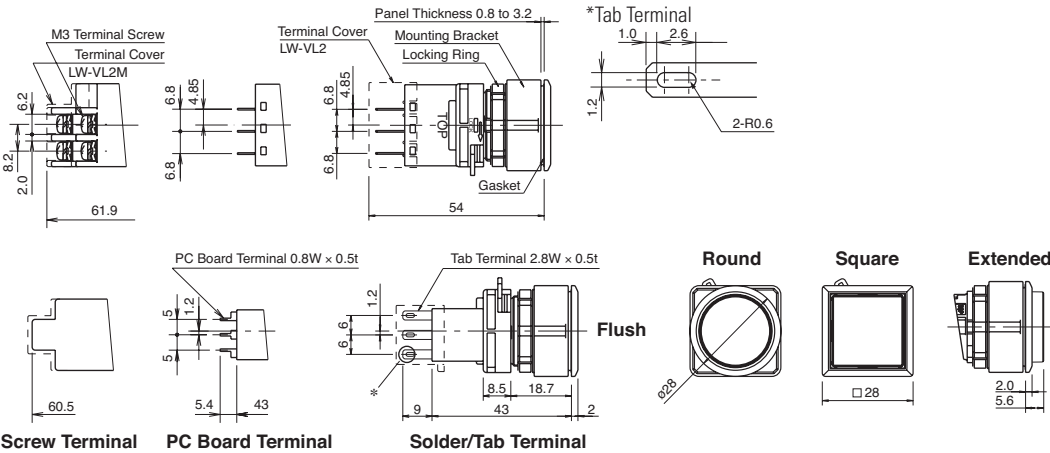
Contact Blocks

Appearance	Style	Contact Material	Contact	Part Number		
				Solder/Tab	PC Board	Screw
	Non-illuminated Switches	Gold	SPDT	LW-C1	LW-C1V	—
			DPDT	LW-C2	LW-C2V	LW-C2M
			3PDT	LW-C3	LW-C3V	—
		Silver	SPDT	LW-C5	—	—
			DPDT	LW-C6	—	LW-C6M
			3PDT	LW-C7	—	—
	Illuminated Switches	Gold	SPDT	LW-C10	LW-C10V	—
			DPDT	LW-C20	LW-C20V	LW-C20M
			3PDT	LW-C30	LW-C30V	—
		Silver	SPDT	LW-C50	—	—
			DPDT	LW-C60	—	LW-C60M
			3PDT	LW-C70	—	—

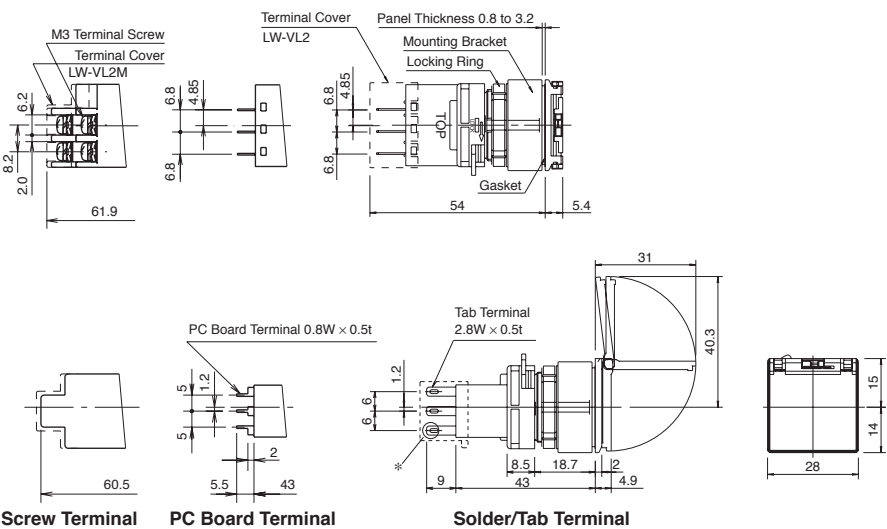
Dimensions (mm)

