

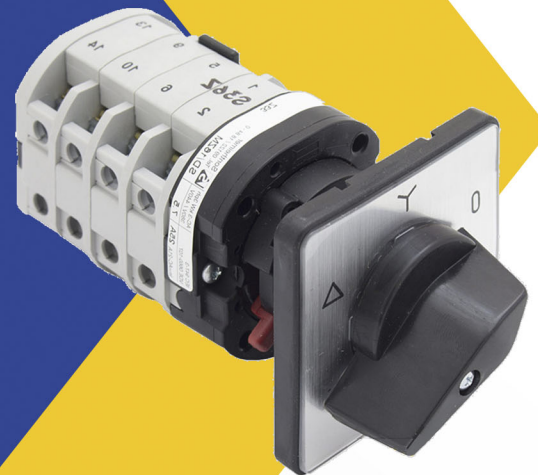
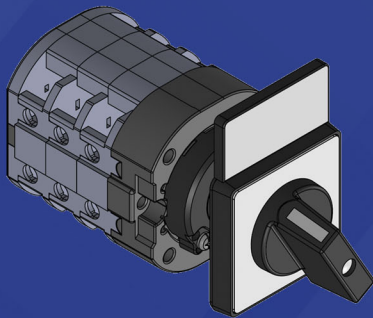


# ELECTRICAL COMPONENTS

s<sup>o</sup>ntheimer

## Rotary Cam Switches

- Standard & custom configurations
- 5 mounting options



# Rotary Cam Switches

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## 1. Overview - Cam Switches for all Control and Power Applications

ITC-Sontheimer rotary cam switches are designed to meet the most stringent requirements for application in control panels, command consoles, machinery enclosures, automation, manufacturing, industrial processing, laboratories, conveyors and moving equipment. The rotary cam switches are built in accordance with international Standards and are certified by UL and CSA for the North American market. They are compact in size, simple to install, wire and operate.

### Features and Specifications:

- Standard and custom configurations available
- 5 Construction types, from size D00 (small) to size D3 (large). See table 1.2
- **Compact** sizes available: body measures only 30x30mm across (approx.. 1.2”x1.2”)
- Several standard functions from stock
- **Mounting options:**
  - Type E: Door mount - 4 screws
  - Type ZM: Door mount - central 22.5mm hole
  - Type T: DIN rail mount
  - Type V: Base mount with shaft and door coupling
  - Type PM: Fully enclosed and assembled
- **Contacts:** Silver contacts are standard. Gold plated contacts available for low voltage switching
- **Accessories:** special interlocks, push-to-turn operation, key operator, optional terminals, etc.
- **Front plates:** available in various sizes, standard or custom engraved, highly visible, laser engraved
- **Handles:** various models available, including padlockable-types
- **Front Ingress protection:** IP65/IP66 (depending on mounting type), or IP67 with special gasket
- **Terminal side Ingress protection:** IP20
- **Body:** flame-resistant UL94 material
- **Rated current (CSA):** 10A to 600A
- **Rated voltage (CSA):** 240V, 300V, 600VAC
- **Operating temperature:** -20 to 50°C
- **Approvals:** CSA, UL

**Note:** The part numbers listed in this catalog are the models normally stocked. Each section includes the breakdown for how part numbers are constructed so that switches other switches can be ordered.

### Naming Convention for Standard rotary cam switches - example switch LBS-A1/20E/NS/F601

LBS-	A	1	/20	E	/NS	/F601
Required	Required	Required	Required	Required	optional	Optional
Prefix for ITC-Sontheimer switches	Type of operation (table 1.1)	Number of poles	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*	Type of the front plate (table 1.5)

Information subject to change without notice; \* Handle NS supplied if this code is missing

### Naming Convention for Special and Custom Rotary Cam Switches - example switch LBS-WOC055/8ZM/NS

LBS-	WOC	055	/8	ZM	/NS	/...
Required	Required	Required	Required	Required	optional	Optional
Prefix for ITC-Sontheimer switches	group of 1, 2 or 3 letters referring to the special diagram	Number identifying the diagram	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*	Type of the front plate (table 1.5)

Information subject to change without notice; \* Handle NS supplied if this code is missing  
All the elements of the code above are determined by Sontheimer

**Table 1.1 - Types of operation (Standard switches)**

Symbol	Description	Available for construction type - table 1.2)	See section
A	On-off switch 90deg	6 to 250	3
U	Changeover switch 60deg. 3 position	6 to 63	4
URR	Changeover switch 60deg, 3 position return to 0	6 to 32	5
WS	Changeover switch 2 pos. 60deg.	6 to 63	6
ST	Selector switch 3 to 12 position	6 to 32	5
W	Reversing switch	6 to 32	8
V	Voltmeter switch	6 to 32	6
AU	Ammeter switch	6 to 16	6
SD	Star-delta switch	6 to 32	2
HP	Single phase starter switch	6 to 32	7
SEA	Stop-Start switch	6 to 8	10
BC	Binary code switch	6 to 8	9

Information subject to change without notice

**Table 1.2 - Sizes and construction types**

Construction type	Size	Ia (CSA)	V (CSA)	HP (CSA)	Dimensions body (H x W, mm)
D00	6	10 A	120 VAC	0.33 HP	30 x 28
D0	8	16 A	600 VAC	5.2 HP	40 x 39
D1	16	16 A	600 VAC	10.0 HP	54 x 56
D1	20	20 A	600 VAC	15.7 HP	54 x 56
D1	32	32 A	600 VAC	20.0 HP	54 x 56
D1	40	40 A	600 VAC	23.0 HP	68 x 64
D2*	63	63 A	600 VAC	38.0 HP	Consult ITC
D2*	100	100 A	600 VAC	50.0 HP	Consult ITC
D2*	125	125 A	600 VAC	70.0 HP	Consult ITC
D3*	250	200 A	600 VAC	120.0 HP	Consult ITC

Information subject to change without notice; \*contact ITC for more detailed information  
Note: in the selection and identification of rotary switches, only the size code is used: 6, 8,...)

