

### Position

Inductive Proximity Sensors  
Capacitive Proximity Sensors  
Valve Proximity Sensors  
Photoelectric Sensors  
Area Light Curtains  
Speed Monitor

### AS-interface

AS-i Gateway  
AS-i Power Supply / 24VDC Power Supply  
AS-i I/O Modules  
AS-i Repeater

### Control switches

16mm Control Switches  
22 / 25 / 30mm Control Switches  
50 / 70mm Multi-Layer Light Tower

*Linking your system*

More information please visit us: [www.ema-electronic.com](http://www.ema-electronic.com)

ema

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<http://www.dohan.co.kr>

### Fluid

Flow Sensors  
Pressure Sensors  
Temperature Sensors  
Flow Meter

### Level Measurement

Guided Radar (TDR)  
Radar Wave Level Sensors  
Ultrasonic Level Sensors  
Rotating Paddle Level Switches  
Vibrating Fork Level Switches  
Float Level Switches

ema

Sensors and Controller

Catalogue 2010/2011

ema

## Sensors Controller and Switches



### About ema

ema Electronics Ltd. is a professional manufacturer in sensor and industrial switches, including factory automation, Process automation and Human Machine Interfaces. Owing an outstanding R&D team which focus on core technique as well as being and devoted to development and innovation, we therefore provide our esteemed customers with All-in-One solutions as vertical integration including design, tooling, and production. We believe that the only way to offer the best industrial control system for customers is to be a total solution-provider. Through our enterprise concept, we can make our customers reduce the cost of operation, enhance the efficiency of work, and increase the quality plus the extra value of products. Moreover, ema has awarded to “iF Product Design Award 2008” and to be a member of AS-Interface association.



### Technical seminars/Conferences

We are ready to hold technical seminars in your company at any time.

### Customization

Under certain situations, only custom design method can satisfy customers and meet their demand of application via our All-In-One solutions as vertical integration including design molding, tooling, assembly and production. turn capacity; we are able to absorb your ideas into design of customized products quickly.

### Sales and technical support

Our laboratory could test on product in all kinds of industrial environment and customer's circumstances. Our partners could acquire demo kit, posters and other promotion materials to increase the sales.



### After sale service

ema offer quick service and promised quality for all products. Repairs will be done immediately and you will receive a report after examination.

## RoHS



Laws and rules regarding to the use of chemical raw materials has been gradually regulated in Europe, America, and China since July in 2006. EU(European Union) announced RoHS directive which restricts six kind of harmful substance, lead, mercury, cadmium, chromium, PBB, and PBDE to be applied to any electric and electronic machinery. Products are banned to be sold in those areas if violating the regulations. This directive aims to protect human's health and to recycle the discard motors and electronics equipments handling. Enterprises only focused on environment of producing in the past; however, nowadays many pay attention to the rules of environment security because of the importance of environmental protection consciousness from many countries. With the trend of global green concept, every ema product meets RoHS directive.

## IP ranking

The first number Protection against solid bodies			The second number Protection against water		
IP		Request	IP		Request
0	○	No protection	0	○	No protection
1		Protection against penetration of solid bodies with dimensions of more than 50mm.	1		Vertical water droplets. No harmful ingress.
2		Protection against penetration of solid bodies with dimensions of more than 12mm.	2		Showering at 15°. No harmful ingress.
3		Protection against penetration of solid bodies with dimension of more than 2,5mm.	3		Showering at 60°. No harmful ingress.
4		Protection against penetration of solid bodies with dimension of more than 1mm.	4		Splashing from any direction. No harmful ingress.
5		Protection against dust(no harmful deposit)	5		Water jets from any direction 12.5l/min. No harmful ingress.
6		Total protection against dust(no penetration)	6		Large volumes of water 100l/min. No ingress.
			7		Immersion up to 1 metre deep. No ingress
			8		Submersion at specified depths exceeding 1 metre. No ingress.

## Certifications



As a reliable partner for our customer, ema test our major products precisely for the safety and obtain related international compliances such as UL, ULc, Semko, Demko, Nemko, Femko, CQC/CCC, and CE as the best guarantee for our products.

At the same time, we also acquire the certifications from international quality control system including SGS UKAS and CQC ISO9001:2008, and systemize our quality control method. To follow RoHS directive of EU and the green concept, all products meet RoHS compliance.

## AS-Interface association



AS-Interface association was established in 1991 and located HQ in Germany. It is devoted to generation and development of AS-INTERFACE technology. There are 11 branches in the world at present, and ema is honored as a member of the AS-interface international association to prove excellence of our R&D team.

## Awards



2008

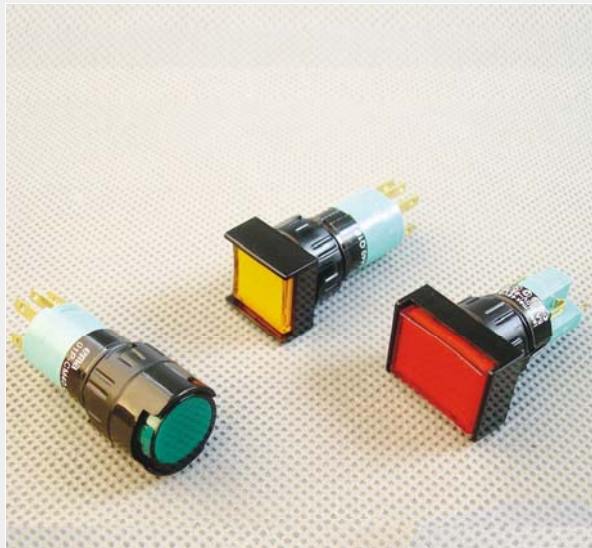
EMA as a professional manufacturer in sensing technology, Flow + Temperature Sensors has been awarded to 「iF product design award 2008」 which is one of top-three world famous industrial design competition. It is also marked as a “design Oscar” because all judges are composed of international and outstanding designers. In 2008, a jury of specialists evaluated 2771 entries from 35 different nations. The best of our F+T sensors were selected for an awards because of being able to convinced international judges of the highest caliber, who are extremely critical in the discussion with the standard of criteria, such as design quality, workmanship, degree of innovativeness and environmental compatibility. This award proves that the product of ema could meet customer's need with its workmanship and its innovative design which said “art of technology.” That is why we can get a highly agreement from those professional judges.

## Control Switches

- 16mm Control Switches
- 22 / 25 / 30mm Control Switches
- 50 / 70mm Multi-Layer Light Tower



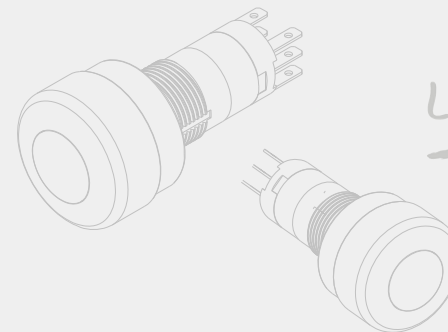




## 16mm control switches

## 16mm control switches

Indicators	166 – 167
Pushbutton switches	168 – 169
Selector switches	170 – 171
Emergency stop switches	172 – 173
Keylock switches	174 – 175
Buzzers	176 – 177
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Linking your system

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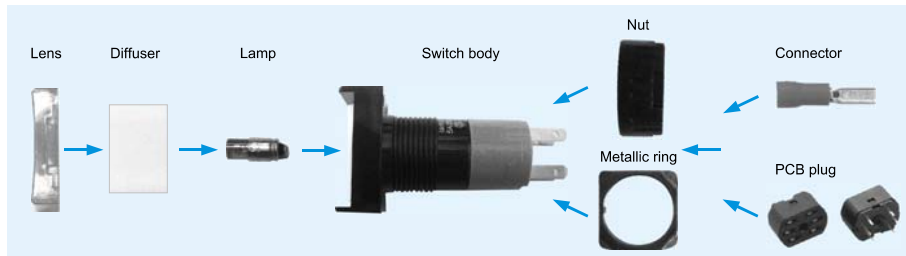
## Features

- Mounting hole diameter 16mm, there shapes are available:  
rectangular 18x24m/m, square 18x18m/m and round diameter 18m/m.
- The rubber-sealed type provided to prevent the liquid penetration in front of panel.
- High bezel that prevents accidental touching
- ILLuminated by midget grooved T1 3/4 lamps including incandescent,discharged and LED lamps
- Snap-action which accelerates on-off switching
- Normally closed and normally open contacts in each switch block
- High performance plastics resistant to high-temperature and oil-polluted environments
- UL 94V0 class plastics to make self-extinguished

