Flush Silhouette Switches Thinnest in the industry LB/LBW Series ø16mm LB Series [Shape] [Contact Rating] Removable **3**A Contact Block [Operating Stroke] [Action] Projects only 2mm from the panel surface. For sleek and refined style. 3 Light mm Я @ Д (€ @ • See website for details on approvals and standards. Series page **Flush Silhouette Switches** B-073 LB Series Flush Silhouette Switches B-091 **LBW Series** ø16mm LB Series B-103 **UP Series** B-123

Switches & Pilot Lights

APEM

witches

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

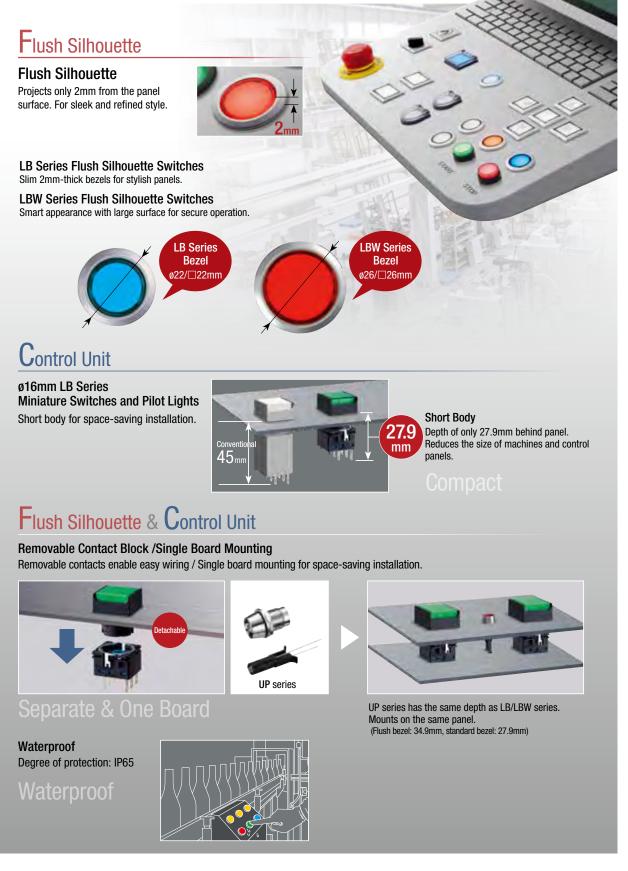
AUTO-ID

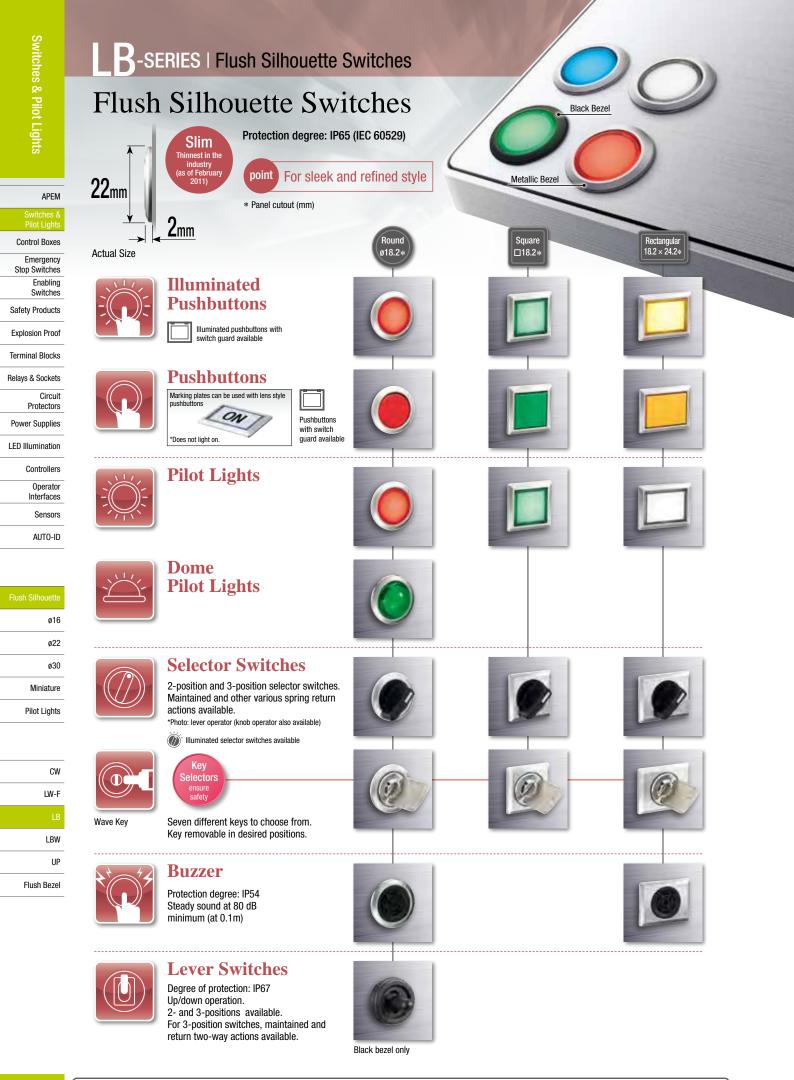
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB

CW LW-F LB LBW UP Flush Bezel

Stylish and Functional

IDEC's extensive range of LB/LBW series switches can be used for a wide range of applications.





For more information, visit http://eu.idec.com

Flush bezel projects only 2 mm from front of panel.

Contact F	Ratings	(See B-120 fc	or approval	ratings)
-----------	---------	---------------	-------------	----------

Gold Contact (switch base: blue)

Rated Insulation Voltage	250V		
Rated Thermal Current	3A		
Rated Operating Voltage	30V DC	125V AC	
Rated Operating Current (electrical life: 100,000 operations)	Resistive Load	0.1A	0.1A
Contact Material	Gold plat	ted silver	

• Minimum applicable load (reference value): 5V AC/DC, 1 mA Applicable range is subject to the operating conditions and load.

· See electrical life in Specifications.

Silver Contact (switch base: gray)

Rated Insulation Voltage					250V	
Rated Oper	ating Voltage			30V	125V	250V
	Electrical	AC	Resistive load		5A	5A
	Life	50/60Hz	Inductive load	—	3A	1.5A
	50,000		Resistive load	5A	1.1A	—
Rated	operations		Inductive load	2A	0.4A	—
Operating Current	Electrical	AC	Resistive load	_	5A	3A
ourroint	Life	50/60Hz	Inductive load	—	3A	1.5A
	100,000		Resistive load	ЗA	0.6A	—
	operations	DC	Inductive load	1A	0.22A	—
Rated Thermal Current				5A		
Contact Material				Silver		

• AC inductive load: PF=0.6 to 0.7 DC inductive load: L/R=7 ms max.

LED Ratings

Rated Voltage	5V DC	12V AC/DC	24V AC/DC
Voltage Range	5V DC±5%	12V AC/DC ±10%	24V AC/DC ±10%
LED Part No.	LB9Z-LED5@	LB9Z-LED1@	LB9Z-LED22
Current Draw	5 mA (typ.)		
Voltage Marking	Marked on the side of the LED	unit	
LED Life (reference value)	Approx. 30,000 hours [until the brightness reduces to 50% of the initial value when lit at the rated voltage (direct current) under 25°C environment.]		
	A, G, R, PW, S		
Internal Circuit	X1 (+) Noise protection circuit X2 (-) Dimmer protection circuit	X1-Limited curre Noise protect X2-Dimmer protect	ion circuit uit

• 2 (color code): A (amber), G (green), PW (pure white), R (red), S (blue)

• Use the pure white (PW) module for yellow illumination.

• LED lamp contains a current-limiting resistor.



-25 to +60°C (no freezing)

-30 to +80°C (no freezing)

2,000V AC, 1 minute Between terminals of different poles:

2,000V AC, 1 minute

1,000V AC, 1 minute

2,000V AC, 1 minute Operating extremes/Damage limits:

Damage limits:

Selector switches:

Selector switches:

IP65 (IEC 60529) Solder/tab terminal #110

PC board terminal

14g (LB8L-M1T24)

13g (LB8P-1T04)

13g (LB8B-M1T2)

15g (LB8S-2T2) 27g (LB8K-2ST2A) 15g (LB8GL-M1T24) 14g (LB8GB-M1T2)

Key selector switches:

Key selector switches:

Momentary: 50,000 / 100,000 (*1)

Maintained: 50,000 / 100,000 (*2)

Momentary:

Maintained:

Between live part and ground:

5 to 55 Hz, amplitude 0.5 mm Operating extremes: 100 m/s²

Illuminated units: -25 to +55°C

45 to 85% RH (no condensation)

100 MΩ minimum (500V DC megger) Between live part and ground:

Between terminals of the same poles:

1,000 m/s²

2,000,000

250.000

250.000

250,000

50,000 / 100,000 (*2)

50,000 / 100,000 (*2)

50 mΩ maximum (initial value)

Specifications

Operating Temperature

Storage Temperature

Operating Humidity

Contact Resistance

Dielectric

Strength

Insulation Resistance

Switch Unit

Illumination

Unit

Vibration Resistance

Shock Resistance

Mechanical Life

Electrical Life

Terminal Style

Weight (approx.)

(minimum operations)

(minimum operations)

Degree of Protection

Switches & Pilot Lights

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB
LBW
UP
Flush Bezel

*1: Switching frequency 1,800 operations/h. *2: Switching frequency 1,200 operations/h.

Controllers

Operator

Interfaces

Sensors

AUTO-ID

ø16

ø22

UP Flush Bezel

les & Pilot	Illuminat Solder/Tab Termir	ed Pushbuttons al				Package Quantity:1
Pilot Lights	Part No. / Shape	LB①L-②1T③		Black Bezel Square /	Black Bezel Rectangular / Black Bez	
APEM			Round /	Square /	Diack bezei nettaliguiai / biack bez	
Switches & Pilot Lights						
Control Boxes		Round / Metallic Bezel	Square / Metallic Bezel	Rectangular / Metallic Bezel	Round with Guard Squ	are with Guard Rectangular with Guard
Emergency Stop Switches	① Shape	② Operation	3 Contact	④ LED Operating Voltage	Part No.	* Illumination Color Code
Enabling Switches		Momentary	Gold/SPDT	24V AC/DC	LB ^① L-M1T14*	
Safety Products	Black bezel	Womentary	Gold/DPDT	24V AC/DC	LB ^① L-M1T24*	
Evolution Broof	Didek Dezer	Maintained	Gold/SPDT	24V AC/DC	LB ^① L-A1T14*	- Specify the color code in place of * in
Explosion Proof			Gold/DPDT		LB ^① L-A1T24*	the Part No.
Terminal Blocks		Momentary	Gold/SPDT	24V AC/DC	LB ^① L-M1T14*	
Deleve & Ceelvete	Metallic bezel		Gold/DPDT		LB1L-M1T24*	A: amber G: green
Relays & Sockets	Motanio 50201	Maintained	Gold/SPDT	24V AC/DC	LB ^① L-A1T14*	- PW: pure white
Circuit Protectors			Gold/DPDT	247710/20	LB ^① L-A1T24*	R: red
		Momentary	Gold/SPDT	24V AC/DC	LB ^① L-M1T14*	S: blue
Power Supplies	Guard Type	momontary	Gold/DPDT		LB ^① L-M1T24*	Y: yellow
LED Illumination		Maintained	Gold/SPDT		LB ^① L-A1T14*	

• Illuminated pushbuttons contain an LED unit. For details on LED units, see B-130.

• The guard opens 180 degrees spring-return.

Maintained

• Illuminated pushbuttons can be used with legend markings. Engraving can be done on a marking plate which is placed in the lens, or a clear film can be printed and placed in the lens. See B-133 for details on the marking plate and film.

24V AC/DC

• PC board terminals available for gold contacts. Silver contacts also available. To specify, see Part Number Development below.

Gold/DPDT

• 5V DC and 12V AC/DC LED operating voltages also available.

• Other bezel sizes available (LBW series). For details, see B-093.

Part Number Development

LB1L-21T345*

ø30	1 Shape	9
030	Code	Shape
Miniature	6	Round / Black Bezel
Pilot Lights	7	Square / Black Bezel
	8	Rectangular / Black Bezel
	6M	Round / Metallic Bezel
	7M	Square / Metallic Bezel
CW	8M	Rectangular / Metallic Bezel
	6G	Round with Guard
LW-F	7G	Square with Guard
	8G	Rectangular with Guard

2 Operation

Code	Operation
Α	Maintained
М	Momentary

© 00maoto		
Contact		
Gold/SPDT		
Gold/DPDT		

Contacts

Code	Contact
1	Gold/SPDT
2	Gold/DPDT
5	Silver/SPDT
6	Silver/DPDT

LB1L-A1T24*

④ LED Operating Voltage

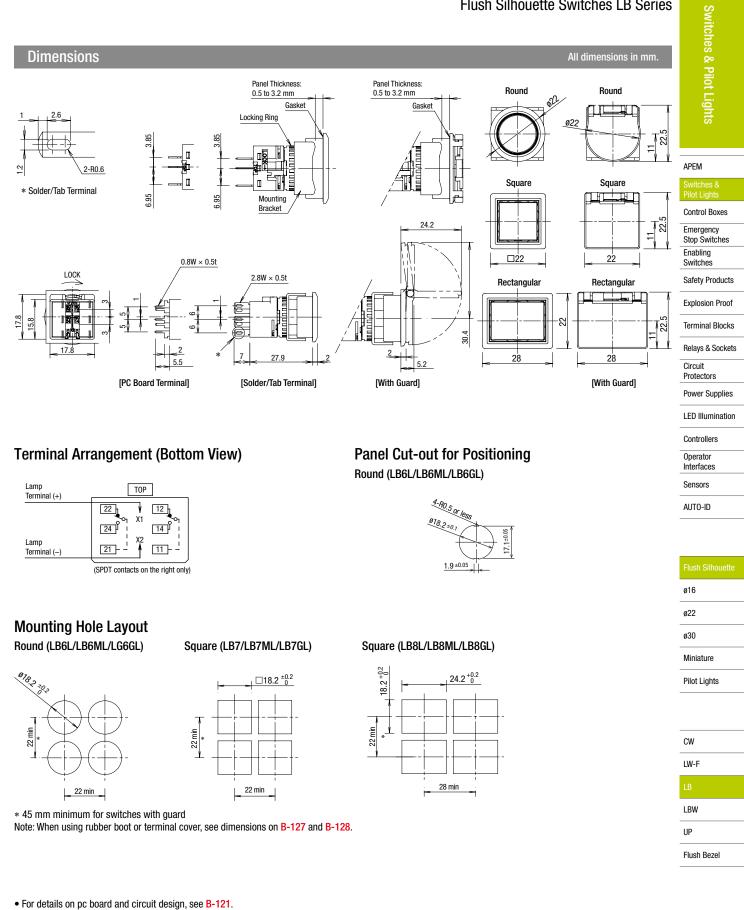
Code	Rated Operating Voltage
1	5V DC
3	12V AC/DC
4	24V AC/DC

5 Others LBW

-	Code	Specification	Part No. Example
-	Blank	Solder/Tab Terminal	—
	V	PC Board Terminal (Gold Contact Only)	LB6L-M1T14 <u>V</u> *

• Specify the color code in place of * in the table above.

All dimensions in mm.



• For details on single board mounting, see B-122.

Relays & Sockets

LED Illumination

Controllers

Operator Interfaces Sensors

AUTO-ID

Circuit Protectors

shes a	Pilot Lights											
₽ ₽												
liot	Solder/Tab Terminal											
ches & Pilot Lights	Part No. / Shape	LB1P-2TO	34*			_						
		1					1		I			
APEM Switches & Pilot Lights		Round / Black Bezel	Square / R Black Bezel	Rectangular / Black Bezel	Round / Metallic Bezel	Dome / Black Bezel	Square / Metallic Bezel	Rectangular / Metallic Bezel	Dome / Metallic Bezel			
Control Boxes		O Ohana	3 LED Operati	ing	Davit Na							
Emergency Stop Switches	② Lens Shape	① Shape	Voltage		Part No.		* Illuminati	tion Color Code				
Enabling Switches	Fluch	Black Bezel	24V AC/DC	LB ^① P-1	T04*	Specify the colo	or code in place of	f * in the Part No.				
Safety Products	Flush	Motallia Pazal		LB ^① P-1	1704-	A. ombor						
Explosion Proof	!		Metallic Bezel 24V AC/DC		104*	A: amber G: green						
Terminal Blocks		Black Bezel	24V AC/DC	LB6P-2T	ſ04 *	PW: pure wh R: red S: blue	PW: pure white R: red					
Relave & Sockate	Dome											

• Pilot lights contain an LED unit. For maintenance LED units see B-130.

Power Supplies • Legends and symbols can be engraved on a marking plate or film to be inserted under the lens by users for labelling purposes. See B-133 for details.

LB6MP-2T04*

• PC board terminals available. To specify, see Part Number Development below.

24V AC/DC

• 5V DC and 12V AC/DC LED operating voltages also available.

Metallic Bezel

• Other bezel sizes available (LBW series). For details, see B-095.

Part Number Development

LB1P-2T034*

(1) Shape

	Code	Shape			
uette	6	Round / Black Bezel			
ø16	ø16 7 Square / Black Bezel				
	8	Rectangular / Black Bezel			
ø22	6M	Round / Metallic Bezel			
ø30	7M	Square / Metallic Bezel			
	8M	Rectangular / Metallic Bezel			

Miniature • Round only for dome.

Pilot Lights (4) Others

CW

LW-F

LBW UP

O o anon	0	
Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
V	PC Board Terminal	LB6P-1T04V*

• Specify the color code in place of * in the table above.

2 Lens Shape

	onapo
Code	Lens Shape
1	Flush
2	Dome

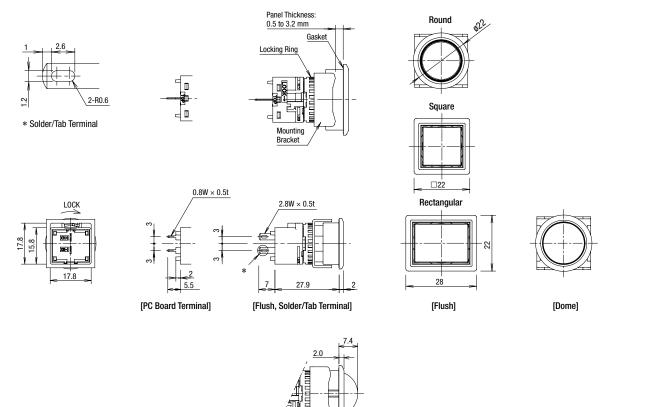
③ LED Operating Voltage

Y: yellow

<u> </u>	
Code	Rated Operating Voltage
1	5V DC
3	12V AC/DC
4	24V AC/DC

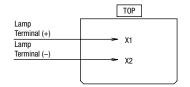
All dimensions in mm.

Dimensions



[Dome]

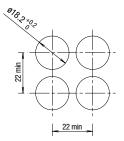
Terminal Arrangement (Bottom View)

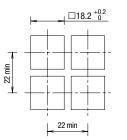


Mounting Hole Layout

Round (LB6P/LB6MP)

Square (LB7P/LB7MP)



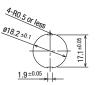


Note: When using rubber boot or terminal cover, see dimensions on B-127 and B-128.

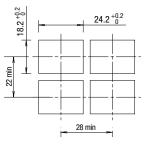
• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.

Panel Cut-out for Positioning Round (LB6P/LB6MP)



Square (LB8P/LB8MP)



Terminal Blocks Relays & Sockets Circuit

Safety Products Explosion Proof

Protectors Power Supplies

LED Illumination

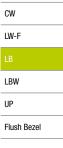
Controllers

Operator Interfaces

Sensors

AUTO-ID

ø16 ø22 ø30 Miniature Pilot Lights





APEM

Control Boxes Emergency Stop Switches Enabling Switches

che								
s &	Pushbut	tons						
Pilo	Solder/Tab Termi	inal						Package Quantity:1
ches & Pilot Lights	Part No. / Shape	LB1B-21	T34*	Round / Black Be	zel Square / Black I	Bezel Rectangular / Blac	k Bezel	
APEM								
Switches & Pilot Lights								
Control Boxes		Round / Metallic E	Sezel Square / Me	tallic Bezel Rect	angular / Metallic Bezel	Round with Guard	Square with Guard	Rectangular with Guard
Emergency Stop Switches	① Shape	Button Style	② Operation	3 Contact		Part No.	*(Color Code
Enabling		-		SPDT	Gold Contact	Silver Contact		
Switches			Momentary	DPDT	LBUB-M1T2*	LB()B-M1T6*	B: black G: green	
Safety Products			lineineinaity	3PDT	LB1B-M1T3*	LB ^① B-M1T7*	R: red	
Explosion Proof		Button	Maintained	SPDT	LB1B-A1T1*	LB1B-A1T5*	S: blue	
				DPDT	LB1B-A1T2*	LB10B-A1T6*	W: white	
Terminal Blocks	Black bezel			3PDT	LB10B-A1T3*	LB10B-A1T7*	Y: yellow	
Relays & Sockets	Biddit Bozor			SPDT	LB1B-M1T1L*	LB ^① B-M1T5L*	A: amber	
-			Momentary	DPDT	LB1B-M1T2L*	LB ^① B-M1T6L*	G: green	
Circuit Protectors		Lens		3PDT	LB ^① B-M1T3L*	LB@B-M1T7L*	R: red	
			Maintainad	SPDT DPDT	LB@B-A1T1L*	LB@B-A1T5L*	S: blue W: white	
Power Supplies			Maintained	3PDT	LB1B-A1T2L* LB1B-A1T3L*	LB1B-A1T6L* LB1B-A1T7L*	Y: yellow	
LED Illumination				SPDT	LB@B-M1T1*	LB@B-M1T5*	,	
			Momentary	DPDT	LB@B-M1T2*	LB@B-M1T6*	B: black	
Controllers			womentary	3PDT	LB ^① B-M1T2*	LB@B-M1T7*	G: green R: red	
Operator		Button		SPDT	LB@B-A1T1*	LB ^① B-A1T5*	S: blue	
Interfaces			Maintained	DPDT	LB [®] B-A1T2*	LB ^① B-A1T6*	W: white	
Sensors				3PDT	LB1B-A1T3*	LB ^① B-A1T7*	Y: yellow	
	Metallic bezel			SPDT	LB1B-M1T1L*	LB1B-M1T5L*	A: amber	
AUTO-ID			Momentary	DPDT	LB1B-M1T2L*	LB ^① B-M1T6L*	G: green	
		Lens		3PDT	LB1B-M1T3L*	LB1B-M1T7L*	R: red	
				SPDT	LB1B-A1T1L*	LB1B-A1T5L*	S: blue	
			Maintained	DPDT	LB1B-A1T2L*	LB1B-A1T6L*	W: white	
Flush Silhouette				3PDT	LB1B-A1T3L*	LB1B-A1T7L*	Y: yellow	
				SPDT	LB ^① B-M1T1*	LB1B-M1T5*	B: black	
ø16			Momentary	DPDT	LB ^① B-M1T2*	LB@B-M1T6*	G: green	
ø22		Button		3PDT	LB ^① B-M1T3*	LBOB-M1T7*	R: red S: blue	
			Maintained	SPDT	LB①B-A1T1*	LB1B-A1T5*	S: blue W: white	
ø30			Maintained	DPDT 3PDT	LB1B-A1T2* LB1B-A1T3*	LB1B-A1T6* LB1B-A1T7*	Y: yellow	
Miniature	Guard Type			SPDT	LB@B-M1T1L*	LB@B-M1T5L*		
i i i i i i i i i i i i i i i i i i i			Momentary	DPDT	LB ^① B-M1T2L*	LB@B-M1T6L*	A: amber G: green	
Pilot Lights				3PDT	LB ^① B-M1T3L*	LB ^① B-M1T7L*	R: red	
		Lens		SPDT	LB1B-A1T1L*	LB ^① B-A1T5L*	S: blue	
			Maintained	DPDT	LB1B-A1T2L*	LB1B-A1T6L*	W: white	
				3PDT	LB1B-A1T3L*	LB ^① B-A1T7L*	Y: yellow	

• The guard opens 180 degrees spring-return.

