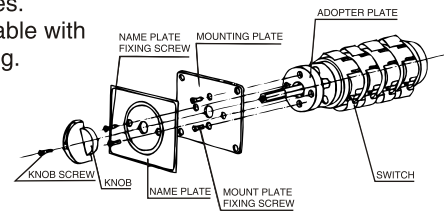


Mkay Cam operated Rotary switches, manufactured to cater to the requirement of latest concepts in switching technology. Mkay switches are guaranteed for greater performance and designed to suit different circuits of multipole and multiposition. Switches are hand operated and used for various applications.

**RANGE:**

Mkay Cam Operated Rotary Switches are available in MCS Series.

- CAM switches are available with OFF and without OFF options
- Switching upto 12 positions 30°, 45°, 60°, 90° and Spring Return.
- Voltmeter Selector Switches are available for Phase to Phase, Phase to Neutral with OFF and NO OFF options.
- Ammeter Selector switches are available for Direct and CT Operated options.
- Phase Changeover Switches.
- Forward Reverse Switches.
- Star Delta Switch for smooth changeover from Star to Delta Connection.
- Multispeed Switches.
- Switches are available with Sheet Steel housing.



**CONSTRUCTION :**

Mkay Cam Operated Rotary Switches are unit of an assembled contact blocks on a Hexagonal operating centre shaft. High Quality Insulating materials are used to withstand Mechanical & Electrical stresses and have excellent effective properties.

**Contact blocks are :**

- Provided with two independent set of double break type, silver tip contacts.
- Stainless steel springs are used for effective making & breaking.
- Different types of Cams are used depending upon contact sequences.

**APPLICATION :**

Mkay Cam Operated Rotary Switches are used in different Industries for various applications such as :

- Control Switches
- Phase changeover Switches
- Ammeter and Voltmeter selector Switches
- Instrument Switches
- Motor control Switches
- Welding Machine Switches
- General Machine Tools Switches

**MOUNTING :**

As a standard, switches are suitable for flush at the back of panel. However, base mounting switches can be supplied on request.

**KNOBS :**

Sleek knobs and handles are available in different colours for smooth operation.

**TECHNICAL SPECIFICATIONS**

**MCS SERIES - AC RATINGS**

RATING (A)		06	10	16	25	32	40	63
Rated Operational	V	440	440	690	690	690	690	690
Isolating voltage Upto (Uiso)	V	250	250	415	415	415	500	500
Rated Operational Current (Ie)								
AC21A / AC1	A	6	10	16	25	32	40	63
AC15 220-240V	A	2.0	2.5	8	10	14	16	20
Rated Operational Power								
AC23A 3 Phase 220-240V	kW	1	1.8	3	4	5.5	7.5	11
AC3 , 3 Phase 110V	kW	0.25	0.37	0.55	1.5	2	2.2	3
	220-240V	kW	0.5	0.75	1.5	3.0	4	5.5
	380-440V	kW	0.75	1.1	2.5	5.5	7.5	11
DC RATINGS								
DC1 (Power) 42V *	A	6	10	16	25	32	40	63
DC13 (Control) 24V *	A	4	6	16	25	32	40	63

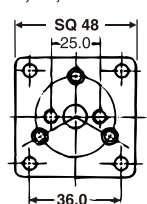
\* Voltage for each series connected Contact

**TERMINAL CROSS SECTION**

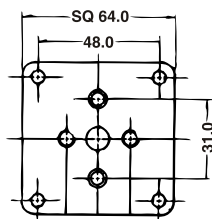
Single / Multiple MIN	mm <sup>2</sup>	0.7	0.7	1.5	1.5	2.5	2.5	4
MAX		1.5	1.5	4	4	6	10	16

