



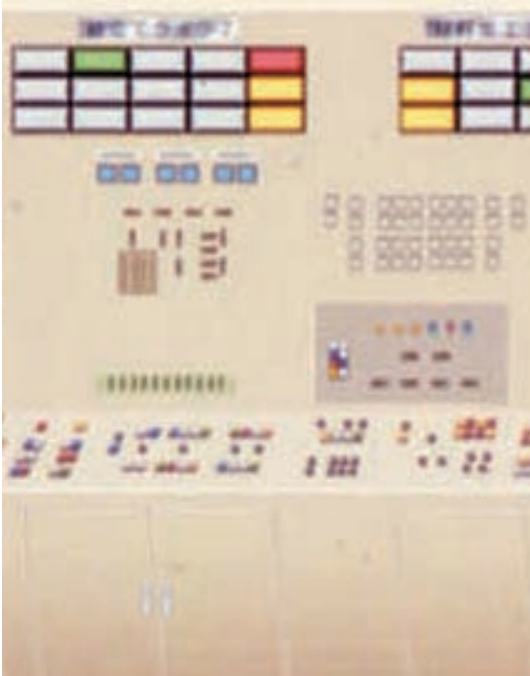
MC SERIES

Illuminated Control Units

Super LED or Incandescent Illumination
Removable Contact Blocks



IDEC IZUMI CORPORATION



MC SERIES ILLUMINATED CONTROL UNITS

Super Bright LED or Incandescent Lamp Illumination New Rectangular- and Square-body Control Units

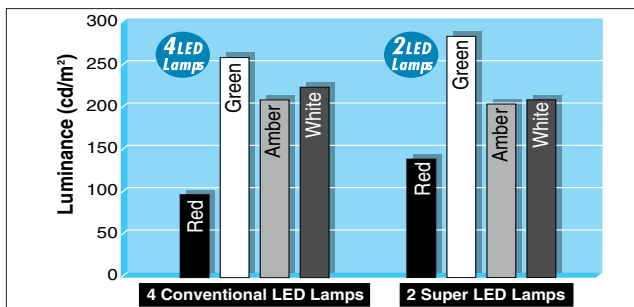
- Compatible with both LED and incandescent lamps.
- Super LED improves visibility and saves energy.
- Removable contact blocks promote easy PC board mounting.
- Snap-action switching contacts.
- Slow-action and maintained types are also available.
- The solder terminal accepts a quick connector.
- Illumination face division: Full to 4-way split (MC3D) or 2-way split (MC2D).
- Lens and color screens can be changed easily without the need for removal of power, because contacts are not operated when the lens is first inserted into the housing.
- UL and c-UL recognized, EN compliant



Substantial Savings on both Power & Cost by using Super LED Technology

The same brightness with only half the number of AC/DC compatible LEDs.

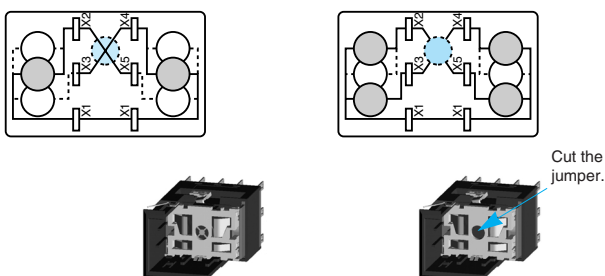
The total power consumption is reduced to less than 50% when compared with IDEC's MCM micro command control lights.



Built-in Jumper for Modification from Full to Split Illumination

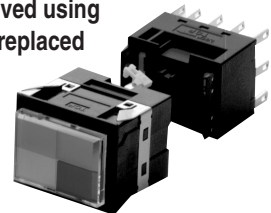
The MC3 series has a built-in jumper for full illumination.

The built-in jumper can be cut for 2-, 3-, or 4-way split illumination using a jumper cutter (see page 15).



Removable Contact Block

The contact block can be removed using a lock lever. Operators can be replaced by removing the contact block even after wiring.

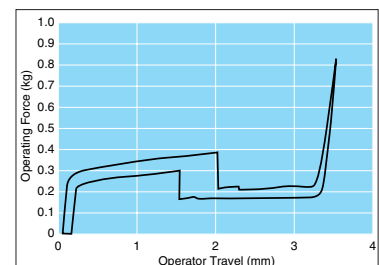
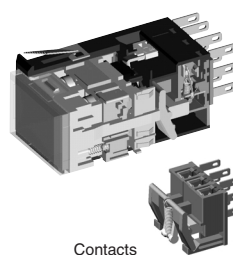


Multiple switches can be easily mounted on a PC board. Flat cable wiring ensures quick and easy connections.



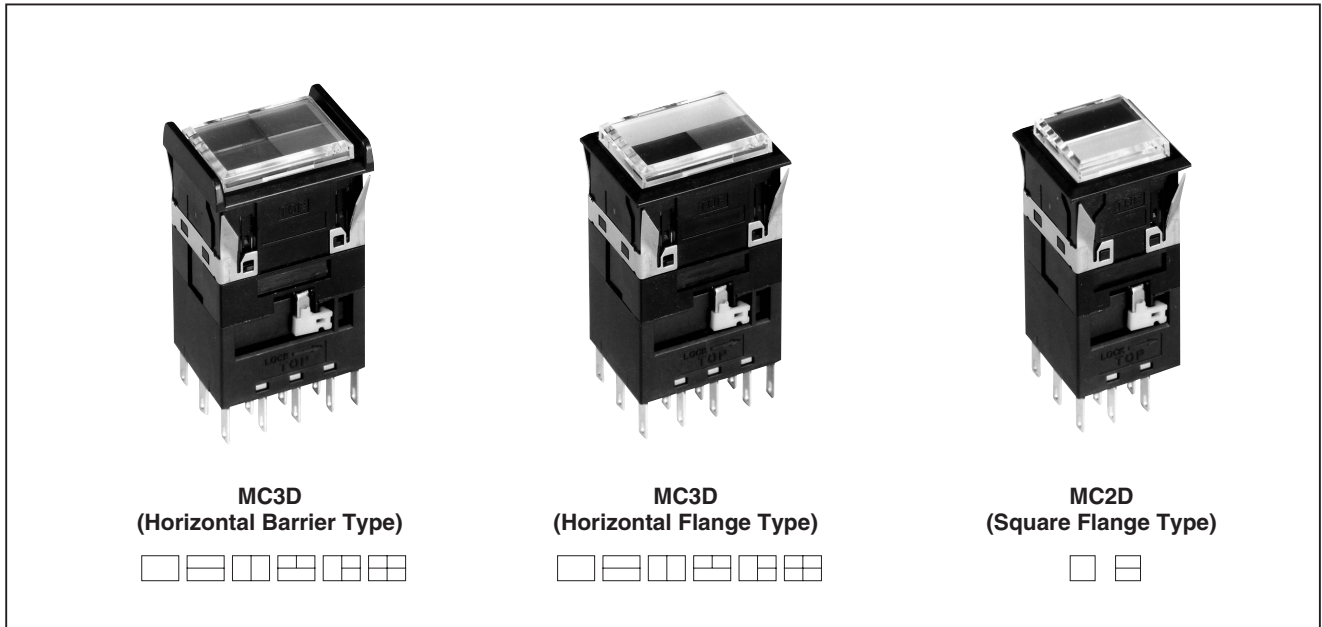
Reliable Positive-action Operator & Snap-action Contacts

The MC series features a positive-action operator. This applies the operating force directly to the microswitch, through the lens, lens holder, pressure plate, and plunger. Snap-action contacts provide tactile feedback whenever the switch is actuated.



