

# Control Switch

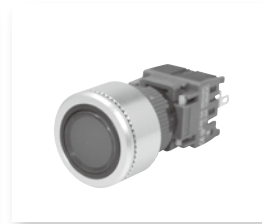
F16 Series



Pilot Light



Non-Illuminated  
Push Button Switch  
(Ø20 - Flush Type)



Illuminated  
Push Button Switch  
(Ø20 - Flush Type)



Selector Switch  
(Ø20 - Flush Type)



Key Switch  
(Ø20 - Flush Type)



Emergency Stop Switch  
(Ø20 - Flush Type)



Pilot Light



Non-Illuminated  
Push Button Switch



Illuminated  
Push Button Switch



Selector Switch



Key Switch



Non-Illuminated  
Emergency Stop Switch



Illuminated  
Emergency Stop Switch



Non-Illuminated  
Emergency Stop Switch With  
Name Plate



Non-Illuminated  
Emergency Stop Switch With  
Name Plate



Non-Illuminated  
Mushroom Push Button Switch



Illuminated  
Mushroom Push Button Switch

Human-Machine  
Interface

# Control Switch

## F16 Series

### Part Number Description

F16	1	2	3	4	5	6	7			
<b>Model</b>	KACON F16 Control Switch									
<b>1 Operator Type</b>	1 : Pilot Light		2 : Momentary		3 : Maintained					
	4 : 2 Position selector		5 : 3 Position selector		6 : 2 Position key					
	7 : 3 Position key		8 : Emergency Stop(Nominal)		9 : Push Mushroom					
<b>2 Illumination &amp; Shape</b>	1 : Non-Illuminated Round		2 : Non-Illuminated square		3 : Non-Illuminated Rectangular					
	4 : Non-Illuminated Round(Ø20-Flush Type)		5 : Illuminated Round(Ø20-Flush Type)		9 : Illumination Rectangular (LED)					
	7 : Illumination Round (LED)		8 : Illumination Square (LED)							
<b>3 Contact Form</b>	0 : No Contact		1 : 1N/O + 1N/C		2 : 2N/O + 2N/C		3 : 3N/O + 3N/C			
<b>4 Color</b>	R : Red		G : Green		Y : Yellow					
	W : White		B : Blue		K : Black					
<b>5 Rated voltage</b>	6VDC		12VDC		24VDC					
	220VAC		No mark : Standard (no voltage)							
<b>6 Selector type</b>	2 Position		3 Position							
	Spring Return		Spring Return		Maintained					
	0 :		2 :		1 :	6 :	7 :	3 :		
<b>7 Key Operator function ( removal position )</b>	2 Position		3 Position							
	A	B	D	A	B	C	D	E	F	G

Ø20 : Flush Type

General Specification

Contact Ratings	Contact Form	Standard options : 1N/O + 1N/C and more : 2N/O + 2N/C, 3N/O + 3N/C			
	Contact Material	Ag Alloy (24K gold plate)			
	Maximum Switching Current	Max. 5A			
	Maximum Rated Voltage	250VAC / 110VDC			
		Resistance load (AC12/DC12)		Induction load (AC13/DC13)	
	Rated Current	3A	24VDC	0.7A	24VDC
		0.2A	125VDC	0.15A	125VDC
		3A	110VAC	1A	110VAC
		1.5A	250VAC	0.7A	250VAC
	Minimum Switching Current	10mA 5VDC			
LED Module Ratings	Color	Red, Green, Yellow, Blue, White, Black			
	Rated Voltage	24VDC, 12VDC, 6VDC, 220VAC(to be released)			
	Rated Current	Approx. 15mA			
	Life Cycle	50,000 hrs			
	Light Type	LED			
General Ratings	Insulation Resistance	Min. 100MΩ (500VDC)			
	Dielectric Strength	2,000VAC (for 1 minute).			
	Life Cycle	Mechanical	Push button (release) : Min. 1,000,000		
		Electrical	Others : Min. 250,000		
	Frequency Of On/Off	1,200 times / hour			
	Vibration Resistance	dual wave length 0.1mm(10 - 55Hz)			
	Shock Resistance	Malfunction : 100m/s <sup>2</sup> Destruction : 500m/s <sup>2</sup>			
	Ambient Temperature	-20 ~ +70°C (with no icing)			
	Ambient Humidity	45 - 85%RH			
	Degree Of Protection	Key : IP40 / Others : IP65			

Human-Machine Interface

# Control Switch

## F16 Series - Flush Type

### Products Selection

Illumination Method	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 20 Illuminated LED Pilot Light - Flush Type  	Round	-	Red	F16-150R	6VDC 12VDC 24VDC
			Green	F16-150G	
			Blue	F16-150B	
			Yellow	F16-150Y	
			White	F16-150W	
			Black	F16-150K	
Ø 20 Momentary Non-Illuminated Push Button Switch - Flush Type  	Round	1N/O + 1N/C	Red	F16-241R	-
			Green	F16-241G	
			Blue	F16-241B	
			Yellow	F16-241Y	
			White	F16-241W	
			Black	F16-241K	
Ø 20 Momentary Illuminated LED Push Button Switch - Flush Type  	Round	1N/O + 1N/C	Red	F16-251R	6VDC 12VDC 24VDC
			Green	F16-251G	
			Blue	F16-251B	
			Yellow	F16-251Y	
			White	F16-251W	
			Black	F16-251K	
Ø 20 Maintained Non-Illuminated Push Button Switch - Flush Type  	Round	1N/O + 1N/C	Red	F16-341R	-
			Green	F16-341G	
			Blue	F16-341B	
			Yellow	F16-341Y	
			White	F16-341W	
			Black	F16-341K	
Ø 20 Maintained Illuminated LED Push Button Switch - Flush Type  	Round	1N/O + 1N/C	Red	F16-351R	6VDC 12VDC 24VDC
			Green	F16-351G	
			Blue	F16-351B	
			Yellow	F16-351Y	
			White	F16-351W	
			Black	F16-351K	

