

MR series Control switch

LED Control switch



- Snap-action contact unit
- Bright and durable due to use of LED light
- Aluminum guard / Plastic guard
- Assembling type (actuator and contact part)
- IP65 protective structure
(Push button, Pilot lamp, Emergency stop)

Flush aluminum guard (MR□ - A)



Ø30

Flush aluminum guard (MR□ - N)



Ø25

Extended aluminum guard (MR□ - R)



Ø22

Flush plastic guard (MR□ - K)



Ø25

Extended plastic guard (MR□ - T)



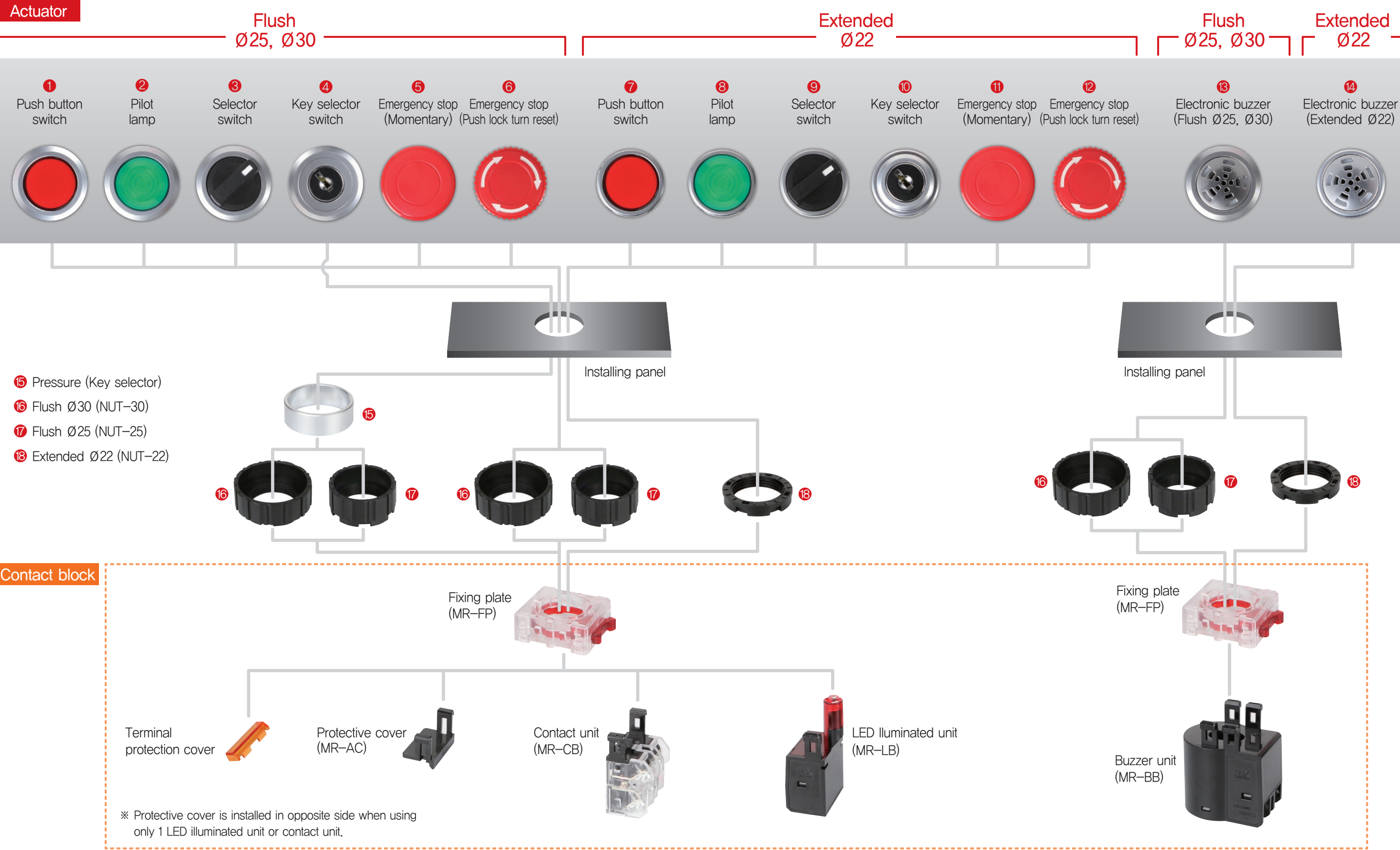
Ø22

Best Switch
MR series
Control switch

Products composition

Flush : Ø25, Ø30 / Extended : Ø22

MR series



CONTENTS

Aluminum guard Flush(Ø25,Ø30), Extended(Ø22)

Push button switch	6
Illuminated push button switch	7
Pilot light	8
Selector switch	9
Illuminated selector switch	10
Key selector switch	12
Emergency stop switch	13
Illuminated emergency stop switch	15
Electronic buzzer	17

Plastic guard Flush(Ø25), Extended(Ø22)

Push button switch	19
Illuminated push button switch	20
Pilot light	21
Selector switch	22
Illuminated selector switch	23
Emergency stop switch	25
Illuminated emergency stop switch	27
Electronic buzzer	29

Products specification

Suffix code	30
Specification	30
Actuator panel installation sample	30
Panel cutout	30
Contact part composition	31
Selector / Key selector contact operation	31
Accessories	31

MR SERIES

Aluminum guard

Flush(Ø25,Ø30), Extended(Ø22)



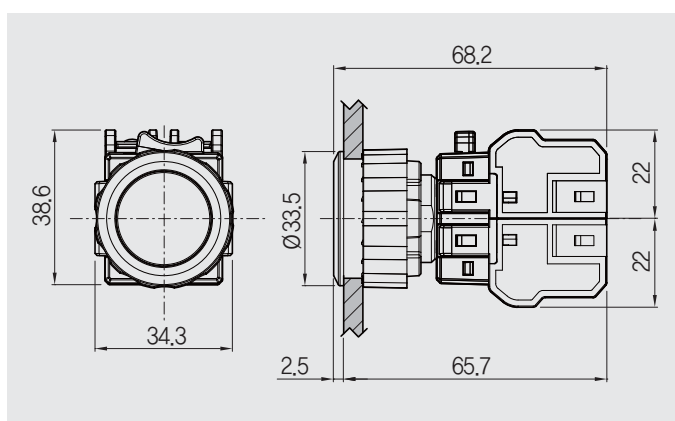
PUSH BUTTON SWITCH

Aluminum guard



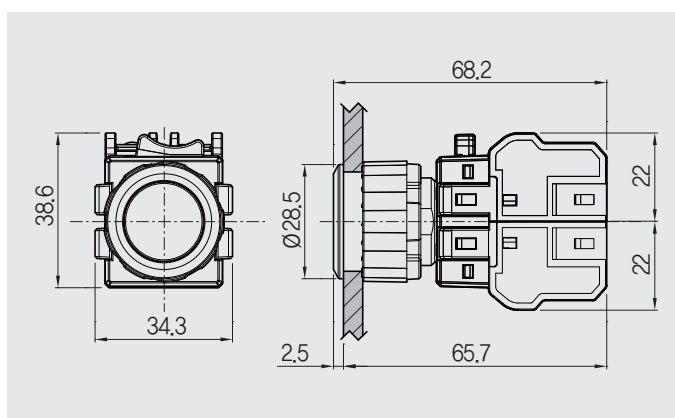
Model	Code	Description
MRF-	☐ ☐ ☐ ☐	Push button switch
Actuator	A	Flush (Installing hole: $\varnothing 30$)
	N	Flush (Installing hole: $\varnothing 25$)
	R	Extended (Installing hole: $\varnothing 22$)
Operation function	M	Momentary
	A	Alternate
Contact composition	1	1a1b
	2	2a2b
Cap (LED color)	R	R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRF-A Flush ($\varnothing 30$)



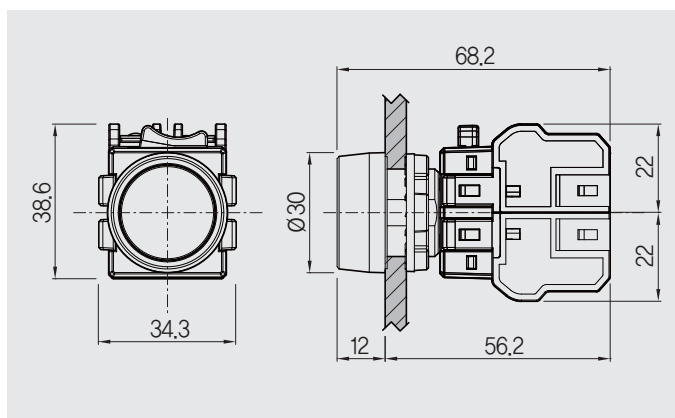
Unit : mm

MRF-N Flush ($\varnothing 25$)



Unit : mm

MRF-R Extended ($\varnothing 22$)



Unit : mm

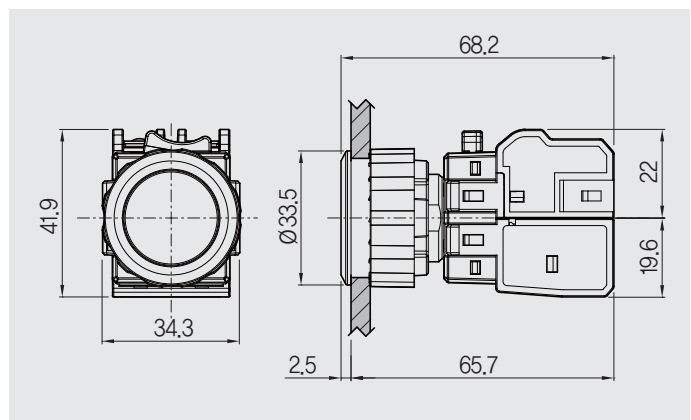


ILLUMINATED PUSH BUTTON SWITCH

Aluminum guard

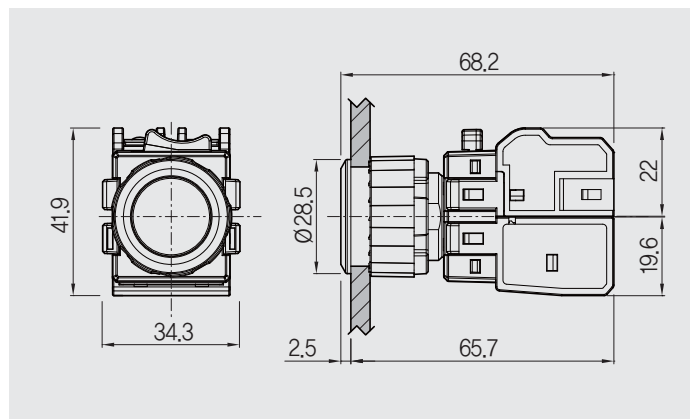
Model	Code				Description	
MRX-	☐	☐	☐	☐	☐	Illuminated push button switch
Actuator	A					Flush (Installing hole:Ø30)
	N					Flush (Installing hole:Ø25)
	R					Extended (Installing hole:Ø22)
Operation function	M					Momentary
	A					Alternate
Contact composition	1					1a1b
	2					2a2b
Rated input voltage	A0					100 – 240 V AC
	A3					380 V AC
	D0					12 – 24 V DC/AC
Cap (LED color)		R	R(Red), G(Green), Y(Yellow), A(Blue), W(White)			
LED (Condenser voltage dropping type)						
LED (Resistance voltage dropping type)						

