

ROTARY SWITCHES



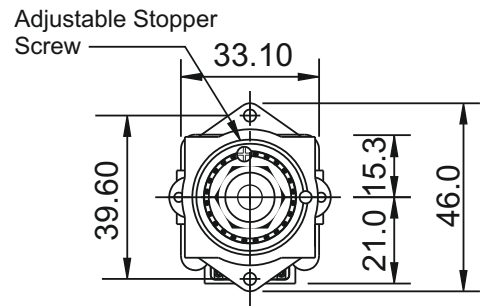
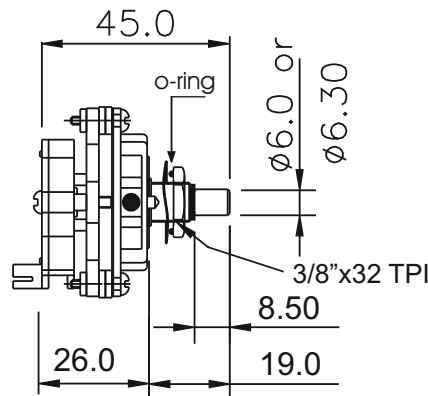
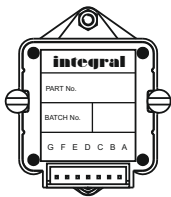
Series 32

DESCRIPTION

Integral Rotary Switch Series 32 satisfies the user requirement for a low profile, high quality switch with a smooth rotation feel. The design of the contacts using special copper alloy, with Gold plated. Gives reliable contact through out the switch life. The main contact area is sealed. The panel can be protected from water proof O-ring. The digital code switch can largely reduce wires. It can be connected through a connector. The No. of positions can be easily adjusted after changing stopper screws from 2nd hole to 24 th hole. inhibit terminals or Parity terminals are provided for codes.



DIMENSIONAL DETAILS



All Dimensions in mm.

SPECIFICATIONS :

CONTACT RATING	: 0.5A @ 5 V AC 0.0.25A @ 5 V DC
CONTACT RESISTANCE	: 100 m ohms initial
INSULATION RESISTANCE	: 500M ohms @ 250 V
OPERATING TEMP. RANGE	: -25°C to +85°C
LIFE MECHANICAL LIFE	: 50,000 cycles
ELECTRICAL LIFE	: 25,000 cycles with load
ROTATING TORQUE	: 300 - 500 gms.

MATERIALS & FINISHES

BASE	: Glass filled NYLON 30%
CASE, COVER & ROTOR	: Glass filled PBT
PCB	: Glass Epoxy Nema FR4
CAM	: CRCA, Zinc plated.
CONTACTS	: Be. Cu Gold plated.
BRACKET	: Stainless Steel
SHAFT	: Steel, Zinc plated.
STOPPER SCREW	: Stainless Steel.

TRUTH TABLE SELECTION

B: REAL BINARY - BCD

Bits No.	0	1	2	4	8	16	Inhibit	Com
0								
1		●						●
2			●					●
3		●	●					●
4				●				●
5		●		●				●
6			●	●				●
7		●	●	●				●
8					●			●
9		●						●
10			●		●			●
11		●	●		●			●
12				●	●			●
13		●		●	●			●
14			●	●	●			●
15		●	●	●	●			●
16						●		●
17		●				●		●
18			●			●		●
19		●	●			●		●
20				●		●		●
21		●	●			●		●
22			●	●		●		●
23		●	●	●		●		●

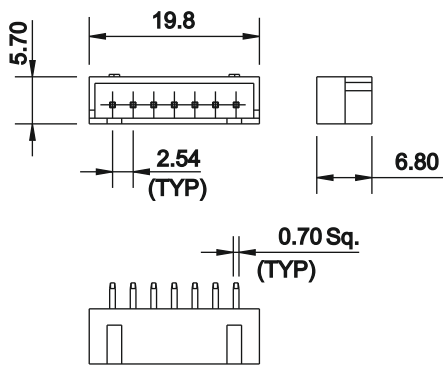
C: COMPLEMENTARY BINARY - BCD

Bits No.	0	1	2	4	8	16	Inhibit	Com
0	●	●	●	●	●	●	●	●
1		●	●	●	●	●	●	●
2		●		●	●	●	●	●
3			●	●	●	●	●	●
4		●	●		●	●	●	●
5			●		●	●	●	●
6		●		●	●	●	●	●
7				●	●	●	●	●
8		●	●	●		●	●	●
9				●	●	●	●	●
10		●		●		●	●	●
11			●		●	●	●	●
12		●	●		●	●	●	●
13			●		●	●	●	●
14		●		●		●	●	●
15			●	●		●	●	●
16		●	●	●	●		●	●
17			●	●	●		●	●
18		●		●	●		●	●
19			●	●	●		●	●
20		●	●		●		●	●
21			●		●		●	●
22		●		●			●	●
23			●	●	●		●	●

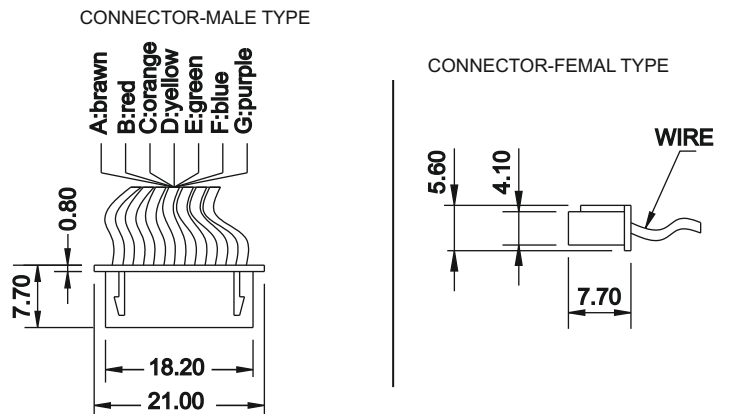
G: REAL GRAY

Bits No.	0	1	2	4	8	16	Inhibit	Com
0								
1		●						●
2			●					●
3				●				●
4			●	●				●
5		●	●					●
6				●	●			●
7			●		●			●
8		●		●				●
9			●	●				●
10		●	●		●			●
11				●	●			●
12			●		●			●
13		●	●					●
14				●	●			●
15			●	●				●
16				●	●	●		●
17		●		●	●			●
18			●		●	●		●
19		●	●			●		●
20			●	●	●			●
21		●		●	●			●
22			●	●	●			●
23		●	●	●	●			●

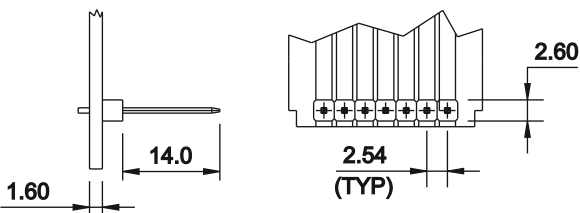
1. WITHOUT WIRE



2. WITH WIRE



3. BERG STICK TYPE



The switch can be ordered as given below, for 24 position can be adjustable to 2 to 24 positions.

ORDERING INFORMATION -

3	2					
No. of Position	Angle of Throw	Out Put	Termination	Shaft Dia		
02 to 24	15 - 15 22 - 22.5 30 - 30	B - BCD G - GREY * C - COMP	0 - W/O Connector 1 - With Connector w/o wire 2 - Connector (7 pin) with wire- to match with sel.1 3 - Berg Stick Stright	1 - ϕ 6.0 2 - ϕ 6.35		

* C - COMP = Complementary

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ROTARY SWITCHES

Series 23

DESCRIPTION

Integral Series 23 Professional Grade Rotary Switches are ideally suited for use in Industrial and Laboratory equipments, as they provide a dust-free splash-proof enclosure of the contacts.

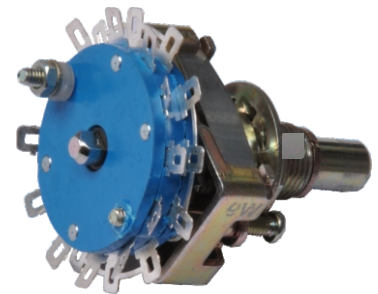
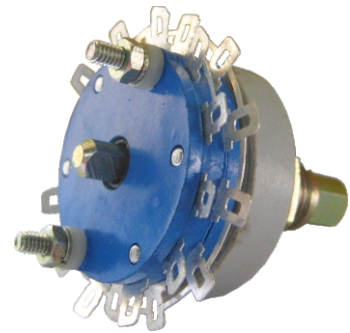
Wiping self cleaning contacts with a smooth gold plated ball-contact result in long term reliability and consistent quality.

Variety of switching configuration meet most of the design requirements of the user.

Assembly options are possible with the use of spacers, shields etc. and permit custom built switches. 'O' ring sealing is available for both spindle and panel mounting bush. The balanced pressure indexing mechanism provided by 2 balls housed in a Sheet metal or Engineering Plastic housing provides smooth positive action with consistent and repeatable torque.

FEATURES

- Wiping Self Cleaning Contacts
- Sealed Contacts
- Long life and consistent electrical performance
- Make before Break, Break before Make or special rotor segments
- Choice of 30°, 60° and 90° indexing angles
- Hollow shafts for operating a pot meter mounted at the rear of the switches (on request)
- Spaces between wafers will facilitate component mounting on the switch itself
- Shields between wafers as per customers requirements
- Gold plating on contacts available as per requirement
- 'O' Ring Sealing available for panel and spindle seal on request
- In case of space constraints Engineer Plastic Housing is an option available.