Products Selection

Illumination Method	Shape	Contact Form	Color	Part Number	Operator Function	Rated Voltage
Ø 20 Non-Illuminated Selector Switch (2 Position) - Flush Type 	Round	1N/O + 1N/C	Black	Spring Return		F16-441K-0
		2N/O + 2N/C				F16-442K-0
		3N/O + 3N/C				F16-443K-0
		1N/O + 1N/C	Black	Maintained		F16-441K-2
		2N/O + 2N/C				F16-442K-2
		3N/O + 3N/C				F16-443K-2
Ø 20 Non-Illuminated Selector Switch (3 Position) - Flush Type 	Round	2N/O + 2N/C	Black	Spring Return		F16-542K-1
		3N/O + 3N/C				F16-543K-1
		2N/O + 2N/C	Black	Maintained		F16-542K-3
		3N/O + 3N/C				F16-543K-3
		2N/O + 2N/C	Black	Spring Return		F16-542K-6
		3N/O + 3N/C				F16-543K-6
2N/O + 2N/C	Black	Spring Return		F16-542K-7		
3N/O + 3N/C				F16-543K-7		
Ø 20 Non-Illuminated Key Switch (2 Position) - Flush Type 	Round	1N/O + 1N/C	Black	Spring Return		F16-641K-0A
		2N/O + 2N/C				F16-642K-0A
		3N/O + 3N/C				F16-643K-0A
		1N/O + 1N/C	Black	Spring Return		F16-641K-0B
		2N/O + 2N/C				F16-642K-0B
		3N/O + 3N/C				F16-643K-0B
		1N/O + 1N/C	Black	Maintained		F16-641K-2A
		2N/O + 2N/C				F16-642K-2A
		3N/O + 3N/C				F16-643K-2A
		1N/O + 1N/C	Black	Maintained		F16-641K-2B
		2N/O + 2N/C				F16-642K-2B
		3N/O + 3N/C				F16-643K-2B
1N/O + 1N/C	Black	Maintained		F16-641K-2D		
2N/O + 2N/C				F16-642K-2D		
3N/O + 3N/C				F16-643K-2D		

Human-Machine Interface


# Control Switch

## F16 Series - Flush Type

### Products Selection

Illumination Method	Shape	Contact Form	Color	Part Number	Operator Function	Rated Voltage
Ø 20 Non-Illuminated Key Switch (3 Position) - Flush Type	Square	2N/O + 2N/C	Black	Spring Return		F16-742K-1C
		3N/O + 3N/C				F16-743K-1C
		2N/O + 2N/C	Black	Spring Return		F16-742K-1E
		3N/O + 3N/C				F16-743K-1E
		2N/O + 2N/C	Black	Spring Return		F16-742K-6D
		2N/O + 2N/C				F16-743K-6D
		2N/O + 2N/C	Black	Spring Return		F16-742K-6E
		3N/O + 3N/C				F16-743K-6E
		2N/O + 2N/C	Black	Spring Return		F16-742K-6F
		3N/O + 3N/C				F16-743K-6F
		2N/O + 2N/C	Black	Spring Return		F16-742K-7A
		3N/O + 3N/C				F16-743K-7A
		2N/O + 2N/C	Black	Spring Return		F16-742K-7E
		3N/O + 3N/C				F16-743K-7E
		2N/O + 2N/C	Black	Spring Return		F16-742K-7G
		3N/O + 3N/C				F16-743K-7G
		2N/O + 2N/C	Black	Maintained		F16-742K-3A
		3N/O + 3N/C				F16-743K-3A
		2N/O + 2N/C	Black	Maintained		F16-742K-3B
		3N/O + 3N/C				F16-743K-3B
		2N/O + 2N/C	Black	Maintained		F16-742K-3C
		3N/O + 3N/C				F16-743K-3C
		2N/O + 2N/C	Black	Maintained		F16-742K-3D
		3N/O + 3N/C				F16-743K-3D
		2N/O + 2N/C	Black	Maintained		F16-742K-3E
		3N/O + 3N/C				F16-743K-3E
		2N/O + 2N/C	Black	Maintained		F16-742K-3F
		3N/O + 3N/C				F16-743K-3F
		2N/O + 2N/C	Black	Maintained		F16-742K-3G
		3N/O + 3N/C				F16 3K-3G


Products Selection

Operator Type	Shape	Contact Form	color	Part Number	Rated Voltage
Ø 16 Illuminated LED Pilot Light  	Round	-	Red	F16-170R	6VDC 12VDC 24VDC
			Green	F16-170G	
			Blue	F16-170B	
			Yellow	F16-170Y	
			White	F16-170W	
			Black	F16-170K	
	Square	-	Red	F16-180R	6VDC 12VDC 24VDC
			Green	F16-180G	
			Blue	F16-180B	
			Yellow	F16-180Y	
			White	F16-180W	
			Black	F16-180K	
	Rectangular	-	Red	F16-190R	6VDC 12VDC 24VDC
			Green	F16-190G	
			Blue	F16-190B	
Yellow			F16-190Y		
White			F16-190W		
Black			F16-190K		


# Control Switch

## F16 Series - Flush Type

### Products Selection

Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 16 Non-Illuminated Momentary Push Button Switch  	Round	1N/O + 1N/C	Red	F16-211R	-
			Green	F16-211G	
			Blue	F16-211B	
			Yellow	F16-211Y	
			White	F16-211W	
			Black	F16-211K	
		2N/O + 2N/C	Red	F16-212R	-
			Green	F16-212G	
			Blue	F16-212B	
			Yellow	F16-212Y	
			White	F16-212W	
			Black	F16-212K	
		3N/O + 3N/C	Red	F16-213R	-
			Green	F16-213G	
			Blue	F16-213B	
	Yellow		F16-213Y		
	White		F16-213W		
	Black		F16-213K		
	Square	1N/O + 1N/C	Red	F16-221R	-
			Green	F16-221G	
			Blue	F16-221B	
			Yellow	F16-221Y	
			White	F16-221W	
			Black	F16-221K	
		2N/O + 2N/C	Red	F16-222R	-
			Green	F16-222G	
			Blue	F16-222B	
Yellow			F16-222Y		
White			F16-222W		
Black			F16-222K		
3N/O + 3N/C		Red	F16-223R	-	
		Green	F16-223G		
		Blue	F16-223B		
	Yellow	F16-223Y			
	White	F16-223W			
	Black	F16-223K			
Rectangular	1N/O + 1N/C	Red	F16-231R	-	
		Green	F16-231G		
		Blue	F16-231B		
		Yellow	F16-231Y		
		White	F16-231W		
		Black	F16-231K		
	2N/O + 2N/C	Red	F16-232R	-	
		Green	F16-232G		
		Blue	F16-232B		
		Yellow	F16-232Y		
		White	F16-232W		
		Black	F16-232K		
	3N/O + 3N/C	Red	F16-233R	-	
		Green	F16-233G		
		Blue	F16-233B		
Yellow		F16-233Y			
White		F16-233W			
Black		F16-233K			