## Technical Specifications

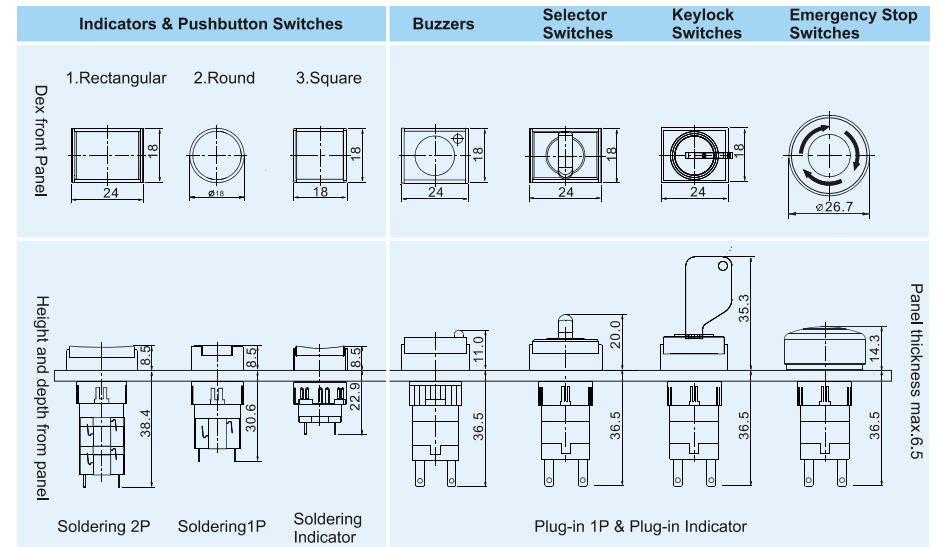
- Contact materials: gold flushed silver
- Breaking capacity: 250VAC/5A(p.f.  $\geq 0.9$ )
- Contact resistance:  $< 50\text{M}\Omega$
- Electrical lifetime:
  - 5A/250VAC 50,000 operations
  - 4A/250VAC 60,000 operations
  - 2A/250VAC 200,000 operations
  - 1A/250VAC 400,000 operations
- Maximal insulation: 2500VAC,50Hz,1min between all terminals and plastic case
- Insulation resistance:  $\geq 10^4\text{M}\Omega$  at 500VDC
- Soldering heat resistance: 300°C/5s
- Operating temperature: -25°C ~ +55°C
- Storage temperature: -40°C ~ +85°C
- Housing materials: high-performance plastics resistant to high temperature and Oil-polluted environments,self-extinguished.

## Mounting



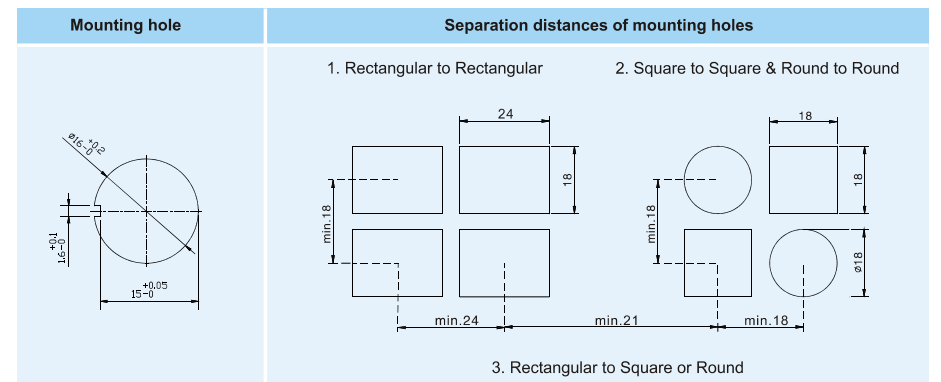
## Shapes and Panel cutting

### ■ Apparent shapes

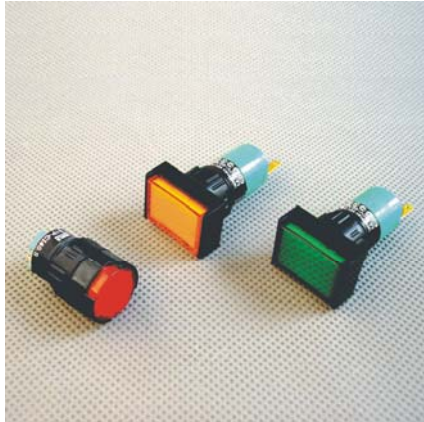


Units in mm

### ■ Panel cutting



Units in mm



- Mounting hole diameter 16mm  
Apparent shapes with rectangular 18X24mm, square 18X18mm and round diameter 18mm
- Illuminated by midjet grooved T1 3/4 lamps including incandescent, discharged and LED lamps
- The lifetime of LED with high brightness up to 50000 hours

RoHS

### Coding Principle

01 P — R I 40 . Q + W + L 24 Y  
 I II III IV V VI VII VIII IX X

I: Series code	01 Series with 16mm diameter mounting hole		
II: Main category	P=Indicators		
III: Front shape	C=Round	S=Square	R=Rectangular
IV: Function code	I=Indicators		
V: Protection rating	40=Standard	65=Rubber-sealed	
VI: Terminal type	S=Soldering	Q=Plug-in	
VII: Cap color	R=Red, Y=Yellow, O=Orange, G=Light Green, V=Deep Green, B=Blue, W=White, K=Black		
VIII: Light source	L=LED lamp	D=Incandescent lamp	A=Discharged lamp    Omission=Without lamp
IX: Operating voltage	06=6VDC   12=12VDC   24=24VDC   11=110VAC   22=220VAC		
X: Extra code	If the color of lamps and lens are different, please add this code to indicate the color of lamp		

Note 1: Available colors of LED are red,yellow, green, blue,white

The standard matches between cap and LED are as followed:

R Red LED Y Yellow LED O Orange LED G Green LED V Green LED B Blue LED W Yellow / White LED

The standard matches between cap and lamp are as followed:

W、R、Y、O Red lamp G、B、V Green lamp

### Drawing

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### Order information

Order No.	Drawing No.	Order No.	Drawing No.
01P-RI40.Q	E5001	01P-CI40.S	E5004
01P-RI65.Q	E5001	01P-CI65.S	E5004
01P-RI40.S	E5002	01P-SI40.Q	E5005
01P-RI65.S	E5002	01P-SI65.Q	E5005
01P-CI40.Q	E5003	01P-SI40.S	E5006
01P-CI65.Q	E5003	01P-SI65.S	E5006



- Mounting hole diameter 16mm  
Apparent shapes with rectangular 18X24mm, square 18X18mm and round diameter 18mm
- High bezel that prevents accidental touching
- Illuminated by midget grooved T1 3/4 lamps including incandescent, discharged and LED lamps
- Snap-action which accelerates on-off switching
- Normally closed and normally open contacts in each switch block
- Actuating travel: 3mm
- Mechanical lifetime: Momentary 2X10<sup>6</sup> operations; Alternative 1X10<sup>6</sup> operations

RoHS

01 P — R A 40 . Q 1P + W + L 24 Y  
I II III IV V VI VII VIII IX X XI

I: Series code	01 Series with 16mm diameter mounting hole		
II: Main category	P=Pushbutton Switches		
III: Front shape	C=Round	S=Square	R=Rectangular
IV: Function code	M=Momentary	A=Alternative	
V: Protection rating	40=Standard	65=Rubber-sealed	
VI: Terminal type	S=Soldering	Q=Plug-in	
VII: Contact mode	1P=1A1B	2P=2A2B	
VIII: Cap color	R=Red, Y=Yellow, O=Orange, G=Light Green, V=Deep Green, B=Blue, W=White, K=Black		
IX: Light source	L=LED lamp	D=Incandescent lamp	A=Discharged lamp    Omission=Without lamp
X: Operating voltage	06=6VDC   12=12VDC   24=24VDC   11=110VAC   22=220VAC		
XI: Extra code	If the color of lamps and lens are different, please add this code to indicate the color of lamp		

Note 1: Available colors of LED are red,yellow, green, blue,white

The standard matches between cap and LED are as followed:

R Red LED Y Yellow LED O Orange LED G Green LED V Green LED B Blue LED W Yellow / White LED

The standard matches between cap and lamp are as followed:

W、R、Y、O Red lamp G、B、V Green lamp

## Drawing

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## Order information

Order No.	Drawing No.	Order No.	Drawing No.
01P-RM40.Q1P	E5007	01P-CA40.S1P	E5011
01P-RM65.Q1P	E5007	01P-CA65.S1P	E5011
01P-RA40.Q1P	E5007	01P-CM40.S2P	E5012
01P-RA65.Q1P	E5007	01P-CM65.S2P	E5012
01P-RM40.S1P	E5008	01P-CA40.S2P	E5012
01P-RM65.S1P	E5008	01P-CA65.S2P	E5012
01P-RA40.S1P	E5008	01P-SM40Q1P	E5013
01P-RA65.S1P	E5008	01P-SM65.Q1P	E5013
01P-RM40.S2P	E5009	01P-SA40.Q1P	E5013
01P-RM65.S2P	E5009	01P-SA65.Q1P	E5013
01P-RA40.S2P	E5009	01P-SM40.S1P	E5014
01P-RA65.S2P	E5009	01P-SM65.S1P	E5014
01P-CM40.Q1P	E5010	01P-SA40.S1P	E5014
01P-CM65.Q1P	E5010	01P-SA65.S1P	E5014
01P-CA40.Q1P	E5010	01P-SM40.S2P	E5015
01P-CA65.Q1P	E5010	01P-SM65.S2P	E5015
01P-CM40.S1P	E5011	01P-SA40.S2P	E5015
01P-CM65.S1P	E5011	01P-SA65.S2P	E5015





