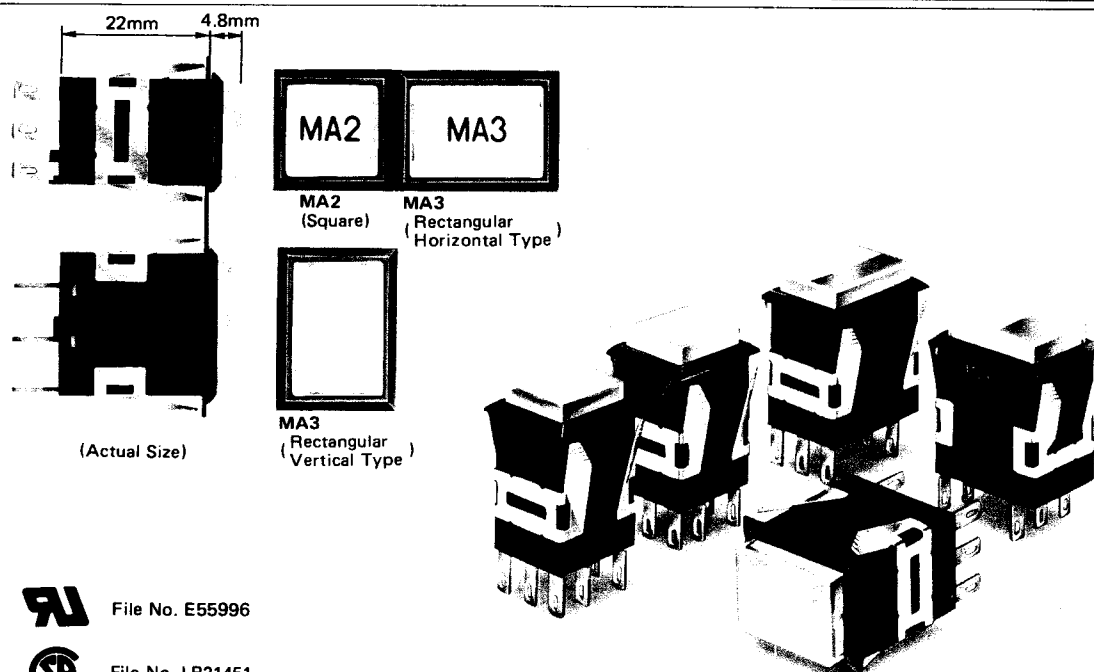


MINIATURE ILLUMINATED CONTROL UNITS

idec

MA SERIES

IDEC IZUMI CORPORATION



File No. E55996



File No. LR21451

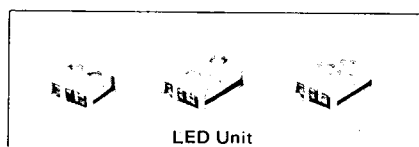
Short-body miniature illuminated pushbuttons

Ideal for electronic and small control panels.

Super bright LED. High-performance snap-action contacts.

FEATURES

- Space-saving short body design.
- High brilliance LED units.
- Three illumination types; one-color full, red/green alternate, and 2-way split illumination.
- Gold-clad silver cross-bar contacts suited for small load switching.
- IDEC's original fine mechanism for soft and snap switching operation.
- LED units contain a current limiting resistor and a reverse polarity protection diode. (The 5V DC type is provided with a current limiting resistor only.)
- Snap-fit mounting from the panel front.
- Accessories for extra convenience; barriers, switch guards, and sockets.



TYPES

Item	MA2 (Square)	MA3 (Rectangular)	
		Horizontal	Vertical
Bezel Size (mm)	 □ 18	 18 x 24	 24 x 18
Illumination Face Size (mm)	□ 13	13 x 19	19 x 13
Light Source	LED unit		
Face Division (Note 1)	One-color full, 2-way split, and red/green alternate illumination		
Illumination Color (Note 2)	• Red, Green, Yellow, Amber, White • Red/Green alternate		
Contact	Gold-clad silver cross-bar contact		
No. of Contacts	SPDT or DPDT		
Operation Type	Momentary, alternate, and display only		
Housing Color	Black or gray		

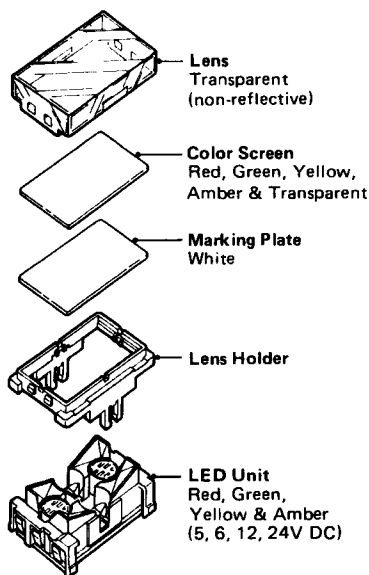
Note 1: The 2-way split illumination type is available for the MA3 series only.

Note 2: A yellow LED unit is contained for white illumination.

MA SERIES CONTROL UNITS

One-color Full Illumination

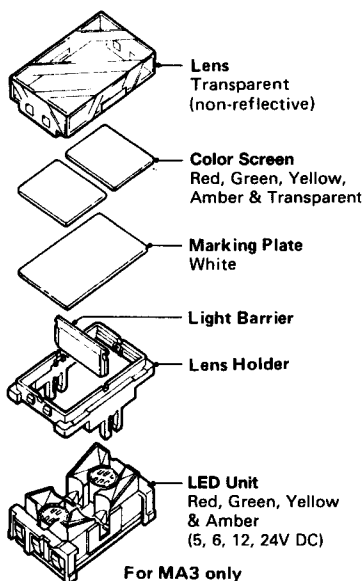
Red, Green, Yellow, Amber & White



- MA2 and MA3 vertical type units have the same construction as the MA3 horizontal type shown in the above illustration.
- A yellow LED unit is contained for white illumination.

Two-way Split Illumination

Red, Green, Yellow, Amber & White

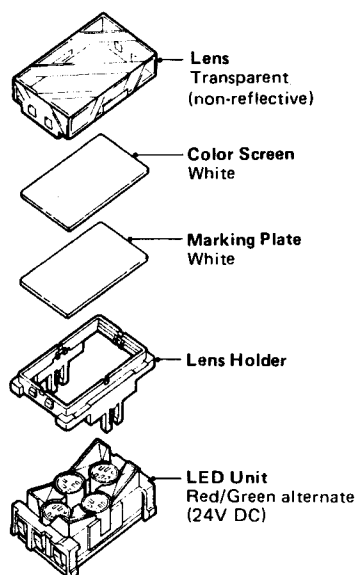


For MA3 only

- Horizontal long-split and vertical type units have the same construction as the MA3 horizontal short-split type shown in the above illustration.
- A yellow LED unit is contained for white illumination.

Two-color Alternate Illumination

Red/Green



- MA2 and MA3 vertical type units have the same construction as the MA3 horizontal type shown in the above illustration.

CONTACT RATINGS

• Gold Contact

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

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

• Silver Contact

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

Note: AC inductive load: PF = 0.6 to 0.7, DC inductive load: L/R = 7msec max.

LED UNIT RATINGS

Illumination Type	One-color full/2-way split (Note 1)				Two-color alternate
Operating Voltage	5V DC ±5%	6V DC ±5%	12V DC ±5%	24V DC ±5%	24V DC ±5%
Rated Voltage	5V DC	6V DC	12V DC	24V DC	24V DC
Rated Current	Refer to INTERNAL CIRCUIT.				
Life (Reference Value)	Approx. 30,000 hours (The luminance reduces to 50% the initial intensity when used on complete DC.)				

- Note 1: The MA2 series is not available in the 2-way split illumination type.
 Note 2: A current limiting resistor and a protection diode are contained. (The 5V DC type contains a current limiting resistor only.)
 Note 3: A 28V DC type is particularly useful when using a full-wave rectification voltage of 24V AC.

