

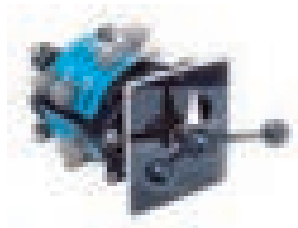


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AC switches



DC switches



rotary switches



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INTRODUCTION

Cam Operated Rotary Switches make and break the connected outputs in required sequence by either opening or closing circuits with a set of contacts operated by a rotary Cam.

The Cam, which closes and opens contacts, has rotary movement and multiple positions, allowing multiple circuit functions controlled through a single operation. With appropriate Cam design, functions like “make before break” etc can be easily achieved. The number of positions and the switching angles of Cam are flexible to offer wide selection of “operational sequences” based on the requirements.

The principle applications of Cam Operated Rotary Switches are for making, breaking and isolation of power circuits and switching the auxiliary circuits.

Further, the flexibility in the contact block selection, covering ratings and options to select number of contacts, is another advantage. This ensures that a right switch is chosen for the application. CAM Switches thus offer complete design flexibility to assemble complex switching programs, contact ratings and customize all switching applications.

The Cam Switches are suitable for AC as well as DC applications

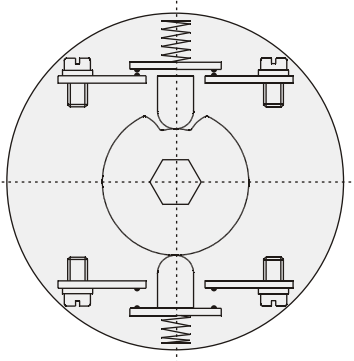
The basic operating mechanism of Cam Switch is required to suit intended application. “Quick-Make”, “Quick-Make-Quick-Break” and “Spring Return” operating mechanisms are offered to cover wide range applications.

The superior engineering materials and manufacturing processes for Cam Switch components ensure longer life, reliable electrical and mechanical endurance and thereby safe operations for long time. “Double Butt” contacts with silver bimetal on copper provide stable electrical performance. The highgrade engineering plastics like nylon, celcon and glass filled polyamide for the components ensure greater mechanical strength.

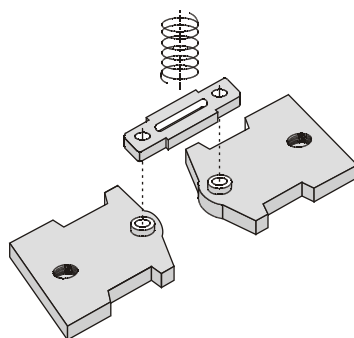
The Cam Switches incorporate most common mounting options and also special mounting options like single hole, door interlocking and padlocking for all applications.

International styling and finish supports the robust design and performance of the Cam Switches. The wide option of knobs, front plates and custom marking on the script plate make the Cam Switches compatible to the panel designs and eliminate the need for labels on the panel.

CONSTRUCTION



Cam Assembly



Contact Assembly

Series S, TP and RT Cam Switches incorporate two double break, silver alloy contacts per stage at 180 degree disposition. The AC Switches are "Quick Make-Slow Break" with in-built latching device feature in cam design. The Cam Switches can be offered for DC applications with additional contacts in series according to the DC switching voltage and with suitable deration.

Contacts : Double break type AgCdO
Insulation : Glass filled polyamide
with high tracking index

Operating temp : -25°C to 55°C
Operating frequency : Upto 10kHz
Humidity : 95%, Rh 48 hours

S Series



- Available from 6 to 400 Amp.
- Open terminals for easy accessibility.

TP Series



- Available from 6 to 16 Amp.
- " Touch Proof " (finger protected) terminals (IP 20)

RT Series



- Available from 16 to 63 Amp.
- Rear facing terminals for convenient access.
- " Touch Proof " (finger protected) terminals (IP 20)

AC Duty Rating

DC Duty Rating

Category	Typical AC Application	Category	Typical DC Application
AC-1	Non-Inductive or slightly Inductive Loads, Resistance Furnaces.	DC-1	Non-Inductive or slightly Inductive Loads, Resistance Furnaces.
AC-3	Squirrel Cage motors : starting switching off motors during running.	DC-22	Switching of resistive loads, including moderate overloads
AC-15	Control of AC electromagnetic loads	DC-13	Control of DC electromagnets
AC-21A	Switching of resistive loads, including moderate overloads (frequent switching)	DC-23	Switching of motor loads or other highly inductive loads
AC-23-A	Switching of motor loads or other highly inductive loads (frequent switching)	-----	-----

TECHNICAL SPECIFICATIONS

IEC/EN Ratings

AC Rating	Unit	S6 TP6	S10 TP10	S16 TP16 RT16	TP20 RT20	S25 RT25	S32 RT32	S40 RT40	S63 RT63	S80	S100	S125	S200	S400
Rated Operational Current (Ie) AC21A / AC1	A	6	10	16	20	25	32	40	63	80	100	125	200	320
Rated Operational Voltage (Ue)	V	440	440	690	690	690	690	690	690	690	690	690	690	690
Rated Insulation Voltage (Ui)	V	440	440	690	690	690	690	690	690	690	690	690	690	690
Isolating Voltage upto (Uiso)	V	250	250	415	415	415	415	500	500	690	690	690	690	690
Impulse withstand Voltage (Uimp)	kV	4	4	6	6	6	6	6	6	6	6	6	6	6
Rated Uninterrupted Current (Ith)	A	8	12	20	25	32	40	50	80	100	125	150	225	425
Rated Operational Power														
AC23A 3 Phase 220 - 240V	kW	1	1.8	3	3	5.5	7.5	11	15	22	30	31	37	-
380 - 440V	kW	2.2	3	7.5	7.5	11	15	18.5	22	33	41	45	55	-
500 - 690V	kW	-	-	7.5	7.5	11	15	18.5	22	30	37	41	45	-
AC3 3 Phase 110V	kW	0.25	0.37	0.55	0.55	1.5	2.2	2.5	3	-	-	8.3	-	-
220 - 240V	kW	0.8	1.5	2.2	2.2	4	5.5	7.5	15	18.5	22	17.2	22	-
380 - 440V	kW	1.5	3	5.5	5.5	7.5	11	15	18.5	22	33	37	45	-
500 - 690V	kW	-	-	5.5	5.5	7.5	11	15	18.5	22	33	37	45	-
Short Circuit Capacity														
Fuse Size (Type gG/gM)	A	6	10	16	20	25	32	40	63	80	100	125	200	400
Rated Fuse Short Circuit Current	kA	3	3	5	5	10	10	20	20	25	25	25	25	50
DC Rating														
DC1 (Power) 48V	A	6	10	16	20	25	32	40	63	80	100	125	160	250
DC13 (Control) 24V	A	4	6	16	20	25	32	40	63	80	100	125	160	250
Connecting Capacity/Wire Cross Section														
Single / Multiple	min	0.7	0.7	1.5	1.5	1.5	2.5	2.5	4	6	10	10	10	20
max	mm ²	1.5	1.5	4	4	4	6	10	16	25	35	50	70	140
Fine strand with sleeve	min	0.7	0.7	1	1	1	1.5	2.5	2.5	6	10	10	10	20
max	mm ²	1.5	1.5	2.5	2.5	2.5	4	6	10	16	25	35	50	100
Terminal screw	Metric	M3	M3	M3.5	M3.5	M4	M4	M5	M5	2 x M5	2 x M5	2 x M5	M10	M10
Terminal Tightening Torque	NM	0.5	0.5	0.8	0.8	1.2	1.2	2	2	2.5	2.5	2.5	2.5	4

Rated Duty: 8 Hours, Installation, Operation and Maintenance Condition: Suitable for Environment A (for Industrial Application).

Switch life under standard operating conditions: Mechanical 100,000 operations @ 300 cycles / hour, Electrical 10,000 operations at 100 % rated duty for 120 cycles / hour

CSA/UL RATINGS

AC Rating Code	Unit	S6 TP6	S10 TP10	S16 TP16 RT16	TP 20 RT 20	S25 RT25	S32 RT32	S40 RT40	S63 RT63	S80	S100	S125	S200
Ampere Rating	A	6	10	15	20	20	30	40	55	80	100	100	175
Operational Voltage	V	460	460	600	600	600	600	600	600	600	600	600	600
HP Rating 1 phase 120V	HP	0.25	0.33	0.33	0.33	1	1	2	3	-	-	-	-
240V	HP	0.50	0.75	1	1	3	3	5	7.5	-	-	-	-
120V	HP	0.75	1	1	1	2	2	5	7.5	10	10	15	15
240V	HP	1	1	2	2	5	5	10	15	20	20	25	25
480V	HP	-	-	-	-	10	10	20	30	40	40	40	50
600V	HP	-	-	-	-	15	15	24	40	50	50	50	50

Note :- AC4 Rating = AC3 rating / 2, Star Delta Rating = 1.6 X AC3 Rating



Conformance to standards :

European : IEC-60947-1 : 1988
IEC-60947-3 : 1990
IEC-60947-5 : 1992

Canadian : CSA 22.2 No.14-1991

American : UL 508 (1994)

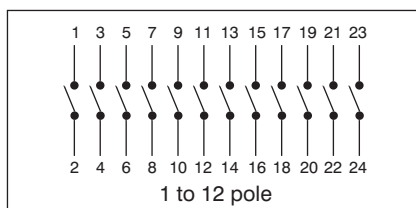
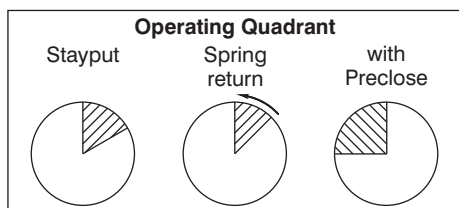
ISOLATOR SWITCHES

Isolators are ON-OFF Switches to isolate the power to a particular area of operation. The Isolator Switches are offered in a wide range, from 1 pole to 12 poles. Isolators with spring return, upto 4 poles are available to energise circuits. Isolators with preclose contacts are used for safety circuits and for connecting neutral and earth lines. Isolators are generally rated for AC1/AC21 while for motor applications, they need to be rated for AC3/AC23A duty.

Applications : Switching of main/control and instrumentation circuits, motor ON - OFF and other special application circuits.

Isolators - On/Off Switches

Connecting Diagram



Stayput

Script Plate Marking				
Description	60 Degree	90 Degree	90 Degree Complete Rotation	No of Stage
	Programme Code	Programme Code	Programme Code	
1 Pole	61001	61191	61195	1
2 Pole	61002	61192	61198	1
3 Pole	61003	61199	61197	2
4 Pole	61004	61194	61196	2
5 Pole	61005	-	-	3
6 Pole	61006	61906	-	3
7 Pole	61007	-	-	4
8 Pole	61008	-	-	4
9 Pole	61009	-	-	5
10 Pole	61010	-	-	5
11 Pole	61011	-	-	6
12 Pole	61012	-	-	6

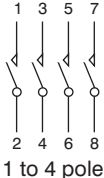
Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 32, 40, 63, 80, 100, 125, 200 and 400 Amps.

Isolators with Preclose Contact

Description	Programme code	No of stages
4 Pole - 1 Pole Preclose	61194	2
4 Pole - 3 Pole Preclose	61904	2
5 Pole - 3 Pole Preclose	61905	3
3 Pole with Neutral Terminal	61178	2

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 32, 40, 63, 80, 100, 125, 200 and 400 Amps.