MC SERIES ILLUMINATED CONTROL UNITS

Types



Features

Item	MC3D (Rectangular)		MC2D (Square)
	Horizontal Barrier Type	Horizontal Flange Type	Flange Type
Illumination Face Size	18.8 × 26.8 mm		18.8 × 18.8 mm
Face Division	LED: Full to 4-way split Incandescent: Full only		LED: Full or horizontal 2-way split Incandescent: Full only
Number of Lamps	Full illumination: 2 (LED or incandescent) Vertical 2-way split: 2 (LED) Horizontal 2-way, 3-way, 4-way split: 4 (LED)		Full: 1 (LED or incandescent) Horizontal 2-way split: 2 (LED)
Illumination Color	Red, Green, Amber, White, Yellow, Blue		
Contact Material	Silver or gold contact microswitch		
Number of Contacts	SPDT, DPDT, 3PDT		SPDT, DPDT
Operation	Momentary (snap action or slow action), Maintained, Display Only		
Terminal Style	Solder tab terminal #110 (compatible with quick connect terminals), PC board terminal		
Housing Color	Black, Gray		

Specifications

Operating Temperature	-25 to +40°C (no freezing)
Operating Humidity	35 to 90% RH (no condensation)
Insulation Resistance	Between live and dead metal parts: 100 MΩ (500V DC megger) Between terminals of different poles: 100 MΩ (500V DC megger)
Dielectric Strength	Between live and dead metal parts: 2000V, 1 minute Between live parts of different poles: 2000V, 1 minute Between terminals of the same pole: 1000V, 1 minute
Contact Resistance	50 mΩ maximum (initial value)
Vibration Resistance	Operating extremes: 5 to 55 Hz, amplitude 0.5 mm Damage limits: 5 to 55 Hz, amplitude 0.5 mm (2 hours each in 3 axes)
Shock Resistance	Operating extremes: 200 m/s ² Damage limits: 500 m/s ²
Mechanical Life	Momentary: 1,000,000 operations minimum Maintained: 250,000 operations minimum Slow action: 1,000,000 operations minimum
Electrical Life	100,000 operations minimum
Operating Frequency	Momentary: 1,800 operations/hour Maintained: 900 operations/hour Slow action: 1,800 operations/hour
Degree of Protection	IP40 (operator)

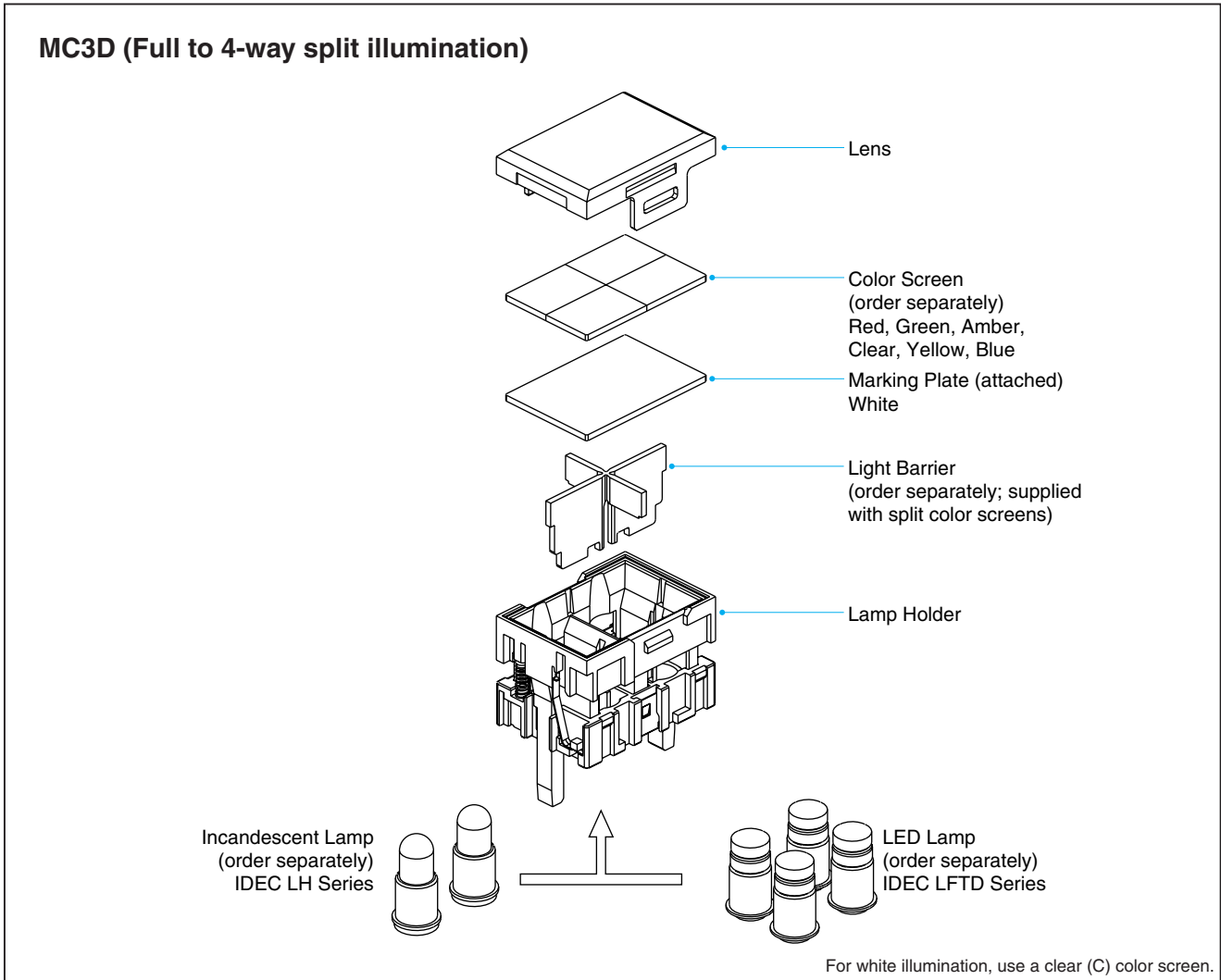
Contact Ratings

Rated Insulation Voltage		250V AC/DC			
Rated Operating Voltage		30V	125V	250V	
Rated Operating Current	AC 50/60Hz	Resistive load	—	3A	2A
		Inductive load	—	2A	1.5A
	DC	Resistive load	2A	0.4A	—
		Inductive load	1A	0.2A	—
Rated Thermal Current		5A			
Contact Material		Silver			

Rated Insulation Voltage		250V AC/DC	
Rated Operating Voltage		30V DC	125V AC
Rated Operating Current (resistive load)		0.1A	0.1A
Rated Thermal Current		3A	
Contact Material		Gold-clad silver cross-bar contact	

MC SERIES ILLUMINATED CONTROL UNITS

Illumination Unit Structure



Illumination Face Division & Illumination Color

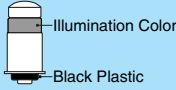
Used For	MC3D						MC2D	
Type No.	MC9Z-PA3*P	MC9Z-3DB	MC9Z-3DC	MC9Z-3DD	MC9Z-3DE	MC9Z-3DF	MC9Z-PA2*P	MC9Z-2DB
Face Division								
Illumination Color and Size	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*: Color Code</p>	<p>R</p> <p>GD</p> <p>A</p> <p>C</p> <p>Y</p> <p>S</p> <p>Light Barrier</p>	<p>R C</p> <p>GD Y</p> <p>A S</p> <p>Light Barrier</p>	<p>R</p> <p>GD</p> <p>A</p> <p>C</p> <p>Y</p> <p>S</p> <p>R C</p> <p>GD Y</p> <p>A S</p> <p>Light Barrier</p>	<p>R C</p> <p>GD Y</p> <p>A S</p> <p>R C</p> <p>GD Y</p> <p>A S</p> <p>Light Barrier</p>	<p>R R</p> <p>GD GD</p> <p>A A</p> <p>C C</p> <p>Y Y</p> <p>S S</p> <p>Light Barrier</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*: Color Code</p>	<p>R</p> <p>GD</p> <p>A</p> <p>C</p> <p>Y</p> <p>S</p> <p>Light Barrier</p>
Unit Quantity	Same color 5 pcs/set	6 pcs/set	6 pcs/set	12 pcs/set	12 pcs/set	12 pcs/set	Same color 5 pcs/set	6 pcs/set

* Color Code: R (red), GD (green for LED), GL (green for incandescent), A (amber), C (clear), Y (yellow), S (blue)

MC SERIES ILLUMINATED CONTROL UNITS

Applicable LED/Incandescent Lamps

- **LFTD Series LED Lamp**
T-1³/₄ Miniature Flange Base

Item	Type No.			
	24V AC/DC ±10%	12V AC/DC ±10%	6V AC/DC ±5%	
Rated Voltage	24V AC/DC ±10%	12V AC/DC ±10%	6V AC/DC ±5%	
Rated Current	8 mA	8 mA	8 mA	
Illumination Color	Red	LFTD-2R	LFTD-1R	LFTD-6R
	Green	LFTD-2G	LFTD-1G	LFTD-6G
	Amber	LFTD-2A	LFTD-1A	LFTD-6A
	White	LFTD-2W	LFTD-1W	LFTD-6W
	Yellow	LFTD-2Y	LFTD-1Y	LFTD-6Y
	Blue	LFTD-2S	LFTD-1S	LFTD-6S
Unit Quantity	1 pack (10 pieces of the same type per order); When ordering, add P to the end of the Type No. to specify a pack.			

