

MC SERIES

Illuminated Control Units

**Super LED or Incandescent Illumination
Contact Blocks Detachable from Operator**



IDEC IZUMI CORPORATION

MC SERIES ILLUMINATED CONTROL UNITS

Super Bright LED Lamp or Incandescent Lamp Illumination New Rectangular-body Control Units with Upgraded Functionality

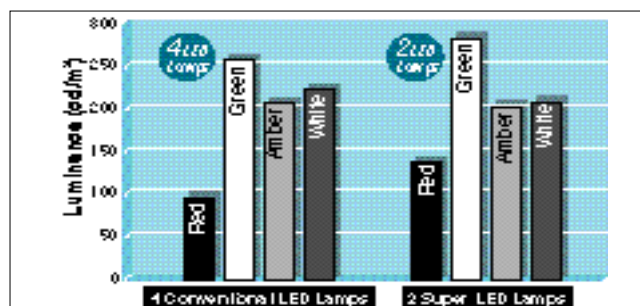
- Compatible with both LED and incandescent lamps.
- Super LED lamps improve visibility and save energy.
- Separate contact blocks for easy mounting on PC boards.
- Snap-action mechanism for crisp switching operation.
- Slow-action and alternate types are also available.
- The solder terminal accepts a positive-lock connector.
- Illumination face division: Full to 4-way split (MC3D) or 2-way split (MC2D).
- When the lens is inserted into the operator, contacts are not operated. So, the lens can be replaced without turning power off.
- UL and C-UL recognized, EN compliant



Substantial Power & Cost Savings with Super LED Lamps

The same brightness is ensured with only half the number of new AC/DC compatible LED lamps.

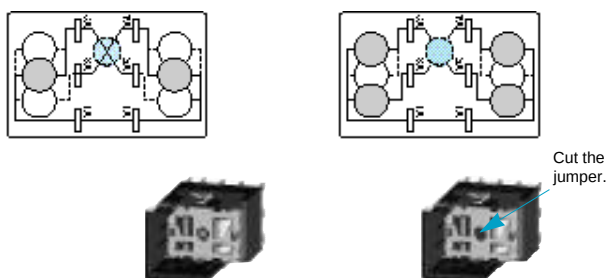
The total power consumption is reduced to less than 50% as compared with IDEC's MCM micro command control lights, resulting in energy and life-cycle cost savings.



Built-in Jumper for Simple Modification from Full to Split Illumination

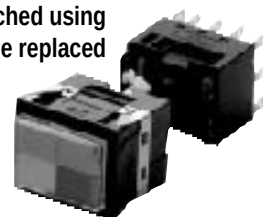
The MC3 series has a built-in jumper for full illumination.

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

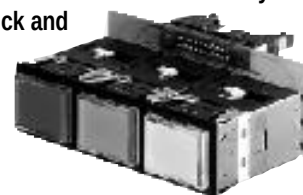


Detachable Contact Block

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



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

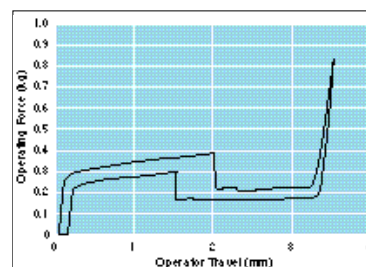


Reliable Positive-action Operator & Snap-action Mechanism

The MC series features a positive-action operator for transmitting the operating force directly to the microswitch, through the lens, lens holder, pressure plate, and plunger, without using an indirect transmission mechanism. The snap-action type generates a tactile feedback when the switch is actuated.



Contacts



MC SERIES ILLUMINATED CONTROL UNITS

Types



MC3D
(Horizontal Barrier Type)



MC3D
(Horizontal Flange Type)



MC2D
(Square Flange Type)



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 Type	Silver or gold contact microswitch		
Number of Contacts	SPDT, DPDT, 3PDT		SPDT, DPDT
Operation Type	Momentary (snap action or slow action), Alternate, Display Only		
Terminal Style	Solder tab terminal #110 (compatible with positive lock), PC board terminal		
Housing Color	Black, Gray		

Specifications

Operating Temperature	-25 to +40°C (no freezing)
Operating Humidity	30 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: 2000 V, 1 minute Between live parts of different poles: 2000 V, 1 minute Between terminals of the same pole: 1000 V, 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 8 axes)
Shock Resistance	Operating extremes: 200 mA ² Damage limits: 500 mA ²
Mechanical Life	Momentary: 1,000,000 operations minimum Alternate: 250,000 operations minimum Slow action: 1,000,000 operations minimum
Electrical Life	100,000 operations minimum
Operating Frequency	Momentary: 1,800 operations/hour Alternate: 900 operations/hour Slow action: 1,800 operations/hour