SPECIFICATIONS

Operating Temperature	-25 to +55°C (no freezing)	
Operating Humidity	35 to 85% RH	
Contact Resistance	50mΩ maximum (initial value)	
Insulation Resistance	100MΩ minimum (500V DC megger)	
Dielectric Strength	Switch Unit	Between live and dead parts: 2,000V AC, 1 minute Between terminals of different poles: 2,000V AC, 1 minute Between terminals of the same pole: 1,000V AC, 1 minute Between contact and lamp terminals: 2,000V AC, 1 minute
	Illumination Unit	Between live part and ground: 2,000V AC, 1 minute
Vibration Resistance	Operating extremes: 10 to 55Hz, Amplitude 1.5mm p-p	
Shock Resistance	Damage limits: 500m/sec ² (Approx. 50G) Operating extremes: 200m/sec ² (Approx. 20G)	
Mechanical Life (minimum operations)	Momentary: 1,000,000 Alternate: 200,000	
Electrical Life (minimum operations)	100,000 (at 1,200 operations/hour)	

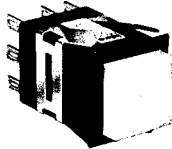
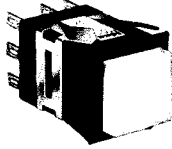
MA2 (Squa

MA2 (Squa

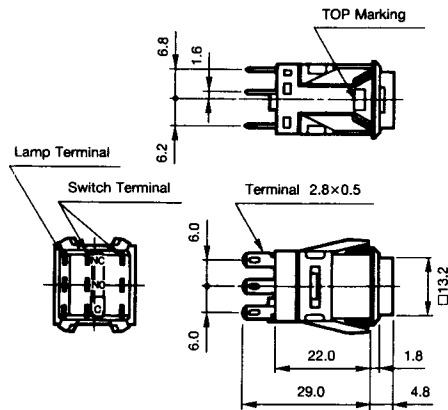
DIME

Lamp Te

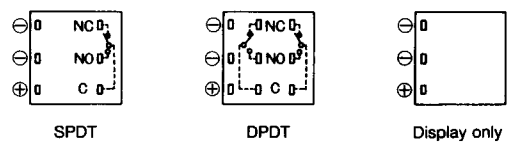
MA SERIES CONTROL UNITS (Illuminated Pushbuttons)

LED		MA2 (Square Type)					
Shape	Operation Type	Contact Material	Operating Voltage	Contact	Type No.		Illumination Color (Code)
					Housing Color: Black	Housing Color: Gray	
MA2 (Square Type)  One-color Full 	Momentary	Gold	5V DC $\pm 5\%$	SPDT	MA2L-M1111 *	MA2L-M1211 *	Red (R) Green (G) Yellow (Y) Amber (A) White (W) An illumination color code is specified in place of * in the Type No.
			6V DC $\pm 5\%$	DPDT	MA2L-M2111 *	MA2L-M2211 *	
			12V DC $\pm 5\%$	SPDT	MA2L-M1121 *	MA2L-M1221 *	
			24V DC $\pm 5\%$	DPDT	MA2L-M2121 *	MA2L-M2221 *	
		Silver	5V DC $\pm 5\%$	SPDT	MA2L-M1131 *	MA2L-M1231 *	
			6V DC $\pm 5\%$	DPDT	MA2L-M2131 *	MA2L-M2231 *	
			12V DC $\pm 5\%$	SPDT	MA2L-M1141 *	MA2L-M1241 *	
			24V DC $\pm 5\%$	DPDT	MA2L-M2141 *	MA2L-M2241 *	
	Alternate	Gold	5V DC $\pm 5\%$	SPDT	MA2L-M5111 *	MA2L-M5211 *	
			6V DC $\pm 5\%$	DPDT	MA2L-M6111 *	MA2L-M6211 *	
			12V DC $\pm 5\%$	SPDT	MA2L-M5121 *	MA2L-M5221 *	
			24V DC $\pm 5\%$	DPDT	MA2L-M6121 *	MA2L-M6221 *	
		Silver	5V DC $\pm 5\%$	SPDT	MA2L-M5131 *	MA2L-M5231 *	
			6V DC $\pm 5\%$	DPDT	MA2L-M6131 *	MA2L-M6231 *	
			12V DC $\pm 5\%$	SPDT	MA2L-M5141 *	MA2L-M5241 *	
			24V DC $\pm 5\%$	DPDT	MA2L-M6141 *	MA2L-M6241 *	
	Display Only	—	5V DC $\pm 5\%$	—	MA2P-111 *	MA2P-211 *	
			6V DC $\pm 5\%$	—	MA2P-121 *	MA2P-221 *	
			12V DC $\pm 5\%$	—	MA2P-131 *	MA2P-231 *	
			24V DC $\pm 5\%$	—	MA2P-141 *	MA2P-241 *	
MA2 (Square Type)  Two-color Alternate 	Momentary	Gold	24V DC $\pm 5\%$	SPDT	MA2L-M1144RG	MA2L-M1244RG	Red/Green alternate illumination
		Silver	24V DC $\pm 5\%$	DPDT	MA2L-M2144RG	MA2L-M2244RG	
	Alternate	Gold	24V DC $\pm 5\%$	SPDT	MA2L-M5144RG	MA2L-M5244RG	
		Silver	24V DC $\pm 5\%$	DPDT	MA2L-M6144RG	MA2L-M6244RG	
	Display Only	Gold	24V DC $\pm 5\%$	SPDT	MA2L-A1144RG	MA2L-A1244RG	
		Silver	24V DC $\pm 5\%$	DPDT	MA2L-A2144RG	MA2L-A2244RG	
	Display Only	—	24V DC $\pm 5\%$	—	MA2P-144RG	MA2P-244RG	
		—	24V DC $\pm 5\%$	—	MA2P-144RG	MA2P-244RG	

DIMENSIONS

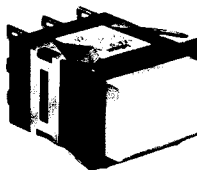
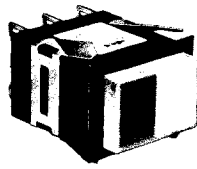
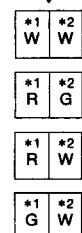
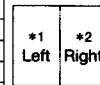


TERMINAL ARRANGEMENT (Bottom View)



MA SERIES CONTROL UNITS (Illuminated Pushbuttons)

LED MA3 (Horizontal Rectangular Type)

Shape	Operation Type	Contact Material	Operating Voltage	Contact	Type No.		Illumination Color (Code)
					Housing Color: Black	Housing Color: Gray	
MA3 (Horizontal Rectangular Type)  One-color Full 	Momentary	Gold	5V DC $\pm 5\%$	SPDT	MA3L-M1311 *	MA3L-M1411 *	Red (R) Green (G) Yellow (Y) Amber (A) White (W) An illumination color code is specified in place of * in the Type No.
			6V DC $\pm 5\%$	DPDT	MA3L-M2311 *	MA3L-M2411 *	
			12V DC $\pm 5\%$	SPDT	MA3L-M1321 *	MA3L-M1421 *	
			24V DC $\pm 5\%$	DPDT	MA3L-M2321 *	MA3L-M2421 *	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-M1331 *	MA3L-M1431 *	
			6V DC $\pm 5\%$	DPDT	MA3L-M2331 *	MA3L-M2431 *	
			12V DC $\pm 5\%$	SPDT	MA3L-M1341 *	MA3L-M1441 *	
			24V DC $\pm 5\%$	DPDT	MA3L-M2341 *	MA3L-M2441 *	
		Gold	5V DC $\pm 5\%$	SPDT	MA3L-M5311 *	MA3L-M5411 *	
			6V DC $\pm 5\%$	DPDT	MA3L-M6311 *	MA3L-M6411 *	
			12V DC $\pm 5\%$	SPDT	MA3L-M5321 *	MA3L-M5421 *	
			24V DC $\pm 5\%$	DPDT	MA3L-M6321 *	MA3L-M6421 *	
	Alternate	Gold	5V DC $\pm 5\%$	SPDT	MA3L-M5331 *	MA3L-M5431 *	
			6V DC $\pm 5\%$	DPDT	MA3L-M6331 *	MA3L-M6431 *	
			12V DC $\pm 5\%$	SPDT	MA3L-M5341 *	MA3L-M5441 *	
			24V DC $\pm 5\%$	DPDT	MA3L-M6341 *	MA3L-M6441 *	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-A1311 *	MA3L-A1411 *	
			6V DC $\pm 5\%$	DPDT	MA3L-A2311 *	MA3L-A2411 *	
			12V DC $\pm 5\%$	SPDT	MA3L-A1321 *	MA3L-A1421 *	
			24V DC $\pm 5\%$	DPDT	MA3L-A2321 *	MA3L-A2421 *	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-A1331 *	MA3L-A1431 *	
			6V DC $\pm 5\%$	DPDT	MA3L-A2331 *	MA3L-A2431 *	
			12V DC $\pm 5\%$	SPDT	MA3L-A1341 *	MA3L-A1441 *	
			24V DC $\pm 5\%$	DPDT	MA3L-A2341 *	MA3L-A2441 *	
MA3 (Horizontal Rectangular Type) Short 2-way Split  (Standard Color) (Top Marking) 	Momentary	Gold	5V DC $\pm 5\%$	SPDT	MA3L-M1313 [*1] [*2]	MA3L-M1413 [*1] [*2]	Red (R) Green (G) Yellow (Y) Amber (A) White (W) The color code specified in place of [*1] will be for the left side and in place of [*2] will be for the right side. (Top Marking Side)  Choose the color code from the standard color arrangement next to the photo.
			6V DC $\pm 5\%$	DPDT	MA3L-M2313 [*1] [*2]	MA3L-M2413 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M1323 [*1] [*2]	MA3L-M1423 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M2323 [*1] [*2]	MA3L-M2423 [*1] [*2]	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-M1333 [*1] [*2]	MA3L-M1433 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-M2333 [*1] [*2]	MA3L-M2433 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M1343 [*1] [*2]	MA3L-M1443 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M2343 [*1] [*2]	MA3L-M2443 [*1] [*2]	
		Gold	5V DC $\pm 5\%$	SPDT	MA3L-M5313 [*1] [*2]	MA3L-M5413 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-M6313 [*1] [*2]	MA3L-M6413 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M5323 [*1] [*2]	MA3L-M5423 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M6323 [*1] [*2]	MA3L-M6423 [*1] [*2]	
	Alternate	Gold	5V DC $\pm 5\%$	SPDT	MA3L-M5333 [*1] [*2]	MA3L-M5433 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-M6333 [*1] [*2]	MA3L-M6433 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M5343 [*1] [*2]	MA3L-M5443 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M6343 [*1] [*2]	MA3L-M6443 [*1] [*2]	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-A1313 [*1] [*2]	MA3L-A1413 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-A2313 [*1] [*2]	MA3L-A2413 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-A1323 [*1] [*2]	MA3L-A1423 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-A2323 [*1] [*2]	MA3L-A2423 [*1] [*2]	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-A1333 [*1] [*2]	MA3L-A1433 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-A2333 [*1] [*2]	MA3L-A2433 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-A1343 [*1] [*2]	MA3L-A1443 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-A2343 [*1] [*2]	MA3L-A2443 [*1] [*2]	
	Display Only	—	5V DC $\pm 5\%$	—	MA3P-313 [*1] [*2]	MA3P-413 [*1] [*2]	
			6V DC $\pm 5\%$	—	MA3P-323 [*1] [*2]	MA3P-423 [*1] [*2]	
			12V DC $\pm 5\%$	—	MA3P-333 [*1] [*2]	MA3P-433 [*1] [*2]	
			24V DC $\pm 5\%$	—	MA3P-343 [*1] [*2]	MA3P-443 [*1] [*2]	