MRX-A Flush (Ø30)



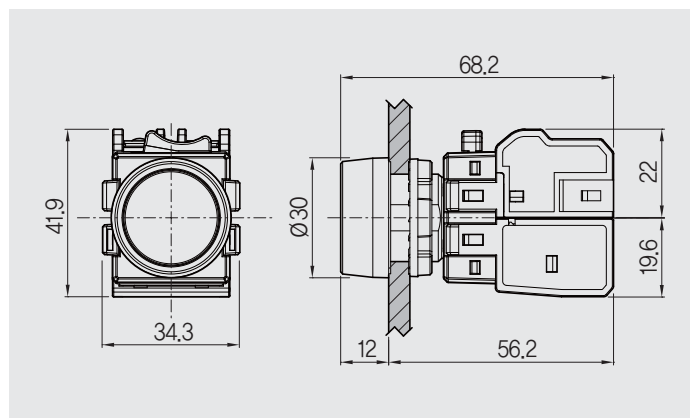
Unit : mm

MRX-N Flush (Ø25)



Unit : mm

MRX-R Extended (Ø22)



Unit : mm

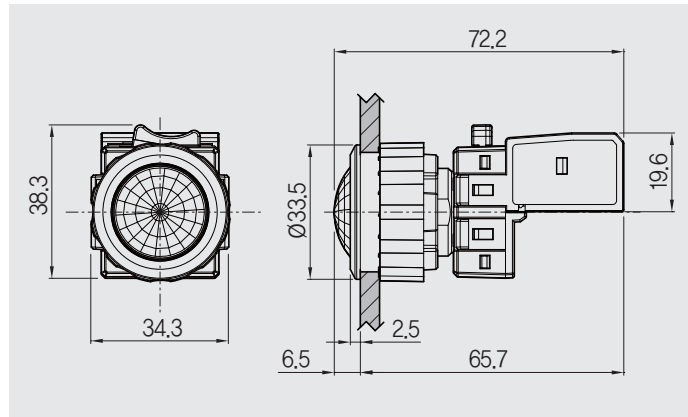
PILOT LAMP

Aluminum guard



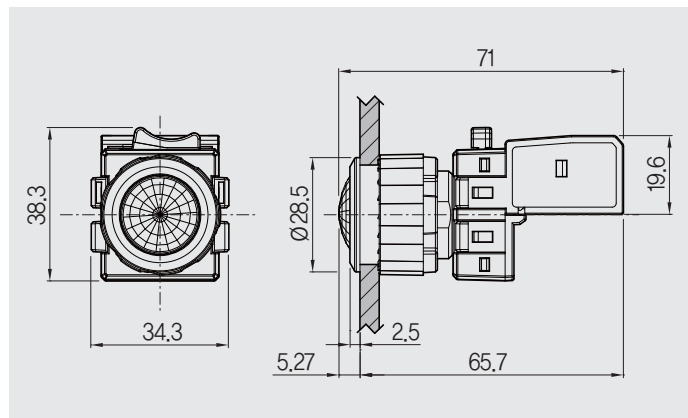
Model	Code	Description
MRP-	☐ ☐ ☐	Pilot lamp
Actuator	A	Flush (Installing hole: Ø30)
	N	Flush (Installing hole: Ø25)
	R	Extended (Installing hole: Ø22)
Rated input voltage	A0	100 – 240 V AC
	A3	380 V AC
	D0	12 – 24 V DC/AC
Cap (LED color)	R	R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRP-A Flush (Ø30)



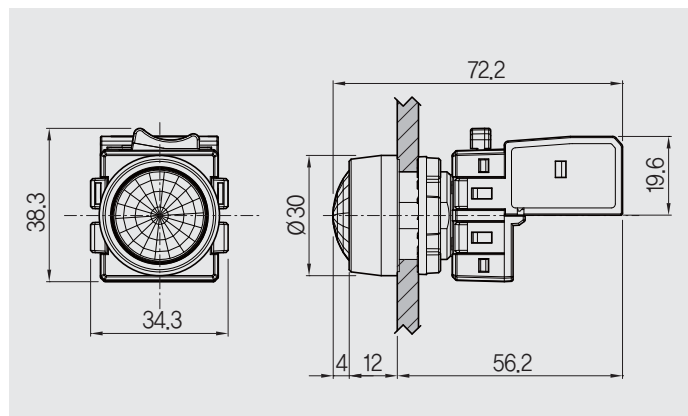
Unit : mm

MRP-N Flush (Ø25)



Unit : mm

MRP-R Extended (Ø22)



Unit : mm

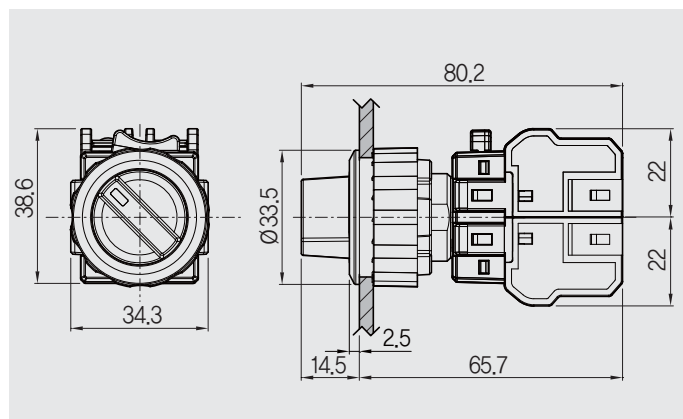
SELECTOR SWITCH

Aluminum guard



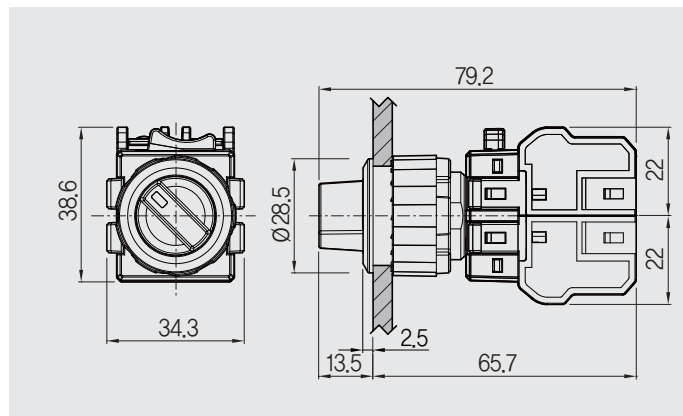
Model	Code	Description	
MRS-	☐ ☐ ☐	Selector switch	
Actuator	A	Flush (Installing hole: Ø30)	Aluminum guard
	N	Flush (Installing hole: Ø25)	
	R	Extended (Installing hole: Ø22)	
Operation function	2A	2 positions alternate operation	Refer to contact operation (3 positions : Only 2a2b contact available)
	2R	2 positions momentary operation	
	3A	3 positions alternate operation	
	3R	3 positions left and right side momentary operation	
Contact composition	1	1a1b	
	2	2a2b	
Actuator color (cap color)		Black (solid)	

MRS-A Flush (Ø30)



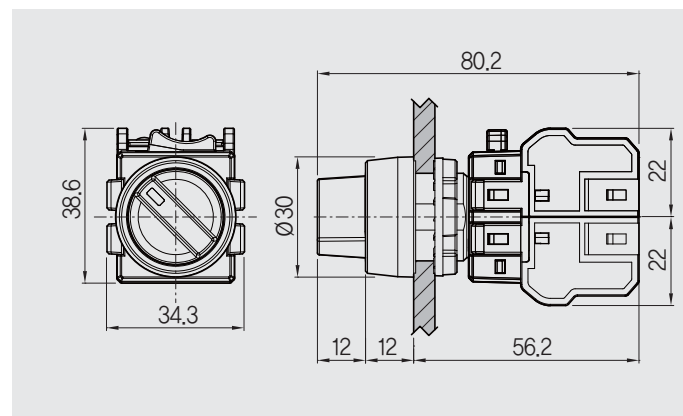
Unit : mm

MRS-N Flush (Ø25)



Unit : mm

MRS-R Extended (Ø22)



Unit : mm

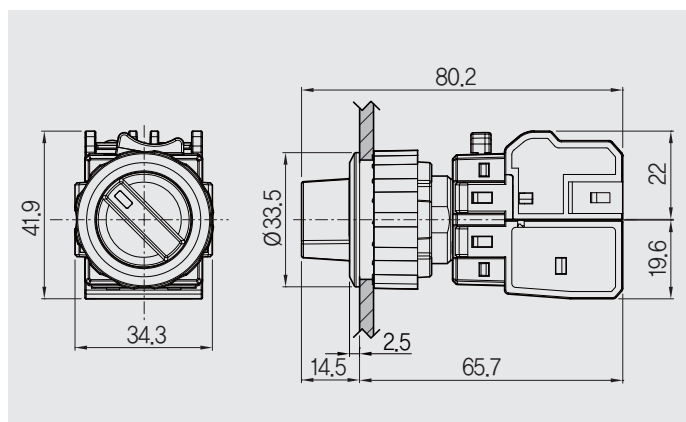
ILLUMINATED SELECTOR SWITCH

Aluminum guard



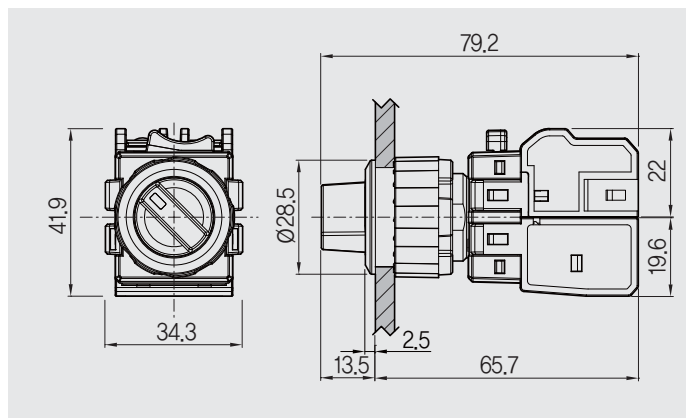
Model	Code	Description
MRT-	☐ ☐ ☐ ☐ ☐	Illuminated selector switch
Actuator	A	Flush (Installing hole: Ø30)
	N	Flush (Installing hole: Ø25)
	R	Extended (Installing hole: Ø22)
Operation function	2A	2 positions alternate operation
	2R	2 positions momentary operation 
	3A	3 positions alternate operation
	3R	3 positions left and right side momentary operation 
Contact composition	1	1a1b
	2	2a2b
Power supply voltage	A0	100-240 V AC
	A3	380 V AC
	D0	12-24 V DC/AC
Cap (LED color)	R	R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRT-A Flush (Ø30)