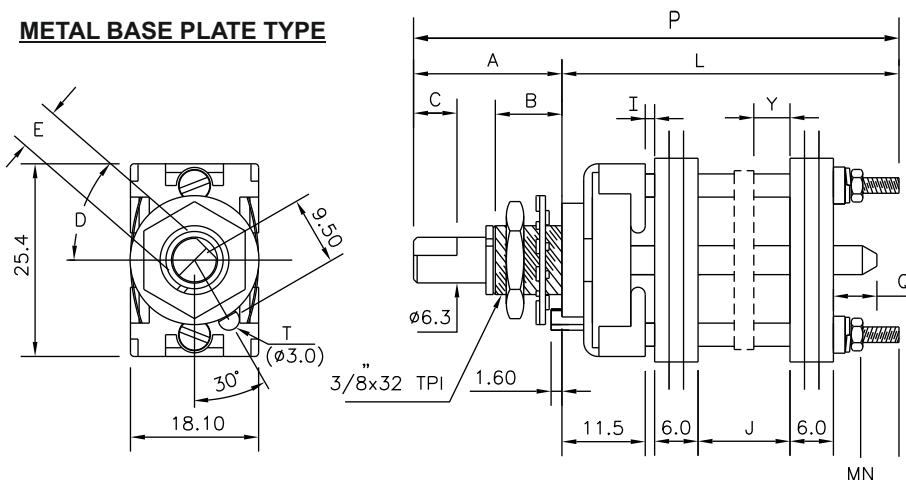


Standard circuit possible at 30° throw - indexing angle.

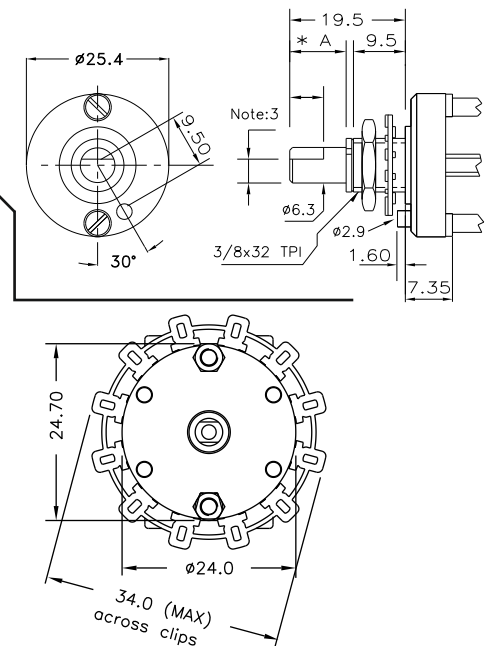
1 pole - 2 way to 12 way	3 pole - 2 way to 4 way
2 pole - 2 way to 6 way	4 pole - 2 way to 3 way

DIMENSIONAL DETAILS :

METAL BASE PLATE TYPE



PLASTIC HOUSING TYPE



All Dimensions in mm.

SPECIFICATIONS

CONTACT RATING	
CURRENT CARRYING	: 2 amps (non-switching)
CURRENT BREAKING	: 0.1 amps @ 28 V DC 0.25 amps @ 100 V AC
WORKING VOLTAGE	: 230 V AC (max)
INSULATION RESISTANCE	: 1000 Megohms (between any two insulated parts)
VOLTAGE PROOF	: min 1000 V AC
CONTACT RESISTANCE	: <40 milliohms (Initial - adjacent contacts) @ 2-4V DC
TEMPERATURE RANGE	: -65°C to 70°C
LIFE	: 25,000 operations
INDEX ANGLE	: 30°, 60° & 90°
SEALING	: Panel & Shaft seal on request

MATERIALS & FINISHES

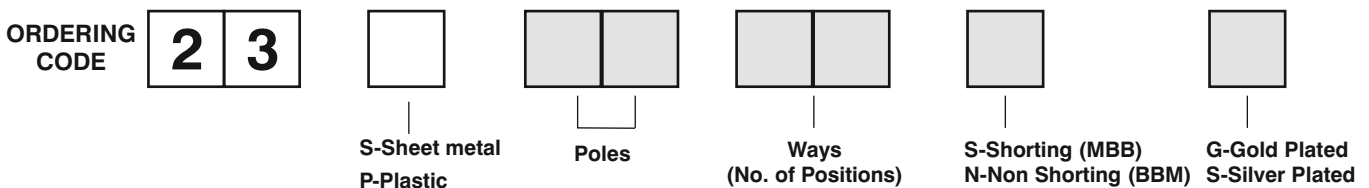
CONTACT CLIPS	: Spring hard Copper heavily silver plated
ROTOR	: Brass ball hard gold plated
STATOR & ROTOR	: Moulded glass fibre loaded Diallyl Phthalate / Nylon / Polycarbonate
BASE	: Sheet Metal housing Zn plated and passivated. In some cases high temperature engineering plastics are also used.
INDEX MECHANISM	: Index springs stainless steel & other parts Zn blue plated and passivated.

CHECK LIST FOR ORDERING : Given below are the variations possible in the Switch. Please take care to see that all these points are taken note of if you are ordering a custom-built special switch. For contact configuration, other than standard, use the layout sheet available on request.

A - Shaft length - 10 mm (dia 6.35 mm)	N - 1.5mm to 5.0mm to suit standard screw available
B - Bushing thread length - 9.5 mm / Threads 3/8"x32 TPI (Length 6.35 mm available on request)	L/P - Specify maximum overall length, if important
C - Flat length - Standard 6mm (in no case closer than 3 mm from end of bushing - Optional)	Q - Shaft extension at rear nominal 2.0mm to 6.0mm (to suit standard shaft available)
D - Angle of flat - Multiples of 15° ± 3° (specify position of flat with switch shaft in fully counter-clockwise position when viewed from front or knob end)	R - Index angle 30°, 60° & 90°
E - Flat Dimension - 5.5 ± 0.1 mm	S - Stopper - Yes / No
I - First spacer - 0.8 mm with standard clips (No spacer needed if no clip present)	T - Locating Lug - Yes / No
J - Spacer - 0.8 mm	U - Hollow shaft (on request)
M - Standard 1.6 mm min (Any length spacer may be inserted at this point)	V - No. of Poles/Ways
	W - Contact Terminals - Solder type
	X - Contact - Silver/Gold plating/Silver alloy
	Y - Shields (dimension/position)
	Z - Contact Type - Shorting MBB-S/Non - shorting BBM-N

HOW TO ORDER

- For standard switch by describing as given below.
- For special assembly use layout or send drawings.



integral

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ROTARY SWITCHES



Series 25

DESCRIPTION

Integral Series 25 Professional grade Rotary Switches are ideally suited for use in Industrial and Laboratory equipments. Double wiping self cleaning contacts and choice of excellent Dielectric materials and suitable plating finishes result in long term reliability and consistent quality. An almost infinite variety of switching configuration meet most of the design requirements of the user. Assembly options are possible with the use of spacers, shields etc. and permit custom built switches. 'O' ring sealing is available for both spindle and panel mounting bush. The balanced pressure indexing mechanism provided by 2 balls housed in a steel base provides smooth positive action with consistent and repeatable torque. **Switches type equivalent to JSS 51207 available.**

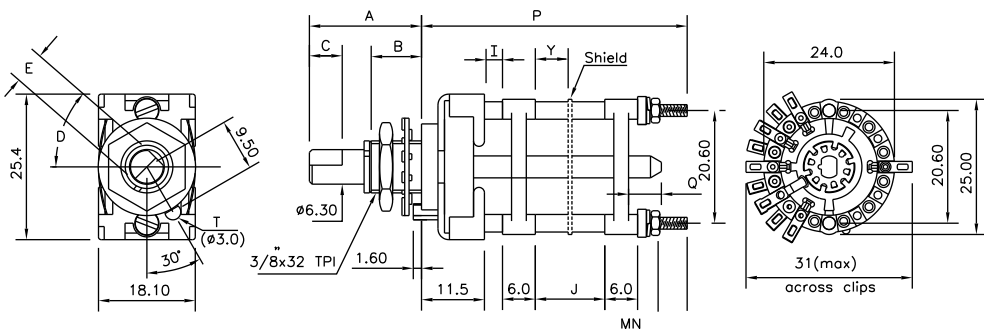


FEATURES

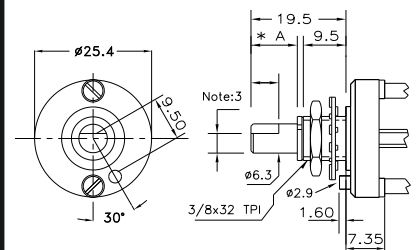
- Choice of 30°, 45°, 60° and 90° indexing angles.
- Make before Break, Break before Make or special rotor segments
- Insulated shafts for RF circuits
- Concentric shafts for operating a pot meter mounted at the rear of the switch (on request)
- Rigid or Flexible Tag PCB terminals (for single wafer only)
- Shields between wafers as per customer requirements
- Gold plating on clips/rotors available
- Dust proof caps to protect contacts from dust available
- Type approved to JSS 51207 available (with coin silver clips and panel and spindle seal)

DIMENSIONAL DETAILS

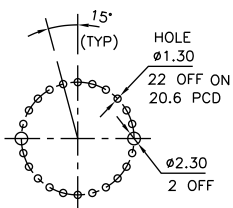
METAL BASE PLATE TYPE



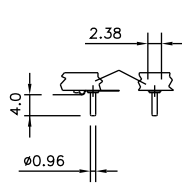
PLASTIC HOUSING TYPE



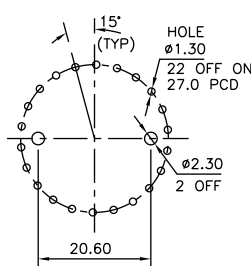
PCB LAYOUT



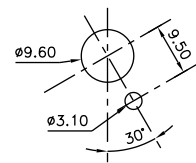
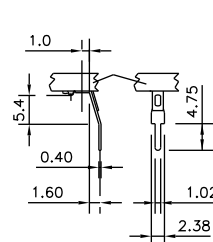
PCB PIN DETAIL



PCB PIN LAYOUT



PCB LUG DETAIL



SWITCH FIXING HOLES DETAILS

All Dimensions in mm.