Spring Return Isolators 45 Degree

		
Description	Programme code	No of stages
1 Pole Spring Return	61351	1
2 Pole Spring Return	61352	1
3 Pole Spring Return	61353	2
4 Pole Spring Return	61354	2

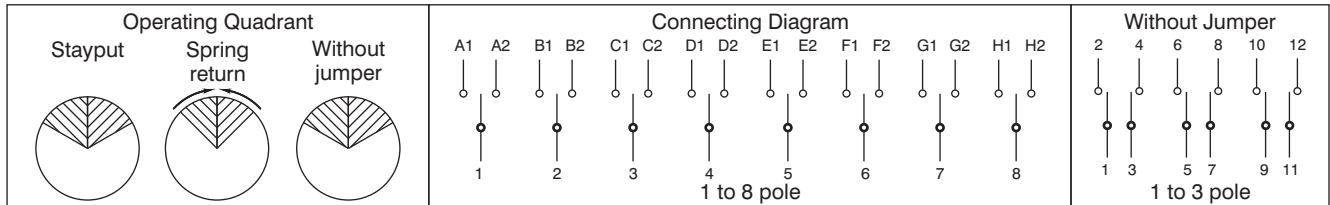
Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 32, 40 and 63 Amps.

CHANGEOVER SWITCHES WITH OFF

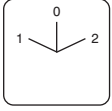
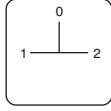
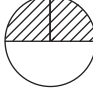
Changeover Switches, also called Double Throw Switches, are available with OFF and without OFF. These are used to operate two different circuits, with different number of inputs and outputs. Changeover Switches without jumpers (potential free contacts) are used to connect two different circuits from two different sources, with two different operating voltages or any other incompatible lines. All contacts by default are “Break Before Make” (BBM) type to avoid overlapping of different circuits while overlapping changeover contacts. “Make Before Break” (MBB) type are offered against specific requirements.

Application : Power Supply to Generator Changeover, Auto/Manual changeover, Standby/Remote Changeover and other special application circuits. Mainly used in Distribution Panels, UPS etc.

Changeover with Off

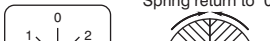


Stayput

									
Description		60 Degree		No of stages	Description		90 Degree		
		Programme code					Programme code		
1 pole		61025		1	1 pole		61151		
2 pole		61026		2	2 pole		61152		
3 pole		61027		3	3 pole		61153		
4 pole		61028		4	4 pole		61154		
5 pole		61029		5	-		-		
6 pole		61030		6	-		-		
7 pole		61031		7	-		-		
8 pole		61032		8	-		-		

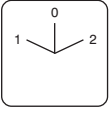
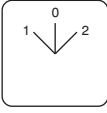
Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40, 63, 80, 100, 125, 200 and 400 Amps.

Spring Return

				
45 Degree Spring Return to “ 0”		No of stages	Spring Return from 1 to “ 0”	
Description	Programme code		Description	Programme code
1 pole	61361	1	1 pole	61364
2 pole	61362	2	2 pole	61365
3 pole	61363	3	3 pole	61369

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

Without Jumper

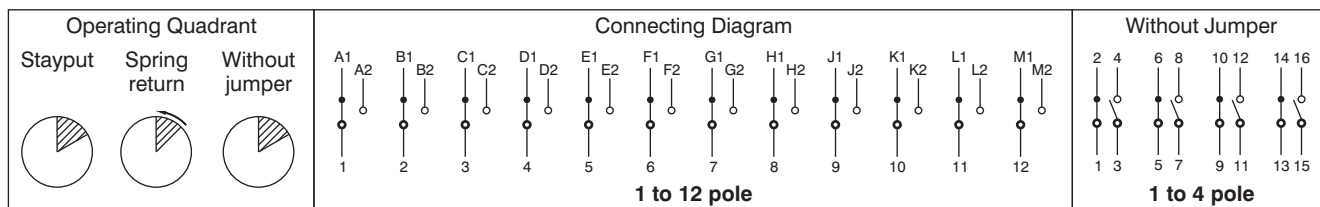
 			 	
60 Degree Stayput without Jumper		No of stages	45 Degree Spring Return without Jumper	
Description	Programme code		Description	Programme code
1 pole without jumper	61625	1	1 pole without jumper	61761
2 pole without jumper	61626	2	2 pole without jumper	61762
3 pole without jumper	61627	3	-	-

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40, 63, 80, 100, 125, 200 and 400 Amps.

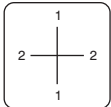
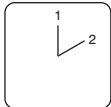
Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

CHANGEOVER SWITCHES WITHOUT OFF

Changeover without Off

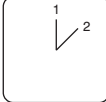


Stayput

 			 		
90 Degree Complete Rotation		No of stages	60 Degree		No of stages
Description	Programme code		Description	Programme code	
1 Pole	61037	1	5 Pole	61041	5
2 Pole	61038	2	6 Pole	61042	6
3 Pole	61039	3	7 Pole	61043	7
4 Pole	61040	4	8 Pole	61044	8
-	-	-	9 Pole	61045	9
-	-	-	10 Pole	61046	10
-	-	-	11 Pole	61047	11
-	-	-	12 Pole	61048	12

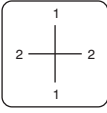
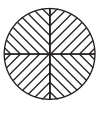
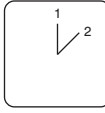
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Spring Return

					
45 Degree Spring Return				No of stages	
Description		Programme code			
1 Pole		61371		1	
2 Pole		61372		2	
3 Pole		61373		3	

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

Without Jumper

									
90 Degree Stayput without Jumper				No of stages	45 Degree Spring return without Jumper				
Description		Programme code			Description		Programme code		
1 pole without jumper		61637		1	1 pole without jumper		61771		
2 pole without jumper		61638		2	-		-		
3 pole without jumper		61639		3	-		-		
4 pole without jumper		61640		4	-		-		

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40, 63, 80, 100, 125, 200 and 400 Amps.

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

MULTISTEP SWITCHES WITH OFF

Multi-Step Switches, also called Pole-Way Switches, are available with OFF and without OFF.

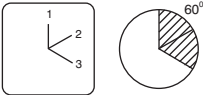
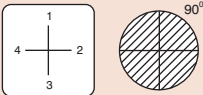
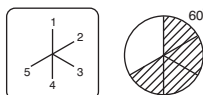
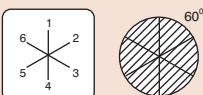
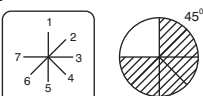
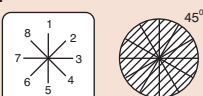
Multi-Step Switches connect different circuits to a common supply or vice-versa. Multi-Step Switches with 1 pole, 2 poles and 3 poles are popular for 1 phase, 2 phase and 3 phase supply.

Applications : As Tap Changing Switch for Transformer/Stabiliser and other special application circuits.

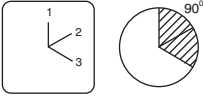
PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61059	1 Pole - 2 Way	2 WAY 	 1 to 4 pole	1
61079	2 Pole - 2 Way			2
61099	3 Pole - 2 Way			3
61130	4 Pole - 2 Way			4
61060	1 Pole - 3 Way	3 WAY 	 1 to 4 pole	2
61080	2 Pole - 3 Way			3
61100	3 Pole - 3 Way			5
61131	4 Pole - 3 Way			6
61061	1 Pole - 4 Way	4 WAY 	 1 to 4 pole	2
61081	2 Pole - 4 Way			4
61101	3 Pole - 4 Way			6
61132	4 Pole - 4 Way			8
61062	1 Pole - 5 Way	5 WAY 	 1 to 3 pole	3
61082	2 Pole - 5 Way			5
61102	3 Pole - 5 Way			8
61063	1 Pole - 6 Way	6 WAY 	 1 to 3 pole	3
61083	2 Pole - 6 Way			6
61103	3 Pole - 6 Way			9
61064	1 Pole - 7 Way	7 WAY 	 1 to 2 pole	4
61084	2 Pole - 7 Way			7
61065	1 Pole - 8 Way	8 WAY 		4
61066	1 Pole - 9 Way	9 WAY 		5
61067	1 Pole - 10 Way	10 WAY 		5
61068	1 Pole - 11 Way	11 WAY 		6

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40, 63, 80, 100, 125 and 200 Amps.

MULTISTEP SWITCHES WITHOUT OFF

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61049	1 Pole - 3 Way	3 WAY 	 1 to 6 pole	2
61069	2 Pole - 3 Way			3
61089	3 Pole - 3 Way			5
61120	4 Pole - 3 Way			6
61124	5 Pole - 3 Way			8
61126	6 Pole - 3 Way			9
61050	1 Pole - 4 Way	4 WAY 	 1 to 4 pole	2
61070	2 Pole - 4 Way			4
61090	3 Pole - 4 Way			6
61121	4 Pole - 4 Way			8
61051	1 Pole - 5 Way	5 WAY 	 1 to 4 pole	3
61071	2 Pole - 5 Way			5
61091	3 Pole - 5 Way			8
61122	4 Pole - 5 Way			10
61052	1 Pole - 6 Way	6 WAY 	 1 to 3 pole	3
61072	2 Pole - 6 Way			6
61092	3 Pole - 6 Way			9
61053	1 Pole - 7 Way	7 WAY 	 1 to 3 pole	4
61073	2 Pole - 7 Way			7
61093	3 Pole - 7 Way			11
61054	1 Pole - 8 Way	8 WAY 	 1 to 3 pole	4
61074	2 Pole - 8 Way			8
61094	3 Pole - 8 Way			12
61055	1 Pole - 9 Way	9 WAY 		5
61056	1 Pole - 10 Way	10 WAY 		5
61057	1 Pole - 11 Way	11 WAY 		6
61058	1 Pole - 12 Way	12 WAY 		6

Multistep Switches without Jumper

61649	1 Pole - 3 Way Without Off Without Jumper	4 WAY 		3
61650	1 Pole - 4 Way Without Off Without Jumper	4 WAY 	 1 to 2 pole	2
61670	2 Pole - 4 Way Without Off Without Jumper			4

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40, 63, 80, 100, 125 and 200 Amps.

INSTRUMENTATION SELECTOR SWITCHES

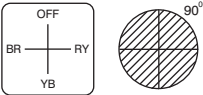
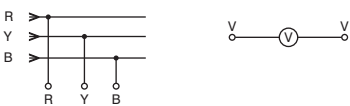
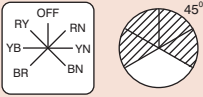
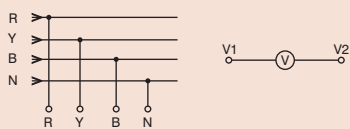
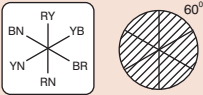
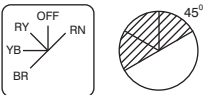
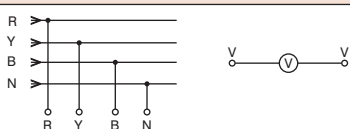
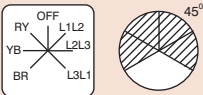
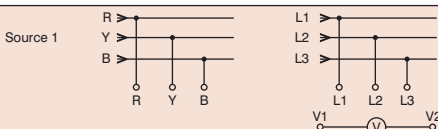
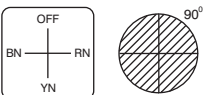
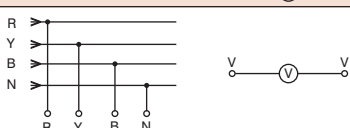
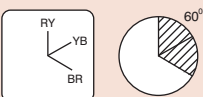
The Instrumentation Selector Switches help to :

Measure currents in different circuits with a current transformer, a single ammeter and a switch.

Measure voltages between phases and phase and neutral with one voltmeter and a switch.