- Required Quantity of LED Lamps
MC3D — Full and vertical 2-way split: 2 lamps; Horizontal 2-way, 3-way, and 4-way split: 4 lamps
MC2D — Full: 1 lamp; Horizontal 2-way split: 2 lamps

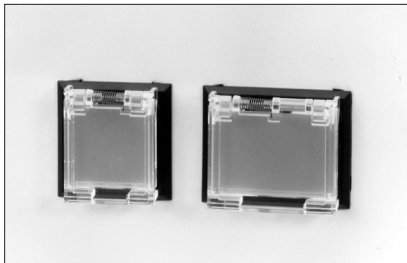
• LH Series Incandescent Lamp (0.5W)

Rated Operating Voltage	24V AC/DC	12V AC/DC	5V AC/DC
Type No.	LH-28	LH-14	LH-06
Rated Voltage	28V	14V	6V
Rated Current	0.025A	0.05A	0.1A
Life	5000 hours minimum (average at the rated voltage)		
Unit Quantity	100 pieces		

- Required Quantity of Incandescent Lamps
MC3D — Full: 2 lamps
MC2D — Full: 1 lamp

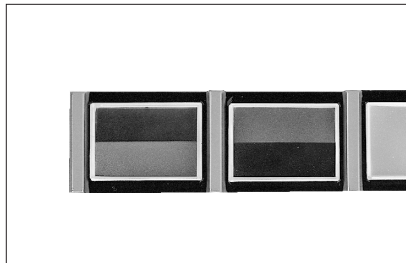
Accessories

Lens Switch Guard



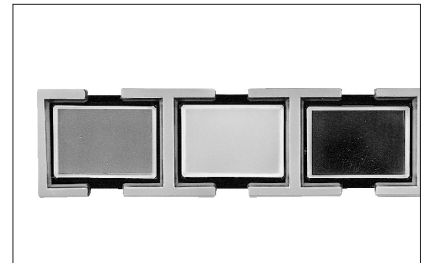
The lens switch guard can be used in place of the standard lens to protect the operator.

Barrier



The barrier is used to separate adjoining operators of flange type MC3D/2D units for preventing inadvertent operation and improved panel appearance. Available in black and gray.

Guard Barrier



The guard barrier is used to surround the operator of flange type MC3D/2D units for preventing inadvertent operation. Available in black, gray, red, and white.

Terminal Socket



Available with solder or PC board terminals.

Terminal Cover



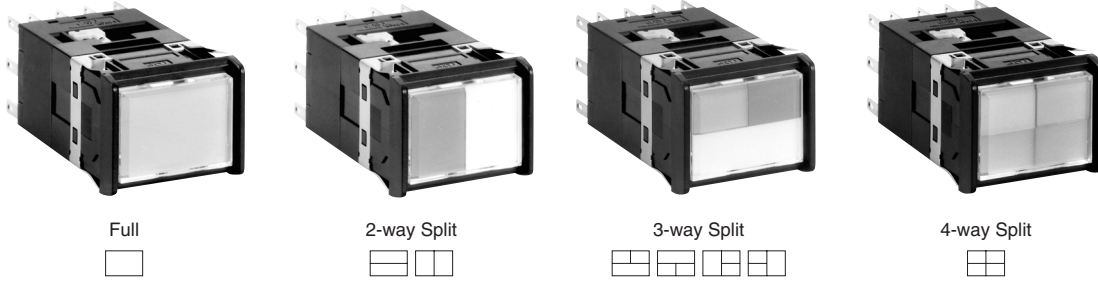
The terminal cover prevents short-circuiting between terminals, made of white PBT.

Dustproof Cover



The dustproof cover protects the operator from dust and prevents malfunction; not waterproof.

MC SERIES ILLUMINATED CONTROL UNITS



Operation	Contact	Type No.		Illumination Face		Light Source	
		Housing Color: Black	Housing Color: Gray	Marking Plate	Color Screen		
Momentary (Snap Action)	Silver	SPDT	MC3D-M10RB	MC3D-M10RN	White Size: 24.8 x 17 x 1 mm Material: Acrylic resin	Red, Green, Amber, Clear, Yellow, Blue	<ul style="list-style-type: none"> • Applicable LED Lamp 24V AC/DC: LFTD-2* 12V AC/DC: LFTD-1* 6V AC/DC: LFTD-6*
		DPDT	MC3D-M20RB	MC3D-M20RN			
		3PDT	MC3D-M30RB	MC3D-M30RN			
	Gold	SPDT	MC3D-M50RB	MC3D-M50RN			
		DPDT	MC3D-M60RB	MC3D-M60RN			
		3PDT	MC3D-M70RB	MC3D-M70RN			
Momentary (Slow Action)	Silver	SPDT	MC3D-S10RB	MC3D-S10RN	Material: Acrylic resin	<ul style="list-style-type: none"> • Applicable Incandescent Lamp 28V: LH-28 14V: LH-14 6V: LH-06 	
		DPDT	MC3D-S20RB	MC3D-S20RN			
		3PDT	MC3D-S30RB	MC3D-S30RN			
	Gold	SPDT	MC3D-S50RB	MC3D-S50RN			
		DPDT	MC3D-S60RB	MC3D-S60RN			
		3PDT	MC3D-S70RB	MC3D-S70RN			
Maintained	Silver	SPDT	MC3D-A10RB	MC3D-A10RN	Attached	Order Separately	Order Separately
		DPDT	MC3D-A20RB	MC3D-A20RN			
		3PDT	MC3D-A30RB	MC3D-A30RN			
	Gold	SPDT	MC3D-A50RB	MC3D-A50RN			
		DPDT	MC3D-A60RB	MC3D-A60RN			
		3PDT	MC3D-A70RB	MC3D-A70RN			
Display Only	-	-	MC3D-P00RB	MC3D-P00RN			

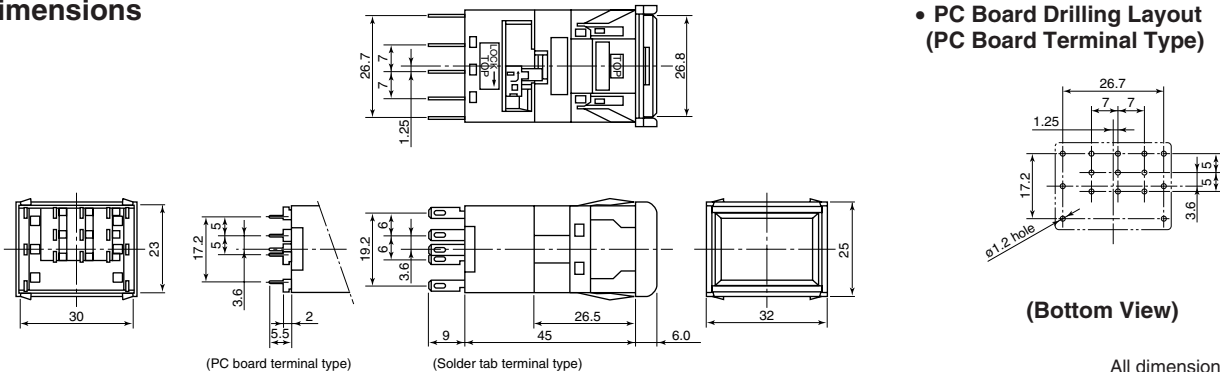
Note 1: Specify a color code in place of * in the LED lamp Type No.: R (red), G (green), A (amber), W (white), Y (yellow), S (blue)

Note 2: For white illumination, use a clear (C) color screen.

• PC board terminal type is also available. [Type No. Example] MC3D-M10VRB

> Designation code of PC board terminal type

Dimensions

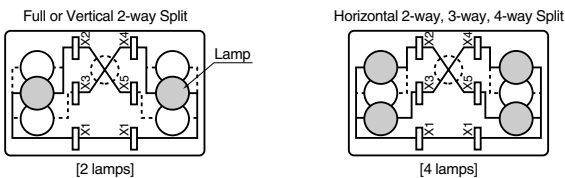


• PC Board Drilling Layout (PC Board Terminal Type)

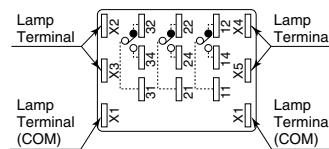
(Bottom View)

All dimensions in mm.

Internal Connection (Bottom View)



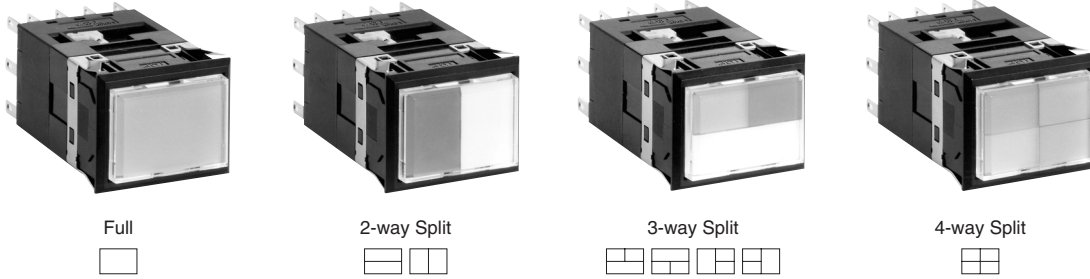
Terminal Arrangement (Bottom View)



- Since terminals X2 through X5 are internally connected, external wiring is not needed for full illumination.
- When using split illumination, cut the internal jumper using the jumper cutter (MC9Z-J1). See page 15.
- LED or incandescent lamps are not included and must be ordered separately.
- For incandescent illumination (full only), use only 2 lamps.
- For split illumination, use LED lamps.