Products Selection


Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 16 Illuminated LED Momentary Push Button Switch 	Round	1N/O + 1N/C	Red	F16-271R	6VDC 12VDC 24VDC
			Green	F16-271G	
			Blue	F16-271B	
			Yellow	F16-271Y	
			White	F16-271W	
			Black	F16-271K	
		2N/O + 2N/C	Red	F16-272R	6VDC 12VDC 24VDC
			Green	F16-272G	
			Blue	F16-272B	
			Yellow	F16-272Y	
			White	F16-272W	
			Black	F16-272K	
		3N/O + 3N/C	Red	F16-273R	6VDC 12VDC 24VDC
			Green	F16-273G	
			Blue	F16-273B	
	Yellow		F16-273Y		
	White		F16-273W		
	Black		F16-273K		
	Square	1N/O + 1N/C	Red	F16-281R	6VDC 12VDC 24VDC
			Green	F16-281G	
			Blue	F16-281B	
			Yellow	F16-281Y	
			White	F16-281W	
			Black	F16-281K	
		2N/O + 2N/C	Red	F16-282R	6VDC 12VDC 24VDC
			Green	F16-282G	
			Blue	F16-282B	
Yellow			F16-282Y		
White			F16-282W		
Black			F16-282K		
3N/O + 3N/C		Red	F16-283R	6VDC 12VDC 24VDC	
		Green	F16-283G		
		Blue	F16-283B		
	Yellow	F16-283Y			
	White	F16-283W			
	Black	F16-283K			
Rectangular	1N/O + 1N/C	Red	F16-291R	6VDC 12VDC 24VDC	
		Green	F16-291G		
		Blue	F16-291B		
		Yellow	F16-291Y		
		White	F16-291W		
		Black	F16-291K		
	2N/O + 2N/C	Red	F16-292R	6VDC 12VDC 24VDC	
		Green	F16-292G		
		Blue	F16-292B		
		Yellow	F16-292Y		
		White	F16-292W		
		Black	F16-292K		
	3N/O + 3N/C	Red	F16-293R	6VDC 12VDC 24VDC	
		Green	F16-293G		
		Blue	F16-293B		
Yellow		F16-293Y			
White		F16-293W			
Black		F16-293K			

Human-Machine Interface


# Control Switch

## F16 Series - Flush Type

### Products Selection

Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 16 Non-Illuminated Maintained Push Button Switch 	Round	1N/O + 1N/C	Red	F16-311R	-
			Green	F16-311G	
			Blue	F16-311B	
			Yellow	F16-311Y	
			White	F16-311W	
			Black	F16-311K	
		2N/O + 2N/C	Red	F16-312R	-
			Green	F16-312G	
			Blue	F16-312B	
	Yellow		F16-312Y		
	White		F16-312W		
	Black		F16-312K		
	3N/O + 3N/C	Red	F16-313R	-	
		Green	F16-313G		
		Blue	F16-313B		
		Yellow	F16-313Y		
		White	F16-313W		
		Black	F16-313K		
	Square	1N/O + 1N/C	Red	F16-321R	-
			Green	F16-321G	
			Blue	F16-321B	
			Yellow	F16-321Y	
			White	F16-321W	
			Black	F16-321K	
		2N/O + 2N/C	Red	F16-322R	-
			Green	F16-322G	
			Blue	F16-322B	
Yellow			F16-322Y		
White			F16-322W		
Black			F16-322K		
3N/O + 3N/C		Red	F16-323R	-	
		Green	F16-323G		
		Blue	F16-323B		
		Yellow	F16-323Y		
		White	F16-323W		
		Black	F16-323K		
Rectangular	1N/O + 1N/C	Red	F16-331R	-	
		Green	F16-331G		
		Blue	F16-331B		
		Yellow	F16-331Y		
		White	F16-331W		
		Black	F16-331K		
	2N/O + 2N/C	Red	F16-332R	-	
		Green	F16-332G		
		Blue	F16-332B		
		Yellow	F16-332Y		
		White	F16-332W		
		Black	F16-332K		
	3N/O + 3N/C	Red	F16-333R	-	
		Green	F16-333G		
		Blue	F16-333B		
		Yellow	F16-333Y		
		White	F16-333W		
		Black	F16-333K		

Products Selection




Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 16 Illuminated LED Maintained Push Button Switch  	Round	1N/O + 1N/C	Red	F16-371R	6VDC 12VDC 24VDC
			Green	F16-371G	
			Blue	F16-371B	
			Yellow	F16-371Y	
			White	F16-371W	
			Black	F16-371K	
		2N/O + 2N/C	Red	F16-372R	6VDC 12VDC 24VDC
			Green	F16-372G	
			Blue	F16-372B	
			Yellow	F16-372Y	
			White	F16-372W	
			Black	F16-372K	
	3N/O + 3N/C	Red	F16-373R	6VDC 12VDC 24VDC	
		Green	F16-373G		
		Blue	F16-373B		
		Yellow	F16-373Y		
		White	F16-373W		
		Black	F16-373K		
	Square	1N/O + 1N/C	Red	F16-381R	6VDC 12VDC 24VDC
			Green	F16-381G	
			Blue	F16-381B	
			Yellow	F16-381Y	
			White	F16-381W	
			Black	F16-381K	
2N/O + 2N/C		Red	F16-382R	6VDC 12VDC 24VDC	
		Green	F16-382G		
		Blue	F16-382B		
		Yellow	F16-382Y		
		White	F16-382W		
		Black	F16-382K		
3N/O + 3N/C	Red	F16-383R	6VDC 12VDC 24VDC		
	Green	F16-383G			
	Blue	F16-383B			
	Yellow	F16-383Y			
	White	F16-383W			
	Black	F16-383K			
Rectangular	1N/O + 1N/C	Red	F16-391R	6VDC 12VDC 24VDC	
		Green	F16-391G		
		Blue	F16-391B		
		Yellow	F16-391Y		
		White	F16-391W		
		Black	F16-391K		
	2N/O + 2N/C	Red	F16-392R	6VDC 12VDC 24VDC	
		Green	F16-392G		
		Blue	F16-392B		
		Yellow	F16-392Y		
		White	F16-392W		
		Black	F16-392K		
3N/O + 3N/C	Red	F16-393R	6VDC 12VDC 24VDC		
	Green	F16-393G			
	Blue	F16-393B			
	Yellow	F16-393Y			
	White	F16-393W			
	Black	F16-393K			