Non-illuminated Pushbuttons

Round/Square



Square Flush Guard



Switches & Pilot Lights

Display Lights

Relays & Sockets

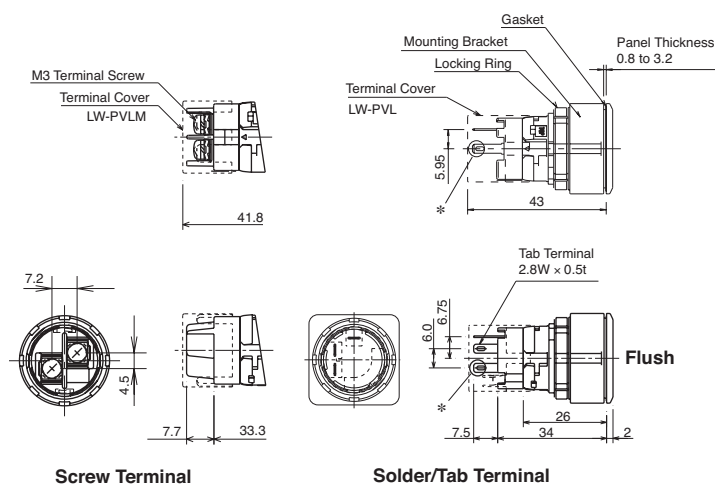
Timers

Terminal Blocks

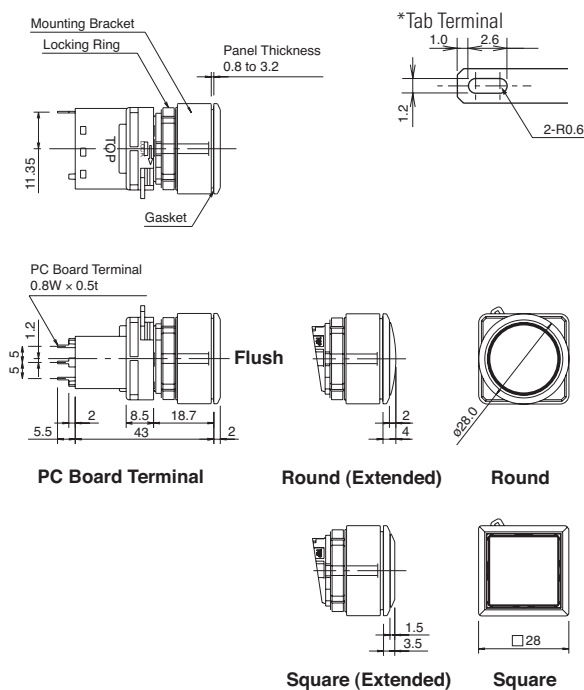
Circuit Breakers

Pilot Lights

Unibody

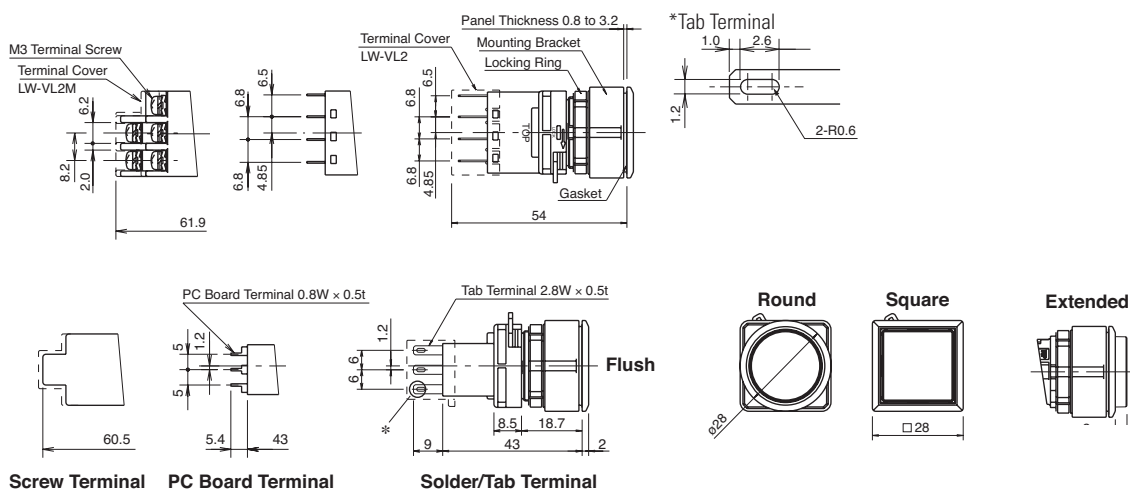


Separate Model

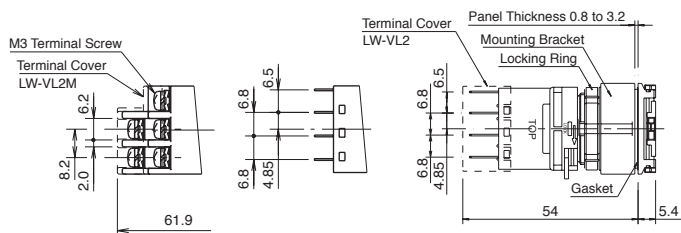


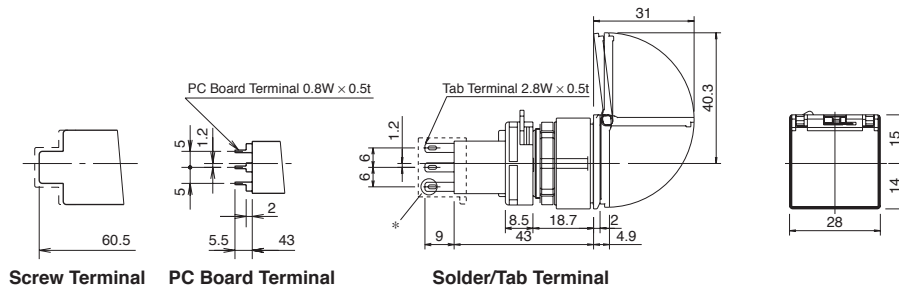
Illuminated Pushbuttons

Round/Square

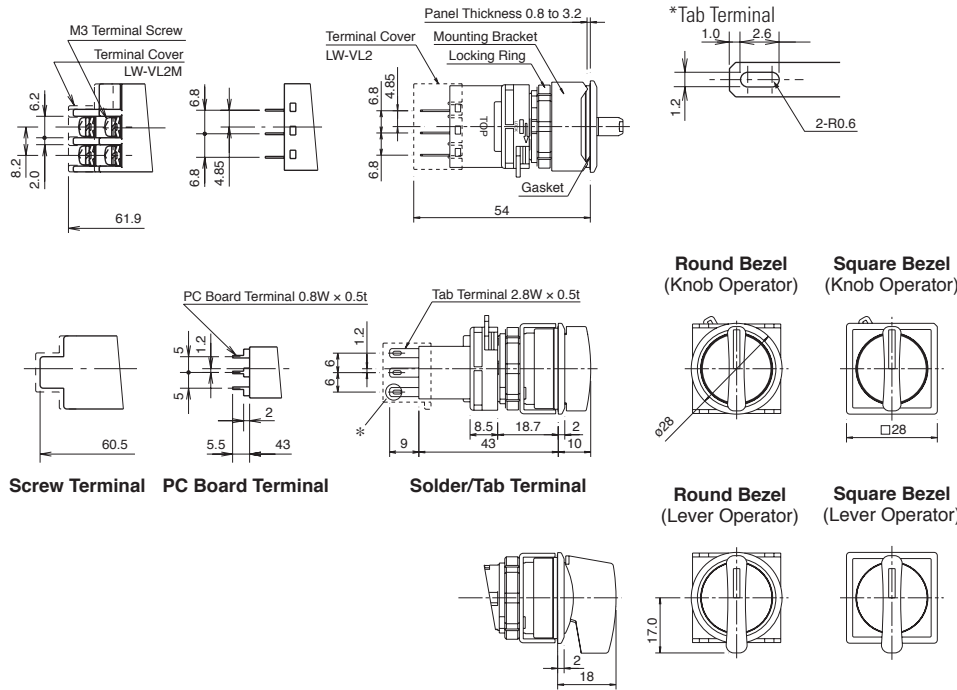


Square Flush Guard

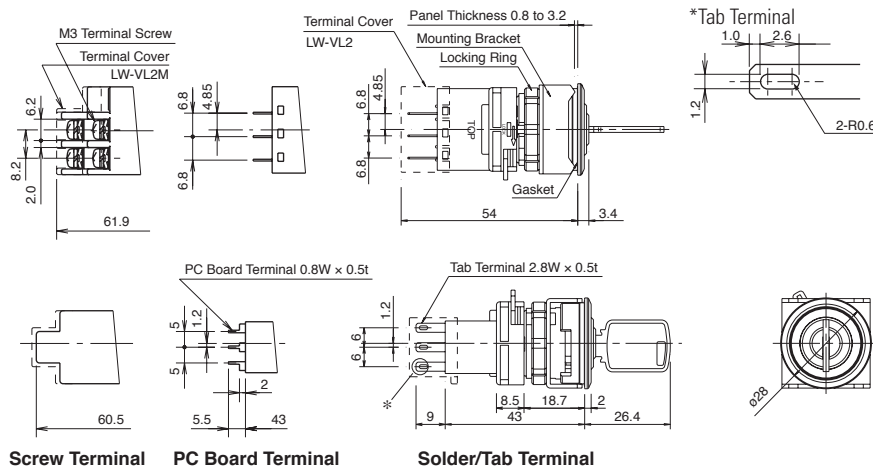




Non-illuminated Selector Switches