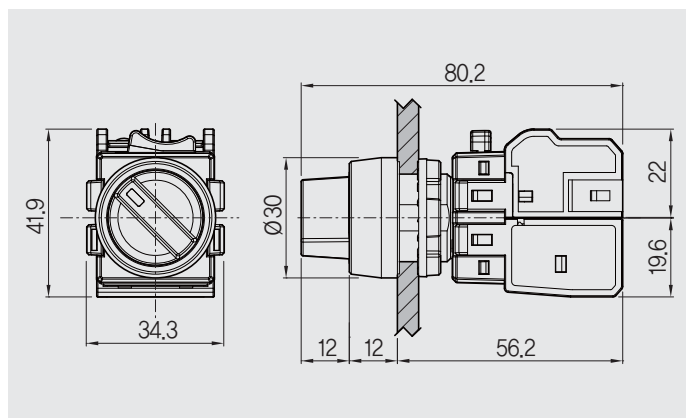
Unit : mm

MRT-N Flush (Ø25)



Unit : mm

MRT-R Extended (Ø22)



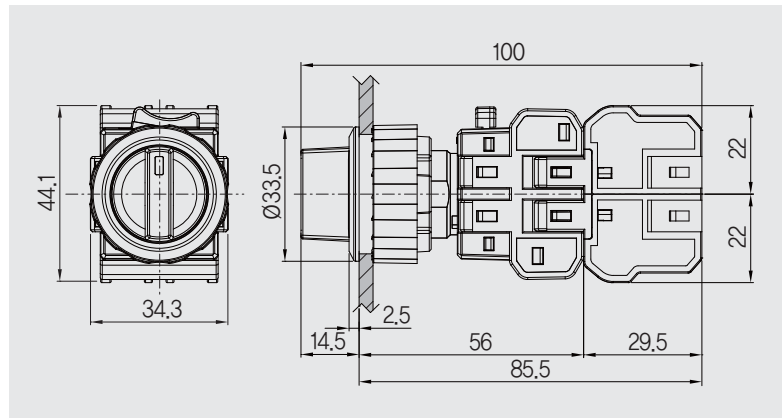
Unit : mm

ILLUMINATED SELECTOR SWITCH

Aluminum guard

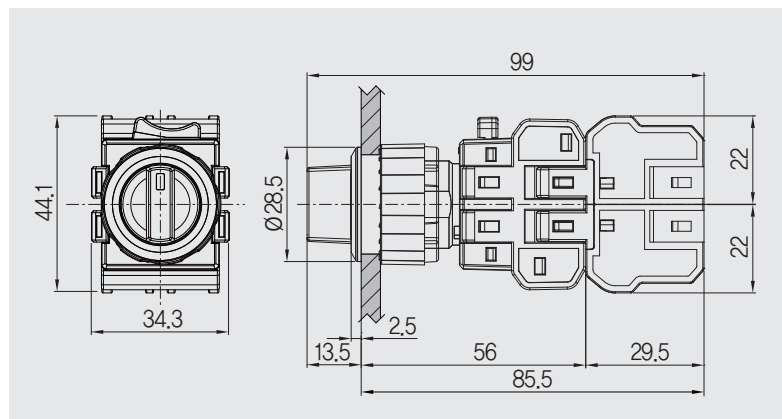


MRT-A3 Flush (Ø30)



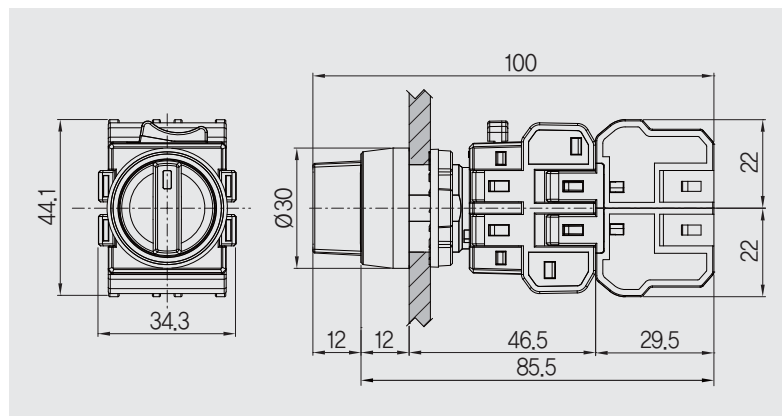
단위 : mm

MRT-N3 Flush (Ø25)



단위 : mm

MRT-R3 Extended (Ø22)



단위 : mm

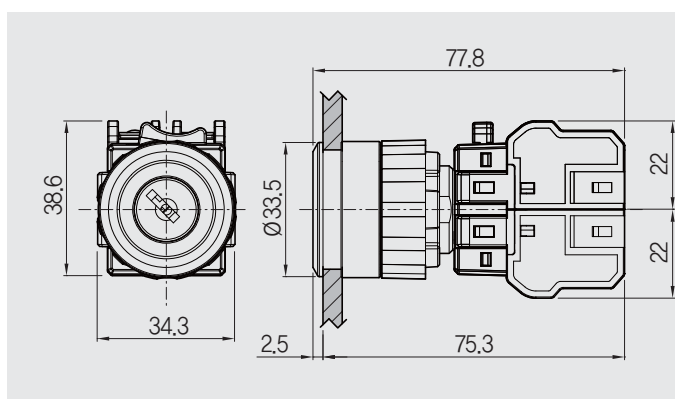
KEY SELECTOR SWITCH

Aluminum guard



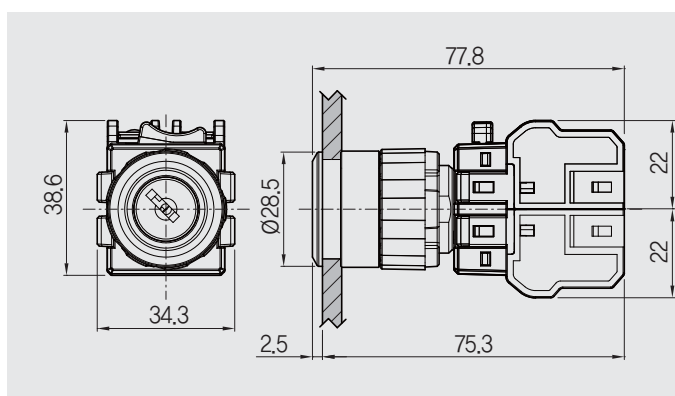
Model	Code			Description			
MRK—	☐	☐	☐	☐	Key selector switch		
Actuator	A				Flush (Installing hole:Ø30)		
	N				Flush (Installing hole:Ø25)		
	R				Extended (Installing hole:Ø22)		
Operation function	2A				2 positions alternate operation	—	Refer to contact operation (3 positions : Only 2a2b contact available)
	2R				2 positions momentary operation		
	3A				3 positions alternate operation	—	
	3R				3 positions left and right side momentary operation		
Contact composition	1	1a1b					
	2	2a2b					
Key removing position (Key selecting switch)	L	Left				In case of 2 positions, exclude the middle key removing position	
	R	Right					
	C	Middle					
	D	Left and right					
	E	Front					
Actuator color (cap color)		Aluminum (Plating a matt chrome)					

MRK-A Flush (Ø30)



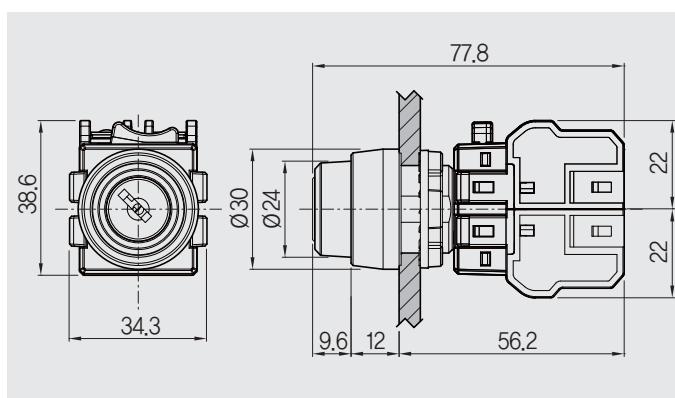
Unit : mm

MRK-N Flush (Ø25)



Unit : mm

MRK-R Extended (Ø22)