Human-Machine Interface










# Control Switch

## F16 Series - Flush Type

### Products Selection

Operator Type	Shape	Contact Form	color	Selector Type	Operator Function	Part Number
Ø 16 Non-Illuminated Selector Switch (2 Position)  	Round	1N/O + 1N/C	Black	Spring Return		F16-411K-0
		2N/O + 2N/C				F16-412K-0
		3N/O + 3N/C				F16-413K-0
		1N/O + 1N/C	Black	Maintained		F16-411K-2
		2N/O + 2N/C				F16-412K-2
		3N/O + 3N/C				F16-413K-2
	Square	1N/O + 1N/C	Black	Spring Return		F16-421K-0
		2N/O + 2N/C				F16-422K-0
		3N/O + 3N/C				F16-423K-0
		1N/O + 1N/C	Black	Maintained		F16-421K-2
		2N/O + 2N/C				F16-422K-2
		3N/O + 3N/C				F16-423K-2
Rectangular	1N/O + 1N/C	Black	Spring Return		F16-431K-0	
	2N/O + 2N/C				F16-432K-0	
	3N/O + 3N/C				F16-433K-0	
	1N/O + 1N/C	Black	Maintained		F16-431K-2	
	2N/O + 2N/C				F16-432K-2	
	3N/O + 3N/C				F16-433K-2	

Products Selection

















Operator Type	Shape	Contact Form	color	Selector Type	Operator Function	Part Number	
Ø 16 Non-Illuminated Selector Switch (3 Position)	Round	2N/O + 2N/C	Black	Spring Return		F16-512K-1	
		3N/O + 3N/C				F16-513K-1	
		2N/O + 2N/C	Black	Maintained		F16-512K-3	
		3N/O + 3N/C				F16-513K-3	
		2N/O + 2N/C	Black	Spring Return		F16-512K-6	
		3N/O + 3N/C				F16-513K-6	
	2N/O + 2N/C	Black	Spring Return		F16-512K-7		
	3N/O + 3N/C				F16-513K-7		
	Square	2N/O + 2N/C	Black	Spring Return		F16-522K-1	
		3N/O + 3N/C				F16-523K-1	
		2N/O + 2N/C	Black	Maintained		F16-522K-3	
		3N/O + 3N/C				F16-523K-3	
		2N/O + 2N/C	Black	Spring Return		F16-522K-6	
		3N/O + 3N/C				F16-523K-6	
		2N/O + 2N/C	Black	Spring Return		F16-522K-7	
		3N/O + 3N/C				F16-523K-7	
		Rectangular	2N/O + 2N/C	Black	Spring Return		F16-532K-1
			3N/O + 3N/C				F16-533K-1
2N/O + 2N/C			Black	Maintained		F16-532K-3	
3N/O + 3N/C						F16-533K-3	
2N/O + 2N/C	Black		Spring Return		F16-532K-6		
3N/O + 3N/C					F16-533K-6		
2N/O + 2N/C	Black	Spring Return		F16-532K-7			
3N/O + 3N/C				F16-533K-7			

Human-Machine Interface

















# Control Switch

## F16 Series - Flush Type

### Products Selection

Operator Type	Shape	Contact From	color	Selector Type	Operator Function	Part Number	
Ø 16 Non-Illuminated Key Switch (2 Position)  	Round	1N/O + 1N/C	Black	Spring Return		F16-611K-OA	
		2N/O + 2N/C				F16-612K-OA	
		3N/O + 3N/C				F16-613K-OA	
		1N/O + 1N/C	Black	Spring Return		F16-611K-OB	
		2N/O + 2N/C				F16-612K-OB	
		3N/O + 3N/C				F16-613K-OB	
		1N/O + 1N/C	Black	Maintained		F16-611K-2A	
		2N/O + 2N/C				F16-612K-2A	
		3N/O + 3N/C				F16-613K-2A	
		1N/O + 1N/C	Black	Maintained		F16-611K-2B	
		2N/O + 2N/C				F16-612K-2B	
		3N/O + 3N/C				F16-613K-2B	
	1N/O + 1N/C	Black	Maintained		F16-611K-2D		
	2N/O + 2N/C				F16-612K-2D		
	3N/O + 3N/C				F16-613K-2D		
	Square	Square	1N/O + 1N/C	Black	Spring Return		F16-621K-OA
			2N/O + 2N/C				F16-622K-OA
			3N/O + 3N/C				F16-623K-OA
			1N/O + 1N/C	Black	Spring Return		F16-621K-OB
			2N/O + 2N/C				F16-622K-OB
			3N/O + 3N/C				F16-623K-OB
			1N/O + 1N/C	Black	Maintained		F16-621K-2A
			2N/O + 2N/C				F16-622K-2A
			3N/O + 3N/C				F16-623K-2A
1N/O + 1N/C			Black	Maintained		F16-621K-2B	
2N/O + 2N/C						F16-622K-2B	
3N/O + 3N/C						F16-623K-2B	
1N/O + 1N/C		Black	Maintained		F16-621K-2D		
2N/O + 2N/C					F16-622K-2D		
3N/O + 3N/C					F16-623K-2D		
Rectangular		Rectangular	1N/O + 1N/C	Black	Spring Return		F16-631K-OA
			2N/O + 2N/C				F16-632K-OA
			3N/O + 3N/C				F16-633K-OA
			1N/O + 1N/C	Black	Spring Return		F16-631K-OB
			2N/O + 2N/C				F16-632K-OB
			3N/O + 3N/C				F16-633K-OB
			1N/O + 1N/C	Black	Maintained		F16-631K-2A
			2N/O + 2N/C				F16-632K-2A
			3N/O + 3N/C				F16-633K-2A
	1N/O + 1N/C		Black	Maintained		F16-631K-2B	
	2N/O + 2N/C					F16-632K-2B	
	3N/O + 3N/C					F16-633K-2B	
1N/O + 1N/C	Black	Maintained		F16-631K-2D			
2N/O + 2N/C				F16-632K-2D			
3N/O + 3N/C				F16-633K-2D			