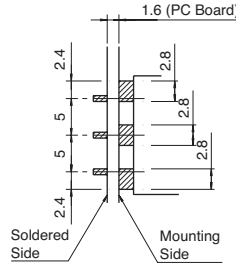
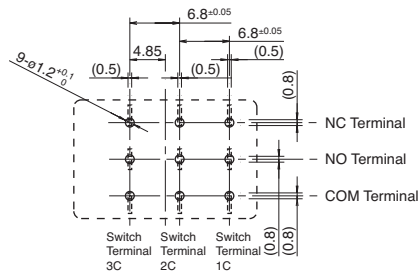


Key Selector Switches



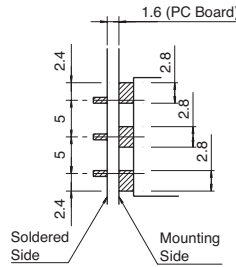
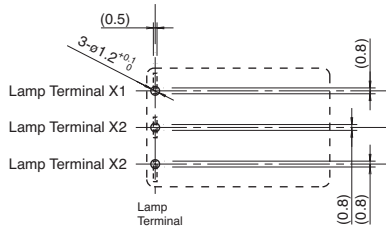
PC Board Drilling Layout (bottom view)

Non-illuminated Pushbuttons



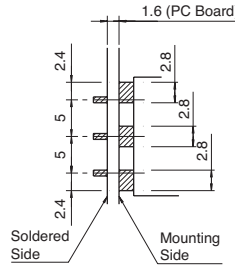
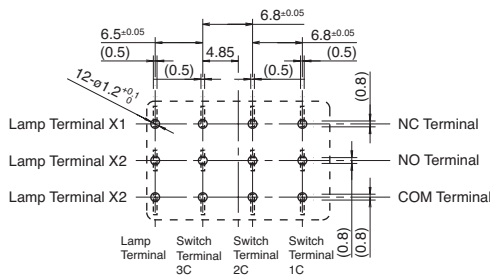
The pattern of the PC board as the terminals on the mounting surface are 2.8mm wide.

Pilot Lights



The pattern of the PC board as the terminals on the mounting surface are 2.8mm wide.

Illuminated Pushbuttons



The pattern of the PC board as the terminals on the mounting surface are 2.8mm wide.

Contact Operation*

Operation	Contact	Operator Position & Contact Position (Top View)		Operation	Contact	Operator Position & Contact Position (Top View)		
		Left	Right			Left	Center	Right
90° 2-Position L R	SPDT DPDT	Left Contact NO NC C	Right Contact NO NC C	45° 3-Position L C R	DPDT	Left Contact NO NC C	Right Contact NO NC C	Center Contact NO NC C
	3PDT	Left Contact NO NC C	Center Contact NO NC C		3PDT	Left Contact NO NC C	Center Contact NO NC C	Right Contact NO NC C



*Valid for all Non-illuminated and Illuminated Selector Switches and Key Selector Switches.

