

**General Information** These versatile miniature switches have 25.4 mm diameter moulded wafers and are available in 2 versions, 36° indexing - having 18 clip positions and 30° indexing - having 22 such positions. 15°, 45° and 60° indexing are variations of the latter. Optional features include concentric shafts, panel and spindle seals, printed circuit termination's and momentary contact models.

**Characteristics.**

Electrical, Maximum working voltage,	300Vdc/ac (rms).
Contact rating, Current carrying	2amp continuous.
Current breaking with a resistive/non-reactive load.	150mA at 250Vac (rms)..
Proof Voltage.	1000Vrms at sea level.
Insulation resistance.	Not less than 500 megohms at 500Vdc. (between any 2 parts requiring electrical insulation)
Contact resistance (initial).	10 milliohms maximum at 100mV (rms). 100mA.max.
Mechanical.	
End stop strength.	0,8 ± 0,1 Nm (114oz.in.)
	Temperature range. -40°C. to +100°C.

**Maximum Switching Per Wafer**

No. of Poles.	36° MU-MA (b)	30° MU-MA (a)	45° MU-MA (c)	60° MU-MA (d)	15° MU-MG
	10 Positions.	12 Positions.			2 wafers
1 Pole.	2 to 10 ways	2 to 12 ways	2 to 8 ways	2 to 6 ways	providing 1 pole
2 Pole.	2 to 5 ways	2 to 7 ways	(fixed stop at	2 to 6 ways	24 way
3 Pole.	2 to 4 ways	2 to 5 ways	positions 3, 5,	2 or 3 ways	switching.
4 Pole.	2 or 3 ways	2 to 4 ways	and 7 ways)	2 or 3 ways	
5 Pole.	-	2 to 3 ways		2 ways only	
6 Pole.	-	2 ways only		on-off	
7 Pole.	-	2 ways only		-	

**Index Mechanism.**

The Type MU mechanism provides indexing angles of 30°, 36°, 45° and 60°, (see Bulletin RW36 for full technical details).

The low friction moulded cam followers in the assembly ensures a smooth indexing action.

Balance pressure springs provide consistent and readily reproducible total switch torque values within the following ranges.

Light	7 to 18 x 10 <sup>-2</sup> Nm (10 to 26 oz, ins,)	Medium	14 to 32 x 10 <sup>-2</sup> Nm (20 to 46 oz, ins,)
High	28 to 56 x 10 <sup>-2</sup> Nm (40 to 80 oz, ins,)		

Type A indexing mechanism may also be used as an alternative where a simpler, space saving mechanism is required. The switch then becomes model A-MA. 30° indexing only.

**Contacts & Termination's.**

Standard. Silver plated brass.  
 Alternatives. - Hard gold plated or silver contacts are available at extra cost as are contacts with gold flash.  
 Termination's. - Forward, standard: Straight, alternative.

**Rotor Blades.**

Standard. - Shorting. (make before break. MBB.)  
 Alternative. - Non-shorting. (break before make. BBM.)

**Insulation.**

Stator. - Moulded glass fibre loaded diallylphthalate (DAP)  
 Rotor. - Polycarbonate.