- Mounting hole diameter 16mm  
Apparent shapes with rectangular 18X24mm, square 18X18mm and round diameter 18mm
- Snap-action which accelerates on-off switching
- Normally closed and normally open contacts in each switch block
- Actuating travel: 2 positions L 90° and V 90°
- Mechanical lifetime: 50000 operations

RoHS

### Coding Principle

01 S — R A 40 . Q 1P \* L  
I II III IV V VI VII VIII

I: Series code	01 Series with 16mm diameter mounting hole		
II: Main category	S=Selector Switches		
III: Front shape	C=Round	S=Square	R=Rectangular
IV: Function code	M=2 way Momentary	A=2 way Alternative	
V: Protection rating	40=Standard	65=Rubber-sealed	
VI: Terminal type	S=Soldering	Q=Plug-in	
VII: Contact mode	1P=1A1B	2P=2A2B	
VIII: Knob type	L=L type 90°	V=V type 90°	

### Drawing

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### Order information

Order No.	Drawing No.	Order No.	Drawing No.
01S–RM40.Q1P	E5016	01S–CA40.S1P	E5020
01S–RM65.Q1P	E5016	01S–CA65.S1P	E5020
01S–RA40.Q1P	E5016	01S–CM40.S2P	E5021
01S–RA65.Q1P	E5016	01S–CM65.S2P	E5021
01S–RM40.S1P	E5017	01S–CA40.S2P	E5021
01S–RM65.S1P	E5017	01S–CA65.S2P	E5021
01S–RA40.S1P	E5017	01S–SM40.Q1P	E5022
01S–RA65.S1P	E5017	01S–SM65.Q1P	E5022
01S–RM40.S2P	E5018	01S–SA40.Q1P	E5022
01S–RM65.S2P	E5018	01S–SA65.Q1P	E5022
01S–RA40.S2P	E5018	01S–SM40.S1P	E5023
01S–RA65.S2P	E5018	01S–SM65.S1P	E5023
01S–CM40.Q1P	E5019	01S–SA40.S1P	E5023
01S–CM65.Q1P	E5019	01S–SA65.S1P	E5023
01S–CA40.Q1P	E5019	01S–SM40.S2P	E5024
01S–CA65.Q1P	E5019	01S–SM65.S2P	E5024
01S–CM40.S1P	E5020	01S–SA40.S2P	E5024
01S–CM65.S1P	E5020	01S–SA65.S2P	E5024



- Mounting hole diameter 16mm, Front size is round diameter 26mm
- Cladding cover design to meet the requirement of European system
- There are only red LED and red discharged lamp available in illuminated emergency switch
- Snap-action which accelerates on-off switching
- Normally closed and normally open contacts in each switch block
- Mechanical lifetime: 50000 operations

RoHS

### Coding Principle

01	S	—	C	E	40	.	Q	1P	+	R	+	L	12
I	II		III	IV	V		VI	VII		VIII		IX	X

I: Series code	01 Series with 16mm diameter mounting hole		
II: Main category	S=Emergency Stop Switches		
III: Front shape	C=Round		
IV: Function code	E=Rotate to reset		
V: Protection rating	40=Standard	65=Rubber-sealed	
VI: Terminal type	S=Soldering	Q=Plug-in	
VII: Contact mode	1P=1A1B	2P=2A2B	
VIII: Light color	R=Red		
IX: Light source	L=LED lamp	A=Discharged lamp	Omission=Without lamp
X: Operating voltage	06=6VDC 12=12VDC 24=24VDC 11=110VAC 22=220VAC		

### Drawing

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### Order information

Order No.	Drawing No.	Order No.	Drawing No.
01S-CE40.Q1P	E5025	01S-CE65.S1P	E5026
01S-CE65.Q1P	E5025	01S-CE40.S2P	E5027
01S-CE40.S1P	E5026	01S-CE65.S2P	E5027



- Mounting hole diameter 16mm  
Apparent shapes with rectangular 18X24mm, square 18X18mm and round diameter 18mm
- Snap-action which accelerates on-off switching
- Normally closed and normally open contacts in each switch block
- Actuating travel: 2 positions L 90° and V 90°
- Mechanical lifetime: 50000 operations

RoHS       

## Coding Principle

01	K	—	R	A	40	.	Q	1P	*	L2
I	II		III	IV	V		VI	VII		VIII

I: Series code	01 Series with 16mm diameter mounting hole		
II: Main category	K=Keylock Switches		
III: Front shape	C=Round	S=Square	R=Rectangular
IV: Function code	M=2 Way Momentary	A=2 Way Alternative	
V: Protection rating	40=Standard	65=Rubber-sealed	
VI: Terminal type	S=Soldering	Q=Plug-in	
VII: Contact mode	1P=1A1B	2P=2A2B	
VIII: Inlet type	L1=L type 90° one inlet V1=V type 90° one inlet	L2=L type 90° two inlets V2=V type 90° two inlets	

## Drawing

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## Order information

Order No.	Drawing No.	Order No.	Drawing No.
01K-RM40.Q1P	E5028	01K-CA40.S1P	E5032
01K-RM65.Q1P	E5028	01K-CA65.S1P	E5032
01K-RA40.Q1P	E5028	01K-CM40.S2P	E5033
01K-RA65.Q1P	E5028	01K-CM65.S2P	E5033
01K-RM40.S1P	E5029	01K-CA40.S2P	E5033
01K-RM65.S1P	E5029	01K-CA65.S2P	E5033
01K-RA40.S1P	E5029	01K-SM40.Q1P	E5034
01K-RA65.S1P	E5029	01K-SM65.Q1P	E5034
01K-RM40.S2P	E5030	01K-SA40.Q1P	E5034
01K-RM65.S2P	E5030	01K-SA65.Q1P	E5034
01K-RA40.S2P	E5030	01K-SM40.S1P	E5035
01K-RA65.S2P	E5030	01K-SM65.S1P	E5035
01K-CM40.Q1P	E5031	01K-SA40.S1P	E5035
01K-CM65.Q1P	E5031	01K-SA65.S1P	E5035
01K-CA40.Q1P	E5031	01K-SM40.S2P	E5036
01K-CA65.Q1P	E5031	01K-SM65.S2P	E5036
01K-CM40.S1P	E5032	01K-SA40.S2P	E5036
01K-CM65.S1P	E5032	01K-SA65.S2P	E5036



- Mounting hole diameter 16mm  
Apparent shapes with rectangular 18X24mm,  
square 18X18mm and round diameter 18mm
- 70dB at a distance 30cm

RoHS       

### Coding Principle

01	B	—	R	I	40	.	Q	*	24	FR
I	II		III	IV	V		VI		VII	VIII

I: Series code	01 Series with 16mm diameter mounting hole		
II: Main category	B=Buzzers		
III: Front shape	C=Round	S=Square	R=Rectangular
IV: Function code	C=Continous	I=Intermittent	
V: Protection rating	40=Standard		
VI: Terminal type	S=Soldering	Q=Plug-in	
VII: Operating voltage	06=6VDC 12=12VDC 24=24VDC		
VIII: Light source	R=Red LED lamp	FR=Flash LED	Omission=Without lamp

Note: Only rectangular shape can be assembled lamps.