SPECIFICATIONS

CONTACT RATING	
CURRENT CARRYING	: 2 amps (non-switching)
CURRENT BREAKING	: 0.5 amps @ 28 V DC 0.25 amps @ 110 V AC (Resistive)
WORKING VOLTAGE	: 230 V AC (max)
INSULATION RESISTANCE	: > 1000 Megohms (between any two insulated parts)
VOLTAGE PROOF	: min 750 V AC
CONTACT RESISTANCE	: < 15 milliohms (Initial - adjacent Contact) @ 2-4V DC
TEMPERATURE RANGE	: -65°C to 85°C
LIFE	: 25,000 operations
INDEX ANGLE	: 30°, 45°, 60° & 90°
SEALING	: Panel & Shaft seal on request (Standard on switches which meet JSS51207)

MATERIALS & FINISHES

CONTACT CLIPS	: Spring hard brass heavily Silver Plated / Gold plated / Silver alloy
ROTOR BLADES	: Brass heavily Silver plated / Gold plated
STATOR & ROTOR	: Moulded glass fibre loaded Diallyl Phthalate / Nylon / PC
BASE	: Steel sheet Zn plated And passivated. In some cases high temperature Engineering plastics are also used.
INDEX MECHANISM	: Index springs stainless steel & other parts zinc yellow plated And passivated.

CHECK LIST FOR ORDERING : Given below are the variations possible in the Switch. Please take care to see that all these points are taken note of if you are ordering a custom-built special switch. For contact configuration, other than standard, use the layout sheet available on request.

A - Shaft length - 10 mm (dia 6.35 mm)	L/P - Specify maximum overall length, if important
B - Bushing thread length - 9.5 mm / Threads 3/8"x32 TPI (Length 6.35 mm available on request)	Q - Shaft extension at rear nominal 2.0mm to 6.0mm (to suit standard shaft available)
C - Flat length - Standard 6mm (in no case closer than 3 mm from end of bushing) Optional	R - Index angle 30°, 45°, 60° & 90°
D - Angle of flat - Multiples of 15° ± 3° (specify position of flat with switch shaft in fully counter-clockwise position when viewed from front or knob end)	S - Stopper - Yes/No
E - Flat Dimension - 5.5 ± 0.1 mm	T - Locating Lug - Yes/No
I - First spacer - 3.0 mm with standard clips (No spacer needed if no clip present)	U - Hollow shaft
J - Spacer - 5.0mm with standard clips facing each other	V - No. of Poles/Ways
M - Standard 4.0mm min (Any length spacer may be inserted at this point)	W - Contact Terminals - Solder type/PCB type
N - 1.5mm to 5.0mm to suit standard screw available	X - Contact - Silver/Gold plating/Silver alloy
	Y - Shields (dimension/position)
	Z - Rotor - Non shorting (Break before Make) - N Shorting (Make before Break) - S

HOW TO ORDER

1. For standard switch by describing as given below.
2. For special assembly use layout or send drawings.

ORDERING CODE	2	5									
	S- Sheet metal	No. of Poles	No. of Ways (Positions)	N-Non Shorting	S-Shorting	Clips	G-Gold Plated	D - Dust Cover	P - PC pins		*
	P- Plastic					B-Brass Silver Plated	C-Coin Silver		PL - PC lugs		

* Note:- PC Pins & PC Lugs can be Supplied only without Dust Cover.

LEVER SWITCHES



Series 25

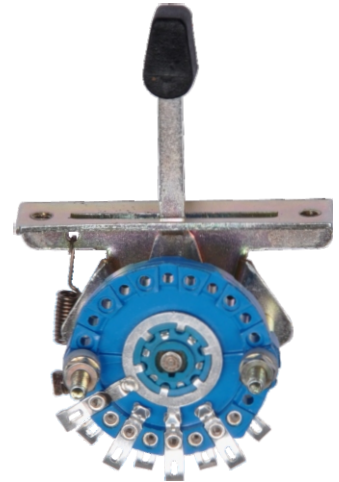
DESCRIPTION

Integral Series 25 ILS Lever switch takes minimum space behind the panel and makes operation from the front very convenient. Variations in the lever design permit standard 2 to 3 position and spring return action.

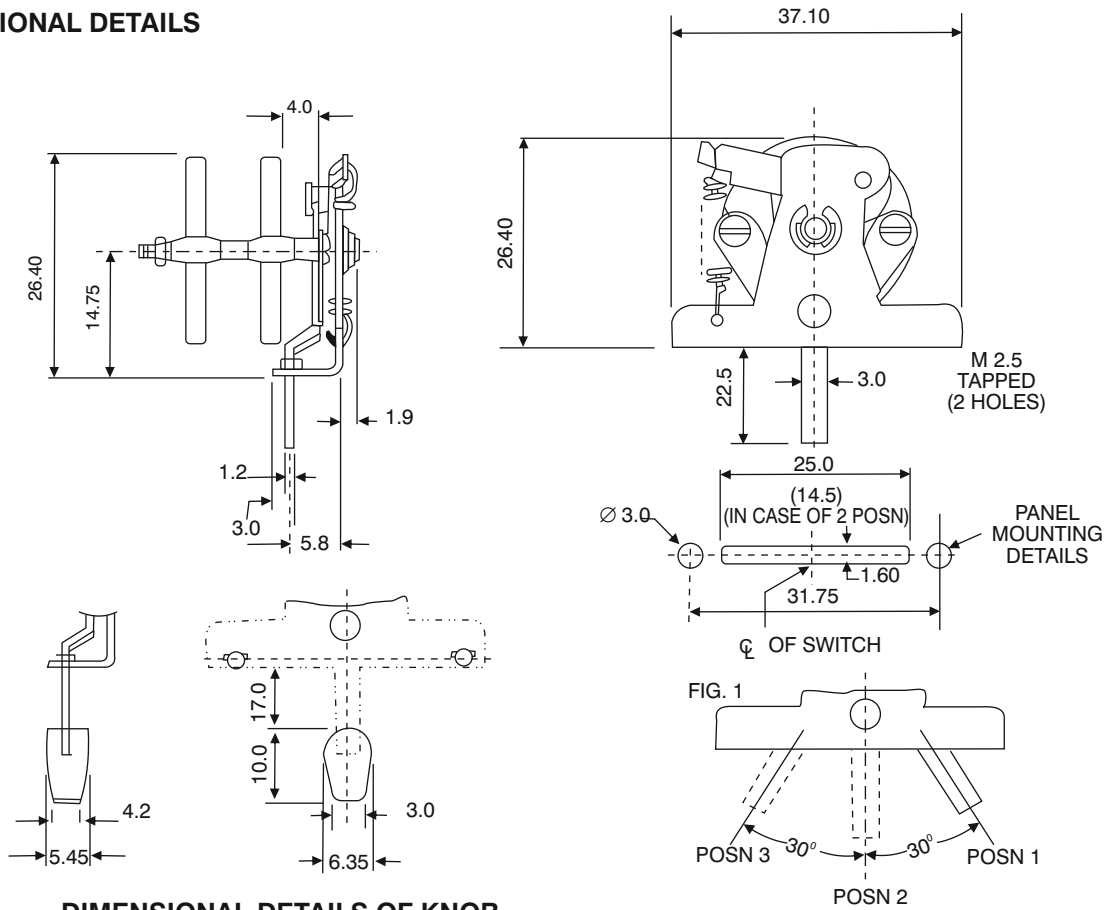
For fixing purposes M 2.5 tapped holes are provided or alternately 3.2 mm clear holes can be provided.

FEATURES

- Double wiping self cleaning contacts
- Choice of 2 or 3 positions / spring return
- Make before Break, Break before Make or Special Rotor Segments
- Gold plating on clips/rotors available



DIMENSIONAL DETAILS



DIMENSIONAL DETAILS OF KNOB

2 positions can be obtained as given in Fig.-2 or as in Fig.-1 taking up positions 2 and 3 (the slot length in this case is 14.5mm). Spring return (both sides) is possible with a centre-off position Fig.1 or with 2 positions alone i.e position 2 is at rest when taken to position 3 it returns by spring force.

All Dimensions in mm.

SPECIFICATIONS

CONTACT RATING	
CURRENT CARRYING	: 2 Amps (non-switching)
CURRENT BREAKING	: 0.5 amps @ 28 V DC 0.25 amps @ 110 V AC
WORKING VOLTAGE	: 230 V AC (max)
INSULATION RESISTANCE	: >1000 megohms (between any two insulated parts)
VOLTAGE PROOF	: min 750 V AC
CONTACT RESISTANCE	: <15 milliohms (Initial - adjacent Contact) @ 2-4V DC
TEMPERATURE RANGE	: -65°C to 85°C
LIFE	: 25,000 operations
INDEX ANGLE	: 30°

MATERIALS & FINISHES

CONTACT CLIPS	: Spring hard brass heavily Silver plated / Silver alloy / Gold plated
ROTOR BLADES	: Brass heavily Silver plated / Gold plated
STATOR & ROTOR	: Moulded glass fibre loaded Diallyl Phthalate / Nylon / Polycarbonate
INDEX MECHANISM	: Index springs stainless steel & other parts zinc plated and passivated.

MAXIMUM SWITCHING PER SECTION

1. 4 Pole 3 Way

HOW TO ORDER

1. For standard switch by describing as given below.
2. For special assembly use layout or send drawings.

ORDERING CODE

2	5	L	S						
				No. of Poles	No. of Ways (Positions)	N-Non Shorting S-Shorting	Clips B-Brass Silver Plated C-Coin Silver	G-Gold Plated	D - Dust Cover

ROTARY SWITCHES - PCB TYPE



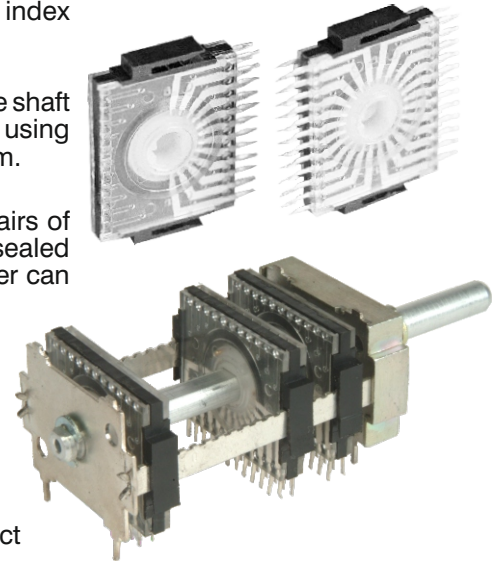
Series 35

DESCRIPTION

Integral Series 35 Rotary Switch - PCB type is designed to be used directly in PC Boards and switches 2 to 24 positions with 15° or 2-12 positions with 30° index angle.

