	EXCEL CELL ELECTRONIC CO., LTD.	NO.	A31255		
SPECIFICATION		Edition	A	Page	1

## ECS - INDUSTRIAL CONTROL SWITCH PUSHBUTTON (MUSHROOM TYPE- SMALL COMPACT SIZE )

### 1. FEATURES

- Detachable contact block for easy installation and removal. It can meet variety of needs and improve work efficiency.
- IP65 waterproof type. It is designed for liquid and oil prevention and enables to be used in different environment.
- Short contact unit design to save more space
- The safety design of slide locking holder is not only for easy installation and removal, but also for prevention of inappropriate installation of contact blocks.
- In accordance with the standards of UL, cUL, CE, CCC, and TUV.
- RoHS Compliant
- Halogen Free series available

### 2. SPECIFICATIONS

#### 2-1. ELECTRICAL

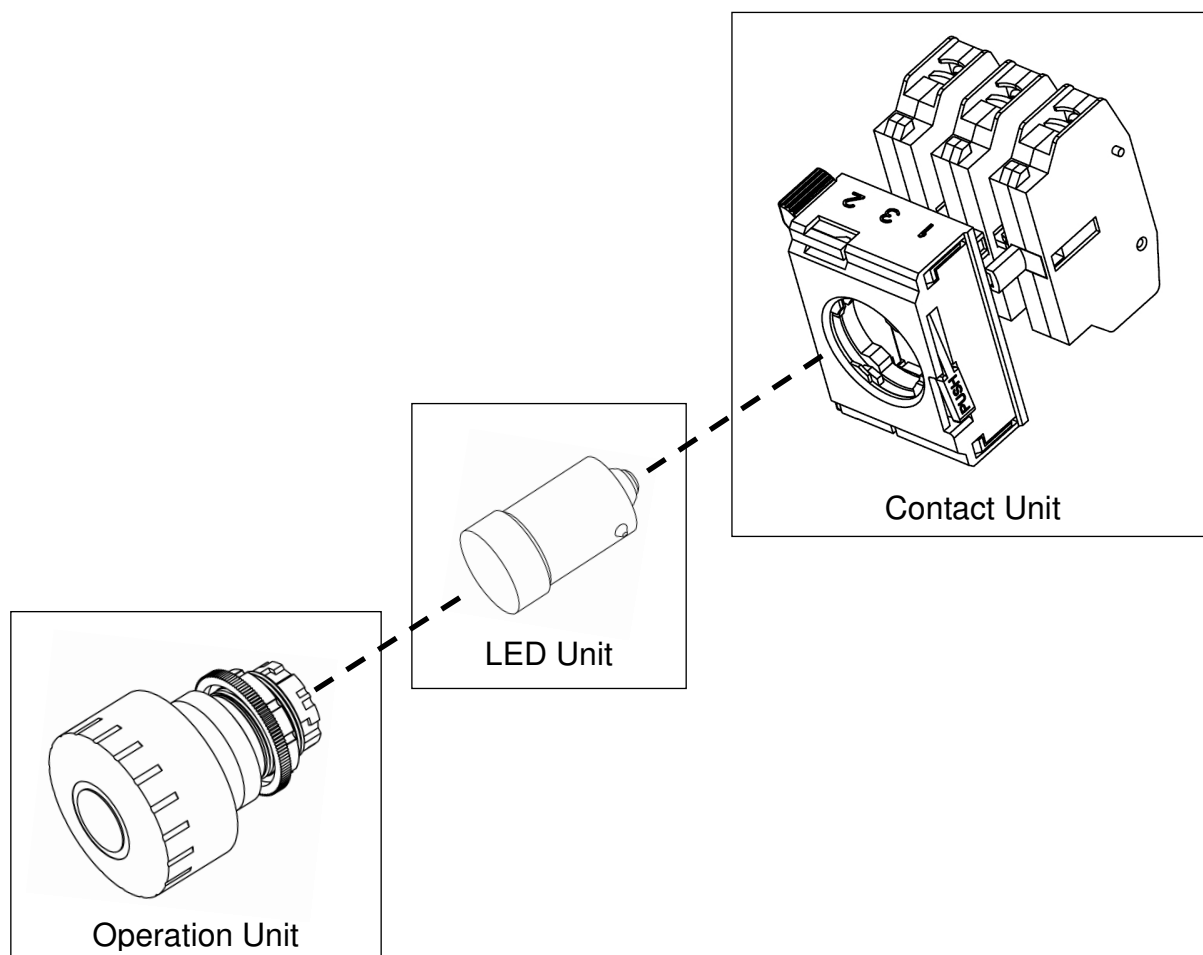
2-1-1. Rated thermal current	10A
2-1-2. Rated insulation voltage	650V
2-1-3. Utilization category	AC-15(A600) or Ue 240V / Ie 3A Ue 380V / Ie 1.9A DC-13(P600) or Ue 250V / Ie 0.55A
2-1-4. Minimum switching capacity [ref.]	3V DC/AC, 5mA
2-1-5. Dielectric strength	2500V AC, 1 min.
2-1-6. Insulation resistance	100MΩ min. at 500V DC
2-1-7. Contact resistance	50mΩ max. (initial)