### Drawing

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### Order information

Order No.	Drawing No.	Order No.	Drawing No.
01B-RC40.Q *◇◇	E5037	01B-CC40.Q	E5041
01B-RI40.Q *◇◇	E5037	01B-CI40.Q	E5041
01B-RC40.S *◇◇	E5038	01B-CC40.S	E5042
01B-RI40.S *◇◇	E5038	01B-CI40.S	E5042
01B-RC40.Q	E5039	01B-SC40.Q	E5043
01B-RI40.Q	E5039	01B-SI40.Q	E5043
01B-RC40.S	E5040	01B-SC40.S	E5044
01B-RI40.S	E5040	01B-SI40.S	E5044

Note: ◇ Assembled lamps  
Consumption current max. 7mA



## Accessories

Order No.	Anti-twisting Ring	Description	Drawing No.
01Z-100		Enhance the anti-twisting torque	E5045
Order No.	Protective Cover	Description	Drawing No.
01Z-200.R		Suitable to rectangular cover	E5046
01Z-200.S		Suitable to square cover	E5047
Order No.	PCB Plug-in Base	Description	Drawing No.
01Z-300		Only for plug-in terminals	E5048
Order No.	Blanking Plate	Description	Drawing No.
01Z-400		For blanking hole	E5049
Order No.	BA9s Lamp	Description	Drawing No.
L.BA9s-L06.R(Y/G/B/W)		LED Lamp Red(Yellow/Green/Blue/White), 6VDC/AC	E5129
L.BA9s-L12.R(Y/G/B/W)		LED Lamp Red(Yellow/Green/Blue/White), 12VDC/AC	
L.BA9s-L24.R(Y/G/B/W)		LED Lamp Red(Yellow/Green/Blue/White), 24VDC/AC	
L.BA9s-L11.R(Y/G/B/W)		LED Lamp Red(Yellow/Green/Blue/White), 110 VAC	E5130
L.BA9s-L22.R(Y/G/B/W)		LED Lamp Red(Yellow/Green/Blue/White), 220 VAC	
L.BA9s-D06(12/24)		Incandescent lamp, 6VDC/AC (12/24)	E5131
L.BA9s-A11.R(G)		Helium neon lamp Red(Green),110VAC	
L.BA9s-A22.R(G)		Helium neon lamp Red(Green),220VAC	

## Drawing

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Order No.	Connector	Description	Drawing No.
01Z-500		Only for plug-in terminals	-
Order No.	Insulation Cover	Description	Drawing No.
01Z-600		Only for plug in terminals	-
Order No.	Mounting Tool	Description	Drawing No.
01Z-T01		Max.torque force : 0.5Nm	-
Order No.	Lens Remover	Description	Drawing No.
01Z-T02		Easily pull lens, lamps can be changed before mounting panels	-
Order No.	Lamp Remover	Description	Drawing No.
01Z-T03		Easily pull lenses	-
Order No.	Metallic Screw Nut	Description	Drawing No.
01Z-NU.M		Metallic screw nut can be used if the panel is excessively thick	-
Order No.	Dust Wrapper	Description	Drawing No.
01Z-700.R		Suitable to rectangular cover	E5050
01Z-700.S		Suitable to square cover	E5051
Order No.	Cover	Description	Drawing No.
01Z-800.R		Suitable to rectangular flush mounting	E5052
01Z-800.S		Suitable to square flush mounting	E5053
Order No.	Emergency-Stop Label	Description	Drawing No.
1. 01Z-900.0(N) 2. 01Z-900.1(N)		External diameter:45mm, "N" represents that 3M pasteur is not attached	E5054



## 22/25/30mm control switches

The illuminated items are equipped with BA9s lamp. Customers could perceive most the delicate and precise design. The lifetime of incandescent lamps is less than 1,000 hours, discharged lamps less than 3,000 hours, but LED lamps could last for at least 5,000 hours. Based on that, the whole appearance appeal to customer's attention and maintenance costs are also highly saved. Besides, high-bright LEDs are also provided to enhance the brightness when used in 110VAC and 220VAC power voltage.

## 02 series 22/25/30mm control switches

22mm economic indicators	186 – 187
22/25/30mm indicators	188 – 189
22/25/30mm Pushbutton Switches	190 – 195
22/25/30mm Selector Switches	196 – 199
22/25/30mm Emergency Stop Switches	200 – 201
22/25/30mm Keylock Switches	202 – 203
22/25/30mm Buzzers	204 – 205
Accessories	206 – 207



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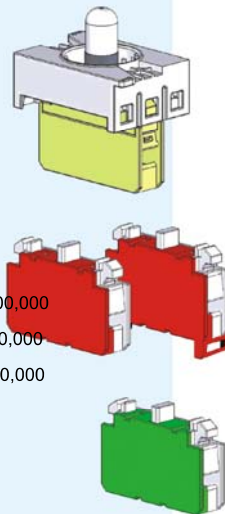
## Features

- 22、25 and 30mm mounting holes: to fulfill your intentions of choice and replacement.
- Whole series slim; delicate and light, up to the requirement of protection IP40 and IP65.
- Lower and flush housing actuators, highly increase the fine appearance of your penal.
- Flexible and module assembly, effectively decrease the cost of stock.
- Friendly handling and modular design, save your time for the installation.
- High quality elegant and sophisticated design, add the extra value and esthetic feeling into applications.
- Professional selection of engineering materials, overcome the harshest of your environment.
- Contact sliding mechanism, avoid the pollution of contacts and increase switching reliability.
- Approved by safety standards UL、ULc、CCC and CE, provide with fully safety assured products.
- This series meet RoHS directive and satisfy customers' green demands.



## Technical Specifications

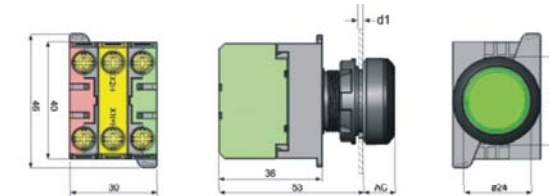
- Safety standard CE/EN60947.5.1, CCC/GB14048.5-2001, UL 508
- Rated capacity  $U_i=600VAC$ ,  $I_{th}=10A$
- Contact rating AC15:250VAC/6A DC13:250VDC/0.6A
- Contact resistance MAX.50m $\Omega$
- Dielectric strength 2500VAC 50Hz, 1min
- Insulation resistance >100M $\Omega$  at 500VDC
- Vibration resistance 10g@40~500Hz
- Lamp lifetime Incandescent lamp:  $\leq 1,000$  hrs LED lamp:  $\geq 5,000$  hrs
- Mechanical lifetime pushbutton switches: momentary > 3,000,000 maintained > 500,000  
selector switches: momentary > 500,000 maintained > 500,000  
keylock switches: Momentary > 500,000 maintained > 500,000  
emergency stop switches: momentary > 3,000,000
- Electrical lifetime Contact block: AC15 250VAC/6A > 1,000,000  
DC13 250VDC/0.6A > 1,000,000
- Storage temperature -40°C ~ +80°C
- Operating temperature -25°C ~ +55°C



## Dimensions

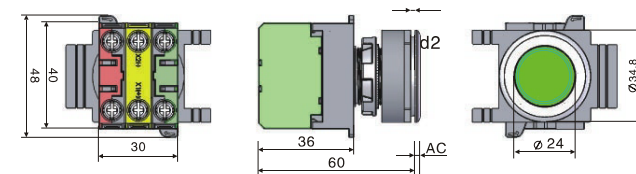
## ■ Standard mounting

d1: panel thickness 1~6 units:mm



## ■ Flush mounting

d1: panel thickness 1~5 units:mm

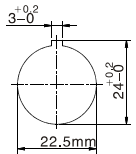
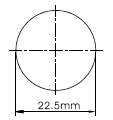
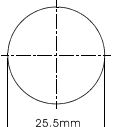
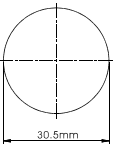


## AC Size

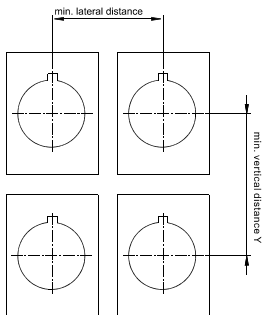
Actuator Type	Description	AC Size	Actuator Type	Description	AC Size
E2I0/H2I0	E2/H2 indicators full lens	11	-		
E2I1/H2I1	E2/H2 indicators flat lens	11	E3I1/H3I1	E3/H3 flush indicators flat lens	2
E2I2/H2I2	E2/H2 indicators raised lens	15	E3I2/H3I2	E3/H3 flush indicators raised lens	6
E2P1/H2P1	E2/H2 pushbutton flat head /button*	11	E3P1/H3P1	E3/H3 flush pushbutton flat head /button*	2
E2P2/H2P2	E2/H2 pushbutton raised head /button*	15	E3P2/H3P2	E3/H3 flush pushbutton raised head /button*	6
E2P3/H2P3	E2/H2 pushbutton sunken head /button*	15	-		
E2P4/H2P4	E2/H2 pushbutton mushroom head /button*	26.6/24.3	E3P4/H3P4	E3/H3 flush pushbutton mushroom head /button*	17.6/15.3
E2P5/H2P5	E2/H2 pushbutton high bezel head /button*	15	-		
E2R1/H2R1	E2/H2 emergency stop	26.6	E3R1/H3R1	E3/H3 flush emergency stop	17.6
E2S-K/H2S-K	E2/H2 knob selector	24.5	E3S-K/H3S-K	E3/H3 flush knob selector	15.5
E2S-L/H2S-L	E2/H2 lever selector	24.5	E3S-L/H3S-L	E3/H3 flush lever selector	15.5
E2K/H2K	E2/H2 keylock	34	E3K/H3K	E3/H3 flush keylock	24
E2B/H2B	E2/H2 buzzers	10.5	E3B/H3B	E3/H3 buzzers	2