- SPDT contact type has lamp terminals and contact terminals in the middle only.
- DPDT contact type has lamp terminals and contact terminals on both sides (not in the middle).
- Display only type has lamp terminals only.

MC SERIES ILLUMINATED CONTROL UNITS



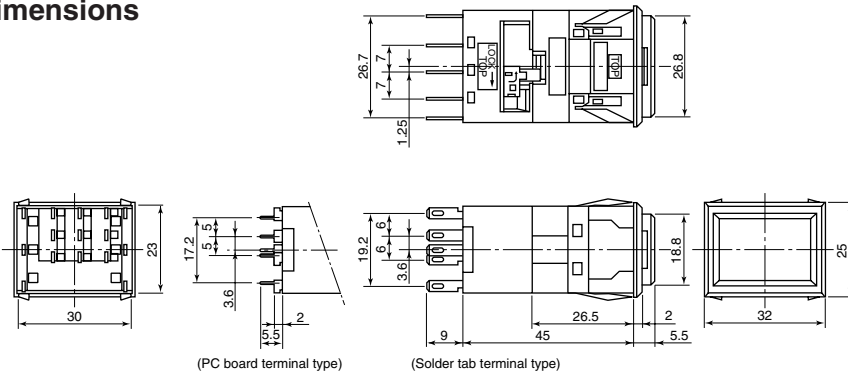
Operation	Contact	Type No.		Illumination Face		Light Source	
		Housing Color: Black	Housing Color: Gray	Marking Plate	Color Screen		
Momentary (Snap Action)	Silver	SPDT	MC3D-M10FB	MC3D-M10FN	White Size: 24.8 x 17 x 1 mm Material: Acrylic resin	Red, Green, Amber, Clear, Yellow, Blue	<ul style="list-style-type: none"> Applicable LED Lamp 24V AC/DC: LFTD-2* 12V AC/DC: LFTD-1* 6V AC/DC: LFTD-6*
		DPDT	MC3D-M20FB	MC3D-M20FN			
		3PDT	MC3D-M30FB	MC3D-M30FN			
	Gold	SPDT	MC3D-M50FB	MC3D-M50FN			
		DPDT	MC3D-M60FB	MC3D-M60FN			
		3PDT	MC3D-M70FB	MC3D-M70FN			
Momentary (Slow Action)	Silver	SPDT	MC3D-S10FB	MC3D-S10FN	Material: Acrylic resin	<ul style="list-style-type: none"> Applicable Incandescent Lamp 28V: LH-28 14V: LH-14 6V: LH-06 	
		DPDT	MC3D-S20FB	MC3D-S20FN			
		3PDT	MC3D-S30FB	MC3D-S30FN			
	Gold	SPDT	MC3D-S50FB	MC3D-S50FN			
		DPDT	MC3D-S60FB	MC3D-S60FN			
		3PDT	MC3D-S70FB	MC3D-S70FN			
Maintained	Silver	SPDT	MC3D-A10FB	MC3D-A10FN	Attached	Order Separately	Order Separately
		DPDT	MC3D-A20FB	MC3D-A20FN			
		3PDT	MC3D-A30FB	MC3D-A30FN			
	Gold	SPDT	MC3D-A50FB	MC3D-A50FN			
		DPDT	MC3D-A60FB	MC3D-A60FN			
		3PDT	MC3D-A70FB	MC3D-A70FN			
Display Only	-	-	MC3D-P00FB	MC3D-P00FN			

Note 1: Specify a color code in place of * in the LED lamp Type No.: R (red), G (green), A (amber), W (white), Y (yellow), S (blue)
 Note 2: For white illumination, use a clear (C) color screen.

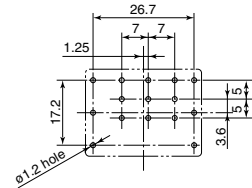
•The rectangular flange type can be mounted in vertical alignment. Replace the leaf springs with optional vertical mounting leaf springs (MC9Z-T3).
 •PC board terminal type is also available. [Type No. Example] MC3D-M10VFB

> Designation code of PC board terminal type

Dimensions



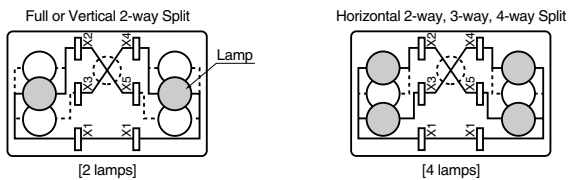
PC Board Drilling Layout (PC Board Terminal Type)



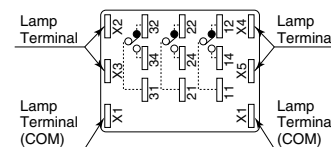
(Bottom View)

All dimensions in mm.

Internal Connection (Bottom View)



Terminal Arrangement (Bottom View)



- Since terminals X2 through X5 are internally connected, external wiring is not needed for full illumination.
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- LED or incandescent lamps are not included and must be ordered separately.
- For incandescent illumination (full only), use only 2 lamps.
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- DPDT contact type has lamp terminals and contact terminals on both sides (not in the middle).
- Display only type has lamp terminals only.

MC SERIES ILLUMINATED CONTROL UNITS



Full



2-way Split



Operation	Contact		Type No.		Illumination Face		Light Source	
			Housing Color: Black	Housing Color: Gray	Marking Plate	Color Screen		
Momentary (Snap Action)	Silver	SPDT	MC2D-M10B	MC2D-M10N	White Size: 17 x 17 x 1 mm Material: Acrylic resin	Red, Green, Amber, Clear, Yellow, Blue	<ul style="list-style-type: none"> • Applicable LED Lamp 24V AC/DC: LFTD-2* 12V AC/DC: LFTD-1* 6V AC/DC: LFTD-6* 	
		DPDT	MC2D-M20B	MC2D-M20N				
	Gold	SPDT	MC2D-M50B	MC2D-M50N				
		DPDT	MC2D-M60B	MC2D-M60N				
Momentary (Slow Action)	Silver	SPDT	MC2D-S10B	MC2D-S10N	Material: Acrylic resin	Material: Acrylic resin		<ul style="list-style-type: none"> • Applicable Incandescent Lamp 28V: LH-28 14V: LH-14 6V: LH-06
		DPDT	MC2D-S20B	MC2D-S20N				
	Gold	SPDT	MC2D-S50B	MC2D-S50N				
		DPDT	MC2D-S60B	MC2D-S60N				
Maintained	Silver	SPDT	MC2D-A10B	MC2D-A10N	Attached	Order Separately	Order Separately	
		DPDT	MC2D-A20B	MC2D-A20N				
	Gold	SPDT	MC2D-A50B	MC2D-A50N				
		DPDT	MC2D-A60B	MC2D-A60N				
Display Only	-	-	MC2D-P00B	MC2D-P00N				

Note 1: Specify a color code in place of * in the LED lamp Type No.: R (red), G (green), A (amber), W (white), Y (yellow), S (blue)

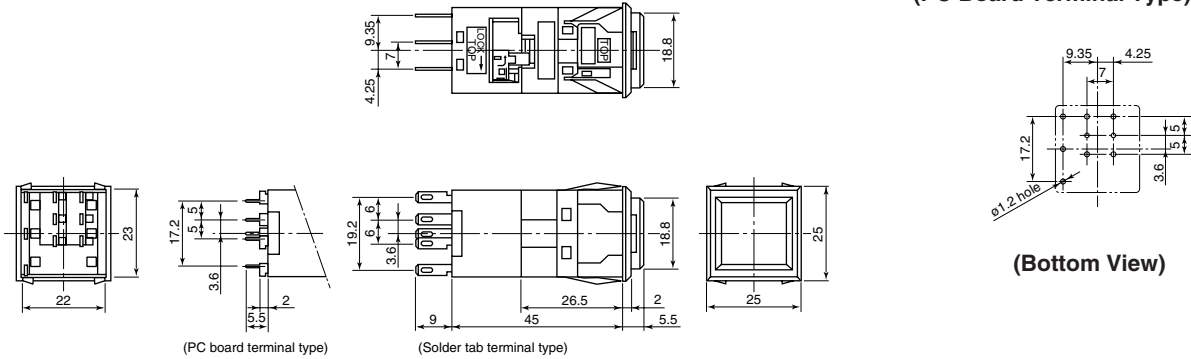
Note 2: For white illumination, use a clear (C) color screen.

• PC board terminal type is also available. [Type No. Example] MC2D-M10VB

> Designation code of PC board terminal type

Dimensions

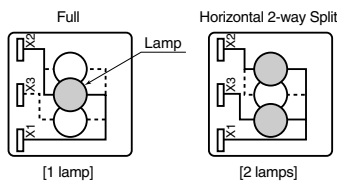
• PC Board Drilling Layout (PC Board Terminal Type)



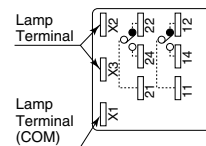
(Bottom View)

All dimensions in mm.