Safety Precautions

Turn off the power to the flush silhouette LW series before installation, removal, wiring, maintenance and inspection. Failure to turn power off may cause an electrical shock or fire hazard.

To avoid burning your hand, use the lamp holder tool when replacing lamps.

For wiring, use the correct size wires to meet voltage and current requirements. Solder correctly according to the instructions in **Wiring** and **Terminal Cover** (below and on following page). Tighten the M3.5 terminal screws to a torque of 0.6 to 1.0N·m. Failure to tighten terminal screws may cause overheating and increase risk of fire.

General Instructions

Panel Mounting

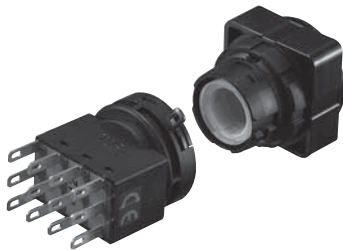
Remove the contact block from the operator. Insert the operator into the panel cut out from the front, then install the contact block.

Removing the Contact Block

- Turn the locking lever on the contact block in the direction opposite to the arrow on the housing. The contact can then be removed.

Installing the Contact Block

- Insert the contact block, with the TOP markings on the contact block and the operator placed in the same direction. Then lock the units, turning the locking lever in the direction of the arrow.



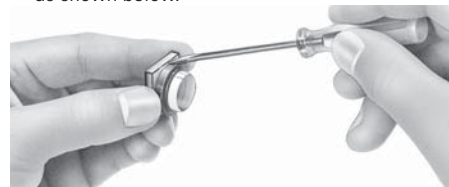
Replacement of the Lens & Marking Plate

Removal

- To remove the lens unit, press the suction cup of the optional lens removal tool (MT-S01) onto the lens and pull the lens unit out.



- Remove the marking plate by pushing the lens from the rear to disengage the latches between the lens and the lens holder, using a screwdriver as shown below.



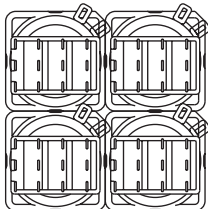
The translucent filter in the lens holder cannot be removed because the filter is sealed to make the unit waterproof and oiltight.

Notes on Mounting

- Use the optional locking ring wrench (LW9Z-T1) to mount the operator into the panel. Tightening torque should not exceed 1.2N·m. Do not use pliers. Excessive tightening will damage the locking ring.

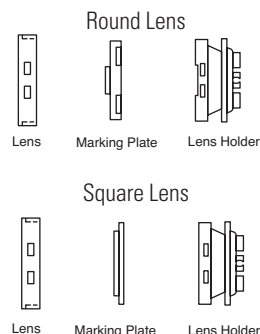
Collective Mounting

- As the locking lever can be turned easily from the rear of the units using a screwdriver, the contact blocks can be removed even when mounted collectively.



Installation

- For round lenses, place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens into the lens holder to engage the latches. For square lenses, insert the marking plate into the lens, and press the lens into the holder to engage the latches.
- Make sure of the correct orientation of the marking plate.



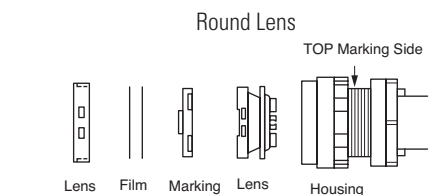
Marking Plate & Film

For LW series illuminated pushbuttons and pilot lights, legends and symbols can be engraved on marking plates, or printed film can be inserted under the lens for labelling purposes.

