



WORLD  
CLASS  
APPLIANCE  
PRODUCTS





We in **Esbee Industrial Combines** manufacture wide range of **22mm Push Button, Signalling Units, Synchronous motors, Industrial fuse, Automobile switches and Appliance switches** for which we have a technical collaboration with **EMB corp. USA**

Over a period of time, we have established the state-of-art facilities from Design to manufacture products all under one roof. We have **ISO 9001:2000** certification for our quality system through **DNV**. A strong believer in Indian product quality, Esbee exports to developed countries such as **USA, Germany, Canada** etc. Our products have international approvals like **CE, CSA, VDE, UL, "S" mark**

Our alliance with giants like **L&T, CGL, EMB corp. USA, Emerson Controls, LG, Whirlpool, Godrej, Electrolux, Videocon, Applicomb** will give you an overview of our capabilities and strength.

In our associate company **General Industrial Controls**, we make wide variety of **Electronic and Electromechanical Timers, Time switches, Hour counters**, and various other similar products. We also manufacturer Defrost Timers for the appliance industry under a technical collaboration with **Emerson Appliance Controls, USA**. We also offer services such as **tool designing, tool Making, mould Making, moulding of plastic material**.



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# MINIATURE SWITCHES

## Technical Information

### Material

Body	Polyamide (Nylon 66)
Rocker	Polyamide / Poly Carbonate
Current carrying parts	Copper / Cu alloy silver plated
Contact parts	Silver alloy / Bimetal

### Properties

Contact Resistance	< 10m ohm
Insulation Resistance	> 20M ohm
Dielectric strength	> 3KV
Inrush Current	75A
Circuit Isolation	> 3mm
Electric life operation	> 10K
Mechanical life operation	> 30K
Operating Temp. Range	-10°C to 85°C

### Colour Code for Switch

Colour	Body	Cap IL	Cap NIL
Black	1	-	1
White	2	-	2
Gray	3	-	3
Red	-	1	4
Green	-	2	5
Amber	-	3	-
Blue	-	4	6

### Current Coding

Code	Current
E	2 Amp
F	4 Amp
G	6 Amp
H	10 Amp
I	16 Amp

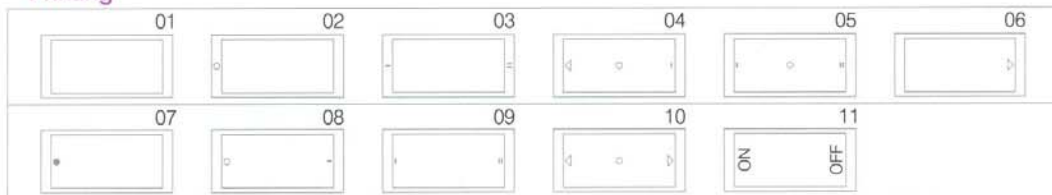
### Type

Illuminated	A
Non Illuminated	B
Dot Illuminated	C

### Function

Code	Function	
W1	On-Off	Single Throw
W2	(On)-Off	Single Throw-Spring Return on 'on' Position
W3	On-(Off)	Single Throw-Spring Return on 'off' Position
X1	On-On	Double throw
X2	On-(On)	Double Throw-Spring Return in one Position
Z1	On-Off-On	Double Throw-Center Off
Z2	(On)-Off-On	Double Throw-Center off with spring Return in one Position
Z3	(On)-Off-(On)	Double Throw-Center off with Spring Return in Both Position
I	Indicator	

### Printing



### Ordering Systems

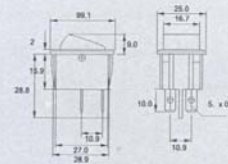
M Series	Current	Type	Function	Colour Body / Cap	Printing
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Example : M1IAW11102 DETAIL:-1)M1 - SERIES 2) I= 16Amp Current 3) A-ILLUMINATED TYPE 4) W1 - ON - OFF FUNCTION  
5)1 - BLACK BODY COLOUR 6)1 - RED ILLUMINATED CAP COLOUR 7)02 - PRINTING TYPE