**TYPE MCS**

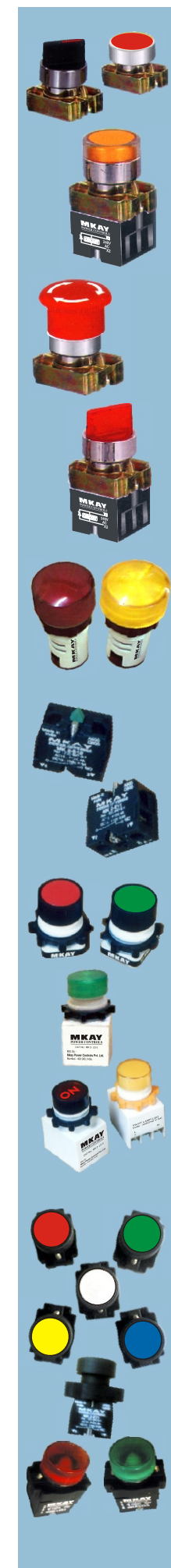
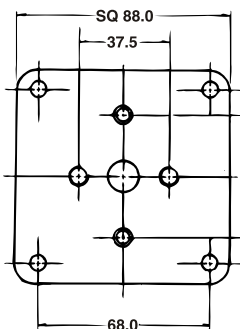
6, 10, 16 AMPS



25, 32 AMPS



40, 63 AMPS



**Metal Series MK6**

**Non illuminated actuators :**

Flush, projecting, booted, mushroom, selector, key selector, twin push button are supplied with carrier plate.

**Illuminated actuators :**

Flush, projecting, selector, twin push button are supplied complete with carrier plate, lamp holder for direct connection with integral circuit and LED

**Emergency stop:**

Mushroom spring return & stay put available with emergency stop legend.

**Contact elements :**

Available for actuator mounting type and individual mounting type.

**Plastic series MK2**

**Non illuminated actuators :**

Flush push button supplied with integral flange.

**Illuminated actuators :**

Flush push button supplied complete with lamp holder for direct connection with integral circuit and LED.

**Pilot lamp :**

Supplied with lense assembly for direct connection with integral circuit and LED. Available in :

- Barrel 'Classique' type
- 'Box' type - Economy & Standard
- Special legend marked pilot lamp

**Nylon (Glass filled) Series MK6**

**Non illuminated actuators :**

Flush push button are supplied with glass filled nylon carrier plate with brass insert for mounting screw.

**Pilot lamp :**

Supplied with lense assembly, lamp holder for direct connection with integral circuit and LED.

**Push Button Stations**

Available in Aluminum die-casting housing. 1 way, 2 ways, 3 ways, 4 ways, 6 ways.



**Salient features :**

This range of Ø 22.5 mm pushbuttons, selector and mushroom actuators, illuminated push buttons & pilot lamps have been designed to provide the following salient features:

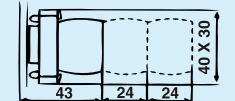
- Economy of space
- Aesthetically elegant
- Robust in materials of construction
- Simple to fix - screw driver is all that required
- Safe in operation
- Fixing method unaffected by excessive vibration-unit does not rotate
- Very good flame resistance
- Protection against electric shock (unit earthed)
- Shrouded terminals

**Actuators**

The actuators have chrome plated metal bezels, and are interchangeable on the different types of contact elements.

**Contact elements**

The contact elements are double break and have self wiping contacts. The elements are interchangeable and can be stacked without additional hardware. 1 to 6 elements. (NO or NC) can be used with non illuminated actuators, whereas 1 to 4 elements (NO or NC) can be used for illuminated actuators



**Illuminated pushbuttons and illuminated selector actuators**

LED - illuminated actuators are available with integral circuit, suitable for operating at various voltages namely 6V, 12V, 24V, 30V, 48V, 110V, AC/DC, 240V AC or DC and 415V AC.

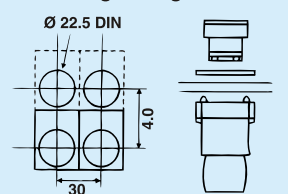
**Terminals**

Terminal for contact elements and pilot lamps are designed with shroud for safety.

**Fixing**

The control units Ø 22.5 can be fixed in any position on panels of 1 to 6 mm thickness. We recommend minimum fixing centers of 30 mm x 40 mm. However, the dimensions and configuration should be decided on the basis of the application. The actuators and the lense assemblies lock on to the holding bracket using a bayonet type of fixing which enables a simple and fast assembly. The complete assembly is locked into position on the panel by two M4 pointed screws on the bracket, tightened equally from the rear. The screws should be tightened adequately to such an extent as to pierce through the paint on the panel from inside. These screws also ensure the earthing of the unit.