MA3 (Hor Rec Long)

/Stan Colo (Top A)

MA3 (Hori Rect)

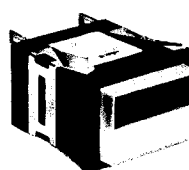
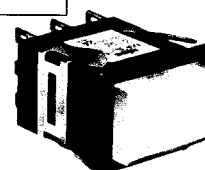
DIME

Lamp

MA SERIES CONTROL UNITS (Illuminated Pushbuttons)

LED

MA3 (Horizontal Rectangular Type)

Shape	Operation Type	Contact Material	Operating Voltage	Contact	Type No.		Illumination Color (Code)
					Housing Color: Black	Housing Color: Gray	
MA3 (Horizontal Rectangular Type) Long 2-way Split 	Momentary	Gold	5V DC $\pm 5\%$	SPDT	MA3L-M1312 [*1] [*2]	MA3L-M1412 [*1] [*2]	Red (R) Green (G) Yellow (Y) Amber (A) White (W) The color code specified in place of [*1] will be for the upper side and in place of [*2] will be for the lower side. (Top Marking Side) *1 Upper *2 Lower Choose the color code from the standard color arrangement next to the photo.
			DPDT	MA3L-M2312 [*1] [*2]	MA3L-M2412 [*1] [*2]		
			6V DC $\pm 5\%$	SPDT	MA3L-M1322 [*1] [*2]	MA3L-M1422 [*1] [*2]	
			DPDT	MA3L-M2322 [*1] [*2]	MA3L-M2422 [*1] [*2]		
			12V DC $\pm 5\%$	SPDT	MA3L-M1332 [*1] [*2]	MA3L-M1432 [*1] [*2]	
			DPDT	MA3L-M2332 [*1] [*2]	MA3L-M2432 [*1] [*2]		
		24V DC $\pm 5\%$	SPDT	MA3L-M1342 [*1] [*2]	MA3L-M1442 [*1] [*2]		
		DPDT	MA3L-M2342 [*1] [*2]	MA3L-M2442 [*1] [*2]			
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-M5312 [*1] [*2]	MA3L-M5412 [*1] [*2]	
			DPDT	MA3L-M6312 [*1] [*2]	MA3L-M6412 [*1] [*2]		
			6V DC $\pm 5\%$	SPDT	MA3L-M5322 [*1] [*2]	MA3L-M5422 [*1] [*2]	
			DPDT	MA3L-M6322 [*1] [*2]	MA3L-M6422 [*1] [*2]		
	12V DC $\pm 5\%$		SPDT	MA3L-M5332 [*1] [*2]	MA3L-M5432 [*1] [*2]		
	DPDT		MA3L-M6332 [*1] [*2]	MA3L-M6432 [*1] [*2]			
	Alternate	Gold	24V DC $\pm 5\%$	SPDT	MA3L-M5342 [*1] [*2]	MA3L-M5442 [*1] [*2]	
			DPDT	MA3L-M6342 [*1] [*2]	MA3L-M6442 [*1] [*2]		
			5V DC $\pm 5\%$	SPDT	MA3L-A1312 [*1] [*2]	MA3L-A1412 [*1] [*2]	
			DPDT	MA3L-A2312 [*1] [*2]	MA3L-A2412 [*1] [*2]		
		Silver	6V DC $\pm 5\%$	SPDT	MA3L-A1322 [*1] [*2]	MA3L-A1422 [*1] [*2]	
			DPDT	MA3L-A2322 [*1] [*2]	MA3L-A2422 [*1] [*2]		
			12V DC $\pm 5\%$	SPDT	MA3L-A1332 [*1] [*2]	MA3L-A1432 [*1] [*2]	
			DPDT	MA3L-A2332 [*1] [*2]	MA3L-A2432 [*1] [*2]		
			24V DC $\pm 5\%$	SPDT	MA3L-A1342 [*1] [*2]	MA3L-A1442 [*1] [*2]	
			DPDT	MA3L-A2342 [*1] [*2]	MA3L-A2442 [*1] [*2]		
	Display Only	—	5V DC $\pm 5\%$	—	MA3P-312 [*1] [*2]	MA3P-412 [*1] [*2]	
			6V DC $\pm 5\%$	—	MA3P-322 [*1] [*2]	MA3P-422 [*1] [*2]	
			12V DC $\pm 5\%$	—	MA3P-332 [*1] [*2]	MA3P-432 [*1] [*2]	
			24V DC $\pm 5\%$	—	MA3P-342 [*1] [*2]	MA3P-442 [*1] [*2]	
MA3 (Horizontal Rectangular Type) Two-color Alternate 	Momentary	Gold	24V DC $\pm 5\%$	SPDT	MA3L-M1344RG	MA3L-M1444RG	Red/Green alternate illumination
				DPDT	MA3L-M2344RG	MA3L-M2444RG	
		Silver	24V DC $\pm 5\%$	SPDT	MA3L-M5344RG	MA3L-M5444RG	
				DPDT	MA3L-M6344RG	MA3L-M6444RG	
	Alternate	Gold	24V DC $\pm 5\%$	SPDT	MA3L-A1344RG	MA3L-A1444RG	
				DPDT	MA3L-A2344RG	MA3L-A2444RG	
		Silver	24V DC $\pm 5\%$	SPDT	MA3L-A5344RG	MA3L-A5444RG	
				DPDT	MA3L-A6344RG	MA3L-A6444RG	
Display Only	—	24V DC $\pm 5\%$	—	MA3P-344RG	MA3P-444RG		

(Standard) Color
(Top Marking)
↓

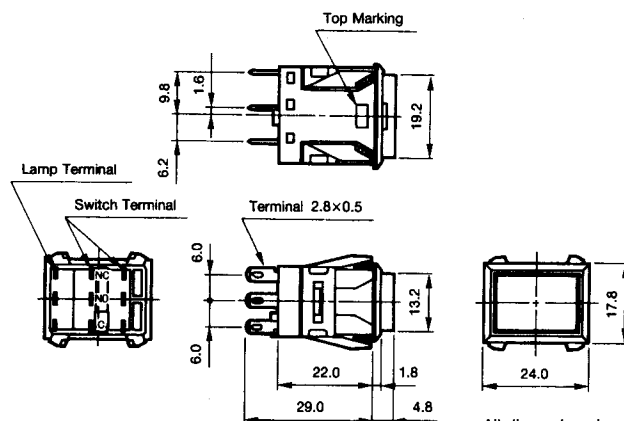
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*2 W

*1 R
*2 G

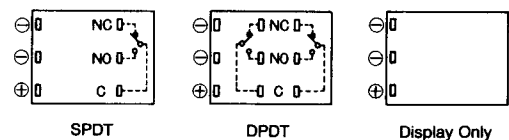
*1 R
*2 W

*1 G
*2 W

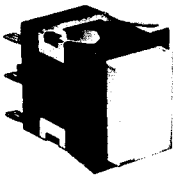
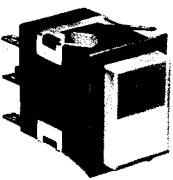
DIMENSIONS



TERMINAL ARRANGEMENT (Bottom View)



MA SERIES CONTROL UNITS (Illuminated Pushbuttons)