※ note: "head" means non-illuminated cap and "button" illuminated one

## Cut-out Dimensions

Cut-out Category	Cautions	Hole Dimension
A: 22 mm hole with locating groove	1. Only for standard mounting items 2. Suitable for the batch installation 3. Recommended hole size: 22.5mm	
B: 22mm round hole	1. Only for standard mounting 2. Need to remove the locating lug of the housing by flat screwdriver 3. Recommended hole size: 22.5mm	
C: 25mm round hole	1. Only for standard mounting 2. No need to remove the locating lug of the housing 3. Recommended hole size: 25.5mm	
D: 30mm round hole	1. Only for flush mounting 2. Flush mounting, use [recession frame] to assist position 3. Recommended hole size: 30.5mm	

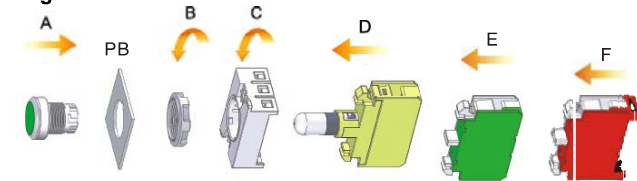
## Cut-out Arrangements



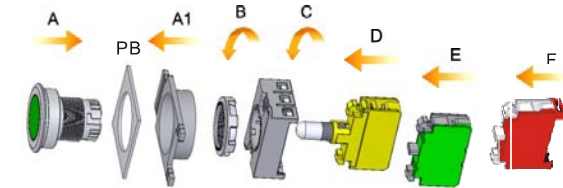
Actuator Type	min. lateral distance X(mm)	min. vertical distance Y(mm)
E2P4 to E2P4 E3P4 to E3P4 (mushroom to mushroom)	45	50
E2S-L to E2S-L two positions 90° E3S-L to E3S-L two positions 90° (lever to lever)	52	50
the others	45	50

## Installation Panel

## ■ Standard Mounting



## ■ Flush Mounting



※ Note: PB (Panel Board)

## How to handling

Sequence	Cautions
A : Put the actuator into cut-out hole A1: Flush mounting items need to add the recession frame onto the panel from the back	1. Refer to the dimensions of mounting hole (see page 184) to avoid forcing the actuator in damage 2. Every actuator comes with a rubber parking to be put between the actuator and the panel for the sake of anti-rotation 3. For flush mounting items, choose the accessory [recession frame] to assist position
B : Screw the nut right to settle actuator onto the panel	1. Do not force too much and the tightening torque must not exceed 3 Nm 2. Choose the [anti-twisting ring] 02Z-100 (see page 206) to enhance the anti-rotation torque while needed
C : Put in junction frame and rotate right to wedge in the actuator	Notice the directions of pulling wires while installed and arranged, it should point to the direction of right-hand rotation not to the left to avoid pulling the junction frame left
D : Install lamp holder into junction frame	Install lamp holder first while set-up illuminated items
E : Install contact block into junction frame	Notice the sequence of the contact block, while 3-position selector or keylock switches are installed
F : Add contact block	Choose the [contact block] 2SWA.1 or 2SWB.1 (see page 206)

## How to dismantling

Sequence	Cautions
1. Remove the contact block and lamp holder	1. Place the flat screwdriver under the edge of junction frame, push up to release the switch block and lamp holder 2. If contact block and lamp holder coexist, please remove the contact block first
2. Turn left to dismantle junction frame	—
3. Turn left to release screw nut and then take out the actuator from the cut-out hole	—





- Concise design, simple construction, reliable operation and long duration
- Long lifetime and brightness LED lamp embedded in E2C0 indicators
- Light and delicate design, up to the requirement of protection IP40
- The material of lightshade features with anti-abrasion and anti-shock
- Five different colors of indicators can be selected
- Voltage of 24VDC, 110VAC, 220 VAC are available



### Coding Principle

Economic indicator light: E2C0W

E	2	C	0	W	3	L
---	---	---	---	---	---	---

Part No.	Code Description
E	Protection classification: E=IP40 standard
2	Mounting size: 2=22mm standard mounting
C0	Type of indicator: economic indicator
W	Cap color: R=red Y=yellow G=green B=blue W=white
3	Type of light: 3=24VDC 4=110VAC 5=220VAC
L	light source: L=LED

### Drawing

Page &gt;&gt;&gt; P.244

E2C0 indicators	Drawing No.	Color	Built-in LED Part No.
	E5055	○	E2C0W◇L
		●	E2C0R◇L
		●	E2C0Y◇L
		●	E2C0G◇L
		●	E2C0B◇L

Remarks :1. ◇ Lamp Voltage: 3=24VDC, 4=110VAC, 5=220VAC





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- Lower and flush mounting actuators, highly increase the fine appearance of your panel
- 22,25 and 30mm mounting holes, fulfill your intentions of choice and replacement



## Coding Principle

Indicators E2I/E3I	E	2	I	0	W	3	L	Y
--------------------	---	---	---	---	---	---	---	---

Part No.	Code Description
E	Classification : E=IP40 Standard H=IP65 Rubber-sealed
2	Mounting size : 2=22mm, 25mm Standard mounting 3= 30mm Flush mounting
I0	Cap style : I0=Full lens, I1=Flat lens, I2=Raised lens
W	Cap color : R=Red, Y=Yellow, G=Green, B=Blue, W=White
3	Operating voltage : 1=6VDC, 2=12VDC, 3=24VDC, 4=110VAC, 5=220VAC
L	Light source : D=Incandescent lamp, A=Discharged lamp, L=LED lamp, Omission=Without lamp
Y	Extra code : If the color of lamps and lens are different, please add this code to indicate the color of lamp.
Note	E3I0 full lens style is not available

## Drawing

Page	>>> P.244
------	-----------

E2I0 Full Lens	Drawing No.	Color	Built-in LED Part No.	Built-in Incand Part No.
	E5056	<div>○</div> <div>●</div> <div>●</div> <div>●</div> <div>●</div>	<div>E2I0W◇L</div> <div>E2I0R◇L</div> <div>E2I0Y◇L</div> <div>E2I0G◇L</div> <div>E2I0B◇L</div>	<div>E2I0W◇D</div> <div>E2I0R◇D</div> <div>E2I0Y◇D</div> <div>E2I0G◇D</div> <div>E2I0B◇D</div>
E2I1 Flat Lens	Drawing No.	Color	Built-in LED Part No.	Built-in Incand Part No.
	E5057	<div>○</div> <div>●</div> <div>●</div> <div>●</div> <div>●</div>	<div>E2I1W◇L</div> <div>E2I1R◇L</div> <div>E2I1Y◇L</div> <div>E2I1G◇L</div> <div>E2I1B◇L</div>	<div>E2I1W◇D</div> <div>E2I1R◇D</div> <div>E2I1Y◇D</div> <div>E2I1G◇D</div> <div>E2I1B◇D</div>
E2I2 Raised Lens	Drawing No.	Color	Built-in LED Part No.	Built-in Incand Part No.
	E5058	<div>○</div> <div>●</div> <div>●</div> <div>●</div> <div>●</div>	<div>E2I2W◇L</div> <div>E2I2R◇L</div> <div>E2I2Y◇L</div> <div>E2I2G◇L</div> <div>E2I2B◇L</div>	<div>E2I2W◇D</div> <div>E2I2R◇D</div> <div>E2I2Y◇D</div> <div>E2I2G◇D</div> <div>E2I2B◇D</div>
E3I1 Flush Flat Lens	Drawing No.	Color	Built-in LED Part No.	Built-in Incand Part No.
	E5059	<div>○</div> <div>●</div> <div>●</div> <div>●</div> <div>●</div>	<div>E3I1W◇L</div> <div>E3I1R◇L</div> <div>E3I1Y◇L</div> <div>E3I1G◇L</div> <div>E3I1B◇L</div>	<div>E3I1W◇D</div> <div>E3I1R◇D</div> <div>E3I1Y◇D</div> <div>E3I1G◇D</div> <div>E3I1B◇D</div>
E3I2 Flush Raised Lens	Drawing No.	Color	Built-in LED Part No.	Built-in Incand Part No.
	E5060	<div>○</div> <div>●</div> <div>●</div> <div>●</div> <div>●</div>	<div>E3I2W◇L</div> <div>E3I2R◇L</div> <div>E3I2Y◇L</div> <div>E3I2G◇L</div> <div>E3I2B◇L</div>	<div>E3I2W◇D</div> <div>E3I2R◇D</div> <div>E3I2Y◇D</div> <div>E3I2G◇D</div> <div>E3I2B◇D</div>

Remarks : 1. ◇Lamp Voltage:1=6VDC, 2=12VDC, 3=24VDC, 4=110VAC, 5=220VAC  
 2. Incandescent lamps powered by 110VAC, 220VAC are not available. Discharged lamps powered by 110VAC, 220VAC are available only.  
 3. Please change "E" to "H" for protection rating IP65.  
 4. Please add "M" in the last of order no. if you would like to change the black plastic front ring to the metal ring.  
 5. Please add "R", "Y", "G", "B", "W", "K", "E" if plastic ring of red, yellow, blue, white, black, grey to be replaced.