Internal Connection (Bottom View)



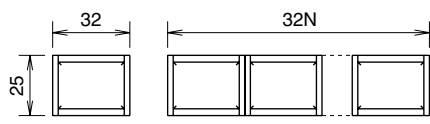
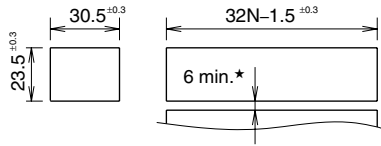
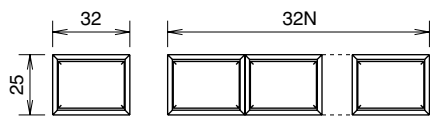
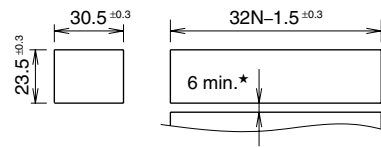
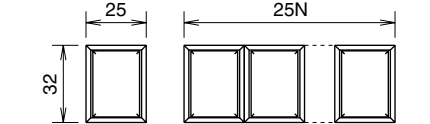
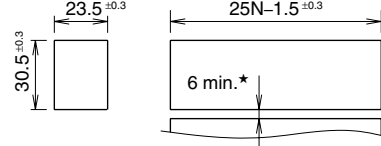
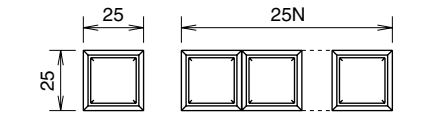
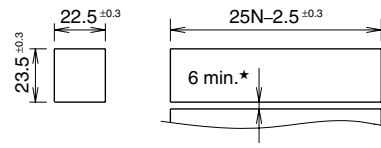
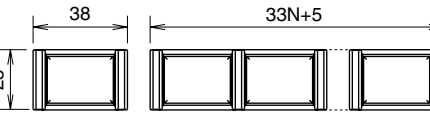
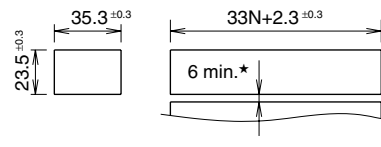
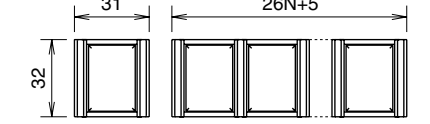
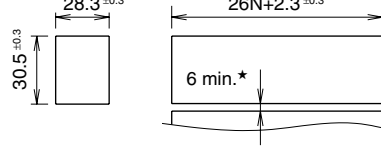
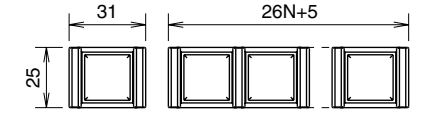
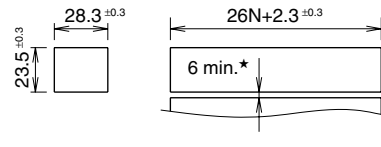
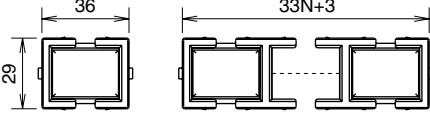
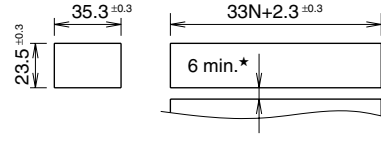
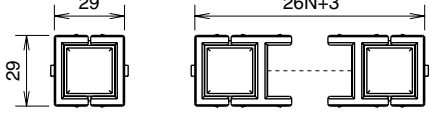
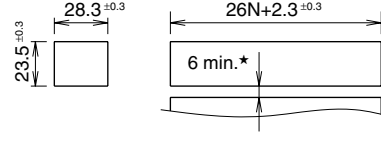
Terminal Arrangement (Bottom View)



- LED or incandescent lamps are not included and must be ordered separately.
- For incandescent illumination (full only), use only 1 lamp.
- For horizontal 2-way split illumination, use LED lamps.









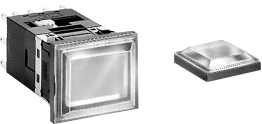
- SPDT contact type has lamp terminals and contact terminals on the right only.
- Display only type has lamp terminals only.

MC SERIES ILLUMINATED CONTROL UNITS

PANEL CUT-OUT			
Type	Front View	Panel Cut-out	Remarks
Barrier Type	MC3D Horizontal 		N: No. of MC units mounted • When all four LED lamps are lit continuously, the maximum number of MC3D units that can be mounted is 3 rows by 10 columns. • When both LED lamps are lit continuously, the maximum number of MC2D units that can be mounted is 10 rows by 10 columns.
Flange Type	MC3D Horizontal 		• If more than 10 units need to be mounted collectively in a row, consult IDEC. • The applicable panel thickness is 1 to 5 mm. *The strength of the panel must be taken into consideration for collective mounting.
	MC3D Vertical 		
	MC2D 		
Flange Type with Barriers	MC3D Horizontal 		
	MC3D Vertical 		
	MC2D 		
Flange Type with Guard Barriers	MC3D Horizontal 		
	MC2D 		


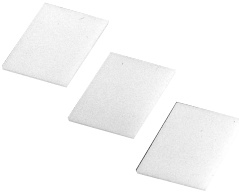




MC SERIES ILLUMINATED CONTROL UNITS

ACCESSORIES (Type No.)

Name and Appearance	For use on	Specifications	Type No.	Unit Quantity	Remarks	
LED Lamp 	MC3D MC2D	24V AC/DC	LFTD-2*P	1 pack (10 pcs of the same type)	<ul style="list-style-type: none"> Specify a color code in place of * in the Type No. R (red) G (green) A (amber) W (white) Y (yellow) S (blue) T-1³/₄ miniature flange base 	
		12V AC/DC	LFTD-1*P			
		6V AC/DC	LFTD-6*P			
Incandescent Lamp 	MC3D MC2D	28V	LH-28	100 pcs	<ul style="list-style-type: none"> T-1³/₄ miniature flange base 	
		14V	LH-14	100 pcs		
		6V	LH-06	100 pcs		
Lens Switch Guard 	MC3D	Horizontal Type	MC9Z-KF3	10 pcs	<ul style="list-style-type: none"> The lens switch guard is used in place of the standard lens to protect the operator, and can be installed in the same manner as the standard lens. When guard barriers are installed, the lens switch guard cannot be used. 	
		Vertical Type	MC9Z-KT3	10 pcs		
	MC2D	–	MC9Z-KF2	10 pcs		
Barrier   End Barrier Spacer Barrier	MC3D Horizontal Flange Type MC2D	End Barrier	Black	MC9Z-BF1B	10 pcs of the same type	<ul style="list-style-type: none"> The barrier is used to separate adjoining operators of flange type MC3D/2D units for preventing inadvertent operation and improved panel appearance.
			Gray	MC9Z-BF1N		
	Spacer Barrier	Black	MC9Z-BF2B	10 pcs of the same type		
		Gray	MC9Z-BF2N			
	MC3D Vertical Flange Type	End Barrier	Black	MC9Z-BT1B	10 pcs of the same type	
			Gray	MC9Z-BT1N		
Spacer Barrier	Black	MC9Z-BT2B	10 pcs of the same type			
	Gray	MC9Z-BT2N				
Guard Barrier   End Guard Barrier Spacer Guard Barrier	MC3D Horizontal Flange Type MC2D	End Guard Barrier	Black	MCM-BF3B	10 pcs of the same type	<ul style="list-style-type: none"> The guard barrier is used to surround the operator of flange type MC3D/2D units for preventing inadvertent operation. The guard barrier cannot be used on barrier type or vertical flange type MC3D units.
			Gray	MCM-BF3N		
			Red	MCM-BF3R		
			White	MCM-BF3W		
	Spacer Guard Barrier	Black	MCM-BF4B	10 pcs of the same type		
		Gray	MCM-BF4N			
		Red	MCM-BF4R			
		White	MCM-BF4W			
Terminal Socket 	MC3D	With solder terminals	MC9Z-C3	10 pcs	<ul style="list-style-type: none"> For preventing incorrect wiring and increasing safety. 	
		With PC board terminals	MC9Z-C3V	10 pcs		
	MC2D	With solder terminals	MC9Z-C2	10 pcs		
		With PC board terminals	MC9Z-C2V	10 pcs		
Dustproof Cover 	MC3D	Flange Type (Horizontal/Vertical)	MCM-D3	10 pcs	<ul style="list-style-type: none"> The dustproof cover is not waterproof. 	
	MC2D	Flange Type	MCM-D2	10 pcs		

MC SERIES ILLUMINATED CONTROL UNITS

ACCESSORIES (Type No.)