LED		MA3 (Vertical Rectangular Type)					
Shape	Operation Type	Contact Material	Operating Voltage	Contact	Type No.		Illumination Color (Code)
					Housing Color: Black	Housing Color: Gray	
MA3 (Vertical Rectangular Type) One-color Full 	Momentary	Gold	5V DC ±5%	SPDT	MA3L-M1511 *	MA3L-M1611 *	Red (R) Green (G) Yellow (Y) Amber (A) White (W) An illumination color code is specified in place of * in the Type No.
			6V DC ±5%	SPDT	MA3L-M1521 *	MA3L-M1621 *	
			6V DC ±5%	DPDT	MA3L-M1521 *	MA3L-M1621 *	
			12V DC ±5%	SPDT	MA3L-M1531 *	MA3L-M1631 *	
			12V DC ±5%	DPDT	MA3L-M2531 *	MA3L-M2631 *	
			24V DC ±5%	SPDT	MA3L-M1541 *	MA3L-M1641 *	
			24V DC ±5%	DPDT	MA3L-M2541 *	MA3L-M2641 *	
		Silver	5V DC ±5%	SPDT	MA3L-M5511 *	MA3L-M5611 *	
			6V DC ±5%	SPDT	MA3L-M5521 *	MA3L-M5621 *	
			6V DC ±5%	DPDT	MA3L-M5521 *	MA3L-M5621 *	
			12V DC ±5%	SPDT	MA3L-M5531 *	MA3L-M5631 *	
			12V DC ±5%	DPDT	MA3L-M5531 *	MA3L-M5631 *	
			24V DC ±5%	SPDT	MA3L-M5541 *	MA3L-M5641 *	
			24V DC ±5%	DPDT	MA3L-M5541 *	MA3L-M5641 *	
		Gold	5V DC ±5%	SPDT	MA3L-A1511 *	MA3L-A1611 *	
			6V DC ±5%	SPDT	MA3L-A1521 *	MA3L-A1621 *	
			6V DC ±5%	DPDT	MA3L-A1521 *	MA3L-A1621 *	
			12V DC ±5%	SPDT	MA3L-A1531 *	MA3L-A1631 *	
			12V DC ±5%	DPDT	MA3L-A1531 *	MA3L-A1631 *	
			24V DC ±5%	SPDT	MA3L-A1541 *	MA3L-A1641 *	
			24V DC ±5%	DPDT	MA3L-A1541 *	MA3L-A1641 *	
		Silver	5V DC ±5%	SPDT	MA3L-A5511 *	MA3L-A5611 *	
			6V DC ±5%	SPDT	MA3L-A5521 *	MA3L-A5621 *	
			6V DC ±5%	DPDT	MA3L-A5521 *	MA3L-A5621 *	
			12V DC ±5%	SPDT	MA3L-A5531 *	MA3L-A5631 *	
			12V DC ±5%	DPDT	MA3L-A5531 *	MA3L-A5631 *	
			24V DC ±5%	SPDT	MA3L-A5541 *	MA3L-A5641 *	
			24V DC ±5%	DPDT	MA3L-A5541 *	MA3L-A5641 *	
	Display Only	—	5V DC ±5%	—	MA3P-511 *	MA3P-611 *	
			6V DC ±5%	—	MA3P-521 *	MA3P-621 *	
			12V DC ±5%	—	MA3P-531 *	MA3P-631 *	
			24V DC ±5%	—	MA3P-541 *	MA3P-641 *	
MA3 (Vertical Rectangular Type) Short 2-way Split 	Momentary	Gold	5V DC ±5%	SPDT	MA3L-M1513 [*1] [*2]	MA3L-M1613 [*1] [*2]	Red (R) Green (G) Yellow (Y) Amber (A) White (W) The color code specified in place of [*1] will be for the upper side and in place of [*2] will be for the lower side. [*1] Upper [*2] Lower (Top Marking Side) Choose the color code from the standard color arrangement next to the photo.
			6V DC ±5%	SPDT	MA3L-M1523 [*1] [*2]	MA3L-M1623 [*1] [*2]	
			6V DC ±5%	DPDT	MA3L-M2523 [*1] [*2]	MA3L-M2623 [*1] [*2]	
			12V DC ±5%	SPDT	MA3L-M1533 [*1] [*2]	MA3L-M1633 [*1] [*2]	
			12V DC ±5%	DPDT	MA3L-M2533 [*1] [*2]	MA3L-M2633 [*1] [*2]	
			24V DC ±5%	SPDT	MA3L-M1543 [*1] [*2]	MA3L-M1643 [*1] [*2]	
			24V DC ±5%	DPDT	MA3L-M2543 [*1] [*2]	MA3L-M2643 [*1] [*2]	
		Silver	5V DC ±5%	SPDT	MA3L-M5513 [*1] [*2]	MA3L-M5613 [*1] [*2]	
			6V DC ±5%	SPDT	MA3L-M5523 [*1] [*2]	MA3L-M5623 [*1] [*2]	
			6V DC ±5%	DPDT	MA3L-M6523 [*1] [*2]	MA3L-M6623 [*1] [*2]	
			12V DC ±5%	SPDT	MA3L-M5533 [*1] [*2]	MA3L-M5633 [*1] [*2]	
			12V DC ±5%	DPDT	MA3L-M6533 [*1] [*2]	MA3L-M6633 [*1] [*2]	
			24V DC ±5%	SPDT	MA3L-M5543 [*1] [*2]	MA3L-M5643 [*1] [*2]	
			24V DC ±5%	DPDT	MA3L-M6543 [*1] [*2]	MA3L-M6643 [*1] [*2]	
		Gold	5V DC ±5%	SPDT	MA3L-A1513 [*1] [*2]	MA3L-A1613 [*1] [*2]	
			6V DC ±5%	SPDT	MA3L-A1523 [*1] [*2]	MA3L-A1623 [*1] [*2]	
			6V DC ±5%	DPDT	MA3L-A2523 [*1] [*2]	MA3L-A2623 [*1] [*2]	
			12V DC ±5%	SPDT	MA3L-A1533 [*1] [*2]	MA3L-A1633 [*1] [*2]	
			12V DC ±5%	DPDT	MA3L-A2533 [*1] [*2]	MA3L-A2633 [*1] [*2]	
			24V DC ±5%	SPDT	MA3L-A1543 [*1] [*2]	MA3L-A1643 [*1] [*2]	
			24V DC ±5%	DPDT	MA3L-A2543 [*1] [*2]	MA3L-A2643 [*1] [*2]	
		Silver	5V DC ±5%	SPDT	MA3L-A5513 [*1] [*2]	MA3L-A5613 [*1] [*2]	
			6V DC ±5%	SPDT	MA3L-A5523 [*1] [*2]	MA3L-A5623 [*1] [*2]	
			6V DC ±5%	DPDT	MA3L-A6523 [*1] [*2]	MA3L-A6623 [*1] [*2]	
			12V DC ±5%	SPDT	MA3L-A5533 [*1] [*2]	MA3L-A5633 [*1] [*2]	
			12V DC ±5%	DPDT	MA3L-A6533 [*1] [*2]	MA3L-A6633 [*1] [*2]	
			24V DC ±5%	SPDT	MA3L-A5543 [*1] [*2]	MA3L-A5643 [*1] [*2]	
			24V DC ±5%	DPDT	MA3L-A6543 [*1] [*2]	MA3L-A6643 [*1] [*2]	
	Display Only	—	5V DC ±5%	—	MA3P-513 [*1] [*2]	MA3P-613 [*1] [*2]	
			6V DC ±5%	—	MA3P-523 [*1] [*2]	MA3P-623 [*1] [*2]	
			12V DC ±5%	—	MA3P-533 [*1] [*2]	MA3P-633 [*1] [*2]	
			24V DC ±5%	—	MA3P-543 [*1] [*2]	MA3P-643 [*1] [*2]	

MA3 (Vertical Rectangular Type)

(Standard Color)

* 2 1 W V

* 2 1 G F

* 2 1 W F

* 2 1 W G

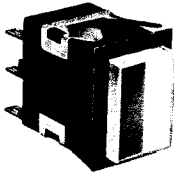
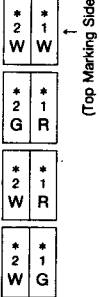
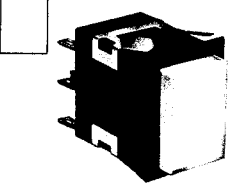
MA3 (Vertical Rectangular Type)

DIME

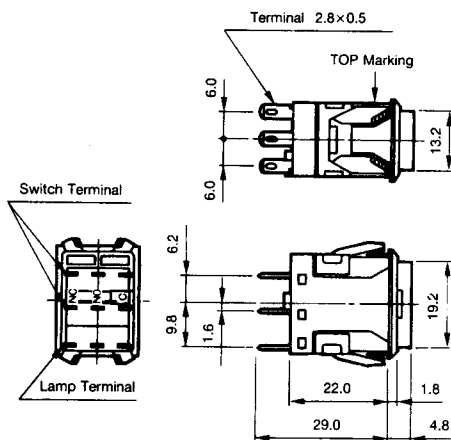
Switch

Lar

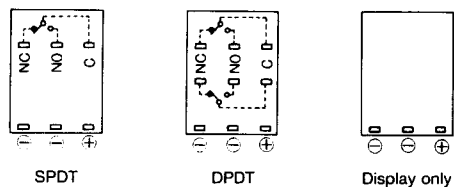
MA SERIES CONTROL UNITS (Illuminated Pushbuttons)