CONTACT RATINGS

Silver Contact

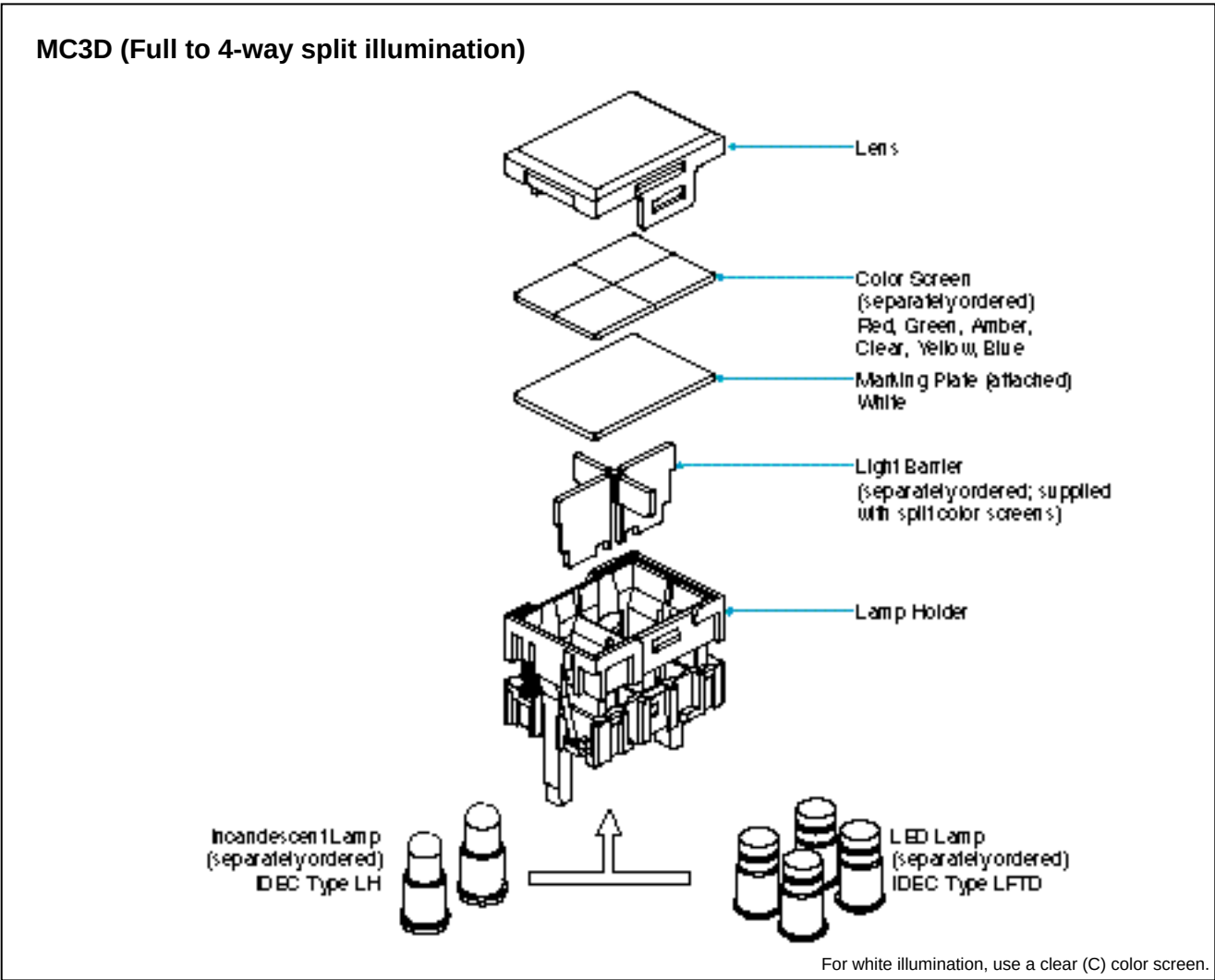
Rated Insulation Voltage			250 V AC/DC		
Rated Operating Voltage			80 V	125 V	250 V
Rated Operating Current	AC 50/60Hz	Resistive load	—	8A	2A
		Inductive load	—	2A	1.5A
	DC	Resistive load	2A	0.4A	—
		Inductive load	1A	0.2A	—
Rated Thermal Current			5A		
Contact Material			Silver		

Gold Contact

Rated Insulation Voltage		250 V AC/DC	
Rated Operating Voltage		80 V DC	125 V AC
Rated Operating Current		0.1 A	0.1 A
Rated Thermal Current		8 A	
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		R GD A C Y S	R C GD Y A S	R GD A C Y S R C GD Y A S	R C GD Y A S R C GD Y A S	R R GD GD A A C C Y Y S S		R GD A C Y S
	: Color Code	Light Barrier	Light Barrier	Light Barrier	Light Barrier	Light Barrier	: Color Code	Light Barrier
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.			 Illumination Color Black, Pink
Rated Voltage	24V AC/DC $\pm 10\%$	12V AC/DC $\pm 10\%$	6V AC/DC $\pm 5\%$	
Rated Current	8 mA	8 mA	8 mA	
Illumination Color	Red	LFTD-2R	LFTD-1R	LFTD-6R
	Green	LFTD-2G	LFTD-1G	LFTD-6G
	Yellow	LFTD-2Y	LFTD-1Y	LFTD-6Y
	Amber	LFTD-2A	LFTD-1A	LFTD-6A
	White	LFTD-2W	LFTD-1W	LFTD-6W
	Blue	LFTD-2S	LFTD-1S	LFTD-6S
Minimum 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 horizontal 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

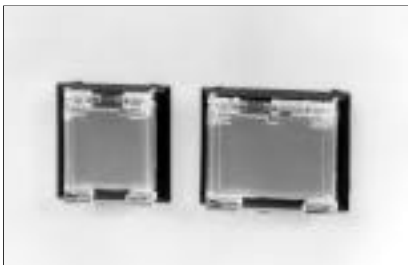
- LH Series Incandescent Lamp (0.5W)
T-13/4 Miniature Flange Base

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)		

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

Accessories

Lens with Switch Guard



The lens with 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.