Unit : mm

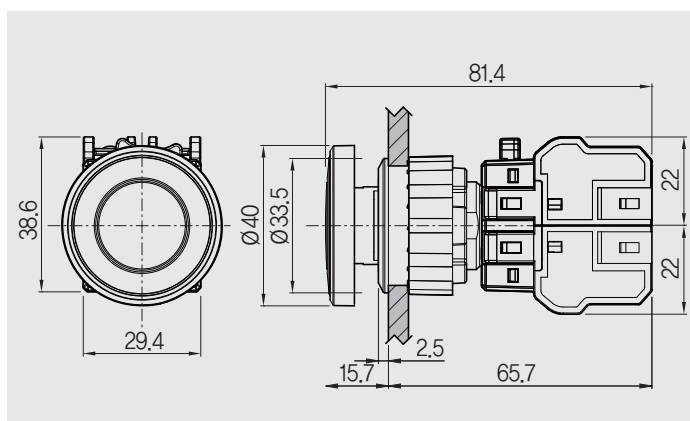
EMERGENCY STOP SWITCH

Aluminum guard



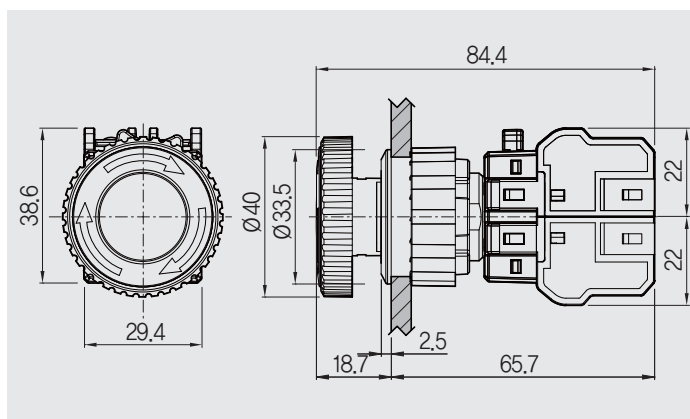
Model	Code	Description
MRE-	☐ ☐ ☐ ☐	Emergency stop switch
Actuator	A	Flush (Installing hole: Ø30)
	N	Flush (Installing hole: Ø25)
	R	Extended (Installing hole: Ø22)
Operation function	M	Momentary
	R	Push lock turn reset
Contact composition	1	1a1b
	2	2a2b
Cap (LED color)	R	R(Red), G(Green) ※Push lock turn reset : only R(Red)

MRE-AM Flush (Ø30)



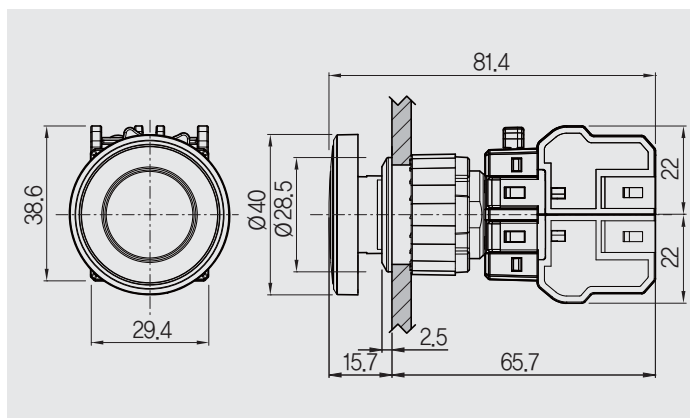
Unit : mm

MRE-AR Flush (Ø30)



Unit : mm

MRE-NM Flush (Ø25)



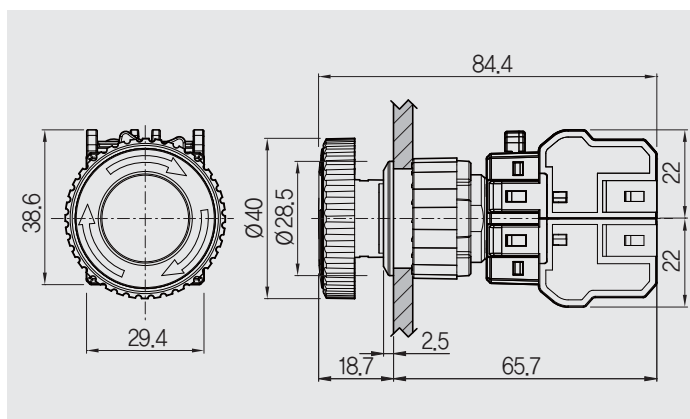
Unit : mm

EMERGENCY STOP SWITCH

Aluminum guard

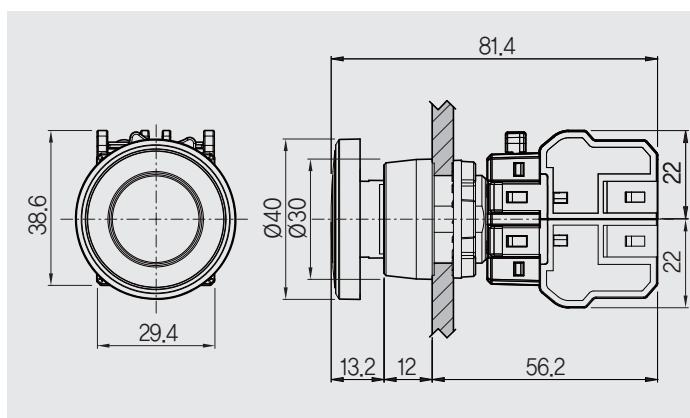


MRE-NR Flush (Ø25)



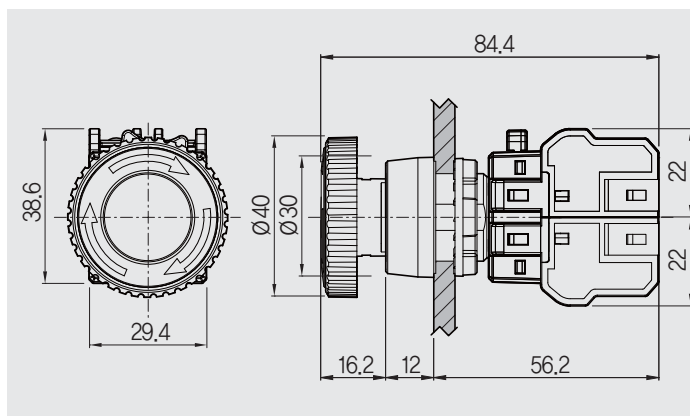
Unit : mm

MRE-RM Extended (Ø22)



Unit : mm

MRE-RR Extended (Ø22)



Unit : mm

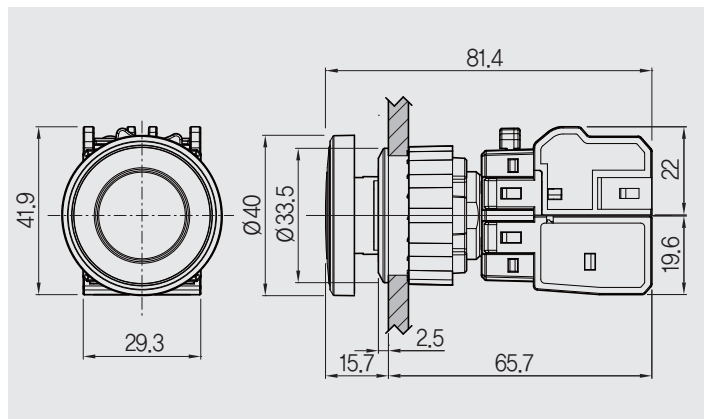
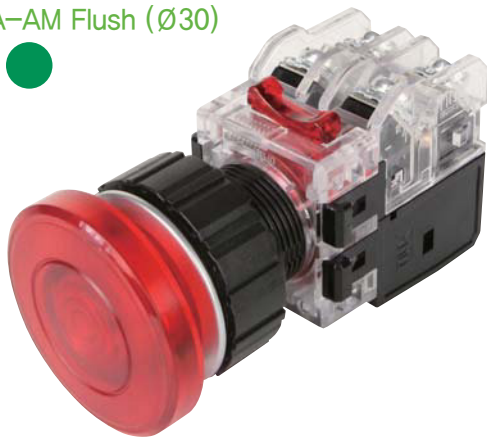
ILLUMINATED EMERGENCY STOP SWITCH

Aluminum guard



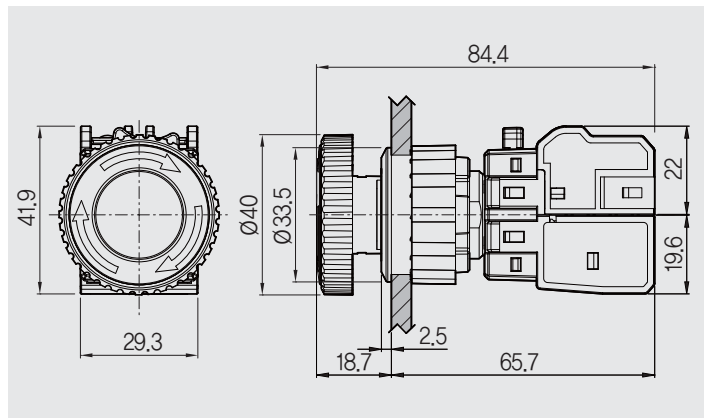
Model	Code	Description
MRA—	☐ ☐ ☐ ☐ ☐	Illuminated emergency stop switch
Actuator	A	Flush (Installing hole: Ø30)
	N	Flush (Installing hole: Ø25)
	R	Extended (Installing hole: Ø22)
Operation function	M	Momentary
	R	Push lock turn reset
Contact composition	1	1a1b
	2	2a2b
Power supply voltage	A0	100 – 240 V AC
	A3	380 V AC
	D0	12 – 24 V DC/AC
Cap (LED color)	R	R(Red), G(Green) ※Push lock turn reset : only R(Red)

MRA-AM Flush (Ø30)



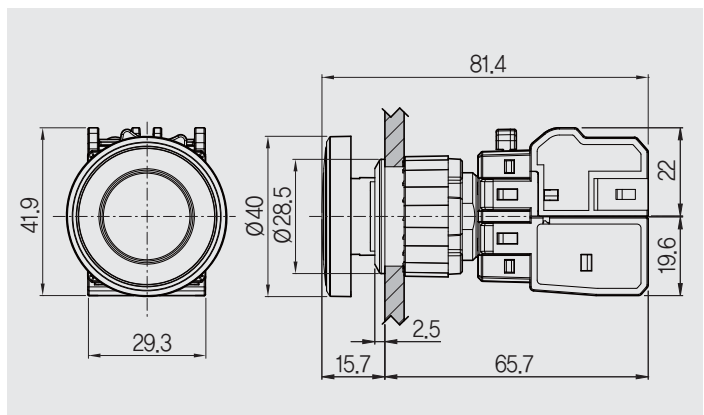
Unit : mm

MRA-AR Flush (Ø30)



Unit : mm

MRA-NM Flush (Ø25)