LED		MA3 (Vertical Rectangular Type)					
Shape	Operation Type	Contact Material	Operating Voltage	Contact	Type No.		Illumination Color (Code)
					Housing Color: Black	Housing Color: Gray	
MA3 (Vertical Rectangular Type) Long 2-way Split  (Standard Color) 	Momentary	Gold	5V DC $\pm 5\%$	SPDT	MA3L-M1512 [*1] [*2]	MA3L-M1612 [*1] [*2]	Red (R) Green (G) Yellow (Y) Amber (A) White (W) The color code specified in place of [*1] will be for the right side and in place of [*2] will be for the left side. 
			6V DC $\pm 5\%$	DPDT	MA3L-M2512 [*1] [*2]	MA3L-M2612 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M1522 [*1] [*2]	MA3L-M1622 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M2522 [*1] [*2]	MA3L-M2622 [*1] [*2]	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-M1532 [*1] [*2]	MA3L-M1632 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-M2532 [*1] [*2]	MA3L-M2632 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M1542 [*1] [*2]	MA3L-M1642 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M2542 [*1] [*2]	MA3L-M2642 [*1] [*2]	
		Gold	5V DC $\pm 5\%$	SPDT	MA3L-M5512 [*1] [*2]	MA3L-M5612 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-M6512 [*1] [*2]	MA3L-M6612 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-M5522 [*1] [*2]	MA3L-M5622 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-M6522 [*1] [*2]	MA3L-M6622 [*1] [*2]	
	Alternate	Gold	5V DC $\pm 5\%$	SPDT	MA3L-A1512 [*1] [*2]	MA3L-A1612 [*1] [*2]	Choose the color code from the standard color arrangement next to the photo. 
			6V DC $\pm 5\%$	DPDT	MA3L-A2512 [*1] [*2]	MA3L-A2612 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-A1522 [*1] [*2]	MA3L-A1622 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-A2522 [*1] [*2]	MA3L-A2622 [*1] [*2]	
		Silver	5V DC $\pm 5\%$	SPDT	MA3L-A1532 [*1] [*2]	MA3L-A1632 [*1] [*2]	
			6V DC $\pm 5\%$	DPDT	MA3L-A2532 [*1] [*2]	MA3L-A2632 [*1] [*2]	
			12V DC $\pm 5\%$	SPDT	MA3L-A1542 [*1] [*2]	MA3L-A1642 [*1] [*2]	
			24V DC $\pm 5\%$	DPDT	MA3L-A2542 [*1] [*2]	MA3L-A2642 [*1] [*2]	
	Display Only	—	5V DC $\pm 5\%$	—	MA3P-512 [*1] [*2]	MA3P-612 [*1] [*2]	
			6V DC $\pm 5\%$	—	MA3P-522 [*1] [*2]	MA3P-622 [*1] [*2]	
			12V DC $\pm 5\%$	—	MA3P-532 [*1] [*2]	MA3P-632 [*1] [*2]	
			24V DC $\pm 5\%$	—	MA3P-542 [*1] [*2]	MA3P-642 [*1] [*2]	
MA3 (Vertical Rectangular Type) Two-color Alternate 	Momentary	Gold	24V DC $\pm 5\%$	SPDT	MA3L-M1544RG	MA3L-M1644RG	Red/Green alternate illumination
		Silver	24V DC $\pm 5\%$	DPDT	MA3L-M2544RG	MA3L-M2644RG	
		Gold	24V DC $\pm 5\%$	SPDT	MA3L-M5544RG	MA3L-M5644RG	
		Silver	24V DC $\pm 5\%$	DPDT	MA3L-M6544RG	MA3L-M6644RG	
	Alternate	Gold	24V DC $\pm 5\%$	SPDT	MA3L-A1544RG	MA3L-A1644RG	
		Silver	24V DC $\pm 5\%$	DPDT	MA3L-A2544RG	MA3L-A2644RG	
	Display Only	—	24V DC $\pm 5\%$	—	MA3P-544RG	MA3P-644RG	
		—	24V DC $\pm 5\%$	—	MA3P-544RG	MA3P-644RG	

DIMENSIONS



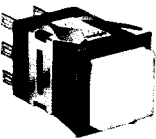
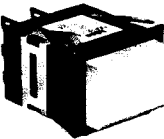
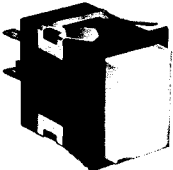
TERMINAL ARRANGEMENT (Bottom View)



All dimensions in mm.

MA SERIES CONTROL UNITS (Pushbuttons)

MA2/MA3 Pushbuttons

Shape	Operation Type	Contact Material	Contact	Type No.		Button Color (Code)
				Housing Color: Black	Housing Color: Gray	
MA2 (Square Type) 	Momentary	Gold	SPDT	MA2B-M119 *	MA2B-M129 *	Black (B) Red (R) Green (G) Yellow (Y) Blue (S) White (W) A button color code is specified in place of * in the Type No.
			DPDT	MA2B-M219 *	MA2B-M229 *	
		Silver	SPDT	MA2B-M519 *	MA2B-M529 *	
			DPDT	MA2B-M619 *	MA2B-M629 *	
	Alternate	Gold	SPDT	MA2B-A119 *	MA2B-A129 *	
			DPDT	MA2B-A219 *	MA2B-A229 *	
		Silver	SPDT	MA2B-A519 *	MA2B-A529 *	
			DPDT	MA2B-A619 *	MA2B-A629 *	
MA3 (Horizontal Rectangular Type) 	Momentary	Gold	SPDT	MA3B-M139 *	MA3B-M149 *	
			DPDT	MA3B-M239 *	MA3B-M249 *	
		Silver	SPDT	MA3B-M539 *	MA3B-M549 *	
			DPDT	MA3B-M639 *	MA3B-M649 *	
	Alternate	Gold	SPDT	MA3B-A139 *	MA3B-A149 *	
			DPDT	MA3B-A239 *	MA3B-A249 *	
		Silver	SPDT	MA3B-A539 *	MA3B-A549 *	
			DPDT	MA3B-A639 *	MA3B-A649 *	
MA3 (Vertical Rectangular Type) 	Momentary	Gold	SPDT	MA3B-M159 *	MA3B-M169 *	
			DPDT	MA3B-M259 *	MA3B-M269 *	
		Silver	SPDT	MA3B-M559 *	MA3B-M569 *	
			DPDT	MA3B-M659 *	MA3B-M669 *	
	Alternate	Gold	SPDT	MA3B-A159 *	MA3B-A169 *	
			DPDT	MA3B-A259 *	MA3B-A269 *	
		Silver	SPDT	MA3B-A559 *	MA3B-A569 *	
			DPDT	MA3B-A659 *	MA3B-A669 *	

DIME
• MA:

• MA:

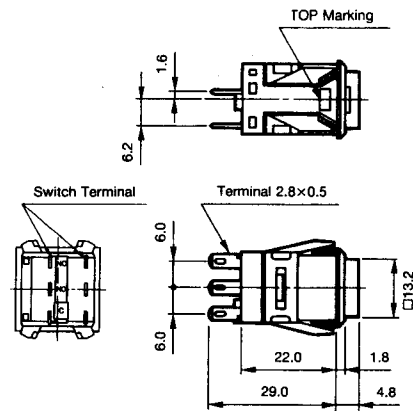
• MA:



MA SERIES CONTROL UNITS (Pushbuttons)

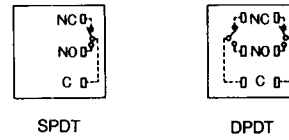
DIMENSIONS

• MA2 (Square Type)

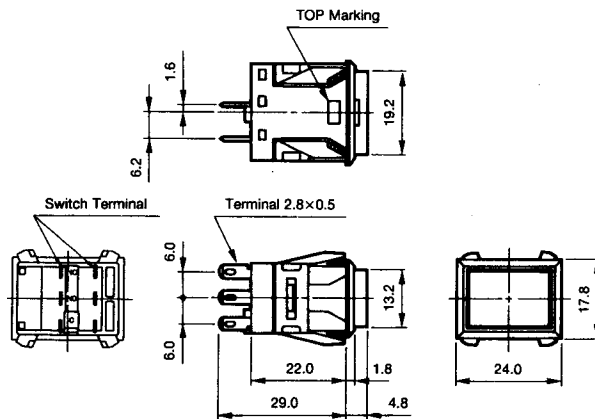


TERMINAL ARRANGEMENT (Bottom View)

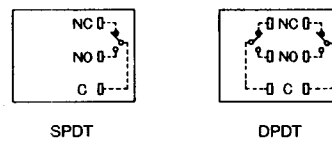
• MA2 (Square Type)



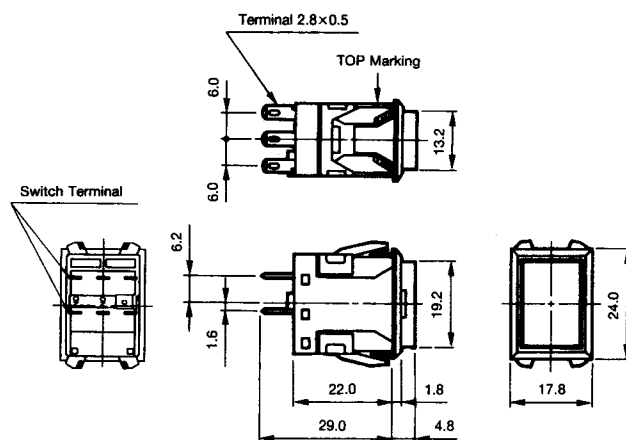
• MA3 (Horizontal Rectangular Type)



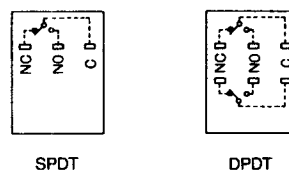
• MA3 (Horizontal Rectangular Type)



• MA3 (Vertical Rectangular Type)



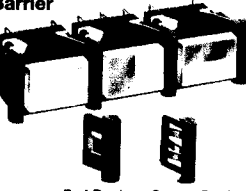
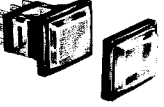
• MA3 (Vertical Rectangular Type)



All dimensions in mm.