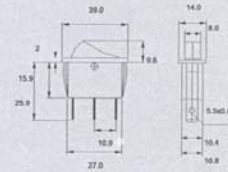
### M1 series

Function	Double Pole - W1, W2, W3, X1, X2, Z1, Z2, Z3, I
Rating	16 / 10 / 6A, 250V AC
Type	A / B
Cut out size	22 mm x 30 mm



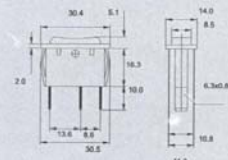
### M2 series

Function	Single Pole - W1, W2, W3, X1, X2, Z1, Z2, Z3, I
Rating	16 / 10 / 6A, 250V AC
Type	A / B
Cut out size	11 mm x 30 mm



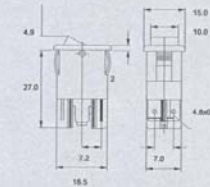
### M3 series

Function	Single Pole - W2, W3, X2, Z1, Z2, Z3
Rating	10, 250V AC
Type	B
Cut out size	11.5 mm x 28.2 mm



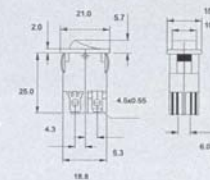
### M4 series

Function	Double Pole - W1, X1, I
Rating	6A, 250V AC
Type	A / B / C
Cut out size	12.9 mm x 19.2 mm



### M5 series

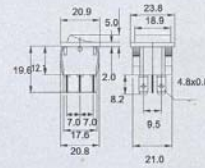
Function	Double Pole - W1
Rating	4A, 250V AC
Type	A / B
Cut out size	12.9 mm x 19.2 mm





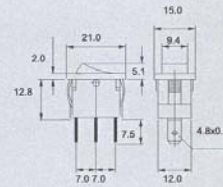
### M6 series

Function	Double Pole - W1, W2, W3, X1, X2, Z1, Z2, Z3
Rating	6A, 250V AC
Type	A / B
Cut out size	19 mm x 22 mm



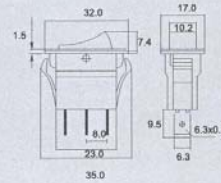
### M7 series

Function	Single Pole - W1, W2, W3, X1, X2, Z1, Z2, Z3, I
Rating	6 / 2A, 250V AC
Type	A / B
Cut out size	12.9 mm x 19.2 mm



### M8 series

Function	Single Pole - W1
Rating	7.5A, 250V AC
Type	A / B
Cut out size	13.6 mm x 29.8 mm



## Application of Miniature switches

- Home Appliance Industries  
(Food Processor, Air Conditioners, Air Coolers, Water Purifiers. & Others)
- Electrical & Electronics Instruments
- Telecommunication.
- Computers.
- Instrumentation Equipments.
- Office Automation (Like Photo Copier, Stabilizer, UPS, Printers & Others.)
- Power Supply Units.
- Panel switches (Automobile & Others.)
- Medical Equipments.



# APPLIANCE SWITCHES





## ROCKER SWITCH...

### Electrical Ratings

125V AC, 5A / 250V AC, 2.5A

**Product Life** : 1.5 Lac operating cycles for NO contact &  
3 Lac operating cycles for NC contacts  
with Lamp load of 100 W, at 250 VAC.

### Types Available

- |  |                 |
|--|-----------------|
| 1) S.P.S.T - (with NO contacts)        | Cat No : KC81A2 |
| 2) S.P.S.T - (with NC contacts)        | Cat No : KC81B2 |
| 3) S.P.D.T - (with 1NO + 1NC contacts) | Cat No : KC81C2 |