#### 2-2. MECHANICAL AND ENVIRONMENTAL

2-2-1. Operating temperature	-25°C ~ +70°C (without icing or condensation) -25°C ~ +55°C (for illuminated type)
2-2-2. Storage temperature	-40°C ~ +85°C
2-2-3. Humidity	45% ~ 85% RH
2-2-4. Degree of protection	IP65 (from the front of the panel)
2-2-5. Degree of contamination	3 (IEC 60947-5-1)
2-2-6. Vibration resistance	10-55Hz single amplitude 0.5mm
2-2-7. Shock resistance	100 m/s <sup>2</sup> (10G)(malfunction) 1000 m/s <sup>2</sup> (100G)(destruction)
2-2-8. Mechanical Life	1,000,000 operations frequency 3600 operations/hr
2-2-9. Electrical Life	500,000 operations frequency 1800 operations/hr
2-2-10. Operation Force(from 1a1b)[ref.]	25N
2-2-11. Operation travel	over 4 mm
2-2-12. Connection type	M3.5 screw connection
2-2-13. Direct opening action	Direct opening mechanism of NC contact to open the circuit⊕

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### 3. CONSTRUCTION



- Operation unit, LED unit, and contact unit (contact blocks) can be sold separately. Please see [4.Part numbering system] for operation unit part number. For other accessories (LED lamp, contact block, etc.), please refer to accessory part in catalog.



## 4. PART NUMBERING SYSTEM

ECS – XX X E3 R X – XX X Q X – L XX R

Lamp color: R(Red) / Y(Yellow) / B(Blue)  
G(Green) / W(White)Applied voltage: 06: 6V AC/DC  
12: 12V AC/DC  
24: 24V AC/DC  
A1: 110V AC  
A2: 220V AC

Lamp type: L: LED

Special number:

Blank or 0~9 or A~Z

H: Halogen Free series

Contact block special number:

Q: Quick release holder, Small compact size

Function:

0: n/a

2: lamp modular

Contact configuration: 10: 1a    01: 1b (see 9-2)

Operator special number:

Q : Quick release holder (Illuminated type)

1Q : Quick release holder (Non-illuminated type)

M1Q : Quick release holder (Mushroom type)

M2Q : Quick release holder (Big Mushroom type)

NQ : Quick release holder (Key recess type (Ø 22 mm only))

Cover color:

R(Red) /G(Green) /Y(Yellow) /B(Blue) /K(Black)

( Y(Yellow) /B(Blue) /K(Black) M1 Type only )

Operator Type:

E3: Special Type Pushbutton Switch

Appearance:

R: Round

Q: Square (only for Ø22 &amp; Ø 25 mm)


Mounting hole dia. :

22: Ø 22 mm

25: Ø 25 mm

30: Ø 30 mm

Series: ECS: Industrial Control Switch

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## 5. INSTALLATION

### 5-1. Panel thickness

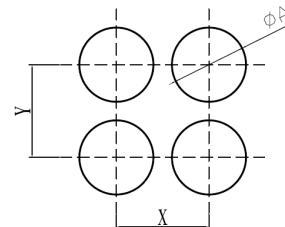
- The panel thickness must be 1 to 6 mm.
- Take into consideration about the thickness of accessories (such as name plate, switch guard, etc.) while using.