MA SERIES CONTROL UNITS

ACCESSORIES

Name & Shape	Specifications		Type No.	Remarks
• Lens Removal Tool 			MT-101	Used to remove the lens from the housing. (Compatible with IDEC's A series Miniature Control Units)
• Socket 	For MA2	With Solder Terminals	MA9Z-C2	Snaps onto the rear of MA units.
		With PC Board Terminals	MA9Z-C2V	
	For MA3	With Solder Terminals	MA9Z-C3	
		With PC Board Terminals	MA9Z-C3V	
• Barrier  End Barrier Spacer Barrier	For MA2 For MA3 Horizontal	End Barrier	Black MA9Z-BF1B	Used to prevent inadvertent operation and improve the panel appearance. Note: See page 11 for dimensions and page 15 for panel cut-out.
			Gray MA9Z-BF1N	
		Spacer Barrier	Black MA9Z-BF2B	
			Gray MA9Z-BF2N	
	For MA3 Vertical	End Barrier	Black MA9Z-BT1B	
			Gray MA9Z-BT1N	
		Spacer Barrier	Black MA9Z-BT2B	
			Gray MA9Z-BT2N	
• Guard Barrier 	For MA2	Black	MA9Z-G2B	
		Gray	MA9Z-G2N	
	For MA3 Horizontal	Black	MA9Z-GF3B	
		Gray	MA9Z-GF3N	
	For MA3 Vertical	Black	MA9Z-GT3B	
		Gray	MA9Z-GT3N	
• Switch Guard 	For MA2		MA9Z-K2	180° open spring return type. Note: See page 11 for dimensions and page 15 for panel cut-out.
	For MA3 Horizontal		MA9Z-KF3	
	For MA3 Vertical		MA9Z-KT3	
• Dust Cover 	For MA2		MA9Z-D2	Note: Cover is not water-resistant.
	For MA3		MA9Z-D3	
• Color Screen 	For MA2	One-color Full	MA9Z-P21*P	A color code is specified in place of * in the Type No. R (Red), GD (Green), A (Amber), Y (Yellow), C (Transparent)
	For MA3	One-color Full	MA9Z-P31*P	
		Long 2-way Split	MA9Z-P32*P	
		Short 2-way Split	MA9Z-P33*P	
• Marking Plate 	For MA2		MA9Z-P21WP	Note: One pack contains five marking plates.
	For MA3		MA9Z-P31WP	
• Dummy Unit 	For MA2	Black	MA9Z-E2B	
		Gray	MA9Z-E2N	
	For MA3 Horizontal	Black	MA9Z-E3FB	
		Gray	MA9Z-E3FN	
	For MA3 Vertical	Black	MA9Z-E3TB	
		Gray	MA9Z-E3TN	

D
SOC
• For

• For

BAR
• For
• For

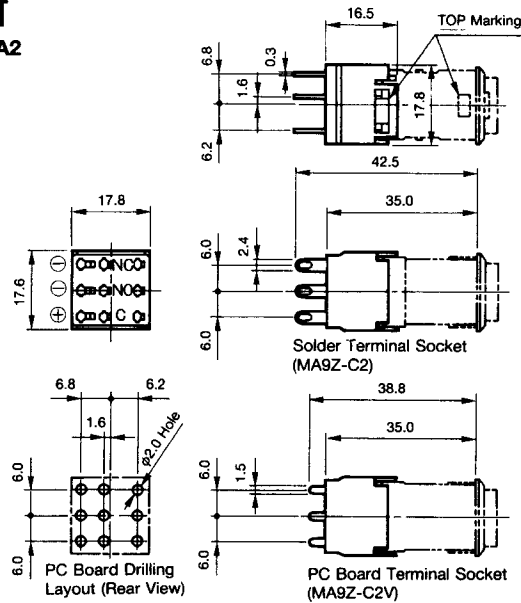
15.6

Note

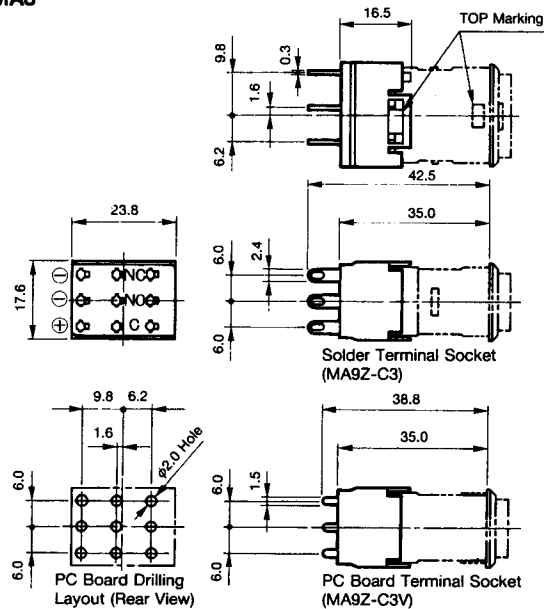
DIMENSIONS OF ACCESSORIES

SOCKET

• For MA2

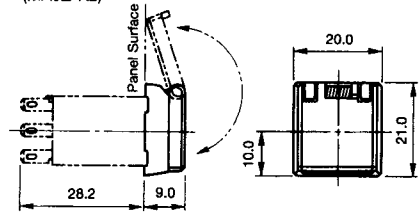


• For MA3

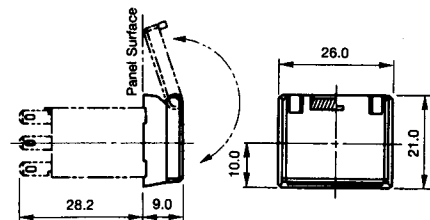


SWITCH GUARD

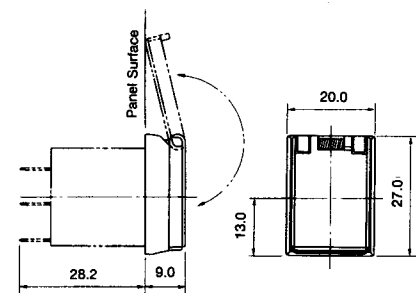
• For MA2 (MA9Z-K2)



• For MA3 Horizontal (MA9Z-KF3)



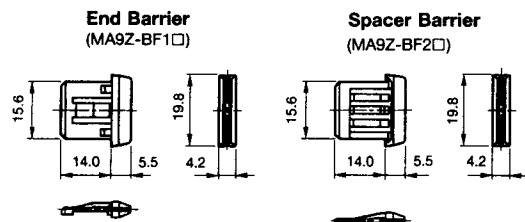
• For MA3 Vertical (MA9Z-KT3)



BARRIER

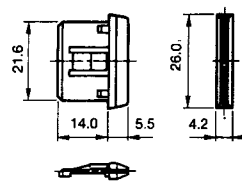
• For MA2

• For MA3 Horizontal

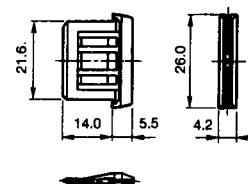


• For MA3 Vertical

End Barrier (MA9Z-BT1□)



Spacer Barrier (MA9Z-BT2□)



Note: For dimensions mounted on MA units, refer to the Front View column on page 15.

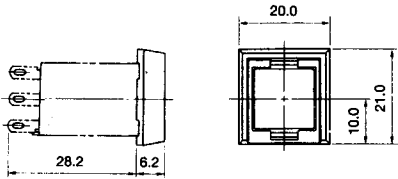
All dimensions in mm.

MA SERIES CONTROL UNITS

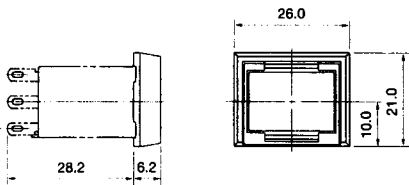
DIMENSIONS OF ACCESSORIES

GUARD BARRIER

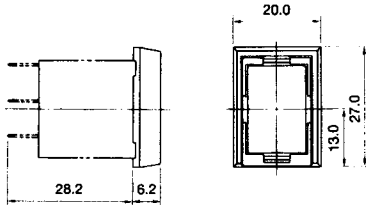
- For MA2 (MA9Z-G2□)



- For MA3 Horizontal (MA9Z-GF3□)

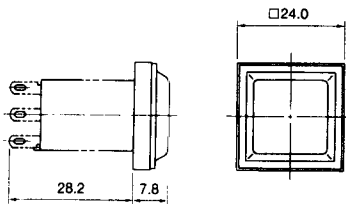


- For MA3 Vertical (MA9Z-GT3□)

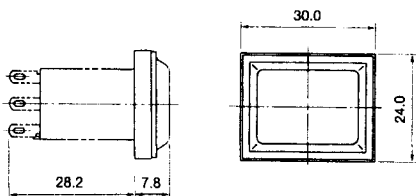


DUST COVER

- For MA2 (MA9Z-D2)

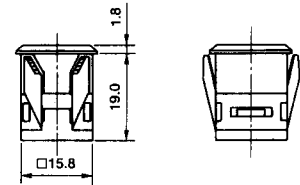
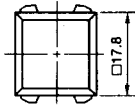


- For MA3 (MA9Z-D3)

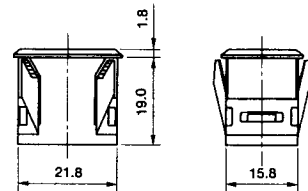
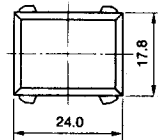


DUMMY UNIT

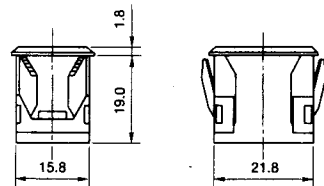
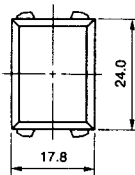
- For MA2 (MA9Z-E2)



- For MA3 Horizontal (MA9Z-E3F)



- For MA3 Vertical (MA9Z-E3T)



All dimensions in mm.