**Table 1.3 - Type of mounting**

Type of mounting	Description	Available for size
E	Door mount, 4+1 holes*	6 to 250
ZM	Door mount, central hole 22.5mm	6 to 32
PM-D	Enclosed	8 to 32
T	DIN Rail mount	6 to 63
V	Base mounting	6 to 32

Information subject to change without notice; \* 2+1 holes for construction type D00

**Table 1.4 - Type of handle**

Type	Description	Picture	Available for construction types
NS	Nose handle	1 below	D00 to D1
F	Wing Handle	2 below	D00 to D3
B	Bar handle	3 below	D0 to D1
Z20	Lockable handle	4 below	D0 to D3
Z33	Knurled lockable handle	5 below	D0 to D2
H	Hand grip	6 below	D1 to D2

Information subject to change without notice

When selecting a handle, use the abbreviations for the colours: S=black, G=grey, R=red, RG=red/yellow, SS=black/black

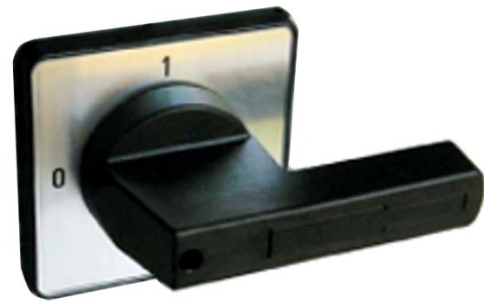
Example: NS is a black 'nose' handle



Picture 1 - Type F - Nose handle



Picture 2 - Type NS - Wing handle  
D0 to D1



Picture 3 - Type B - Bar handle



Picture 4 - Type Z20 - Lockable handle



Picture 5 - Type Z33 - Knurled  
lockable handle



Picture 6 - Type H - Hand grip

**Table 1.5 - Front plates**

Type	Description
X70	Spare front plate, square
X71	Additional rectangular plate (top)
F...	Standard engraved front plate*

*Information subject to change without notice  
\* consult ITC for a complete list of standard front plates*



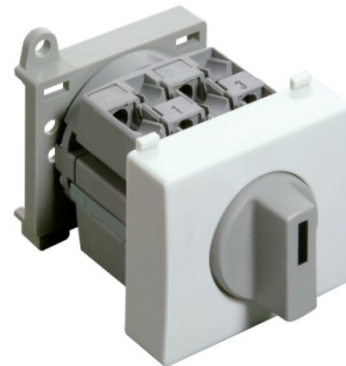
**E (door, 4+1 holes) mounting**



**V (base) mounting**



**ZM (door, centre hole) mounting**

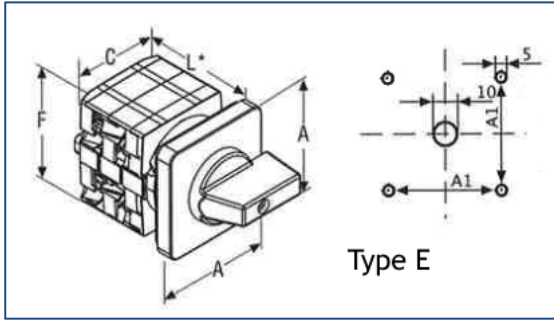


**T (DIN-Rail) mounting**



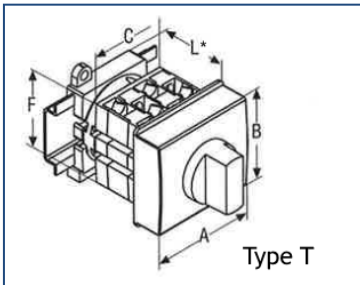
**Plastic Enclosure (Type PM-D)**

### Dimensional drawings



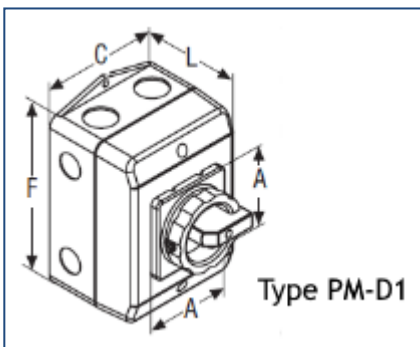
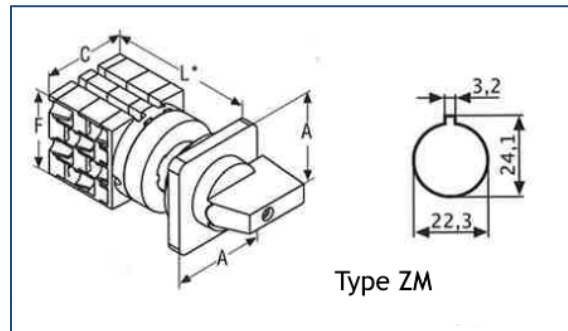
Size	A	A1	C	F	L1 1 pole	L2 2 pole	L3 3 pole
8	48	36	40	39	34	46	58
32	66	48	54	56	40	53	66

### Dimensional drawings



Size	A	B	C	F	L1 1 pole	L2 2 pole	L3 3 pole
8	52.5	45	40	39	45	45	45
32	52.5	45	54	56	45	45	56

Size	A	C	F	L1 1 pole	L2 2 pole	L3 3 pole
8	48	40	39	58	70	82
32	66	54	56	60	73	86



Size	A	C	F	L	Knockouts
D1	66	100	140	81	4xM25, 2xM20

## 2. Star/Delta switches

Star-Delta switches (also known as Y-Delta, Y- $\Delta$  switches) are used to start three-phase induction motors, by initially applying lower voltage to the windings.

### Features and Specifications:

- **Construction types:** 4 to 32
- **Types of operation:** normal (1 direction = 0-Y- $\Delta$ ), reversing ( $\Delta$ -Y-0-Y- $\Delta$ )
- **Mounting:** E, V, ZM.
  - Enclosed (PM-D..) mounting upon request

### Star/Delta Switches (Order by Part No.)

Part No.	Description	Current	Voltage	Mounting
LBS-SD/8E	Star-Delta switch, type D0,	16A	600VAC	Door-mount
LBS-SD/8ZM	Star-Delta switch, type D0	16A	600VAC	Central hole mount
LBS-SD/16E	Star-Delta switch, type D0	16A	600VAC	Door-mount
LBS-SD/16ZM	Star-Delta switch, type D0	16A	600VAC	Central hole mount
LBS-SD/32E	Star-Delta switch, type D1	326A	600VAC	Door-mount

*Information subject to change without notice*

*The part numbers listed above are the Star/Delta switches normally stocked. See the information below for how part numbers are constructed so that other Star/Delta switches can be ordered*

### Naming Convention for Standard Star/Delta switches - example switch model LBS-SD/8ZM/NS

LBS-	SD	/8	ZM	/NS
Required	Required	Required	Required	optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 6.1)	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*

*Information subject to change without notification*

*\* Handle NS supplied if this code is missing*

### Table 2.1 - Types of operation for Star/Delta switches

Symbol	Description	Available for construction types (table 1.2)
SD	1 direction = 0-Y- $\Delta$	6 to 32
WSD	reversing ( $\Delta$ -Y-0-Y- $\Delta$ )	6 to 32

*Information subject to change without notice*



### 3. ON-OFF Switches

ON-OFF Rotary cam switches are offered with ratings from 10A to 600A, in the construction types D00, D0, D1, D2, and D3.