Socket



Available with solder or PC board terminals.

Terminal Cover



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

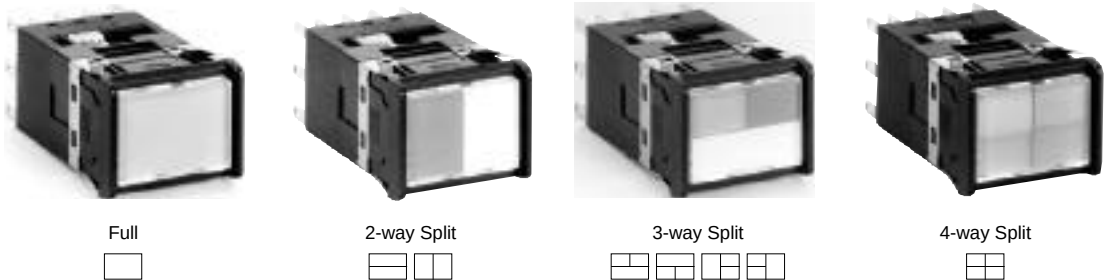
Dustproof Cover



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

MC SERIES ILLUMINATED CONTROL UNITS

MC3D- 0R (Horizontal Barrier Type)



Operation Type	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 Attached	Red, Green, Amber, Clear, Yellow, Blue Order Separately	· Applicable LED Lamp 24V AC/DC: LFTD-2*
		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			12V AC/DC: LFTD-1*
		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			
Display Only	Silver	SPDT	MC3D-A10RB	MC3D-A10RN			· Applicable Incandescent Lamp 28V: LH-28 14V: LH-14 6V: LH-06 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			
Momentary	—	—	MC3D-P00RB	MC3D-P00RN			

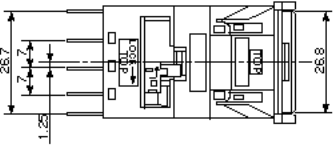
Note 1: Specify a color code in place of * in the LED lamp Type No.: R (red), G (green), A (amber), W (white), Y (yellow), S (blue)

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

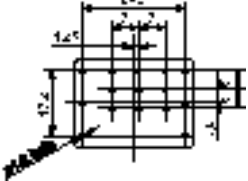
· PC board type is also available. [Type No. Example] MC3D-M10VRB

† Designation code of PC board terminal type

Dimensions



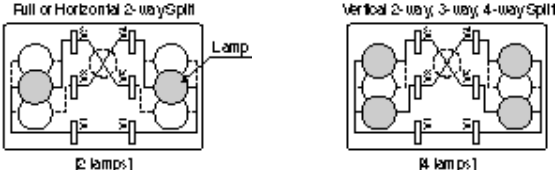
· PC Board Drilling Layout (PC Board Terminal Type)



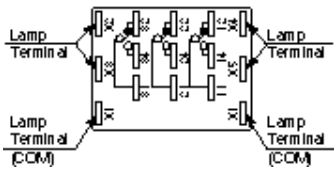
(Bottom View)

All dimensions in mm.

Internal Connection (Bottom View)



Terminal Arrangement (Bottom View)



- Since terminals X2 through X5 are connected together internally, external jumper wiring is not needed for full illumination.
- When using split illumination, cut out 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

MC3D- 0F (Horizontal Flange Type)



4-way Split



Operation Type	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	· Applicable LED Lamp 24V AC/DC: LFTD-2* 12V AC/DC: LFTD-1* 6V AC/DC: LFTD-6* · Applicable Incandescent Lamp 28V: LH-28 14V: LH-14 6V: LH-06
		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			
		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			
Display Only	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			
Momentary	—	—	MC3D-P00FB	MC3D-P00FN			

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

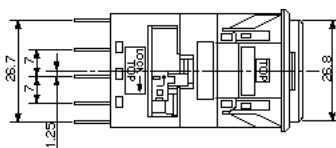
- The rectangular flange type can be mounted in vertical

•PC board type is also available. [Type No. Example] MC3D-M10VFB

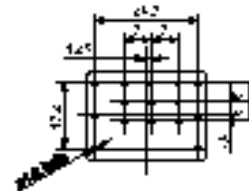
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↑ **Designation code of PC board terminal type**

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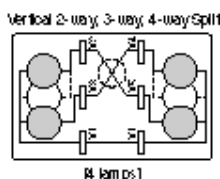


PC Board Drilling Layout (PC Board Terminal Type)



All dimensions in mm.

Internal Connection (Bottom View)



PL 100-203

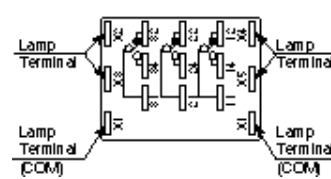
- When using split illumination, cut out the internal jumper using the jumper

- LED or incandescent lamps are not included and must be ordered

- For incandescent illumination (full only), use only 2 lamps.

1.01 of 0.01 lux illumination; use LED lamps.

Terminal Arrangement (Bottom View)


$$\overline{(COM)}$$

- DPDT contact type has lamp terminals and contact terminals on both sides

- Display only type has lamp terminals only.