It can be fixed in the PCB with the four soldering pins of the frame with only the shaft projecting from the panel. Alternately it can also be fixed on the front panel using the 3/8" x 32 TPI threaded bush and nut which is a part of the index mechanism.

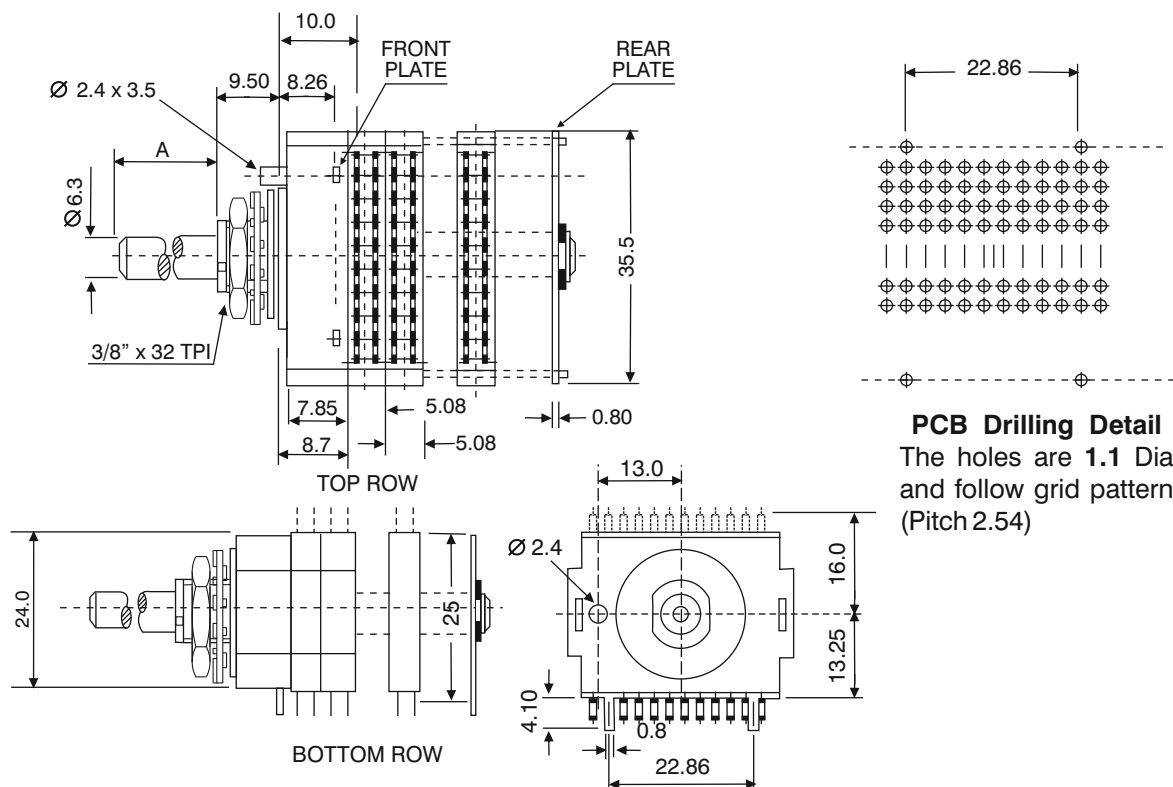
A maximum of ten dust proof switching modules with a maximum of 24 pairs of spring contacts can be mounted into a rigid frame. The soldering pins are sealed with epoxy resin or moulded so that during soldering no flux or other matter can enter the switching module.



FEATURES

- Choice of 15°/30° index angle
- Spacing between terminals 1 grid (2.54 mm)
- Provides protection against dust & adverse environmental condition
- Epoxy sealing or moulding of terminals prevents flux flowing into contact
- Life time lubrication of contacts
- Gold plated moving contacts
- Easy replacement of modules without disturbing the entire assembly
- Max : 10 modules can be assembled in a single frame
- Max : 24 terminals per module

DIMENSIONAL DETAILS



All Dimensions in mm.

SPECIFICATIONS

CONTACT RATING
 CURRENT CARRYING : 1.5 A max
 CURRENT BREAKING : 250 mA

WORKING VOLTAGE : 100 V AC max

SWITCHING POWER : 5 VA max

INSULATION RESISTANCE : >1000 Megohms at 500 VDC

VOLTAGE PROOF : min 1000 V AC

CONTACT RESISTANCE : <40 milliohms (Initial-adjacent contacts)

CAPACITANCE (CONTACT TO CONTACT) : 1 pF approx.

TEMPERATURE RANGE : -25°C to 70°C

LIFE : 25,000 cycles

INDEX ANGLE : 15° / 30°

MATERIALS & FINISHES

INSULATION : Polycarbonate & Acetal Engineering Plastics

FIXED CONTACT : Copper Alloy heavily Silver plated

MOVING CONTACT : Copper Alloy with Gold plate over Nickel plate

INDEX MECHANISM : Zamak Die Casting, Zn yellow plated and passivated.

SHAFT : Aluminium Alloy Rod / Tube (2.20 I.D.) as required

NOTE : If specified in order, the shafts are supplied with a 2.2mm (Dia) through hole to facilitate a 2.0 mm (Dia) shaft to operate potentiometer etc.

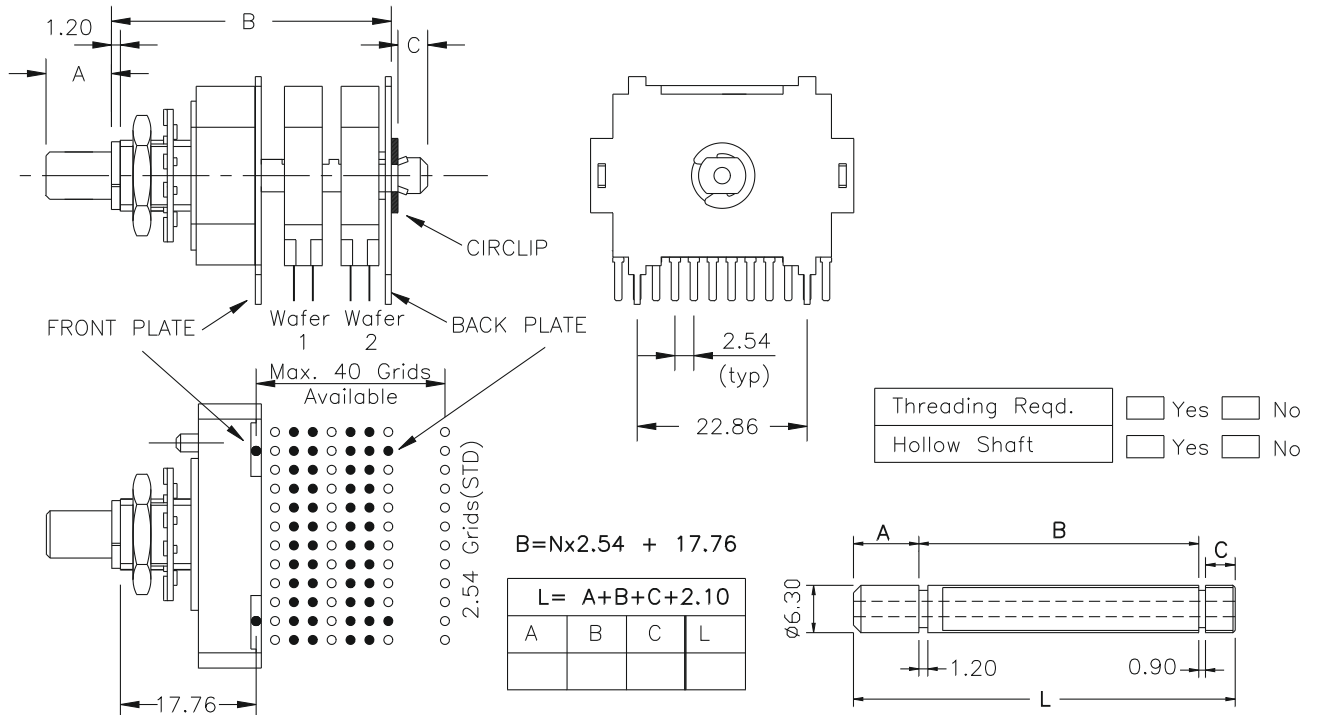
SWITCHING CONFIGURATIONS PER MODULE (With bottom row of terminals only)

15°		30°	
1P	12W	1P	6W
2P	6W	2P	3W
3P	4W		
6P	2W		

HOW TO ORDER

1. A layout sheet is essential for each type of switch ordered.
2. For switch design details, refer to useful tips provided below.

DRAWING OF ASSEMBLY INFORMATION REQUIRED, IN THE LAYOUT SHEET



10/2011 ISSUE 03, DCR 1182

ROTARY SWITCHES



Series 37

DESCRIPTION

Integral Series 37 Rotary Switches are manufactured using an innovative approach to achieving quality through Design. The Rotary Motion is used through cams, to operate Micro Switches of high reliability and long life.

These switches have specially been designed for the Machine Tool Industry Control Panels, wherein the switch has to operate in hostile environment.

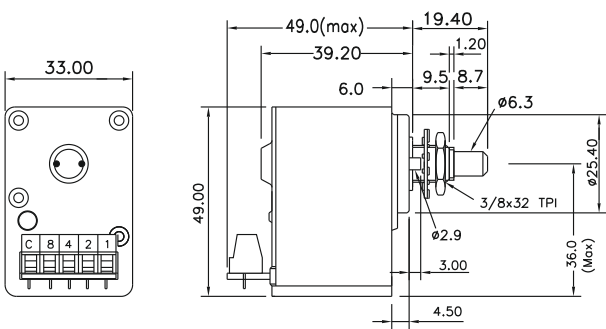
FEATURES

- Assembled to customer requirements.
- Wide range of output codes.
- Enclosed switches to prevent ingress of oil fumes, dust, moisture etc.
- Servicing/change easier with wires connected by screws,.