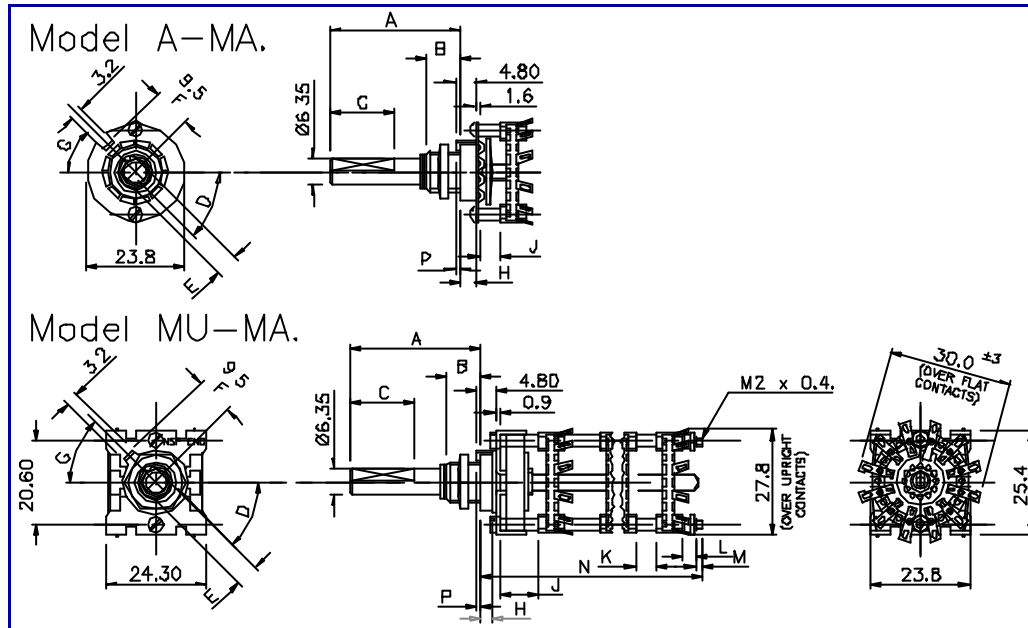
**Finish.**

Index Springs, Stainless steel: other metal parts, passivated zinc plated. Finishes to order.

**Mounting Details.**

Imperial (standard).	Metric (alternative)
Bush 3/8" x 32TPI (Whit.)	M10 x 0.75.
Shaft 0.25" dia.	6mm, dia.
Nut 0.525" A/F.	14mm A/F.

- Variations.
1. Biased indexing is available giving momentary contact on positions 8 to 7, 5 to 4, 4 to 3, 3 to 2 and 2 to 1 as well as 3 position biased to centre.
  2. Concentric shafts - dual concentric shafts and mechanisms for dual switching applications. (Not available for 36° indexing).
  3. Insulated shafts.
  4. Electrostatic shields.
  5. Printed circuit termination's - 2 types are available giving a variation in mounting height of the wafer above the P.C.board.
  6. Adjustable stops - 2 types are available.
    - Front - can be set without dismantling the switch and are available on models MU-MA (a),(d) and A-MA with imperial bush.
    - Rear - for use with all other indexing variations both Imperial and Metric versions.



### Dimensions Are In Millimetres

#### Key To Details

- |  |  |
|--|--|
| A. Shaft length: optional $\pm 0.40$ (0.016")  | H. Bushing shoulder; standard 3,2 (0.125")   |
| B. Bushing thread length: preferred standard 9.5 (0.375"); 6.35 (0.250") available as an alternative. Special lengths if necessary   | J. Front spacer, minimum dimension: MU-MA 9,5 (0.375"), A-MA 5   |
| C. Flat length: length to specification. Tolerance $\pm 0.40$ (0.016"). Special shaft termination's may be provided to special requirements.   | K. Other spacers: minimum dimensions.<br>Clips facing same direction NIL.<br>Clips facing away or flat clips NIL.<br>Clips facing each other 3 |
| D. Angle of flat: to specification $\pm 2^\circ$ ; specify position of flat, with switch shaft in <b>fully anti-clockwise</b> position when viewed from front or knob end.                                       | L. If no spacer 2,4 . Any length spacer desired may be inserted at this point.   |
| E. Flat thickness: standard $5.55 \pm 0.15$ for grub screws; $4.95 \pm 0.05$ for push-on knobs.  | M. Thread extension: typically 3 x M2 x 0,4 any length desired.  |
| F. Distance of locating lug from shaft, centre line to centre line.  | P. Standard locating lug lengths:<br>unsealed, projects 1.6 beyond mounting face;<br>sealed, 0,05 / 0,15 below mounting face;                  |
| G. Angle of locating lug: type MU mechanism; $45^\circ, 135^\circ, 225^\circ$ and $315^\circ$ from horizontal centre line; the alternative "A" type mechanism also includes $0^\circ$ and $180^\circ$ as viewed. |  |

### General Information

These slim indexing mechanisms provide a reduced dimension behind the panel compared with the standard mechanisms.

- Features,
- Lower noise from the indexing with energy absorbing moulded components.
  - Exceptional electrical insulation.
  - Low capacitance.
  - Quiet operation with low friction factor.
  - Hygienic and corrosion resistance.
  - High strength moulded bush.
  - No additional lubrication from enclosed indexing mechanism.