IN

MA2

MA2 (Square Type)

Note: -

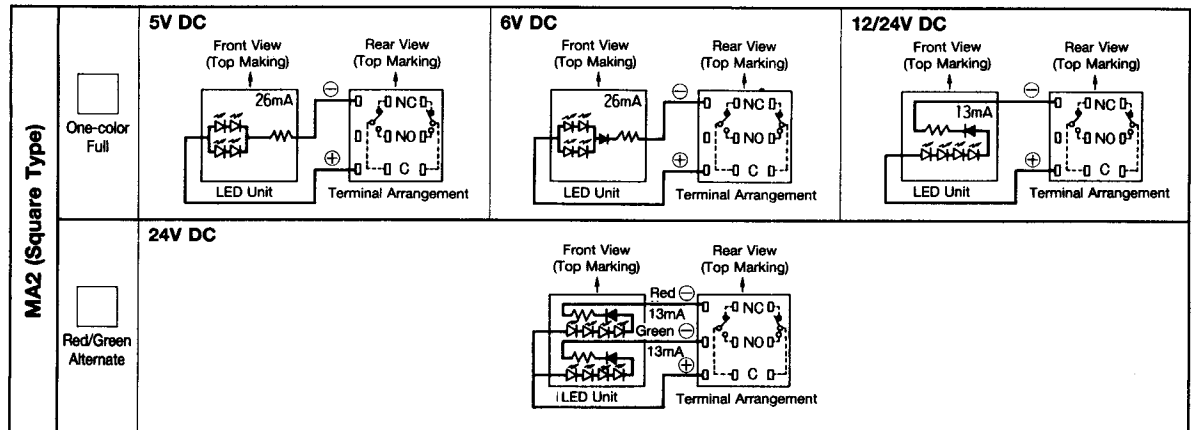
MA3

MA3 (Horizontal Rectangular Type)

Note: -

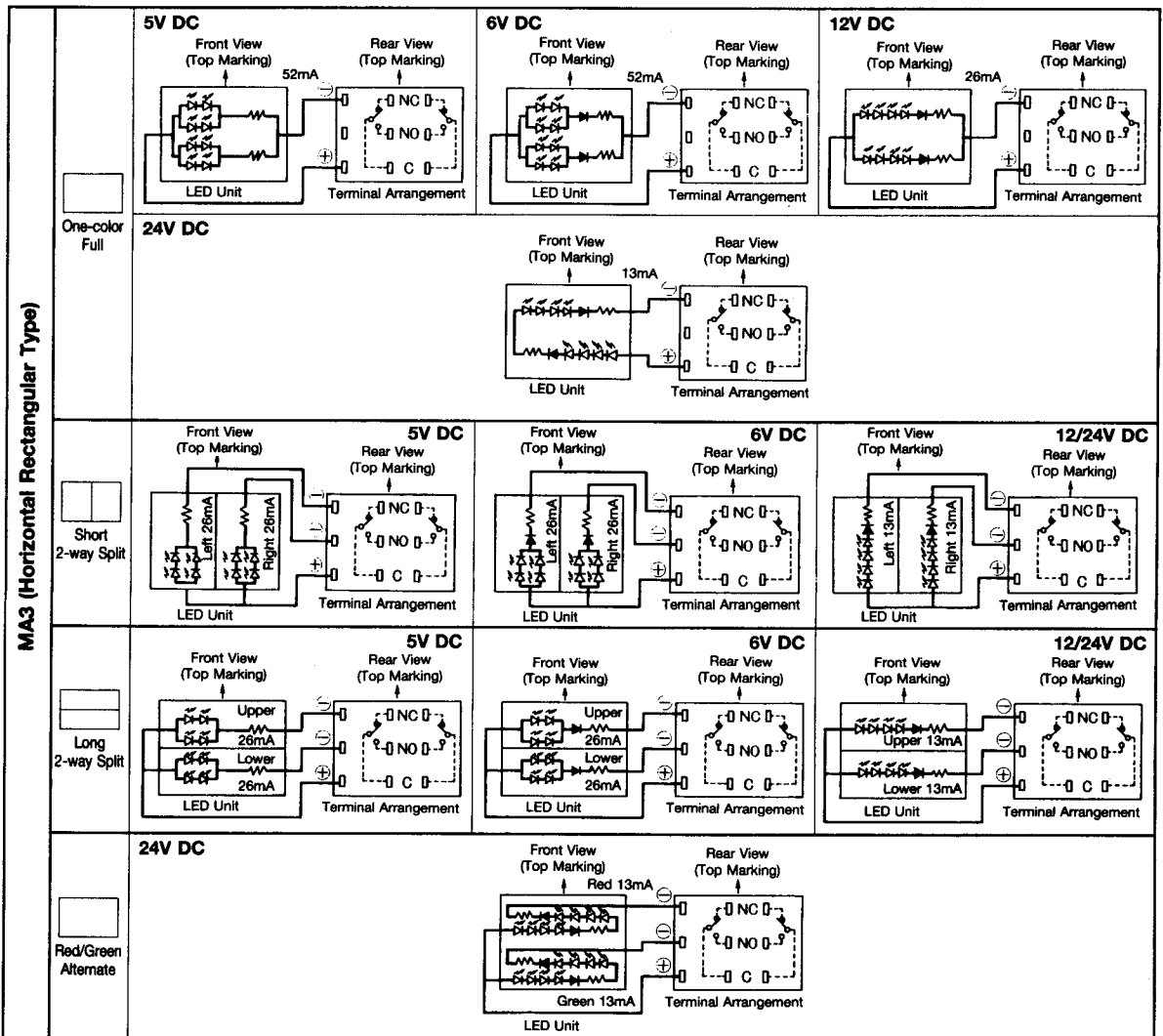
INTERNAL CIRCUIT

MA2 (Square Type)



Note: : Current Limiting Resistor : Protection Diode

MA3 (Horizontal Rectangular Type)



Note: : Current Limiting Resistor : Protection Diode

MA3 (Vertical Rectangular Type)

Note: : Current Limiting Resistor : Protection Diode

With Guard Barriers

NY

⊕
ב
ב
ב
ב

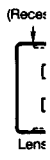
MA SERIES CONTROL UNITS

PANEL CUT-OUT			
Type	Front View	Panel Cut-Out	Remarks
With Dust Cover	MA2 		N: No. of MA units mounted. Panel thickness: 1 to 3.2mm • The guard barrier and switch guard require the same panel cut-out dimensions.
	MA3 Horizontal 		
	MA3 Vertical 		
With Switch Guard	MA2 		N: No. of MA units mounted. The strength of the panel board should be considered. Panel thickness: 1 to 3.2mm
	MA3 Horizontal 		
	MA3 Vertical 		

IN

Rep/ Mar

• Re Use MT-1 color holder sides the move plate



① Re



② Re



• Ins Put 1 plate holder stall the c
• Ins and Inset mark

Display (Lamp

Order Placen

Notes:
1. Dis colc inse
2. Botl eng

• Ma

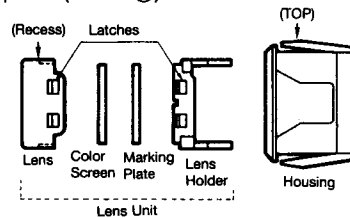
11.5mm

INSTRUCTIONS

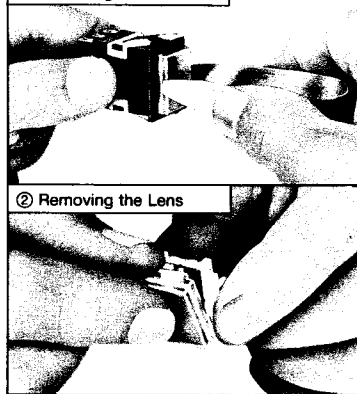
Replacing the Lens and Marking Plate

• Removal

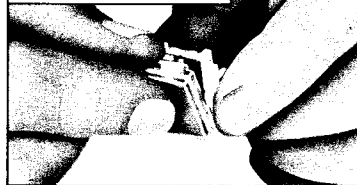
Use the lens removal tool (Type No. MT-101) to pull out the lens unit (lens, color screen, marking plate, and lens holder) to squeeze the recess on the sides of the lens. (Photo ①) Unlatch the lens from the lens holder to remove the color screen and marking plate. (Photo ②)



① Removing the Lens Unit



② Removing the Lens



• Installation

Put the color screen and marking plate into the lens, then press the lens holder into the lens. Make sure to install the lens unit into the housing in the correct direction.