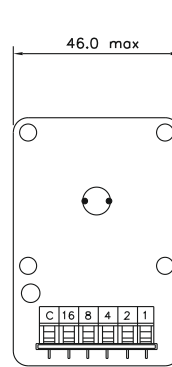
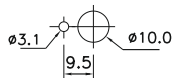
12 Position Switch



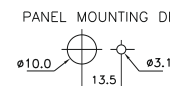
24 Position Switch



PANEL MOUNTING DETAILS 12 Position Switch



PANEL MOUNTING DETAILS 24 Position Switch



- Note :** Standard Pattern available
- 1) 15 - Grey Code & BCD out put Complementary (Max. 24 position)
 - 2) 24 position will be without stop/with stopper .
 - 3) 30 / 60 - BCD output (30 - 12 position max.) (60 - 6 position max.)

HOW TO ORDER

1. For standard switch by describing as given below
2. For Special configuration, contact Factory.

SPECIFICATIONS:

- CONTACT RATING:** 2 Amps (Resistive Load) at 250 V AC
- CONTACT RESISTANCE:** 50 milli ohms maximum
- ELECTRICAL LIFE:** 500,000 at 20 CPM at 28V 10 mA
- INSULATION RESISTANCE:** Mimimum 100Meg ohms at 500 V DC
- DIELECTRIC STRENGTH:** 1000 VRMS

ORDERING INFORMATION:

ORDERING CODE	No. of Position	Angle of Throw	Output	Terminations
3 7	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/>	<input type="text"/>
	02 to 24	15° - 15 30° - 30 60° - 60	BCD - B GREY - G COMP - BC	PCB - 0 SCREW - 1

All Dimensions in mm.

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INTEGRAL SYSTEMS AND COMPONENTS PRIVATE LIMITED

D-388/1, 1st Block, 1st Stage, Peenya Industrial Estate, Bangalore - 560 058, India

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An ISO 9001:2008 Company **Website:** www.integralsys.in **E-mail:** inty.systems@gmail.com / sales@integralsys.in

ROTARY SWITCHES



Series 45

DESCRIPTION

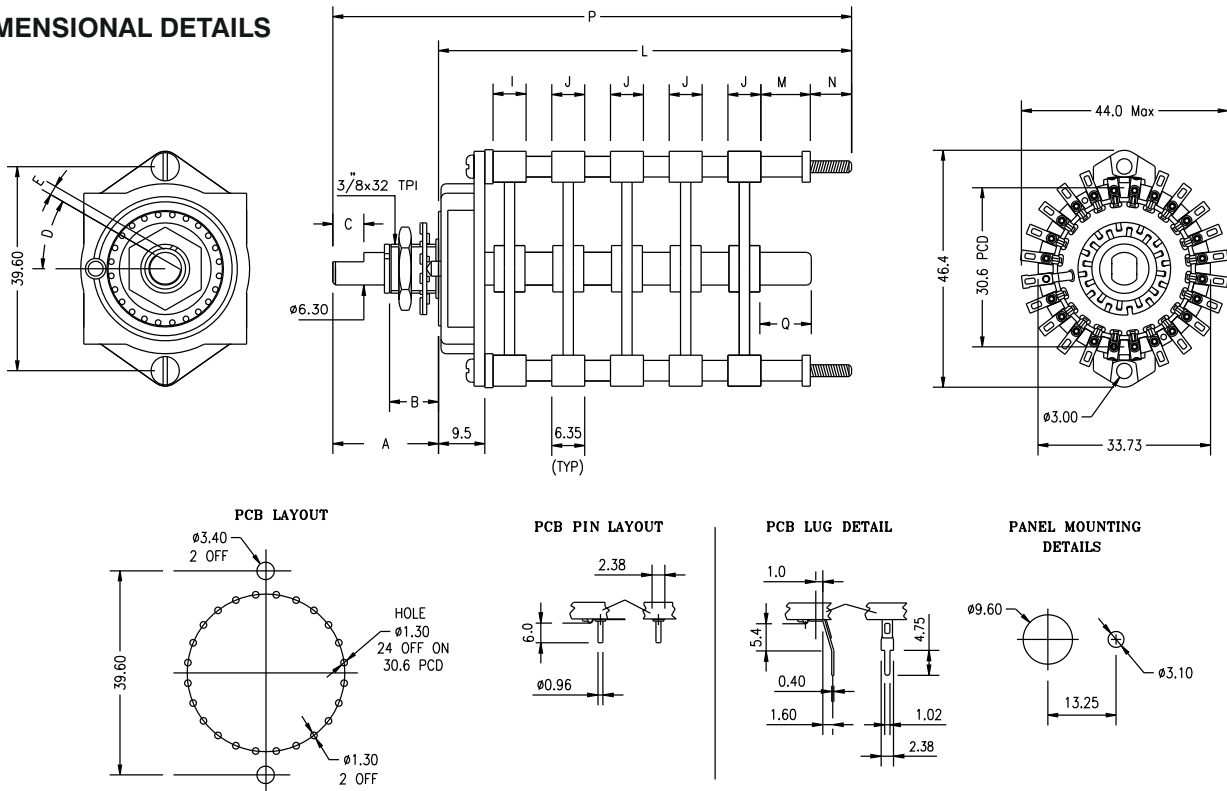
Integral Series 45 Professional Grade Rotary Switches are ideally suited for use in Industrial and Laboratory equipments. Double wiping self cleaning contacts and choice of excellent dielectric materials and suitable plating finishes result in long term reliability and consistent quality. An almost infinite variety of switching configuration meet most of the design requirements of the user. Assembly options are possible with the use of spacer / shields etc. and permit custom built switches. 'O' ring sealing is available for both spindle and panel mounting bush. The balanced pressure indexing mechanism provided by 2 balls housed in a engineering thermoplastic housing provides smooth positive action with consistent and repeatable torque.



FEATURES

- Double wiping self cleaning contacts
- Choice of 15° or 30° or 22.5° index angle
- Make before Break, Break before Make or special rotor segments
- Insulated shafts for RF circuits
- Hollow shafts for operating a pot meter mounted at the rear of the switch
- Rigid or Flexible Tag PCB terminals (for single wafer only)
- Spaces between wafers will facilitate component mounting on the switch itself
- Shields between wafers as per customers requirements
- Gold plating on clips/rotors available
- Max 28 clips can be mounted on a single wafer

DIMENSIONAL DETAILS



All Dimensions in mm.

SPECIFICATIONS

CONTACT RATING
CURRENT CARRYING : 2 amps (non-switching)

CURRENT BREAKING : 0.5 amps @ 28 V DC
0.25 amps @ 110 V AC

WORKING VOLTAGE : 230 V AC (max)

INSULATION RESISTANCE : >1000 Megohms (between any two insulated parts)

VOLTAGE PROOF : min. 500 V AC

CONTACT RESISTANCE : 15 milliohms (Initial - adjacent contacts) @ 2-4V DC

TEMPERATURE RANGE : -65°C to 85°C

LIFE : 25,000 operations

INDEX ANGLE : 15° or 30°

SEALING : Panel & Shaft Seal on request

MATERIALS & FINISHES

CONTACT CLIPS : Spring hard Brass heavily Silver plated / Silver alloy / Gold plated

ROTOR BLADES : Brass heavily Silver plated / Gold Plated

STATOR & ROTOR : Moulded glass fibre loaded Diallyl Phthalate / Nylon / Polycarbonate

INDEX MECHANISM : Index springs - Stainless Steel Zn plated
Base - Engineering Plastic

SWITCHING POSITIONS PER SECTION

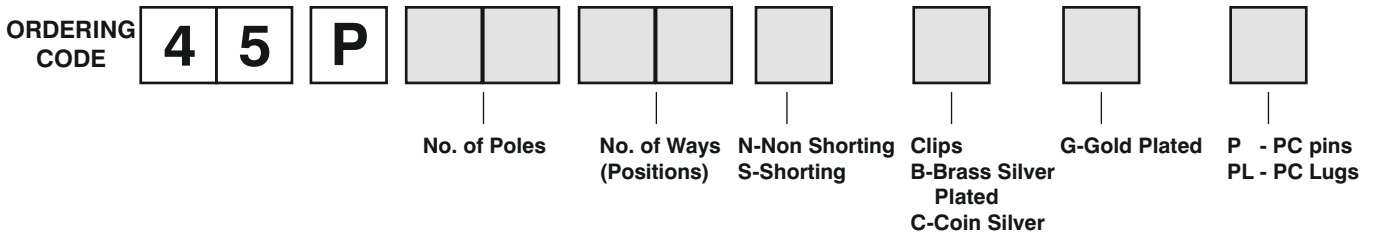
	15° throw Positions	30° throw Positions	22.5° throw Positions
1 pole	2 to 24	2 to 12	2 to 6
2 pole	2 to 11	2 to 6	
3 pole	2 to 7	2 to 3	
4 pole	2 to 5	2 to 2	

CHECK LIST FOR ORDERING : Given below are the variations possible in the Switch. Please take care of these points if you are ordering a custom-built switch. For contact configuration, other than standard, use the layout sheet available on request.