### New feature,

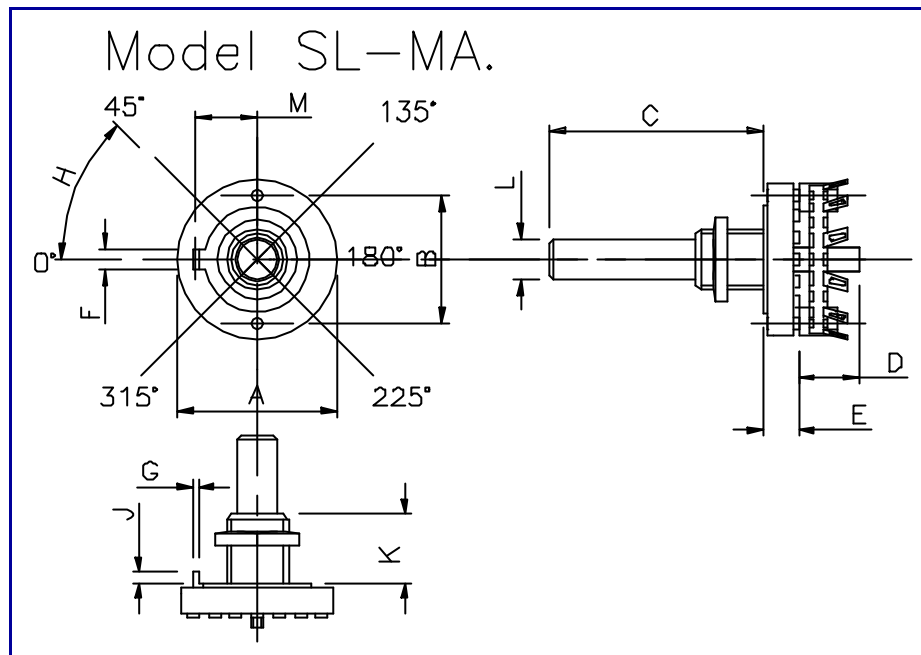
A recent improvement to the action on the 30° mechanism has improved the **positive action** or feel of the switch providing a more precise indexing which is almost impossible to tease indexed positions. To order this option please specify positive action version.

### Specification. Materials :-

- Shaft and index wheel, Adjustable stop plate and Index housing :- Glass Filled Nylon.
- Plunger :- Polyacetal.
- Index springs :- Spring Music Wire
- Torque :- Standard, 13 oz.ins.
- Life :- 20,000 cycles.
- Stops :- One fixed stop in the housing with a rear adjustable stop plate.
- Struts :- Standard 2mm. dia. maximum length 54mm.
- Shaft :- Round, standard :- flats, to order.
- Maximum number of wafers per switch :- 3 (depending on total number of poles perswitch).
- Maximum number of poles per switch :- 8
- Special switching requirements will be considered on request.
- Sealing :- Not available.

### Maximum Switching.

No. of Poles.	30° Index.MA	30° Index.PCA	30° Index. A	36° Index.MA
	12 Positions.	12 Positions.	12 Positions.	10 Positions.
1 Pole.	2 to 12 ways	2 to 12 ways	2 to 12 ways	2 to 10 ways
2 Pole.	2 to 7 ways	2 to 6 ways	2 to 6 ways	2 to 5 ways
3 Pole.	2 to 5 ways	2 to 3 ways	2 to 5 ways	2 to 4 ways
4 Pole.	2 to 4 ways	2 ways only	2 to 4 ways	2 or 3 ways
5 Pole.	2 to 3 ways	-	2 ways only	-
6 Pole.	2 ways only	-	2 ways only	-
7 Pole.	2 ways only	-	-	-



**Dimensions Are In Millimetres**

#### Key To Details

- A. Diameter of mechanism ; - 25,4mm
- B. Strut centres ; - 20,6mm
- C. Front shaft ; - 48,6mm maximum
- D. Rear shaft ; - 28,9mm
- E. Mounting face to first wafer ; -  
MA model 6,3mm  
PCA model and A models 9,5mm
- F. Locating lug width ; - 3,2mm
- G. Location lug thickness ; - 1,5mm
- H. Angle of locating lug ; - standard, 0 and 180 degrees ;  
to order, 45°, 135°, 225° and 315°
- J. Locating lug depth ; 2,4mm.  
Protrudes 1,7mm from mounting face.
- K. Bushing thread length ; 10mm thread M10 x 0,75.
- L. Shaft diameter ; 6mm
- M. Distance of locating lug from centre line through  
shaft ; 9,5mm.

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