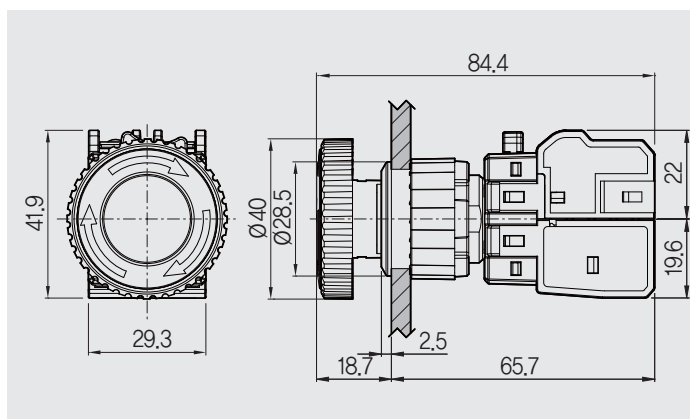
Unit : mm

ILLUMINATED EMERGENCY STOP SWITCH

Aluminum guard

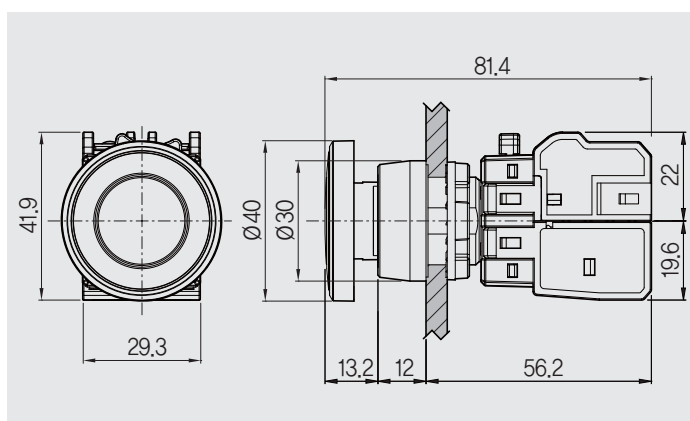


MRA-NR Flush (Ø25)



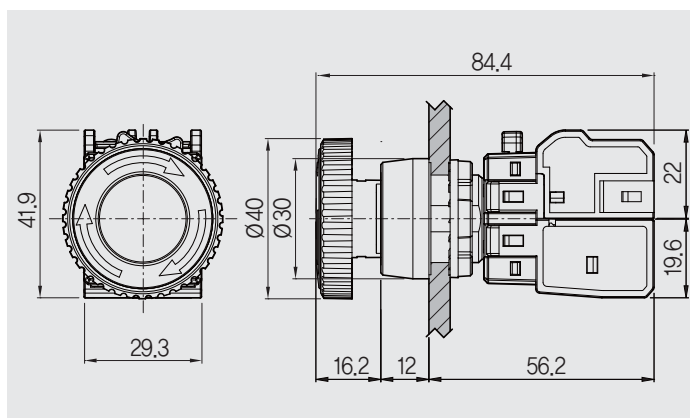
Unit : mm

MRA-RM Extended (Ø22)



Unit : mm

MRA-RR Extended (Ø22)



Unit : mm

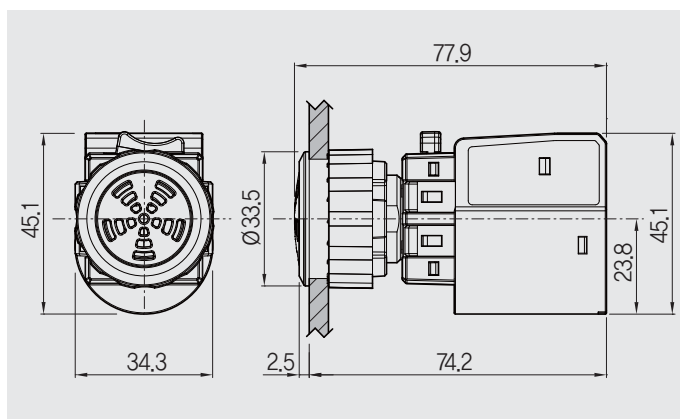
ELECTRONIC BUZZER

Aluminum guard



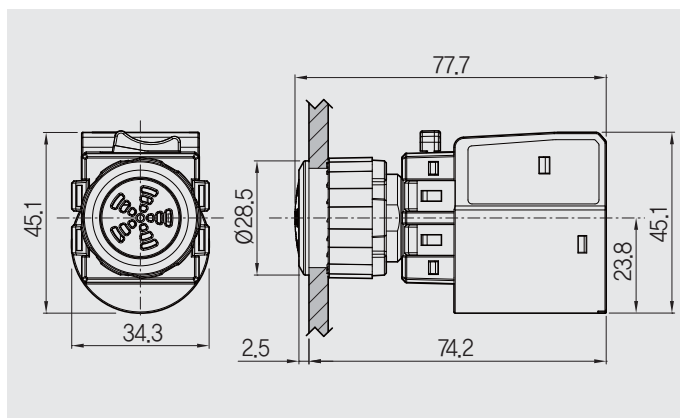
Model	Code	Description	
MRB-	☐ ☐	Electronic buzzer	
Actuator	A	Flush (Installing hole: Ø30)	Aluminum guard
	N	Flush (Installing hole: Ø25)	
	R	Extended (Installing hole: Ø22)	
Rated input voltage	A0	100 – 240 V AC	LED (Condenser voltage dropping type)
	D0	12 – 24 V DC/AC	LED (Resistance voltage dropping type)

MRB-A Flush (Ø30)



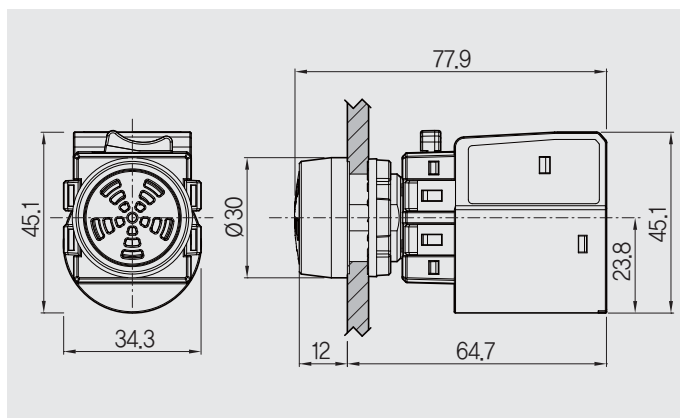
Unit : mm

MRB-N Flush (Ø25)



Unit : mm

MRB-R Extended (Ø22)



Unit : mm

MR SERIES

Plastic guard

Flush(Ø25), Extended(Ø22)



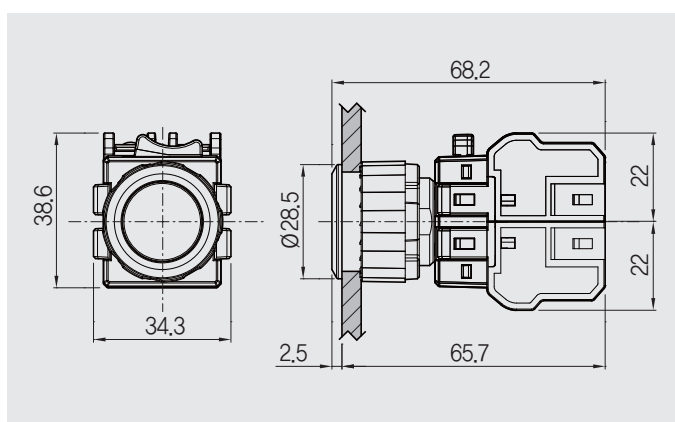
PUSH BUTTON SWITCH

Plastic guard



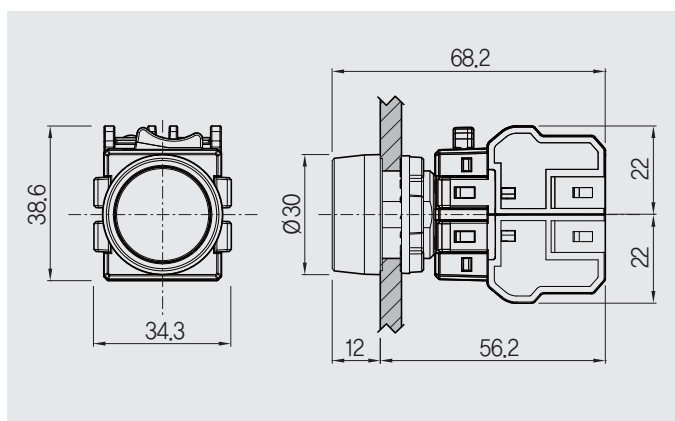
Model	Code	Description
MRF—	☐ ☐ ☐ ☐	Push button switch
Actuator	K	Flush (Installing hole: Ø25)
	T	Extended (Installing hole: Ø22)
Operation function	M	Momentary
	A	Alternate
Contact composition	1	1a1b
	2	2a2b
Cap (LED color)	R	R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRF—K Flush (Ø25)



Unit : mm

MRF—T Extended (Ø22)



Unit : mm

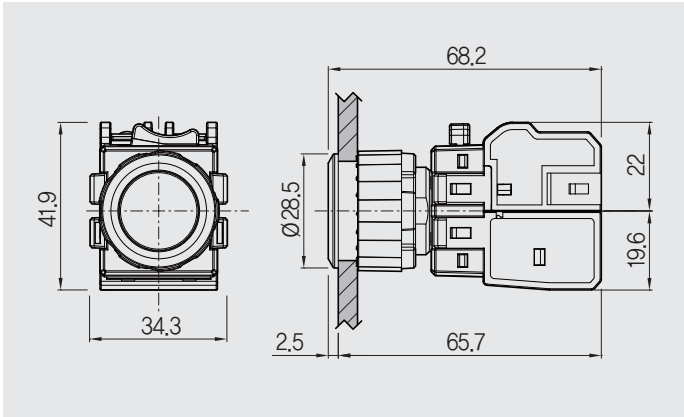
ILLUMINATED PUSH BUTTON SWITCH

Plastic guard



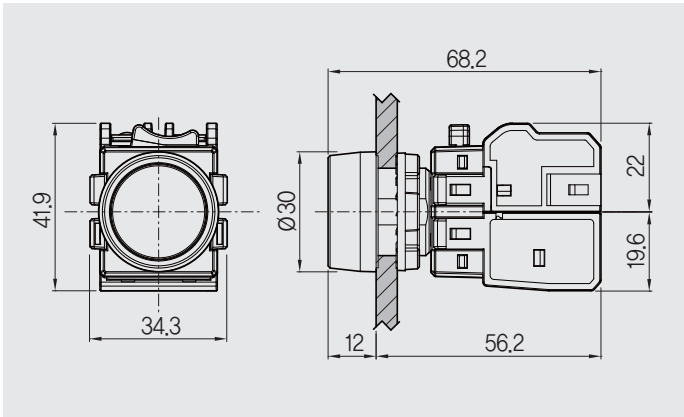
Model	Code				Description
MRX-	☐	☐	☐	☐	Illuminated Push button switch
Actuator	K				Flush (Installing hole:Ø25)
	T				Extended (Installing hole:Ø22)
Operation function	M				Momentary
	A				Alternate
Contact composition	1				1a1b
	2				2a2b
Rated input voltage	A0				100 – 240 V AC
	A3				380 V AC
	D0				12 – 24 V DC/AC
Cap (LED color)	R				R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRX-K Flush (Ø25)