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- 22, 25 and 30mm mounting holes, fulfill your intentions of choice and replacement



## Coding Principle

Pushbutton Switches E2P/E3P

E	2	P	1	W	1	A	3	L	Y	.	A
---	---	---	---	---	---	---	---	---	---	---	---

Part No.	Code Description
E	Classification : E=IP40 Standard H=IP65 Rubber-sealed
2	Mounting size : 2=22mm, 25mm Standard mounting 3= 30mm Flush mounting
P1	Cap style : Non-illumination P1=Flat head, P2=Raised head, P3=Sunken head P4=Mushroom head, P5=High bezel head Illumination P1=Flat button, P2=Raised button, P3=Sunken button P4=Mushroom button, P5=High bezel button
W	Cap color : R=Red, Y=Yellow, G=Green, B=Blue, W=White, K=Black
1A	Contact mode : A=1NO B=1NC, provide 1A,2A,3A,4A,1B,2B,3B,4B,AB,2A2B,3A3B,2A1B,1A2B,3A1B,1A3B
3	Operating voltage : 1=6VDC, 2=12VDC, 3=24VDC, 4=110VAC, 5=220VAC
L	Light source : D=Incandescent lamp, A=Discharged lamp, L=LED lamp, Omission=Without lamp
Y	Extra code : If the colors of lamp and lens are different, please add this code to tell the color of lamp.
.A	Function mode : A=Maintained, Omission=Momentary

## Drawing

Page &gt;&gt;&gt; P.244-245

E2P1 Flat Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5061	○	E2P1W□□	-
		●	E2P1R□□	-
		●	E2P1Y□□	-
		●	E2P1G□□	-
		●	E2P1B□□	-
		●	E2P1K□□	-
E2P2 Raised Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5062	○	E2P2W□□	-
		●	E2P2R□□	-
		●	E2P2Y□□	-
		●	E2P2G□□	-
		●	E2P2B□□	-
		●	E2P2K□□	-
E2P3 Sunken Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5063	○	E2P3W□□	-
		●	E2P3R□□	-
		●	E2P3Y□□	-
		●	E2P3G□□	-
		●	E2P3B□□	-
		●	E2P3K□□	-
E2P4 Mushroom Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5064	●	E2P4R□□.M1	E2P4R□□.A1
		●	E2P4Y□□.M1	E2P4Y□□.A1
		●	E2P4G□□.M1	E2P4G□□.A1
		●	E2P4K□□.M1	E2P4K□□.A1
		-	-	-
		-	-	-

16mm  
Control Switches22/25/30mm  
Control Switches50/70mm  
Multi-Layer  
Light Tower

E2P5 High Bezel Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5065	○	E2P5W□□	-
		●	E2P5R□□	-
		●	E2P5Y□□	-
		●	E2P5G□□	-
		●	E2P5B□□	-
		●	E2P5K□□	-
E2P1 Flat Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5066	○	E2P1W□□◇L.M	E2P1W□□◇L.A
		●	E2P1R□□◇L.M	E2P1R□□◇L.A
		●	E2P1Y□□◇L.M	E2P1Y□□◇L.A
		●	E2P1G□□◇L.M	E2P1G□□◇L.A
		●	E2P1B□□◇L.M	E2P1B□□◇L.A
		●	E2P1K□□◇L.M	E2P1K□□◇L.A
E2P2 Raised Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5067	○	E2P2W□□◇L.M	E2P2W□□◇L.A
		●	E2P2R□□◇L.M	E2P2R□□◇L.A
		●	E2P2Y□□◇L.M	E2P2Y□□◇L.A
		●	E2P2G□□◇L.M	E2P2G□□◇L.A
		●	E2P2B□□◇L.M	E2P2B□□◇L.A
		●	E2P2K□□◇L.M	E2P2K□□◇L.A
E2P3 Sunken Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5068	○	E2P3W□□◇L.M	E2P3W□□◇L.A
		●	E2P3R□□◇L.M	E2P3R□□◇L.A
		●	E2P3Y□□◇L.M	E2P3Y□□◇L.A
		●	E2P3G□□◇L.M	E2P3G□□◇L.A
		●	E2P3B□□◇L.M	E2P3B□□◇L.A
		●	E2P3K□□◇L.M	E2P3K□□◇L.A

## Drawing

Page &gt;&gt;&gt; P.245

E2P4 Mushroom Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5069	○	E2P4W□□◇L.M0	E2P4W□□◇L.A0
		●	E2P4R□□◇L.M0	E2P4R□□◇L.A0
		●	E2P4Y□□◇L.M0	E2P4Y□□◇L.A0
		●	E2P4G□□◇L.M0	E2P4G□□◇L.A0
		●	E2P4B□□◇L.M0	E2P4B□□◇L.A0
		●	E2P4K□□◇L.M0	E2P4K□□◇L.A0
E2P5 High Bezel Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5070	○	E2P5W□□◇L.M	E2P5W□□◇L.A
		●	E2P5R□□◇L.M	E2P5R□□◇L.A
		●	E2P5Y□□◇L.M	E2P5Y□□◇L.A
		●	E2P5G□□◇L.M	E2P5G□□◇L.A
		●	E2P5B□□◇L.M	E2P5B□□◇L.A
		●	E2P5K□□◇L.M	E2P5K□□◇L.A
E3P1 Flush Flat Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5071	○	E3P1W□□	-
		●	E3P1R□□	-
		●	E3P1Y□□	-
		●	E3P1G□□	-
		●	E3P1B□□	-
		●	E3P1K□□	-
E3P2 Flush Raised Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5072	○	E3P2W□□	-
		●	E3P2R□□	-
		●	E3P2Y□□	-
		●	E3P2G□□	-
		●	E3P2B□□	-
		●	E3P2K□□	-

Remarks : 1. □□ Contact Mode: 1A=1NO, 1B=1NC, 2A=2NO, 2B=2NC, AB=1NO+1NC and etc.

2. ◇ Lamp Voltage: 1= 6VDC, 2= 12VDC, 3= 24VDC, 4= 110VAC, 5= 220VAC

L=LED lamp, D=Incandescent lamps, Omission=Without lamp

3. Highlight-background◇L in columns of "maintained part no." = This two codes could be omitted, and that stands for the part no. of the maintained pushbutton switches without lamp.

4. Pushbutton without lamp could be attached the 3rdcontact. Please add extra A or B code following the contact mode to present the mode of the 3rdcontact, A means 1 normally open and B1 normally close.

5. Please change "E" to "H" for protection rating IP65.

6. Please add \*M in the last of order no. if you would like to change the black plastic front ring to the metal ring.

7. Please add 'R,'Y,'G,'B,'W,'K,'E' if plastic ring of red, yellow, blue, white, black, grey to be replaced.



E3P4 Flush Mushroom Head	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5073		E3P4R□□.M1	E3P4R□□.A1
			E3P4Y□□.M1	E3P4Y□□.A1
			E3P4G□□.M1	E3P4G□□.A1
			E3P4K□□.M1	E3P4K□□.A1
		—	—	—
E3P1 Flush Flat Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5074		E3P1W□□◇L.M	E3P1W□□◇L.A
			E3P1R□□◇L.M	E3P1R□□◇L.A
			E3P1Y□□◇L.M	E3P1Y□□◇L.A
			E3P1G□□◇L.M	E3P1G□□◇L.A
			E3P1B□□◇L.M	E3P1B□□◇L.A
E3P2 Flush Raised Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5075		E3P2W□□◇L.M	E3P2W□□◇L.A
			E3P2R□□◇L.M	E3P2R□□◇L.A
			E3P2Y□□◇L.M	E3P2Y□□◇L.A
			E3P2G□□◇L.M	E3P2G□□◇L.A
			E3P2B□□◇L.M	E3P2B□□◇L.A
E3P4 Flush Mushroom Button	Drawing No.	Color	Momentary Part No.	Maintained Part No.
	E5076		E3P4W□□◇L.M0	E3P4W□□◇L.A0
			E3P4R□□◇L.M0	E3P4R□□◇L.A0
			E3P4Y□□◇L.M0	E3P4Y□□◇L.A0
			E3P4G□□◇L.M0	E3P4G□□◇L.A0
			E3P4B□□◇L.M0	E3P4B□□◇L.A0

Remarks : 1. □□ Contact Mode: 1A=1NO, 1B=1NC, 2A=2NO, 2B=2NC, AB=1NO+1NC and etc.

2. ◇ Lamp Voltage: 1= 6VDC, 2= 12VDC, 3= 24VDC, 4= 110VAC, 5= 220VAC

L=LED lamp, D=Incandescent lamps, Omission=Without lamp

3. Highlight-background◇L in columns of "maintained part no." = This two codes could be omitted, and that stands for the part no. of the maintained pushbutton switches without lamp.