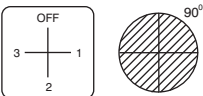
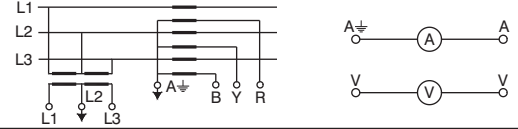
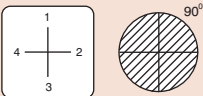
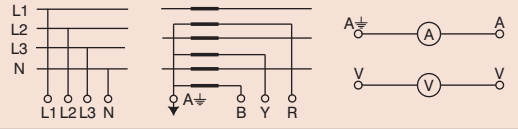
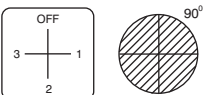
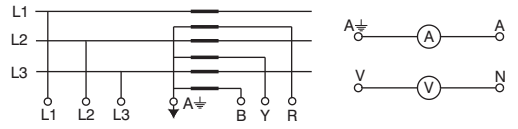
Measure voltages and currents of a circuit with one voltmeter, one ammeter and a single switch

Voltmeter Selector Switches

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61312	3 ph Line to Line			2
61313	3 ph Line to Line & Line to Neutral			3
61314	3 ph Line to Line, Line to Neutral & Without Off			3
61317	3 ph Line to Line & L1 to N			3
61318	3 ph Line to Line 2 Sources			4
61311	3 ph Line to Neutral			2
61319	3 ph Line to Line Without Off			2

Feasible ampere rating for S, TP and RT Series : 6, 10, 16 and 20 Amps.

Voltmeter and Ammeter Selector Switches

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61336	3 Voltages Line - Line & 3 Currents			5
61337	4 Voltages & 3 Currents			6
61338	3 Voltages Line to Neutral & 3 Currents			5

Feasible ampere rating for S, TP and RT Series : 6, 10, 16 and 20 Amps.

Ammeter Selector Switches

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61325	1 Pole - 3 Transformer with OFF			3
61321	1 Pole - 1 Transformer			1
61331	1 Pole - 2 Transformer			2
61384	1 Pole - 3 Transformer without OFF			3
61326	1 Pole - 4 Transformer with OFF			4
61327	2 Pole - 2 Transformer with OFF			3
61328	3 Pole - 3 Transformer with OFF			5
61329	3 Pole - 3 Transformer without OFF			5
61330	4 Pole - 4 Transformer without OFF			6
71000	Direct ammeter Selector without Current Transformer			5

Feasible ampere rating for S, TP and RT Series : 6, 10, 16 and 20 Amps.

Power Factor Meter and Wattmeter Switches

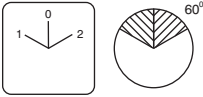
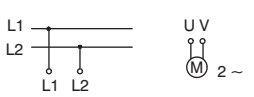
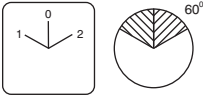
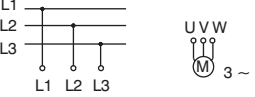
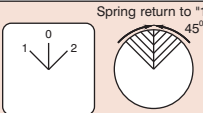
73078	One Current Transformer One Voltage Transformer			2
73079	Two Current Transformer			2
73071	Two Wattmeter Method			5

Feasible ampere rating for S, TP and RT Series : 6, 10, 16 and 20 Amps.

MOTOR CONTROL SWITCHES

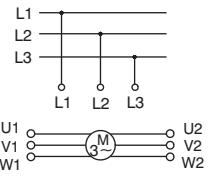
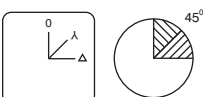
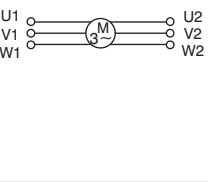
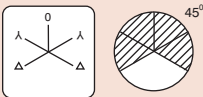
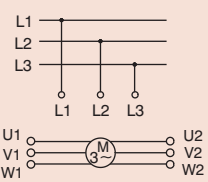
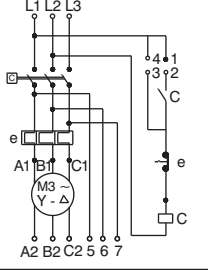
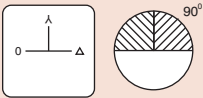
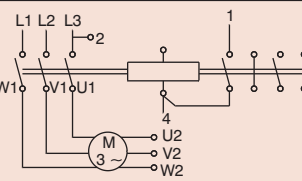
Motor Control Switches directly operate the motor with AC3 or AC4 duty rating. They are typically used for “Forward-Reverse”, “Star-Delta” and “Two Speed Forward-Reverse”. Motor Control Switches are also designed to operate, with a contactor having built-in tripping feature, in the event of power failure and overload.

Motor Reversing Switches

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61210	2 Pole			2
61211	3 Pole			3
61253	3 Pole Spring Return			3

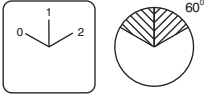
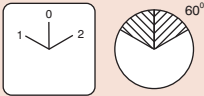
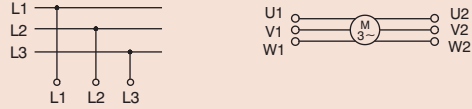
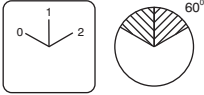
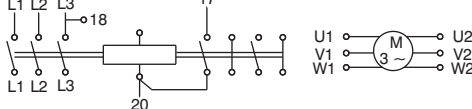
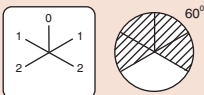
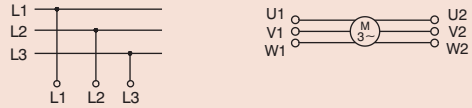
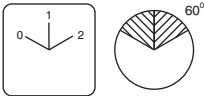
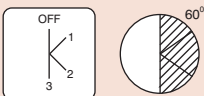
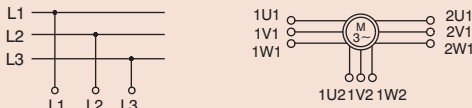
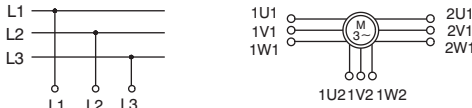
Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

Motor Switches/Star Delta Switches

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61200	OFF - STAR - DELTA			4
61201	Spring Return from STAR to OFF			4
61203	Standard			5
61239	Star Delta with Sequence Locking & LMD Contacts			3
61240	For Use with Contactors			4

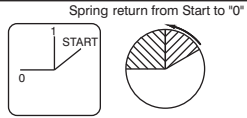
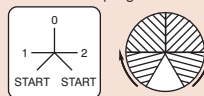
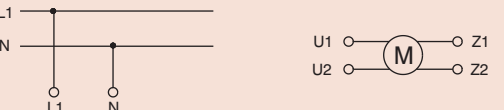
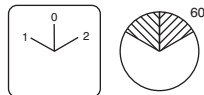
Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

Motor Switches/Multi Speed Switches

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61212	2 Speed Single Winding			4
61213	2 Speed Single Winding			4
61215	2 Speed Single Winding for Use			5
61217	2 Speed Single Winding Reversing			6
61219	2 Speed 2 Separate Windings			3
61226	3 Speed 2 Windings (O-A-B-A)			6
61243	3 Speed 2 Windings (O-A-B-B)			6

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

Motor Switches - Start and Run Switches

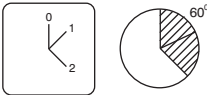
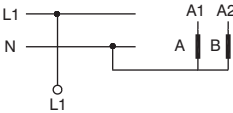
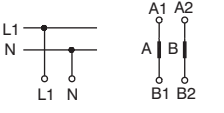
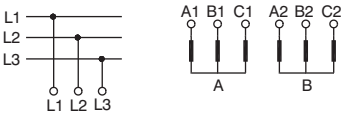
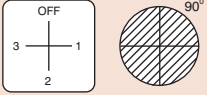
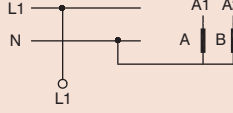
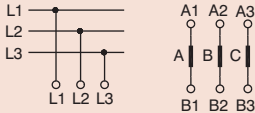
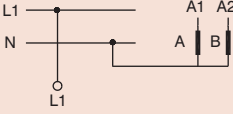
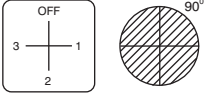
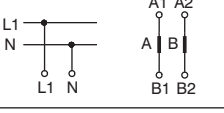
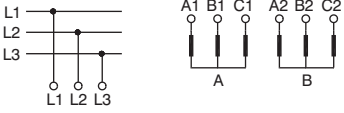
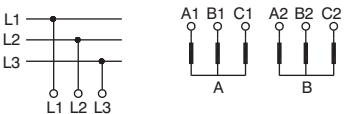
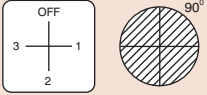
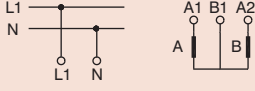
PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61208	Split - Phase Start			2
61209	Split - Phase Start Reversing			3
61270	Split - Phase Start Reversing Switching			3

Feasible ampere rating for S, TP and RT Series : 6, 10, 16 and 20 Amps.

GANG SWITCHES

The Gang Switches increase capacity of circuits by ganging in serial or parallel operations for different circuit capacity. Serialing enhances power of battery supply and paralleling, the power of resistor.

Applications : In railway coaches for controlling the battery supply. Also in telecom panels and special application circuits.

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61109	2 Gang with OFF 1 Pole	2 GANG 	 1 pole	1
61117	2 Gang with OFF 2 Pole		 2 pole	2
61111	2 Gang with OFF 3 Pole		 3 pole	3
61110	3 Gang with OFF 1 Pole	3 GANG 	 1 pole	2
61118	3 Gang with OFF 2 Pole		 3 pole	3
61112	3 Gang with OFF 3 Pole		 1 pole	5
61113	2 Gang, Series with OFF 1 Pole	2 GANG 	 2 pole	1
61115	2 Gang, Series with OFF 2 Pole		 3 pole	2
61114	2 Gang, Series with OFF 3 Pole		 3 pole	3
61116	2 Gang, Series - Parallel with OFF 2 Pole	2 GANG SERIES PARALLEL 	 3 pole	2

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

CONTROL SWITCHES

Control Switches are used to energise contactors for controlling motor operations. Most of the switches are “Spring Return” type for latching of the circuit with NO contact and facilitate tripping by the tripping device.

Applications : Control Switches offer unique alternative to multiple “Push Button Stations”, when one Switch controls instead of many Push Buttons. Control Switch with many positions are offered for a suitable combination.

PROG NO.	DESCRIPTION	SCRIPT PLATE MARKING/ OPERATING QUADRANT	CONNECTING DIAGRAM/ TERMINAL MARKING	NO. OF STAGES
61300	1 Pole STOP - START with Spring Return	Spring return 		1
61388	2 Pole STOP - START with Spring Return			2
61301	1 Pole STOP - START with Spring Return from Start to Run	Spring return from start to "1" 		1
61701	Without Jumper			
61307	STOP - START SWITCH with Spring Return to Run for 2 Units	Spring return from Start 		2
61707	Without Jumper			
61366	Contactor Control with Spring Return to OFF	Spring return to "0" 		2
61271	Motor Voltage Control Switch			2

Feasible ampere rating for S, TP and RT Series : 6, 10, 16, 20, 25, 32, 40 and 63 Amps.