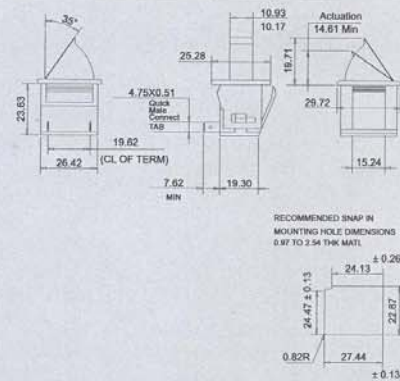
### Features

- ◆ Material : Nylon 6/6.
- ◆ Standard Switch housing and Actuator colour : Ivory White.
- ◆ Degree of protection : IP20.
- ◆ Various height actuator buttons available.
- ◆ Snap - in panel mounting.
- ◆ Switch complies to CSA standards (IEC 6105831).
- ◆ Quick connect terminals : 4.75 x 0.5 mm thick.
- ◆ Operating temperature range : 0°C to 55°C

\* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



## PLUNGER SWITCH...

### Electrical Ratings

250V AC, 0.1 A.

**Product Life** : 3 Lac operating cycles with 25 W lamp load, at 250 VAC.

### Types Available

- ◆ Round head :
  - Small Plunger - (with NC contacts), Cat No : SC71B2
  - Medium Plunger - (with NC contacts), Cat No : LC71B2
  - Large Plunger - (with NC contacts), Cat No : KC71B2
- ◆ Rectangular head - (with NC contacts), Cat No : KC61B2

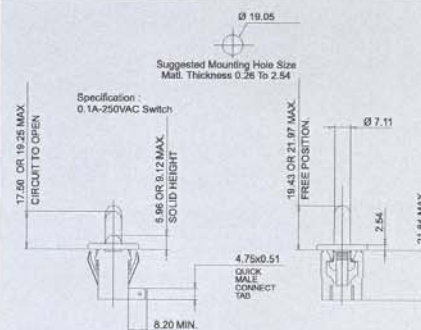
### Features

- ◆ Material : Nylon 6/6.
- ◆ Standard Switch housing and Actuator colour : Ivory White
- ◆ Degree of protection : IP20.
- ◆ Various height Actuator buttons (plunger) available.
- ◆ Snap - in panel mounting.
- ◆ Switch complies to CSA standards (IEC 6105831).
- ◆ Quick connect terminals : 4.75 x 0.5 mm thick.
- ◆ Operating temperature range : 0°C to 55°C

\* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



**Note** : • NO : Normally Open Contacts / NC : Normally Closed Contacts.  
S.P.S.T : Single Pole Single Throw / S.P.D.T : Single Pole Double Throw.

## PUSH SWITCH...

### Electrical Ratings

250V, 0.5 A / 125V, 1 A.

**Product Life** : 3 Lac operating cycles with 60 W filament lamp load, at 250V AC.

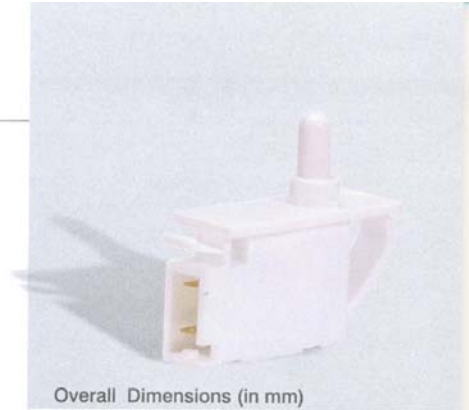
### Types Available

- |  |                  |
|--|------------------|
| 1) S.P.S.T - (with NO contacts)        | Cat No : SC161Z2 |
| 2) S.P.S.T - (with NC contacts)        | Cat No : SC191Z2 |
| 3) S.P.D.T - (with 1NO + 1NC contacts) | Cat No : SC201Z2 |

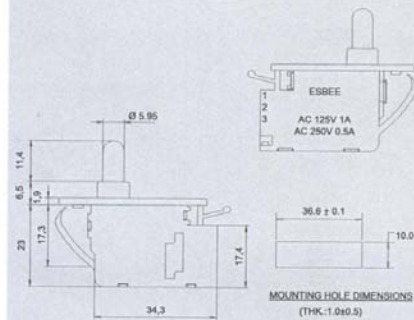
### Features

- ◆ Material : Nylon 66.
- ◆ Standard colour : Ivory White.
- ◆ Snap - in Panel mounting.
- ◆ Quick connect terminals : 2.8 x 0.5 mm thick.
- ◆ Operating temperature range : -10°C to 80°C

\* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



## DOUBLE PLUNGER SWITCH...

### Electrical Ratings

125V AC, 0.5 A / 250V AC, 0.25 A

**Product Life** : 1.5 Lac operating cycles for NO contact & 3 Lac operating cycles for NC contacts with Lamp load of 25 W, at 250 VAC.