### 5-2. Panel cutout

- Cutout diameter and distance

Unit: mm

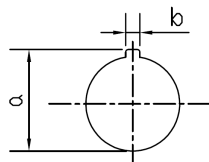
	22R / 25R	22Q / 25Q	30R
A	22.3/25.3 $\begin{smallmatrix} +0.4 \\ -0 \end{smallmatrix}$	22.3/25.3 $\begin{smallmatrix} +0.4 \\ -0 \end{smallmatrix}$	30.5 $\begin{smallmatrix} +0.5 \\ -0 \end{smallmatrix}$



Unit: mm

	22R / 25R	22Q / 25Q	30R	Long Lever Selector Switch Emergency Stop Switch
X	50	50	50	50
Y	55	55	65	55

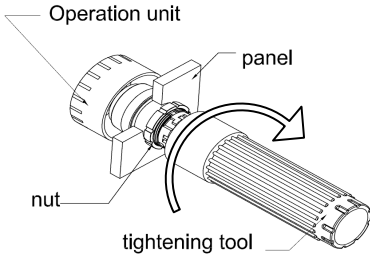
- Key recess cutout (Ø22mm only)



Unit: mm

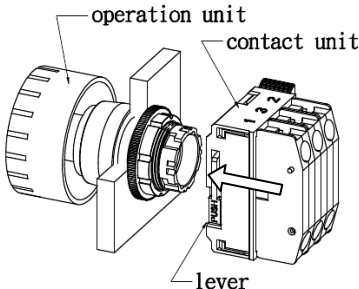
Mounting Hole(Ø)	a	b
22	24.1 $\begin{smallmatrix} +0.5 \\ -0 \end{smallmatrix}$	3.2 $\begin{smallmatrix} +0.2 \\ -0 \end{smallmatrix}$

- Panel installation




1. Place the operation unit through panel mounting hole.
2. Install the nut by using tightening tool.
3. Make sure the operation unit fix on the panel firmly.

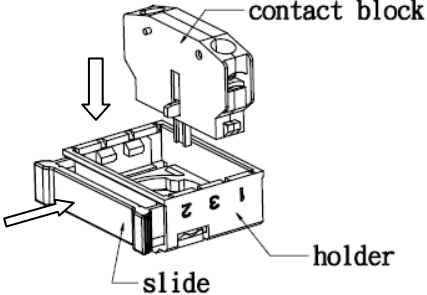
### 5-3. Operation unit and contact unit installation



1. Fix the operation unit on the panel.
2. Press the lever and connect the operation unit with contact unit.
3. Release the lever.

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#### 5-4. Contact block installation

	<ol style="list-style-type: none"> <li>1. Open the slide.</li> <li>2. Contact block needs to fit with holder position correctly.</li> <li>3. Close the slide completely.</li> </ol> <p>(If you are unable to close the slide completely, please check the correctness of contact block installation.)</p>
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#### 6. PACKAGING

6-1. ECS product is packed without assembly (packed by set), 10 sets per box.

##### 6-2. Label information

- |                   |                         |
|-------------------|-------------------------|
| (1) part number   | (6) QC inspection stamp |
| (2) Lot number    | (7) Company mark        |
| (3) Quantity      | (8) Company name        |
| (4) Tester number | (9) Notice              |
| (5) Date code     |                         |

#### 7. DIMENSIONS

7-1. See attached drawings

#### 8. OPTIONS

8-1. Key recess type operation unit is available (Ø22mm only)

8-2. Ø22mm and Ø25mm type have the same structure. Different thickness of O-rings can be ordered separately to fit into Ø22mm and Ø25mm hole in the panel.