Notes :

MOUNTINGS

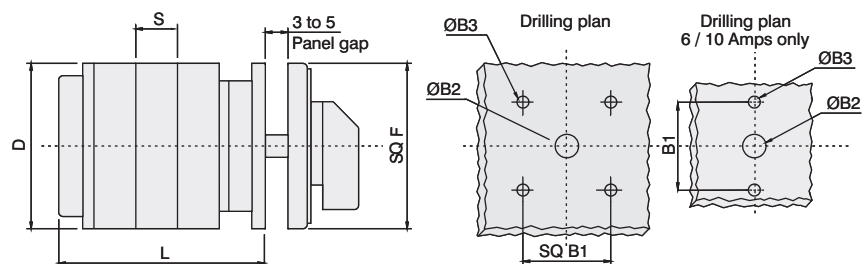
Mounting Code	Description	Feasibility ✓					
		6/10A	16/20A	25/32A	40/63A	80/100/125A	200/400A
B00	Front Mounting 48 x 48 plate for 25/32A and 64 x 64 plate for 40/63A			✓	✓		
B02	Rear/Back Mounting with Standard Front Plate	✓	✓	✓	✓	✓	✓
B03	Front Mounting, Standard Mounting Plate	✓	✓	✓	✓	✓	✓
B12	Rear/Back Mounting with next size Plate		✓	✓	✓	✓	✓
B13	Front Mounting with next size Plate	✓	✓	✓	✓	✓	✓
B14	Single Hole Mounting 48 x 48 Plate only for 6/10A	✓					
B19	Single Hole Mounting 32 x 32 Plate for 6/10A and 48 x 48 Plate for 16/32A	✓	✓	✓			
B21	Din Rail Mounting on 35 mm Rail	✓	✓	✓			
B30	Front Mounting with Rectangular Padlock		✓	✓	✓	✓	✓
B32	Rear/Back Mounting, Door Interlock + Rectangular Padlock (B42+B30)		✓	✓	✓	✓	✓
B33	Front Mounting with Round Padlock		✓	✓	✓	✓	✓
B34	Rear Mounting, Door Interlock + Round Padlock (B33+B42)		✓	✓	✓	✓	✓
B41	Rear Mounting with Door Clutch Mechanism(Door Opens in both pos.)		✓	✓	✓	✓	✓
B42	Rear Mounting with Door Interlock		✓	✓	✓	✓	✓
B51	Single Hole Mounting, Key operated without Front Plate		✓	✓			
B53	Single Hole Mounting, Key operated with Front Plate		✓	✓			
B63	Front Mounting, Knob/Handle Operatable, Lockable with Key		✓	✓	✓		
B90	Front Mounting with Centre key Lock		✓	✓			
F32	Door Clutch + Rectangular Padlock Mounting Plate at front		✓	✓	✓	✓	
F41	Door Clutch without Padlock, Mounting Plate at front		✓	✓	✓	✓	✓
F47	Door Clutch, Front Plate of next size, Mounting Plate at front		✓	✓	✓	✓	✓
M17	SS Enclosure Max stages	upto 4	upto 4	upto 3			✓
A17	Aluminium Enclosure Max stages	upto 4	upto 3	upto 2			
B17	PVC/ABS Enclosure Max stages	upto 4	upto 4	upto 3	upto 2		
B31	PVC/ABS Enclosure with Round Padlock Max stages			upto 2	upto 2		

Front Mountings



IP55 protection from front

Features : • Standard 4 hole front panel mounting • Knob/Handle operatable • Suitable for all switching angles and spring return switches • Front assembly in 4 different colors, Yellow/Red, Grey/Black, Black/Black and aluminum finish.



Length L = No of Stages of Prog x S + W

Quote B13 for next Bigger size front plate

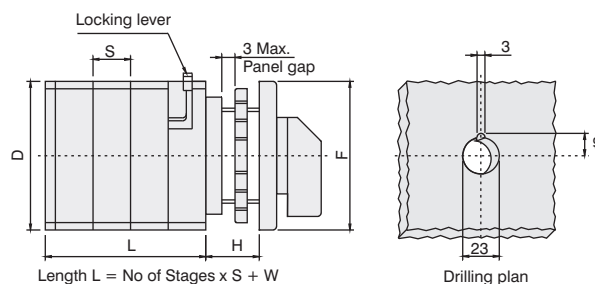
TYPE	B1	B2	B3	D	F	S	W	Max
S6/S10/TP6/TP10	20	9	4.5	33	32	9.5	18.5	12
S16/TP16/RT16/TP20/RT20	36	12	4.5	46	48	12	26	21
S25/S32/RT25/RT32	48	12	5.5	52	64	15	27	15
S40/S63/RT40/RT63	68	15	5.5	76	88	21	33	10
S80/S100/S125	68	15	5.5	92	88	26	40	10
S200	68	15	5.5	88	88	32	40	10
S400	68	15	5.5	88	88	64	40	4

B19/B14



IP65 protection from front

Features : • Single hole mounting with std dia 22.5 mm • Eliminates the need for screws/hardware for Quick-Fit single hole panel fixing • Easy termination • Suitable upto 32 Amp.



Quote B14 for next Bigger size front plate (Available for 6/10 Amps. only)

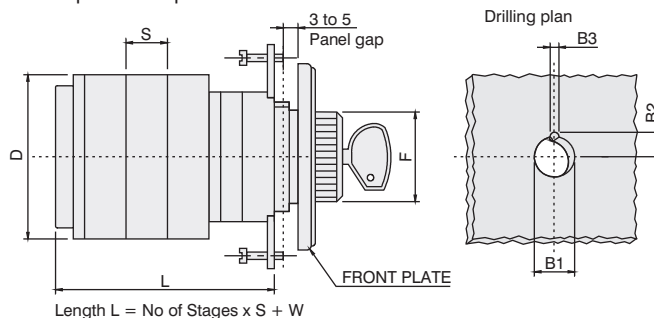
TYPE	CODE	D	F	S	H	W	Max
S6/S10/TP6/TP10	B19	33	32	9.5	10	28.5	12
	B14	33	48	9.5	13	28.5	12
S16/TP16/RT16/TP20/RT20	B19	46	48	12	13	36	21
S25/S32/RT25/RT32	B19	52	48	15	13	37	15

B53/B51



IP40 protection from front

Features : • Screw-Mount single hole mounting with standard dia 22.5 mm • Key operated safety switch preventing access to unauthorised personnel. • Available with or without front plate • Suitable upto 32 Amp.

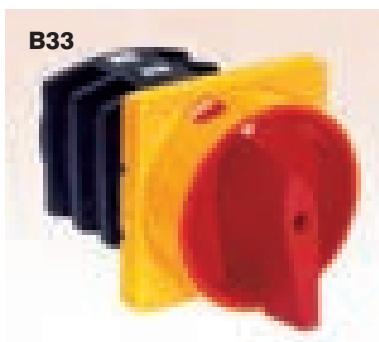


Quote B51 for mounting without front plate

TYPE	B1	B2	B3	D	F	S	W	Max
S16/TP16/RT16/TP20/RT20	23	13.5	2.5	46	28	12	37	5
S25/S32/RT25/RT32	23	13.5	2.5	52	28	15	38	5

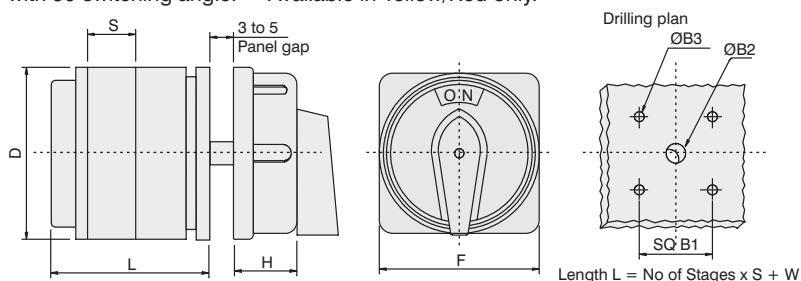
Lockable Mountings

B33



IP55 protection from front

Features : • Four hole round padlockable mounting • Secure with max. 3 padlocks in OFF position. Prevents operational access to unauthorised personnel. • Suitable for switches only with 90° switching angle. • Available in Yellow/Red only.



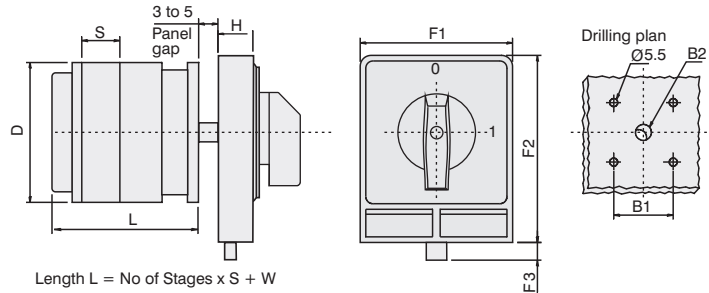
TYPE	B1	B2	B3	D	F	H	S	W	Max
S16/TP16/RT16/TP20/RT20	36	12	4.5	46	65	26	12	26	12
S25/S32/RT25/RT32	36	12	4.5	52	65	26	15	27	8
S40/S63/RT40/RT63	68	15	5.5	76	95	31	21	33	6
S80/S100/S125	68	15	5.5	92	95	31	26	40	6
S200	68	15	5.5	88	95	31	32	40	6
S400	68	15	5.5	88	95	31	64	40	3

B30



IP55 protection from front

Features : • Four hole rectangular padlockable mounting • Secure with max four padlocks in OFF position. • Prevents operational access to unauthorised personnel • Suitable for switches with 90° switching angle. • Available in Yellow/Red only.



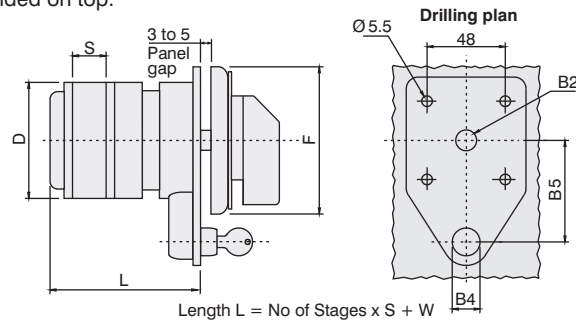
TYPE	B1	B2	D	F1	F2	F3	H	S	W	Max
S16/TP16/RT16/TP20/RT20	48	12	46	75	102	13.5	23	12	26	12
S25/S32/RT25/RT32	48	12	52	75	102	13.5	23	15	27	8
S40/S63/RT40/RT63	68	15	76	98	126	16	25	21	33	6
S80/S100/S125	68	15	92	98	126	16	25	26	40	6
S200	68	15	88	98	126	16	25	32	40	6
S400	68	15	88	98	126	16	25	64	40	2

B63



IP40 protection from front

Features : • Knob/Handle operatable switch • With key lockable assembly prevents switching by unauthorised personnel. • Key lock/Key removable only in OFF position • Lock assembly can also be provided on top.

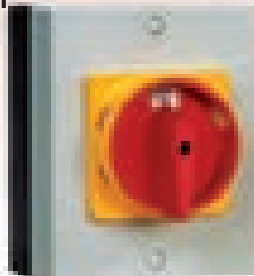


for handles instead of knob, key arrangement comes on top

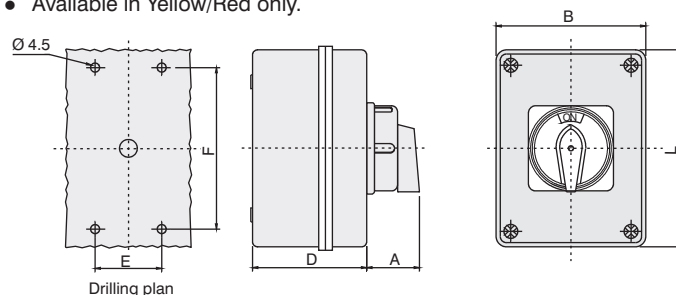
TYPE	B2	B4	B5	D	F	S	W	Max
S16/TP16/RT16/TP20/RT20	15	23	43.5	46	64	12	45	12
S25/S32/RT25/RT32	15	23	43.5	52	64	15	45	12
S40/S63/RT40/RT63	15	23	43.5	76	64	21	47	6

Enclosure Mountings

B31



Features : • Switches mounted in ABS plastic enclosure • Provides protection from dust and hazardous material with round padlockable device • Secure with max 3 padlocks in OFF position • Prevents operational access to unauthorised personnel • Suitable for 90° switches. • Available in Yellow/Red only.