**Note:** This catalog describes only On-Off models for construction types 6 to 32 (up to 63A).

For models of construction type D2, D3 (80 to 600A) please consult ITC.

Refer to the table 1.2 for the ratings corresponding to each construction type.

#### Features and Specifications:

- **Number of poles:** 1 to 8 (more upon request for select construction types - consult ITC)
- **Number of positions:** 2 at 90 or 60 degrees, also available with 4 positions (full rotation at 90 degrees operation type ARU)
- **Mountings:** E, ZM, V, T.
  - Enclosed (PM-D..) upon request

Standard switching angle is 90 degrees (60 degrees with suffix “F601”)

#### On-Off switches (Order by Part No.)

Part No.	Description	No. of Poles	Current	Voltage	Mounting
LBS-A1/6E	On-Off switch, type D00	1 pole	10A	120VAC	Door-mount
LBS-A1/6ZM	On-Off switch, type D00	1 pole	10A	120VAC	Central hole mount
LBS-A1/8E	On-Off switch, type D0	1 pole	16A	600VAC	Door-mount
LBS-A1/8T	On-Off switch, type D0	1 pole	16A	600VAC	Base (DIN) mount
LBS-A1/8PM-D1	On-Off switch, type D0	1 pole	16A	600VAC	Enclosed
LBS-A1/8ZM	On-Off switch, type D0	1 pole	16A	600VAC	Central hole mount
LBS-A2/6E	On-Off switch, type D00	2 pole	10A	120VAC	Door-mount
LBS-A2/6ZM	On-Off switch, type D00	2 pole	10A	120VAC	Central hole mount
LBS-A2/8E	On-Off switch, type D0	2 pole	16A	600VAC	Door-mount
LBS-A2/8T	On-Off switch, type D0	2 pole	16A	600VAC	Base (DIN) mount
LBS-A2/8PM-D1	On-Off switch, type D0	2 pole	16A	600VAC	Enclosed
LBS-A2/8ZM	On-Off switch, type D0	2 pole	16A	600VAC	Central hole mount
LBS-A3/8E	On-Off switch, type D0	2 pole	16A	600VAC	Door-mount
LBS-A3/8T	On-Off switch, type D0	3 pole	16A	600VAC	Base (DIN) mount
LBS-A3/8PM-D1	On-Off switch, type D0	3 pole	16A	600VAC	Enclosed
LBS-A3/8ZM	On-Off switch, type D0	3 pole	16A	600VAC	Central hole mount
LBS-A1/32E	On-Off switch, type D1	1 pole	32A	600VAC	Door-mount
LBS-A1/32PM-D1	On-Off switch, type D1	1 pole	32A	600VAC	Enclosed
LBS-A1/32ZM	On-Off switch, type D1	1 pole	32A	600VAC	Central hole mount
LBS-A2/32E	On-Off switch, type D1	2 pole	32A	600VAC	Door-mount
LBS-A2/32PM-D1	On-Off switch, type D1	2 pole	32A	600VAC	Enclosed
LBS-A2/32ZM	On-Off switch, type D1	2 pole	32A	600VAC	Central hole mount
LBS-A3/32E	On-Off switch, type D1	3 pole	32A	600VAC	Door-mount
LBS-A3/32PM-D1	On-Off switch, type D1	3 pole	32A	600VAC	Enclosed
LBS-A3/32ZM	On-Off switch, type D1	3 pole	32A	600VAC	Central hole mount

*Information subject to change without notice*

*The part numbers listed above are the On-Off switches normally stocked. See the information below for how part numbers are constructed so that switches other On-Off switches can be ordered*



**Naming Convention for On-Off cam switches - example switch model LBS-A1/8E/NS/F601**

LBS-	A	1	/8	E	/NS	/F601
Required	Required	Required	Required	Required	Optional	Optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 2.1)	Number of poles	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*	Indicates the type of front plate

*Information subject to change without notification  
\* Handle NS supplied if this code is missing*

**Table 3.1 - Types of operation for changeover switches**

Symbol	Description	Available for construction types
A	On-Off switch 2 pos. (0 - 1)	6 to 63
ARU	On-off switch 4 position (0 - 1 - 0 - 1)	6 to 32

*Information subject to change without notification*



## 4. Changeover Switches

Changeover switches are used to switch power from one load to another, or to switch a load from one source to another, or to switch a signal or sensor from one device to another, etc.

Typical applications also include ‘Manual-Automatic’ and ‘Remote-Local’ controls. These switches are normally offered as 3-position (maintained) type (1-0-2), or 2-position (maintained) types (1-2).

Standard ratings are from 10A to 63A (upon request up to 600A), in the sizes D00, D0, D1, D2, and D3.

Models with spring return to ‘0’ (central position) are standard, while models with spring return either from left only, or from right only, can be supplied upon request.

Refer to the table 1.2 for the ratings corresponding to each construction type.