• Pushbuttons can be used with legend markings. Engraving can be done on a marking plate which is placed in the lens, or a clear film can be printed and placed in LW-F the lens. See B-133 for details on the marking plate and film.

• Black is available for lens. Black lens consists of a transparent lens and a black marking plate. To specify, see Part Number Development below.

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

• Other bezel sizes available (LBW series). For details, see B-097.

Flush Bezel

CW

LBW

UP

Part Number Development LB1B-21T34*

1	① Shape				
	Code	Shape			
	6	Round / Black Bezel			
	7	Square / Black Bezel			
	8	Rectangular / Black Bezel			
	6M	Round / Metallic Bezel			
	7M	Square / Metallic Bezel			
	8M	Rectangular / Metallic Bezel			
	6G	Round with Guard			
	7G	Square with Guard			
	8G	Rectangular with Guard			

(a) Contacte

② Operation			③ Conta	icts		
Code	Operation		Code	Contact	Code	Contact
Α	Maintained		1	Gold/SPDT	5	Silver/SPDT
M Momentary			2	Gold/DPDT	6	Silver/DPDT
			3	Gold/3PDT	7	Silver/3PDT

④ Others

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
В	Black Translucent Lens (Lens Only)	LB6B-M1T1L <u>B</u>
V	PC Board Terminal (Gold Contact Only)	LB6B-M1T1 <u>V</u> *

For more information, visit http://eu.idec.com

Round

All dimensions in mm.

Round

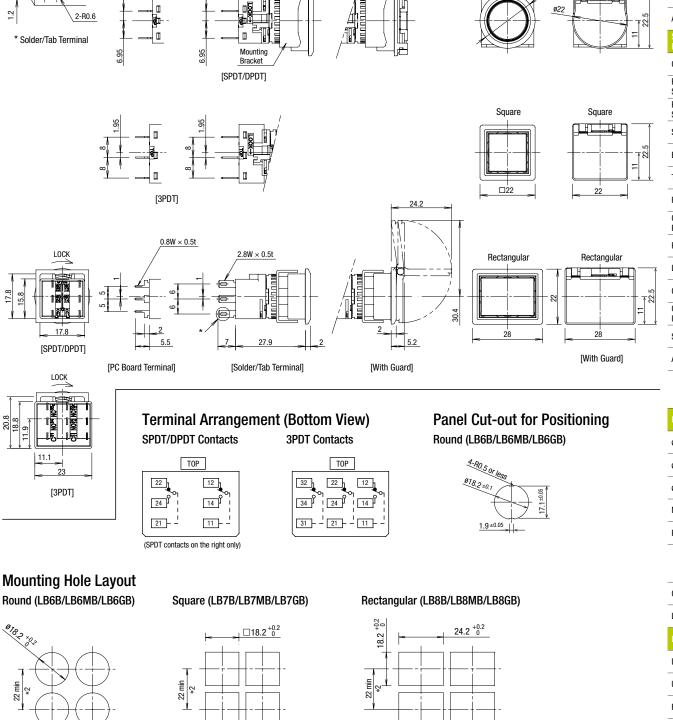






ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB

CW
LW-F
LB
LBW
UP
Flush Bezel



Panel Thickness:

Gasket

0.5 to 3.2 mm

Locking Ring

3.85

Panel Thickness:

0.5 to 3.2 mm Gasket

*1: 23.2 mm minimum for 3PDT

22 min

*2: 45 mm minimum for switches with guard

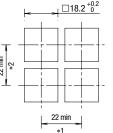
Note: When using rubber boot or terminal cover, see dimensions on B-127 and B-128.

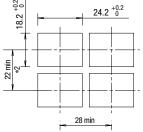
• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



Dimensions





Download catalogs and CAD from http://eu.idec.com/downloads

APEM Switches & Pilot Lights Control Boxes Emergency Stop Switches Enabling Switches Safety Products	Selector Solder/Tab Termin Part No. / Shape	Switches hal LB ① S - ② (Knob Op Found / Blac Lever Op	erator k Bezel Square / Black Bezel	Package Quantity: Image: Rectangular / Black Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Black Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Black Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Black Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Metallic Bezel Image: Rectangular / Metallic Bezel					
Explosion Proof	① Shape		② Operator Position		③ Contact	Gold Contact	Part No. Silver Contact		
Terminal Blocks			Maintained		SPDT	LB ^① S-2T1	LB:0S-2T5		
		90°	Wantaneo	LR	DPDT	LB@S-2T2	LB:03-215		
Relays & Sockets		2-position			3PDT	LB@S-212	LB:03-210		
Circuit Protectors	Black bezel		Maintained	C	DPDT	LB@S-3T2	LB@S-3T6		
Power Supplies	DIACK DEZEI		Maintaineu	L	3PDT	LB@S-312	LBUS-3T6		
LED Illumination		45° 3-position	Carrier return two ways		DPDT	LB@S-313	LB@S-3376		
			Spring return two-way		3PDT	LB@S-33T2 LB@S-33T3	LB@S-33T0		
Controllers Operator			Maintained		SPDT	LB@S-271	LB@S-2T5		
Interfaces		90°	wamameu	LR	DPDT	LB@S-2T2	LB:0S-2T6		
Sensors		2-position			3PDT	LB05-212 LB05-273	LB05-210 LB05-2T7		
AUTO-ID	Metallic bezel		Maintained	Ŷ C	DPDT	LB@S-3T2	LB@S-3T6		
	WELAING DEZEN		wallitällieu		3PDT	LB@S-3T2	LB@S-316		
		45° 3-position	Spring roturn two way	V I C D	DPDT	LB@S-33T2	LB@S-3376		
Flush Silhouette			Spring return two-way		3PDT	LB@S-33T2	LB@S-33T6		
	Lever operators als	l to available. To spe	ify, see Part Number Developn	nent below.	51 0 1		LD-00 0011		
	•		contacts. To specify see Part N		nment helow				

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

 ⁰/22
 ⁰/2 - position spring return from right, 3-position spring return from right, and 3-position spring return from left also available. To specify, see Part Number Development below.

 ⁰/2
 ⁰/2

• For contact operation, see **B-119**.

• Other bezel sizes available (LBW series). For details, see B-099.

Shape

Miniature Pilot Lights

> CW LW-F

LBW

UP

Flush Bezel

Part Number Development

Round / Black Bezel

Square / Black Bezel

Round / Metallic Bezel

Square / Metallic Bezel

Rectangular / Metallic Bezel

Rectangular / Black Bezel



① Shape Code

6

7

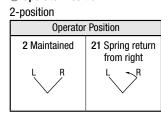
8

6M

7M

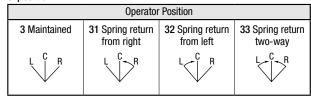
8M

② Operator Position



3-position

۷



Part No. Example

LB6S-2T1V

③ Operator					
Operator Shape					
Knob					
Lever					

④ Conta	acts
0.1	

Code	Contact
1	Gold/SPDT (90° 2-position only)
2	Gold/DPDT
3	Gold/3PDT
5	Silver/SPDT (90° 2-position only)
6	Silver/DPDT
7	Silver/3PDT

5 Other	S
Code	Specification
Blank	Solder/Tab Terminal
	PC Board Terminal

(Gold Contact Only)

For more information,	visit http://eu.idec.com

Round

Round

All dimensions in mm.

022



APEM

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

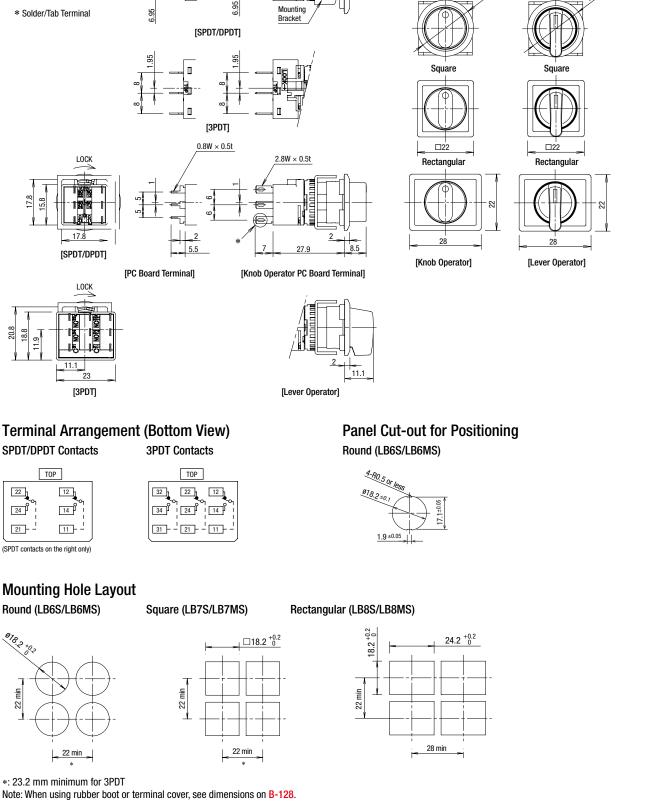
Operator

Interfaces

Sensors

AUTO-ID

LBW UP Flush Bezel



Panel Thickness: 0.5 to 3.2 mm

Locking Ring ΠĒ

Π

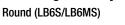
Gasket

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



Download catalogs and CAD from http://eu.idec.com/downloads

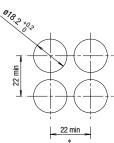


Dimensions

2-R0.6

2

20.8



LED Illumination

Controllers

Operator

Interfaces

Sensors

AUTO-ID

hes &	Illuminat	ted Select	or Switche	S						
Pilot	Solder/Tab Termi	inal							Package Quantity:1	
hes & Pilot Lights	Part No. / Shape	LB①F-@	LB①F-②T③④⑤*							
APEM				4						
Switches & Pilot Lights				Ro	und / Black Bez	el Square / Black Be:	zel Round / Metallic	Bezel		
Control Boxes										
Emergency Stop Switches	1 Shape	2 ()perator Position		3 Contact	④ LED Operating		t No.	* Illumination	
Enabling	0 onupo				0 0011400	Voltage	Gold Contact	Silver Contact	Color Code	
Switches		90°	Maintained	L R	SPDT	24V AC/DC	LB①F-2T14*	LB1)F-2T54*		
Safety Products	Disablessed	2-position		\bigvee	DPDT	24V AC/DC	LB①F-2T24*	LB①F-2T64*		
Explosion Proof	Black bezel	450	Maintained	, C ,					Specify the color	
Terminal Blocks		45° 3-position		LUR	DPDT	24V AC/DC	LB①F-3T24*	LB①F-3T64*	code in place of * in the Part No.	
Relays & Sockets			Maintained	L R	SPDT	24V AC/DC	LB①F-2T14*	LB①F-2T54*	G: green	
Circuit Protectors		90° 2-position		\sim	DPDT	24V AC/DC	LB①F-2T24*	LB①F-2T64*	R: red PW: pure white	
Power Supplies	Metallic bezel	45°	Maintained	L C B						

24V AC/DC

Illuminated selector switches contain an LED unit. For maintenance LED units see B-130.

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

• 5V DC and 12V AC/DC LED operating voltages also available. To specify, see Part Number Development below.

DPDT

• For contact operation, see B-119.

Part Number Development

Round / Black Bezel

④ LED Operating Voltage

5V DC

12V AC/DC

24V AC/DC

Round / Metallic Bezel

Shape

Rated Operating Voltage

45°

3-position

LB(1)F-(2)T(3)(4)(5)*

6

6M

Code

1

3

4

ø16 1) Shape Code ø22

Ø	30

Miniature

Pilot Lights

CW

LW-F

LBW UP

2 Operator Position 2-position 3-position

2-position 3-position	1						
Operator	Operator Position						
2 Maintained	3 Maintained						

③ Contacts

LB①F-3T24*

y)
ıly)

LB①F-3T64*

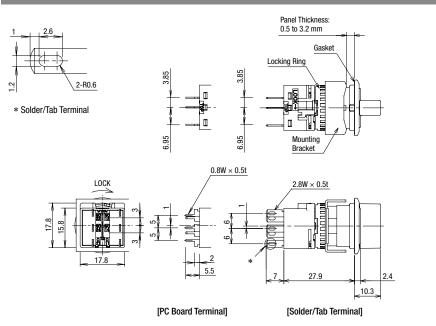
5 Others

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
V	PC Board Terminal (Gold Contact Only)	LB6F-2T14 <u>V</u> *

• Specify a color code in place of <u>* in the Part No.</u>

Flush Bezel

Dimensions



Terminal Arrangement (Bottom View)

Lamp Terminal (+)	ТОР
	22 12 12
Lamp Terminal (–)	
	(SPDT contacts on the right only)

Mounting Hole Layout Round (LB6F/LB6MF)



Note: When using terminal cover, see dimensions on B-128.

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.

Panel Cut-out for Positioning Round (LB6F/LB6MF)

Round

Sl



CW
LW-F
LB
LBW
UP
Flush Bezel

APEM

Control Boxes Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB



Control Boxes Emer Stop Swi Ena

LED Illumination

Controllers

Operator

Sensors

AUTO-ID

CW LW-F

LBW

Flush Bezel

thes &	Kev Sele	ector Switches						
Pilot		older/Tab Terminal Package Quantity:1						
Pilot Liahts	Part No. / Shape	LB1K-23T45-6)					
APEM				TO.	TO.			
vitches & ot Lights		Round / Black Bezel Square	/ Black Bezel Rectangular / Black Bezel	Round / Metallic Beze	I Square / Metallic Bezel	Rectangular / Metallic Bezel		
ol Boxes	① Shape	② Operator Position	5 Key Removable Position	④ Contact	Part	No.		
herdency	© onapo			Contact	Gold Contact	Silver Contact		

						Gold Contact	Silver Contact
	00%		A: Key removable	(L) (R)	SPDT	LB [®] K-2ST1A	LB ^① K-2ST5A
		Maintained	in all positions	\sim	DPDT	LB [®] K-2ST2A	LB [®] K-2ST6A
ack bezel				~	3PDT	LB ^① K-2ST3A	LB ^① K-2ST7A
		Maintainad	A: Key removable	L ^C R	DPDT	LB ^① K-3ST2A	LB ^① K-3ST6A
		in all positions	\bigvee	3PDT	LB ^① K-3ST3A	LB ^① K-3ST7A	
	00%		A: Key removable	() (B)	SPDT	LB [®] K-2ST1A	LB [®] K-2ST5A
erminal Blocks Alays & Sockets Metallic bezel Maintained	Maintained	Maintained	in all positions		DPDT	LB ^① K-2ST2A	LB ^① K-2ST6A
			\sim	3PDT	LB ^① K-2ST3A	LB ^① K-2ST7A	
	45°	Maintained	A: Key removable		DPDT	LB [®] K-3ST2A	LB ^① K-3ST6A
3-ро	3-position Maintained in all positions	in all positions	\sim	3PDT	LB ^① K-3ST3A	LB ^① K-3ST7A	
		tallic bezel 2-position 45° 3-position 90° 2-position 45°	ack bezel 2-position Maintained 45° 3-position Maintained 45° 45° 45° 45° 45° 45° 45° 45° 45° 45°	90° 2-positionMaintainedin all positions 45° 3-positionMaintainedA: Key removable in all positions 45° 2-positionMaintainedA: Key removable in all positions 90° 2-positionMaintainedA: Key removable in all positions 45° 45^{\circ}MaintainedA: Key removable in all positions	90° 2-positionMaintainedin all positions \bullet 45° 3-positionMaintainedA: Key removable in all positions \bullet 45° 2-positionMaintainedA: Key removable in all positions \bullet 90° 2-positionMaintainedA: Key removable in all positions \bullet 45° 45° MaintainedA: Key removable in all positions \bullet 45° 45° MaintainedA: Key removable in all positions \bullet	90° 2-position Maintained A: Key removable in all positions DPDT 45° 3-position Maintained A: Key removable in all positions DPDT 45° 3-position Maintained A: Key removable in all positions DPDT 90° 90° A: Key removable in all positions DPDT 90° 90° A: Key removable in all positions B 90° 90° A: Key removable in all positions B 45° Maintained A: Key removable in all positions DPDT 45° Maintained A: Key removable in all positions DPDT	90° Paintained Paintained Paintained Paintained Paintained 45° 3-position Maintained A: Key removable in all positions C R 45° 3-position Maintained A: Key removable in all positions C R 90° 90° A: Key removable in all positions C R DPDT LB©K-2ST3A 90° 3PDT LB©K-3ST3A BOK-3ST3A BOK-2ST1A BOK-2ST1A 90° 2-position Maintained A: Key removable in all positions C R 45° A: Key removable in all positions C R SPDT LB©K-2ST1A 3PDT LB©K-2ST3A A: Key removable in all positions C R 45° Maintained A: Key removable in all positions C R 45° Maintained A: Key removable in all positions DPDT LB©K-3ST2A

· For operator position, see Part Number Development below.

• For key removable position, see Part Number Development below. The key cannot be removed at the return position.

• Two keys are supplied.

Besides the standard key (key number 0H), six other keys are available. To specify, see Part Number Development below.

• Disc tumbler keys also available. Only the standard key is available. To specify, see Part Number Development below. Interfaces

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

• For contact operation, see B-119.

• Other bezel sizes available (LBW series). For details, see B-101.

Part Number Development

LB1K-23T45-6

() Chana

ø16	U Sliape		
	Code	Shape	
ø22	6	Round / Black Bezel	
	7	Square / Black Bezel	
ø30	8	Rectangular / Black Bezel	
Miniature	6M	Round / Metallic Bezel	
	7M	Square / Metallic Bezel	
Pilot Lights	8M	Rectangular / Metallic Bezel	

2 Operator Position

-	
Code	Operator Position
2	90° 2-position maintained
21	90° 2-position spring return from right
3	45° 3-position maintained
31	45° 3-position spring return from right
32	45° 3-position spring return from left
33	45°-3-position spring return two-way

UP **③ Key Style**

	-	-
-	Code	Key Style
-	S	Wave key
	Blank	Disc tumbler key

④ Contacts

Code	Contact
1	Gold/SPDT (90° 2-position only)
2	Gold/DPDT
3	Gold/3PDT
5	Silver/SPDT (90° 2-position only)
6	Silver/DPDT
7	Silver/3PDT

5 Key Removal Position

2-position

	Spring return from right		
A: Key removable	B: Key removable	C: Key removable	
in all positions	at left	at right	

3-position

Key Removable Position							
A: Key removable in all positions	B: Key removable at left / center	C: Key removable at center / right	D: Key removable at center				
C R		O C R	O C B				
E: Key removable at right / left	G: Key removable at left	H: Key removable at right					
L B R		O B					

For key selectors with the following operations, the key cannot be removed at the return position.

3-position

Spring return from right	Spring return from left	Spring return two-way
	O R	● [©] [®]

• Key is removable at \mathbb{O} , \mathbb{O} , \mathbb{R} . Key is retained at $\mathbf{0}$, \mathbf{O} , and $\mathbf{0}$.

6 Key Number

6 Key Num	iber	Ot	thers		
Code			Code	Specification	Part No. Example
Blank	Standard key (0H)		Blank	Solder/Tab Terminal	—
1H to 2H	Reversible key		v	PC Board Terminal	LB6K-2ST1VA
3H to 6H	Non-reversible key		v	(Gold Contact Only)	LBOK ZOTT <u>T</u> A
- Maya kaya		•			

· Wave key only.

Round

Square

 $\Box 22$

Rectangular

Panel Thickness: 0.5 to 3.2 mm

DDE(

24.3

Key No. : N/A to 2H

Dec

Key No. :3H to 6H

Gasket

Locking Ring

Π

Mounting Bracke

i,

2.8W × 0.5t

27

[Solder/Tab Terminal]

85

6.95

[SPDT/DPDT]

[3PDT]

Þ

7

0.8W imes 0.5t

85

3.95

Π

[PC Board Terminal]

All dimensions in mm.