Name and Appearance	For use on	Specifications	Type No.	Unit Quantity	Remarks
Color Screen 	MC3D	Full illumination	MC9Z-PA3*P	1 set (5 pcs)	<ul style="list-style-type: none"> •Specify a color code in place of * in the Type No. R (red) GD (green for LED) GL (green for incandescent) A (amber) C (clear for white) Y (yellow) S (blue) •Made of acrylic resin •See page 4 for contents of the set.
		Horizontal 2-way split	MC9Z-3DB	1 set	
		Vertical 2-way split	MC9Z-3DC	1 set	
		Horizontal 3-way split	MC9Z-3DD	1 set	
		Vertical 3-way split	MC9Z-3DE	1 set	
		4-way split	MC9Z-3DF	1 set	
	MC2D	Full illumination	MC9Z-PA2*P	1 set (5 pcs)	
		Horizontal 2-way split	MC9Z-2DB	1 set	
Marking Plate 	MC3D	17 x 24.8 x 1 mm	MC9Z-P3WP	1 set (5 pcs)	<ul style="list-style-type: none"> •Made of white acrylic resin •One marking plate is supplied with each MC3D/2D unit. When ordering additional marking plates, specify the Type No.
	MC2D	17 x 17 x 1 mm	MC9Z-P2WP	1 set (5 pcs)	
Terminal Cover 	MC3D	–	MC9Z-VL23	10 pcs	<ul style="list-style-type: none"> •Made of white PBT •When wiring, insert lead wires through terminal cover holes before soldering the lead wires to the MC3D/2D terminals.
	MC2D	–	MC9Z-VL22	10 pcs	
Vertical Mounting Leaf Spring 	MC3D	Made of stainless steel	MC9Z-T3	10 pcs	<ul style="list-style-type: none"> •Leaf springs for mounting the flange type MC3D vertically. •When using the vertical mounting leaf springs, remove the existing leaf springs from the MC3D and install the vertical mounting leaf springs.
Jumper Cutter 	MC3D	–	MC9Z-J1	1 pc	<ul style="list-style-type: none"> •Used to cut the built-in jumper when changing the MC3D for 2-way, 3-way, or 4-way split illumination. See page 15.
Lamp Holder Removal Tool 	MC3D MC2D	–	MCM-T001	1 pc	<ul style="list-style-type: none"> •Used to remove the lamp holder from the housing.

MC SERIES ILLUMINATED CONTROL UNITS

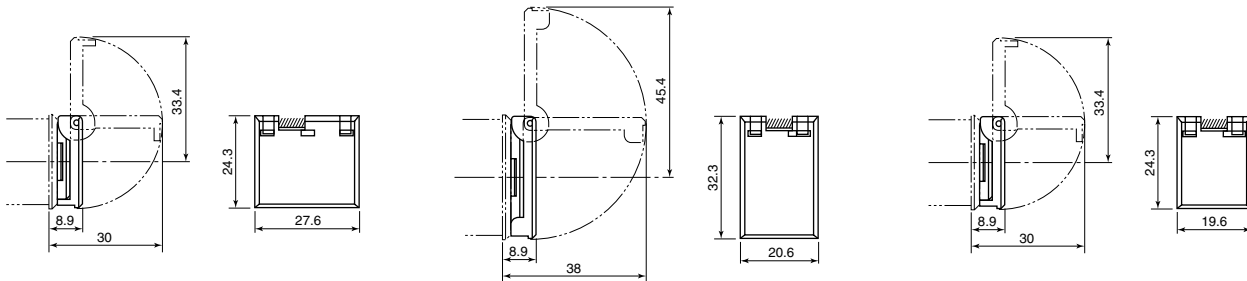
ACCESSORIES (Dimensions)

Lens Switch Guard

• For MC3D Horizontal Type (MC9Z-KF3)

• For MC3D Vertical Type (MC9Z-KT3)

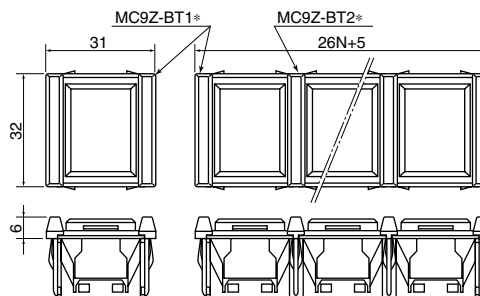
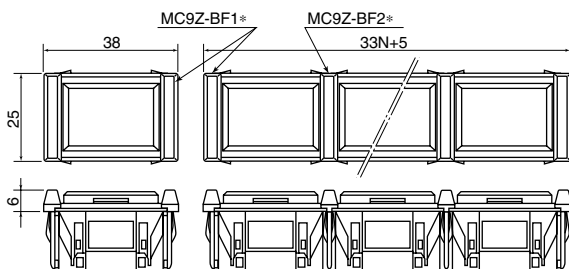
• For MC2D (MC9Z-KF2)



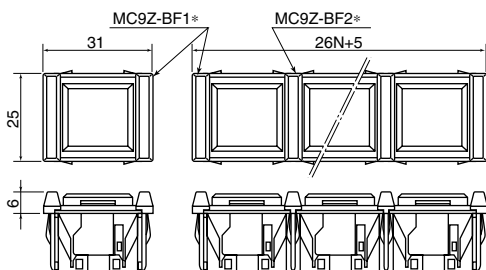
Barrier

• When using on MC3D Horizontal Flange Type

• When using on MC3D Vertical Flange Type



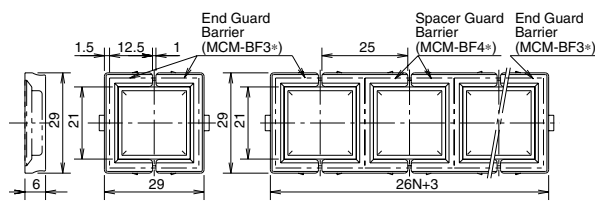
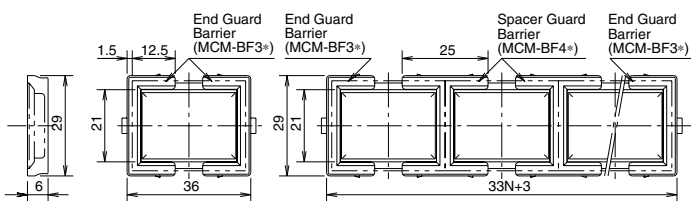
• When using on MC2D



Guard Barrier

• When using on MC3D Horizontal Flange Type

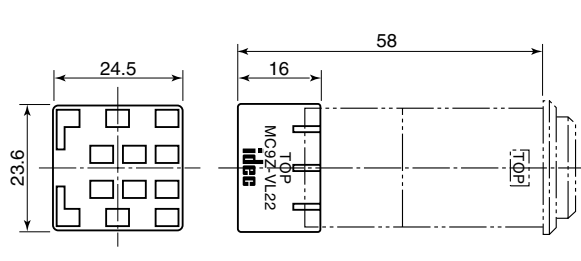
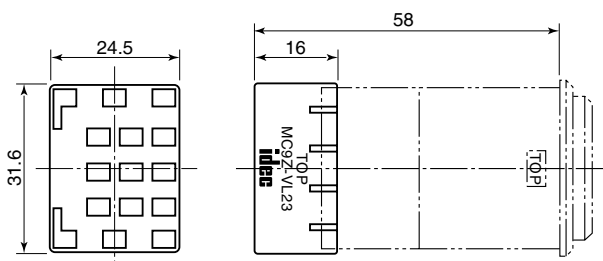
• When using on MC2D



Terminal Cover

• For MC3D (MC9Z-VL23)

• For MC2D (MC9Z-VL22)



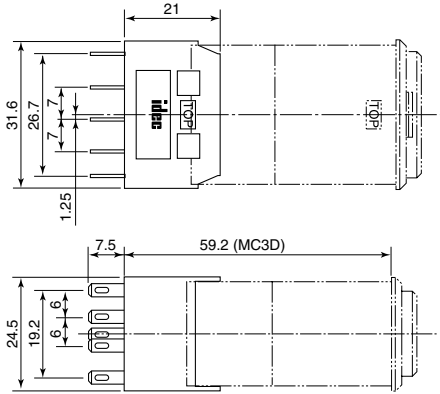
MC SERIES ILLUMINATED CONTROL UNITS

ACCESSORIES (Dimensions)

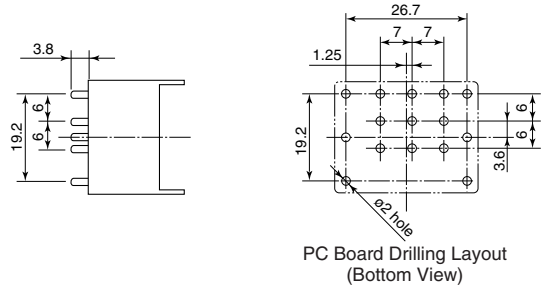
Terminal Sockets

• For MC3D

With solder terminals (MC9Z-C3)