TYPE	A	L	B	D	E	F	Stages
S16/TP16/RT16/TP20/RT20	42	110	80	70	60	90	2
S25/S32/RT25/RT32	42	125	100	70	80	115	2
S40/S63/RT40/RT63	48	175	125	90	105	155	2

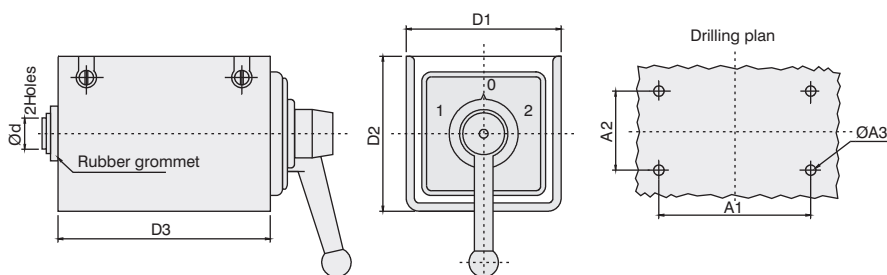
B31-Padlock type, suitable only as 2 position isolator. For square plate and standard FL knob, quote B17 mounting.

CAM OPERATED ROTARY SWITCHES

M17



Features : • Switches mounted in sheet metal enclosures • Provides protection from dust and hazardous environment. • Knob/Handle operable • Suitable for switches upto 32 Amp.

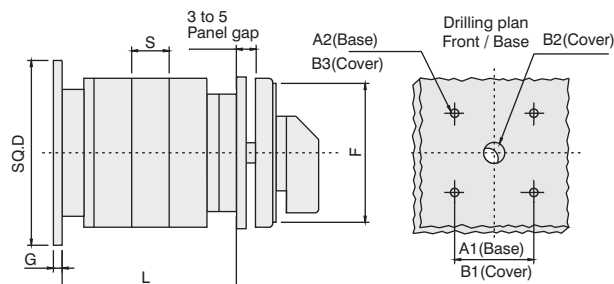


TYPE	A1	A2	A3	D1	D2	D3	Max
S6/S10/TP6/TP10	70	60	4	85	89	98	4
S16/TP16/RT16/TP20/RT20	70	60	4	85	89	98	4
S25/S32/RT25/RT32	70	60	4	85	89	98	3
16 Amp Forward/Reverse	81	65	5	75	75	110	-

Rear Mountings

Features : • Four hole base mounted on rear side of the panel. • Knob/Handle operable.

B02



Length L = No of Stages x S + W

Quote B12 for next bigger size front plate

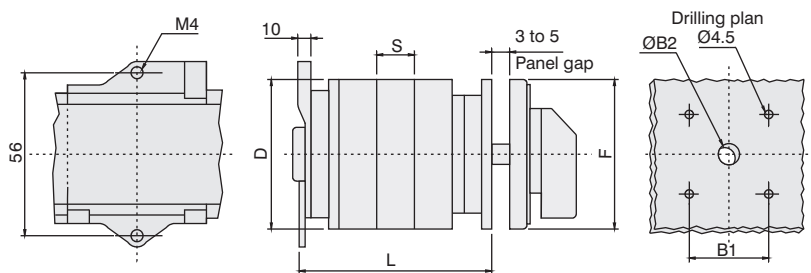
TYPE	A1	A2	B1	B2	B3	D	F	G	S	W	Max
S6/S10/TP6/TP10	36	M5	36	9	4.5	48	32	4.5	9.5	22	10
S16/TP16/RT16/TP20/RT20	48	M5	36	12	4.5	60	48	3.5	12	30	12
S25/S32/RT25/RT32	48	M5	48	12	4.5	60	64	3.5	15	31	8
S40/S63/RT40/RT63	68	M6	68	15	5.5	84	88	5	21	41	6
S80/S100/S125	81	M6	68	15	5.5	101	88	5	26	48	6
S200	81	M6	68	15	5.5	101	88	5	32	48	6
S400	81	M6	68	15	5.5	101	88	8	64	48	3

B21



IP40 protection from front

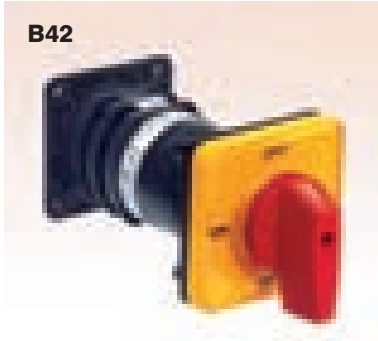
Features : • Snap mounting base on Din EN50022 (Omega) rail 35mm and 1.2 mm thick or two hole rear mounting. • Provides easy termination.



Length L = No of Stages x S + W

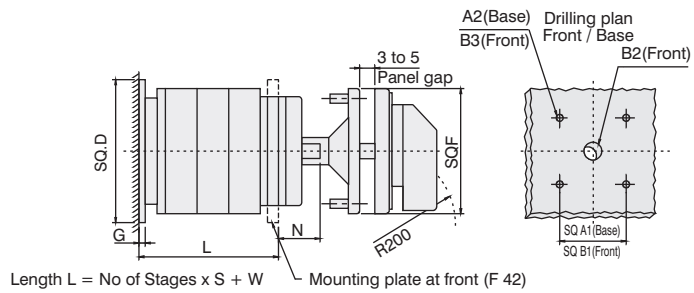
TYPE	B1	B2	B3	D	F	S	W	Max
S6/S10/TP6/TP10	20	9	4.5	33	32	9.5	28.5	10
S16/TP16/RT16/TP20/RT20	36	12	4.5	46	48	12	37	12
S25/S32/RT25/RT32	48	12	5.5	52	64	15	38	8

B42



IP55 protection from front

- Features :**
- Mounted on rear side of the panel and operated from the front door
 - Door interlockable mechanism and panel door openable only in OFF position.
 - Provides safety feature. • Knob/Handle operatable.



Quote B41 for door openable in both positions without door interlock

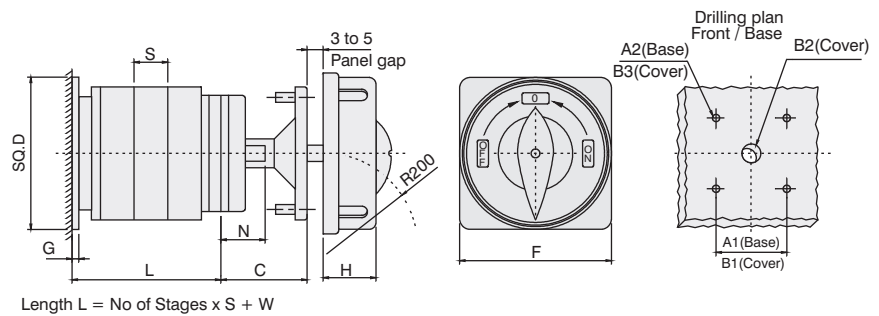
TYPE	A1	A2	B1	B2	B3	D	F	G	C	N	S	W	Max
S16/TP16/RT16/TP20/RT20	48	M5	48	15	4.5	60	64	3.5	45	22	12	54	8
S25/S32/RT25/RT32	48	M5	48	15	4.5	60	64	3.5	41	22	15	55	8
S40/S63/RT40/RT63	81	M6	68	18	5.5	101	88	5	46	26	21	66	6
S80/S100/S125	81	M6	68	18	5.5	101	88	5	46	26	26	72	6
S200	81	M6	68	18	5.5	101	88	5	46	26	32	72	6
S400	81	M6	68	18	5.5	101	88	5	46	34	64	72	3

B34



IP55 protection from front

- Features :**
- Mounted on rear side of the panel and operated from the front door
 - Door interlockable mechanism and door openable only in OFF position with round padlockable device.
 - Secure with max 3 padlocks in OFF position.
 - Available in Yellow/Red only.



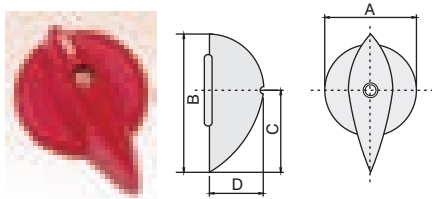
Quote B32 for rectangular padlock coupled with door interlock (Reference style B30)

TYPE	A1	A2	B1	B2	B3	D	F	G	C	N	S	W	Max
S16/TP16/RT16/TP20/RT20	48	M5	36	15	4.5	60	65	3.5	45	24.5	12	54	6
S25/S32/RT25/RT32	48	M5	36	15	4.5	60	65	3.5	41	24.5	15	55	6
S40/S63/RT40/RT63	68	M6	68	18	5.5	84	95	5	46	33.5	21	66	6
S80/S100/S125	81	M6	68	18	5.5	101	95	5	46	33.5	26	72	6
S200	81	M6	68	18	5.5	101	95	5	46	33.5	32	72	6
S400	81	M6	68	18	5.5	101	95	5	46	33.5	64	72	3

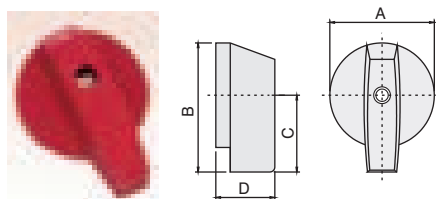
Notes :

KNOBS AND HANDLES

TD - TEAR DROP



FL - FLAG KNOB



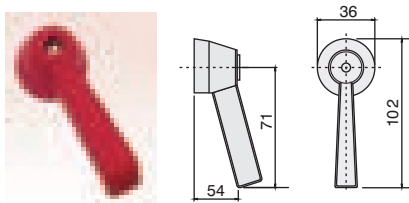
CODE - TD	A	B	C	D	CODE - FL	A	B	C	D
S6/S10/TP6/TP10	27	41	25	21	S6/S10/TP6/TP10	16.5	22	13.75	18
S16/TP16/RT16/TP20/RT20	27	41	25	21	S16/TP16/RT16/TP20/RT20	27	39	24	24
S25/S32/RT25/RT32	36	52	31	25	S25/S32/RT25/RT32	36	50	27	25
S40 & ABOVE	50	70	42	33	S40 & ABOVE	50	68	42.5	32