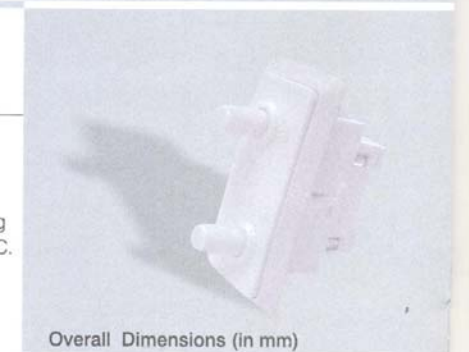
### Types Available

With 1 NO + 2 NC contacts, Cat No : NC61B2

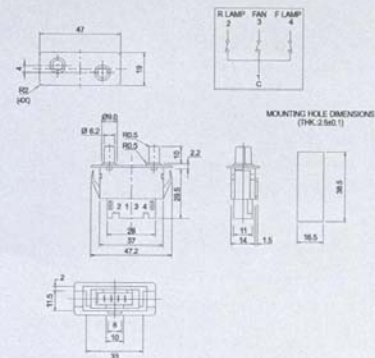
### Features

- ◆ Material : Nylon 66.
- ◆ Standard colour : Ivory White.
- ◆ Degree of Protection : IP20.
- ◆ Snap - in panel mounting.
- ◆ Quick connect terminals : 2.8 x 0.5 mm thick.
- ◆ Operating temperature range : -10°C to 80°C.

\* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



## E-14 LAMP SOCKET (SHUTTLE TYPE)...

### Electrical Ratings

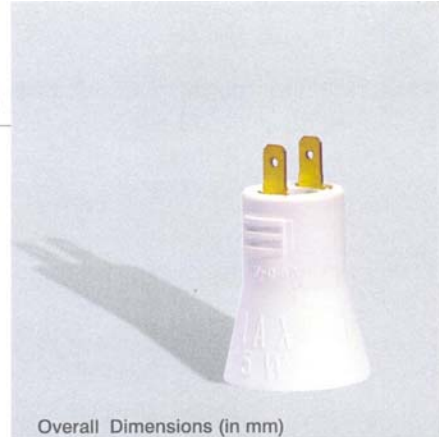
15 W Max / 250V, 0.5 A.

### Types Available

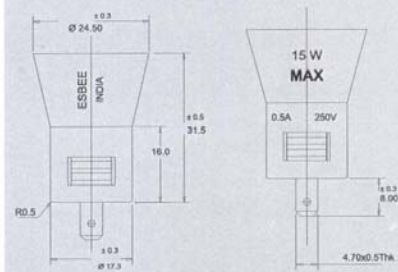
Shuttle Type without Projection    Cat No : LC132Z2.  
Shuttle Type with Projection        Cat No : LC133Z2.

### Features

- ◆ Material : NYLON 66, confirming to UL94.
  - ◆ Standard colour : Ivory White.
  - ◆ Product approved by TUV  
(with reference to standard : EN60238 : 1998 + A1).
  - ◆ Quick connect terminals : 4.3 x 0.6 mm thick.
  - ◆ Operating temperature range : -30°C to 80°C.
- \* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



## E-14 LAMP SOCKET (L - SHAPE)...

### Electrical Ratings

250V AC / 1 A.