MC SERIES ILLUMINATED CONTROL UNITS

MC2D- 0 (Square Flange Type)



Full



2-way Split



Operation Type	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 Attached	Red, Green, Amber, Clear, Yellow, Blue Material: Acrylic resin Order Separately	· Applicable LED Lamp 24V AC/DC: LFTD-2*		
		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					12V AC/DC: LFTD-1*
		DPDT	MC2D-S20B	MC2D-S20N					
	Gold	SPDT	MC2D-S50B	MC2D-S50N					
		DPDT	MC2D-S60B	MC2D-S60N					
Alternate	Silver	SPDT	MC2D-A10B	MC2D-A10N					· Applicable Incandescent Lamp 28V: LH-28 14V: LH-14 6V: LH-06
		DPDT	MC2D-A20B	MC2D-A20N					
	Gold	SPDT	MC2D-A50B	MC2D-A50N					
		DPDT	MC2D-A60B	MC2D-A60N					
Display Only	—	—	MC2D-P00B	MC2D-P00N					Order Separately

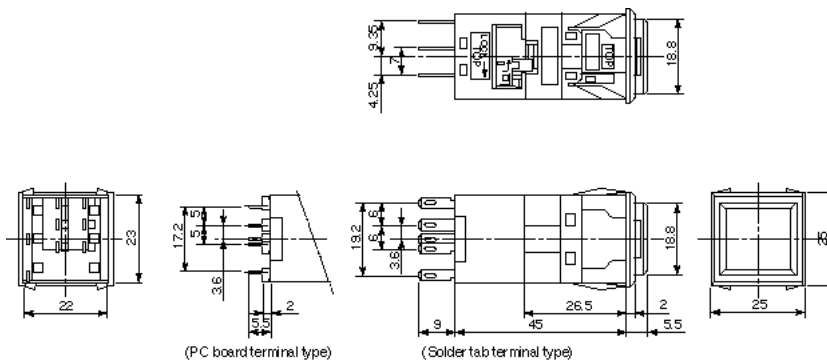
Note 1: Specify a color code in place of * in the LED lamp Type No.: R (red), G (green), A (amber), W (white), Y (yellow), S (blue)

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

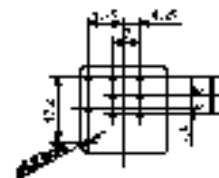
•PC board type is also available. [Type No. Example] MC2D-M10VB

↑ Designation code of PC board terminal type

Dimensions



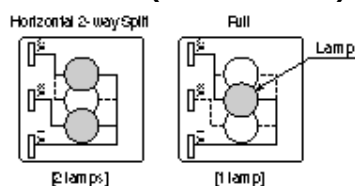
PC Board Drilling Layout (PC Board Terminal Type)



(Bottom View)

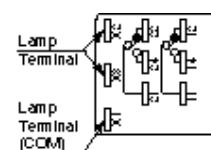
All dimensions in mm.

Internal Connection (Bottom View)



- 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.

Terminal Arrangement (Bottom View)



- 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 on continuously, the maximum number of MC3D units that can be mounted is 3 rows by 10 columns. - When all two LED lamps are on continuously, the maximum number of MC2D units that can be mounted is 10 rows by 10 columns. - The panel cut-out dimensions are identical whether the MC3D/MC2D is mounted with or without a dustproof cover. See page 13. - When more than 10 units are mounted collectively in a row, consult IDEC. - The applicable panel thickness is 1 to 5 mm. The strength of the panel board must be taken into consideration.
	MC3D Horizontal			
Flange Type	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)	•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	•T-13/4 miniature flange base
		14V		LH-14	100 pcs	
		6V		LH-06	100 pcs	
Lens with Switch Guard 	MC3D	Horizontal Type		MC9Z-KF3	10 pcs	•The lens with switch guard can be used in place of the standard lens to protect the operator, and can be installed in the same way as the standard lens. •When guard barriers are installed, the lens with 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	•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	
			Gray	MC9Z-BF2N		
	MC3D Vertical Flange Type	End Barrier	Black	MC9Z-BT1B	10 pcs	
			Gray	MC9Z-BT1N		
		Spacer Barrier	Black	MC9Z-BT2B	10 pcs	
			Gray	MC9Z-BT2N		
Guard Barrier  End Guard Barrier Spacer Guard Barrier	MC3D Horizontal Flange Type MC2D	End Guard Barrier	Black	MCM-BF3B	10 pcs	•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		
	MC2D	Spacer Guard Barrier	Black	MCM-BF4B	10 pcs	
			Gray	MCM-BF4N		
			Red	MCM-BF4R		
			White	MCM-BF4W		
Socket 	MC3D	With solder terminals		MC9Z-C3	10 pcs of the same type	•For preventing incorrect wiring and increasing safety.
		With PC board terminals		MC9Z-C3V	10 pcs of the same type	
	MC2D	With solder terminals		MC9Z-C2	10 pcs of the same type	
		With PC board terminals		MC9Z-C2V	10 pcs of the same type	
Dustproof Cover 	MC3D	Flange Type (Horizontal/Vertical)		MCM-D3	10 pcs of the same type	•The dustproof cover is not waterproof.
	MC2D	Flange Type		MCM-D2	10 pcs of the same type	

MC SERIES ILLUMINATED CONTROL UNITS

ACCESSORIES (Type No.)