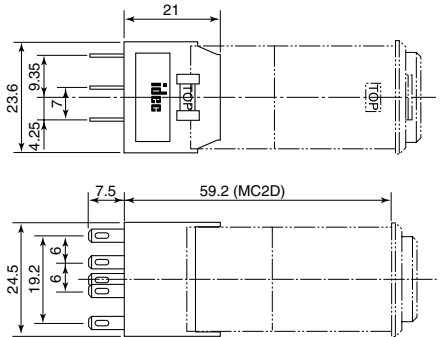


With PC board terminals (MC9Z-C3V)

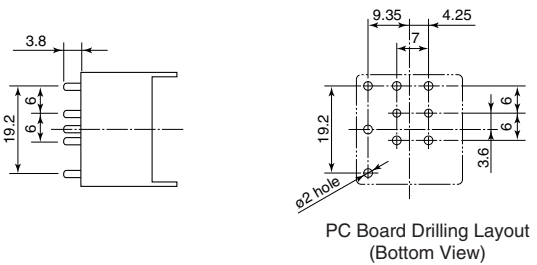


• For MC2D

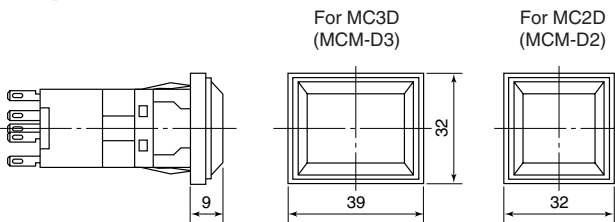
With solder terminals (MC9Z-C2)



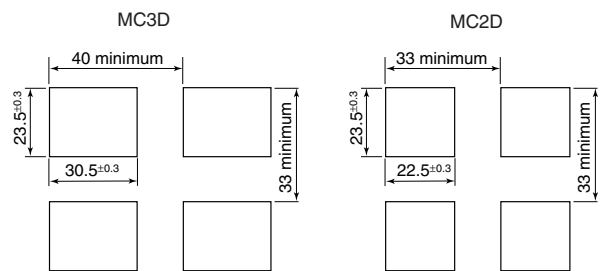
With PC board terminals (MC9Z-C2V)



Dustproof Cover



•Panel Cut-out



ORDERING INFORMATION

Notes for Ordering

•MC3D/2D units are not supplied with LED lamps, incandescent lamps, and color screens. Order these accessories separately. When ordering, specify the Type No. and quantity.

[Example]

•MC3D Horizontal Barrier Type, Momentary Operation (snap action), Silver Contact, SPDT, Black Housing, Full Illumination
Type No.: MC3D-M10RB 5 pcs

•LED Lamp (6V AC/DC, Red)
Type No.: LFTD-6RP 1 pack (10 pcs/pack)

•Color Screen (Full, Red)
Type No.: MC9Z-PA3RP 1 pack (5 pcs of the same color)

Other Notes

•Sockets, lens switch guards, barriers, and guard barriers are ordered separately. When ordering these accessories, specify the Type No. and quantity.

•When using MC3D flange type in vertical alignment, order vertical mounting leaf springs (MC9Z-T3) separately, and replace the existing leaf springs on the MC3D vertical flange type.

•The MC3D and MC2D are also available with PC board terminals.

[Example]

•MC3D with PC Board Terminals, Horizontal Barrier Type, Momentary Operation (snap action), Silver Contact, SPDT, Black Housing, Full Illumination
Type No.: MC3D-M10VRB 5 pcs

MC SERIES ILLUMINATED CONTROL UNITS

OPERATING INSTRUCTIONS

Illumination Unit

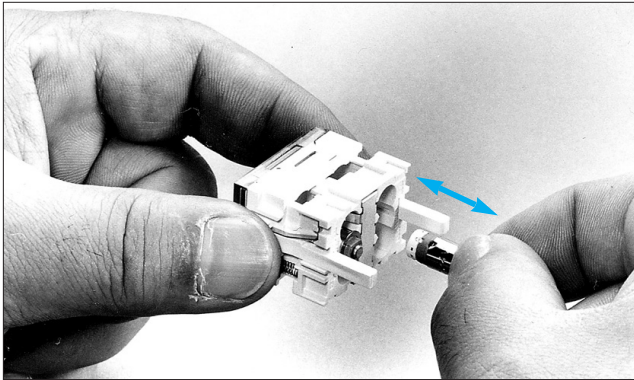
• Removing the Illumination Unit

Use the lamp holder removal tool (MCM-T001) to pull out the illumination unit.

If the cover of the lens switch guard is pulled, the hinge of the cover may be damaged.

• Installation and Replacement of LED/Incandescent Lamps

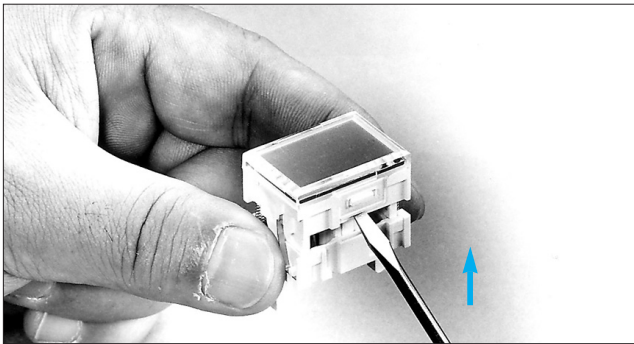
Insert the LED or incandescent lamp into the lamp receptacle from the rear of the lamp holder, bulb first. Push the lamp in completely.



• Replacing the Lens

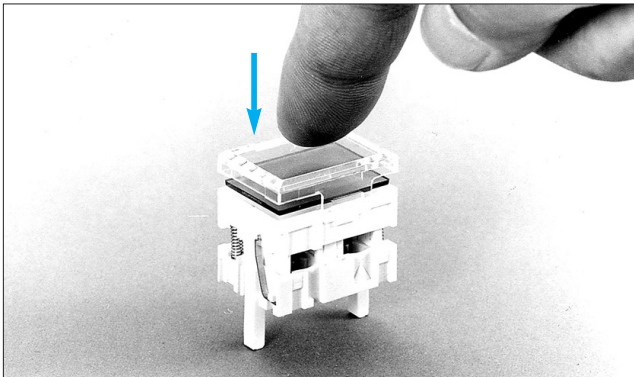
[Removal]

Remove the illumination unit as described above. Insert a flat screwdriver into the latch between the lens and lens holder, and remove the lens.



[Installation]

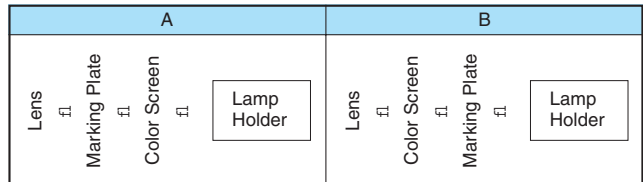
Place the latches on the lens holder into the latches of the lens, and depress the lens surface lightly.



• Placement of Color Screen and Marking Plate

Insert the color screen and marking plate in the proper order as described below.

Illumination Color (Lamp On)	Display Color (Lamp Off)	Order of Placement
Red, Green, Amber, Yellow, Blue	Color	B
	White	A
White	White	A or B



• Illumination Color and LED Lamp

Illumination Color	Color Screen	LED Lamp
Red	Red	Red
Green	Green	Green
Amber	Amber	Amber
Yellow	Yellow	Yellow
Blue	Blue	Blue
White	Clear	White

Note:

- Marking plates and color screens are identical in material and thickness.
- Engraving is possible on both marking plates and color screens.

• Using the Light Barrier

A light barrier is supplied with color plates for split illumination. Use the light barrier according to the required split color illumination.

[MC3D]

(Full Illumination) Light barrier is not needed.

(2- or 3-way Split) Cut off the unnecessary parts using pliers.

(4-way Split) Use the light barrier for 4-way split illumination as it is.

[MC2D]

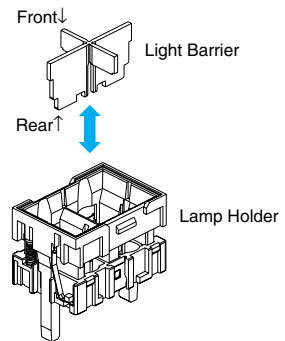
(Full Illumination) Light barrier is not needed.

(2-way Split) Install the light barrier for 2-way horizontal split illumination correctly.

• Handling the Light Barrier

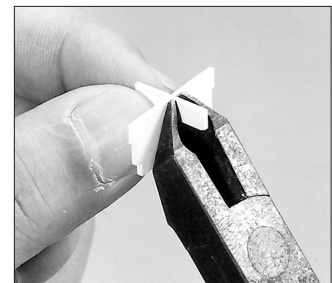
[Replacing the Light Barrier]

During installation, note the orientation of the light barrier, illumination unit, and housing.