### Features and Specifications:

- **Number of poles:** 1 to 8 (more upon request for select construction types)
- **Number of positions:** 3 at 60 degrees, or 2 at 60 degrees, or 3 (spring return to 0) at 30 degrees
- **Mountings:** E, ZM; T for sizes 6, 8, 16, 20, 32. Enclosed (PM-D..) mounting upon request
- **Switching angle:** standard 60 degrees (10h-12h-2h). Optional 90 degrees (Symbol UV) (9h-12h-3h)

### Naming Convention for standard Changeover switches - example switch model LBS-U4/20E/NS/F601

LBS-	U	4	/20	E	/NS	/F601
Required	Required	Required	Required	Required	optional	Optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 3.1)	Number of poles	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*	Indicates the type of front plate

*Information subject to change without notification*

*\* Handle NS supplied if this code is missing*

**Table 4.1 - Types of operation for changeover switches**

Symbol	Description	Available for construction types (table 1.2)
U	Changeover switch 60deg. 3 pos.	6 to 63
UR	Changeover switch 60deg, 3 pos. return to 0 from R	6 to 32
URR	Changeover switch 60deg, 3 pos. return to 0 from L and R	6 to 32
UV	Changeover switch 90deg, 3 pos.	6 to 32
WS	Changeover switch 2 pos. 60deg	6 to 63

*Information subject to change without notification*



### Rotary changeover switches (Order by Part No.)

Part No.	Description	No. of Poles	Current	Voltage	Mounting
LBS-U1/6E	Changeover switch, type D00	1-pole	10A	120VAC	Door-mount
LBS-U1/6ZM	Changeover switch, type D00	1-pole	10A	120VAC	Central hole mount
LBS-U1/8E	Changeover switch, type D0	1-pole	16A	600VAC	Door-mount
LBS-U1/8PM-D1	Changeover switch, type D0	1-pole	16A	600VAC	Enclosed
LBS-U1/8T	Changeover switch, type D0	1-pole	16A	600VAC	Base (DIN) mount
LBS-U1/8ZM	Changeover switch, type D0	1-pole	16A	600VAC	Central hole mount
LBS-U1/32E	Changeover switch, type D1	1-pole	32A	600VAC	Door-mount
LBS-U1/32PM-D1	Changeover switch, type D1	1-pole	32A	600VAC	Enclosed
LBS-U1/32ZM	Changeover switch, type D1	1-pole	32A	600VAC	Central hole mount
LBS-U2/8E	Changeover switch, type D0	2-pole	32A	600VAC	Door-mount
LBS-U2/8PM-D1	Changeover switch, type D0	2-pole	16A	600VAC	Enclosed
LBS-U2/8T	Changeover switch, type D0	2-pole	16A	600VAC	Base (DIN) mount
LBS-U2/8ZM	Changeover switch, type D0	2-pole	16A	600VAC	Central hole mount
LBS-U2/32E	Changeover switch, type D1	2-pole	32A	600VAC	Door-mount
LBS-U2/32PM-D1	Changeover switch, type D1	2-pole	32A	600VAC	Enclosed
LBS-U2/32ZM	Changeover switch, type D1	2-pole	32A	600VAC	Central hole mount
LBS-U3/8E	Changeover switch, type D0	3-pole	16A	600VAC	Door-mount
LBS-U3/8PM-D1	Changeover switch, type D0	3-pole	16A	600VAC	Enclosed
LBS-U3/8T	Changeover switch, type D0	3-pole	16A	600VAC	Base (DIN) mount
LBS-U3/8ZM	Changeover switch, type D0	3-pole	16A	600VAC	Central hole mount
LBS-U3/32E	Changeover switch, type D1	3-pole	32A	600VAC	Door-mount
LBS-U3/32PM-D1	Changeover switch, type D1	3-pole	32A	600VAC	Enclosed
LBS-U3/32ZM	Changeover switch, type D1	3-pole	32A	600VAC	Central hole mount
LBS-URR1/8E	Changeover switch, type D0	1-pole	16A	600VAC	Door-mount
LBS-URR1/8ZM	Changeover switch, type D0	1-pole	16A	600VAC	Central hole mount
LBS-URR1/32E	Changeover switch, type D1	1-pole	32A	600VAC	Door-mount
LBS-URR1/32ZM	Changeover switch, type D1	1-pole	32A	600VAC	Central hole mount
LBS-URR2/8E	Changeover switch, type D0	2-pole	16A	600VAC	Door-mount
LBS-URR2/8ZM	Changeover switch, type D0	2-pole	16A	600VAC	Central hole mount
LBS-URR2/32E	Changeover switch, type D1	2-pole	32A	600VAC	Door-mount
LBS-URR2/32ZM	Changeover switch, type D1	2-pole	32A	600VAC	Central hole mount
LBS-URR3/8E	Changeover switch, type D0	3-pole	16A	600VAC	Door-mount
LBS-URR3/8ZM	Changeover switch, type D0	3-pole	16A	600VAC	Central hole mount
LBS-URR3/32E	Changeover switch, type D1	3-pole	32A	600VAC	Door-mount
LBS-URR3/32ZM	Changeover switch, type D1	3-pole	32A	600VAC	Central hole mount
LBS-WS1/8E	Changeover switch, type D0	1-pole	16A	600VAC	Door-mount
LBS-WS1/8T	Changeover switch, type D0	1-pole	16A	600VAC	Base (DIN) mount
LBS-WS1/8ZM	Changeover switch, type D0	1-pole	16A	600VAC	Central hole mount
LBS-WS2/8E	Changeover switch, type D0	2-pole	16A	600VAC	Door-mount
LBS-WS2/8T	Changeover switch, type D0	2-pole	16A	600VAC	Base (DIN) mount
LBS-WS2/8ZM	Changeover switch, type D0	2-pole	16A	600VAC	Central hole mount
LBS-WS3/8E	Changeover switch, type D0	3-pole	16A	600VAC	Door-mount
LBS-WS3/8T	Changeover switch, type D0	3-pole	16A	600VAC	Base (DIN) mount
LBS-WS3/8ZM	Changeover switch, type D0	3-pole	16A	600VAC	Central hole mount

Information subject to change without notice

The part numbers listed above are the Changeover switches normally stocked. See the information preceding the table above for how part numbers are constructed so that other Changeover switches can be ordered

## 5. Step (or Selector) Switches

Step (or Selector) switches are used to connect a ‘common’ or ‘entry’ electrical input to one of several (3 to 12) outputs. Applications include instrumentation, control of various machines from a single panel, etc.. Standard models have 3 to 12 positions, ratings from 10A to 40A, in the construction types D00, D0, D1. Models with ‘0’ plus 3 to 11 positions are also standard.

Refer to table 1.2 for the ratings corresponding to each construction size.