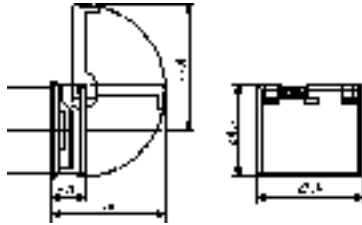
Name and Appearance	For use on	Specifications	Type No.	Unit Quantity	Remarks
Color Screen 	MC3D	Full illumination	MC9Z-PA3 P	1 set (5 pcs)	- Specify a color code in place of in the Type No. - R (red) - GD (green for LED) - GL (green for incandescent) - A (amber) - C (clear for white) - Y (yellow) - S (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)	- Made of white acrylic resin - One marking plate is supplied with the 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	- For preventing short-circuiting between terminals - 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	Leaf springs for mounting the flange type MC3D in vertical alignment. 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	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	Used to remove the lamp holder from the housing.

MC SERIES ILLUMINATED CONTROL UNITS

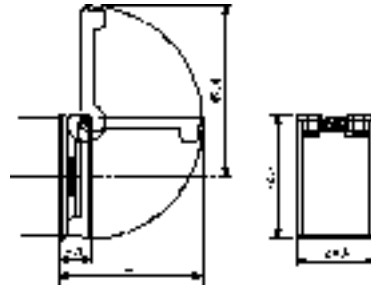
ACCESSORIES (Dimensions)

Lens with Switch Guard

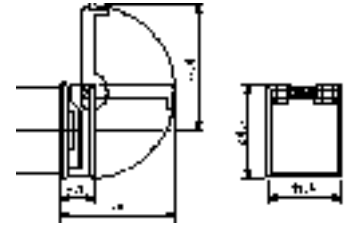
- For MC3D Horizontal Type (MC9Z-KF3)



- For MC3D Vertical Type (MC9Z-KT3)

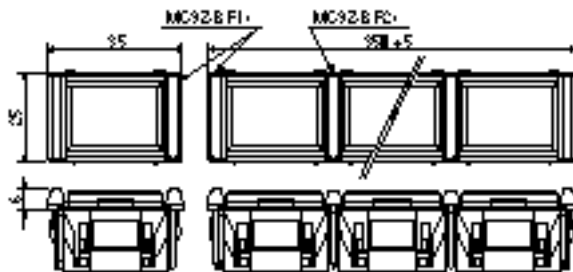


- For MC2D (MC9Z-KF2)

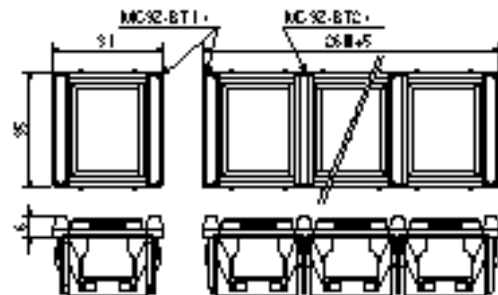


Barrier

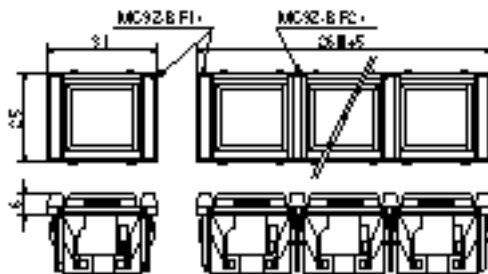
- When using on MC3D Horizontal Flange Type



- When using on MC3D Vertical Flange Type

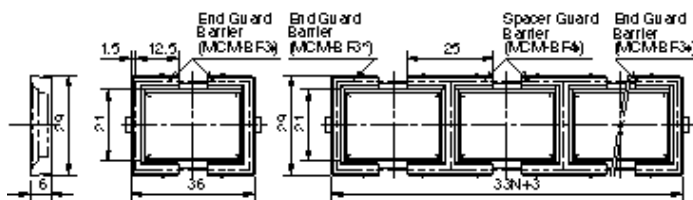


- When using on MC2D

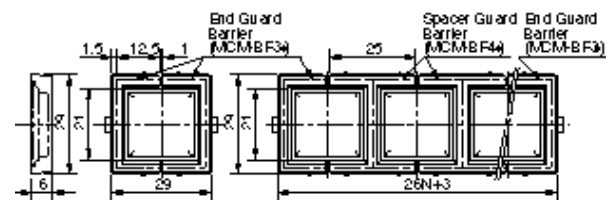


Guard Barrier

- When using on MC3D Horizontal Flange Type

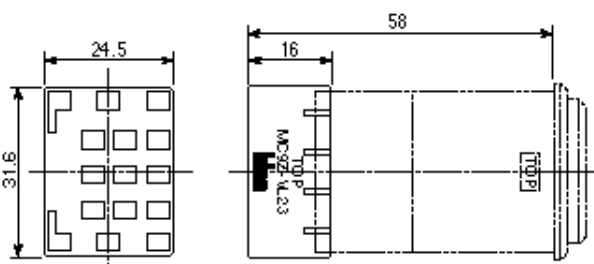


- When using on MC2D

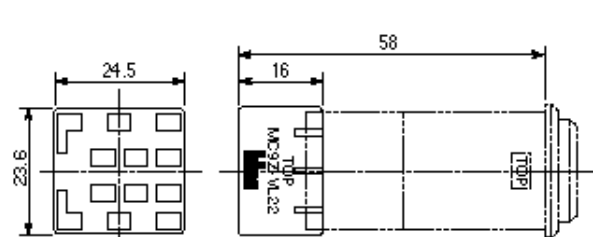


Terminal Cover

- For MC3D (MC9Z-VL23)



- For MC2D (MC9Z-VL22)