##### 8-3. LED Specification


LED Type	BA9S-T8
Durability(reference)	Approx. 50,000 Hrs.
Voltage	Printed on the LED

8-4. For other accessories (name plate, control box, and etc.), please refer to accessory part in the catalog.

#### 9. REMARK

##### 9-1. Safety Certification

Safety Standard	Certification
UL-508	UL / cUL , file NO. E155181
CSA C22.2 NO.14	
EN60947-5-1	R50363071
EN60947-5-5 (Emergency Stop Switch)	R50362996
CCC GB14048.5	CQC2018010305138937

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## 9-2. Contact Configuration

Code	Contact block		without function block	with function block
	NO	NC		
10	1	0	●	●
01	0	1	●	●
11	1	1	●	●
20	2	0	●	●
02	0	2	●	●
12	1	2	●	
21	2	1	●	
30	3	0	●	
03	0	3	●	

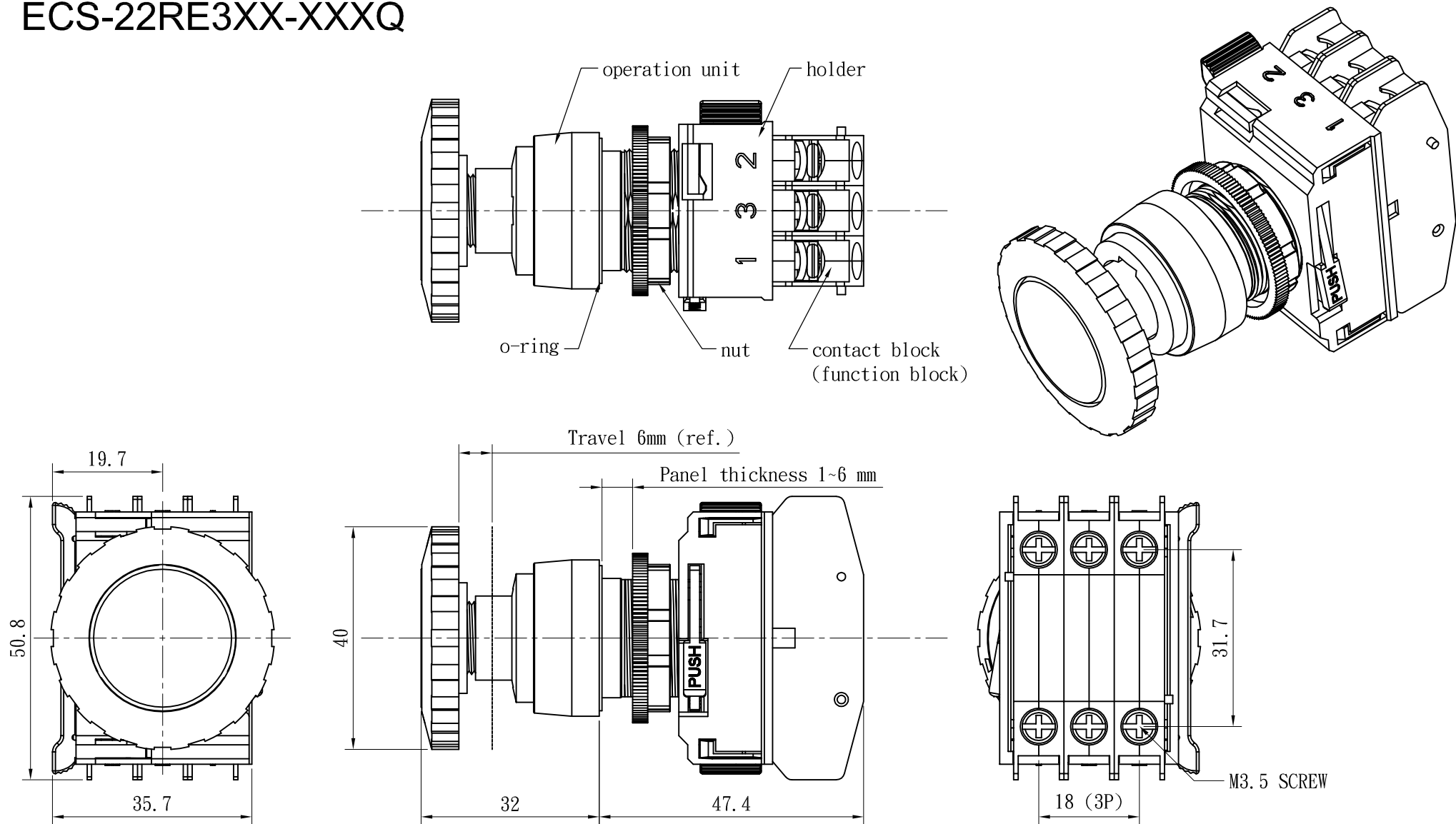
Remark:


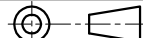
- The colors of contact block are the followings: 1 NO: blue, 1 NC: red
- Maximum 3 contact blocks for every contact unit.

## 9-3. CAUTION

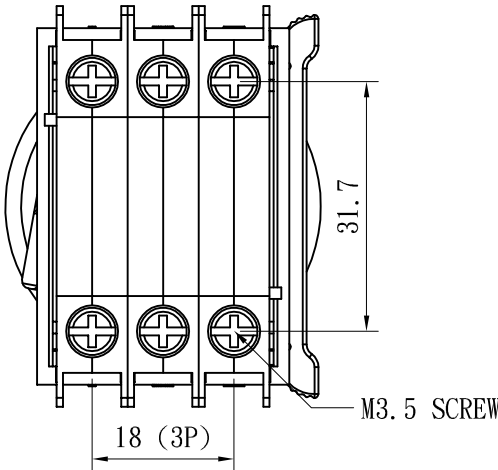
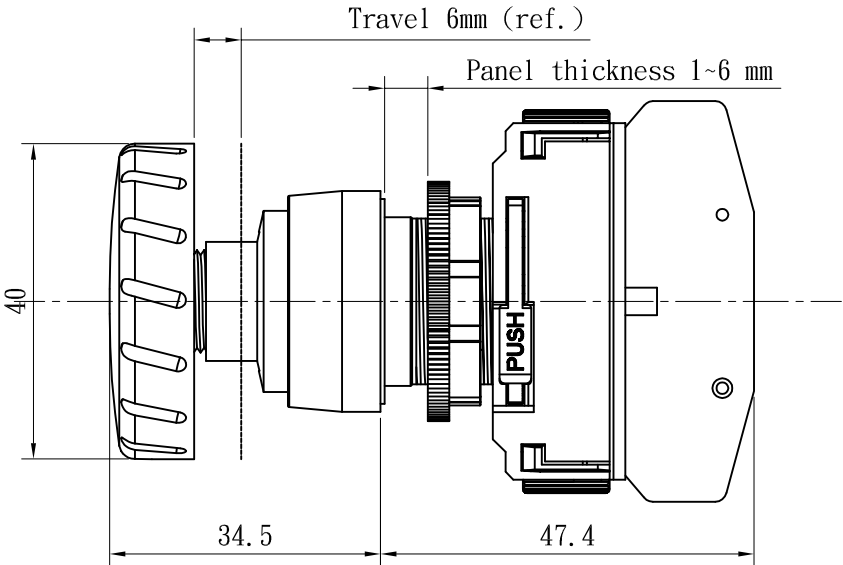
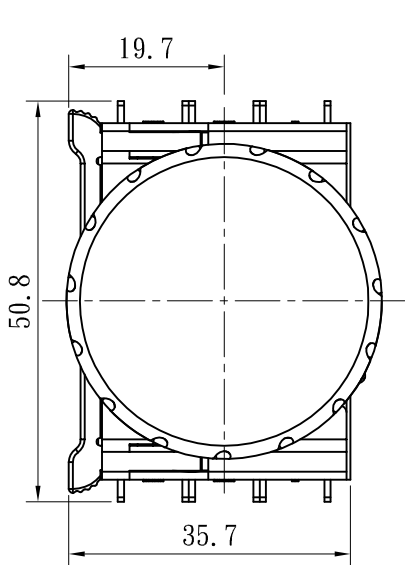
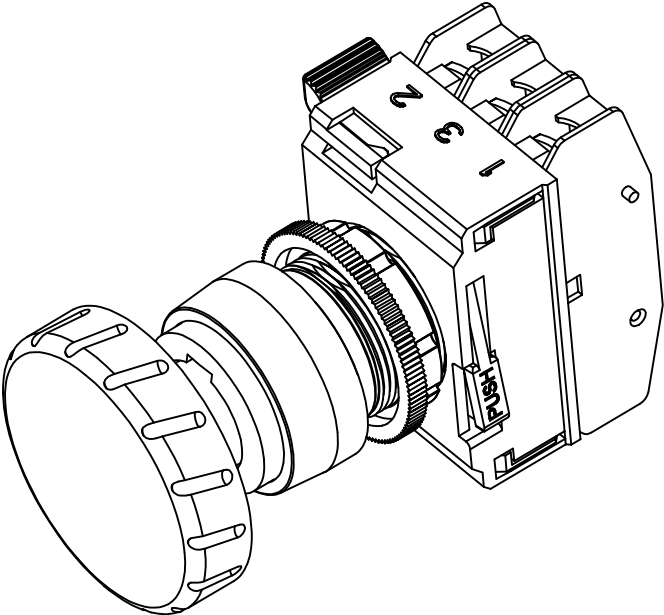
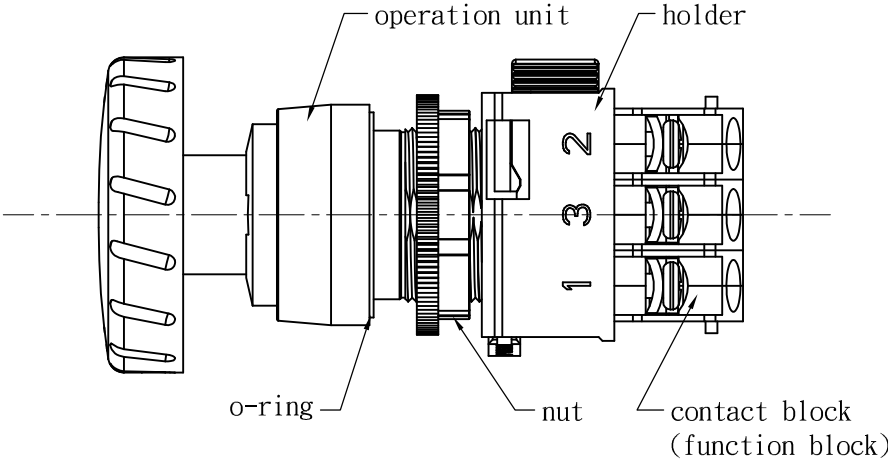
- To prevent injury, this device must be disconnected from all power sources prior to wiring and other initiating work.
- Use tightening tool when installing the operation unit in the panel cutout. Do not pliers and do not tighten excessively, otherwise the operation unit may be damaged.
- Make sure contact blocks are firmly fixed on contact holder during assembly. it will avoid contact blocks separated from holder during operation.