4. Pushbutton without lamp could be attached the 3rdcontact. Please add extra A or B code following the contact mode to present the mode of the 3rdcontact, A means 1 normally open and B1 normally close.

5. Please change "E" to "H" for protection rating IP65.

6. Please add \*M in the last of order no. if you would like to change the black plastic front ring to the metal ring.

7. Please add 'R', 'Y', 'G', 'W', 'K', 'E' if plastic ring of red, yellow, blue, white, black, grey to be replaced.

## Drawing

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## Coding Principle

## Selector Switches E2S/E3S

E	2	S	1	K	1	A	3	L	Y	.V	.I
---	---	---	---	---	---	---	---	---	---	----	----

Part No.	Code Description
E	Classification : E=IP40 Standard H=IP65 Rubber-sealed
2	Mounting size : 2=22mm、25mm Standard mounting 3= 30mm Flush mounting
S1	Handling type : S1=2 Positions, momentary 45° ; S2=2 Positions, maintained 90° S3=3 Positions, left maintained 45° right maintained 45° S4=3 Positions, left momentary 45° right momentary 45° S5=3 Positions, left maintained 45° right momentary 45°
K	Handle type : K=Short handle (knob), L=Long handle (lever)
1A	Contact mode : A=1NO B=1NC, provide 1A,2A,3A,4A,1B,2B,3B,4B,AB,2A2B,3A3B,2A1B,1A2B,3A1B,1A3B
3	Operating voltage : 1=6VDC,2=12VDC,3=24VDC,4=110VAC,5=220VAC
L	Light source : D=Incandescent lamp, A=Discharged lamp, L=LED lamp,Omission=Without lamp
Y	Lamp color : While LED lamp installed, please add this code to identify the color of LED R=Red, Y=Yellow, G=Green, B=Blue, W=White
.V	Handle shape : V=V shape, Omission= L shape(only for S2 handing type)
.I	Handle appearance : I=Transparent indicate, Omission=Non-transparent indicate

## Drawing

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E2S-K Knob Selector	Drawing No.	Handling Type	Part No.
	E5077	2 positions, momentary 45°	E2S1K□□
		2 positions, maintained 90°	E2S2K□□
		2 positions, maintained 90° _V shape	E2S2K□□.V
		3 positions, left main.right main. 45°	E2S3K□□
		3 positions, left mome.right mome.45°	E2S4K□□
		3 positions, left main.right mome. 45°	E2S5K□□
E2S-K Knob Selector	Drawing No.	Handling Type	Part No.
	E5078	2 positions, momentary 45°	E2S1K□□◇L△.I
		2 positions, maintained 90°	E2S2K□□◇L△.I
		2 positions, maintained 90° _V shape	E2S2K□□◇L△.V.I
		3 positions, left main.right main. 45°	E2S3K□□◇L△.I
		3 positions, left mome.right mome.45°	E2S4K□□◇L△.I
		3 positions, left main.right mome. 45°	E2S5K□□◇L△.I
E3S-K Flush Knob Selector	Drawing No.	Handling Type	Part No.
	E5079	2 positions, momentary 45°	E3S1K□□
		2 positions, maintained 90°	E3S2K□□
		2 positions, maintained 90° _V shape	E3S2K□□.V
		3 positions, left main.right main. 45°	E3S3K□□
		3 positions, left mome.right mome.45°	E3S4K□□
		3 positions, left main.right mome. 45°	E3S5K□□
E3S-K Flush Knob Selector	Drawing No.	Handling Type	Part No.
	E5080	2 positions, momentary 45°	E3S1K□□◇L△.I
		2 positions, maintained 90°	E3S2K□□◇L△.I
		2 positions, maintained 90° _V shape	E3S2K□□◇L△.V.I
		3 positions, left main.right main. 45°	E3S3K□□◇L△.I
		3 positions, left mome.right mome.45°	E3S4K□□◇L△.I
		3 positions, left main.right mome. 45°	E3S5K□□◇L△.I

16mm  
Control Switches22/25/30mm  
Control Switches50/70mm  
Multi-Layer  
Light Tower

E2S-L Lever Selector	Drawing No.	Handling Type	Part No.
	E5081	 2 positions, momentary 45°	E2S1L□□
		 2 positions, maintained 90°	E2S2L□□
		 2 positions, maintained 90° _V shape	E2S2L□□.V
		 3 positions, left main, right main. 45°	E2S3L□□
		 3 positions, left mome, right mome. 45°	E2S4L□□
		 3 positions, left main, right mome. 45°	E2S5L□□
E2S-L Lever Selector	Drawing No.	Handling Type	Part No.
	E5082	 2 positions, momentary 45°	E2S1L□□◇LΔ.I
		 2 positions, maintained 90°	E2S2L□□◇LΔ.I
		 2 positions, maintained 90° _V shape	E2S2L□□◇LΔ.V.I
		 3 positions, left main, right main. 45°	E2S3L□□◇LΔ.I
		 3 positions, left mome, right mome. 45°	E2S4L□□◇LΔ.I
		 3 positions, left main, right mome. 45°	E2S5L□□◇LΔ.I
E3S-L Flush Lever Selector	Drawing No.	Handling Type	Part No.
	E5083	 2 positions, momentary 45°	E3S1L□□
		 2 positions, maintained 90°	E3S2L□□
		 2 positions, maintained 90° _V shape	E3S2L□□.V
		 3 positions, left main, right main. 45°	E3S3L□□
		 3 positions, left mome, right mome. 45°	E3S4L□□
		 3 positions, left main, right mome. 45°	E3S5L□□
E3S-L Flush Lever Selector	Drawing No.	Handling Type	Part No.
	E5084	 2 positions, momentary 45°	E3S1L□□◇LΔ.I
		 2 positions, maintained 90°	E3S2L□□◇LΔ.I
		 2 positions, maintained 90° _V shape	E3S2L□□◇LΔ.V.I
		 3 positions, left main, right main. 45°	E3S3L□□◇LΔ.I
		 3 positions, left mome, right mome. 45°	E3S4L□□◇LΔ.I
		 3 positions, left main, right mome. 45°	E3S5L□□◇LΔ.I

- Remarks:
- Handling type: M= Momentary, A= Maintained ; mome.= Momentary, main.= Maintained
  - Contact mode: 1A=1NO, 1B=1NC, AB=1NO+1NC, 2A=2NO, 2B=2NC and etc.  
Note that the sequence of contact blocks should be consistent with the handling type, in this situation, AB means left A contact and right B, BA means left B contact and right A.
  - ◇ Lamp Voltage: 1=6VDC, 2=12VDC, 3=24VDC, 4=110VAC, 5=220VAC  
L=LED lamp, D= Incandescent lamps, A=Discharged lamps (Incandescent lamps powered by 110VAC, 220VAC are not available. Discharged lamps powered by 110 VAC、220VAC are available only. Omission=without lamp.
  - △ Light source color : R=Red, Y=Yellow, G=Green, B=Blue, W=White.
  - Pushbutton without lamp could be attached the 3rd contact. Please add extra A or B code following the contact mode to present the mode of the 3rd contact, A means 1 normally open and B1 normally close.
  - Please change "E" to "H" for protection rating IP65.
  - Please add \*M in the last of order no. if you would like to change the black plastic front ring to the metal ring.
  - Please add 'R,' Y,' G,' B,' W,' K,' E if plastic ring of red, yellow, blue, white, black, grey to be replaced.

## Drawing

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## Coding Principle





Pushbutton Switches E2P/E3P

E	2	R	1	R	1	B
---	---	---	---	---	---	---

Part No.	Code Description
E	Classification : E=IP40 Standard H=IP65 Rubber-sealed
2	Mounting size : 2=22mm、25mm Standard mounting 3= 30mm Standard mounting
R1	Reset mode : R1=Rotate to reset
R	Cap color : R=Red
1B	Contact mode : A=1NO B=1NC, provide 1A,2A,3A,4A,1B,2B,3B,4B,AB,2A2B,3A3B,2A1B,1A2B,3A1B,1A3B

## Drawing

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E2R1 Emergency Stop Switches	Drawing No.	Color	Reset Mode	Part No.
	E5085		rotate to reset	E2R1R□□
E3R1 Emergency Stop Switches	Drawing No.	Color	Reset Mode	Part No.
	E5086		rotate to reset	E3R1R□□

Remarks:

1. □□Contact Mode: 1A=1NO, 1B=1NC, 2A=2NO, 2B=2NC, AB=1NO+1NC and etc.
2. Pushbutton without lamp could be attached the 3rdcontact. Please add extra A or B code following the contact mode to present the mode of the 3rdcontact, A means 1 normally open and B1 normally close.
3. Please change "E" to "H" for protection rating IP65.
4. Please add \*M in the last of order no. if you would like to change the yellow plastic front ring to the metal ring.
5. Please add 'R','Y','G','B','W','K','E' if plastic ring of red, yellow, blue, white, black, grey to be replaced.