- A - Shaft length - 19.5 mm (dia 6.35 mm)
- B - Bushing thread length - 9.5 mm / Threads 3/8"x32TPI (Length 6.35 mm available on request)
- C - Flat length - Standard 6mm (in no case closer than 3 mm from end of bushing) Optional
- D - Angle of flat - Multiples of 15° ± 3° (specify position of flat with switch shaft in fully counter-clockwise position when viewed from front or knob end)
- E - Flat Dimension - 5.5 ± 0.1 mm
- I - First spacer -0.8 mm with standard clips (No spacer needed if no clip present)
- J - Spacer -3.0mm with standard clips facing each other (No spacer if no clips face each other)
- M - Standard 1.6mm min (Any length spacer may be inserted at this point)
- N - 0mm to 5.0mm to suit standard screw available
- L/P - Specify maximum overall length, if important
- Q - Shaft extension at rear nominal 2.0mm to 6.0mm (to suit standard shaft available)
- R - Index angle 15°, 30°, 22.5°
- S - Stopper - Yes/No
- T - Locating Lug - Yes/No
- U - Hollow shaft
- V - No. of Poles & Ways
- W - Contact Terminals - Solder type/PCB type
- X - Contact - Silver/Gold plating/Silver alloy
- Y - Shields (dimension/position)

HOW TO ORDER

1. For standard switch by describing as given below.
2. For special assembly use layout or send drawings.



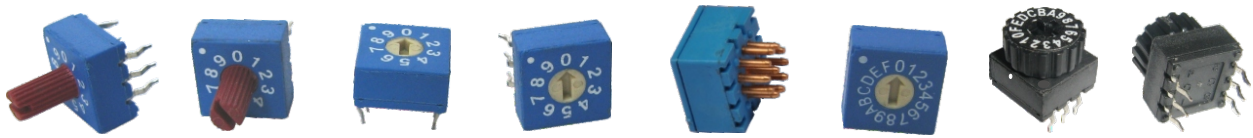
ROTARY DIP SWITCHES



Series - 89

DESCRIPTION

- Moulded in terminals and sealed construction.
- Standard 2.54mm pin spacing
- UL-94V0 fire retardant plastics.
- Reliable contact and long term stability.
- Binary Decimal (10 positions) and Hexadecimal(16 position) real and complimentary codes available.
- Pin out compatible with most of current equivalents.



SPECIFICATIONS

FUNCTION	: Break before Make
CONTACT RATING	: 150 mA 24 V Max
CONTACT RESISTANCE	: Below 80 milliohms initial
INSULATION RESISTANCE	: > 100 Megohms
DIELECTRIC STRENGTH	: 250 VAC(rms),60 sec.
OPERATING TEMP	: -10 ^o C to 80 ^o C
STORAGE TEMPERATURE	: -25 ^o C to 85 ^o C
SOLDERING/ CONDITIONS	: Max.5 sec. +250 ^o c wave
LIFE EXPECTANCY	: 10,000 operations with load

MATERIAL & FINISHES

HOUSING	: Thermoplastic
CONTACT BODY	: Thermoplastic
ACTUATOR	: Thermoplastic

CONTACT MATERIALS

Fixed Contact	: Brass, Pltd., Ni, Tin plated.
Sliding Contact	: Brass, Pltd., Ni, Gold plated

TRUTH TABLES :

Binary Code 1Pole, 10 Postion Common (C) Connected to Terminals indicated.				
DIAL	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●			
6		●	●	
7	●	●	●	
8				●
9	●			●

Binary Code 1Pole, 16 Postion Common (C) Connected to Terminals indicated.				
DIAL	1	2	4	8
0	0			
1	1	●		
2	2		●	
3	3	●	●	
4	4			●
5	5	●		
6	6		●	●
7	7	●	●	●
8	8			●
9	9	●		●
A	10		●	●
B	11	●	●	●
C	12		●	●
D	13	●		●
E	14		●	●
F	15	●	●	●

Binary Complement only 1 Pole, 10 Postion Common (C) Connected to Terminals indicated.				
DIAL	1	2	4	8
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

Binary Complement only 1 Pole, 16 Postion Common (C) Connected to Terminals indicated.				
DIAL	1	2	4	8
0	0	●	●	●
1	1	●	●	●
2	2	●	●	●
3	3		●	●
4	4	●		●
5	5		●	●
6	6	●		●
7	7			●
8	8	●	●	●
9	9	●	●	●
A	10	●	●	
B	11		●	
C	12	●	●	
D	13		●	
E	14	●		
F	15			

ROTARY DIP SWITCHES



DIMENSIONAL DETAILS :

SHAFT TYPE

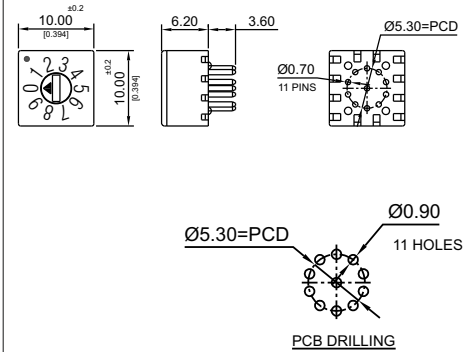
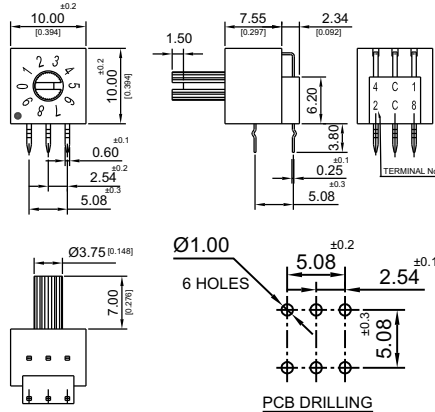
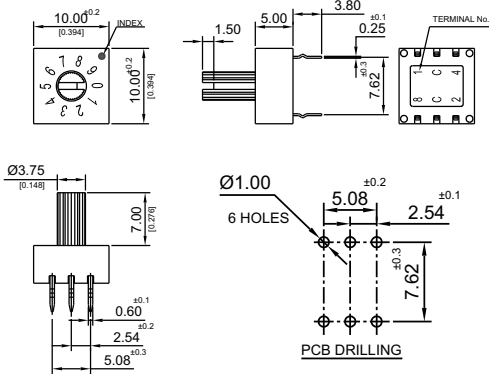
STANDARD TYPE 10 position

SHAFT TYPE

RIGHT ANGLE TYPE 10 position

FLAT TYPE

PC STRAIGHT 10 position



WHEEL TYPE

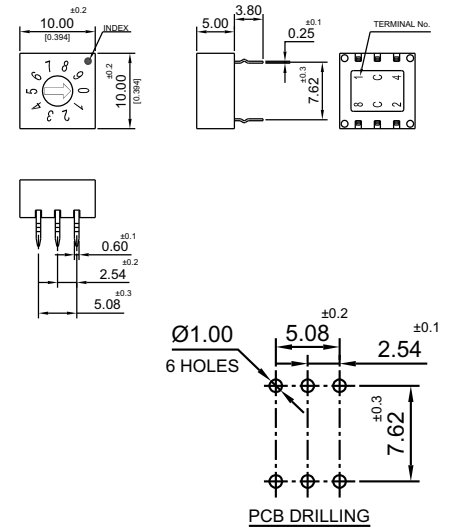
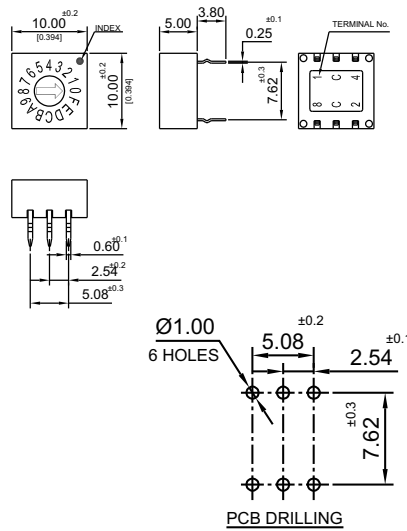
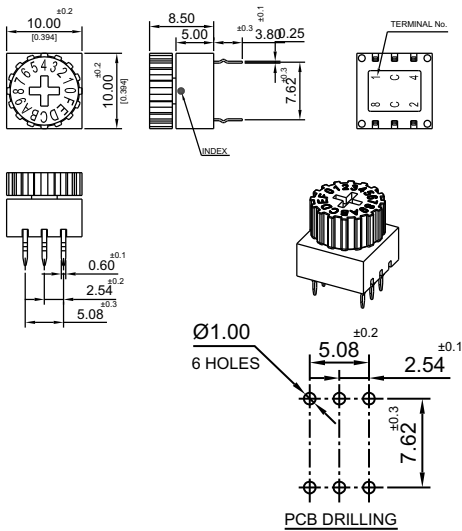
STANDARD TYPE 16 position

FLAT TYPE

STANDARD TYPE 16 position

FLAT TYPE

STANDARD TYPE 10 position



ORDERING INFORMATION:

Given below are the variations possible and corresponding Ordering Code

ORDERING CODE	8	9				
	ROTOR		No. OF POSITION		OUTPUT	TERMINAL
	ORDER CODE		ORDER CODE		ORDER CODE	ORDER CODE
	1 - Flat type		10 - Position		R - Real - BCD	2 - PC Straight
	2 - Shaft type		16 - Position		C - Complementary -BCD	3 - Standard
	3 - Wheel type					5 - Right angle

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All Dimensions in mm.



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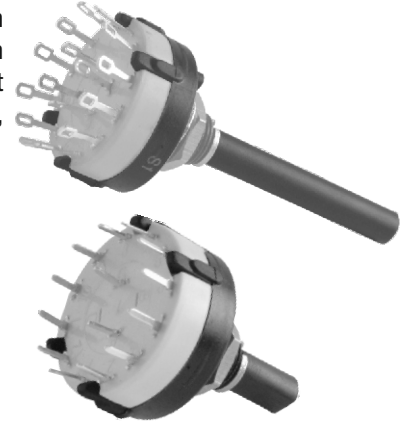
ROTARY SWITCHES



Series 92

DESCRIPTION

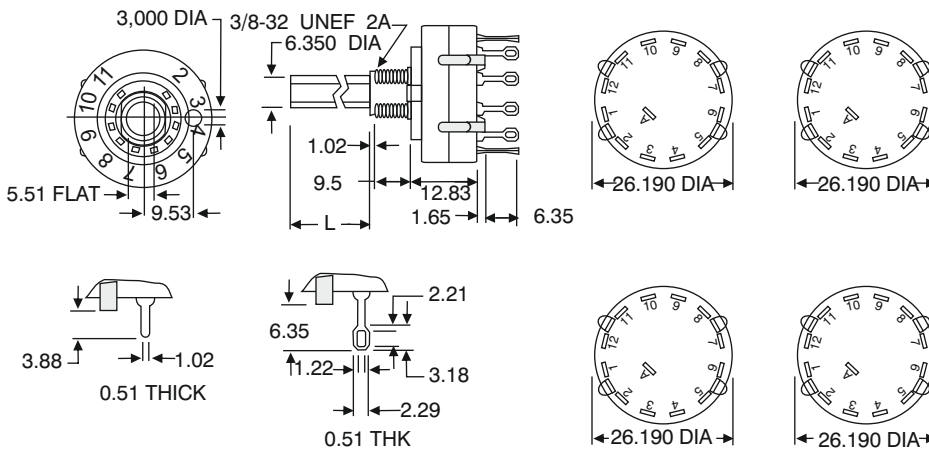
Integral Series 92 is a Miniature Rotary Switch of 25 mm Dia., offering premium quality at economical price. The design of the Switch is limited to a single section with solder/pc terminals. These are totally enclosed switches offering the most popular combination as encountered in modern electronic circuits. Uniform, positive indexing is provided by 2 balls housed in an Engineering Plastic case.