APEM

Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator

Interfaces Sensors

AUTO-ID

ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB
LBW
UP

Flush Bezel

LOCK

辰

[3PDT]

18.8

Dimensions

12

Key Selector Switches with Wave Key

2-R0 6

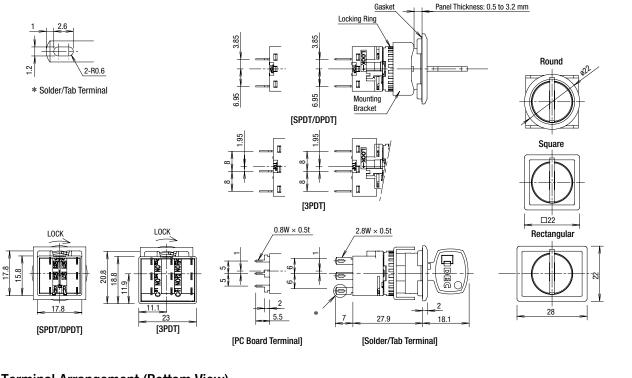
* Solder/Tab Terminal

LOCK

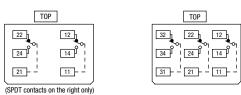
[SPDT/DPDT]

17.8

Key Selector Switches with Disc Tumbler Key



Terminal Arrangement (Bottom View)SPDT/DPDT Contacts3PDT Contacts



• For details on mounting hole layout, see B-120.

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.

Download catalogs and CAD from http://eu.idec.com/downloads

es & Pilot Lights	Lever Sv Solder/Tab Termi					Package Quantity: 1	
Lights	Part No. / Shape						
APEM			4				
Switches & Pilot Lights		Round / Black Bezel					
Control Boxes							
Emergency Stop Switches	Shape		Operator Position	Contact	Part No.		
Enabling					Gold Contact	Silver Contact	
Switches			Maintained	SPDT	LB6T-2T1	LB6T-2T5	
Safety Products		2-position		DPDT	LB6T-2T2	LB6T-2T6	
Explosion Proof			D	3PDT	LB6T-2T3	LB6T-2T7	
Terminal Blocks	Black bezel		Maintained	DPDT	LB6T-3T2	LB6T-3T6	
Relays & Sockets				3PDT	LB6T-3T3	LB6T-3T7	
Circuit Protectors		3-position	Spring return from	DPDT	LB6T-33T2	LB6T-33T6	
Power Supplies			top/bottom	3PDT	LB6T-33T3	LB6T-33T7	

 \bullet PC board terminals available for gold contacts. Add "V" to the Part No.

Example: LB6T-2T1V Controllers

• For contact operation, see **B-119**.

ø16 ø22 ø30 Miniature Pilot Lights CW LW-F

LED Illumination

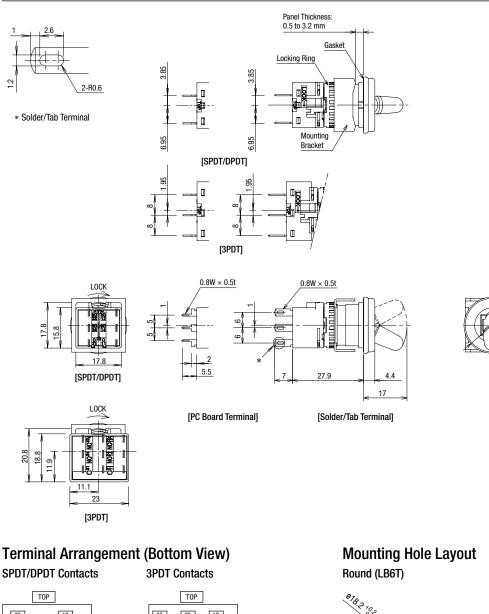
Operator Interfaces Sensors AUTO-ID

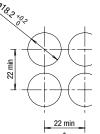
LBW UP

Flush Bezel

All dimensions in mm.

Dimensions





*: 23.2 mm minimum for 3PDT Note: When using terminal cover, see dimensions on B-128.

Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID

Switches & Pilot Lights

APEM

Control Boxes

Emergency Stop Switches

Safety Products Explosion Proof

Terminal Blocks

Relays & Sockets

Enabling Switches

ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB
LBW
UP
Flush Bezel

Panel Cut-out for Positioning Round (LB6T)

32

34

22

24

31 - 21 - 11 -

12

14



22

24

21 - -

12

14

11

(SPDT contacts on the right only)

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



Buzzers

Specifications

opcomoations	
Rated Insulation Voltage	30V
Rated Operating Voltage	12, 24V DC
Operating Voltage Range	12V DC±10%, 24V DC±10%
Current Draw	26 mA
Inrush Current	80 mA maximum
Sound Pressure (at 0.1m)	Steady sound: 80 dB minimum (at the rated voltage)
Sound Frequency	2.3±0.3kHz
Response Speed	50 ms maximum
Operating Temperature	-25 to +60°C (no freezing)
Storage Temperature	-30 to +80°C(no freezing)
Operating Humidity	45 to 85% (no condensation)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead parts: 1,000V AC, 1 minute
Vibration Resistance	Operating extremes/Damage limits: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Operating extremes: 100m/s ² Damage limits:1,000m/s ²
Life	1,000 hours minimum (beep sound)
Degree of Protection	IP54 (IEC60529)
Terminal Style	Solder/tab terminal #110 PC board terminal
Weight (approx.)	13g (round), 14g (square)

Standards



• UL, CSA ratngs: Operating voltage 12, 24V DC.

• See website for details on approvals and standards.

LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID

Package	Quantity:
Fachaue	Quantity.

Sensors		Part No. / Shape				
AUTO-ID				-		
			4	0 4		
ush Silhouette			Round	Black Bezel Rectangula	r / Black Bezel Round / Metallic Bezel	Rectangular / Metallic Bezel
ø16						
ø22					Pa	rt No.
	Sha	ape	Operating Voltage	Degree of Protection		rt No. nal Style
ø22 ø30	Sha	ape	Operating Voltage	Degree of Protection		
		ape Round	Operating Voltage 24V DC	Degree of Protection IP54	Termi	nal Style
ø30 Miniature	Sha Black bezel				Termi Solder/tab terminal	nal Style PC board terminal
ø30		Round	24V DC	IP54	Termi Solder/tab terminal LB6Z-1T04	nal Style PC board terminal LB6Z-1T04V

• 12V DC operating voltages also available. Specify "-1T04" in place of "-1T03" in the Part No. Example: LB6Z-1T03

APEM

Switches & Pilot Lights Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors Power Supplies

CW LW-F

LBW UP

Flush Bezel



APEM

Control Boxes

Emergency Stop Switches Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB
LBW
UP

Flush Bezel

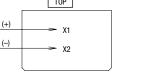
Terminal Arrangement (Bottom View)

 $0.8W \times 0.5t$

5.5

[PC Board Terminal]

	TOP
Buzzer terminal (+)	
Buzzer terminal ()	> X1
	→ X2



Panel Cut-out for Positioning Round (LB6Z/LB6MZ)



Panel Thickness: 0.5 to 3.2 mm

Round

Rectangular

28

022

Gasket Locking Ring

Шŝ

Π

Mounting Bracket

2.8W imes 0.5t

27.9

[Solder/Tab Terminal]

Mounting Hole Layout

Round (LB6Z/LB6MZ)

Dimensions

* Solder/Tab Terminal

2-R0.6

LOCK

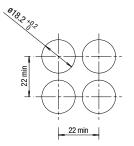
XX-3

17.8

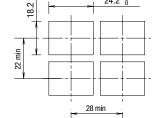
1.2

17.8 15.8

Rectangular (LB8Z/LB8MZ)





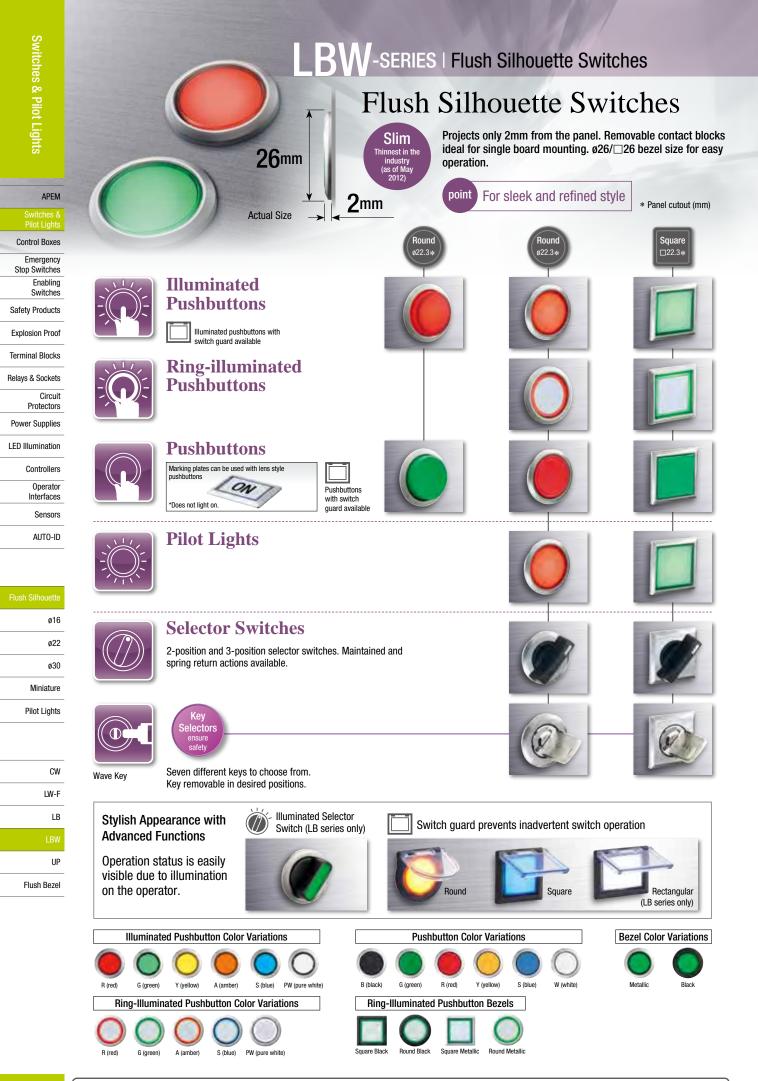


Note: When using rubber boot or terminal cover, see dimensions on B-127 and B-128.

• For details on pc board and circuit design, see **B-121**.

• For details on single board mounting, see B-122.





APEM

Control Boxes Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof Terminal Blocks Relays & Sockets

Flush Silhouette Switches LBW Series

Flush bezel projects only 2 mm from front of panel.

Contact Ratings

Gold Contact (switch base: blue)

Rated Insulation Voltage	250V		
Rated Thermal Current	3	A	
Rated Operating Voltage		30V DC	125V AC
Rated Operating Current (electrical life: 100,000 operations)	Resistive Load	0.1A	0.1A
Contact Material	Gold plat	ed silver	

• Minimum applicable load (reference value): 5V AC/DC, 1 mA Applicable range is subject to the operating conditions and load.

• See electrical life in Specifications.

Silver Contact (switch base: gray)

Rated Insulation Voltage					250V		
Rated Oper	ating Voltage			30V	125V	250V	
	Electrical	AC	Resistive load		5A	5A	
	Life	50/60Hz	Inductive load	—	3A	1.5A	
Data	50,000	DC	Resistive load	5A	1.1A		
Rated	Electrical AC Life 50/60Hz	DC	Inductive load	2A	0.4A	_	
Operating Current		Resistive load	—	5A	ЗA		
ourroint		Life	50/60Hz	Inductive load	—	3A	1.5A
		DC	Resistive load	ЗA	0.6A	_	
	operations	operations DC Inductive load	Inductive load	1A	0.22A	—	
Rated Thermal Current					5A		
Contact Material				Silver			

• AC inductive load: PF=0.6 to 0.7 DC inductive load: L/R=7 ms max.

LED Ratings

Rated Voltage	5V DC	12V AC/DC	24V AC/DC
Voltage Range	5V DC±5%	12V AC/DC ±10%	24V AC/DC ±10%
LED Part No.	LB9Z-LED5@	LB9Z-LED12	LB9Z-LED22
Current Draw	5 mA (typ.)		
Voltage Marking	Marked on the side of the LED	unit	
LED Life (reference value)	Approx. 30,000 hours [until the brightness reduces to 50% of the initial value when lit at the rated voltage (direct current) under 25°C environment.]		
	A, G, R	, PW, S	
Internal Circuit	X1 (+) Noise protection circuit X2 (-) Dimmer protection circuit	X1– Limited curre Noise protect X2– Rectifier circu Dimmer prote	ion circuit uit

• 2 (color code): A (amber), G (green), PW (pure white), R (red), S (blue)

• Use the pure white (PW) module for yellow illumination.

• LED lamp contains a current-limiting resistor.



Specific	ations		Circuit Protectors
Operating ⁻	Temperature	–25 to +60°C (no freezing) Illuminated units: –25 to +55°C	Power Supplies
Storage Te	mperature	-30 to +80°C (no freezing)	LED Illumination
Operating I	Humidity	45 to 85% RH (no condensation)	Controllers
Contact Re	sistance	50 mΩ maximum (initial value)	
Insulation I	Resistance	100 MΩ minimum (500V DC megger)	Operator Interfaces
		Between live part and ground: 2,000V AC, 1 minute	Sensors
Dielectric	Switch Unit	Between terminals of different poles: 2,000V AC, 1 minute Between terminals of the same poles:	AUTO-ID
Strength		1,000V AC, 1 minute	
	Illumination Unit	Between live part and ground: 2,000V AC, 1 minute	
Vibration R	esistance	Operating extremes/Damage limits: 5 to 55 Hz, amplitude 0.5 mm	Flush Silhouette
Shock Res	istance	Operating extremes: 100 m/s ² Damage limits: 1,000 m/s ²	ø22
Mechanica		Momentary: 2,000,000 Maintained: 250,000	ø30
(minimum	operations)	Selector switches: 250,000 Key selector switches: 250,000	Miniature
Electrical L		Momentary:50,000 / 100,000 (*1) Maintained: 50,000 / 100,000 (*2)	Pilot Lights
	operations)	Selector switches: 50,000 / 100,000 (*2) Key selector switches: 50,000 / 100,000 (*2)	_
Degree of Protection		IP65 (IEC 60529)	
Terminal Style		Solder/tab terminal #110 PC board terminal	CW
		16g (LBW7L-M1T24)	LW-F
		14g (LBW7P-1T04) 15g (LBW7B-M1T2)	LB
Weight (ap	prox.)	17g (LBW7S-2T2) 29g (LBW7K-2ST2A)	LBW
		17g (LBW7GL-M1T24) 18g (LBW7GB-M1T2)	UP

*1: Switching frequency 1,800 operations/h.

*2: Switching frequency 1,200 operations/h.

Flush Bezel

ches & Pilot Lights	Illuminate Solder/Tab Termin Part No. / Shape	ed Pushbuttons nal LBW①L-②③1 Flush	[456*			Package Quantity:1
APEM Switches &		Round / Black Be	zel Square / Blac	Bezel Round / Metz	Ilic Bezel Square / Metallic Bezel	Round with Guard Square with Guard
Pilot Lights Control Boxes Emergency Stop Switches Enabling Switches		Extended (black bezel is also available)	0	Flush Ring-illu		
Safety Products	1 Shape	② Operation	④ Contact	⑤ LED Operating Voltage	Part No.	* Illumination Color Code
Explosion Proof Terminal Blocks	Diagle based	Momentary	Gold/SPDT Gold/DPDT	24V AC/DC	LBW①L-M③T14* LBW①L-M③T24*	_
Relays & Sockets	Black bezel	Maintained	Gold/SPDT Gold/DPDT	24V AC/DC	LBW①L-A③T14* LBW①L-A③T24*	 Specify the color code in place of * in the Part No.
Circuit Protectors Power Supplies	Metallic bezel	Momentary	Gold/SPDT Gold/DPDT	24V AC/DC	LBW①L-M③T14* LBW①L-M③T24*	A: amber
LED Illumination	Metallic Dezer	Maintained	Gold/SPDT Gold/DPDT	24V AC/DC	LBW1L-A3T14* LBW1L-A3T24*	- G: green PW: pure white R: red
Controllers		Momentary	Gold/SPDT Gold/DPDT	24V AC/DC	LBW①L-M③T14* LBW①L-M③T24*	S: blue Y: yellow
Operator Interfaces Sensors	Guard Type	Maintained	Gold/SPDT Gold/DPDT	24V AC/DC	LBW①L-A③T14* LBW①L-A③T24*	_
AUTO-ID	Flush/Extended cole	or code: A (amber), G (gr		(red), S (blue), Y (yellow		

• Ring-illuminated color code: PW (pure white), WA (amber), WG (green), WR (red), WS (blue)

• Illuminated pushbuttons contain an LED unit. For details on LED units, see B-130.

• The guard opens 180 degrees spring-return.

• Illuminated pushbuttons can be used with legend markings. Engraving can be done on a marking plate which is placed in the lens, or a clear film can be printed and placed in the lens. See B-134 for details on the marking plate and film.

• PC board terminals available for gold contacts. Silver contacts also available. To specify, see Part Number Development below.

• Extended pushbuttons available. To specify, see Part Number Development below. Pushbuttons with guard is not available. ø22

- Extended pushbutton is available with momentary operation only.
- Flush ring-illuminated style is available. See Part Number Development below (③). Guard is not available with flush ring-illuminated style.
- ø30 • 5V DC and 12V AC/DC LED operating voltages also available.
- Miniature • Other bezel sizes available (LB series). For details, see B-075.

Pilot Lights

ø16

CW LW-F LB

	Code
LBW	6
UP	7

Flush Bezel

Code	Shape
6	Round / Black Bezel
7	Square / Black Bezel
6M	Round / Metallic Bezel
7M	Square / Metallic Bezel
6G	Round with Guard
7G	Square with Guard

Part Number Development

LBW1L-23T456*

2 Operation

<u> </u>	
Code	Operation
Α	Maintained
М	Momentary

⑤ LED Operating Voltage

5V DC

12V AC/DC

24V AC/DC

Code

1 3

4

③ Operator Style

	•
Code	Operator Style
1	Flush
2	Extended
1R	Flush Ring-illuminated

· Extended style is available only for round (black/metallic bezel) and in momentary operation.

• Guard model is not available for Flush Ring-illuminated types. Also, Y (yellow) is not available.

6 Others

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
۷	PC Board Terminal (Gold Contact Only)	LBW6L-M1T14 <u>V</u> *

• Specify the color code in place of * in the table above.

1) Shape

Code	Contact
1	Gold/SPDT
2	Gold/DPDT
5	Silver/SPDT
6	Silver/DPDT

Rated Operating Voltage

Round

All dimensions in mm.

Round

Switches & Pilot Lights



Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

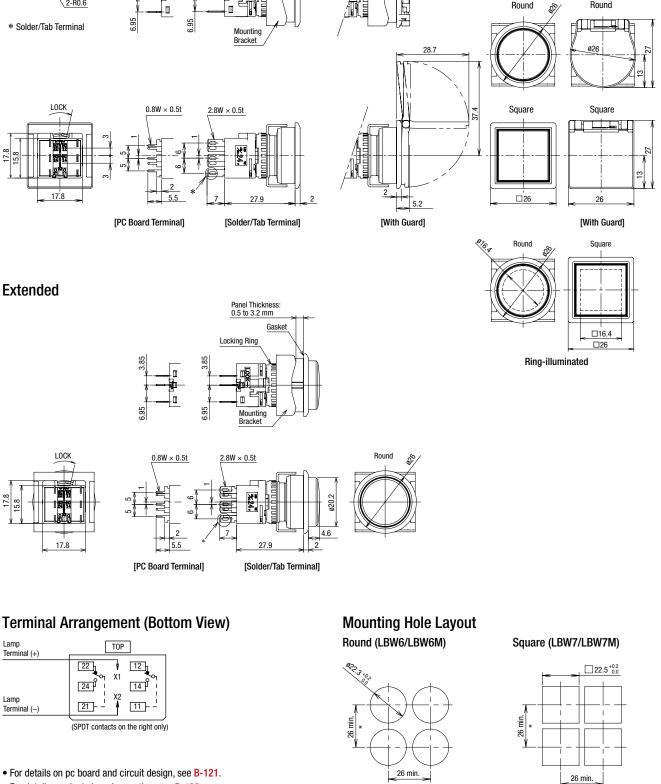
LED Illumination

Controllers Operator Interfaces Sensors

AUTO-ID

ø16 ø22 ø30 Miniature Pilot Lights

CW
LW-F
LB
LBW
UP
Flush Bezel



Panel Thickness

Gasket

ď

0.5 to 3.2 mm

• For details on single board mounting, see B-122.

17.8

Lamp

Dimensions

Flush/Ring-illuminated

2-R0.6

Panel Thickness:

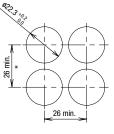
5

Gasket

0.5 to 3.2 mm

Locking Ring

Π



*: 53 mm minimum for switches with guard.



Protectors

Controllers

Operator Interfaces Sensors AUTO-ID

thes & Pilot Lights	Pilot Ligh	ts			
liot	Solder/Tab Termin	nal			Package Quantity:1
Lights	Part No. / Shape	LBW①P-1T0②③	*		
APEM			U 4		
Switches & Pilot Lights		Round / E	Black Bezel Square	Black Bezel Round / Metallic Bezel Square / Metallic Bezel	
Control Boxes					
Emergency Stop Switches	① Shape	③ LED Operating Voltage	Part No.	* Illumination Color Code	
Enabling Switches					
Safety Products	Black Bezel	24V AC/DC	LBW①P-1T04*	Specify the color code in place of $*$ in the Part No.	
Explosion Proof				A: amber G: green	
Terminal Blocks				PW: pure white R: red	
Relays & Sockets	Metallic Bezel	24V AC/DC	LBW ^① P-1T04*	S: blue	
Circuit				Y: yellow	

Power Supplies • Pilot lights contain an LED unit. For maintenance LED units see B-130.