Unit : mm

MRX-T Extended (Ø22)



Unit : mm

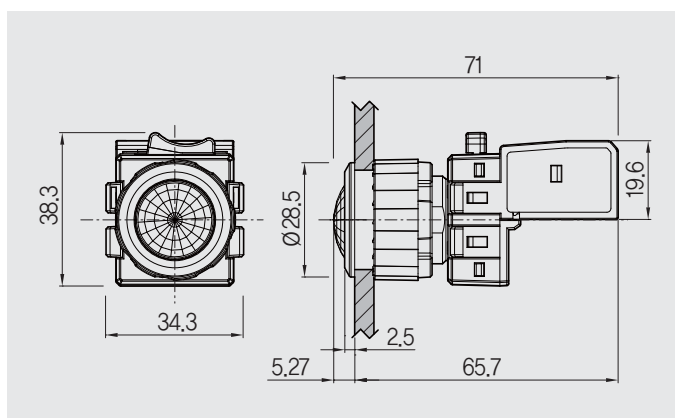
PILOT LAMP

Plastic guard



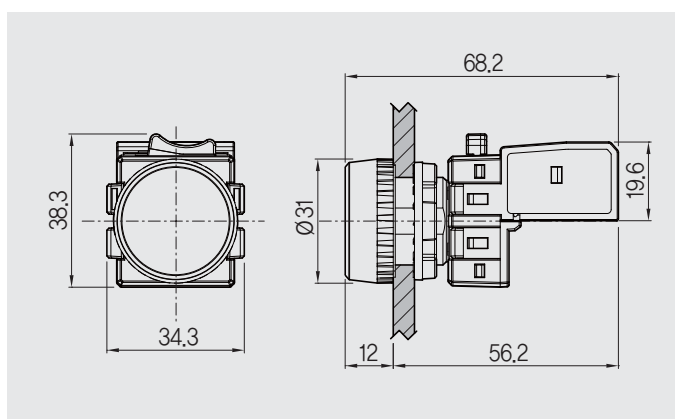
Model	Code	Description
MRP-	☐ ☐ ☐	Pilot lamp
Actuator	K	Flush (Installing hole: Ø25)
	T	Extended (Installing hole: Ø22)
Rated input voltage	A0	100 – 240 V AC
	A3	380 V AC
	D0	12 – 24 V DC/AC
Cap (LED color)	R	R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRP-K Flush (Ø25)



Unit : mm

MRP-T Extended (Ø22)



Unit : mm

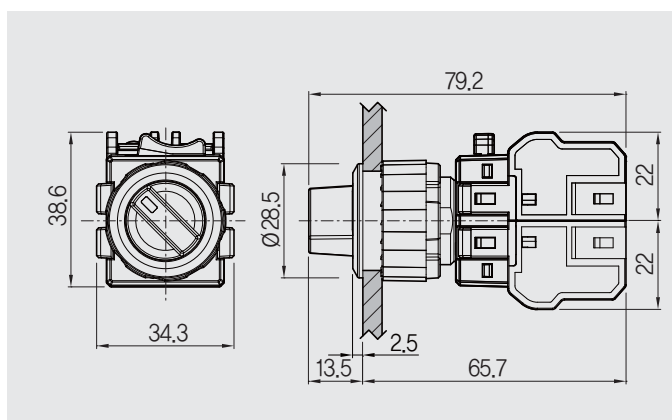
SELECTOR SWITCH

Plastic guard



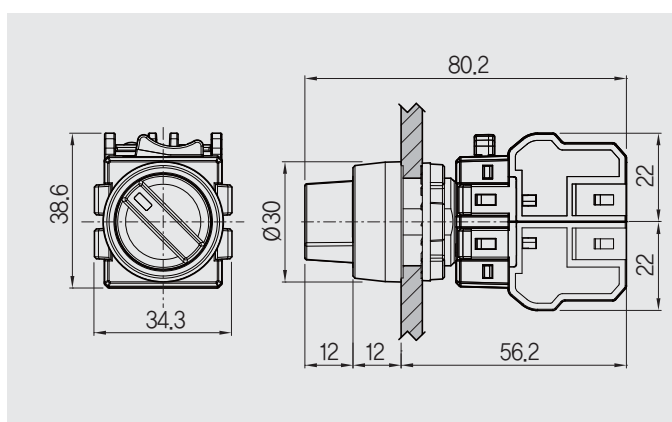
Model	Code		Description		
MRS—	☐	☐	☐	Selector switch	
Actuator	K			Flush (Installing hole:Ø25)	
	T			Extended (Installing hole:Ø22)	
Operation function	2A			2 positions alternate operation	—
	2R			2 positions momentary operation	
	3A			3 positions alternate operation	—
	3R			3 positions left and right side momentary operation	
Contact composition	1	1a1b			
	2	2a2b			
Actuator color (cap color)		Black (solid)			
Plastic guard					
Refer to contact operation (3 positions : Only 2a2b contact available)					

MRS-K Flush (Ø25)



Unit : mm

MRS-T Extended (Ø22)



Unit : mm

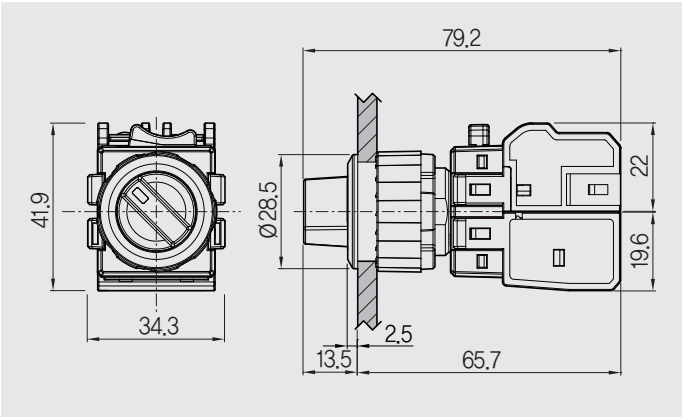
ILLUMINATED SELECTOR SWITCH

Plastic guard



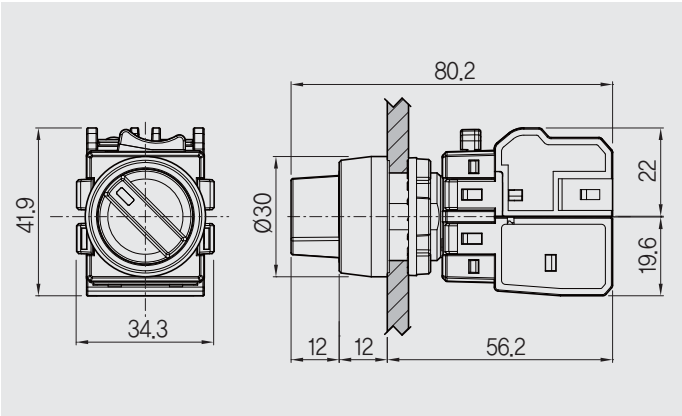
Model	Code				Description
MRT-	☐	☐	☐	☐	Illuminated selector switch
Actuator	K				Flush (Installing hole:Ø25)
	T				Extended (Installing hole:Ø22)
Operation function	2A				2 positions alternate operation
	2R				2 positions momentary operation
	3A				3 positions alternate operation
	3R				3 positions left and right side momentary operation
Contact composition	1				1a1b
	2				2a2b
Power supply voltage	A0				100-240 V AC
	A3				380 V AC
	D0				12-24 V DC/AC
Cap (LED color)	R				R(Red), G(Green), Y(Yellow), A(Blue), W(White)

MRT-K Flush (Ø25)



Unit : mm

MRT-T Extended (Ø22)



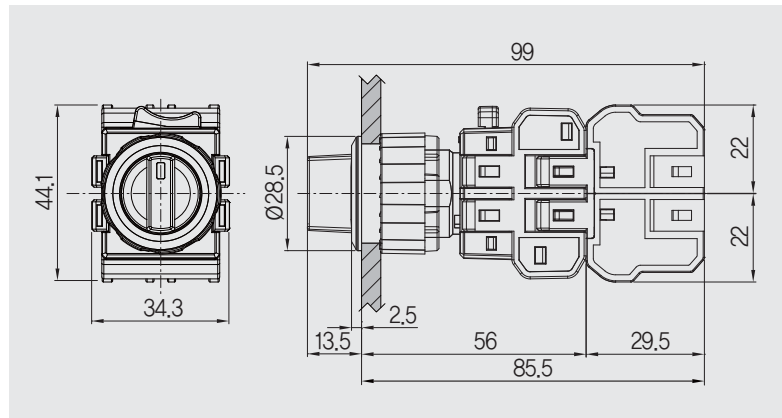
Unit : mm

ILLUMINATED SELECTOR SWITCH

Plastic guard

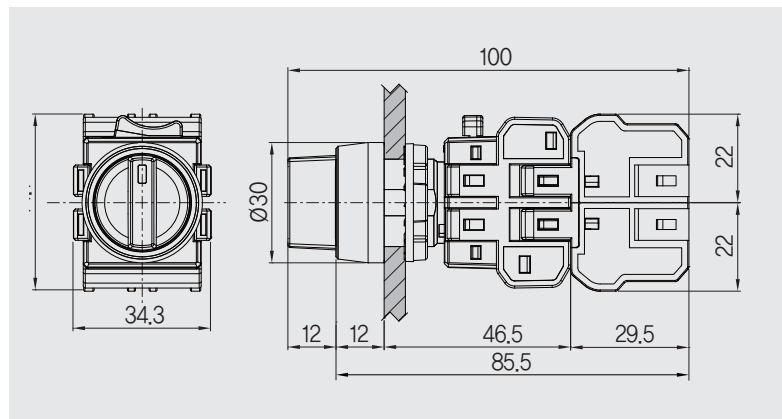


MRT-K3 Flush (Ø25)