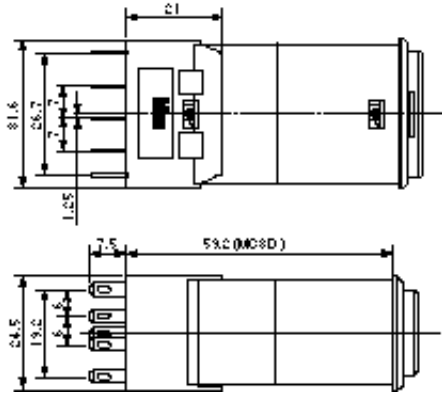
MC SERIES ILLUMINATED CONTROL UNITS

ACCESSORIES (Dimensions)

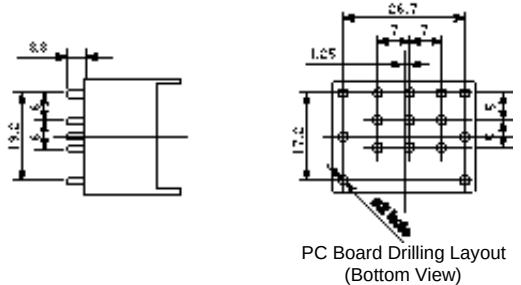
Socket

• For MC3D

With solder terminals (MC9Z-C3)

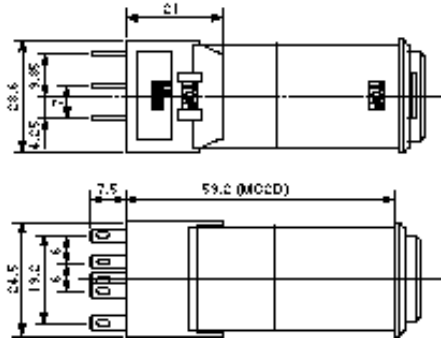


With PC board terminals (MC9Z-C3V)

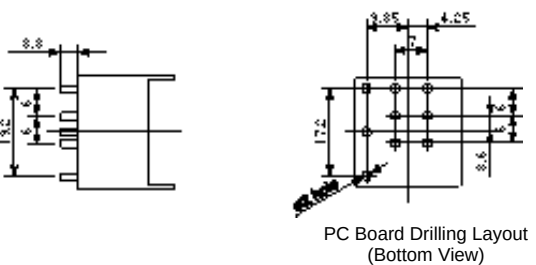


• For MC2D

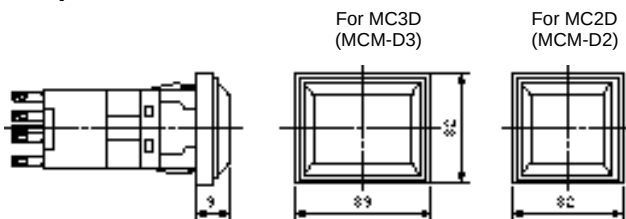
With solder terminals (MC9Z-C2)



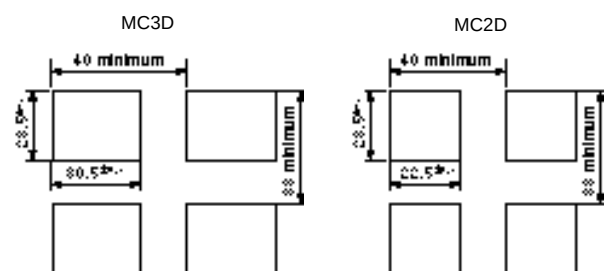
With PC board terminals (MC9Z-C2V)



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.: LETD-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, lenses with switch guard, 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

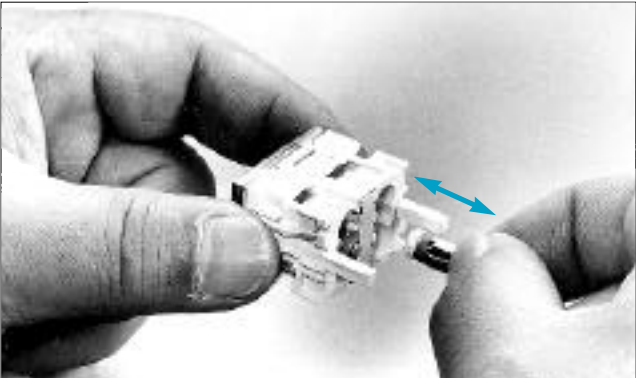
Illumination Unit

• Removing the Illumination Unit

Use the lamp holder removal tool (MCM-T001) to pull out the illumination unit, nipping the slots on the sides of the lens. If the cover of the lens with switch guard is pulled, the hinge of the cover may be damaged. Pull out the illumination unit, nipping the lens.