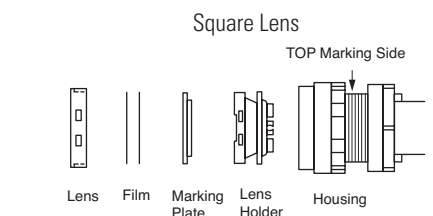
Marking Plate and Marking Film Size

Lens	Round Lens	Square Lens
Built-in Marking Plate		
Applicable Marking Film		
	- Engraving must be made on the engraving area within 0.5mm deep. - The marking plate is made of acrylic resin.	
	- Two 0.1mm-thick films or one 0.2mm-thick film can be installed in the lens. - Marking film must be prepared separately. - Recommended marking film: polyester	

Insertion Order of Marking Plate and Film



Note: Film must be prepared separately.



Film must be prepared separately. Make sure of correct orientation of the marking plate.

Replacement of Lamps

Lamps can be replaced using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator.

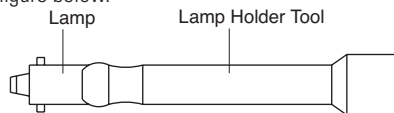
Removing the Lamp

- To remove, slip the lamp holder tool (OR-55) onto the lamp head. Then push slightly and turn the lamp holder tool counterclockwise.

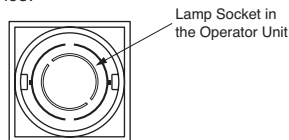


Installing the Lamp

- To install, insert the lamp head into the lamp holder tool and hold the lamp as shown in the figure below.



- Insert the pins on the lamp base into the grooves in the lamp socket. Insert the lamp and turn it clockwise.



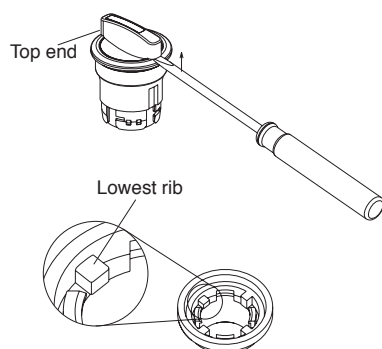
Removing the Illuminated Selector Switch Knob

Removing the Knob

Insert a flat screwdriver and remove the knob from the operator.

Installing the Knob

Press the knob into the operator. Align the recess on top end of the knob with the lowest rib on of the operator.



Key Selector Switches

When turning the key, do not pull the key out, otherwise, it may damage the switch.

Wiring

- Solder the terminals within 20W/5 sec or 260°C/3 sec without exerting external force on the terminals. Do not touch the plastic housing with the soldering iron. While wiring, prevent tension from being applied to the terminals. Do not bend or raise the terminals, or exert excessive force on the terminals.

- Use non-corrosive liquid flux.
- Positive-lock connector and easylock connectors are applicable to tab terminals.
- Tighten the terminal screw of the screw terminal models to a torque of 0.6 to 1.0N·m.

Terminal Cover (for Solder/Tab Terminal)

Insert the terminal cover onto the contact block with the TOP markings on the contact block and the terminal cover in the same direction.

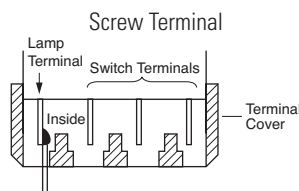


When wiring, insert the lead wires into the terminal cover holes before soldering.



Wiring Terminal Cover

When installing a terminal cover onto the solder/tab terminal contact block, solder the inside of the lamp terminal (toward the switch terminals) and wire.

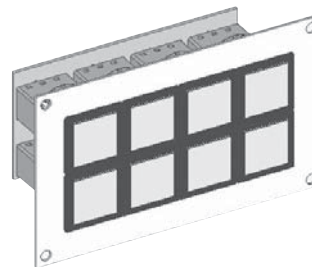


Install the terminal cover on the control unit before wiring.



- After wiring, terminal covers cannot be installed.
- When terminal covers are installed, ring terminals cannot be used. (For wiring, use fork terminals or lead wires directly.)

Single Board Mounting



Mounting the control units on a single PC board offers the following features.

- Reduced installation labor, easy wiring, space saving and standardization.
- Since the contact blocks on the PC board can easily be removed using a locking lever, control units are easy to maintain.
- Because the control units require no studs for fastening the control units to a PC board, special preparation of the panel is not needed.