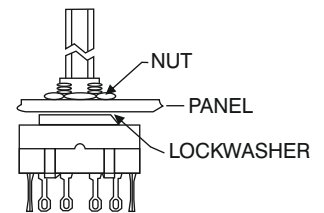
FEATURES

- Miniature single section switches
- Contacts totally enclosed for environmental protection
- Choice of contact materials
- Stoppers can be adjusted at site
- Can be directly mounted on PC

DIMENSIONAL DETAILS

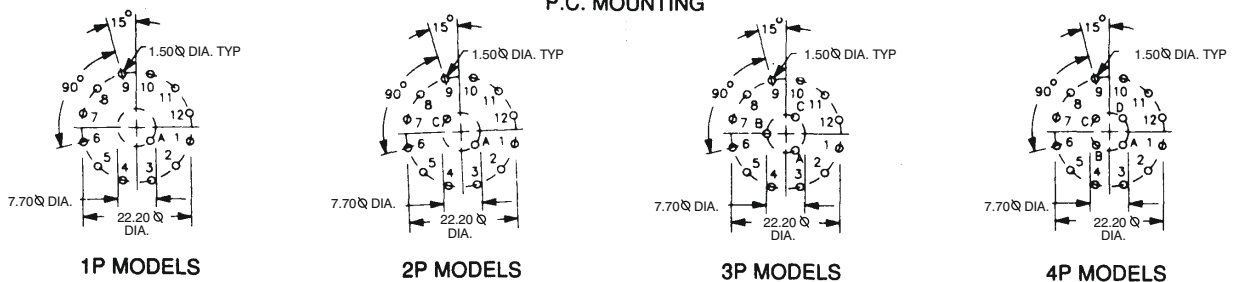


PANEL MOUNTING

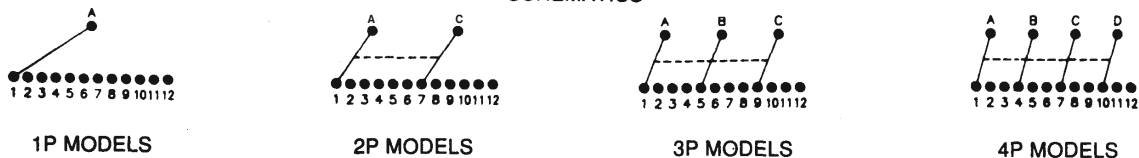


Install switch with stop ring (if used) and lockwasher back of panel (Switch side). Tighten hex nut from front of panel. PC mounted switches: use hex nut and lockwasher to hold stop ring in place

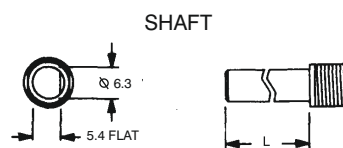
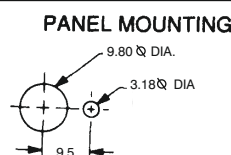
P.C. MOUNTING



SCHEMATICS



ACTUATOR POS. 1



All Dimensions in mm.

SPECIFICATIONS

CONTACT RATING : 2.5 A @ 125 V AC or 28 V DC
 150 mA @ 230 V AC or DC

CONTINUOUS CURRENT : 5A

LIFE : More than 20,000 cycles on full load

CONTACT RESISTANCE : <20 milli ohms measured at 2-6V DC / 100 mA initial

INSULATION RESISTANCE : > 1000 Meg ohms

VOLTAGE PROOF : min. 1000 V AC

OPERATING TEMP : -30°C to + 70°C

INDEXING ANGLE : 30°

MATERIALS & FINISHES

BODY, ROTOR AND BASE : Glass filled nylon

CONTACTS : Copper alloy or coin silver
 Silver plate or gold plate
 (See contact selection)

HARDWARE : Brass / Steel Zinc plate

HOW TO ORDER

1. For standard switch by describing as given below.
2. For special assembly use layout or send drawings.

Order Code	Shaft Length
S1	Std. Shaft 12.0 mm
S2	Std. Shaft 40.0 mm
L	Specify Length

Order Code	Termination
2	Solder Type
3	PC type

CIRCUIT CONFIGURATION

Order Code	
S	Shorting
N	Non-shorting

NO. OF POSITIONS

Order Code	No. of positions
02	2
03	3
-	-
-	-
-	-
12	12

POLE SELECTION

Order Code	No. of Poles
1	One
2	Two
3	Three
4	Four

CONTACT SELECTION

Order Code	
0	STATOR CONTACTS AND MOVING CONTACTS RATING : Copper alloy with silver plate : 150 mA @ 230 V AC or DC Carry : 5 A continuous
1	STATOR CONTACTS MOVING CONTACTS RATING : Copper alloy with silver plate : Coin silver with silver plate : 2.5 A @ 125 V AC or 28 V DC; 150 mA @ 230 V AC or DC; Carry 5A continuous
2	STATOR CONTACTS AND MOVING CONTACTS RATING : Copper alloy with gold plate over nickel plate : 0.4 V A max. @ 20 V AC or DC max.
3	STATOR CONTACTS MOVING CONTACTS RATING : Copper alloy, with gold plate over nickel plate over silver plate : Coin silver with gold plate, over nickel plate over silver plate : 0.4 V A max @ 20 V AC or DC max. or 2.5 A @ 125 V AC or 28 V DC; 150 mA @ 230 V AC or DC

ORDERING CODE

9	2						
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ROTARY SWITCHES



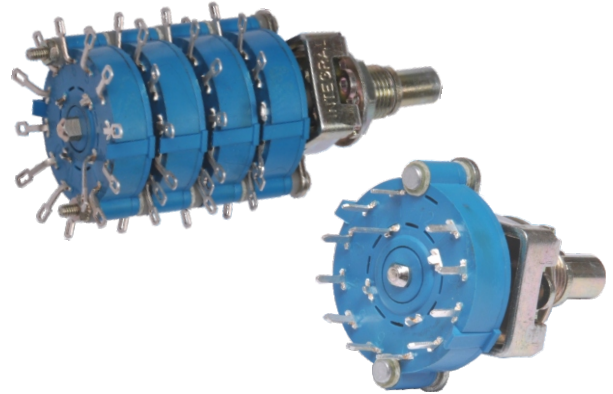
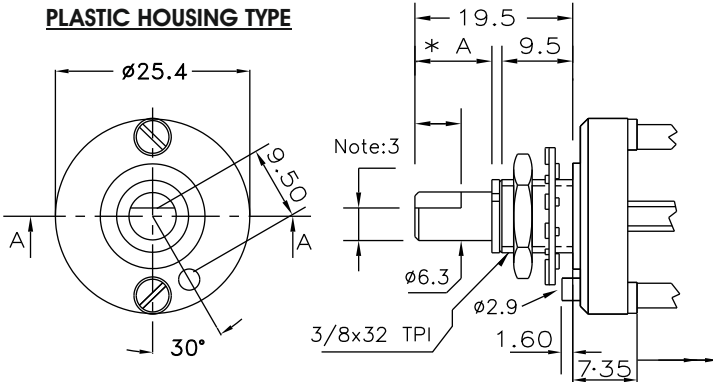
Series 93

DESCRIPTION

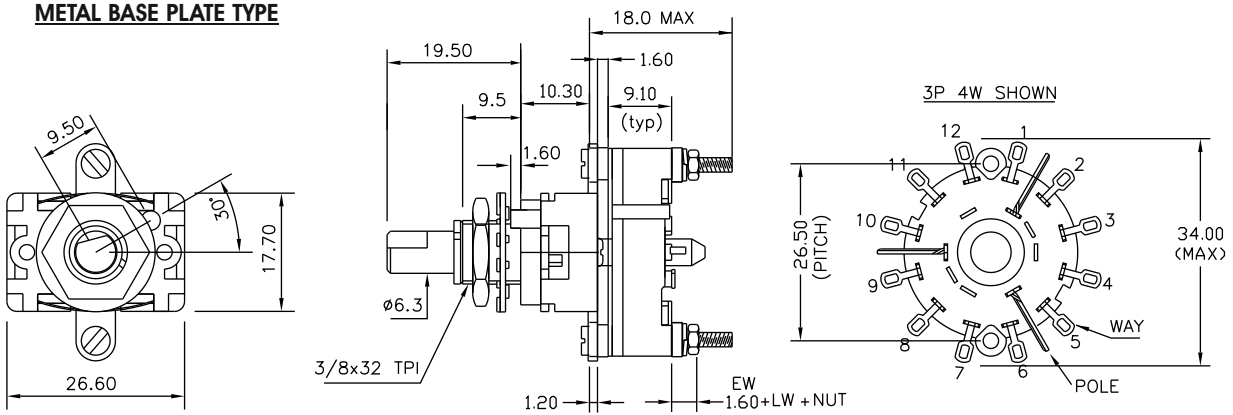
Integral Series 93 is a Miniature Rotary Switch of 26.5 mm Dia offering premium quality at economical price. These are totally enclosed switches offering the most popular combination as encountered in modern electronic circuits. Uniform, positive indexing is provided by 2 balls housed in a sheet metal base plate or Engineering Plastic Housing & with a ground metal shaft of 6.3 mm.