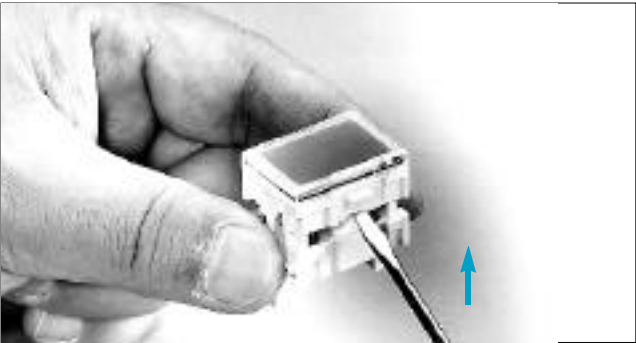
• Installation and Replacement of LED/Incandescent Lamps

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



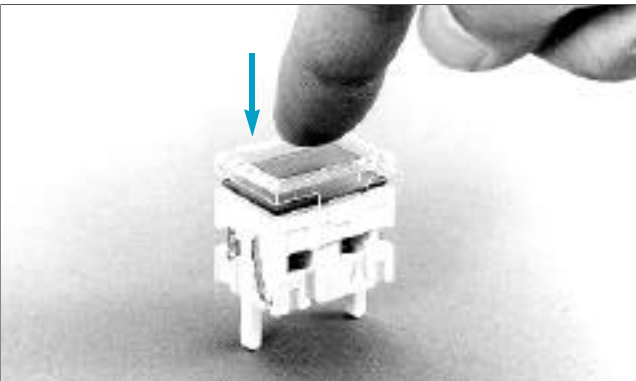
• Replacing the Lens (Removal)

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)

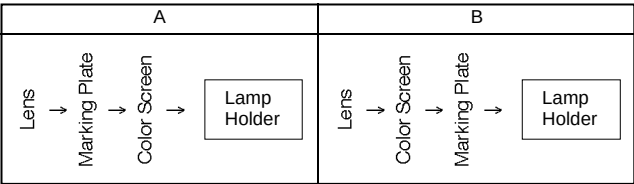
Put the latches on both sides of the lens onto the latches on the lens holder, and depress the lens surface lightly.



• Insertion Order of Color Screen and Marking Plate

Insert the color screen and marking plate in the order 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.
• Marking can be engraved 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 (Rectangular)

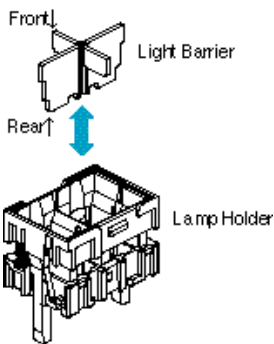
[Full Illumination] Light barrier is not needed.
[2- or 3-way Split] Cut off the unnecessary part using cutting pliers.
[4-way Split] Use the light barrier for 4-way split illumination as it is.

• MC2D (Square)

[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)

When inserting, note the orientation of the light barrier, illumination unit, and housing.



(Cutting the Light Barrier)

Cut off the unnecessary part using cutting pliers.



MC SERIES ILLUMINATED CONTROL UNITS

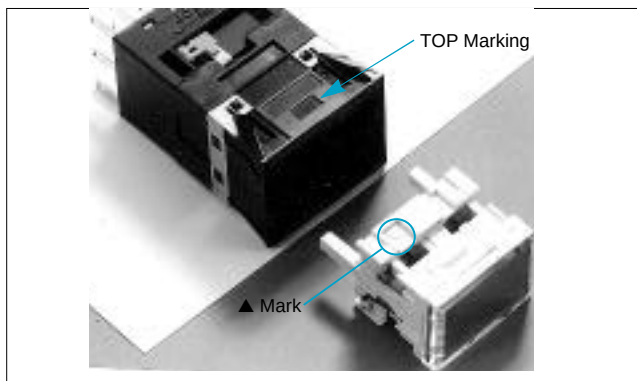
OPERATING INSTRUCTIONS

• Installing the Illumination Unit into the Housing

The illumination unit has an orientation for insertion into the MC3D/2D housing.

[MC3D]

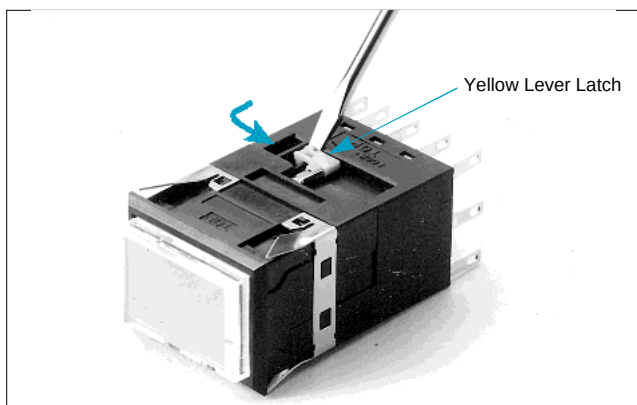
Place the ▲ mark on the lamp holder in the same direction as the TOP marking on the housing, and insert the illumination unit.



Removing the Contact Block

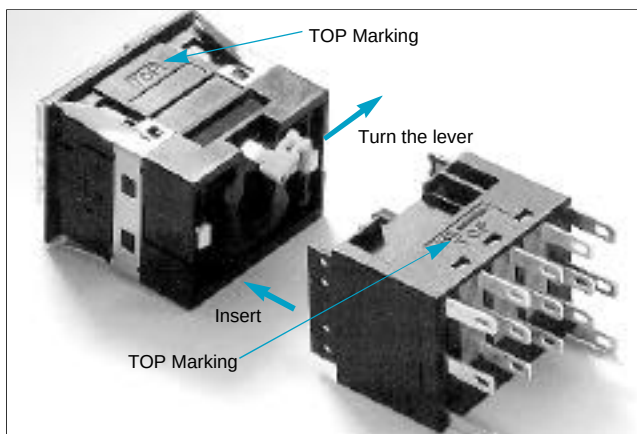
• Removing

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 →. The contact block is unlocked and can be removed from the operator housing.