ECS-22RE3XX-XXXQ



				NORMAL TOLERANCE		 EXCEL CELL ELECTRONIC CO., LTD.						PART NUMBER		ECS-22RE3XX-XXXQ	
				RANGE	TOLERANCE										
				0-1	±0.1	CHECK	Allen Shi	DESIGN	Alice Lin	DRAWN	Alice Lin	UNIT	MM ( INCH )	PART NAME	ECS
				1-4	±0.3							SCALE	1:1	TYPE	Emergency
				4-16	±0.5							SIZE	A4	FILE NAME	76922RE3XXA.dwg
				16-63	±0.8										
				63-250	±1.0										
NO.	DETAILS	ALTERED BY	DATE									PROJECTION		EDITION	A

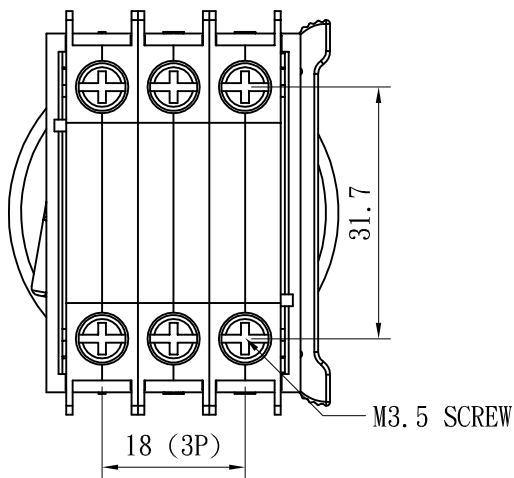
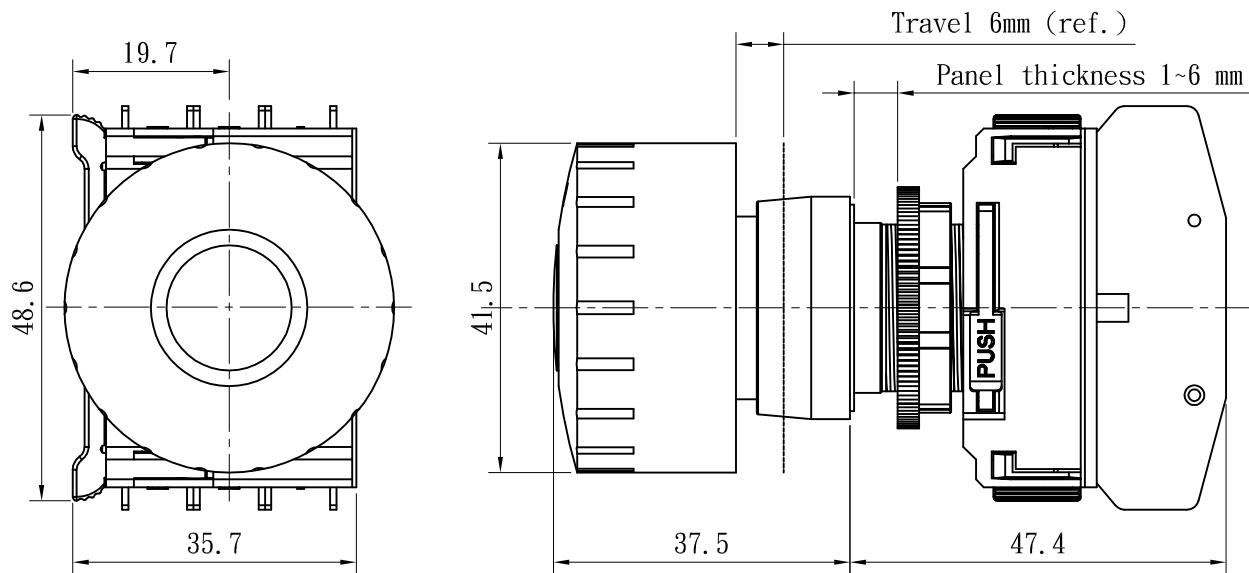
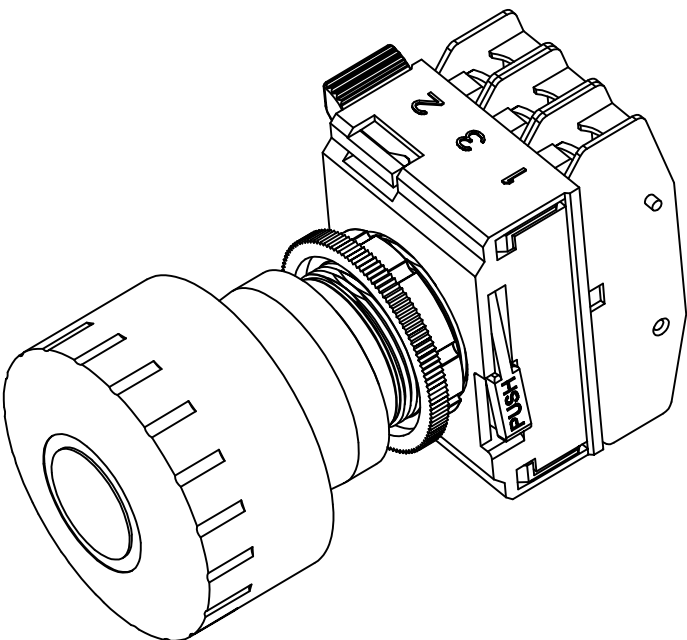
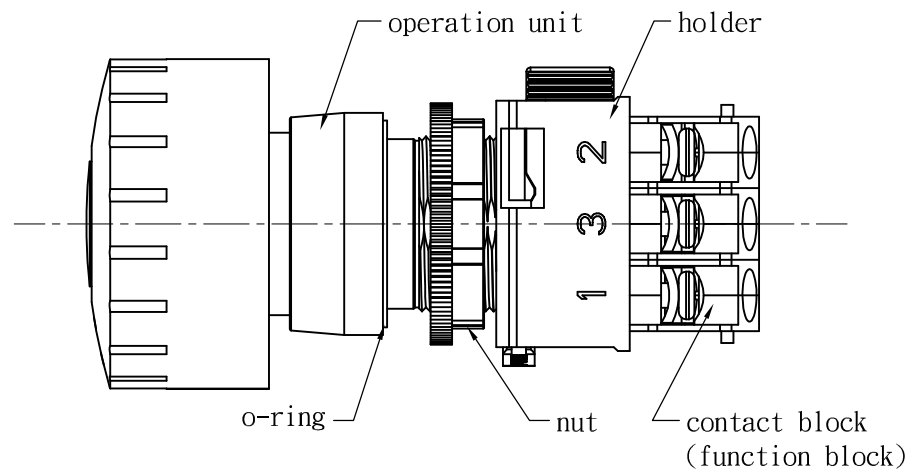
ECS-22RE3XM1Q-XXXQ