### Features and specifications:

- **Number of poles:** 1 to 8 (more upon request for select construction types)
- **Number of positions:** 3 to 12 at 30 degrees. Models with up to 8 positions at 45 degrees available upon request
- **Mountings:** E, ZM, T for sizes 6, 8, 16, 20, 32. Enclosed (PM-D..) mounting upon request.

### Step (Selector) Switches (Order by Part No.)

Part No.	Description	No. of Poles	Current	Voltage	Mounting
LBS-ST021/8E	Step switch, 2+0 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST021/8ZM	Step switch, 2+0 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST022/8E	Step switch, 2+0 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST022/8ZM	Step switch, 2+0 positions, type D0	2-pole	16A	600VAC	Central hole mount
LBS-ST031/8E	Step switch, 3+0 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST031/8ZM	Step switch, 3+0 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST032/8E	Step switch, 3+0 positions, type D0	2-pole	16A	600VAC	Door-mount
LBS-ST032/8ZM	Step switch, 3+0 positions, type D0	2-pole	16A	600VAC	Central hole mount
LBS-ST033/8E	Step switch, 3+0 positions, type D0	3-pole	16A	600VAC	Door-mount
LBS-ST033/8ZM	Step switch, 3+0 positions, type D0	3-pole	16A	600VAC	Central hole mount
LBS-ST041/8E	Step switch, 4+0 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST041/8ZM	Step switch, 4+0 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST042/8E	Step switch, 4+0 positions, type D0	2-pole	16A	600VAC	Door-mount
LBS-ST042/8ZM	Step switch, 4+0 positions, type D0	2-pole	16A	600VAC	Central hole mount
LBS-ST043/8E	Step switch, 4+0 positions, type D0	3-pole	16A	600VAC	Door-mount
LBS-ST043/8ZM	Step switch, 4+0 positions, type D0	3-pole	16A	600VAC	Central hole mount
LBS-ST31/8E	Step switch, 3 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST31/8ZM	Step switch, 3 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST32/8E	Step switch, 3 positions, type D0	2-pole	16A	600VAC	Door-mount
LBS-ST32/8ZM	Step switch, 3 positions, type D0	2-pole	16A	600VAC	Central hole mount
LBS-ST33/8E	Step switch, 3 positions, type D0	3-pole	16A	600VAC	Door-mount
LBS-ST33/8ZM	Step switch, 3 positions, type D0	3-pole	16A	600VAC	Central hole mount
LBS-ST41/8E	Step switch, 4 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST41/8ZM	Step switch, 4 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST42/8E	Step switch, 4 positions, type D0	2-pole	16A	600VAC	Door-mount
LBS-ST42/8ZM	Step switch, 4 positions, type D0	2-pole	16A	600VAC	Central hole mount
LBS-ST43/8E	Step switch, 4 positions, type D0	3-pole	16A	600VAC	Door-mount
LBS-ST43/8ZM	Step switch, 4 positions, type D0	3-pole	16A	600VAC	Central hole mount



LBS-ST51/8E	Step switch, 5 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST51/8ZM	Step switch, 5 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST61/8E	Step switch, 6 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST61/8ZM	Step switch, 6 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST71/8E	Step switch, 7 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST71/8ZM	Step switch, 7 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST81/8E	Step switch, 8 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST81/8ZM	Step switch, 8 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST91/8E	Step switch, 9 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST91/8ZM	Step switch, 9 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST101/8E	Step switch, 10 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST101/8ZM	Step switch, 10 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST111/8E	Step switch, 11 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST111/8ZM	Step switch, 11 positions, type D0	1-pole	16A	600VAC	Central hole mount
LBS-ST112/8E	Step switch, 12 positions, type D0	1-pole	16A	600VAC	Door-mount
LBS-ST112/8ZM	Step switch, 12 positions, type D0	1-pole	16A	600VAC	Central hole mount

Information subject to change without notification

The part numbers listed above are the Step switches normally stocked. See the information below for how part numbers are constructed so that other Step switches can be ordered

**Naming Convention for standard Step cam switches - example switch model LBS-ST31/32E/NS**

LBS-	ST	3	2	/32	E	/NS
Required	Required	Required	Required	Required	Required	optional
Prefix for all switches distributed by ITC	Indicates the type of operation	Number of positions **	Number of poles	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*

Information subject to change without notification

\* Handle NS supplied if this code is missing

\*\* Number of positions without 0: indicate 3 through 12 - Number of positions plus 0: indicate 0 to 3 through 0 to 11



## 6. Instrument Switches: Voltmeter / Ammeter

Voltmeter and Ammeter switches are used to select the connection to a single panel instrument (analog or digital), from different power sources. The most common applications are in instrumentation, power distribution panels, UPS and generators, etc.

### Features and Specifications:

- **Construction types:** Voltmeter switches 6 to 32, Ammeter switches 6 to 16
- 3-phase phase-to-phase Voltmeters
- 3-phase phase-to-phase plus phase-to-neutral Voltmeters
- 3-phase plus 0 Ammeters
- **Mountings:** E, ZM; T, V for sizes 6, 8 only. Enclosed (PM-D..) mounting upon request.

### Instrument Switches (Order by Part No.)

Part No.	Description	Current	Voltage	Mounting
LBS-AU31/6ZM	Ammeter switch, type D00	10A	120VAC	Central hole mount
LBS-AU31/8E	Ammeter switch, type D0	16A	600VAC	Door-mount
LBS-AU31/8ZM	Ammeter switch, type D0	16A	600VAC	Central hole mount
LBS-AU32/8E	Ammeter switch, type D0	16A	600VAC	Door-mount
LBS-AU32/8ZM	Ammeter switch, type D0	16A	600VAC	Central hole mount
LBS-V3/6ZM	Voltmeter switch, type D00	10A	120VAC	Central hole mount
LBS-V3/8E	Voltmeter switch, type D0	16A	600VAC	Door-mount
LBS-V3/8ZM	Voltmeter switch, type D0	16A	600VAC	Central hole mount
LBS-V3/16E	Voltmeter switch, type D0	16A	600VAC	Door-mount
LBS-V3/16ZM	Voltmeter switch, type D0	16A	600VAC	Central hole mount
LBS-V30/8E	Voltmeter switch, type D0	16A	600VAC	Door-mount
LBS-V30/8ZM	Voltmeter switch, type D0	16A	600VAC	Central hole mount
LBS-V30/16E	Voltmeter switch, type D0	16A	600VAC	Door-mount
LBS-V30/16ZM	Voltmeter switch, type D0	16A	600VAC	Central hole mount