• Legends and symbols can be engraved on a marking plate or film to be inserted under the lens by users for labelling purposes. See B-134 for details. LED Illumination

Rated Operating Voltage

• PC board terminals available. To specify, see Part Number Development below.

• 5V DC and 12V AC/DC LED operating voltages also available.

• Other bezel sizes available (LB series). For details, see B-077.

Part Number Development

Round / Black Bezel

Square / Black Bezel

Shape

LBW1P-1T023*

ø16 ① Shape

Code

6

7

ø22 ø30

Miniature Pilot Lights

> CW LW-F

> > LB

UP

6M Round / Metallic Bezel

7M Square / Metallic Bezel

	③ Other	S	
	Code	Specification	Part No. Example
-	Blank	Solder/Tab Terminal	—
	V	PC Board Terminal	LBW6P-1T04V*

• Specify the color code in place of * in the table above.

Flush Bezel

Code

1

3

4

2 LED Operating Voltage

5V DC

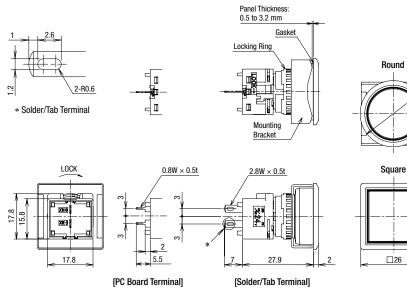
12V AC/DC

24V AC/DC

26

All dimensions in mm.

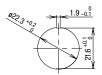
Dimensions



Terminal Arrangement (Bottom View)

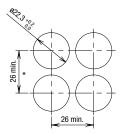
	TOP
Lamp Terminal (+)	
Lamp	→ X1
Terminal (-)	→ X2

Panel Cut-out for Positioning Round (LBW6P/LBW6MP)

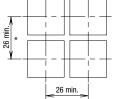


Mounting Hole Layout Round (LBW6P/LBW6MP)

Square (LBW7P/LBW7MP)







• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.

Control Boxes

Emergency Stop Switches Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets Circuit

Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F

LW-F	
LB	
LBW	
UP	
Flush Bezel	

ies & Pilot Lights	Pushbutt Solder/Tab Termir						Package Quantity:
lights	Part No. / Shape	LBW 1 B-2)1T34*				Extended
APEM							
Switches & Pilot Lights		Round / Black Bez	zel Square / Black Bez	el Round / Metal	lic Bezel Square / Metallic Beze	Round with Guard	Square with Guard
Control Boxes							Round only (metallic bezel available)
Emergency Stop Switches	1 Shape	Button Style	② Operation	③ Contact	Part	No.	. Illusionation Onlan Onda
Enabling	U Shape	Bullon Style	2 Operation	3 contact	Gold Contact	Silver Contact	* Illumination Color Code
Switches				SPDT	LBW ^① B-M1T1*	LBW ^① B-M1T5*	
Safety Products	s		Momentary	DPDT	LBW ^① B-M1T2*	LBW ^① B-M1T6*	
	Black bezel	Button		3PDT	LBW ^① B-M1T3*	LBW ^① B-M1T7*	
Explosion Proof	DIACK DEZEI	Dutton		SPDT	LBW ^① B-A1T1*	LBW ^① B-A1T5*	
Terminal Blocks			Maintained	DPDT	LBW ^① B-A1T2*	LBW ^① B-A1T6*	
				3PDT	LBW ^① B-A1T3*	LBW ^① B-A1T7*	Specify the color code in place
Relays & Sockets				SPDT	LBW ^① B-M1T1*	LBW ^① B-M1T5*	of * in the Part No.
Circuit Protectors			Momentary	DPDT	LBW ^① B-M1T2*	LBW ^① B-M1T6*	
	Metallic bezel	Button		3PDT	LBW ^① B-M1T3*	LBW ^① B-M1T7*	B: black
Power Supplies	Wetanic bezei	Dutton		SPDT	LBW ^① B-A1T1*	LBW ^① B-A1T5*	G: green
LED Illumination			Maintained	DPDT	LBW ^① B-A1T2*	LBW ^① B-A1T6*	R: red S: blue
				3PDT	LBW ^① B-A1T3*	LBW ^① B-A1T7*	W: white
Controllers				SPDT	LBW ^① B-M1T1*	LBW ^① B-M1T5*	Y: yellow
Operator Interfaces			Momentary	DPDT	LBW ^① B-M1T2*	LBW ^① B-M1T6*	
	Guard Type	Button		3PDT	LBW ^① B-M1T3*	LBW ^① B-M1T6*	
Sensors		Dutton		SPDT	LBW1B-A1T1*	LBW ^① B-A1T5*	
AUTO-ID	AUTO-ID		Maintained	DPDT	LBW ^① B-A1T2*	LBW ^① B-A1T6*	
	1				L DIMOD ANTO	LOW OD ANTS	

• The guard opens 180 degrees spring-return.

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

• Pushbuttons can be used with legend markings engraved on marking plates and lens buttons with clear film inserted in the lens is available. To specify, see Part Number Development below. See B-134 for details on the marking plate and film.

LBW^①B-A1T3*

Extended pushbuttons available. To specify, see Part Number Development below. Pushbuttons with guard is not available.

3PDT

Extended pushbutton is available with momentary operation only.

• Other bezel sizes available (LB series). For details, see B-079.

Part Number Development

LBW1B-23T45*

1 Shape

5 Others

ø16

ø22

ø30 Miniature

CW

LW-F

LB

UP

Pilot Lights

Code	Shape
6	Round / Black Bezel
7	Square / Black Bezel
6M	Round / Metallic Bezel
7M	Square / Metallic Bezel
6G	Round with Guard
7G	Square with Guard

② Operation С

JUUE	Operation
Α	Maintained
М	Momentary

Extended style is available only for round (black/metallic bezel) and in momentary operation. Guard model is not available.

Flush

Extended *

Operation

③ Operator Style

Code

1

2

④ Contacts

LBW^①B-A1T7*

Code	Contact	Code	Contact
1	Gold/SPDT	5	Silver/SPDT
2	Gold/DPDT	6	Silver/DPDT
3	Gold/3PDT	7	Silver/3PDT

Flush Bezel

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	_
L (Note 1)	Lens	LBW6B-M1T1 <u>L</u> *
V	PC Board Terminal (Gold Contact Only)	LB6WB-M1T1V*
VL (Note 1)	PC Board Terminal with Lens (Gold Contact Only)	LB6WB-M1T1VL*

Note 1: Codes L and VL are available with flush operator only.

• Color code (*) for lens:

A (amber), B (translucent lens with black nameplate), G (green), R (red), S (blue), W (white), Y (yellow)

Panel Thickness: 0.5 to 3.2 mm

Gaske

þ

h

28.7

5.2

[With Guard]

Panel Thickness: 0.5 to 3.2 mm

Locking Ring

Π

Mounting

Bracket

2.8W × 0.51

27.9

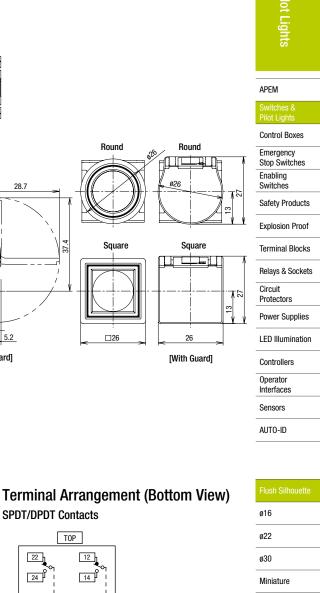
[Solder/Tab Terminal]

6.95

Gasket

All dimensions in mm.

Switches & Pilot Lights



Extended Pushbutton

Dimensions

Flush Pushbutton

* Solder/Tab Terminal

2-R0.6

LOCK

2

17.8

[SPDT/DPDT] LOCK

+

C^T NOT NO Į į

1

명

8

6.95

23 [3PDT] . 🗆

[SPDT/DPDT]

Π

[3PDT]

0.8W × 0.5t

[PC Board Terminal]

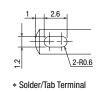
6.95

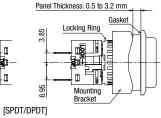
2

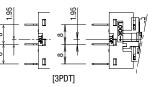
17.8

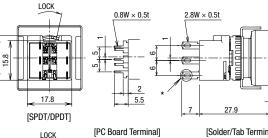
20.8 18.8 15.8

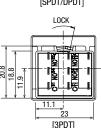
11.9



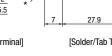






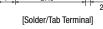


17.8

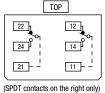


4.1

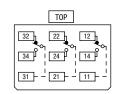
Round



SPDT/DPDT Contacts



3PDT Contacts



• For details on mounting hole layout, see **B-120**.

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see **B-122**.

bownload catalogs and CAD from http://eu.idec.com/downloads

UP

Flush Bezel

~
<u> </u>
m l
с.
(d a 1
×~
7
0
<u> </u>
≓
<u> </u>
≓
ilio
ilio
liot
liot
Pilot L
liot
Pilot Li
Pilot Lig
Pilot Li
Pilot Lig

Operator Interfaces

Sensors

AUTO-ID

ø16

ø22

Miniature

Pilot Lights

CW

LW-F

LB

UP

Flush Bezel

witches & Pilot Lights	Selector Switches							
et la	Solder/Tab Termin	al					Package Quantity:1	
Lights	Part No. / Shape LBW ① S- ② T ③ ④							
				100				
APEM				45		S 40	1	
Switches & Pilot Lights			Round / Black Bezel	Square / Blac	ck Bezel Round /	Metallic Bezel Square / Metall	ic Bezel	
Control Boxes								
Emergency Stop Switches	1 Shape	② Operator Position			③ Contact	Part No.		
Enabling	© onapo				oomaat	Gold Contact	Silver Contact	
Switches			Maintained	LR	SPDT	LBW ^① S-2T1	LBW ^① S-2T5	
Safety Products		90° 2-position			DPDT	LBW ^① S-2T2	LBW ^① S-2T6	
Explosion Proof					3PDT	LBW ^① S-2T3	LBW ^① S-2T7	
Terminal Blocks	Black bezel		Maintained	LCR	DPDT	LBW ^① S-3T2	LBW ^① S-3T6	
Relays & Sockets		450		\sim	3PDT	LBW ^① S-3T3	LBW ^① S-3T7	
Circuit Protectors	45° 3-position		Spring return two-way	L _r C _R	DPDT	LBW ^① S-33T2	LBW ^① S-33T6	
Power Supplies					3PDT	LBW ^① S-33T3	LBW ^① S-33T7	
LED Illumination			Maintained	L R	SPDT	LBW ^① S-2T1	LBW [®] S-2T5	
Controllers		90°						

DPDT

3PDT

DPDT

3PDT

DPDT

DPDT

R

LBW^①S-2T2

LBW DS-2T3

LBW^①S-3T2

LBW^①S-3T3

LBW^①S-33T2

LBW^①S-33T3

LBW^①S-2T6

LBW^①S-2T7

LBW^①S-3T6

LBW^①S-3T7

LBW^①S-33T6

LBW^①S-33T7

ø30

• Other bezel sizes available (LB series). For details, see B-081.

45° 3-position

2-position

Maintained

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

Spring return two-way

Part Number Development

LBW1S-2T34

• For contact operation, see B-119.

① Shape

Metallic bezel

<u> </u>	
Code	Shape
6	Round / Black Bezel
7	Square / Black Bezel
6M	Round / Metallic Bezel
7M	Square / Metallic Bezel

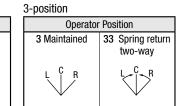
③ Contacts

Code	Contact	
1	Gold/SPDT (90° 2-position only)	
2	Gold/DPDT	
3	Gold/3PDT	
5	Silver/SPDT (90° 2-position only)	
6	Silver/DPDT	
7	Silver/3PDT	

② Operator Position

R





④ Others

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	_
V	PC Board Terminal (Gold Contact Only)	LBW6S-2T1 <u>V</u>

All dimensions in mm.



2-R0.6

Solder/Tab Terminal

\$

*



Control Boxes
Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

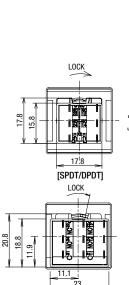
Sensors

AUTO-ID

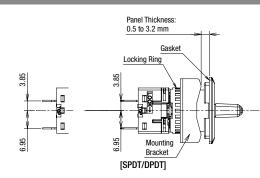
ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB

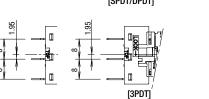
Flush Bezel

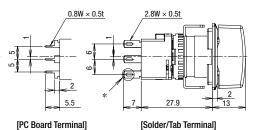
UP

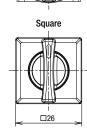


[3PDT]









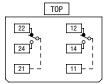
Panel Cut-out for Positioning

.9 -0.1

Round (LBW6S/LBW6MS)

Round

Terminal Arrangement (Bottom View) SPDT/DPDT Contacts **3PDT Contacts**



(SPDT contacts on the right only)

Mounting Hole Layout Round (LBW6S/LBW6MS)

Square (LBW7S/LBW7MS)

TOP

22

24

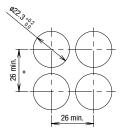
31 - 21 - 11 -

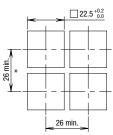
12

i 14

32

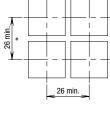
34





• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



LED Illumination

Controllers

Sensors

AUTO-ID

ø16

ø22

Miniature

Pilot Lights

Key Selector Switches							Package Quantity:1	
Pilot Lights	Part No. / Shape	LBW ① K- ② ③ T ④ ⑤ - ⑥ Wave Key Disc Tumbler Key						
APEM Switches & Pilot Lights		Round / Black Be	ezel Square / Black	k Bezel Round / Meta	allic Bezel Square	/ Metallic Bezel	Round /Metallic Bezel	Square / Metallic Bezel
Control Boxes	1) Shape	② Operator Position		5 Key Removable Position		5 Contact	Part No.	
Emergency		© Opci				Jonaul	Gold Contact	Silver Contact
Stop Switches			Maintained	A: Key removable in all positions	SPDT	LBW ^① K-2ST1A	LBW ^① K-2ST5A	
Enabling Switches		90° 2-position			\sim	DPDT	LBW ^① K-2ST2A	LBW ^① K-2ST6A
Safety Products						3PDT	LBW ^① K-2ST3A	LBW ^① K-2ST7A
Explosion Proof		45°		A: Key removable		DPDT	LBW ^① K-3ST2A	LBW ^① K-3ST6A
· .		3-position	Maintained	in all positions		3PDT	LBW ^① K-3ST3A	LBW ^① K-3ST7A
Terminal Blocks			Maintained in all posi	A: Key removable		SPDT	LBW ^① K-2ST1A	LBW ^① K-2ST5A
Relays & Sockets		90° 2-position		in all positions	\sim	DPDT	LBW ^① K-2ST2A	LBW ^① K-2ST6A
Circuit Protectors						3PDT	LBW ^① K-2ST3A	LBW ^① K-2ST7A
Power Supplies	45°		A: Key removable			DPDT	LBW ^① K-3ST2A	LBW ^① K-3ST6A
I FD Illumination		3-position	Maintained	in all positions	$\mathbf{V}^{\mathbf{c}}$	3PDT	LBW ^① K-3ST3A	LBW ^① K-3ST7A

· For operator position, see Part Number Development below.

• For key removable position. see Part Number Development below. The key cannot be removed at the return position.

Operator • Two keys are supplied. Interfaces

- Besides the standard key (key number OH), six other keys are available.
- Disc tumbler keys also available. Only the standard key is available. To specify, see Part Number Development below.
- PC board terminals available for gold contacts. To specify, see Part Number Development below.
- For contact operation, see B-119.
- Other bezel sizes available (LB series). For details, see B-085.

Part Number Development

LBW1K-23T45-6

1) Shape ø30

	•	
-	Code	Shape
_	6	Round / Black Bezel
	7	Square / Black Bezel
-	6M	Round / Metallic Bezel
	7M	Square / Metallic Bezel

5 Key Removal Position

The key cannot be removed at the return position.



1

CW

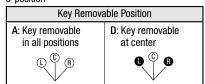
LB	Key Removable Position					
	A: Key removable	B: Key removable				
3W	in all positions	at left				
UP	L ®	L R				

Flush Bezel

② Operator Position

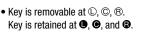
Code	Operator Position
2	90° 2-position maintained
3	45° 3-position maintained
33	45°-3-position spring return two-way

3-position



3-position





3H to 6H · Wave keys only.

1H to 2H

3 Key Style

Wave key

Gold/DPDT

Gold/3PDT

Silver/DPDT

Silver/3PDT

Standard key

Reversible key

Non-reversible key

Disc tumbler key

Key Style

Contact

Gold/SPDT (90° 2-position only)

Silver/SPDT (90° 2-position only)

Code

S Blank

④ Contacts Code

1

2

3

5

6

7

0H

6 Key Number Code

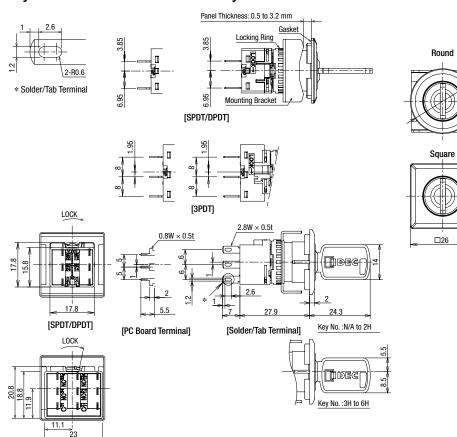
Others

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
V	PC Board Terminal (Gold Contact Only)	LBW6K-2T1VA

For more information, visit http://eu.idec.com

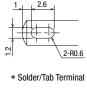
All dimensions in mm.

Key Selector Switches with Wave Key

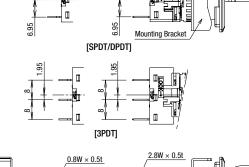


Key Selector Switches with Disc Tumbler Key

П



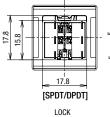
[3PDT]



Panel Thickness: 0.5 to 3.2 mm

Locking Ring

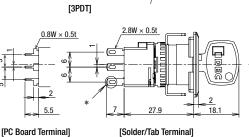
Gaske



Ş 9 脖

[3PDT]

LOCK

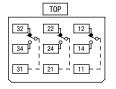








3PDT Contacts



· For details on mounting hole layout, see B-120.

- · For details on pc board and circuit design, see B-121.
- For details on single board mounting, see B-122.



APEM

Control Boxes Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets Circuit

Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

ø16
ø22
ø30
Miniature
Pilot Lights
CW
LW-F
LB

Flush Bezel

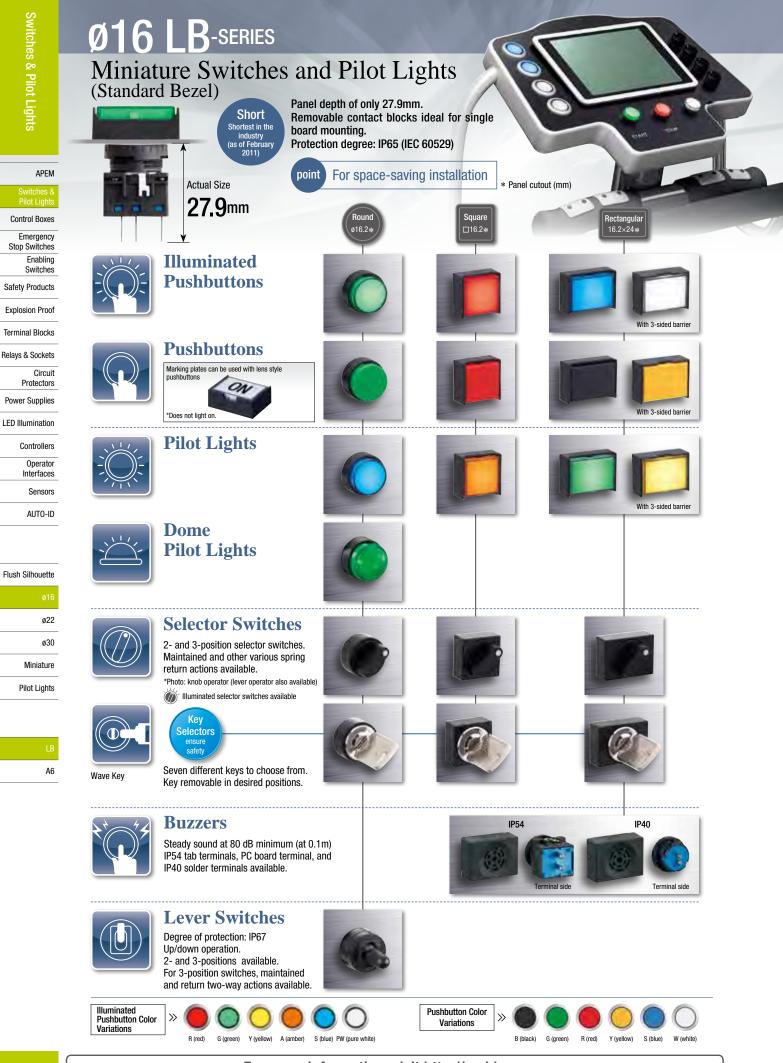
UP

bownload catalogs and CAD from http://eu.idec.com/downloads

Round

Square

□26



For more information, visit http://eu.idec.com

Panel depth of only 27.9mm.

Removable contact blocks ideal for single board mounting.

Contact Ratings

Gold Contact (switch base: blue)

· · · · ·			
Rated Insulation Voltage		250V	
Rated Thermal Current	3A		
Rated Operating Voltage		30V DC	125V AC
Rated Operating Current (electrical life: 100,000 operations)	Resistive Load	0.1A	0.1A
Contact Material		Gold plat	ted silver

• Minimum applicable load (reference value): 5V AC/DC, 1 mA

Applicable range is subject to the operating conditions and load.

• See electrical life in Specifications.