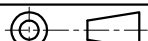


				NORMAL TOLERANCE		 EXCEL CELL ELECTRONIC CO., LTD.						PART NUMBER		ECS-22RE3XM1Q-XXXQ	
				RANGE	TOLERANCE							UNIT		MM ( INCH )	
				0-1	±0.1	CHECK	Allen Shi	DESIGN	Alice Lin	DRAWN	Alice Lin	SCALE	1:1	TYPE	Emergency
				1-4	±0.3							SIZE	A4	FILE NAME	76922RE3XM1A. dwg
				4-16	±0.5							PROJECTION			
				16-63	±0.8										
				63-250	±1.0										
NO.	DETAILS	ALTERED BY	DATE									EDITION	A		



ECS-22RE3RM2Q-XXXQ



				NORMAL TOLERANCE		 EXCEL CELL ELECTRONIC CO., LTD.						PART NUMBER		ECS-22RE3RM2Q-XXXQ	
				RANGE	TOLERANCE										
				0-1	±0.1	CHECK	Allen Shi	DESIGN	Alice Lin	DRAWN	Alice Lin	UNIT	MM ( INCH )	PART NAME	ECS
				1-4	±0.3							SCALE	1:1	TYPE	Emergency
				4-16	±0.5							SIZE	A4	FILE NAME	76922RE30M2A. dwg
				16-63	±0.8										
				63-250	±1.0										
NO.	DETAILS	ALTERED BY	DATE									PROJECTION		EDITION	A