Information subject to change without notice

The part numbers listed above are the Instrument switches normally stocked. See the information below for how part numbers are constructed so that switches other Instrument switches can be ordered

### Naming Convention for Standard Instrument switches - example switch model LBS-V30/8T/NS

LBS-	V30	/8	T	/NS
Required	Required	Required	Required	Optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 5.1)	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*

Information subject to change without notification

\* Handle NS supplied if this code is missing

Table 6.1 - Types of operation for instrument switches

Symbol	Description	Available sizes ( table 1.2)
V0	3 phase voltages	6 to 32
V13	1 3-phase & 3 line voltages	6 to 32
V30	3 phase & 3 line voltages	6 to 32
V31	3 phase & 1 line voltages	6 to 32
VN30	3 phase & 3 line voltages, no 0	6 to 32
V32	2 3-phase & 3 line voltages	6 to 32
AU31	4 pos. ammeter, 1 pole 3 currents	6 to 16
AU11	2 pos. ammeter, 1 pole 1 current	6 to 16
AU21	3 pos. ammeter, 1 pole 2 currents	6 to 16
AU41	4 pos. ammeter, 1 pole 4 currents	6 to 16

Information subject to change without notice



## 7. Single-phase Starter Switches

Single phase starter switches (also known as Single-phase switches) are used to start single-phase induction motors which are provided with 2 windings (starter and running).

### Features and specifications:

- **Construction types:** 6 to 32
- **Two types of operation:** One direction ('0' - 'START' - '1'), or with return from 'START' to '1'
- **Mounting:** E, V, ZM, T.
  - Enclosed (PM-D..) mounting upon request

### Single-phase Starter Switches (Order by Part No.)

Part No.	Description	Current	Voltage	Mounting
LBS-HP1/8E	Single-phase starter switch, type D0	16A	600VAC	Door-mount

*Information subject to change without notice*

*The part number listed above is the Single-phase switch normally stocked. See the information below for how part numbers are constructed so that other Single-phase switches can be ordered*

### Naming Convention for Standard Single-phase starter switches - example switch model LBS-HP1/16V/Z20

LBS-	HP1	/16	V	/Z20
Required	Required	Required	Required	Optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 7.1)	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*

*Information subject to change without notification*

*\* Handle NS supplied if this code is missing*

### Table 7.1 - Types of operation for instrument switches

Symbol	Description	Available for construction type-(table 1.2)
HP1	One direction ("0"- "start"- "1")	6 to 32
HP2	with return from "Start" to "1"	6 to 32

*Information subject to change without notice*



## 8. Reversing Switches

As the name suggests, these switches are used to reverse the direction of rotation in small **3-phase** electric motors. Note that these devices cannot be used for controlling single-phase AC motors.

### Features and Specifications:

- 3-pole
- **Sizes:** 8 and 32
- **Mounting:** E, V, ZM, PM-D1

### Reversing Switches (Order by Part No.)

Part No.	Description	Current	Voltage	Mounting
LBS-W3/8E	Reversing switch, type D0	16A	600VAC	Door-mount
LBS-W3/8PM-D1	Reversing switch, type D0	16A	600VAC	Enclosed
LBS-W3/8ZM	Reversing switch, type D0	16A	600VAC	Central hole mount
LBS-W3/16E	Reversing switch, type D0	16A	600VAC	Door-mount
LBS-W3/16PM-D1	Reversing switch, type D0	16A	600VAC	Enclosed
LBS-W3/16ZM	Reversing switch, type D0	16A	600VAC	Central hole mount
LBS-W3/32E	Reversing switch, type D1	32A	600VAC	Door-mount
LBS-W3/32PM-D1	Reversing switch, type	32A	600VAC	Enclosed

*Information subject to change without notice*

*The part numbers listed above are the Reversing switches normally stocked. See the information below for how part numbers are constructed so that other Reversing switches can be ordered*

### Naming Convention for Reversing switches - example switch model LBS-W3/8PM-D1/Z20

LBS-	W3	/8	PM-D1	/Z20
Required	Required	Required	Required	optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 8.1)	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*

*Information subject to change without notification*

*\* Handle NS supplied if this code is missing*



**Table 8.1 - Types of operation for Reversing switches**

Symbol	Description	Available for construction types (table 1.2)
W3	Reversing switch, 3-pole	8 and 32

*Information subject to change without notice*

**Extra front plates (Order by Part No.)**

Part No.	Description	Dimensions	Colour	Marking
LBS-TL0511/X85	Special front plate for Size 8 reversing switch	46x46mm	Silver	“REVERSE-0-FORWARD”
LBS-TL1148/X85	Special front plate for Size 32 reversing switch	62x62mm	Silver	“REVERSE-0-FORWARD”

*Information subject to change without notice  
Contact ITC for custom and other front plates*



## 9. Binary Code Switches

Binary Code (or coding) switches are rotary selector type switches which convert the manual selection of one position, into a unique combination of open and closed contacts, which is interpreted as a binary (0-1) unique code by an electrical or electronic device. The advantage is the reduced number of “outputs”: for example, a 10-position binary coding switch has 4 “outputs”, etc.

Refer to the table 1.2 for the ratings corresponding to each construction size.