Silver Contact (switch base: gray)

Rated Insulation Voltage			250V			
Rated Oper	ating Voltage			30V	125V	250V
	Electrical Life 50,000 operations	AC	Resistive load		5A	5A
		50/60Hz	Inductive load	—	3A	1.5A
Deteri		DC	Resistive load	5A	1.1A	
Rated Operating Current			Inductive load	2A	0.4A	_
	Life	cal AC 50/60Hz	Resistive load	—	5A	3A
			Inductive load		3A	1.5A
		DC	Resistive load	ЗA	0.6A	—
			Inductive load	1A	0.22A	—
Rated Ther	Rated Thermal Current				5A	
Contact Material				Silver		

• AC inductive load: PF=0.6 to 0.7 DC inductive load: L/R=7 ms max.

LED Ratings

Rated Voltage	5V DC	12V AC/DC	24V AC/DC	
Voltage Range	5V DC±5%	12V AC/DC ±10%	24V AC/DC ±10%	
LED Part No.	LB9Z-LED5@	LB9Z-LED1@	LB9Z-LED22	
Current Draw	5 mA (typ.)			
Voltage Marking	Marked on the side of the LED unit			
LED Life (reference value)	Approx. 30,000 hours [until the brightness reduces to 50% of the initial value when lit at the rated voltage (direct current) under 25°C environment.]			
	A, G, R, PW, S			
Internal Circuit	X1 (+) Noise protection circuit X2 (-) Dimmer protection circuit	X1– Limited curre Noise protect X2– Rectifier circu Dimmer prote	ion circuit uit	

• 2 (color code): A (amber), G (green), PW (pure white), R (red), S (blue)

• Use the pure white (PW) module for yellow illumination.

• LED lamp contains a current-limiting resistor.



Specifications

			-
Operating Temperature		–25 to +60°C (no freezing) Illuminated units: –25 to +55°C	LED Illumination
Storage Temperature		-30 to +80°C (no freezing)	Controllers
Operating I	lumidity	45 to 85% RH (no condensation)	Operator
Contact Re	sistance	50 mΩ maximum (initial value)	Interfaces
Insulation F	Resistance	100 M Ω minimum (500V DC megger)	Concoro
		Between live part and ground:	Sensors
		2,000V AC, 1 minute	AUTO-ID
	Switch Unit	Between terminals of different poles:	
Dielectric		2,000V AC, 1 minute Between terminals of the same poles:	
Strength		1,000V AC, 1 minute	
	Illumination	Between live part and ground:	Flush Silhouette
	Unit	2,000V AC, 1 minute	Thush bimbuctte
Vibration D	ocietanco	Operating extremes/Damage limits:	ø16
Vibration Resistance		5 to 55 Hz, amplitude 0.5 mm	
Shock Resistance		Operating extremes: 100 m/s ²	ø22
		Damage limits: 1,000 m/s ²	ø30
		Momentary: 2,000,000 Maintained: 250.000	
Mechanica		Maintained: 250,000 Selector switches: 250,000	Miniature
(minimum operations)		Key selector switches: 250,000	Pilot Lights
		Momentary:50.000 / 100.000 (*1)	
Electrical L	ife	Maintained: 50,000 / 100,000 (*2)	
(minimum	operations)	Selector switches: 50,000 / 100,000 (*2)	
		Key selector switches: 50,000 / 100,000 (*2)	
Degree of F	Protection	IP65 (IEC 60529)	LB
Terminal Style		Solder/tab terminal #110	A6
		PC board terminal	
Weight (approx.)		11g (LB3L-M1T24)	
		approx.) 10g (LB3P-1T04) 10g (LB3B-M1T2)	
		12g (LB3S-2T2)	
		25g (LB3K-2ST2A)	

*1: Switching frequency 1,800 operations/h.

*2: Switching frequency 1,200 operations/h.

APEM

Control Boxes Emergency Stop Switches Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks Relays & Sockets Circuit Protectors

Power Supplies

ø16mm LB Series Switches and Pilot Lights

LED Illumination

Controllers

Operator Interfaces Sensors

AUTO-ID

Flush Silhouette

s &	Illuminated Pushbuttons						
Pilot	Solder/Tab Terminal						Package Quantity:1
Pilot Lights	Part No. / Shape	LB1L-21T	345*				
				i 1	è 1	h 👘	
APEM					I		
Switches & Pilot Lights		Round		Square		Rectangular	Rectangular with 3-sided Barrier
Control Boxes			4 LED Operating Part No.		t No.		
Emergency Stop Switches	② Operation	③ Contact	Voltage	Gold Contact	Silver Contact	* Illumination Color Code	
Enabling Switches		SPDT		LB①L-M1T14*	LB①L-M1T54*	Specify the color code in pla	ce of * in the Part No
Safety Products	Momentary		24V AC/DC				
Explosion Proof	DPDT			LB①L-M1T24*	LB1L-M1T64*	A: amber G: green	
Terminal Blocks		SPDT		LB①L-A1T14*	LB①L-A1T54*	PW: pure white R: red	
Relays & Sockets Circuit Protectors	Maintained	DPDT	24V AC/DC	LB①L-A1T24*	LB①L-A1T64*	S: blue Y: yellow	

• Illuminated pushbuttons contain an LED unit. For details on LED units, see B-130. Power Supplies

• Illuminated pushbuttons can be used with legend markings. Engraving can be done on a marking plate which is placed in the lens, or a clear film can be printed and placed in the lens. See B-133 for details on the marking plate and film.

③ Contacts

Code

1

2

5

6

Contact

Gold/SPDT

Gold/DPDT

Silver/SPDT

Silver/DPDT

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

• 5V DC and 12V AC/DC LED operating voltages also available. To specify, see Part Number Development below.

② Operation

Operation

Maintained

Momentary

Code

A

М

Part Number Development

LB1L-21T345*

① Shape

	Code	Shape
	1	Round
	2	Square
	3	Rectangular
-	4	Rectangular with 3-sided Barrier

Miniature **5** Others

ø22

ø30

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
V	PC Board Terminal (Gold Contact Only)	LB1L-M1T14 <u>V</u> *

• Specify the color code in place of * in the table above

A6

Pilot Lights

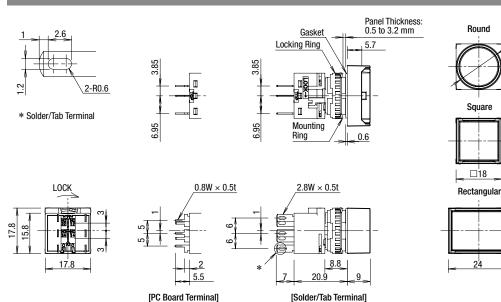
④ LED Operating Voltage

Code	Rated Operating Voltage			
1	5V DC			
3	12V AC/DC			
4	24V AC/DC			

ø16mm LB Series Switches and Pilot Lights

018

Dimensions



Terminal Arrangement (Bottom View)

TOP

(SPDT contacts on the right only)

12

[14]⁹

11

22

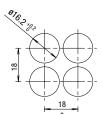
24

21

Panel Cut-out for Positioning (LB1L/LB2L/LB3L/LB4L)



Mounting Hole Layout (LB1L/LB2L/LB3L/LB4L)



Lamp Terminal (+)

Lamp

Terminal (-)

*: 24 mm for rectangular units. Note: When using rubber boot or terminal cover, see dimensions on B-127 and B-128.

• For details on pc board and circuit design, see **B-121**.

• For details on single board mounting, see B-122.

All dimensions in mm.

Emergency Stop Switches Enabling Switches

Control Boxes

APEM

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets Circuit

Power Supplies

Protectors

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Flush Silhouette

ø16	
ø22	
ø30	
Miniature	
	1

Pilot Lights

A6



APEM

Circuit

Protectors

Controllers Operator Interfaces

Sensors

AUTO-ID

Flush Silhouette

ø22

ø30

Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets

Pilot Lights						
Solder/Tab Termi	Solder/Tab Terminal Package Quantity:					
Part No. / Shape						
	V 🐞 🐞 👘 🕻		i ii i			
	Round	Square	Rectangu	llar Rectangular with 3-sided Barrier	Dome	
^② Lens Shape	③ LED Operating Voltage	Part No.	*	Illumination Color Code		
Flush	24V AC/DC	LB①P-1T04*	Specify the color code in place of * in the Part No. A: amber G: green PW: pure white R: red S: blue Y: yellow			
Dome	24V AC/DC	LB1P-2T04*				

• Pilot lights contain an LED unit. For maintenance LED units see B-130.

Power Supplies • Legends and symbols can be engraved on a marking plate or film to be inserted under the lens by users for labelling purposes. See B-133 for details.

Lens Shape

2 Lens Shape

Flush

Dome

Code

1

2

• PC board terminals available. To specify, see Part Number Development below.
 • 5V DC and 12V AC/DC LED operating voltages also available. To specify see Part

• 5V DC and 12V AC/DC LED operating voltages also available. To specify, see Part Number Development below.

Part Number Development

LB1P-2T034*

1) Shape

	Code	Shape		
1 Round		Round		
	2	Square		
3 Rectangular				
	4	Rectangular with 3-sided Barrier		

4 Rectangular with 3-sided Barrier

Round only for dome.

Miniature ④ Others

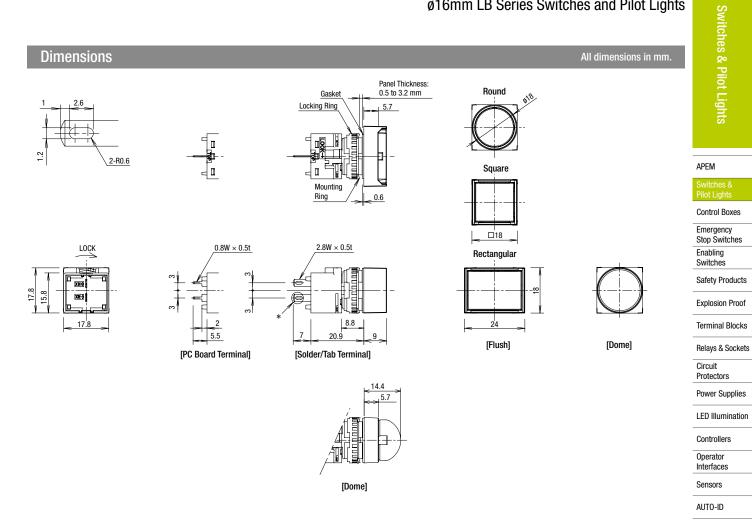
wimature	Code	Specification	Part No. Example
Pilot Lights	Blank	Solder/Tab Terminal	—
	V	PC Board Terminal	LB1P-1T04 <u>V</u> *

• Specify the color code in place of * in the table above

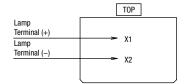
LB A6

3 LED Operating Voltage

		1 0 0
	Code	Rated Operating Voltage
	1	5V DC
	3	12V AC/DC
	4	24V AC/DC



Terminal Arrangement (Bottom View)



Panel Cut-out for Positioning (LB1P/LB2P/LB3P/LB4P)

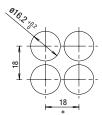


ø22
ø30
Miniature
Pilot Lights

Flush Silhouette

A6

Mounting Hole Layout (LB1P/LB2P/LB3P/LB4P)



*: 24 mm for rectangular units. Note: When using rubber boot or terminal cover, see dimensions on B-127 and B-128.

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



bownload catalogs and CAD from http://eu.idec.com/downloads

hes & Pilot	Pushbut Solder/Tab Term					Package Quantity:1
Pilot Lights	Part No. / Shape	LB1B-21T30	<u>4</u> *	** *		
APEM			10			
Switches & Pilot Lights		Round		Square	Rectangula	r Rectangular with 3-sided Barrier
Control Boxes						
Emergency Stop Switches	Button Style	② Operation	③ Contact		art No.	* Illumination Color Code
Enabling Switches			SPDT	Gold Contact	Silver Contact LB ^① B-M1T5*	
Safety Products		Momentary	DPDT	LB@B-M1T2*	LB@B-M1T6*	B: black
			3PDT	LB ^① B-M1T3*	LB ^① B-M1T7*	G: green R: red
Explosion Proof	Button		SPDT	LB1B-A1T1*	LB1B-A1T5*	S: blue
Terminal Blocks		Maintained	DPDT	LB ^① B-A1T2*	LB1B-A1T6*	W: white Y: yellow
Relays & Sockets			3PDT	LB10B-A1T3*	LB10B-A1T7*	
Circuit			SPDT	LB1B-M1T1L*	LB1B-M1T5L*	
Protectors		Momentary	DPDT	LB1B-M1T2L*	LB1B-M1T6L*	A: amber G: green
Power Supplies	Lens		3PDT	LB1B-M1T3L*	LB1B-M1T7L*	R: red
LED Illumination			SPDT	LB ^① B-A1T1L*	LB1B-A1T5L*	S: blue W: white
Controllers		Maintained	DPDT	LB ^① B-A1T2L*	LB1B-A1T6L*	Y: yellow
Operator			3PDT	LB1B-A1T3L*	LB10B-A1T7L*	

• Lens can be used with legend markings. Engraving can be done on a marking plate which is placed in the lens, or a clear film can be printed and placed in the lens. See B-133 for details on the marking plate and film.

• Black is available for lens. Black lens consists of a transparent lens and a black marking plate. To specify, see Part Number Development below.

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

Flush Silhouette

Interfaces

Sensors

AUTO-ID

Part Number Development

Square

ø16	LB1B-21T34*		
ø22	① Shape		
ø30	Code	Shape	

ode Round 1 Miniature 2

Pilot Lights

3 Rectangular 4 Rectangular with 3-sided Barrier

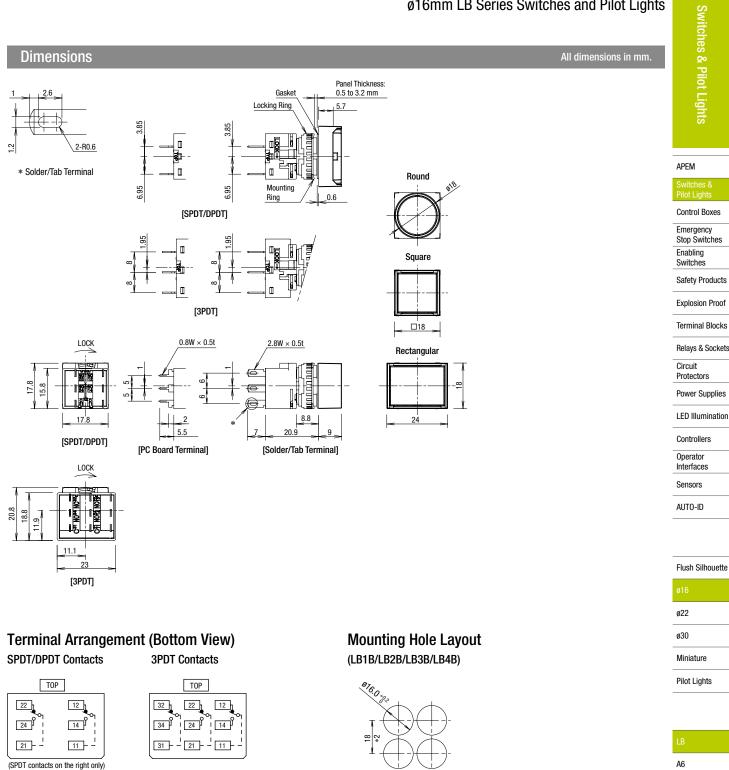
② Operation

Code	Operation
А	Maintained
М	Momentary

	③ Contacts			
Code		Contact		
	1	Gold/SPDT		
2 3		Gold/DPDT		
		Gold/3PDT		
	5	Silver/SPDT		
	6	Silver/DPDT		
	7	Silver/3PDT		

④ Others

A6	Code Specification		Part No. Example
Blank		Solder/Tab Terminal	—
	B Black Translucent Lens (Lens Only)		LB1B-M1T1L <u>B</u>
	V PC Board Terminal (Gold Contact Only)		LB1B-M1T1 <u>V</u> *

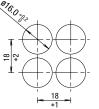


Panel Cut-out for Positioning (LB1B/LB2B/LB3B/LB4B)



• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



*1: 24 mm for rectangular units, 23.2 mm for 3PDT *2: 21 mm for 3PDT

Note: When using rubber boot or terminal cover, see dimensions on B-127 and B-128.



• Lever operators also available. To specify, see Part Number Development below.

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

Controllers • 2-position spring return from right, 3-position spring return from right, 3-position spring return from left also available. To specify, see Part Number Development below. Operator • For contact operation, see B-119. Interfaces

3-position

3 Maintained

Part Number Development

LB1S-23T45

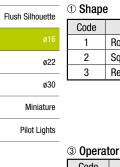
Shape

ape

Round

Square

Rectangular



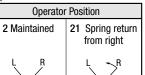
Sensors

AUTO-ID

	Θυρυιαιοί		
	Code	Operator Sha	
1.0	Blank	Knob	
LB	L	Lever	
A6			

2-position

2 Operator Position



R

1	5 Others					
	Code	Specification	Part No. Example			
	Blank	Solder/Tab Terminal	_			
	V	PC Board Terminal (Gold Contact Only)	LB1S-2T1 <u>V</u>			

32 Spring return

from left

R

33

Spring return

R

two-way

Operator Position

31 Spring return

from right

R

Code Contact Gold/SPDT (90° 2-position only) 1 Gold/DPDT 2

④ Contacts

2	
3	Gold/3PDT
5	Silver/SPDT (90° 2-position only)
6	Silver/DPDT
7	Silver/3PDT

For more information, visit http://eu.idec.com

Panel Thickness: 0.5 to 3.2 mm

Round

All dimensions in mm.

Round

Square

D18

Rectangular

[Lever Operator]









Explosion Proof Terminal Blocks

Relays & Sockets

Circuit

Protectors Power Supplies

LED Illumination



```
Sensors
AUTO-ID
```



LB	
A6	

Π Square Π [3PDT] $0.8W \times 0.5t$ □18 2.8W × 0.5t Rectangular 8.8 8.7 5.5 20.9 15.5 [Knob Operator] [PC Board Terminal] [Knob Operator PC Board Terminal] 8.7 18.

Gasket Locking Ring

> Mounting Ring

0.6

Π

3.85

6.95

[SPDT/DPDT]

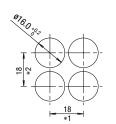
Ш

Π

3.95

[Lever Operator]

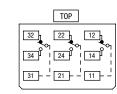
Mounting Hole Layout (LB1S/LB2S/LB3S)



*1: 24 mm for rectangular units, 23.2 mm for 3PDT *2: 21 mm for 3PDT Note: When using terminal cover, see dimensions on B-128.

11.1 23 [3PDT] **Terminal Arrangement (Bottom View)** SPDT/DPDT Contacts





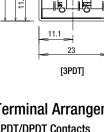
(SPDT contacts on the right only)

Panel Cut-out for Positioning (LB1S/LB2S/LB3S)



• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.



Dimensions

* Solder/Tab Terminal

\$

17.8 15.8

20.8

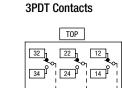
2-R0.6

LOCK

17.8

[SPDT/DPDT]

LOCK



Download catalogs and CAD from http://eu.idec.com/downloads

Control Boxes Emergency

Safety Products

Terminal Blocks

Relays & Sockets

LED Illumination

Controllers

Operator Interfaces Sensors

AUTO-ID

Protectors Power Supplies

Illuminated Selector Switches Solder/Tab Terminal Package Quantity:1 Part No. / LB1F-2T345* Shape APEM Round Square Rectangular Part No. **④** LED Operating Stop Switches 2 Operator Position ③ Contact * Illumination Color Code Voltage **Gold Contact** Silver Contact Enabling Switches Maintained SPDT 24V AC/DC LB①F-2T54* LB1)F-2T14* Specify the color code in place 90° R Explosion Proof 2-position of * in the Part No. DPDT 24V AC/DC LB1)F-2T24* LB①F-2T64* G: green R: red PW: pure white Maintained 45° R Circuit DPDT 24V AC/DC LB1)F-3T24* LB①F-3T64* 3-position

• Illuminated selector switches contain an LED unit. For maintenance LED units see B-130.

• PC board terminals available for gold contacts. To specify, see Part Number Development below.

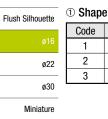
• 5V DC and 12V AC/DC LED operating voltages also available. To specify, see Part Number Development below.

• For contact operation, see **B-119**.

Part Number Development

LB(1)F-(2)T(3)(4)(5)*

Shape



Pilot Lights

A6

④ LED Operating Voltage

Round

Square

Rectangular

· •	por a ling to rago
Code	Rated Operating Voltage
1	5V DC
3	12V AC/DC
4	24V AC/DC

② Operator Position

2-position 3-position			
Operator Position			
2 Maintained	3 Maintained		
L R			

③ Contacts

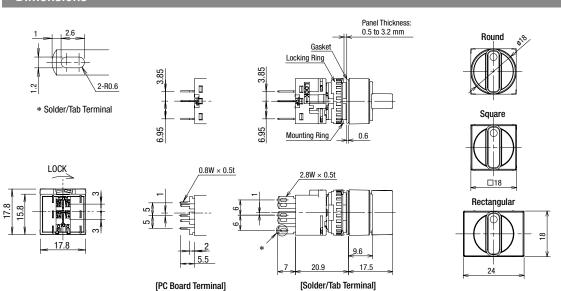
Code	Contact	
1	Gold/SPDT (90° 2-position only)	
2	Gold/DPDT	
5	Silver/SPDT (90° 2-position only)	
6	Silver/DPDT	

5 Others

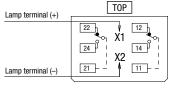
Code	Specification Part No. Example	
Blank	Solder/Tab Terminal —	
V	PC Board Terminal (Gold Contact Only)	LB1F-2T14 <u>V</u> *

• Specify a color code in place of <u>* in the Part No.</u>

Dimensions

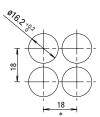


Terminal Arrangement (Bottom View)



(SPDT contacts on the right only)

Mounting Hole Layout Round (LB1F/LB2F/LB3F)



*: 24 mm for rectangular units. Note: When using terminal cover, see dimensions on B-128

• For details on pc board and circuit design, see B-121.