**KNOBS / HANDLE
COLOURS**

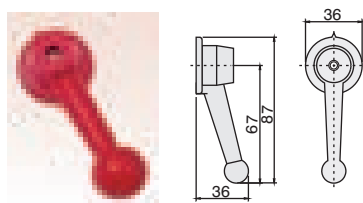
RED ■

BLACK ■

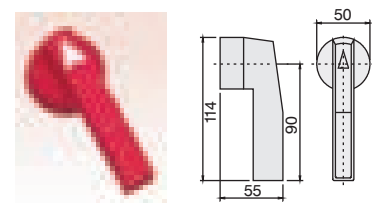
PG - PISTOL GRIP HANDLE



BG - BALL GRIP HANDLE



LV - LEVER HANDLE



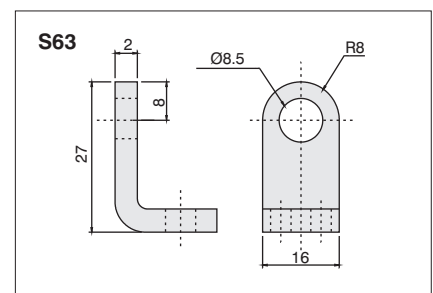
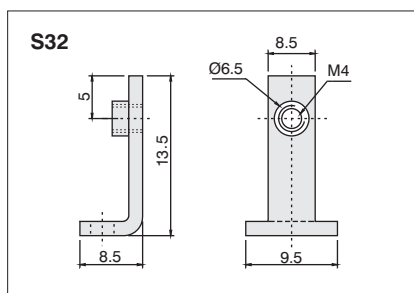
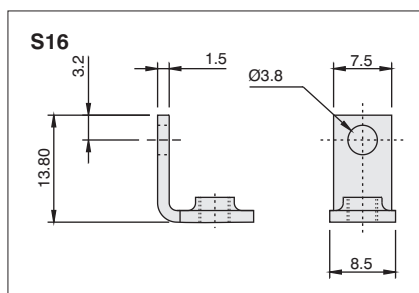
CODE - PG
S16/TP16/RT16/TP20/RT20
S25/S32/RT25/RT32
S40/S63

CODE - BG
S16/TP16/RT16/TP20/RT20
S25/S32/RT25/RT32
S40/S63

CODE - LV
S80/S100/S125
S200/S400
-

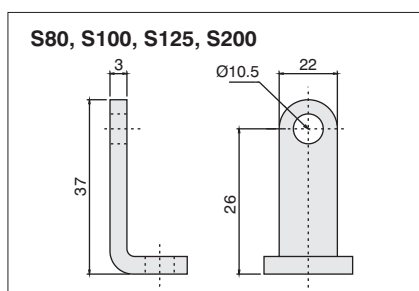
ACCESSORIES

EXTENDED TERMINALS

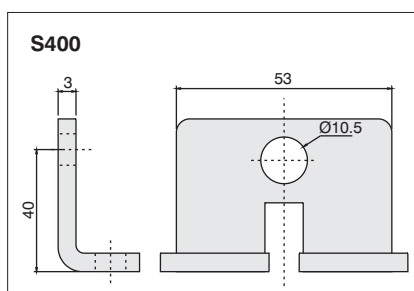


Always mounted on switch supplied
as optional for S40 and S63

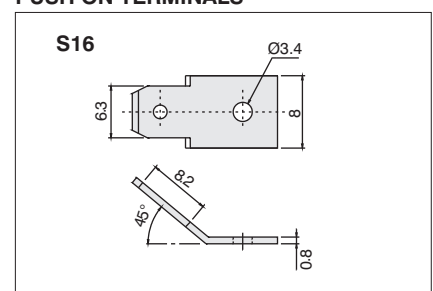
PUSH ON TERMINALS



Always mounted on switch



Always mounted on switch

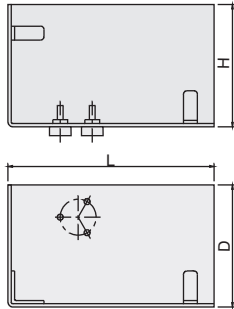


Mating terminal socket Code No : 1653

ACCESSORIES (Continued)

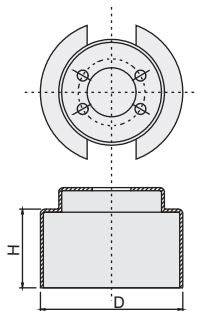
SHROUDING COVERS

RECTANGULAR



TYPE	L	D	H	No. of Stages
S63	210	200	73	2
	210	200	94	3
S200	175	110	115	2
	210	200	100	2

S-SERIES



TYPE	ØD	H	
		2 STAGE	3 STAGE
S25/S32	65 ⁺⁰²	48	63
S63	89 ⁺⁰²	118	182

* Other special size mounting plates at Front or Rear can be supplied against requirement.

Colour Combination

CODE - YR



Yellow Front Plate
Red Knob

CODE - GB



Grey Front Plate
Black Knob

CODE - BB



Black Front Plate
Black Knob

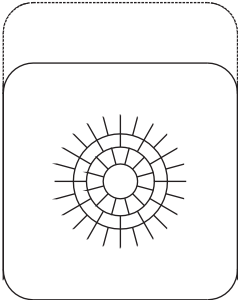
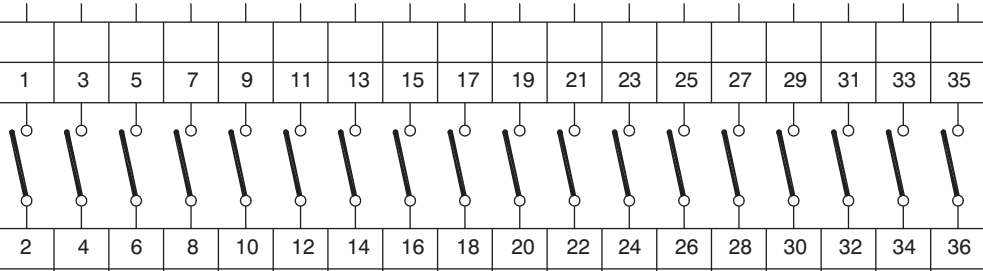
CODE - AB



Alluminium Foil Front Plate
with Black Knob

STANDARD STYLE	FRAME SIZE	BIGGER STYLE
S6/S10 TP6/TP10		---
S16 TP16 RT16 TP20 RT20		S6/S10 TP6/TP10
S25/S32 RT25/RT32		S16 TP16 RT16 TP20 RT20
S40 & above		S25/S32 RT25/RT32
---		S40 & above
SPECIAL FRONT PLATES		
S16 TP16 RT16 TP20 RT20		---
S25/S32 RT25/RT32		S16 TP16 RT16 TP20 RT20

CUSTOMISED PROGRAMME

Front plate			Programme Number																											
																														
			1357911131517192123252729313335																											
			24681012141618202224262830323436																											
																														
																														
Switching angle °																														
Switching positions																														
		1																												
		2																												
		3																												
		4																												
		5																												
		6																												
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		23																												
		24																												
Locked position			 Contact closed Contact closed without interruption Spring return																											
1	Switch Type		2	Mounting Form		3	Stop	With	Without																					
4	Front plate	Type	Colour	Optional extras																										
5	Marking																													
6	Handle	Type	Colour	Customer				Date																						
CUSTOMER CODE No.																														

Front plate	Programme Number	7 3 0 3 7
Switching angle 60° Switch positions OFF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 TUBE 5 9 13 17 21 25 29 33 37 TUBE & FAN 10 14 18 22 26 30 34 38 FAN 15 19 23 27 31 35 39 FAN & LAMP 20 24 28 32 36 40 NIGHT LAMP 25 29 33 37 41		
X Locked positions X Contact Closed X Contact Closed without interruption Spring return		
1 Switch Type	S 16	2 Mounting Form B03
3 Front plate Type 50 Colour Yellow	4 Marking	5 Stop With Without X
6 Handle Type Tear drop Colour Red	7 Customer	8 Date
CUSTOMER CODE No.		

Customised Programme Formation

The switch design and construction gives flexibility for making customised programmes within a very short period. Basically an engineer trying to specify the customised programme should concentrate on the following points.

- Number of operating positions of switch handle
- Total number of contacts required
- Contact closing sequence of all the contacts required in various positions of handle. Please note :
 - Each position should be identified and script plate marking required in those positions should be mentioned .
 - The standard latching angle (angle between positions)/ switching angles are 60°, 90°, 45° and 30°. Spring return are also possible for 45° and 90° switching angle.
- Total number of contacts can be decided based on the actual need. You may arrange the contacts to your convenience and number them as 1/2, 3/4, 5/6...etc. While making the switch, we may rearrange the contacts to use solid jumpers so as to avoid loose wire jumpers
- Fill up the Programme sheet by marking 'X' at places where contacts have to Close (NC).

Also specify the ampere rating, mounting style, switching angle, script plate markings, terminal marking, lockable position (If any)

For example refer the sample customised programme sheet of a bedroom switch having 3 contacts controlling a tube, fan and night lamp

Note:-The above construction carries a five digit number starting with (7xxxx) allotted by us .This number alone is sufficient for future correspondance and further ordering.

ORDERING CODE

Programme Code | Type | Ampere | Mounting | Knob | Color

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Example : 6 1 1 9 7 S E B 0 3 T D Y R

Programme Selection

Programmes	Prog Code
Isolators	Pg 4
Changeovers with OFF	Pg 5
Changeovers without OFF	Pg 6
Multistep with OFF	Pg 7
Multistep without OFF	Pg 8
Instrumentation Switches	Pg 9
Motor Control Switches	Pg 11
Gang Switches	Pg 13
Control Switches	Pg 14

Type Selection

Type	Code	Possible Amps
S-Series	S	6 to 400 Amps
Touch Proof	T	6 to 16 Amps
Rear Access Termination	R	16 to 63 Amps
DC Switches	D	16 to 500 Amps
Phase Selector only for 1 Pole 3 Way with OFF	P	25 to 63 Amps

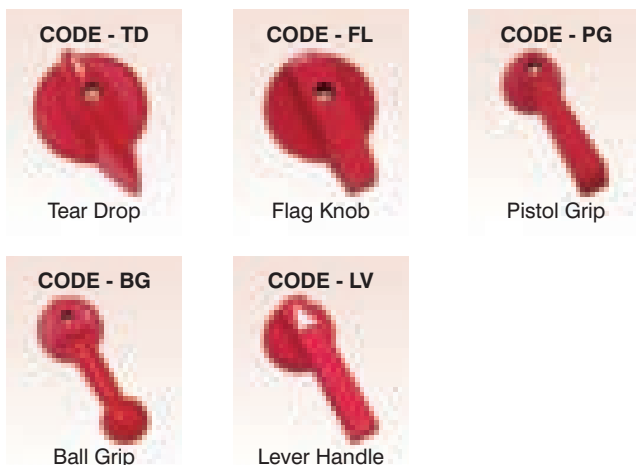
Mounting Selection

For Mounting Styles Refer Table on Page 14

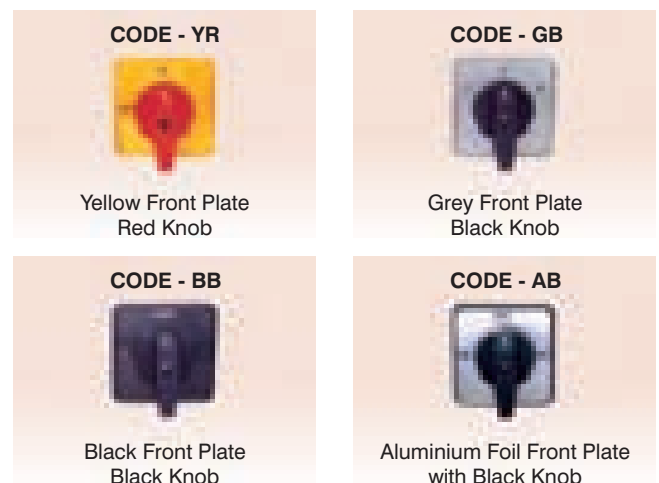
Ampere Selection

Ampere	Code	Ampere	Code
6	A	100	K
10	B	125	L
16	C	160	M
20	D	200	N
25	E	250	O
32	F	300	P
40	G	400	Q
50	H	500	R
63	I	600	S
80	J	800	T

Knobs and Handles Selection



Color Combination Selection



BREAKER CONTROL SWITCHES

Breaker Control Switches are specially designed for remote tripping and closing of circuit breakers. These switches ensure antipumping operation of ACB and also eliminate the possibility of coil burnout with two consecutive closing operations.