### Features and Specifications:

- **Number of poles:** 1 (more upon request for select construction types)
- **Number of positions:** 5 to 12
- **Number of output contacts:** 3 or 4
- **Available sizes:** 6 to 20 (32 upon request)
- **Mountings:** E, ZM; T for sizes 6, 8, 16, 20, 32. Enclosed (PM-D..) mounting upon request

### Binary Code Switches (Order by Part No.)

Part No.	Description	Current	Voltage	Mounting
LBS-BC05/8E	Binary coding switch, 5 positions, type D0	16A	600VAC	Door-mount
LBS-BC05/8ZM	Binary coding switch, 5 positions, type D0	16A	600VAC	Central hole mount
LBS-BC9/8E	Binary coding switch, 9 positions, type D0	16A	600VAC	Door-mount
LBS-BC9/8ZM	Binary coding switch, 9 positions, type D0	16A	600VAC	Central hole mount
LBS-BC09/8E	Binary coding switch, 9+1 positions, type D0	16A	600VAC	Door-mount
LBS-BC09/8ZM	Binary coding switch, 9+1 positions, type D0	16A	600VAC	Central hole mount

*Information subject to change without notice;*

*The part numbers listed above are the Binary code switches normally stocked. See the information below for how part numbers are constructed so that other Binary code switches can be ordered*

### Naming Convention for Binary code switches - example switch model LBS-BC09/16E

LBS-	BC	09	/16	E	/NS
Required	Required	Required	Required	Required	optional
Prefix for all switches distributed by ITC	Indicates the type of operation	Number of positions (see table 9.1)	Size (table 1.2)	Type of mounting (table 1.3 page..)	Handle type (table 1.4)*

*Information subject to change without notification; \* Handle NS supplied if this code is missing*

**Table 9.1 Available models for Binary coding switches:**

Model	N. of positions	N. of output contacts	Available for construction types (table 1.2)
BC5	5 (1-5)	3	6 to 32
BC6	6 (1-6)	3	6 to 32
BC7	7 (1-7)	3	6 to 32
BC08	9 (0-8)	4	6 to 32
BC9	9 (1-9)	4	6 to 32
BC09	10 (0-9)	4	6 to 32
BC10	10 (1-10)	4	6 to 32
BC010	11 (0-10)	4	6 to 32
BC011	12 (0-11)	4	6 to 32

*Information subject to change without notice*



## 10. Stop-Start Switches

STOP-START Rotary cam switches are simple 2-position switches, equipped with one NC (Normally closed) and one NO (Normally open) contacts, each operated in one of the 2 positions. The NC contact is generally connected in series with the device (motor, etc.) to be controlled, and the NO contact is connected in parallel with eventual other controls (relays, contactors, starters) used to “start” the device. They are offered with ratings from 10A to 25A, in the construction types D00, D0

Refer to the table 1.2 for the ratings corresponding to each construction size.

### Features and Specifications:

- **Number of poles:** 1 (more upon request)
- **Number of positions:** 2 at 60 degrees
- **Mountings:** E, ZM, T
- **Construction types:** 6 to 16

### Stop-Start Switches (Order by Part No.)

Part No.	Description	No. of Poles	Current	Voltage	Mounting
LBS-SEA1/8ZM	Stop-start switch, type D0	1-pole	16A	600VAC	Central hole mount

*Information subject to change without notice*

*The part number listed above is the Stop-Start switch normally stocked. See the information below for how part numbers are constructed so that switches other Stop-Start switch can be ordered*

### Naming Convention for Stop-Start switches - example switch model LBS-SEA1/8ZM

LBS-	SEA	1	/8	ZM	/
Required	Required	Required	Required	Required	Optional
Prefix for all switches distributed by ITC	Indicates the type of operation (table 10.1)	Number of poles	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*

*Information subject to change without notice; \* Handle NS supplied if this code is missing*

### Table 10.1 Types of operation for instrument switches

Symbol	Description	Available for construction types (table 1.2)
SEA1	1 NC and 1NO contacts	6 to 16
SA1	1NC contact - Only actuates “STOP”	6 to 16

*Information subject to change without notice*

**Note:** Stop-start switches are not protective devices, and must typically be used as supplementary controls. Appropriate fuse protection must be installed between the power source and the switch.



## 11. Custom Switches

ITC can provide a wide range of custom switches upon request for application in control panels, command consoles, machinery enclosures, automation, manufacturing, industrial processing, laboratories, conveyors and moving equipment, etc.

### Features and Specifications:

- 5 available sizes of switch bodies, from construction type D00 (small) to size D3 (large). (table 1.2)
- Gold plated contacts available for low voltage switching
- **Mounting options:** E, ZM, T, PM-D (table 1.3)
- **Body:** flame-resistant plastic material
- **Ingress protection terminal side:** IP20
- **Ingress protection front:** IP65/IP66 (depending on type), or IP67 with special gasket
- **Handles:** Various models available, including padlockable-type (table 1.4)
- **Front plates:** various models and colours available, with custom indelible engraving
- **Accessories:** include special interlocks, push-to-turn operation, key operator, optional terminals, etc.
- **Rated voltage:** 120V - 600VAC (CSA, table 1.2)
- **Rated current:** 10A to 200A (CSA, table 1.2)
- **Approvals:** CSA, UL

Dimensional drawings of each construction type are on page 6.

To request a Custom rotary cam switch, please fill in the blank contact diagram on the next page - indicate current, mounting type, handle and plate engravings and accessories.

You can also submit the code or part number of a competitor's custom or standard switch, and ITC will very likely identify the available Sontheimer cross-reference.

### Naming Convention for Standard rotary cam switches - example switch *LBS-A1/20E/NS/F601*

LBS-	A	1	/20	E	/NS	/F601
Required	Required	Required	Required	Required	optional	Optional
Prefix for ITC-Sontheimer switches	Type of operation (table 1.1)	Number of poles	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*	Type of the front plate (table 1.5)

*Information subject to change without notice; \* Handle NS supplied if this code is missing*


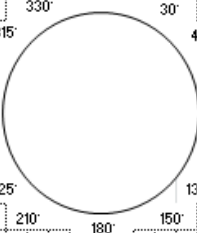
### Naming Convention for Special and Custom Rotary Cam Switches - example switch *LBS-WOC055/8ZM/NS*

LBS-	WOC	055	/8	ZM	/NS	/...
Required	Required	Required	Required	Required	optional	Optional
Prefix for ITC-Sontheimer switches	group of 1, 2 or 3 letters referring to the special diagram	Number identifying the diagram	Size (table 1.2)	Type of mounting (table 1.3)	Handle type (table 1.4)*	Type of the front plate (table 1.5)

*Information subject to change without notice; \* Handle NS supplied if this code is missing  
All the elements of the code above are determined by Sontheimer*

### Custom diagrams

To request a custom switch, please use the template below.  
 Special front plates and handles can also be requested, as well as custom engraving of the front plate.

		Switch diagram														 <b>SONTHEIMER</b> Elektroschaltgeräte GmbH	
		Type														Art. Nr.	
		Fittings														No. Chambers	
		Remarks															
		1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
Frontschilder / Front plates		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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## 12. Accessories

A wide variety of accessories and spare parts for the rotary cam switches described in this catalog are available.