• For details on single board mounting, see B-122.

Panel Cut-out for Positioning Round (LB1F/LB2F/LB3F)





Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Socket
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID

 4.8 ± 0.05

ø22
ø30
Miniature

Pilot Lights

Flush Silhouette

LB	
A6	



APEM

Control Boxes Emergency Stop Switches

All dimensions in mm.

APEM

Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof

Terminal Blocks

Relays & Sockets

Controllers Operator

Interfaces Sensors

AUTO-ID

Flush Silhouette

ø22 ø30

Pilot Lights

A6

Key Sel	ector Switche	S				
Solder/Tab Tern	ninal					Package Quantit
Part No. / Shape	LB1K-23	145-6				
		TC.		10	10	
		Round		Square	Rectangular	
@ () n	arator Position	© Key Removable Positi	5 Key Removable Position		Part No.	
② Operator Position		© Key hemovable i ositi			Gold Contact	Silver Contact
		A: Key removable in		SPDT	LB ^① K-2ST1A	LB ^① K-2ST5A
90° 2-position	Maintained	Maintained all positions	DPDT	LB ^① K-2ST2A	LB ^① K-2ST6A	
			\checkmark	3PDT	LB [®] K-2ST3A	LB ^① K-2ST7A
45°		A: Key removable in	C (R)	DPDT	LB ^① K-3ST2A	LB [®] K-3ST6A
3-position Maintained		all positions			LB ^① K-3ST3A	LB ^① K-3ST7A

· For operator position, see Part Number Development below.

• For key removable position, see Part Number Development below. The key cannot be removed at the return position. Circuit

Protectors • Two keys are supplied.

• Besides the standard key (key number OH), six other keys are available. Power Supplies

Disc tumbler keys also available. Only the standard key is available. To specify, see Part Number Development below.

LED Illumination • PC board terminals available for gold contacts. To specify, see Part Number Development below.

• For contact operation, see B-119.

Part Number Development

Shape

LB1K-23T45-6

Round

Square

Rectangular

2 Operator Position

		Code	Operator Position		
		2	90° 2-position maintained		
		21	90° 2-position spring return from right		
		3	45° 3-position maintained		
	•	31	45° 3-position spring return from right		
		32	45° 3-position spring return from left		
		33	45°-3-position spring return two-way		

3 Key Style

Code	Key Style
S	Wave key
Blank	Disc tumbler key

LB^①K-3ST3A

LB^①K-3ST7A

④ Contacts Miniature

① Shape

Code

1 2

3

Code	Contact
1	Gold/SPDT (90° 2-position only)
2	Gold/DPDT
3	Gold/3PDT
5	Silver/SPDT (90° 2-position only)
6	Silver/DPDT
7	Silver/3PDT

6 Kev Number

Code					
Blank	Standard key (0H)				
1H to 2H	Reversible key				
3H to 6H	Non-reversible key				

· Wave key only.

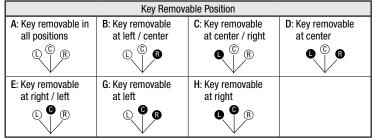
Others

Code	Specification	Part No. Example
Blank	Solder/Tab Terminal	—
V	PC Board Terminal (Gold Contact Only)	LB1K-2ST1 <u>V</u> A

5 Key Removal Position

2-position								
ł	Key Removable Position	n	Spring return from right					
A: Key removable in all positions	B: Key removable at left	C: Key removable at right						

3-position

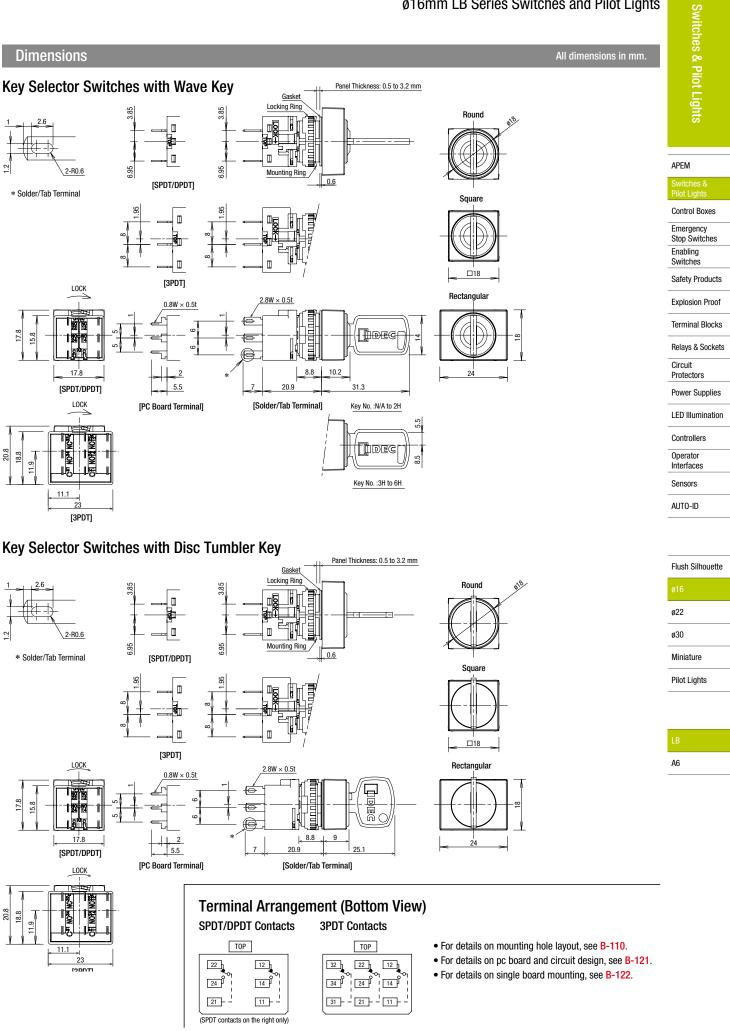


For key selectors with the following operations, the key cannot be removed at the return position.

3-position

Spring return from right	Spring return from left	Spring return two-way
	€ ®	

• Key is removable at \mathbb{O} , \mathbb{O} , \mathbb{B} . Key is retained at $m{0}$, $m{\Theta}$, and $m{B}$.



APEM

Control Boxes Emergency Stop Switches Enabling Switches

Safety Products Explosion Proof Terminal Blocks Relays & Sockets

Circuit Protectors Power Supplies

LED Illumination

Controllers Operator Interfaces Sensors Package Quantity:1



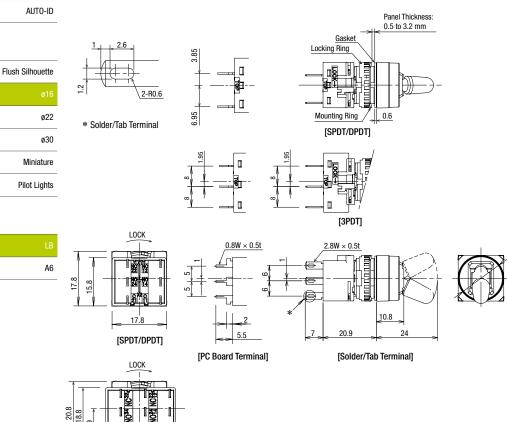
	Operator Position		Contact	Part No.				
			Contact	Gold Contact	Silver Contact			
2-position	Maintained	, U	SPDT	LB1T-2T1	LB1T-2T5			
		<	DPDT	LB1T-2T2	LB1T-2T6			
	► D		3PDT	LB1T-2T3	LB1T-2T7			
3-position	Maintained	U C	DPDT	LB1T-3T2	LB1T-3T6			
		D D	3PDT	LB1T-3T3	LB1T-3T7			
	Spring return from top/bottom	∠ u c	DPDT	LB1T-33T2	LB1T-33T6			
		∕,° _D	3PDT	LB1T-33T3	LB1T-33T7			

All dimensions in mm.

 \bullet PC board terminals available for gold contacts. Add "V" to the Part No. Example: LB1T-2T1V

• For contact operation, see **B-119**.

Dimensions



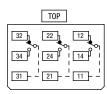
Terminal Arrangement (Bottom View)

SPDT/DPDT	Contacts
	_



(SPDT contacts on the right only)

3PDT Contacts



- For details on mounting hole layout, see **B-110**.
- For details on pc board and circuit design, see **B-121**.
- For details on single board mounting, see B-122.

6.

11.1 23 [3PDT]

Buzzers

Specifications

•				
Rated Insulation Voltage	30V	Dielectric Strength	Between live and dead parts:	ights
Rated Operating Voltage	12, 24V DC		1,000V AC, 1 minute	o
Operating Voltage Range	12V DC±10%, 24V DC±10%	Vibration Resistance	Operating extremes/Damage limits: 5 to 55 Hz, amplitude 0.5 mm	
Current Draw	26mA			
Inrush Current	80mA maximum	Shock Resistance	Operating extremes: 100m/s ² Damage limits:1,000m/s ²	APEM
Sound Pressure (at 0.1m)	Steady sound: 80 dB minimum (at the rated voltage)	Life	1,000 hours minimum (beep sound)	Switches & Pilot Lights
Sound Frequency	2.3±0.3kHz	Degree of Protection	LB3Z-1T0*: IP54 (IEC60529) LB3Z-104K: IP40 (IEC60529)	Control Boxes
Response Speed	50 ms maximum		LB3Z-1T0*: Solder/tab terminal #110	Emergency
Operating Temperature	-25 to +60°C (no freezing)	Terminal Style	PC board terminal	Stop Switches
Storage Temperature	-30 to +80°C(no freezing)		LB3Z-104K: Solder terminal	Enabling Switches
Operating Humidity	45 to 85% (no condensation)	Weight (approx.)	11g (LB3Z-1T0*), 8g (LB3Z-104K)	Cofety Dreducte
Insulation Resistance	100 MΩ minimum (500V DC megger)	For applicable standards a	nd UL, CSA ratings, see <mark>B-089</mark> .	Safety Products
			14 0L, 0011441190, 000 D 000.	Explosion Proof

Name and Shape		Operating Voltage	Terminal Chulo	Part	Terminal Blocks	
		Operating Voltage	Terminal Style	IP54	IP40	
Rectangular			Solder/tab terminal	LB3Z-1T04	_	Relays & Sockets
	100	24V DC	PC board terminal	LB3Z-1T04V		Circuit Protectors
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	240 00		LDJZ-1104V		Power Supplies
IP54	IP40		Solder terminal	_	LB3Z-104K	LED Illumination

• 12V DC operating voltages also available. Specify "-1T04" in place of "-1T03" in the Part No. Example: LB3Z-<u>1T03</u>

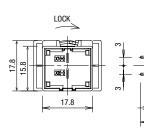
Dimensions

IP54 Terminal Arrangement (Bottom View)

	TOP
Buzzer terminal (+)	→ X1
Buzzer terminal (–)	> X1
	- 12
	L



* Solder/Tab Terminal

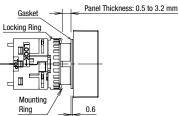


[PC Board Terminal]

0.8W imes 0.5t

5.5

erminal]



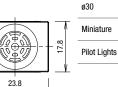
8.8

20.9

[Solder/Tab Terminal]

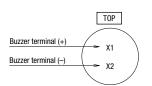
 $2.8W \times 0.5t$



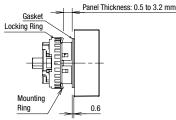


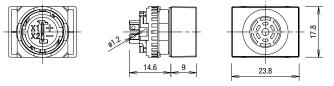
IP40

Terminal Arrangement (Bottom View)



- For details on mounting hole layout, see **B-110**.
- For details on pc board and circuit design, see B-121.
- For details on single board mounting, see B-122.





All dimensions in mm.

Switches & Pilot Lights

Controllers

Operator Interfaces

Sensors

AUTO-ID

Flush Silhouette

ø22

A6

Contact Operation

Pilot Lights	Selector Switch / Illuminated Selector Switch / Key Selector Switch Operator Position & Contact Operation (Top View)								
ghts			Position	Operator P		Contact	∑ Left	† Center	✓ Right
0,5	FOSIUUII				CUIILAUL	< LOIT		> night	
APEM Switches &						SPDT			
Pilot Lights Control Boxes Emergency Stop Switches	90° 2-position	L Main	R tained	L R Spring return from right		DPDT	Left Right 14 12 24 22 0 0 0 0 11 21		Left Right 14 12 24 22 4 4 4 4 4 4 4 4 4 4
Enabling Switches Safety Products Explosion Proof						3PDT	Left Center Right 14 12 24 22 34 32 0 0 0 0 0 11 21 31		Left Center Right 14 12 24 22 34 32 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Terminal Blocks Relays & Sockets Circuit	45°					DPDT	Left Right 14 12 24 22 • • • • • 11 21	Left Right 14 12 24 22 0 0 0 0 11 21	Left Right 14 12 24 22 14 12 24 22 11 21
Protectors Power Supplies LED Illumination	3-position	Maintained	Spring return from right	Spring return from left	Spring return two-way	3PDT	Left Center Right 14 12 24 22 34 32	Left Center Right 14 12 24 22 34 32	Left Center Right 14 12 24 22 34 32
Controllers Operator Interfaces							11 ^Y 21 ^Y 31 ^Y		
	Lever Switch								

	Lever Position & Contact Operation (Top View)							
AUTO-ID		Position			Down	Center	Up	
Flush Silhouette				SPDT	14 12 0 11		14 12 • 11	
ø22 ø30	90° 2-position	Maint	v > D ained	DPDT	Left Right 14 12 24 22 0 0 0 0 11 21		Left Right 14 12 24 22 • • • • 11 21	
Miniature Pilot Lights				3PDT	Left Center Right 14 12 24 22 34 32 0 0 0 0 0 11 21 31		Left Center Right 14 12 24 22 34 32 4 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4	
CW LW-F	45°	u c	, c	DPDT	Left Right 14 12 24 22 \bullet \bullet \bullet \bullet 11 21	Left Right 14 12 24 22 14 12 12 12 14 12 14 12 14 12 14 14 14 14 14 14 14 14	Left Right 14 12 24 22 11 21 4 11 21	
LB LBW UP	3-position	Aintained	Spring return two-way	3PDT	Left Center Right 14 12 24 22 34 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left Center Right 14 12 24 22 34 32 0 0 0 0 0 0 11 21 31	Left Center Right 14 12 24 22 34 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

Flush Bezel

APEM

Control Boxes

Stop Switches Enabling

Safety Products Explosion Proof

Terminal Blocks

Relays & Sockets

LED Illumination

Controllers

Operator

Interfaces Sensors

AUTO-ID

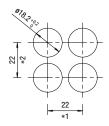
Circuit Protectors Power Supplies

Emergency

Switches

Mounting Hole Layout / PC Board Drilling Layout

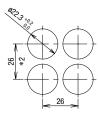
LB Series Flush Bezel Round (LB6/LB6M)



*1: 23.2 mm for 3PDT contacts *2: 45 mm for switches with guard

LBW Series Flush Bezel

Round (LBW6/LB6M/LBW6G)

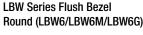


* 53 mm for switches with guard

Panel Cut-out for Positioning

LB Series Flush Bezel







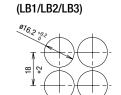
125V

3.5 A

2A

0.4A

0.2A



18

*1: 24 mm for rectangular type 23.2 mm for 3PDT contacts *2: 21 mm for 3PDT contacts

LB Series Standard Bezel Round (LB1/LB2/LB3)



ø22 ø30 Miniature

Pilot Lights

CW
LW-F
LB
LBW
UP

Flush Bezel

CSA

Rated

Operating

Current

UL

Gold Contact

Silver Contact

Rated Operating Voltage

Rated Operating Current

Rated Operating Voltage

AC

DC

Gold Contact

Rated Operating Voltage	30V DC	125V DC
Rated Operating Current	0.1A	0.1A

Approval Ratings and CCC Approval File No.

Res.

Ind.

Res

Ind.

30V DC

0.1A

30V

2, 3, 5A

1A

Silver Contact

Rated Operating Voltage		30V	125V	250V	
Rated AC Operating Current DC	Res.	—	3A	2, 3, 5A	
	AU	Ind.	—	2A	1.5A
	DC	Res.	2, 5A	0.4A	_
	00	Ind.	1A	0.2A	_

CCC

Current

ΤÜV

Gold Contact

Silver Contact

Rated Operating

Rated Operating Voltage

Rated Operating Current

Rated Operating Voltage

AC-12

DC-12

Gold Contact

Rated Operating Voltage	30V DC	125V AC
Rated Operating Current	0.1A (DC-12)	0.1A (AC-12)

30V DC

0.1A (DC-12)

125V

3A

0.4A

30V

2, 5A

125V AC

0.1A (AC-12)

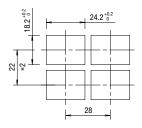
250V

2, 5A

Silver Contact

Rated Operating Volta	ge	30V	250V	
Rated Operating	AC-12	—	2, 5A	
Current	DC-12	2, 5A	—	

Rectangular (LB8/LB8M)



LB Series Standard Bezel

Note: When using the LB series with a rubber boot or terminal cover, make sure to note the dimensions on B-128.

Square (LBW7/LBW7M/LBW7G)

22.5 +0.2

22

Square (LB7/LB7M)

\$22

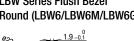
26

□18.2 ^{+0.3}

26

* 53 mm for switches with guard

Round (LB6/LB6M)



125V AC

0.1A

250V

2, 3, 5A

1.5A

B-120

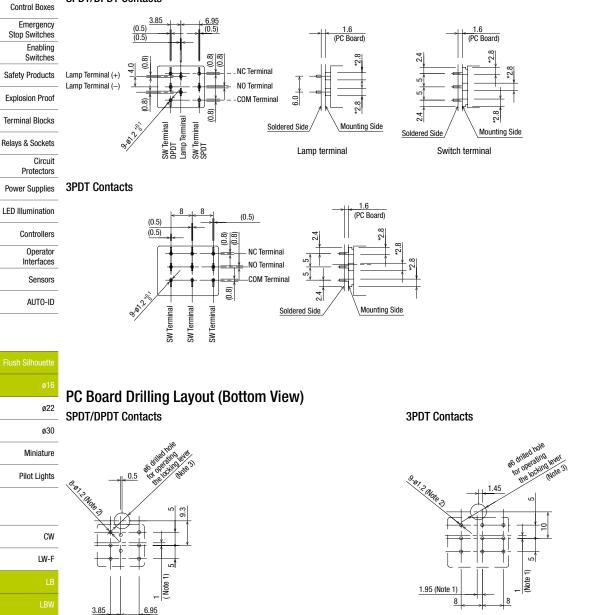
Download catalogs and CAD from http://eu.idec.com/downloads

APEM

Notes for Designing PC Board and Circuit

- Use 1.6-mm-thick glass epoxy PC board with drilled holes.
- Design a circuit so that the LB/LBW series can operate within the rated voltage and current range. Make sure that inrush current and voltage do not exceed the rating.
- Minimum applicable load is 5V AC/DC, 1 mA on gold contacts. Applicable range is subject to the operating condition and load.
- Since the *2.8-mm-wide terminal touches the PC board as shown on the right, short circuit may occur with pattern lines. Design a circuit that prevents short circuits.

SPDT/DPDT Contacts



Flush Bezel Note 1: When designing, note the alignment of center lines of the contact blocks and center lines of the operators. Note 2: The diameter of the terminal hole is ø1.2.

Note 3: Hole diameter may vary to meet installation requirements. Determine the location and the size of the hole so that the locking lever can be operated.

3.85

UP

3PDT Contacts

min

22

22 min

<u>-</u>0

18.2

mi.

20

min

22

23.2 min

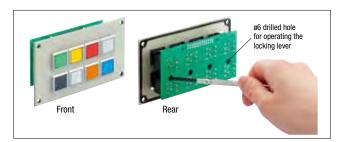
23.2 min

24.2 ±0.1

□18.2 ±0.1

Single Board Mounting

IDEC's LB/LBW Series is available for single board mounting.



Installing and Removing Contact Blocks

Turn the locking lever to install and remove contact blocks on the PC using a screwdriver from a hole in the PC board. See "Notes for Designing PC Board and Circuit" on B-121. Determine the location of the switches so that the locking lever can be operated. See "Removing and Installing the Contact Block" on B-131.

Mounting Holes and Assembly Procedure

Drill mounting holes in the panel as shown below. When the units are mounted collectively, provide adequate clearance.

Panel Cut-out for Positioning

Standard Bezel (LB1/LB2/LB3/LB4)



LBW Series Flush Bezel

(LBW6/LBW6M/LBW6G)

Mounting Hole Layout

SPDT/DPDT Contacts

or more

(24 or more for

rectangular units

18 more

Standard Bezel (LB1/LB2/LB3/LB4)

LB Series Flush Bezel (LB6/LB6M/LB6G)



3PDT Contacts

23.2

or more

(24 or more for rectangular units)

21 more



28 min * 45 mm minimum for switches with guard

LBW Series Flush Bezel LBW6/LBW6M/LBW6G

LB Series Flush Bezel SPDT/DPDT Contacts

22 min

22 min

24.2 ±0.1

□18.2^{±0.1}

LB6/LB6M/LB6G

Ø18,2

min

221

LB7/LB7M/LB7G

LB8/LB8M/LB8G

22 min

18.2 ±0.

22 min

min.

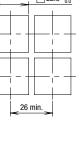
9

LBW Series Flush Bezela

28 min

LBW7/LBW7M/LBW7G

22.5 +0.2



Flush Bezel

Assembly Procedure

26 min.

1. Install the operator to the panel.

* 53 mm minimum for switches with guard

- 2. Mount the contact block to the operator from the rear.
- 3. Turn the locking lever to lock the contact block.
- 4. Insert the PC board to terminals and solder.
- Note 1: Make sure that each terminal is inserted into the PC board correctly.
- Note 2: Do not apply tensile force to the connector cable for an extended period of time.
- Note 3: Do not expose the contact block to water.
- Note 4: Ensure to lock contact blocks when the contact blocks are installed on the operators.
- UP series can be installed on the same board. For details, see B-123.