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## Coding Principle

Keylock Switches E2K/E3K

E	2	K	1	W	1	A	.	V
---	---	---	---	---	---	---	---	---

Part No.	Code Description
E	Classification : E=IP40 Standard H=IP65 Rubber-sealed
2	Mounting size : 2=22mm、25mm Standard mounting 3= 30mm Flush mounting
K1	Handling type : K1=2 Positions, momentary 45° ; K2=2 Positions, maintained 90° K7=3 Positions, left momentary 45° right maintained 90° K8=3 Positions, left maintained 90° right maintained 90°
W	Key pull :W=Three inlets, I=One inlet, V=Two inlets
1A	Contact mode : A=1NO B=1NC, provide 1A,2A,3A,4A,1B,2B,3B,4B,AB,2A2B,3A3B,2A1B,1A2B,3A1B,1A3B
.V	Handle shape : V= V shape, omission= L shape(only for S2 handing type)

## Drawing

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E2K keylock	Drawing No.	Handling Type	Part No.
	E5087	2 positions, momentary 45°, one inlet	E2K1I□□
		2 positions, maintained 90°, one inlet	E2K2I□□
		2 positions, maintained 90°, two inlets	E2K2V□□
		2 positions, maintained 90°, one inlet _V shape	E2K2I□□.V
		2 positions, maintained 90°, two inlets _V shape	E2K2V□□.V
		3 positions, left mome. 45° right main. 90°, one inlet	E2K7I□□
		3 positions, left mome. 45° right main. 90°, two inlets	E2K7V□□
		3 positions, left main. 45° right main. 90°, two inlet	E2K8I□□
		3 positions, left main. 45° right main. 90°, two inlets	E2K8V□□
		3 positions, left main. 45° right main. 90°, three inlets	E2K8W□□
E3K Flush Keylock	Drawing No.	Handling Type	Part No.
	E5088	2 positions, momentary 45°, one inlet	E3K1I□□
		2 positions, maintained 90°, one inlet	E3K2I□□
		2 positions, maintained 90°, two inlets	E3K2V□□
		2 positions, maintained 90°, one inlet _V shape	E3K2I□□.V
		2 positions, maintained 90°, two inlets _V shape	E3K2V□□.V
		3 positions, left mome. 45° right main. 90°, one inlet	E3K7I□□
		3 positions, left mome. 45° right main. 90°, two inlets	E3K7V□□
		3 positions, left main. 45° right main. 90°, two inlet	E3K8I□□
		3 positions, left main. 45° right main. 90°, two inlets	E3K8V□□
		3 positions, left main. 45° right main. 90°, three inlets	E3K8W□□

- Remarks :
1. Handling type: M= Momentary, A= Maintained; mome.= Momentary, main.= Maintained
  2. □□ Contact mode: 1A=1NO, 1B=1NC, AB=1NO+1NC, 2A=2NO, 2B=2NC and etc.  
Note that the sequence of contact blocks should be consistent with the handling type, in this situation, AB means left A contact and right B, BA means left B contact and right A.
  3. (I,V,W) key-pull type: I= One inlet, V= Two inlets, W= Three inlets
  4. Pushbutton without lamp could be attached the 3rd contact. Please add extra A or B code following the contact mode to present the mode of the 3rd contact, A means 1 normally open and B1 normally close.
  5. Please change "E" to "H" for protection rating IP65.
  6. Please add \*M in the last of order no. if you would like to change the black plastic front ring to the metal ring.
  7. Please add 'R', 'Y', 'G', 'B', 'W', 'K', 'E' if plastic ring of red, yellow, blue, white, black, grey to be replaced.





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## Coding Principle

Buzzers E2B	E	2	B	1	.	0	6
-------------	---	---	---	---	---	---	---

Part No.	Code Description
E	Classification : E=IP40 Standard H=IP65 Rubber-sealed
2	Mounting size : 2=22mm、25mm Standard mounting 3= 30mm Flush mounting
B1	Tone mode : B1=Continuous, B2=Intermittent
.06	Operating voltage : 06=6VDC, 12=12VDC, 24=24VDC, 11=110VAC, 22=220VAC

## Drawing

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E2B DC Buzzer	Drawing No.	Voltage	Continuous Part No.	Intermittent Part No.
	E5089	6VDC	E2B1.06	E2B2.06
		12VDC	E2B1.12	E2B2.12
		24VDC	E2B1.24	E2B2.24
		-	-	-
		-	-	-
E2B AC Buzzer	Drawing No.	Voltage	Continuous Part No.	Intermittent Part No.
	E5090	110VAC	E2B1.11	E2B2.11
		220VAC	E2B1.22	E2B2.22
		-	-	-
		-	-	-
		-	-	-
E3B DC Buzzer	Drawing No.	Voltage	Continuous Part No.	Intermittent Part No.
	E5091	6VDC	E3B1.06	E3B2.06
		12VDC	E3B1.12	E3B2.12
		24VDC	E3B1.24	E3B2.24
		-	-	-
		-	-	-
E3B AC Buzzer	Drawing No.	Voltage	Continuous Part No.	Intermittent Part No.
	E5092	110VAC	E3B1.11	E3B2.11
		220VAC	E3B1.22	E3B2.22
		-	-	-
		-	-	-
		-	-	-

Remarks: 1. Sound maximum 100dB at a distance 70 cm.  
 2. A buzzer by flush mounting is only offered a metal cover.  
 3. Please change "E" to "H" for protection rating Ip65.

## Accessories

Order No.	Contact Block	Description	Drawing No.
2SWA		A= 1 normally open, green .3 — .4	E5093
2SWA.1			E5094
2SWB		B= 1 normally close, red .1 — .2	E5093
2SWB.1			E5094
Order No.	Lamp Holder	Description	Drawing No.
2LH		X1(+)-X2(-) Make the right connection, while polarized LED lamps installed.	E5095
Order No.	BA9s Lamp	Description	Drawing No.
L.BA9s-L06.R(Y/G/B/W)		LED Lamp Red(Yellow/ Green/Blue/White), 6VDC/AC	E5096
L.BA9s-L12.R(Y/G/B/W)		LED Lamp Red(Yellow/ Green/Blue/White), 12VDC/AC	
L.BA9s-L24.R(Y/G/B/W)		LED Lamp Red(Yellow/ Green/Blue/White), 24VDC/AC	
L.BA9s-L11.R(Y/G/B/W)		LED Lamp Red(Yellow/ Green/Blue/White), 110 VAC	
L.BA9s-L22.R(Y/G/B/W)		LED Lamp Red(Yellow/ Green/Blue/White), 220 VAC	
L.BA9s-D06(12/24)		Incandescent lamp, 6VDC/AC (12/24)	E5097
L.BA9s-A11.R(G)		Helium neon lamp Red(Green),110VAC	E5098
L.BA9s-A22.R(G)		Helium neon lamp Red(Green),220VAC	
Order No.	Anti-twisting Ring	Description	Drawing No.
02Z-100		Only for standard mounting to increase anti-twisting torque while working.	E5099
Order No.	Protective Cap	Description	Drawing No.
02Z-200.F		F=Suitable to flat head/button pushbutton	E5100
02Z-200.P		P=Suitable to raised head/button pushbutton	E5101

02Z-200.M		M=Suitable to flush flat head/button pushbutton	E5102
Order No.	Metallic Front Ring	Description	Drawing No.
02Z-300.L		L=Low ring (suitable to standard mounting spec.)	E5103
02Z-300.H		H=High ring (suitable to standard mounting spec.)	E5104
02Z-300.F		F=Flat ring (suitable to flush mounting spec.)	E5105
Order No.	Blind Plug	Description	Drawing No.
02Z-400.22		22= Suitable to 22mm mounting hole	E5106
02Z-400.25		25=Suitable to 25mm mounting hole	
02Z-400.30		30=Suitable to 30mm mounting hole	
Order No.	Emergency Protective Cover	Description	Drawing No.
02Z-500.R		For standard mounting/flush mounting emergency stop switches	E5107
Order No.	Emergency Protective High-length Cover	Description	Drawing No.
02Z-502.R		For standard mounting/Flush moutning emergency stop swithes.	E5108
Order No.	Plate	Description	Drawing No.
02Z-600.22		Suitable to 22mm mounting hole	E5109
Order No.	Emergency stop ring	Description	Drawing No.
1.02Z-900.0(N) 2.02Z-900.1(N)		External diameter: 45mm, "N" represents that 3M pasteur is not attached.	E5110
Order No.	Emergency stop ring	Description	Drawing No.
1.02Z-901.0(N) 2.02Z-901.1(N)		External diameter: 60mm, "N" represents that 3M pasteur is not attached.	E5111
Order No.	Nut Fixer	Description	Drawing No.
02Z-T01		Fixing torque ranges from 2 to 3 Nm, maximum torque not exceeding 3 Nm.	E5112