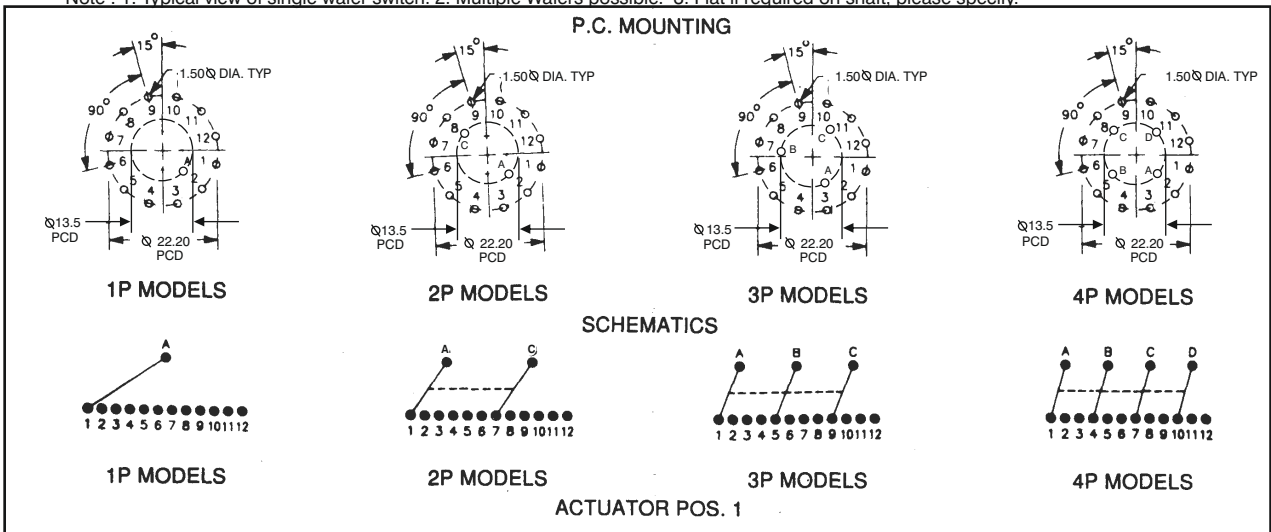
DIMENSIONAL DETAILS



METAL BASE PLATE TYPE



Note : 1. Typical view of single wafer switch. 2. Multiple Wafers possible. 3. Flat if required on shaft, please specify.



All Dimensions in mm.

ELECTRICAL SPECIFICATIONS

CONTACT RATING : 1.5A @ 125 V AC or 28 V DC
 150 mA @ 230 V AC or DC

CONTINUOUS CURRENT : 5A

LIFE : More than 20,000 cycles on full load

CONTACT RESISTANCE : Less than 20 milliohms measured at 2-6 V DC
 100 mA initial

INSULATION : > 1000 Megohms

VOLTAGE PROOF : min. 1000 V AC

OPERATING TEMP. : -30°C to +70°C

INDEXING ANGLE : 30° / 60° / 90°

MATERIALS & FINISHES

BODY/COVER : Glass filled PBT (UL approved)

INDEX MECHANISM : Spring loaded twin-ball housed In Plastic/Sheet Metal. Zn. plated And Yellow Passivated.

CONTACTS : Copper Alloy, Silver Plated.

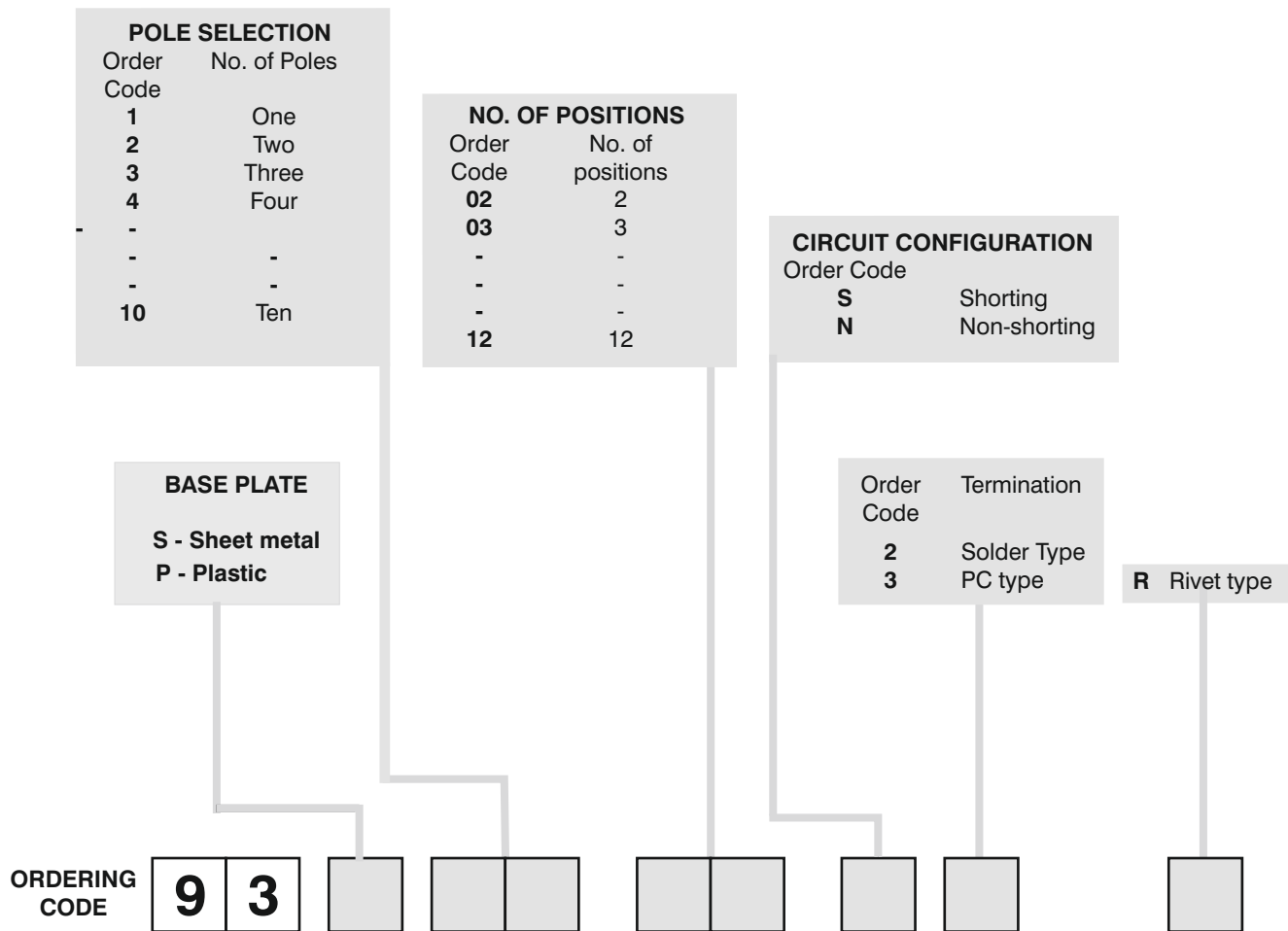
SHAFT : ENIA Steel Rod Dia 6.3 mm

HARDWARE : Brass / Steel Zn. yellow Plated

NOTE : Each wafer can accommodate (30°).
 1P 2W to 12W
 2P 2W to 6W
 3P 2W to 4W
 4P 2W to 3W
 6P 2W

HOW TO ORDER

1. For standard switch by describing as given below.
2. For special assembly use layout or send drawings.



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KNOB FOR ROTARY SWITCHES



Series 90

DESCRIPTION

Integral Collet Knobs can be used for all types of Rotary Switches. They are sturdily built and are able to withstand repeated use. They are designed to meet the requirement of different shaft Dia.



Operation of knob, it is effective to rotate the pointer to give an indication of switch position.

KEY FEATURES OF KNOB :-

- * Simple construction with reliable operation.
- * Simplicity of use.
- * Styling

Knob is designed to have easy fit of accessories giving more versatility.

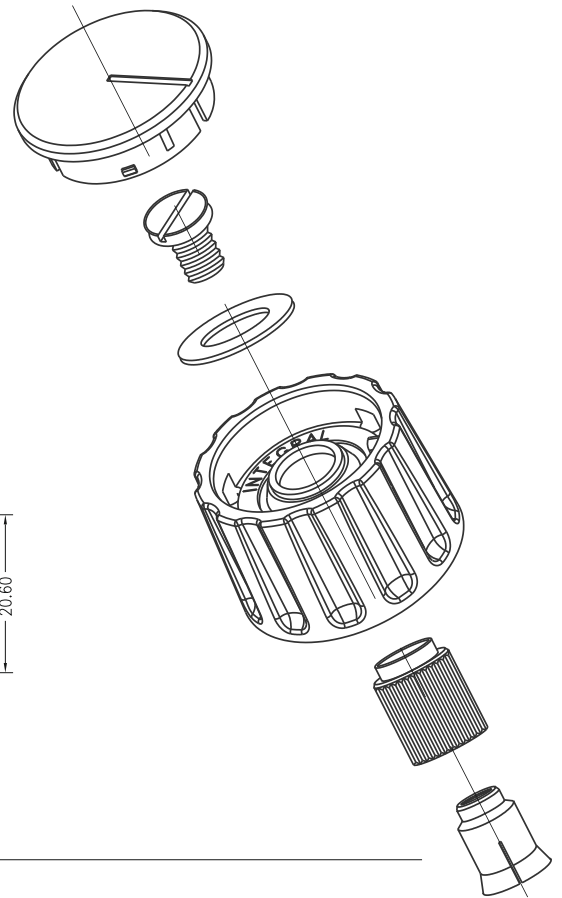
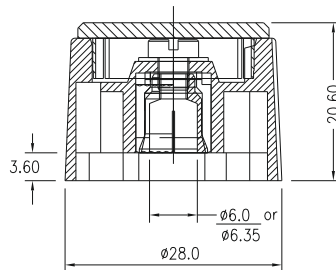
KNOB STYLE :- Standard

MATERIALS & FINISHES

MOULDINGS : Engineering Plastic (matt finish)

METAL : Brass, Nickel Plated.

DIMENSIONS OF KNOB



ORDERING CODE:-

COLOUR

- 0 - Light Grey
- 1 - Dark Grey
- 2 - Black

COLLET DIA

- 0 - 6.35 mm dia.
- 1 - 6.0 mm dia.



All Dimensions in mm.



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