APEM

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks Relays & Sockets

Circuit

Protectors Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

ø22

ø30

CW

LW-F

UP

Miniature

Pilot Lights

APEM

Switche Pilot Lig Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof

Relays & Sockets

Protectors Power Supplies LED Illumination Controllers Operato Interfaces Sensors

UP Series Single Board Mount Pilot Lights

Mounts on the same panel as LB/LBW series

• Three illumination colors: Green (G), red (R), and white (W)

Specifications

	<u> </u>			
-	Color Code		Red (R), White (W)	G (Green)
	Rated Curren	t (I)	7mA	2mA
		Reverse Voltage (VR)	9V	5V
	Maximum Current	Operating Temperature (Topr)	–25 to +55°C (no fre	ezing)
-	(Ta: 25°C)	Storage Temperature (Tstg)	-30 to +80°C (no freezing)	
-	Forward Voltage (V _f)		Standard value: 2V (If=7mA)	Standard value: 2.7V (If=2 mA)
_	Dielectric Voltage		Between live and dead parts: 500V AC, 1 minute	
_	Weight (approx.)		4.3g (UP8-89V1), 5.1g (UP8-89V2)	

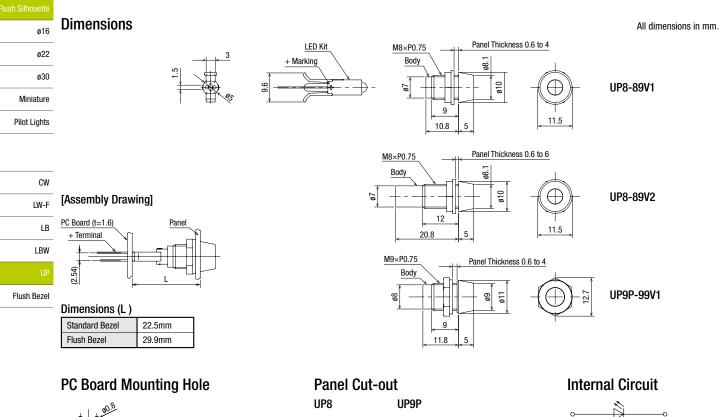


Terminal Blocks **UP Series**

	0. 0	01103							
circuit Protectors		Mounting Hole Size	Shape	Degree of Protection (IEC 60529)	Mountable Unit	Part No.	Ordering No.	Illumination Color Code	Package Quantity
ver Supplies	ø8 UP8	With standard bezel	Chroud		Standard Bezel	UP8-89V1*	UP8-89V1*PN10	Specify the color code	10
Controllers Operator Interfaces		With flush bezel	Shroud	IP40	Flush Bezel	UP8-89V2*	UP8-89V2*PN10	in place of * in the Part No. G: green	10
Sensors AUTO-ID	ø9 UP9P		Shroud	IP65	Standard bezel Flush bezel	UP9P-99V1*	UP9P-99V1*PN10	R: red W: white	10

• LED cannot be replaced.

Note: Connect an external current limiting resistor in series. Otherwise, the LED may be damaged.







The longer pin is the positive terminal

APEM

Control Boxes

Stop Switches

Safety Products

Explosion Proof

Terminal Blocks

Relavs & Sockets

Circuit

Protectors

Emergency

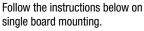
Enabling Switches

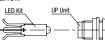
Safety Precautions

- Turn off power to the unit before installation, removal, wiring, maintenance, and inspection.
- Failure to turn off may cause electrical shocks or fire hazard.
- For wiring, use wires of a proper size to meet the voltage and current requirements.
- Improper soldering or failure to tighten the terminal screw may cause overheating and fire.

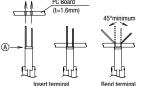
Single Board Mounting

UP series miniature pilot light single board mounting types can be mounted with LB/ LBW series on the same panel.





1. Mount the LED kit to the PC board.



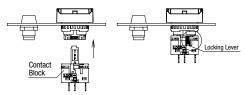
panel.

Temporary mounting

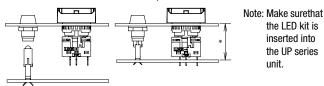
1. Note the polarity of the terminals and insert the terminals to the PC board. 2. Make sure that part A of the LED kit is pressed tightly to the PC board. Bend the terminals sideways as

shown on the left. 2. Mount the operator and the UP series pilot lights on to the control

3. Mount the contact block to the operator of the miniature control unit and lock the unit by turning the locking lever.



4. Install the PC board in 1. to the panel in 3.



* When mounting LB/LBW and UP series on a single board, make sure that the distance between the front of the panel and the mounting side of the PC board (gasket distortion is taken into consideration) is as shown in the table below.

Part No.	Mountable Unit	Distance (*)
UP8-89V1*	Standard bezel	22.5mm
UP8-89V2*	Flush bezel	29.9mm
UP9P-99V1*	Standard bezel	22.5mm
0P9P-99V1*	Flush bezel	29.9mm

5. Solder the terminals.

Before soldering, make sure that each terminal of the contact block is securely inserted into the PC board holes.

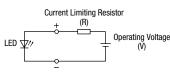
Instructions

Polarity

Pay attention to the polarity of the power supply as UP series units do not contain a diode for protection against reverse polarity. The long terminal is positive and the short terminal is negative.

Current Limiting Resistor

When using a UP series unit without a built-in current limiting resistor, connect an external current limiting resistor. Calculate the resistance using the following formula.



Operating Voltage (V) - Forward Voltage (Vf) Resistance (Ω) = Rated Current (I) *

*	Rated Current (I) = R (red), W (white)	: 0.007A
	G (green)	: 0.002A
	Forward Voltage (Vf) = R (red), W (wh	ite) : 2V
	G (green)	: 2.7V

Note: Use a resistor of higher resistance than the calculated value (Ω)

$$\frac{\text{Rated Wattage of Resistor}}{(W)} = \frac{\text{Rated Current}}{(I)} \times \frac{\text{Operating Voltage}}{(V)} \times 2 \text{ to } 3$$

<Current Limiting Resistor Reference Value>

Color Operating Voltage	Red (R), White (W)	Green (G)
5V DC	430Ω (1/4W)	1200Ω (1/4W)
6V DC	560Ω (1/4W)	1600Ω (1/4W)
12V DC	1500Ω (1/4W)	4700Ω (1/4W)
24V DC	3000Ω (1/2W)	11000Ω (1/4W)

Countermeasures against Dim Lighting See B-136.

Wiring

Solder the terminal at 350°C within 3 seconds using a 60W soldering iron. SnAgCu type lead-free solder is recommended.

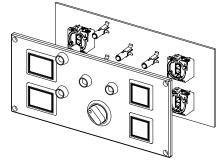
When soldering, do not touch the pilot light housing with the terminal. Do not bend the terminal or apply excessive force to the terminal.

Notes on Panel Mounting

Tightening torque should not exceed 0.49 N·m. Do not use pliers. Do not tighten with excessive force, otherwise the locking ring will be damaged.

PC Board and Circuit Design

Use glass epoxy copper clad laminate, double-sided through-hole PC boards with a thickness of 1.6 mm.



Example of single board mounting

^{ge} × 2 to 3 *	Power Supplies
	LED Illumination
is a safetv factor	

Controllers

```
Operator
Interfaces
Sensors
```

AUTO-ID

```
ø16
ø22
ø30
Miniature
Pilot Lights
CW/
```

000	
LW-F	
LB	
LBW	

Flush Bezel

APEM Switches & Pilot Lights Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors Power Supplies LED Illumination Controllers Operator Interfaces Sensors AUTO-ID

> ø22 ø30 Miniature Pilot Lights

> > CW LW-F

UP Flush Bezel

	Acc	essories						
							Deelvage	Package Quantity:1
		Shape		Specification	Part No.	Ordering No.	Package Quantity	Remarks
L	ocking	Ring Wrench	Ø18.0	Metal (Nickel-plated brass)	MT-001	MT-001	1	Used to tighten the locking ring when installing the units on to the panel.
	Le	ns Removal Tool	60.0	Stainless Steel	MT-101	MT-101	1	Used to remove the lens or button. (for standard bezels)
	rn)	180° Spring return	For round / square units (LB1/LB2)	Guard (Polyacetal)	AL-K6SP	AL-K6SP	1	Degree of protection: IP65 Used to protect pushbuttons and illuminated pushbuttons from inadvertent operation. See B-127 for dimensions.
	(spring retu	Spring return	For rectangular units (LB3/LB4)	Base (Polyarylate)	AL-KH6SP	AL-KH6SP	1	With the gasket mounted on the switch, attach the switch guard and mount on the panel.
	Switch Guard (spring return)	180° Spring return for Single Board Mounting	For rectangular units (LB3/LB4)	Guard (Polyacetal) Base (Polyarylate)	LA9Z-K3	LA9Z-K3	1	Degree of protection: IP65 With the gasket mounted on the switch, attach the switch guard and mount on the panel. See B-127 for dimensions.
Cor Ctondord Darolo	Switch duard (remains open)	Remains 110°/180° open (Can be used for single board mounting)	For round / square units (LB1/LB2)	Guard (Polyacetal) Base (Polyarylate)	LB9Z-K2	LB9Z-K2	1	Degree of protection: IP40 Used to protect pushbuttons and illuminated pushbuttons from inadvertent operation. See B-127 for dimensions. With the gasket mounted on the switch, attach the switch guard and mount on the panel. See B-136 for dimensions. When using for single board mounting, remove the rubber gasket from the switch.
Eor Otor			For rectangular units (LB3/LB4)		LB9Z-K3P	LB9Z-K3P	1	Degree of protection: IP65 With the gasket mounted on the switch, attach the switch guard and mount on the panel. See B-127 for dimensions.
	Rı	① ①	1. For round units (LB1)		LB9Z-D1	LB9Z-D1	1	
	° 3		2. For square units (LB2)	Rubber (Transparent silicon rubber)	LB9Z-D2	LB9Z-D2	1	Degree of protection: IP65 See B-127 for dimensions. See B-135 for mounting.
			3. For rectangular units (LB3/LB4)		LB9Z-D3	LB9Z-D3	1	
	M	ounting Hole Plug	Metal	[Plug] Metal (Zinc diecast) [Locking nut] Polyacetal [Gasket] Nitrile rubber	AL-BM6	AL-BM6	1	Degree of protection: IP65 Tightening torque: 0.1 to 0.29 N·m See <mark>B-127</mark> for dimensions.
Mounting Hole Plug		ounting Hole Plug	Rubber	Nitrile rubber (black)	AL-B6	AL-B6PN05	5	Degree of protection: IP65 See B-127 for dimensions.

A	Accessories							8 Se
							Package Quantity:1	Pilot
	Shape		Specification	Part No.	Ordering No.	Package Quantity	Remarks	es & Pilot Lights
	Rubber Boot ①	1. For round units (LB6/LB6M)		LB9Z-D6	LB9Z-D6	1		APEM
		2. For square units (LB7/LB7M)	Rubber (Transparent silicon rubber)	LB9Z-D7	LB9Z-D7	1	Degree of protection: IP65 See B-128 for dimensions. See B-135 for mounting.	Switches & Pilot Lights Control Boxes
For LB Series Flush Bezels	3	3. For rectangular units (LB8/LB8M)		LB9Z-D8	LB9Z-D8	1		Emergency Stop Switches Enabling Switches
For LB Series	Mounting Hole Plug	1. For round units (LB6/LB6M)	[Plug] – Polyamide (Black)	LB9Z-BS6*	LB9Z-BS6*	1		Safety Products Explosion Proof Terminal Blocks
	2	2. For square units (LB7/LB7M)	[Gasket] Nitrile rubber	LB9Z-BS7*	LB9Z-BS7*	1	* Color code: blank (black), W (white) Degree of protection: IP65 Panel thickness: 0.5 to 3.2 mm See B-128 for dimensions.	Relays & Sockets Circuit Protectors
	3	3. For rectangular units (LB8/LB8M)	[Mounting Plate] Stainless Steel	LB9Z-BS8*	LB9Z-BS8*	1		Power Supplies
	Mounting Hole Plug	1. For round units (LBW6/LB6W6M)	[Plug] Polyamide (Black) [Gasket]	LBW9Z-BS6*	LBW9Z-BS6*	1	* Color code: blank (black), W (white) Degree of protection: IP65	Controllers Operator Interfaces Sensors
Bezels	2	2. For rectangular units (LBW7/LB6W7M)	[Mounting Plate] Stainless Steel	LBW9Z-BS7*	LBW9Z-BS7*	1	Panel thickness: 0.5 to 3.2 mm See B-128 for dimensions.	AUTO-ID
For LBW Series Flush I	Mounting Hole Plug	Metal	[Plug] Zinc diecast [Locking Ring] Polyamide [Gasket] Nitrile rubber	LW9Z-BM	LW9Z-BM	1	Degree of protection: IP66 Tightening torque: 1.2 N·m See B-128 for dimensions.	Flush Silhouette ø16 ø22
	Mounting Hole Plug	Rubber	Nitrile rubber	LW9Z-BP1	LW9Z-BP1	1	Degree of protection: IP65 Tightening torque: 2.0 N·m See B-128 for dimensions.	ø30 Miniature Pilot Lights
Terr ①	rminal Cover ②	1. For SPDT/DPDT contacts	_ PBT	LB9Z-VL2	LB9Z-VL2PN10	10	See B-128 for dimensions.	CW
		2. For 3PDT contacts	(White)	LB9Z-VL3	LB9Z-VL3PN10	10	See B-131 for mounting.	LW-F
Key	y Reversible key Non-reversible key	For key selector switches (wave key)	Metal (zinc nickel-plated)	LA9Z-SK-*	LA9Z-SK-*PN02	2	Specify a key number in place of * in the Part No. Blank: Standard key OH (reversible) 1H to 2H: Reversible key 3H to 6H: Non-reversible key See B-128 for dimensions.	LBW UP Flush Bezel
Key	s	For key selector switches (disc tumbler key)	Metal (brass nickel-plated) 18×1.8×25.1 t1.8	AS6-SK-132	AS6-SK-132PN02	2		

APEM

Switches

Circuit

Protectors

Controllers

Operator

Sensors AUTO-ID

Power Supplies

Pilot Lig Control Boxes Emergency Stop Switches Enabling

For LB Series Standard Bezel

Rubber Boot For round units (LB9Z-D1)





Mounting Hole Plug

AL-B6 Safety Products Explosion Proof Terminal Blocks Relays & Sockets



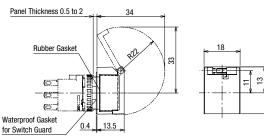
For square units

11.5

(LB9Z-D2)

□20

LED Illumination Switch Guard (Spring Return) For round / square units (AL-K6SP) Interfaces



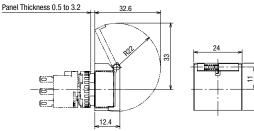
ø22

ø30 Miniature

Pilot Lights

CW

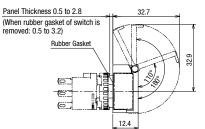
LW-F



For Single Board Mounting (LA9Z-K3) (Note)

Switch Guard (Remains Open)

UP For round / square units (Note) (LB9Z-K2) Flush Bezel

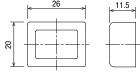




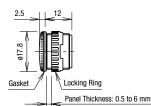
13

3.5

For rectangular units (LB9Z-D3)

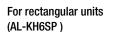


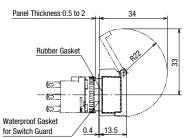
AL-BM6

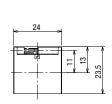


Mounting Hole Layout



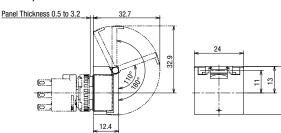






Note: The panel depth is the same for switches with or without switch guards. Both types can be installed on the same PC board.

For rectangular units (Note) (LB9Z-K3P)



Switches & Pilot Lights Dimensions for Accessories All dimensions in mm. For LB Series Flush Bezel **Rubber Boot** For round units (LB9Z-D6) For square units (LB9Z-D7) For rectangular units (LB9Z-D8) □24 30 APEM Control Boxes Emergency Stop Switches Enabling Switches **Mounting Hole Plug** Safety Products For round units Panel Thickness: 0.5 to 3.2 mm For square units For rectangular units Gasket Explosion Proof (LB9Z-BS6*) (LB9Z-BS7*) (LB9Z-BS8*) Mounting Plate Locking Ring Terminal Blocks Relays & Sockets Circuit Protectors 18.1 2 Power Supplies **Mounting Hole Layout** Mounting Hole Layout Mounting Hole Layout LED Illumination L= □18.2 ^{+0.2} 24.2 +0.2 Controllers $18.2^{+0.2}_{-0.2}$ Operator Interfaces Sensors AUTO-ID For LB Series Flush Bezel **Mounting Hole Plug** Metal (LW9Z-BM) Mounting Hole Layout Rubber (LW9Z-BP1) Mounting Hole Layout Rubber Gasket Panel Thicknes 0.8 to 6 12 3 .1 \$22.3⁴⁹² Locking Ring M12^{P:1} ø22 **25.8** ø30 Gasket Miniature Locking Ring 2 (Pilot Lights For round units Mounting For round units Mounting Panel Thickness: 0.5 to 3.2 mm (LBW9Z-BS6*) Hole Layout (LBW9Z-BS6*) Hole Layout Gasket Mounting Plate 22.5^{+0.2} Locking Ring CW LW-F 18.1 2 UP Key (Wave Key) **Terminal Cover** Flush Bezel For SPDT/DPDT contacts For 3PDT contacts Reversible key Non-reversible key (LB9Z-VL2) (LB9Z-VL3) 8.8 22 22 8.8 29.9 29.9 TOP TOP []]Deg DEG 4 4 ුධු 5 6.3 -5 Logo Side Logo Side Key No. Key No. -7 친권 0 Н ຊູ່ ω Η 12.5 12.5 24.8 196

Key No. Side

Key No. Side

Accessories

		Shape		Material / Dimensions (W×H×D)	Part No.	Ordering No.	Package Quantity	Remarks
	L	_ens ① _	1. For round units	Polyarylate ø15.4 H4	AL6M-L*	AL6M-L*PN05	5	Specify the color code in place of * in the part no.
-			2. For square units	Polyarylate □15.4 H4	AL6Q-L*	AL6Q-L*PN05	5	A: Amber, C: Clear, G: Green, R: Red, S: Blue, Y: Yellow
		3 4	3. For rectangular units	Polyarylate W21.4 H4 D15.4	AL6H-L*	AL6H-L*PN05	5	Note: Use a clear lens for pure white (PW)
			4. For dome units	Polyarylate ø16 H9.4	AL6D-L*	AL6D-L*PN05	5	illumination.
	E	Buttons ① ②	1. For round units	Polyarylate ø15.4 H4	AB6M-B*	AB6M-B*PN05	5	
-		<u> </u>	2. For square units	Polyarylate □15.4 H4	AB6Q-B*	AB6Q-B*PN05	5	Specify the color code in place of * in the part no. B: Black, G: Green, R: Red, S: Blue
-		3	3. For rectangular units	Polyarylate W21.4 H4 D15.4	AB6H-B*	AB6H-B*PN05	5	W: White, Y: Yellow
Corioo	N N	Marking plate	1. For round units	Acrylic ø13.7 H0.8	AL6M-*	AL6M-*PN05	5	Specify the color code in place of * in the part no.
	ב	3	2. For square units	Acrylic D13.7 H0.8	AL6Q-*	AL6Q-*PN05	5	B: Black, W: White
-			3. For rectangular units	Acrylic W19.7 H0.8 (0.4) D13.7	AL6H-*	AL6H-*PN05	5	See B-133 for dimensions and engraving area.
_	C	Diffusion plate	For dome units	Acrylic ø13.6 H2.8	AL6D-W	AL6D-WPN05	5	White
-	A	Anti-rotation Ring	Standard bezel	Metal (Stainless steel) □17.9 t0.6	LB9Z-LP1	LB9Z-LP1PN10	10	
-	A	Anti-rotation Ring	Flush bezel	Metal (Stainless steel) 21×8.2×20.6 t0.8	LB9Z-LP6	LB9Z-LP6PN10	10	
	L	Lens	1. For round flush units	Polyarylate ø20 H4	HA9Z-L11*	HA9Z-L11*PN05	5	Specify the color code in place of * in the part no. A: Amber, C: Clear, G: Green, R: Red, S: Blue, Y: Yellow
			2. For square flush units	Polyarylate ø20 H4	HA9Z-L21*	HA9Z-L21*PN05	5	Note: Use a clear lens for pure white (PW) illumination.
-			3. For round extended units	Polyarylate ø20.2 H7.8	LBW9Z-L12*	LBW9Z-L12*PN05	5	Specify the color code in place of * in the part no. A: Amber, G: Green, R: Red, S: Blue, W: clear, Y: Yellow Note: Use a clear lens for pure white (PW) illumination.
-		Buttons	1. For round flush units	Polyacetal ø20 H3.2 (L5)	HA9Z-B11*	HA9Z-B11*PN05	5	
DM Corioo			2. For square flush units	Polyacetal ø20 H3.9 (L5)	HA9Z-B21*	HA9Z-B21*PN05	5	Specify the color code in place of $*$ in the part no.
		4	3. For round extended units	Polyacetal ø19.8 H7.3 (L9.1)	HA9Z-B12*	HA9Z-B12*PN05	5	B: Black, G: Green, R: Red, S: Blue W: White, Y: Yellow
-			4. For square extended units	Polyacetal ø19.8 H8 (L9.1)	HA9Z-B22*	HA9Z-B22*PN05	5	
	Ν	Marking plate	1. For round flush units	Acrylic ø17 t0.85 (L1.1)	HA9Z-P1*	HA9Z-P1*PN05	5	Specify the color code in place of * in the part no.
	M		2. For square units	Acrylic □18.4 t0.85	HA9Z-P2*	HA9Z-P2*PN05	5	B: Black, W: White See B-134 for dimensions and engraving area.
_	A	Anti-rotation Ring	LBW series	Metal (Stainless steel) 25×8.2×24.8 t0.8	LBW9Z-LP6	LBW9Z-LP6PN10	10	
L	ock	ing ring	All models	Polyamide ø17.9 H3.9	LB9Z-LN	LB9Z-LNPN10	10	
	llum opera	inated selector knob ator	Illuminated selector switches	<for operator=""> Polyarylate Waterproof O-gasket Nitryl rubber ø15.4 H13</for>	LA1A-F*	LA1A-F*PN02		Specify the color code in place of $*$ in the part no. G: green, R: red, W: white

APEM

ø22 ø30 Miniature Pilot Lights

> CW LW-F

UP Flush Bezel

Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors Power Supplies LED Illumination Controllers Operator Interfaces Sensors AUTO-ID

Maintenance Parts

LB Series Maintenance LED Unit

Shape	Rated Operating Voltage	Part No. (Ordering No.)	* Color Code
LED Unit	5V DC	LB9Z-LED5*	A: Amber
	12V AC/DC	LB9Z-LED1*	G: Green PW: Pure White R: Red
	24V AC/DC	LB9Z-LED2*	S: Blue

• All LB/LBW series contain an LED unit.