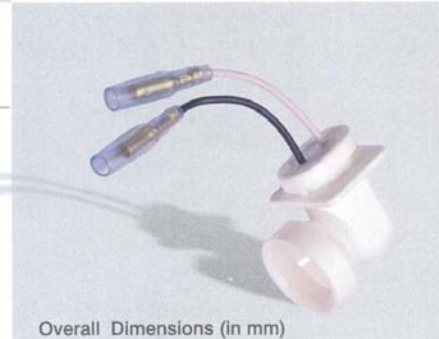
### Types Available

Cat No : PC132Z2

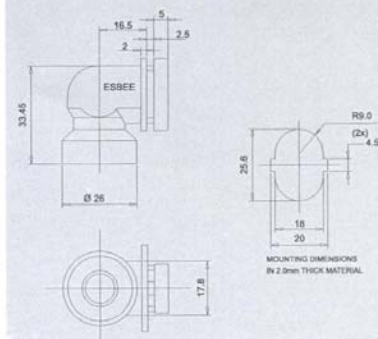
### Features

- ◆ Material : PB.T.
- ◆ Standard colour : Ivory White.
- ◆ Water proof.
- ◆ Fire retardant.
- ◆ Lead wires and connectors provided : As per customer requirement.
- ◆ Product approved by TUV  
(with reference to standard : EN60238 : 1998 + A1).
- ◆ Operating temperature range : -30°C to 80°C.

\* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



## E-12 LAMP SOCKET (L - SHAPE)...

### Electrical Ratings

250V AC, 1 A.

### Types Available

Cat No : PC251Z1.

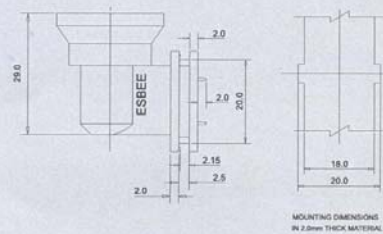
### Features

- ◆ Material : P.B.T.
- ◆ Water proof.
- ◆ Fire retardant.
- ◆ Standard colour : Ivory White.
- ◆ Quick connect terminals : 4.3 x 0.6 mm thick.
- ◆ Operating temperature range : -10°C to 85°C.

\* Optional : Other Colours available on customer request.



Overall Dimensions (in mm)



## LEAF SWITCH...

### Electrical Ratings

125V AC, 5A / 250V AC, 2.5A.

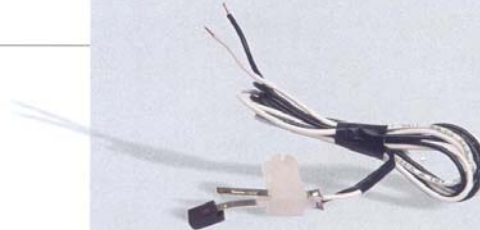
Product Life : 20,000 operating cycles.

### Types Available

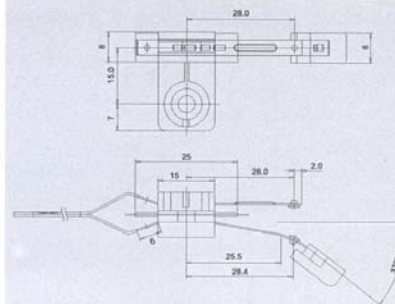
S.P.S.T - (with NO contacts), Cat No : TH212U2.

### Features

- ◆ Material : Nylon 6.
- ◆ Lead wires and connectors as standard Accessory.
- ◆ Screw mounting.
- ◆ Operating temperature range : -10°C to 80°C



Overall Dimensions (in mm)



Note : - NO : Normally Open Contacts / NC : Normally Closed Contacts.  
S.P.S.T : Single Pole Single Throw / S.P.D.T : Single Pole Double Throw.

## APPLICATIONS...

- 1) Appliance Industry :  
Refrigerators, Washing machines, Airconditioners etc.
- 2) Office automation equipments.
- 3) Automobiles.
- 4) Control panel & Instrumentation.

## CUSTOMER LIST...

Our Esteemed Clientele List Includes

Corporate Giants Like :

- EMB Corporation (USA)
- LG Electronics
- Godrej
- Whirlpool
- Electrolux - Kelvinator
- Daewoo - Anchor
- Applicom
- Voltas
- BPL
- Videocon

*Product improvement is a continuous process.  
For the latest information, product demonstration and special applications, please contact at :*

*Manufactured & Marketed by :*



**ESBEE**  
switch to perfection

**Esbee Industrial Combines**

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