Construction :

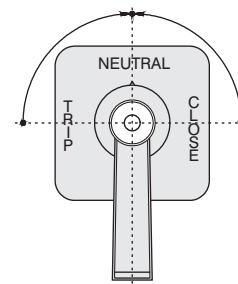
These switches are constructed using state of the art mechanisms and materials. The contacts are of AgCdO, double butt type, ensuring long life and better breaking capacity. Insulation is achieved with glass filled polyamide, the construction of the switch allows flexibility in programmes with different switching combinations, sequence locking, lost motion device (LMD), spring return mechanism, mounting options etc.

Operations :

Breaker Control Switches have 3 operating positions i.e., trip, neutral and close in either Stayput or Spring Return mechanism. In the Spring Return version the handle always returns to "Neutral" and does not stay in any other position. The contact block is divided into two, main contacts and LMD contacts. Main contacts operate whenever the handle is rotated, where as the LMD contacts are activated only when the handle is operated to the other end. i.e. when the switch handle is rotated from neutral to close position then the LMD contacts take the close configuration and when the handle returns back to neutral, the LMD contacts remain as it is in close configuration.

When the handle is rotated from neutral to trip position then the LMD contacts change to trip configuration and when the handle returns to neutral the LMD contacts remain in trip configuration. Thus the LMD mechanism enables the switch to have a memory feature of the previous operation, which is very essential for Circuit Breaker applications.

Apart from these features, a sequence lock can also be provided which acts like a mechanical interlock in the sequence of operations of the switch not permitting two consecutive close operations.



- Any number of operations from neutral to trip position
- Permits only one close operation after trip
- Spring return to neutral position

Technical Specifications

DESCRIPTION		UNIT	SG25	SG32
Rated Operational Voltage	Ue	V AC	690	690
		V DC	250	250
Resistance to Surge Voltage	Uimp	kV	6	6
Rated Uninterrupted Current	Ith	A	32	40
Rated Operational Current				
Pilot Duty AC15				
220-240V AC		A	8	14
380-440V AC		A	5	6
Short circuit protection		A	25	32
HRC fuse size				
Rated short circuit		kA	10	10
Terminal cross section				
Rigid wire	min	mm ²	1.5	2.5
	max		4	6
Flexible wire	min	mm ²	1	1.5
	max		2.5	4
Terminal Screw			M4	M4
Terminal Tightening Torque			1.2 Nm	1.2 Nm
CSA / UL RATINGS				
Voltage Rating		V	600	600
Ampere Rating		A	20	30
VA Rating			AC-720 VA	DC-275 VA

GENERAL

ENDURANCE :

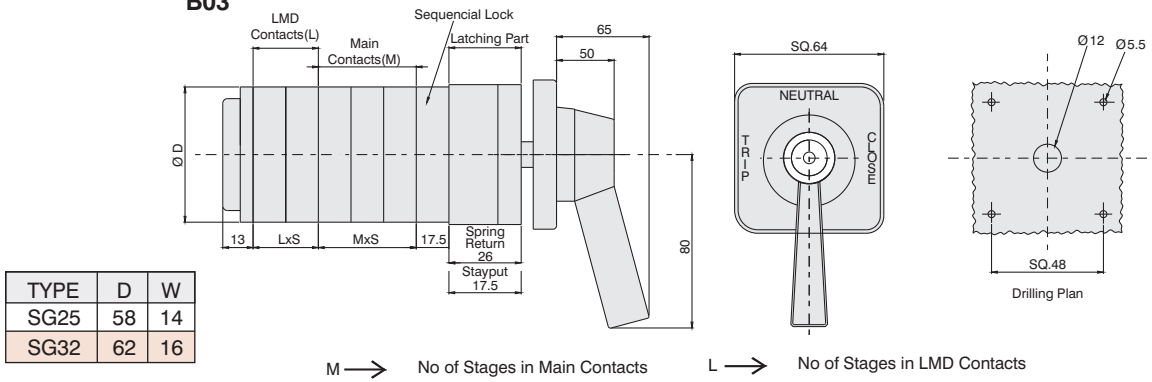
Mechanical
100,000 operations at 300 cycles/hour
Electrical
10,000 operations at 120 cycles/hour
Operational Temperature
25°C to 55°C, frequency upto 5 kHz

DC 13 RATING

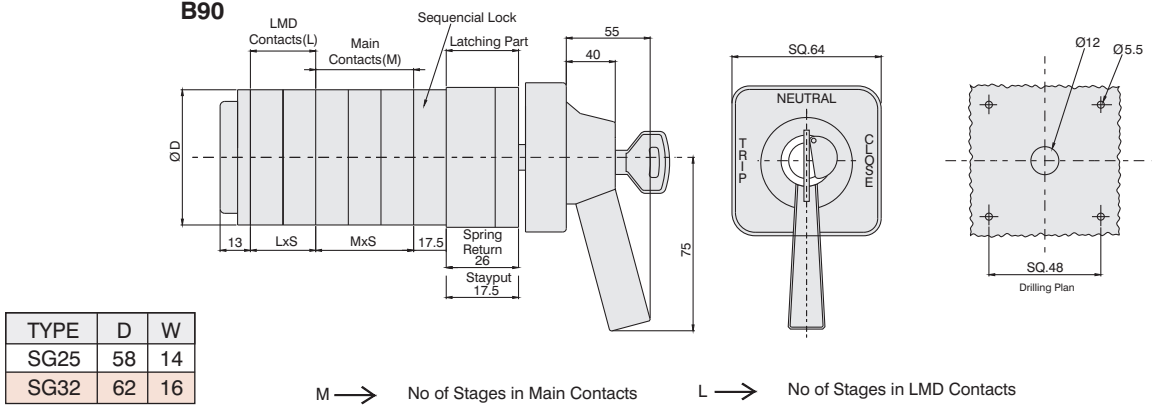
Voltage	No of Contacts in series	SG 25				SG 32			
		Resistive Amps	Inductive L / R Amps			Resistive Amps	Inductive L / R Amps		
			10 m sec	20 m sec	40 m sec		10 m sec	20 m sec	40 m sec
50V	1	20	20	15	6	25	25	18	8
	2	-	-	20	14	-	-	25	18
	3	-	-	-	20	-	-	-	25
125V	1	3	2.5	1.5	1.0	5	3	2	1.2
	2	20	15	10	5	25	18	12	6
	3	-	20	20	10	-	25	25	12
250V	1	1.0	0.5	0.3	0.2	1.2	0.6	0.4	0.3
	2	5	2	1.0	0.5	6	2.5	1.2	0.6
	3	20	10	4	1	25	12	5	1.2

Mounting Styles

B03



B90



Breaker Control Ordering Code

1	2	3	4	5	6	7	8	9	10	P	G	B	B
---	---	---	---	---	---	---	---	---	----	---	---	---	---

Example : 1 Q S L 1 1 E B 9 0 P G B B

25 Ampere spring return TNC with 1 set of main contact 1NO+1NC, 1 LMD contact in trip position and 1 LMD contact in close position with sequential locking and barrel lock mounting.

Digit 1

No of Main Contacts in Trip/Close position	
Description	Code
1 NO + 1 NC	1
2 NO + 2 NC	2
3 NO + 3 NC	3
4 NO + 4 NC	4
5 NO + 5 NC	5
6 NO + 6 NC	6
7 NO + 7 NC	7
8 NO + 8 NC	8
9 NO + 9 NC	9

Digit 2

Sequence Locking	Code
If required	Q
Not required	O

Digit 3

Latching Mechanism	Code
Spring Return	S
Stayput	C

Digit 4

LMD Contacts	Code
If required	L
Not required	D

Digit 5

No of LMD Contacts in Trip position	
Description	Code
1 Contact	1
2 Contact	2
3 Contact	3
4 Contact	4
5 Contact	5
6 Contact	6
If not required	0

Digit 6

No of LMD Contacts in Close position	
Description	Code
1 Contact	1
2 Contact	2
3 Contact	3
4 Contact	4
5 Contact	5
6 Contact	6
If not required	0

Digit 7

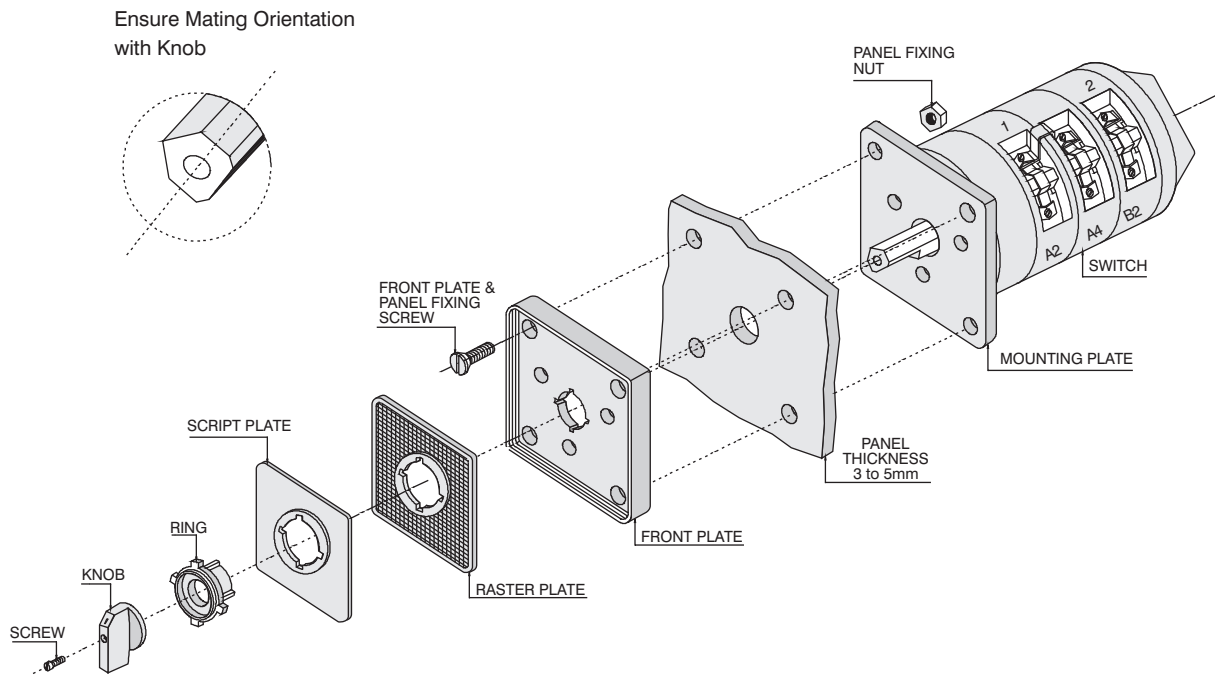
Ampere Rating	Code
25 Ampere	E
32 Ampere	F