단위 : mm

MRT-T3 Extended (Ø22)



단위 : mm



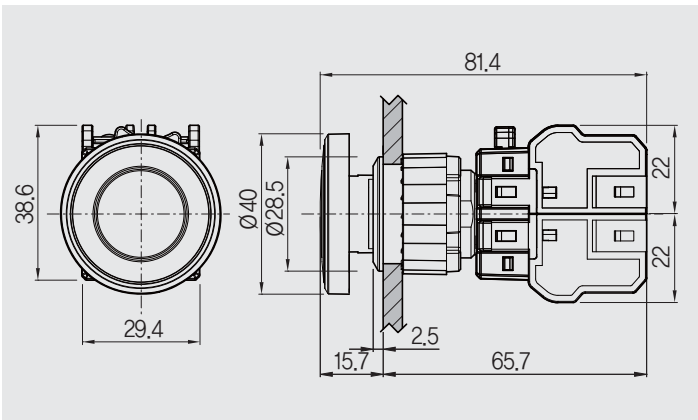
EMERGENCY STOP SWITCH

Plastic guard



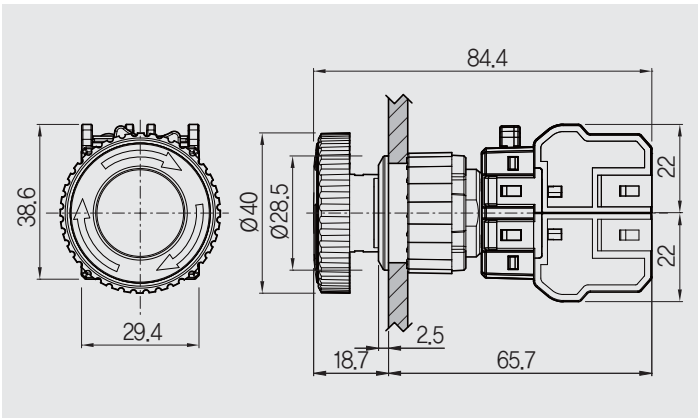
Model	Code			Description
MRE-	☐	☐	☐	Emergency stop switch
Actuator	K			Flush (Installing hole: Ø25)
	T			Extended (Installing hole: Ø22)
Operation function	M			Momentary
	R			Push lock turn reset
Contact composition	1			1a1b
	2			2a2b
Cap (LED color)	R			R(Red), G(Green) ※Push lock turn reset : only R(Red)

MRE-KM Flush (Ø25)



Unit : mm

MRE-KR Flush (Ø25)



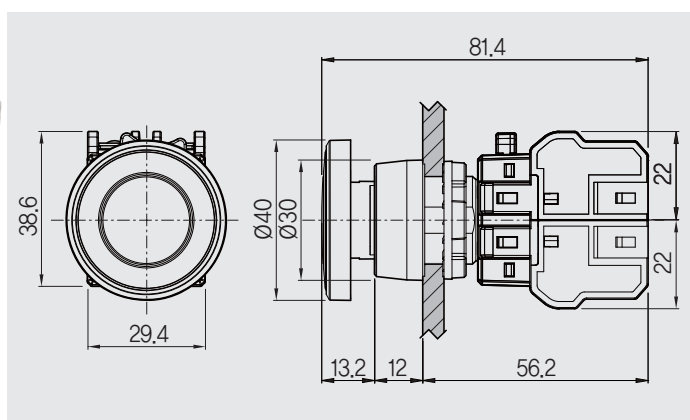
Unit : mm

EMERGENCY STOP SWITCH

Plastic guard

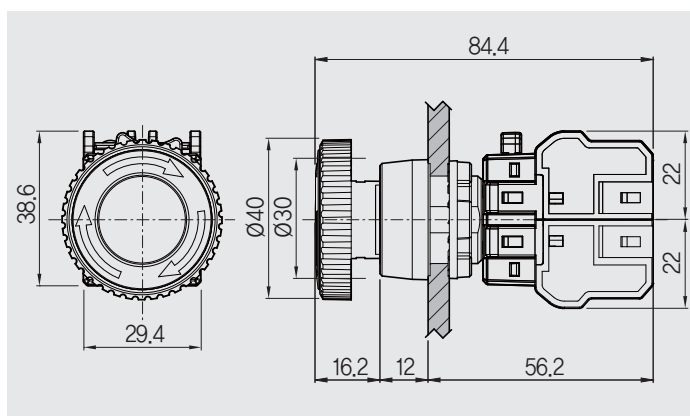


MRE-TM Extended (Ø22)



Unit : mm

MRE-TR Extended (Ø22)



Unit : mm

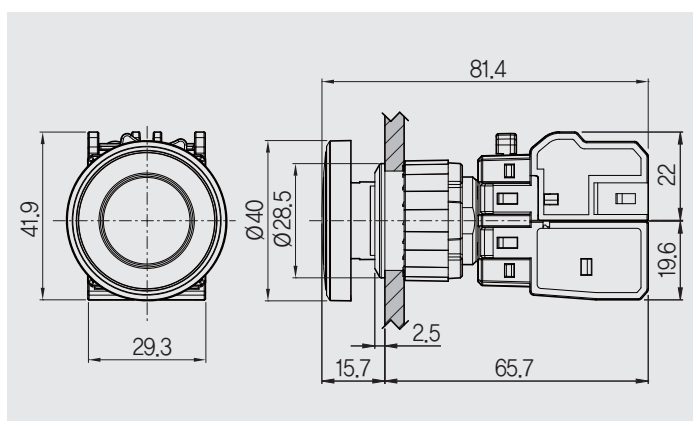
ILLUMINATED EMERGENCY STOP SWITCH

Plastic guard



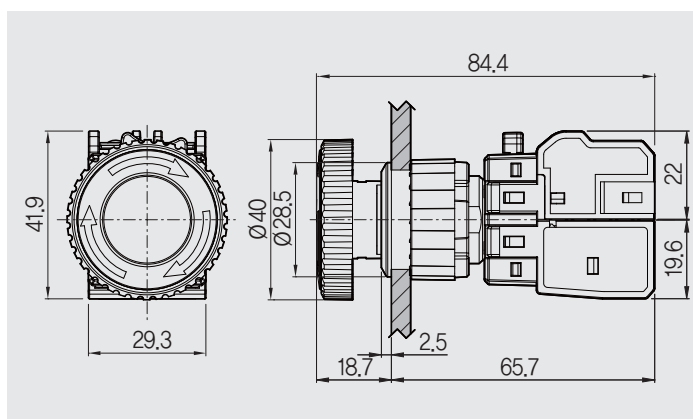
Model	Code	Description
MRA—	☐ ☐ ☐ ☐ ☐	Illuminated emergency stop switch
Actuator	K	Flush (Installing hole: Ø25)
	T	Extended (Installing hole: Ø22)
Operation function	M	Momentary
	R	Push lock turn reset
Contact composition	1	1a1b
	2	2a2b
전원전압	A0	100 – 240 V AC
	A3	380 V AC
	D0	12 – 24 V DC/AC
Cap (LED color)	R	R(Red), G(Green) ※Push lock turn reset : only R(Red)

MRA—KM Flush (Ø25)



Unit : mm

MRA—KR Flush (Ø25)



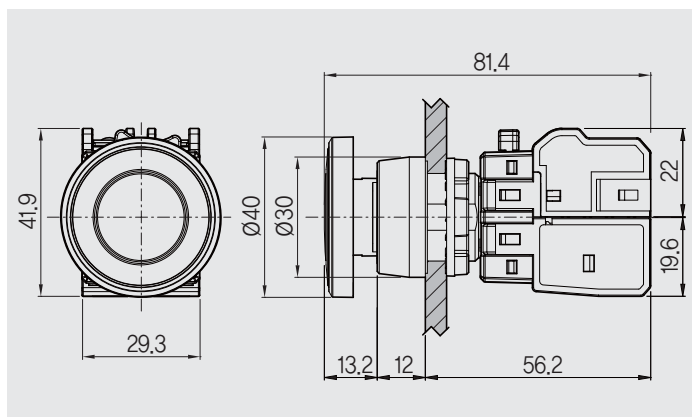
Unit : mm

ILLUMINATED EMERGENCY STOP SWITCH

Plastic guard

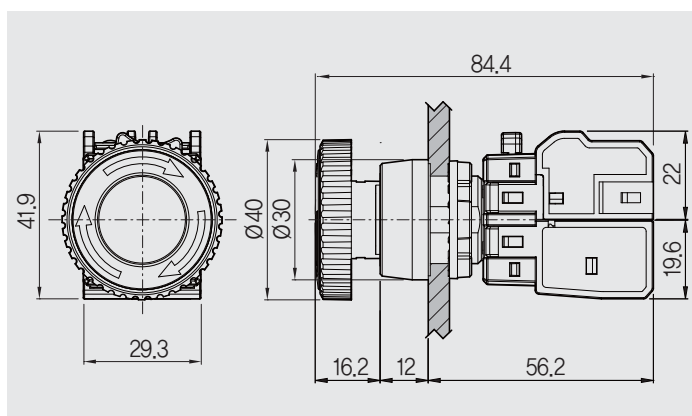


MRA-TM Extended (Ø22)



Unit : mm

MRA-TR Extended (Ø22)