Products Selection

















Operator Type	Shape	Contact From	color	Selector Type	Operator Function	Part Number
Ø 16 Non-Illuminated Key Switch (3 Position)	Round	2N/O + 2N/C	Black	Spring Return		F16-712K-1C
		3N/O + 3N/C				F16-713K-1C
		2N/O + 2N/C	Black	Spring Return		F16-712K-1E
		3N/O + 3N/C				F16-713K-1E
		2N/O + 2N/C	Black	Spring Return		F16-712K-6D
		2N/O + 2N/C				F16-713K-6D
		2N/O + 2N/C	Black	Spring Return		F16-712K-6E
		3N/O + 3N/C				F16-713K-6E
		2N/O + 2N/C	Black	Spring Return		F16-712K-6F
		3N/O + 3N/C				F16-713K-6F
		2N/O + 2N/C	Black	Spring Return		F16-712K-7A
		3N/O + 3N/C				F16-713K-7A
		2N/O + 2N/C	Black	Spring Return		F16-712K-7E
		3N/O + 3N/C				F16-713K-7E
		2N/O + 2N/C	Black	Spring Return		F16-712K-7G
		3N/O + 3N/C				F16-713K-7G
		2N/O + 2N/C	Black	Maintained		F16-712K-3A
		3N/O + 3N/C				F16-713K-3A
		2N/O + 2N/C	Black	Maintained		F16-712K-3B
		3N/O + 3N/C				F16-713K-3B
		2N/O + 2N/C	Black	Maintained		F16-712K-3C
		3N/O + 3N/C				F16-713K-3C
		2N/O + 2N/C	Black	Maintained		F16-712K-3D
		3N/O + 3N/C				F16-713K-3D
		2N/O + 2N/C	Black	Maintained		F16-712K-3E
		3N/O + 3N/C				F16-713K-3E
		2N/O + 2N/C	Black	Maintained		F16-712K-3F
		3N/O + 3N/C				F16-713K-3F
		2N/O + 2N/C	Black	Maintained		F16-712K-3G
		3N/O + 3N/C				F16-713K-3G

Human-Machine Interface

















# Control Switch

## F16 Series - Flush Type

### Products Selection

Operator Type	Shape	Contact From	color	Selector Type	Operator Function	Part Number
Ø 16 Non-Illuminated Key Switch (3 Position)	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-1C
		3N/O + 3N/C				F16-723K-1C
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-1E
		3N/O + 3N/C				F16-723K-1E
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-6D
		3N/O + 3N/C				F16-723K-6D
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-6E
		3N/O + 3N/C				F16-723K-6E
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-6F
		3N/O + 3N/C				F16-723K-6F
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-7A
		3N/O + 3N/C				F16-723K-7A
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-7E
		3N/O + 3N/C				F16-723K-7E
	Square	2N/O + 2N/C	Black	Spring Return		F16-722K-7G
		3N/O + 3N/C				F16-723K-7G
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3A
		3N/O + 3N/C				F16-723K-3A
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3B
		3N/O + 3N/C				F16-723K-3B
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3C
		3N/O + 3N/C				F16-723K-3C
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3D
		3N/O + 3N/C				F16-723K-3D
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3E
		3N/O + 3N/C				F16-723K-3E
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3F
		3N/O + 3N/C				F16-723K-3F
	Square	2N/O + 2N/C	Black	Maintained		F16-722K-3G
		3N/O + 3N/C				F16-723K-3G

Products Selection





Operator Type	Shape	Contact From	color	Selector Type	Operator Function	Part Number
Ø 16 Non-Illuminated Key Switch (3 Position)	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-1C
		3N/O + 3N/C				F16-733K-1C
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-1E
		3N/O + 3N/C				F16-733K-1E
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-6D
		3N/O + 3N/C				F16-733K-6D
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-6E
		3N/O + 3N/C				F16-733K-6E
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-6F
		3N/O + 3N/C				F16-733K-6F
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-7A
		3N/O + 3N/C				F16-733K-7A
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-7E
		3N/O + 3N/C				F16-733K-7E
	Rectangular	2N/O + 2N/C	Black	Spring Return		F16-732K-7G
		3N/O + 3N/C				F16-733K-7G
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3A
		3N/O + 3N/C				F16-733K-3A
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3B
		3N/O + 3N/C				F16-733K-3B
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3C
		3N/O + 3N/C				F16-733K-3C
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3D
		3N/O + 3N/C				F16-733K-3D
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3E
		3N/O + 3N/C				F16-733K-3E
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3F
		3N/O + 3N/C				F16-733K-3F
	Rectangular	2N/O + 2N/C	Black	Maintained		F16-732K-3G
		3N/O + 3N/C				F16-733K-3G

Human-Machine Interface









# Control Switch

## F16 Series - Flush Type

### Products Selection

Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage	
Ø 16 Non-Illuminated Emergency Stop Switch  	Round	1N/O + 1N/C	Red	F16-811R	-	
		2N/O + 2N/C		F16-812R	-	
		3N/O + 3N/C		F16-813R	-	
	+ Name Plate	Round	1N/O + 1N/C	Red + Yellow(name Plate)	F16-A11R	-
			2N/O + 2N/C		F16-A12R	-
			3N/O + 3N/C		F16-A13R	-
Ø 16 Illuminated LED Emergency Stop Switch  	Round	1N/O + 1N/C	Red	F16-871R	24VDC	
		2N/O + 2N/C		F16-872R		
		3N/O + 3N/C		F16-873R		
	+ Name Plate	Round	1N/O + 1N/C	Red + Yellow(name Plate)	F16-A71R	24VDC
			2N/O + 2N/C		F16-A72R	
			3N/O + 3N/C		F16-A73R	
Ø 16 Non-Illuminated Mushroom Push Button Switch  	Round	1N/O + 1N/C	Red	F16-911R	-	
			Green	F16-911G		
			Yellow	F16-911Y		
		2N/O + 2N/C	Red	F16-912R		
			Green	F16-912G		
			Yellow	F16-912Y		
		3N/O + 3N/C	Red	F16-913R		
			Green	F16-913G		
			Yellow	F16-913Y		
	Square	1N/O + 1N/C	Red	F16-921R		
			Green	F16-921G		
			Yellow	F16-921Y		
		2N/O + 2N/C	Red	F16-922R		
			Green	F16-922G		
			Yellow	F16-922Y		
3N/O + 3N/C		Red	F16-923R			
		Green	F16-923G			
		Yellow	F16-923Y			
Rectangular	1N/O + 1N/C	Red	F16-931R			
		Green	F16-931G			
		Yellow	F16-931Y			
	2N/O + 2N/C	Red	F16-932R			
		Green	F16-932G			
		Yellow	F16-932Y			
	3N/O + 3N/C	Red	F16-933R			
		Green	F16-933G			
		Yellow	F16-933Y			
Ø 16 Illuminated LED Mushroom Push Button Switch  	Round	1N/O + 1N/C	Red	F16-971R	6VDC 12VDC 24VDC	
			Green	F16-971G		
			Yellow	F16-971Y		
	Square	1N/O + 1N/C	Red	F16-981R	6VDC 12VDC 24VDC	
			Green	F16-981G		
			Yellow	F16-981Y		
	Rectangular	1N/O + 1N/C	Red	F16-991R	6VDC 12VDC 24VDC	
			Green	F16-991G		
			Yellow	F16-991Y		