### Available Accessories:

- Front plates (blank and engraved)
- Additional rectangular front plate markers
- Handles
- IP gaskets
- Interlocks and key locks
- Mounting plates
- Terminal protections and shrouds

Some accessories are mounted on the switch at the factory, while others can be installed by the user.

### Front plates

Front plates are square, made of engravable plastic, protected by a transparent cover. Standard: background yellow or silver, engraving in black.

### Front Plate Dimensions

Construction Type	D00	D0	D1	D2 - D3
Dimensions	30x30	48.8x48.8	64x64	90x90

*Information subject to change without notification*

Standard front plate engravings are indicated by the letter “F” followed by 3 digits.

### Front Plate engravings

Angle 30 deg.	Angle 45 deg.	Angle 60 deg.	Angle 90 deg.	Angle 22.5 deg.	Other
F301 - F375	F401 - F476	F601 - F695	F901 - F975	F201 - F208	F101.....

*Information subject to change without notice; Contact ITC for the list of available standard front plates  
Non-standard front plates: indicate engraving(s) in your request*

### Additional rectangular front plate markers

Code	Use on construction type
X72	D00, D0, D1
X72/SO	D1, D2, D3

*Information subject to change without notice  
These accessories mount above the standard or custom square front plate  
Standard: silver background*



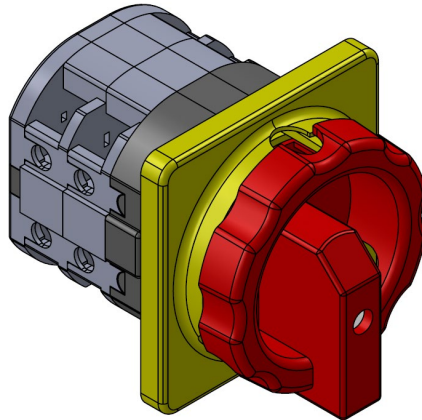
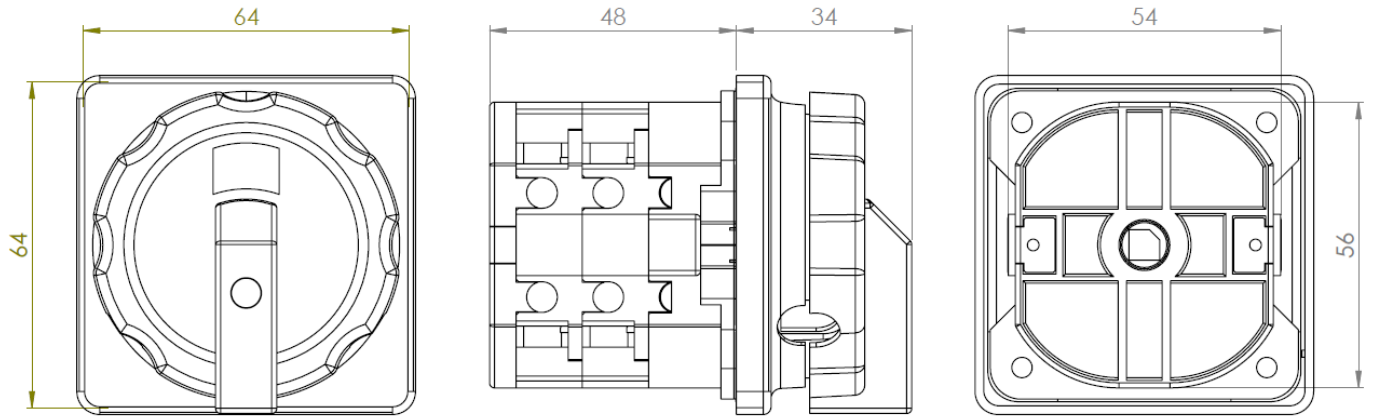
### IP gaskets

Mounted behind the front plate, these increase the ingress protection (front) to IP65. Not available for “T” mounting.

Code	Use on construction type
Z1/D0	D0
Z1/D1	D1
Z1/D2	D2

*Information subject to change without notification*

ITC can provide detailed diagrams of all Rotary Cam Switches - both standard models and custom models.



## Disconnect Switches

ITC also offers Sontheimer's extensive line of Disconnect Switches.

To get view or download our Disconnect Switches catalog (# EC-1705), visit the catalogue section of our website, listed under Products at [itcproducts.com](http://itcproducts.com).





# ELECTRICAL COMPONENTS

416.663.7223  
[www.itcproducts.com](http://www.itcproducts.com)  
 50 Mural St Unit 8  
 Richmond Hill, ON L4B 1E4



DIN Rail



DIN Rail Accessories



Hinged Enclosures



Thermal Management



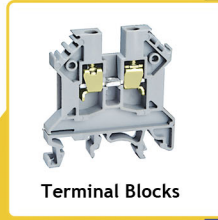
PANEL Lighting



Multipole Connectors



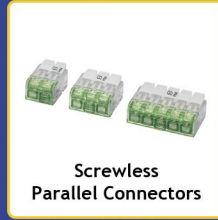
Compact IP68 Connectors



Terminal Blocks



Terminal Strips



Screwless Parallel Connectors



22.5mm Pushbuttons



LED Indicators



Control Stations



Limit Switches



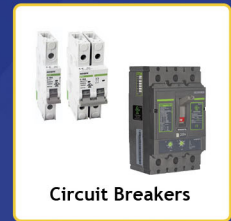
Micro Limit Switches



Safety Switches



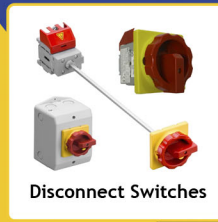
Foot Switches



Circuit Breakers



IEC Contactors



Disconnect Switches



Midget and CC Fuse Holders



Tower Lights



Power Continuity



Ferrules



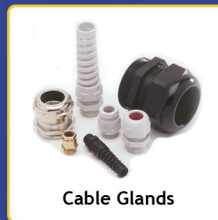
Colour Coded Lugs



Crimp Terminals



Termination Kits



Cable Glands



Thread Adapters



Cable Entry Systems



Wire Management



DIN Rail Cutters



Assembly Tables



Cutting & Stripping



Crimping Tools



Hole Cutting & Punching Tools

## SOME OF OUR MANUFACTURING PARTNERS