• Use a pure white (PW) LED unit for yellow (Y) illumination.

Transformer

				Package Quantity: 1
Transformer	Operating Voltage	Operating Voltage Range	Part No. (Ordering No.)	Applicable Load
For 24V	100/110V AC	100/110V AC ±10%	TWR512	
	200/220V AC	200/220V AC ±10%	TWR522	LB9Z-LED2* (24V AC/DC LED unit)
	400/440V AC	400/440V AC±10%	TWR542	(

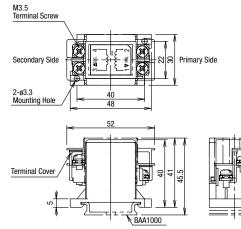
• Terminal cover (TWR-VL3) is supplied as standard.

• Connect one LB9Z-LED2* to a transformer.

Specifications

Part No.	TWR5□2
Operating Voltage	100/110V AC, 200/220V AC, 400/440V AC (50/60Hz)
Current Draw	2.4VA
Rated Insulation Voltage	600V
Insulation Resistance	100 M Ω minimum (500V DC megger)
Operating Temperature	-30 to +60°C (no freezing)
Storage Temperature	-40 to +80°C (no freezing)
Operating Humidity	35 to 85% RH (no condensation)
Vibration Resistance	Damage Limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s ² Operating Extremes: 100 m/s ²
Dielectric Strength	2,500V AC, 1 minute
Terminal Screw	M3.5
Applicable Wire	2 mm ² maximum, 2 wires maximum
Weight (approx.)	87g

Dimensions



Package Quantity: 1

_	
(ø22
(ø30
I	Miniature
I	Pilot Lights

Accessories

35mm DIN Rail

Part No.	Ordering No.	Length	Material	Package Quantity	
BAA1000	BAA1000PN10	1,000mm	Aluminum (approx. 200g)	10	

End Clip

						_
Part No.	Ordering No.	Applicable DIN Rail	Package Quantity	Dimensi	ions	-
BNL6	BNL6PN10	BAA1000 BAP1000	10	(42)	Approx. 15g Steel (Zinc-plated)	
BC9Z-E/NS35N	BC9Z-E/NS35NPN10	BAA1000 BAP1000	10		Approx. 15g	

• See H-071 for DIN rail products.

• Use end clip BC9Z-E/N35NPN10 when using 400/440V AC primary voltage transformers.



bownload catalogs and CAD from http://eu.idec.com/downloads

APEM

Control Boxes Emergency Stop Switches

Enabling Switches

Safety Products

- Explosion Proof
- Terminal Blocks
- Relays & Sockets Circuit
- Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors AUTO-ID

All dimensions in mm.

- CW LW-F

UP

Flush Bezel

Instructions

2) Use non-corrosive liquid flux.

before soldering.

Terminal Cover

Solder/tab terminal

Standard Bezel

Wiring

Safety Precautions

cause electrical shocks or fire hazard.

• Turn off the power to the LB/LBW series before installation, removal,

wiring, maintenance, and inspection. Failure to turn power off may

1) Solder the terminals at 350°C within 3 seconds using a 60W

soldering iron. Sn-Ag-Cu type is recommended when using leadfree

solder. When soldering, do not touch the LB series with the soldering

iron. Also ensure that no tensile force is applied to the terminal.

Do not bend the terminal or apply excessive force to the terminal.

Insert the terminal cover into the contact block with the TOP markings

Note: When wiring, insert the lead wires into the terminal cover holes

Terminal Cove

on the contact block and the terminal cover in the same direction.

After wiring, the terminal covers cannot be installed.

Switches & Pilot Lights

APEM

Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relavs & Sockets Circuit Protectors Power Supplies LED Illumination Controllers Operator Interfaces Sensors AUTO-ID



Flush Bezel erminal Cove

Operating Environment

- Do not use the LB/LBW series where corrosive gases exist or under an environment exceeding the operating temperature and humidity ranges. Otherwise, damages due to contact failure or change of surface color may occur.
 - · Major parts of the switch are plastic. Scratches or damages may occur when scraped with a sharp object or applied with excessive load or shock. Note that this may cause operation and appearance failure of the operator and bezel.
 - · Adherence of detergent, cutting oil, or special chemicals to the switch may result in operation failures and appearance failures such as change of surface color.

. For wiring, use wires of a proper size to meet voltage and current requirements. Solder correctly according to the instructions in "Wiring" and "Notes on Terminal Cover." Improper soldering may cause overheating and create a fire hazard. Also, when using tab terminals, use receptacles of appropriate size.

Handling

Contacts (micro switch)

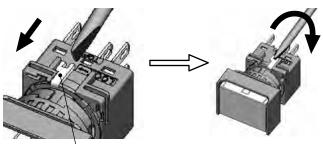
When using NC (normally closed) and NO (normally open) contacts of the same microswitch, avoid connections of different voltages, or connections of different types of power supplies. Failure to observe this instruction may cause a short-circuit.

Protection against oil (IP65)

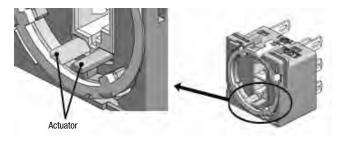
The LB series has been tested according to JIS C 0920: Appendix 1 by using water insoluble cutting oil Class N3, No. 8 (JIS K 2241) to prove that the switches will not be damaged by oil drops or splashes. This may not apply to special types of oils. Contact IDEC for details.

Removing and Installing the Contact Block

- 1) Turn the locking lever on the contact block in the direction opposite to the arrow on the housing. Then the contact block can be removed.
- 2) 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.
- Note: When removing/installing the contact block, or when using the contact block alone, do not apply excessive force on the actuator. Deformed actuator may affect contact operation.



Locking Lever



• To avoid burning your hand, use the lamp holder tool when replacing the lamps.

ΠP

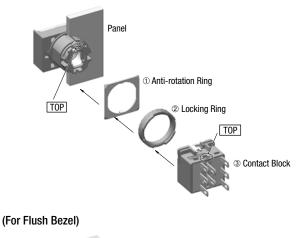
Flush Bezel

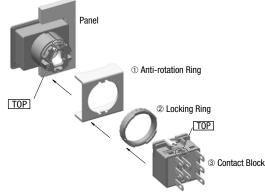
Instructions

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 to the operator.

(For Standard Bezel)





Notes on Mounting

Use the optional ring wrench (MT-001) to mount the operator onto the panel. The recommended tightening torque is 0.5 to 0.7 N·m. Do not use pliers. Excessive tightening will damage the locking ring.

Replacing the Lens and Marking Plate

Removing

[Removing the operator] Standard Bezel

- 1) From the opposite side of the TOP marking, remove the operator
- (lens, marking plate, and lens holder) using the optional lens removal tool (MT-101) by gripping the recesses of the color lens.



Flush Bezel

- 1) From the opposite side of the TOP marking, push the tip (width: 3 mm, thickness: 0.5 mm) of the flat screwdriver to the groove of the color lens and pull out the operator (lens, marking plate, lens holder).
- Note: For metallic bezels, the bezel may be damaged if the screwdriver is inserted from the TOP side or inserted deeply or with force into the groove of the lens.



[Removing the Operator]

 Remove the marking plate by pushing the lens from the rear to disengage the latches between the lens and holder, using the screwdriver as shown below.



Note: The translucent in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

LBW Series Pushbutton (button style)

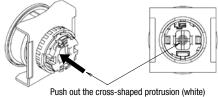
LBW series pushbuttons (button style, see **B-097**) can be removed according to the following procedure. LBW series pushbuttons (button style) cannot be removed from the front of the panel.

[Removing the Operator]

- 1) Detach the operator unit and contact block. (See Removing and Installing the Contact Block on B-131)
- Remove the button unit (button, button holder) by pushing out the cross-shaped protrusion (white) at the back of the operator with a screwdriver.

LBW Series Illuminated Pushbutton (round extended)

Screw-in lens. The lens can be removed by turning anticlockwise.



Push out the cross-shaped protrusion (white) from the back of the operator unit.

Control Boxes

APEM

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Flush Silhouette ø16 ø22 ø30 Miniature Pilot Lights

CW	
LW-F	
LB	
LBW	
UP	
Flush Bezel	

Stop Switches

Safety Products

Explosion Proof Terminal Blocks

Relays & Sockets

Power Supplies

LED Illumination

Controllers Operator

Interfaces

Sensors

AUTO-ID

ø22

ø30

CW

LW-F

UP

Flush Bezel

Miniature

Pilot Lights

Circuit

Protectors

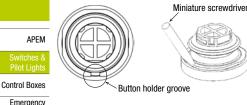
Enabling

Switches

Instructions

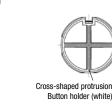
Removing the Button

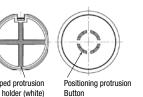
The button can be removed by inserting a small screwdriver into the groove of the button holder.



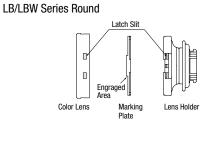
To attach the button to the button holder, align the groove on crossshaped protrusion with the positioning protrusion on the button and insert securely.

Installing

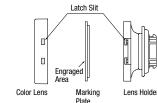




Insert the marking plate into the color lens, and press the lens onto the lens holder to engage the latches. Pay attention to the orientation of the marking plate.

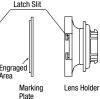


LB Series Square/Rectangular



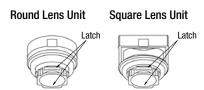
LBW Series Square

Color Lens



Installing the Lens Unit and Contact Block

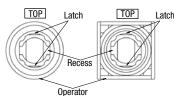
To insert the lens unit into the operator, press in the lens unit by making sure that the latch on the operator is aligned with the latch on the lens unit.



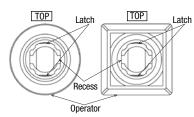
Standard Bezel

Button holder (white)

Button



Flush Bezel

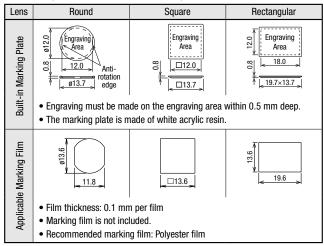


Marking Plates and Films

For illuminated pushbuttons, pushbuttons with lens, and pilot lights, legends and symbols can be engraved on the marking plates, or printed film can be inserted under the lens for labelling purposes.

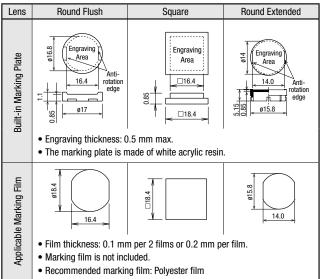
Marking Plate and Marking Film Size

LB Series (flush bezel / standard bezel)

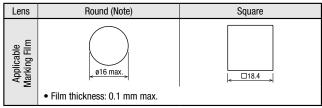


Instructions

LBW Series

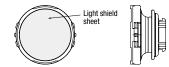


LBW Series (ring-illuminated model)



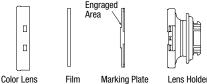
Use a film with adhesive and attach on the light shield sheet. Make sure Note: that the marking film is properly installed and does not protrude from the edge of light shield sheet.

Ring Illuminated Model Lens Holder

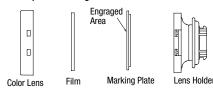


Insertion Order of Marking Plate and Film

LB/LBW Series Round



LB/LBW Series Square/Rectangular



Note: Film is not included.

The marking plate must be engraved on the specified side as shown above. Pay attention to the orientation of the marking plate. When inserting a film, make sure to insert between the color lens and marking plate.

Note: Marking plate is not supplied with ring-illuminated model.

Replacing the LED Unit

The LED unit can be replaced without tools by pulling out the lens unit from the contact block.



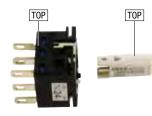




Contact Block

Orientation of the LED unit

Insert the LED unit into the contact block with the TOP markings on the contact block and LED unit in the same orientation.



Notes on replacing the LED Unit

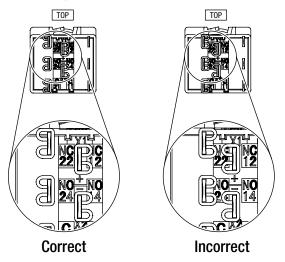
When replacing the LED unit, make sure that static electricity is not applied.

Make sure that the LB/LBW series has cooled down before replacing the LED unit. To avoid burn injuries, be careful not to touch the unit while it is still hot.

Notes on Using Quick Connect Terminals

1) Use #110 tab guick connects, 0.5 mm-thick.

2) When connecting the terminals on the left and center, make sure that surfaces of the quick connects face each other. Otherwise, short-circuit may occur.



3) Apply only horizontal force against the panel to the tab. The switch may be damaged if a force other than a horizontal force is applied.

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces Sensors

AUTO-ID

ø22 ø30 Miniature Pilot Lights CW LW-F

Flush Bezel

UP

Instructions

Installing the Rubber Boot

When using in places where the switches are subjected to water splash or an excessive amount of dust, make sure to use the optional rubber boot.

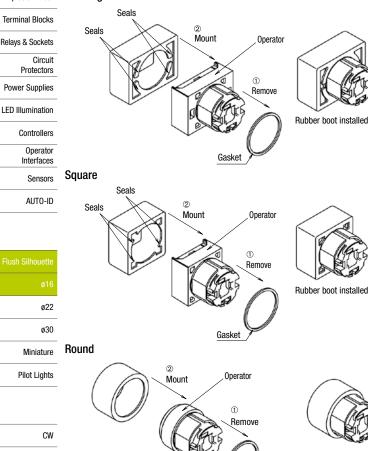
As shown in the drawing below, \odot remove the gasket from the operator, and @ attach the rubber boot from the front (button side).

Standard Bezel

For rectangular and square units, pull out the seals of the rubber boot and place them around the operator sleeve as shown below. Make sure that the seals are not twisted or tucked inside and that the gasket is removed, otherwise waterproof and dustproof characteristics are not ensured.

How to Install the Rubber Boot

Explosion Proof Rectangular



Gasket

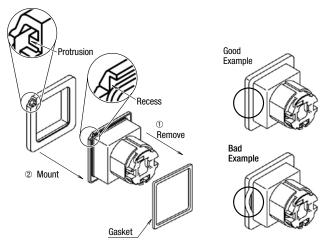
Rubber boot installed

Flush Bezel

Mount the rubber boot so that the protrusion at the bottom surface of the operator fits with the recess on the operator, placing the rubber boot all around the operator sleeve.

Make sure that the protrusion on the rubber boot and the recess on the operator is properly fitted, otherwise, the waterproof and dustproof characteristics are not ensured.

How to Install the Rubber Boot



Note: Install the rubber boot before mounting the unit to the panel.

Maintained Pushbuttons

Observe the following instructions to prevent malfunction or damage.

- Do not stop halfway when operating pushbuttons or illuminated pushbuttons. Make sure to push the button fully.
- Do not replace the operator or lens unit with the pushbutton in a locked status.
- Do not remove the contact unit with the pushbutton in a locked status.
- Do not operate the pushbutton without the contact unit.

Pushbuttons and Illuminated Pushbuttons with Switch Guard

Do not apply force to the switch guard when the switch guard is not attached to a panel. When opening the switch guard, do not open more than 180° . The hinge may break.

Selector Switches

When turning the operator or key, make sure that they are properly turned to each position.

Selector Switches with Key

Observe the following instructions to prevent malfunction or damage.

- Insert the key to the bottom of the key hole.
- Do not remove the key from any key retained position.
- Besides the standard key (key number 0H), six other key numbers are available. Use a key of the matching number with the key cylinder. The standard key does not have a key number indication.
- Keys are available in two types.
 Key numbers 0H (standard), 1H, and 2H are reversible keys which can be inserted in two ways.

Key numbers 3H, 4H, 5H, and 6H are non-reversible keys. Make sure of correct insertion direction.

LW-F

UP

Flush Bezel

APEM

Control Boxes

Emergency

Enabling

Switches Safety Products

Stop Switches

u LIVI

Control Boxes

Emergency Stop Switches Enabling

Switches

Safety Products Explosion Proof Terminal Blocks

Relays & Sockets

Power Supplies

LED Illumination

Controllers Operator

Interfaces

Sensors

AUTO-ID

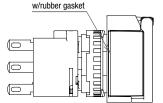
Circuit Protectors

Install the switch onto the switch guard with rubber gasket, and mount on the panel.

Rubber Gasket when using LB9Z-K2 Switch Guard (remains

Choose to use or not to use the rubber gasket for the switch referring

to the conditions described below. Note that the degree of protection is



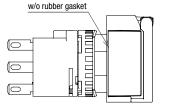
• When the panel thickness is 2.8 to 3.2mm

open) for Round/Square Units

IP40 with or without the rubber gasket.

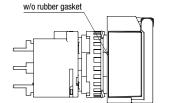
• When the panel thickness is up to 2.8mm

Remove the rubber gasket from the switch and install the switch onto the switch guard, and mount on the panel (discard the rubber gasket).



• Single board mounting

Remove the rubber gasket from the switch and install the switch onto the switch guard, and mount on the panel (discard the rubber gasket).



ø22
ø30
Miniature
Pilot Lights

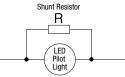
CW
LW-F
LB
LBW
UP
Flush Bezel

SEUEN01A_B LB June 2021

Countermeasures against Dim Lighting

Leakage currents through transistors or a contact protection circuit may cause the LED lamp to illuminate dimly even when the output is off.

When the LED lamp is illuminated by a transistor output, take the following measure.

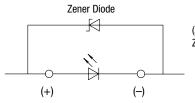


Leakage Current Shunt Resistor Allotment Table (Recommended)

Leakage Current Io	Shunt resistance R				
	Red (R), White (W)		Green (G)		
	Resistance	Rated Power	Resistance	Rated Power	
0.1 mA max.	13kΩ	0.25W	18kΩ	0.25W	
0.1 to 0.7 mA	2k Ω	0.25W	2.7kΩ	0.25W	

Noise

LED elements deteriorate due to extraneous noise, resulting in significant decrease in luminance, hue change, or failure of lighting. When such effects are anticipated, take a protection measure shown below. However, measures may differ according to operating environment and condition



(Zener diode reference value) Zener voltage: 4.3 to 4.7V

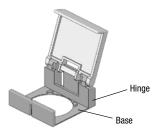
Static Electricity (UP Series)

UP series are delicate products that may be damaged by static electricity Make sure to take measures to prevent static electricity.

Switch Guards

Opening/closing the Switch Guard

When opening/closing the switch guard while the switch guard is not installed on a panel, make sure to hold the hinge. Holding the base might result in damage. Also do not apply force on the guard in other than open/close directions, otherwise the hinge may be damaged.



Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

1. Notes on contents of Catalogs

(1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.

Also, durability varies depending on the usage environment and usage conditions.

- (2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.
- (3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.
- (4) The content of Catalogs is subject to change without notice.

2. Note on applications

- (1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards. Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.
- (2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.
- (3) When using IDEC products, be cautious when implementing the following.
 i. Use of IDEC products with sufficient allowance for rating and performance
 - Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails
 - Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications
- (4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.
- (5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.
 - i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health
 - ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems
 - iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

IDEC CORPORATION

Head Office

6-64, Nishi-Miyahara-2-Chome, Yodogawa-ku, Osaka 532-0004, Japan

USA	IDEC Corporation	Tel: +1-408-747-0550	opencontact@idec.com	Hong K
Germany	APEM GmbH	Tel: +49-40-25 30 54-0	service@eu.idec.com	China
Singapore	IDEC Izumi Asia Pte. Ltd.	Tel: +65-6746-1155	info@sg.idec.com	
Thailand	IDEC Asia (Thailand) Co., Ltd	Tel: +66-2-392-9765	sales@th.idec.com	
India	IDEC Controls India Private Limited	Tel: +91-80679-35328	info_india@idec.com	Japan
Taiwan	IDEC Taiwan Corporation	Tel: +886-2-2577-6938	service@tw.idec.com	

Specifications and other descriptions in this brochure are subject to change without notice.

3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

4. Warranty

(1) Warranty period

The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.

(2) Warranty scope

Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.

- i. The product was handled or used deviating from the conditions / $\ensuremath{\mathsf{environment}}$ listed in the Catalogs
- ii. The failure was caused by reasons other than an IDEC product
- iii. Modification or repair was performed by a party other than IDEC
- iv. The failure was caused by a software program of a party other than $\ensuremath{\mathsf{IDEC}}$
- v. The product was used outside of its original purpose
- vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs

vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from $\ensuremath{\mathsf{IDEC}}$

viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)

Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

- Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)
- (2) Maintenance inspections, adjustments, and repairs
- (3) Technical instructions and technical training

IDEC Izumi (H.K.) Co., Ltd.

IDEC (Shanghai) Corporation

Beiiing Branch

IDEC Corporation

Guangzhou Branch

Kona

(4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

🖵 www.idec.com

Tel: +86-20-8362-2394

Tel: +81-6-6398-2527



idec@cn.idec.com idec@cn.idec.com idec@cn.idec.com jp_marketing@idec.com