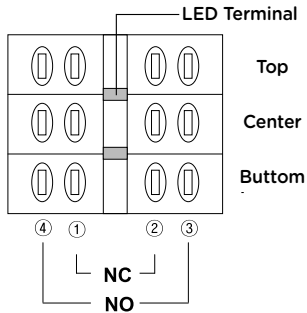
Accessory

	Operator Type	Shape	Contact Form	color	Part Number	Rated Voltage
	220VAC Trans	-	-	Black	F16 - T1	220VAC
	LED	-	-	Red	F16-S115R 24V	24VDC
					F16-S115R 12V	12VDC
					F16-S115R 6V	6VDC
				Green	F16-S115G 24V	24VDC
					F16-S115G 12V	12VDC
					F16-S115G 6V	6VDC
		-	-	Yellow	F16-S115Y 24V	24VDC
					F16-S115Y 12V	12VDC
					F16-S115Y 6V	6VDC
				White	F16-S115W 24V	24VDC
					F16-S115W 12V	12VDC
					F16-S115W 6V	6VDC
-	-	Blue	F16-S115B 24V	24VDC		
			F16-S115B 12V	12VDC		
			F16-S115B 6V	6VDC		
	Safety Guard (Ø16 only)	Round	-	Yellow	K16 - G1	-
	Contact Block	-	1N/O + 1N/C	Black	FCB	-
	Empty Block	-	-	Black	FEB	-
	Ø16 Hole Cover	-	-	Black	K16 - S117	-
	Mounting Ring Wrench	-	-	Black	K16 - W1	-
	Terminal Protection	-	-	White	F16 - S116	-

# Control Switch

## F16 Series

### Terminal Arrangement

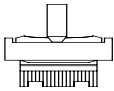


- The figure on the right shows the terminal arrangement and internal switch circuit when the product bottom is viewed from the front.
- The factory setting is the contact block 1C (1N/O + 1N/C), and blocks can be added up to 3C (3N/O + 3N/C).
- As for the selector and key switch, two- and three-stage switches have different ON/OFF operating points. Refer to the following table. Round/Square Rectangular Emergency Stop/Push Mushroom.

### Caution

#### 1. Connection of wires

- 1) Soldering
  - The power consumption of the soldering iron must be 30 W or less.
  - Use a 30 W soldering iron within 5s, and a 20 W soldering iron within 10s.
- 2) Tab terminal
  - Use the #110 tab terminal.
- 3) Wires for connection
  - Single wire: Maximum  $\varnothing 0.8\text{mm}$
  - Stranded wire: Maximum  $0.75\text{mm}^2$



#### 2. Replacement/installation of the front button and LED

- 1) Button : Use a driver in the groove on the side of the button to remove it (To insert the button, push it until it clicks.)
- 2) LED : Pull the LED using a tool such as pliers. Assemble it in the reverse sequence of the disassembly.

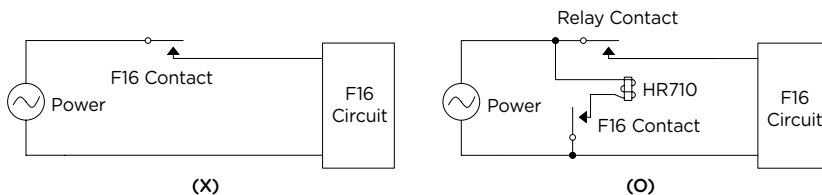
#### 3. Mounting the product on the panel

- 1) Press both the projections of the contact unit module with two fingers to remove the module from the operating unit.
- 2) The operating unit and contact unit module have their directivity. Use caution for insertion.
- 3) Separate the fixing ring and anti-rotation fixture from the operating unit.
- 4) Insert the operating unit in the panel, and assemble it in the reverse order of the disassembly.
- 5) The fixing ring can be firmly tightened using the K16-W1.

#### 4. Contact block replacement/installation

- 1) Widen four projections on both sides of the contact unit module to separate the contact block.
- 2) Push the contact block into the empty space of the contact unit module to assemble it. The block is mounted with a click sound. (Be sure to check the left and right sides are firmly locked.)
- 3) A maximum of three (3N/O + 3N/C) contact blocks can be mounted.

#### 5. When using a F16 small Control Switch as the power switch for the control unit, please follow the following instruction for longer product life span and reliability.



#### 6. When rectifying the AC current for the DC power for lighting, the DC power must be a constant voltage source with a ripple range of 10 % or less. Otherwise, the LED life is significantly Reduced

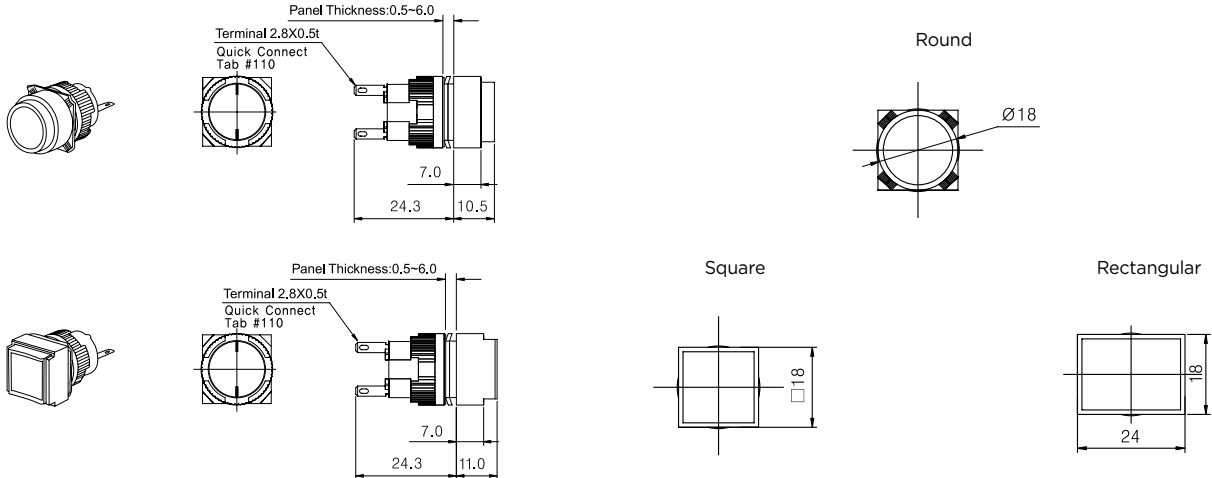
#### 7. Do not apply excessive impact or force to prevent damage to the product. When using the K16-W1 tool, do not tighten the fixing ring with an excessive force, because it may damage the product (When fixing the product on the panel, the tightening torque must be 0.6 - 1 N·m or less).