Digit 8, 9 and 10

Mounting	Code
Standard Front Mounting	B 03
Barrel Lock with Centre Key	B 90

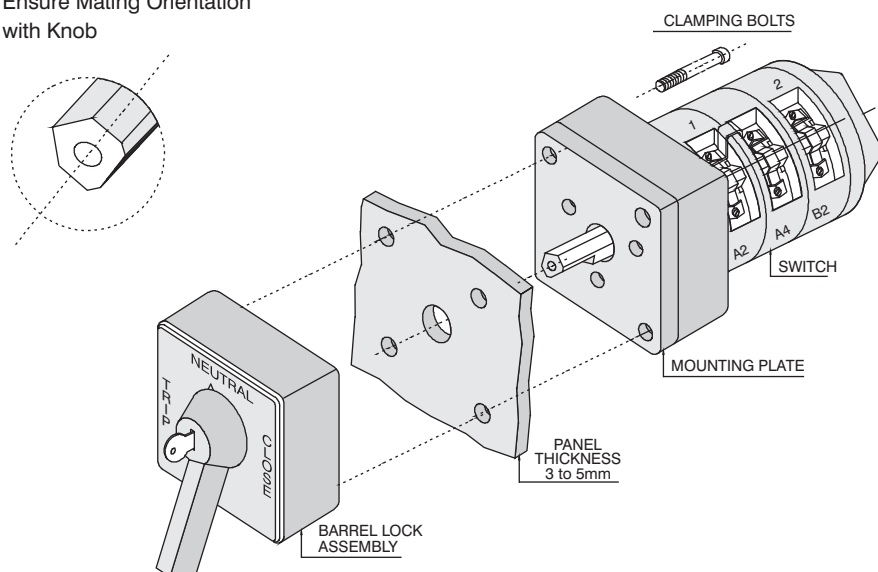
EXPLODED VIEWS

Cam Operated Rotary Switch

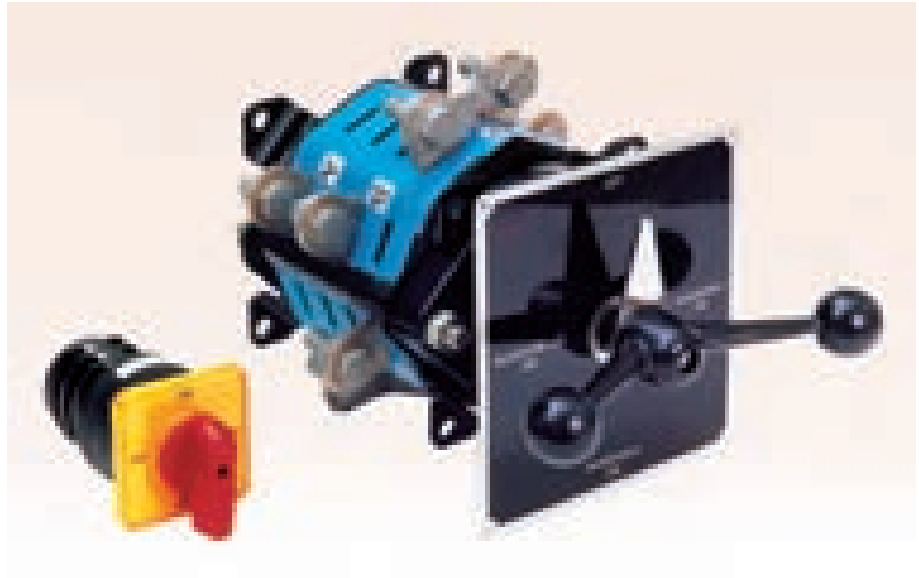


Breaker Control Switch

Ensure Mating Orientation with Knob



DC SWITCHES



Technical Specifications

DC RATINGS	DESCRIPTION						UNIT	RATED OPERATIONAL CURRENT Ie				
								SWITCH TYPE				
								D 16	D 25	D 32	D 40	D 63
Rated on Interrupted Current (I th)							A	20	32	40	50	80
DC 22A L/R 2m sec												
Rated Operational Voltage	110 V		250 V		460V		A	16	25	32	40	63
No of Series Contacts	1		2		4							
DC 23A L/R 7.5m sec												
Rated Operational Voltage	24 V	48 V	70 V	110 V	180 V	250 V	A	10	16	25	32	40
No of Series Contacts	1	2	3	4	5	6						
AC RATINGS	AC3 Rating 3 Phase 380-440V					HP	7	10	14	20	25	
	AC21 Rating					A	16	25	32	40	63	
GENERAL	Fuse Protection					A	16	25	32	40	63	
	Short Circuit through fault current					kA	5	10	10	20	20	
	Terminal Cross Section				[Rigid] min	mm ²	1.5	1.5	1.5	1.5	1.5	
					[Flex] max	mm ²	4	4	6	10	16	
	Tightening Torque					Nm	0.8	1.2	1.2	2	2	
Maximum Contact Stages						16	10	10	6	6		

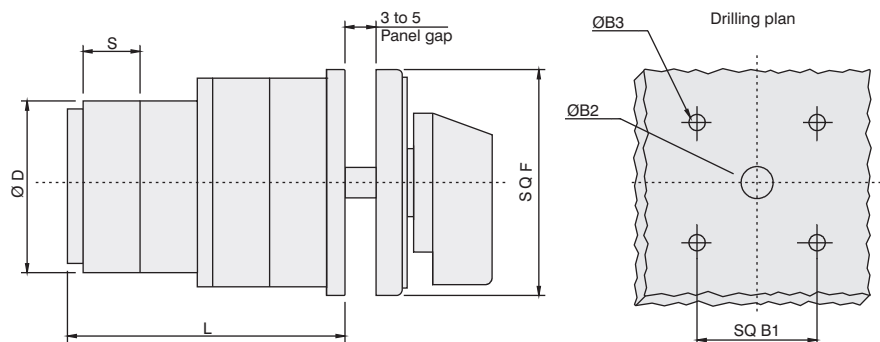
DESCRIPTION		UNIT	D 100	D 200	D 300	D 400	D 500
DUTY RATING - DC 22 A L/R 2m sec							
Operational Voltage		V DC	250	250	250	250	250
Voltage for AC Rating		V AC	460	460	460	460	460
Operational Current		A	100	200	300	400	500
Thermal Current (I _{th})		A	125	250	375	500	625
Switching Angle		Deg	90	90	90	90	90
Maximum Contact Stages			9	9	9	9	9

Construction and Features

D16 - D63

D series switches are designed for DC Switching applications. These switches are Constructed using snap action mechanism which provides "Quick Make Quick Break" of the contacts which is essential for DC switching. The contacts are of AgCdO, double break, butt type, housed in a glass filled polyamide contact stage and are operated through cams for higher electrical endurance and smooth operation.

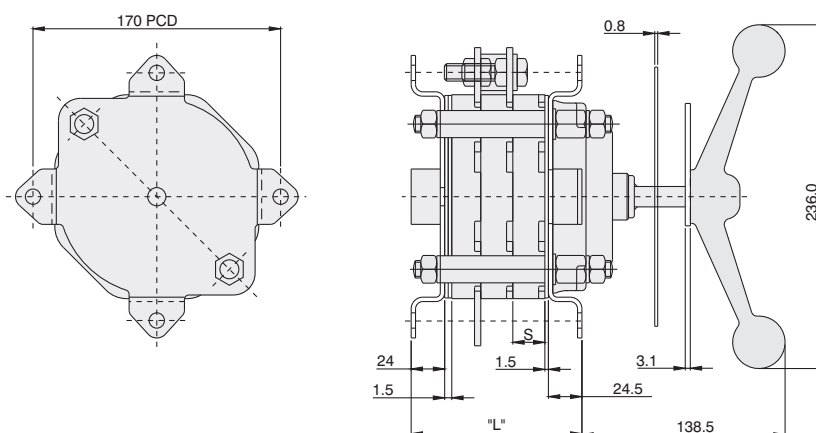
Suitable for 90 and 60 degree switching programmes and applicable for both AC and DC Switching. Suitable switching programmes for Isolator, Changeover, Multistep and Gang Switches etc. are offered.



TYPE	B1	B2	B3	D	F	S
D 16	48	12	5.5	50	64	12
D 25 / D 32	48	12	5.5	50	64	15
D 40 / D 63	68	15	5.5	70	64	21

STAGES		1	2	3	4	5	6	7	8	9	10	11	12
Length L in mm	D 16	62	74	86	98	110	122	134	146	158	170	182	194
	D 25/32	65	80	95	110	125	140	155	170	185	200	215	230
	D 40/63	69	90	111	132	153	174	195	216	237	258	279	300

D100 - D500



TYPE	S	L							
		1	2	3	4	5	6	7	8
D100 - D500	22	72.5	94.5	116.5	138.5	160.5	182.5	204.5	226.5

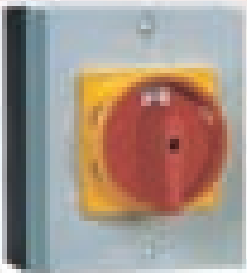
Cam Switch with Lever Handle



DC Switch



Enclosure Mounting



With DIN Rail Mounting Clip



Range

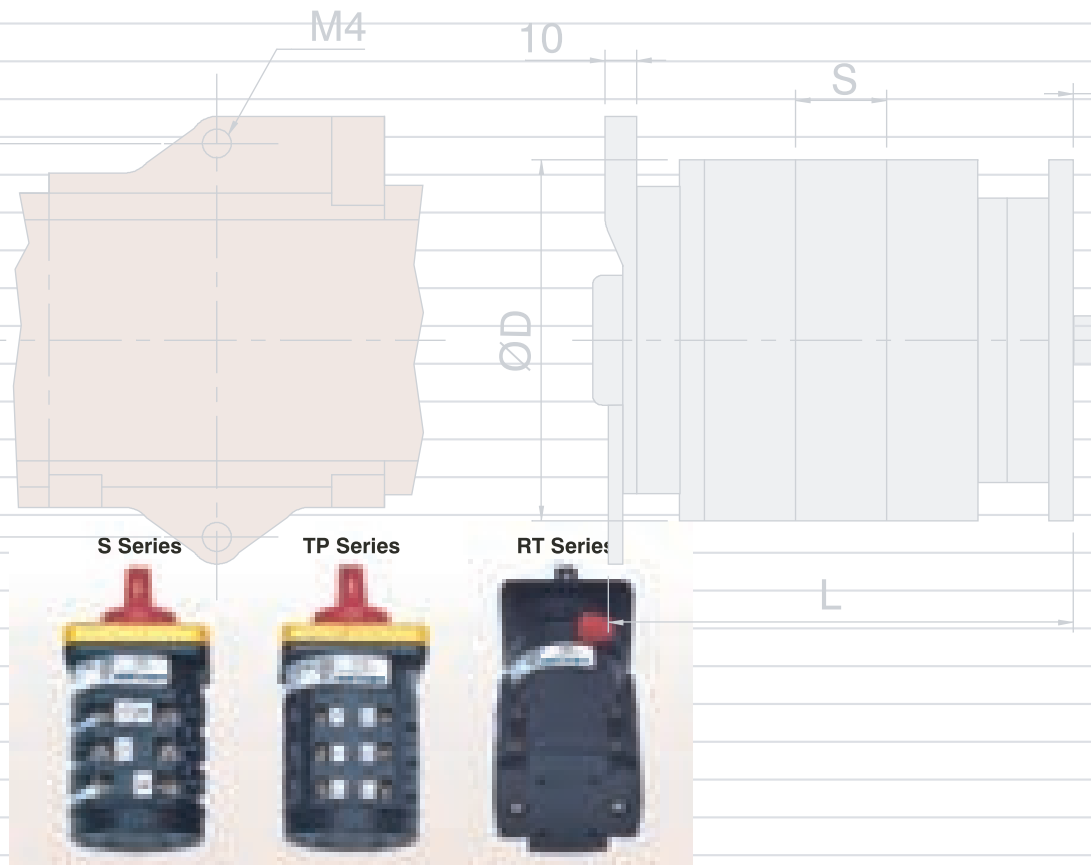
- 6 Amps to 400 Amps, upto 600 Volts.
- Current Rated upto 400 Amps for circuit Isolator application, rated upto 50HP for Motor control.

Features

- Double break contacts.
- Wide range of switching programmes for all applications.
- S Series, TP Series and RT Series for wiring flexibility.

Approvals/Standards

- Technology earlier from Salzer, Germany.
- Confirms to IEC, VDE, EN, UL and CSA specifications.
- Carry CE, UL and c CSA us mark.
- Factory ISO 9001 certified by NQA, UK.



salzer