• Insertion Order of Color Screen and Marking Plate

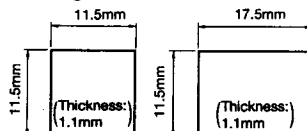
Insertion order of color screen and marking plate is as follows.

Display Color (Lamp Off)	•Color	•White
	[A] Lens	[B] Lens
	Color Screen	Marking Plate
	Marking Plate	Color Screen
Order of Placement	Housing	Housing

Notes:

- Display color (Lamp Off) is white on the two-color alternate illumination type unit in either insertion order (A or B).
- Both marking plate and color screen can be engraved.

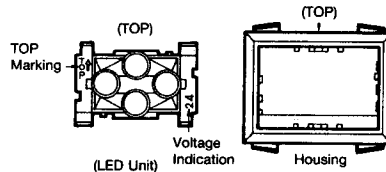
• Marking Plate Size



LED Unit

• Replacing the LED Unit

Remove the lens unit and pull out the LED unit using the lens removal tool. When installing, insert the LED unit into the housing with the TOP markings aligned in the same direction.



• LED Unit Operating Voltage

LED unit operating voltage is indicated on the LED unit and with different colors of the contact base.

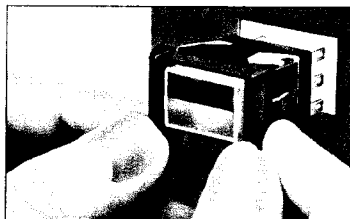
Voltage Indication		LED Unit Operating Voltage
Numerical	Base	
5	Blue	5V DC
6	Green	6V DC
12	Yellow	12V DC
24	Red	24V DC

Installation of Accessories

• Installing the Barrier

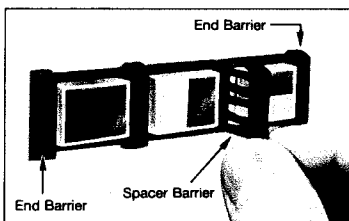
• Single Mounting

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



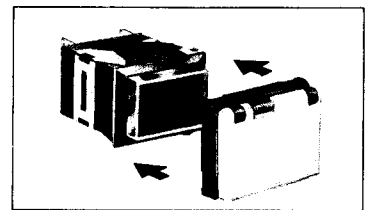
• Collective Mounting

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



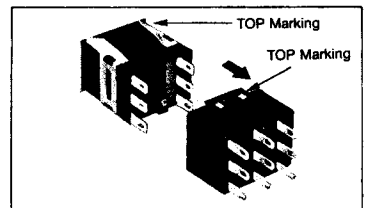
• Installing the Switch Guard

Install the switch guard before mounting into a panel cut-out. To install switch guard, place the hinge of the switch guard upward, and depress the switch guard onto the flange of the MA unit.



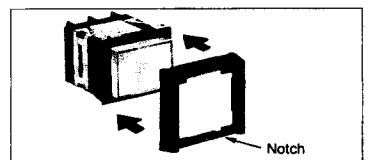
• Installing the Socket

Align the TOP marking of the socket and housing in the same direction and press the socket onto the housing.



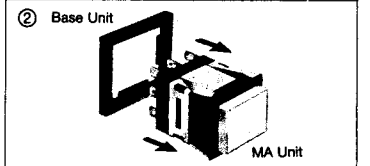
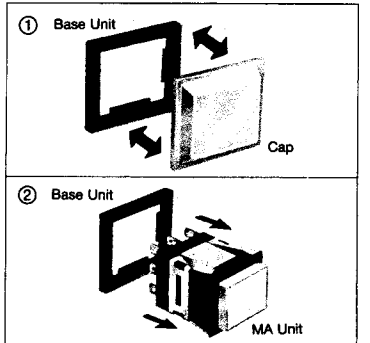
• Installing the Guard Barrier

Install the guard barrier before mounting into a panel cut-out. To install guard barrier, place the notch of guard barrier downward, and depress the guard barrier onto the flange of the MA unit.



• Installing the Dust Cover

Separate base unit (black) and cap (transparent) as shown in Photo ①. Then insert the base unit from the terminal of the MA unit between the flange and leaf springs as shown in Photo ②. Insert the MA unit connected with base unit to the panel and then engage the cap with base unit completely.



MA SERIES CONTROL UNITS

Notes for Wiring

- Solder the terminals within 20W/5 sec or 260°C/3 sec without exerting external force to the terminals.
- While soldering, do not touch the soldering iron to the housing. While wiring, prevent tension from being applied to the terminals. Do not bend or raise the terminals, nor exert excessive force to the terminals.
- Use a non-corrosive rosin liquid flux.
- For one-color full illumination type units, in the middle of the three lamp terminals is a dummy.

- The 5V DC type unit does not contain a reverse polarity protection diode. Make sure of the correct polarity when wiring.
- All models contain a current limiting resistor.

Notes for Operation

• LED Unit Operating Voltage

The operating voltage represents a complete DC value. When using a pulsating voltage such as a full-wave rectification voltage, keep the peak voltage within the rated voltage. Peak voltages exceeding the rated voltage may shorten the LED lamp life. A 28V

DC type is particularly useful when a full-wave rectification voltage is 24V AC. For details, contact IDEC.

• Switch Contact

Do not connect the NO and NC contacts of the same microswitch to different voltages or different power sources. Doing so will result in a short circuit.

• Storage and Operating Environment

Make sure that the operating temperature and humidity are within the ratings. Do not use MA series units in an environment subject to oil, water, or dust accumulation.

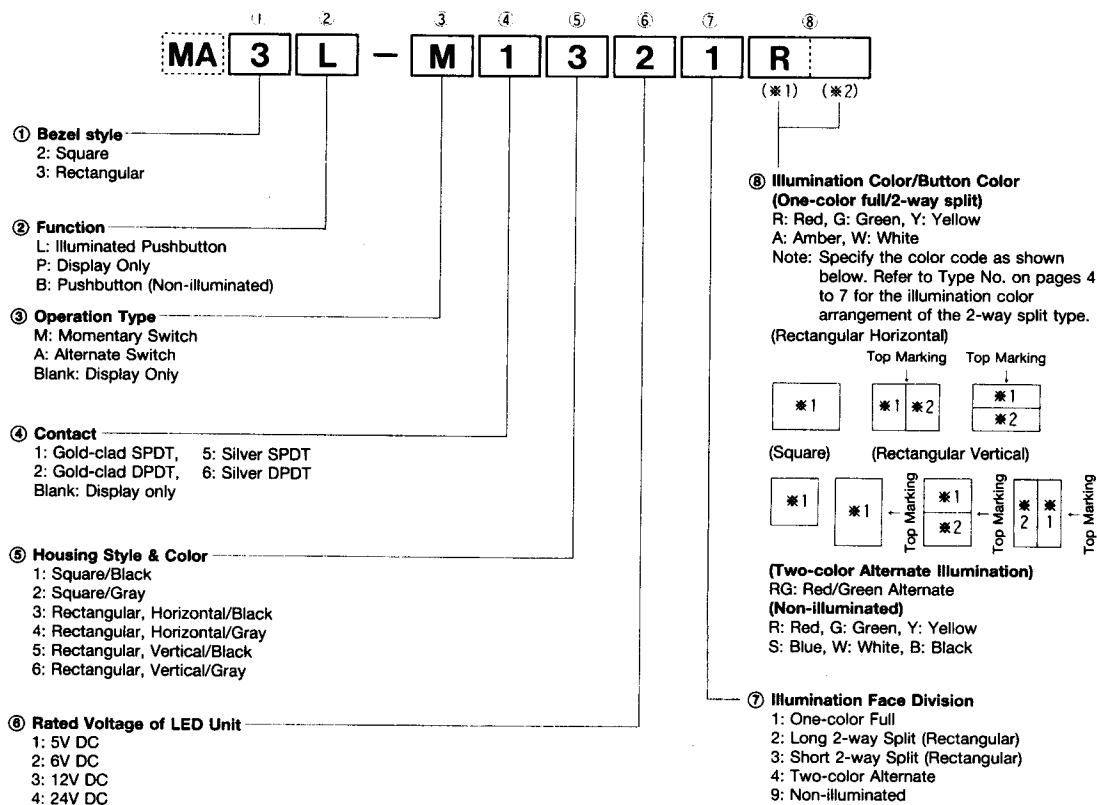
ORDERING INFORMATION

• When ordering, specify the Type No. and quantity.

1. Color screens, marking plates, and LED units are contained in the housing.
2. Barriers, switch guards, sockets, and other accessories are ordered separately.
3. When ordering UL recognized or CSA certified models, specify "UL Recognized" or "CSA Certified".

TYPE NO. DEVELOPMENT

The following illustrates the Type No. development of the MA series for reference only. Refer to pages 3 to 8 for the Type No. of available MA units.



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



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