#### 8. When soldering the terminal for wiring, comply with the specified temperature and time. Failure to meet the specifications may lead to the damage and thermal deformation to the product.

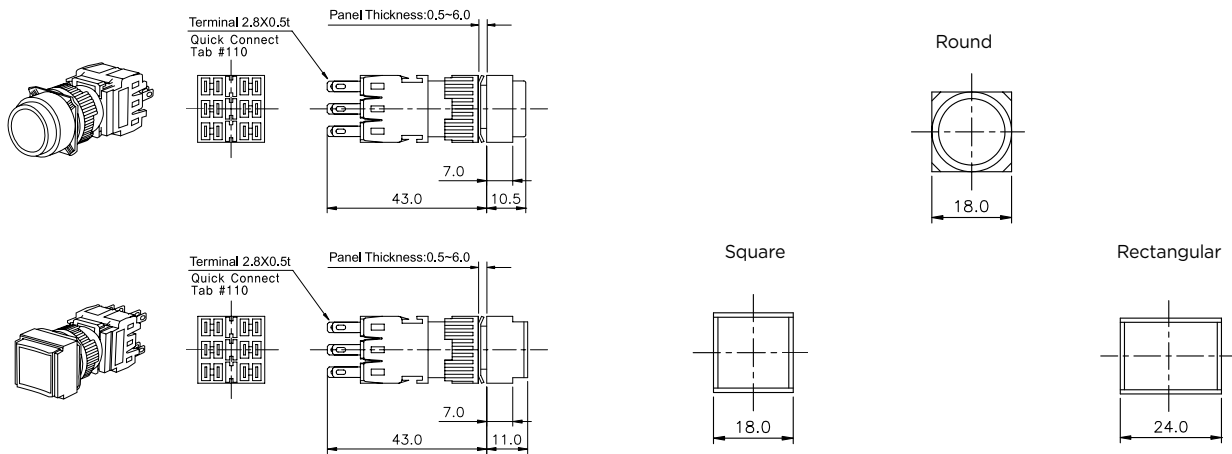
Dimension

unit : mm

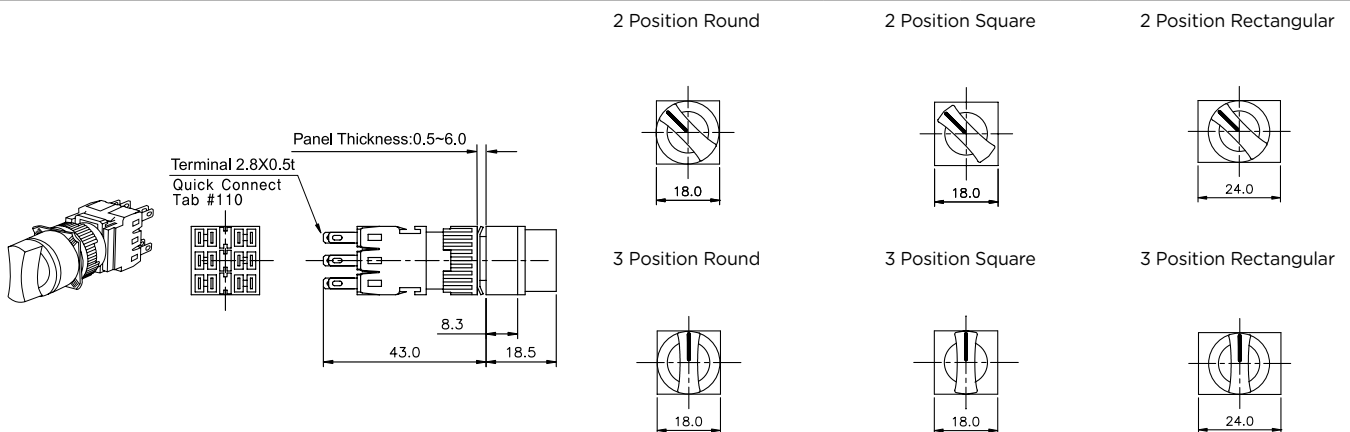
Pilot Light



Momentary & Maintained Push Button Switch



Selector Switch



Human-Machine Interface

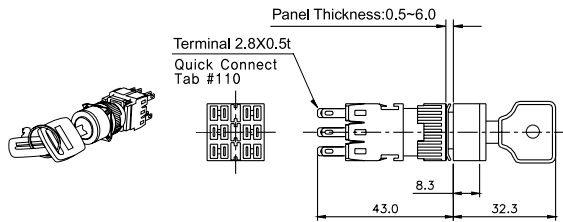
# Control Switch

## F16 Series

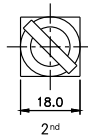
### Dimension

unit : mm

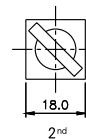
#### Key Switch



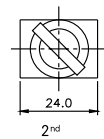
2 Position Round



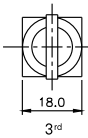
2 Position Square



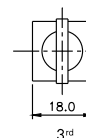
2 Position Rectangular



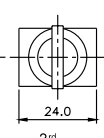
3 Position Round



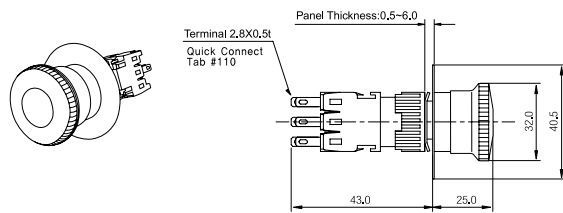
3 Position Square



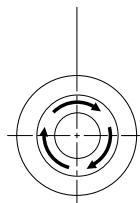
3 Position Rectangular



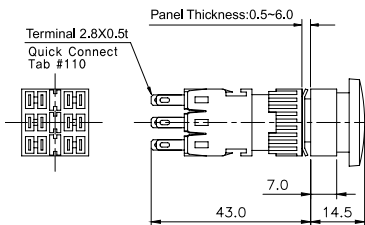
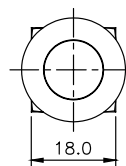
#### Emergency Stop Switch