[Cutting the Light Barrier]

Cut off the unnecessary parts using pliers.



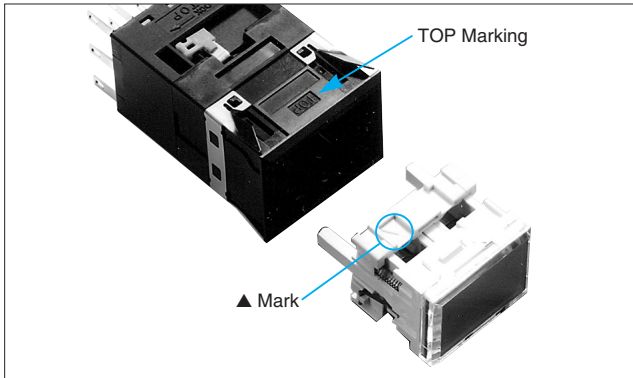
MC SERIES ILLUMINATED CONTROL UNITS

OPERATING INSTRUCTIONS

• Installing the Illumination Unit into the Housing

[MC3D]

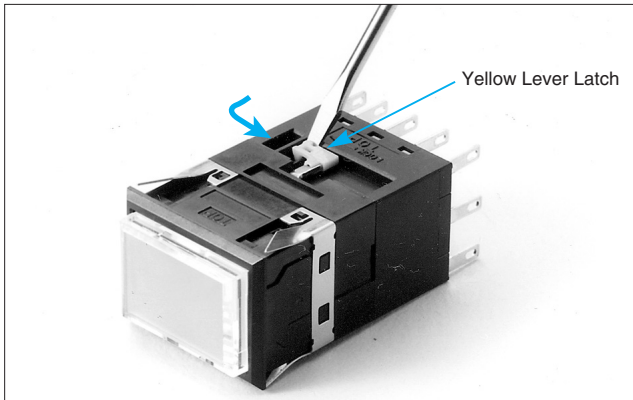
Place the ▲ mark on the lamp holder in the same direction as the TOP marking on the housing, and insert the illumination unit.



Removing the Contact Block

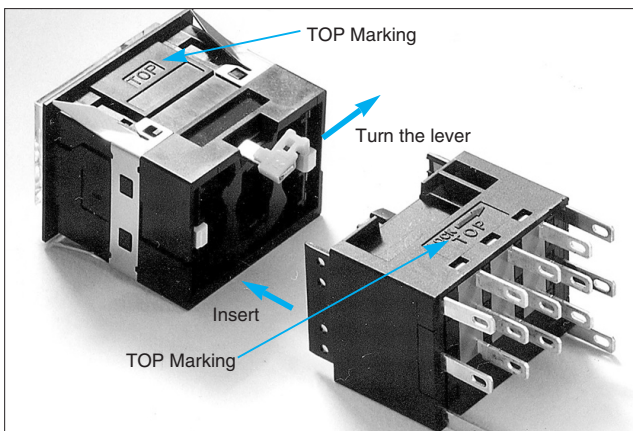
• Removing

Push the yellow lever latch on the top surface of the housing in the direction of arrow using a small screwdriver. The yellow lever latch will rise up. Then turn the lever in the opposite direction indicated with Lock fi . The contact block is now unlocked and can be removed.



• Installing

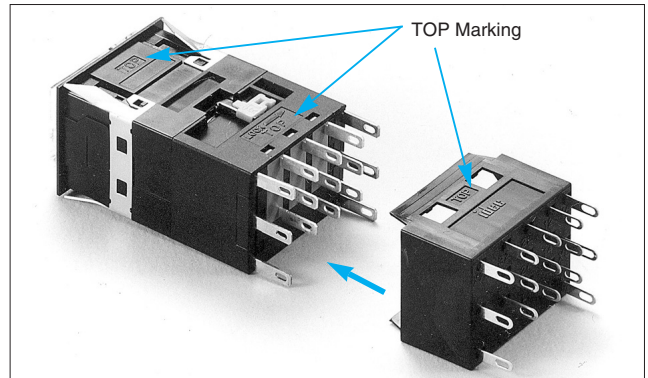
Open the lever as described above, and align the TOP markings on the operator housing and contact block in the same direction. Insert the contact block into the operator housing, and turn the lever in the direction indicated with Lock fi . The contact block is now locked to the operator housing.



Installing Accessories

• Installing a Terminal Socket or Terminal Cover

Align the TOP markings on the operator housing and terminal socket or terminal cover in the same direction, and press the terminal socket or terminal cover toward the housing.



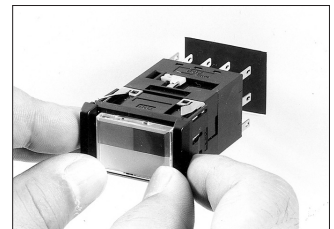
• Installing a Lens Switch Guard

The lens switch guard can be installed and removed in the same manner as the standard lens. See page 14.

• Installing Barriers or Guard Barriers

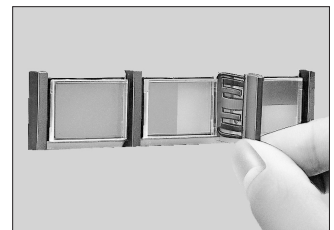
[Single Mounting]

Put end barriers on both sides of the housing and insert into panel cut-out from the front.



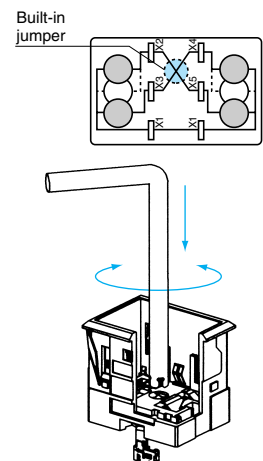
[Row Mounting]

Insert an end barrier at one end of the panel cut-out, then a unit, a spacer barrier, another unit, and so forth up to the other end of the row. With another end barrier in place, insert the last unit before inserting the last spacer barrier.



Cutting the Built-in Jumper

•The MC3D has a built-in jumper for full illumination. When using the MC3D for split illumination, cut the jumper ~ in the housing, using the jumper cutter (MC9Z-J1). When cutting the built-in jumper, remove the contact block and illumination unit. Place the operator housing upright, insert the jumper cutter, and turn the jumper cutter to cut the jumper. Remove the jumper from the housing. Always use the MC9Z-J1 jumper cutter, otherwise the internal elements may be damaged. Do not touch the lamp contacts, which can easily be deformed.



Notes for Wiring

- Run LED illumination wiring away from motor lines.
- Complete soldering within 5 seconds when using a 20W soldering iron, or within 3 seconds with the soldering iron tip temperature of 260°C. Do not apply excessive force while soldering the terminal.

MC SERIES ILLUMINATED CONTROL UNITS

OPERATING INSTRUCTIONS

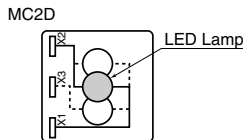
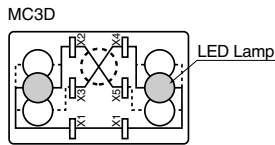
Notes for Operation

• When Using LED Lamps

When using the MC3D or MC2D for full illumination, note the correct number of lamps below:

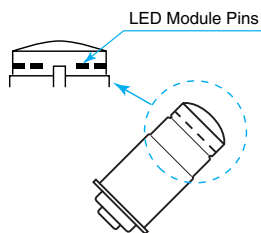
[Number of Lamps]

MC3D: 2 LED lamps
MC2D: 1 LED lamp



[Replacing LED Lamps]

When replacing LED lamps, avoid electrostatic charging to the LED module pins around the top of the LED lamp, otherwise the internal LED elements may become damaged.



[Leakage Current]

The LED lamp may appear to be dimly lit due to leakage current or induced current from a solid-state switch or contact protection circuit. In this case, take appropriate countermeasures.

[Installation Location]

Do not install the LED illuminated MC3D or MC2D units where the LED lamps can be subjected to infrared rays.

• When Using Incandescent Lamps

Use IDEC LH series 0.5W incandescent lamps.

Use two incandescent lamps for the MC3D although the MC3D has four lamp receptacles. Use one incandescent lamp for the MC2D.

• Microswitch Contacts

When inductive loads are switched, arcing will increase contact resistance, so it is recommended to connect a contact protection circuit for higher contact reliability.

• Slow Action Type

On the momentary slow action 3PDT type, the three microswitches may operate at a slightly different timing.



SAFETY PRECAUTIONS

- Turn off the power to the MC3D or MC2D units before installation, removal, wiring, maintenance, or inspection. Failure to turn off the power may cause an electrical shock or create fire hazards.
- Use the MC3D or MC2D within their specification values. Exceeding the specification values may cause an electrical shock or create fire hazards.

- Use wires of a proper size to meet the voltage and current requirements. Solder the wires correctly to the terminals. Incomplete soldering will cause excessive heating and create fire hazards.

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



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