• Installing

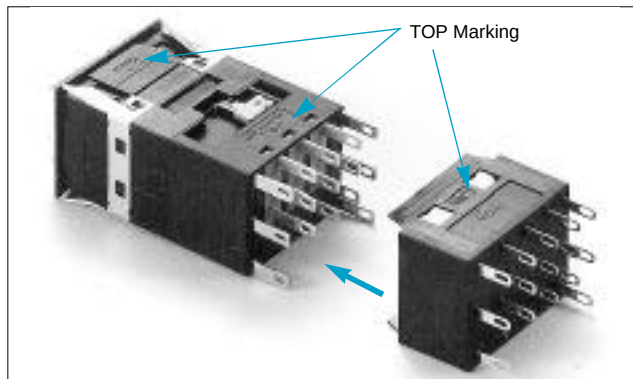
Open the lever as described above, and align the TOP markings on the operator housing and contact block in the same direction. Insert the contact block into the operator housing, and turn the lever in the direction indicated with Lock↵. The contact block is locked to the operator housing.



Installing Accessories

• Installing the Socket or Terminal Cover

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



• Installing the Lens with Switch Guard

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

• Installing the Barrier or Guard Barrier

[Single Mounting]

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



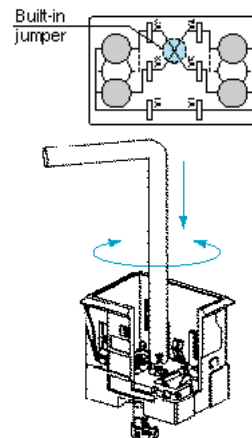
[Row Mounting]

Insert an end barrier at one end of the panel cutout, 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 out 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 out the jumper. Remove the cut 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 are easily deformed.



Notes for Wiring

- Run the LED illumination wiring away from other 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

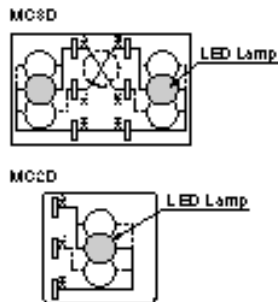
Notes for Operation

• When Using LED Lamps

When using the MC3D or MC2D for full illumination, make sure of correct number of lamps.

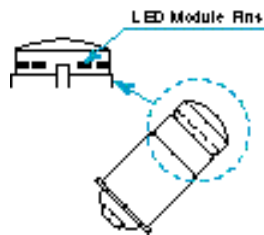
(Number of Lamps)

MC3D: 2 LED lamps
MC2D: 1 LED lamp



(Replacing LED Lamps)

When replacing LED lamps, do not apply electrostatic charge to the LED module pins around the top of the LED lamp, otherwise the internal LED elements may be damaged.



(Leakage Current)

The LED lamp may light dimly due to a leakage current or induction current from the solid-state switch or contact protection circuit used for the LED lamp. Take a measure, if necessary.

(Installation Location)

Do not install the LED illuminated MC3D or MC2D where the LED lamps are 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 power off to the MC3D or MC2D before starting installation, removal, wiring, maintenance, or inspection. Failure to turn power off may cause electrical shocks or fire hazard.

• Use the MC3D or MC2D within the specification values. Exceeding the specification values may cause electrical shocks or fire hazard.

• Use wires of a proper size to meet the voltage and current

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



IDEC IZUMI CORPORATION

7-9-1, Hibi-Kubohara 1-Chome, Yodogawa-ku, Osaka 532-8550, Japan
Tel: (81) 6-6398-2571, Fax: (81) 6-6392-9791, Internet: www.idec.com

US BRANCH

1175 Bly Drive, Gurnee, IL 60032-2009, U.S.A.
Tel: (408) 747-0550, Toll Free: (800) 262-IDEA, Fax: (408) 744-9055
E-mail: opencom@idec.com, Internet: www.idec.com

UK BRANCH

Unit 22-151, Brunel Road, Watlington, Oxford OX2, 100 Canada
Tel: (908) 890-8561, Toll Free: (888) 917-4952, Fax: (908) 890-8562

EUROPEAN BRANCH

Wendehausstr. 991, D-20537 Hamburg, Germany
Tel: (040) 25 11 91, Fax: (040) 254 99 61
E-mail: sales@idec.de, Internet: www.idec.de

ASIA BRANCH

Unit 2, Beechwood, Chichester Business Park, Basingstoke,
Hampshire RG24 8NR, UK
Tel: (01256) 321 000, Fax: (01256) 327 755
E-mail: idec@uk.idec.com

INDONESIA BRANCH

Room 1409, Tower 1, Silvercord, 90 Canton Road, Tsimshansui,
Kowloon, Hong Kong
Tel: (02) 976-2823, Fax: (02) 976-0790
E-mail: idec@smallidec.com

TAIWAN BRANCH

9F, No. 75, Hsin Tai Wu Road, Sec. 1, Hsi-Chin, Taipei County, Taiwan
Tel: (02) 2698-0601, Fax: (02) 2698-2710

AUSTRALIA BRANCH

218 Macro Court, Rowville, Victoria 3178, Australia
Tel: (03) 9763-3244, Toll Free: 1800-68-4992, Fax: (03) 9763-3255
E-mail: sales@auz.idec.com

IDEA ZUMI ASIA PTE. LTD.

No. 31, Tanjong Lane #05-01, Dragon Land Building, Singapore 347788
Tel: (65) 746-1155, Fax: (65) 844-5995

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