**Fixing arrangement**



**Push Button Stations ( Aluminum die-casting housing)**

Available as empty housing & complete PB Station with actuators.

**Electrical and mechanical characteristics**

**Environment**

Standard conformity	: IEC 947 - 5 (1) 1990, IS 13947
Degree of protection	: IP 65 as per IEC 529,
Ambient	: - 25° C to + 70° C
Operating position	: All positions

**Contact Block**

Rated insulation voltage	: 500 V
Rated thermal current	: 10 A
Contact operation	: Self wiping, slow break NO or NC
Make and break capacity	: AC 15 4 A, 415V AC
As per IEC 947 - 5 - (1) 1990	: DC 13 0.5 A, 110V DC
Terminal capacity	: minimum 1 x 0.5 mm <sup>2</sup> , maximum 2 x 1.5 mm <sup>2</sup> , or 1 x 2.5 mm <sup>2</sup>

**Terminal marking**

Mechanical life : Over 1 million operations

Electric rating (for 1 million operation cycles, operation at 3600 cycles per hour)	AC 15	V	24	120	230
	A	4	3	2	
	DC 13	V	24	110	
	A	0.5	0.2		

**Modules with LED- Pilot lamp, illuminated Pushbuttons & illuminated selector actuator**

Current consumption (applicable to all colours)	
24 VAC/DC, 110 VAC & 240 VAC	: max. 20 mA
110 VDC	: max. 15 mA
220 VDC	: max. 10 mA
Service life (at nominal voltage and at ambient temperature of 25°C)	: 100,000 hours
Voltage limits (nominal voltage)	: < 20% of rated voltage >
Terminal capacity	: min. 1 x 0.5 mm <sup>2</sup> , 2 x 1.5 mm <sup>2</sup> or 1 x 2.5 mm <sup>2</sup>



Mkay Power Controls opens up new chapter in **Alerts Units** and have designed a compact **Electronic Hooter, Buzzer, Flasher, Buzzer & Flasher Combine, Panel top indicator & Bus Bar phase indicators** .

These units are used for typical applications where high alert is a critical requirement :

- ★ In System Protection Units to power systems.
- ★ Machine Tools, Textile machines, Process plants, Telecom towers, High rise buildings etc.
- ★ Conveyors, Hoist, Elevators, Lifts etc.
- ★ Security System, Fire alarm system etc.

**Electronic Hooter - Series ELH**

The control circuit voltage available is 12V AC/DC or 24V AC/DC or 48V AC/DC or 110V AC/DC or 240V AC & multi voltage 12V-110V AC/DC, 240V AC.

**General Features :**

	ELH - 3/ELHU - 3 (96 x 96 mm)	ELH - 1/ELHU - 1 (48 x 48 mm)
Sound Pressure	> 100 db	80 db
Tones	Single and multi tone (3 tones) selectable by shorting link at back of unit	Single and multi tone (4 tones) selectable from front with DIP switch
Operating temperature	- 25°C to 55° C	
Ratings	15 minutes continuous rating	
	Low power consumption	
Terminal	Terminals are provided with shrouds for safety	
Terminal Cross Section (max)	2 x 1.5 sq mm or 1 x 2.5 sq mm	

**'Box type' Buzzer, Flasher, Buzzer & Flasher Combine-MK2-LBF5**

These new standard assemblies using the box type lamp holder, integrated circuit with LED completes the range.

In addition to quality they present the following advantages :

- ★ Noticeable better brightness through the optimal position of the LED.
- ★ An excellent rendering of colours.
- ★ Sound Pressure - 75db (appx.)
- ★ Available in different voltages : 12V, 24V, 48V, 110V AC/DC, 240V AC, 415VAC.

**Panel top indicators & Bus bar phase indicators**

- ★ Panel top and Bus bar phase indicators are available with integrated circuit and LED for better brightness through the optimal position of the LED.
- ★ An excellent rendering of colours available in Red, Green, Yellow, Amber, Blue, White.
- ★ Operating voltage : 12V AC/DC or 24V AC/DC or 110V AC/DC or 240V AC or 415V AC.
- ★ Available in base mounting version.
- ★ Panel top indicators available in Steady and Flasher versions.

Note : All designs, dimensions and specification stated in the catalogue are subject to change without notice.