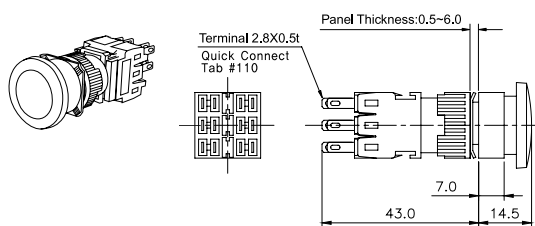
Round



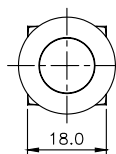
Round



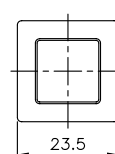
#### Mushroom Push Button Switch



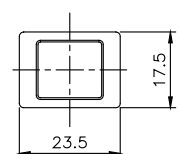
Round



Square



Rectangular

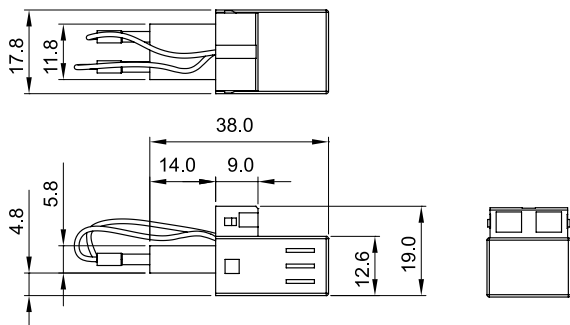


Dimension

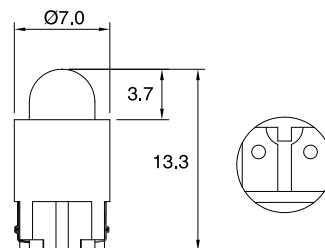
unit : mm

Accessory

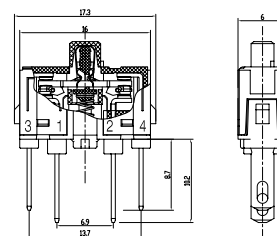
F16 - T1 / 220VAC transformer



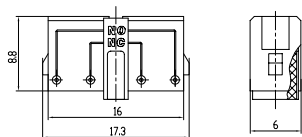
F16 - S115 / LED



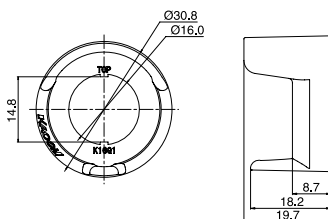
FCB / Contact Block( 1N/O + 1N/C)



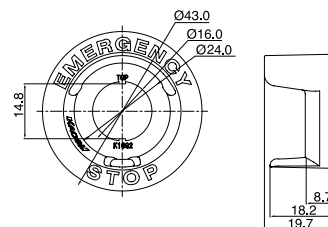
FEB / Empty Block



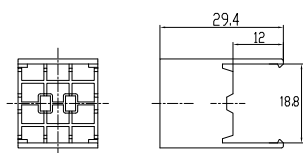
K16 - G1 / Safety Guard



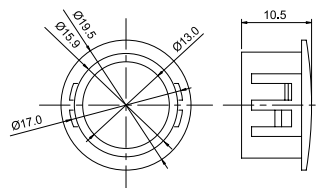
K16 - G2 / Safety Guard



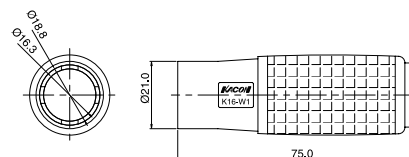
F16 - S116 / Terminal Protection



K16 - S117 / Ø16 Hole Cover



K16 - W1 / Fastening Tool for the Fixture Ring









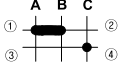
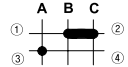
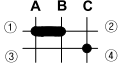
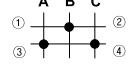
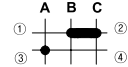


Human-Machine Interface

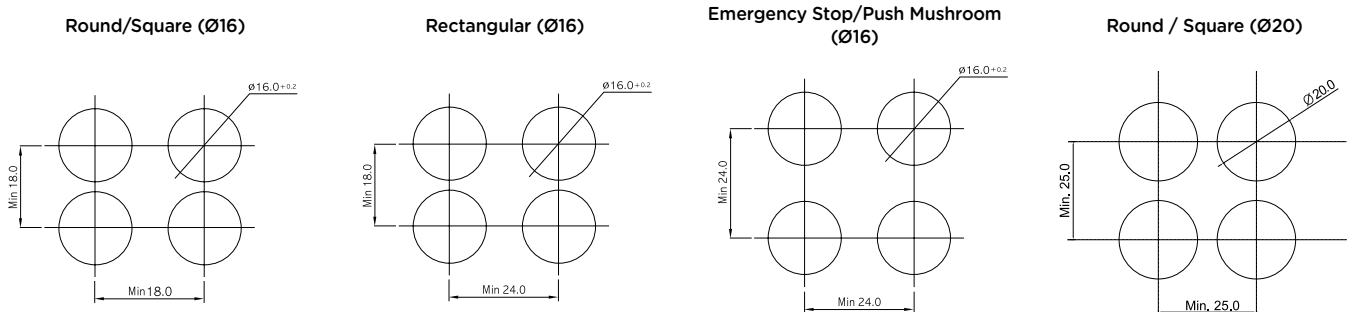
# Control Switch

## F16 Series

### Diagram (Selector / Key Switch)

Types	Contact Form	Left	Middle	Right
 2 Position	1N/O + 1N/C	-		-
	2N/O + 2N/C		-	
 3 Position	3N/O + 3N/C			
	2N/O + 2N/C		-	
	3N/O + 3N/C			

### Panel Cut-Out



- Note.
- When processing the panels, consider the usability by the operator when deciding the distance between the holes.
  - The dimension of the hole should be  $\varnothing 16.0 \pm 0.2$  or  $\varnothing 20.0 \pm 0.2$ .  
(If the diameter of the hole is larger than the specified value above, the product may not operate properly.)
  - When using the protection guards, reconfigure the distances between the holes.
  - In case of the lever switches, the distances between the holes during the panel processing has some differences among them, be careful about this.

- In case of an Emergency Stop type, the distance is min.41mm between holes from upper, lower,