Unit : mm



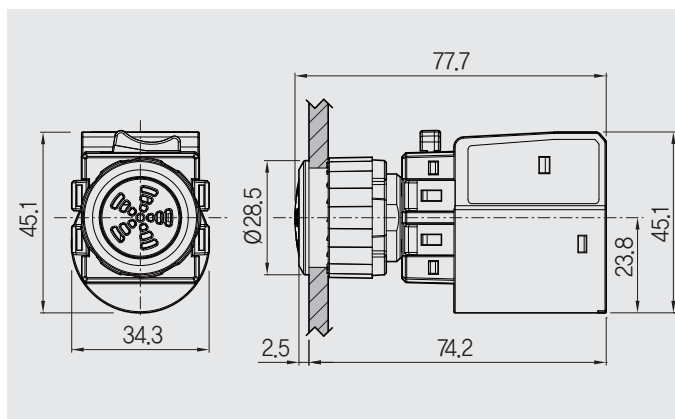
ELECTRONIC BUZZER

Plastic guard



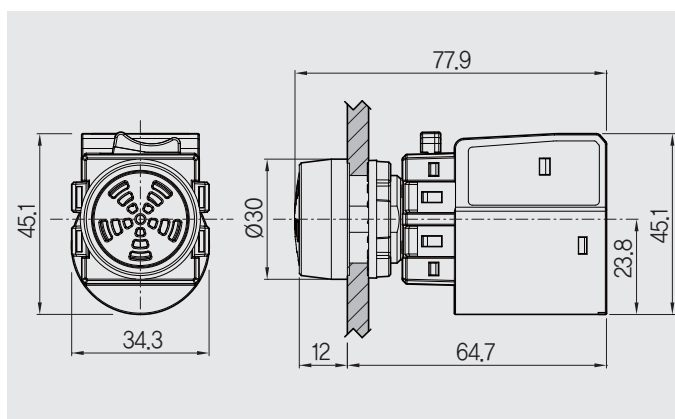
Model	Code	Description	
MRB—	☐ ☐	Electronic buzzer	
Actuator	K	Flush (Installing hole: Ø25)	Plastic guard
	T	Extended (Installing hole: Ø22)	
Rated input voltage	A0	100 – 240 V AC	LED (Condenser voltage dropping type)
	D0	12 – 24 V DC/AC	LED (Resistance voltage dropping type)

MRB-K Flush (Ø25)



Unit : mm

MRB-T Extended (Ø22)



Unit : mm

■ Suffix code

Model	Code	Description
MRF -	□	Push button switch
MRX -		Illuminated push button switch
MRP -		Pilot light
MRS -		Selector switch
MRT -		Illuminated selector switch
MRK -		Key selector switch
MRE -		Emergency stop switch
MRA -		Illuminated emergency stop switch
MRB -		Electronic buzzer
Actuator	A	Ø30 Flush
	N	Ø25 Flush
	R	Ø22 Extended
	K	Ø25 Flush
	T	Ø22 Extended

※ Please refer to the above suffix code and check out an operation function, contact composition, color actuator, rated input voltage, etc.

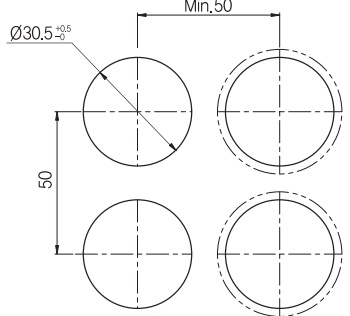
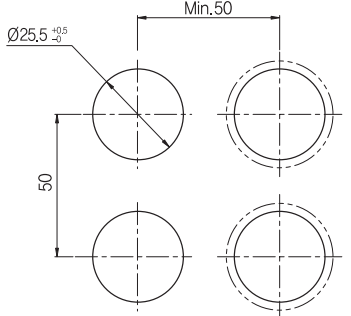
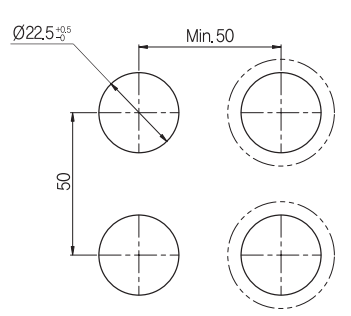
■ Specification

Contact composition		1a1b
Contact action		Snap-action
Installing panel thickness		7.0 mm (when excluded the additional accessories)
Material	Contact material	AgSnO ₂
	Contact body material	Polycarbonate (P.C)
Mechanical characteristic	Fixed torque	Installing nut : 1.96 N・m max, Installing nut : 0.78 N・m max
	Operating power	6.47 N (operation part + 1a1b contact)
	Operating distance	5 mm ±0.2
	Reflection time	max 3 ms
	Durability of actuator	Button: min 500 thousand times, Selector switch: min 200 thousand times
Electrical characteristic	Dielectric strength	2,000 V AC 1 min
	Contact resistance	max 50 MΩ (Initial setting)
	Insulation resistance	min 100 MΩ 500 V DC
	Rated current	6 A 250 V AC
	Min load current	5 mA 24 V DC, 10 mA 110 V DC
	Min load current	200 thousand times
Power supply voltage	Power supply voltage	100 – 240 V AC (ED condenser voltage dropping type)
		380 V AC (LED condenser voltage dropping type)
		12 – 24 V DC/AC (LED resistance voltage dropping type)
Buzzer volume		Approx. 90 dB
Environment condition	Ambient temperature	–20 ~ 55 °C
	Ambient temperature	35 ~ 85 % RH
	Storage temperature	–40 ~ 85 °C
	Shock resistance	300 ⅓ pulse cycle 11 ms
	Vibration resistance	100 ⅓ 10 – 55 Hz, amplitude 0.75 mm (within 1 ms)

■ Actuator panel installation sample

Aluminum guard			Plastic guard	
Flush (Ø30) MR□ - A	Flush (Ø25) MR□ - N	Extended (Ø22) MR□ - R	Flush (Ø25) MR□ - K	Extended (Ø22) MR□ - T
				

■ Panel cutout (Unit : mm)

Ø30 Flush	Ø25 Flush	Ø22 Extended
		

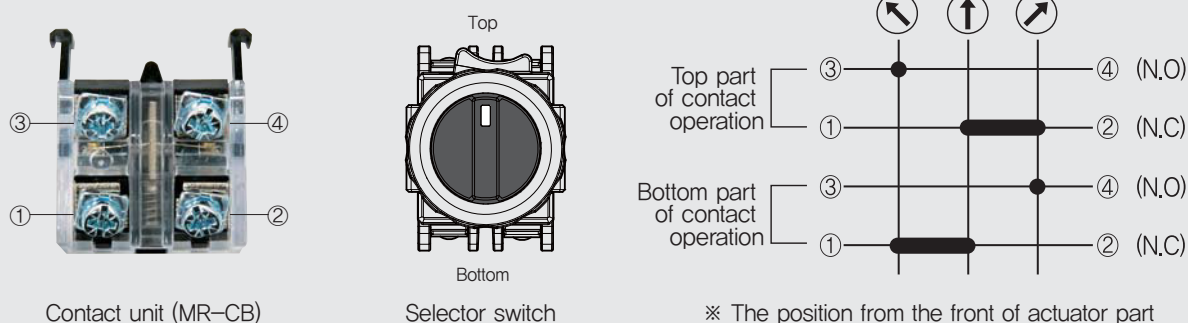
■ Contact part composition

Fixing plate (MR-FP)	Contact unit (MR-CB)	Illuminated LED unit
		

■ Selector / Key selector contact operation

In case of 3 positions selector, please refer to the contact operation diagram.

※ When installing to the contact unit



■ Accessories

Kinds	Appearance	Model	Reference
Contact unit		MR-CB	Hook fixing contact unit which is composed of 1a1b, is assembled to fixing plate.
		MR-CBC	When air-conditioning and refrigerating by slow-action contact (1a1b) and driving an industrial machine's motor, it can be used as START signal and STOP signal in relay's self-hold circuit.
Flush aluminum guard		MR-AGA	Aluminum guard A type panel cutout Ø30
		MR-AGN	Aluminum guard N type panel cutout Ø25
Extended aluminum guard		MR-AGR	Aluminum guard R type panel cutout Ø22
Fixing plate		MR-FP	Connect to actuator, contact unit and lamp unit.
3 positions of illuminated selector unit		MR-3SLA0□	100 – 240 V AC
		MR-3SLA3□	380 V AC
		MR-3SLD0□	12 – 24 V DC/AC
LED Illuminated unit		MR-LBA0□	100 – 240 V AC
		MR-LBA3□	380 V AC
		MR-LBD0□	12 – 24 V DC/AC
Protection cover		MR-AC	Protective cover is installed in opposite side when using only 1 LED illuminated unit or contact unit.

NEW PRODUCTS

Programmable temperature & humidity controller



TH510 / TD510

- High-Definition Screen (5.7" 640 x 480 TFT-LCD)
- Easy to configure due to use of touch panel
- Maximum 100 patterns (Maximum 2,000 segments)
- Digital input: Maximum 32 contacts, Digital output: Maximum 32 contacts
- Remote observation function by using Smartphone
- 3 languages are available (Korean, English, and Chinese)
- Digital recording function
- Communication function (RS422/485)

Graphic recorder



GR200

- Touch panel 5.7" 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- 80M byte internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)
- Remote monitoring by smart phone
- Size : 145(W) x 145(H) x 173.5(D)

Digital temperature controller



HX series

- Multi-input (Thermocouple 12 types, RTD 2 types, DC voltage 2 types)
- Heating control / Cooling control / Simultaneous heating - cooling control
- Multi-output (Relay, SSR, Current output)
- Set value (SV) selection by contact input (D.I)
- Retransmission output (4 - 20 mA)
- Fast sampling cycle 62.5 ms
- Installation depth 63 mm
- Heater break alarm
- Communication (RS485 / RS422)

Module type temperature controller



ML series

- 0.05sec sampling speed (4-channel)
- 4-channel relay / SSR / SCR output
- 8 event outputs
- Max 32units parallel connection available
- Connection and communication interface between the units by using the side connector.
- SV / minute rate of change adjustment
- Communication (RS232C, RS485)
- 76,800bps communication speed
- Installation by Din rail or screw

Thyristor power regulator

CE
(Excluded TPR-3)



TPR series

- Slim design
- Semi-permanent life expectancy
- Control mode selectable
- Movement by soft start

Solid state relay

CE
(Excluded HSR-2SL, 3SL)



HSR series

- High current load control
- Input / output high insulation
- Built-in CR snubber, zero cross
- Heat sink body type with better operability and safety

Power supply

CE



DPS series

- 35 mm DIN Rail Installation method
- Low output voltage fluctuation rate
- Low heating due to high efficiency
- DC OK Signal Relay Output Built-in
- Protection function against overcurrent, overvoltage, and overheating
- Various products from 15 W to 240 W
- Input voltage: 100 – 240 V Free Voltage or automatic selection of 110/220 V

Power supply

CE



TPS series

- Maximize the effect of protection against heat with using the Aluminum case. (30 W - 450 W)
- Output voltage adjustable volume built-in
- Free Voltage 100 - 240 V AC (15 W, 30 W, 50 W, 75 W, 450 W)
- Inrush Current Limit Circuit built-in
- Over current, Over voltage (except for 15 W), output short circuit, and overheating protection function

Bright and durable due to use of **LED** light

Control switch

MR series

