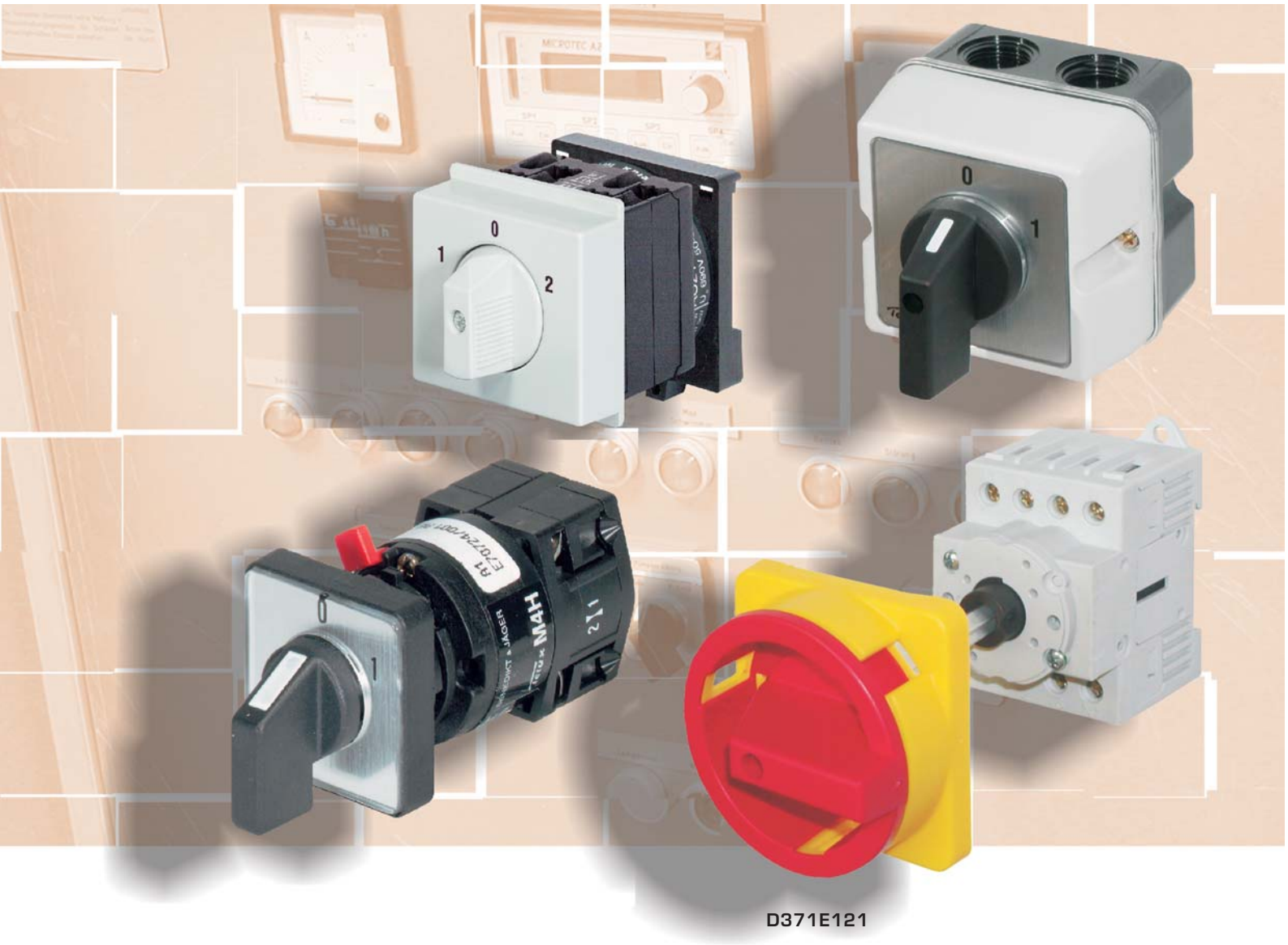
Switches



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Contents			Page

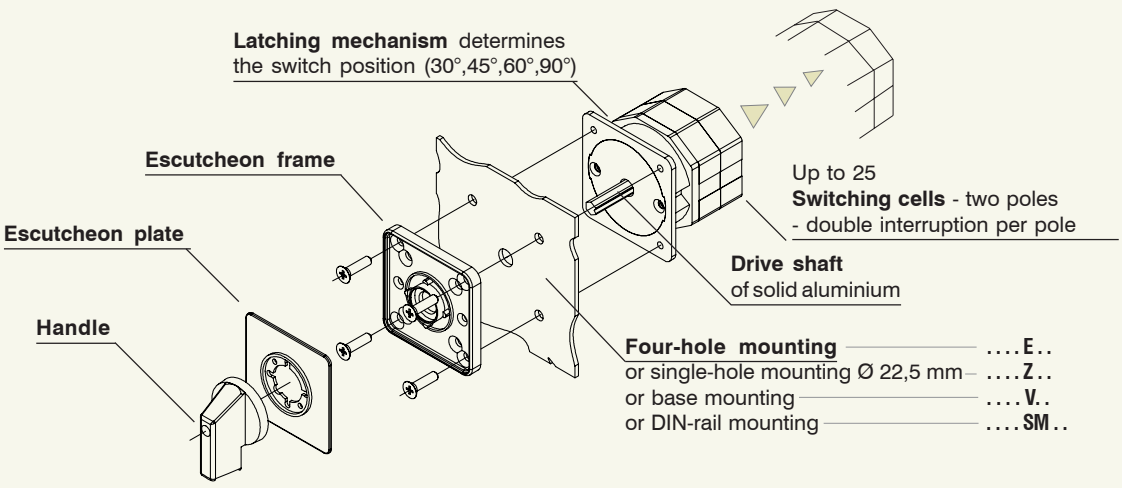
Typ	Ratings: Rated current Therm. I_{th} open A	AC21 A	atU_e V	Motor AC3 3~400V kW	AC23 3~400V A	kW	Plate mm	Designs: Panel moun. M10H, M20 IP65 IP40	Single hole mount. Ø22,5mm with Plate IP65	without Plate IP65	Flush mount. IP40
M4H	10	**10**	440	2,2	6	3	30❐	M4H E ●♦	M4H Z ●♦	M4H ZO ●♦	-
M10H	20	**20**	690	5,5	16	7,5	48❐	M10H E ●♦	M10H Z ●♦	M10H ZO ●♦	-
M10	20	**20**	440	5,5	16	7,5	48❐	-	-	-	M10 UP ●♦
M20	32	**32**	690	11	30	15	48❐	M20 E ●♦	M20 Z ●♦	M20 ZO ●♦	-
N20	32	**32**	690	11	30	15	64❐	N20 E ●♦	-	-	N20 UP ●♦
N33F	50	**50**	690	15	45	22	64❐	N33F E ●♦	N33F Z ●♦	-	-
N32	40	**40**	690	11	30	15	64❐	-	-	-	-
N40	63	**63**	690	15	45	22	88❐	N40 E ●♦	-	-	-
N60	85	**85**	690	25	60	30	88❐	N60 E ●♦	-	-	-
N80	115	**115**	690	30	85	45	88❐	N80 E ●♦	-	-	-
L100	**125**	**125**	690	15	45	22	88❐	L100 E ●♦	-	-	-
L160	**180**	**180**	690	25	60	30	88❐	L160 E ●♦	-	-	-
N100	150	**150**	690	40	110	55	132❐	N100 E ●♦	-	-	-
N200	250	**250**	690	70	140	70	132❐	N200 E ●♦	-	-	-
L400	**400**	**400**	690	70	140	70	132❐	L400 E ●♦	-	-	-
L600	**600**	**400**	690	70	140	70	132❐	L600 E ●♦	-	-	-
L800	**800**	**400**	690	70	140	70	132❐	L800 E ●♦	-	-	-
L1200	**1200**	**400**	690	70	140	70	132❐	L1200 E ●♦	-	-	-

Cam Switches 10 - 250A

Cam switches can be used for virtually all purposes, e.g. as motor, main, control or instrument switches. Over and above the switching programs mentioned in the list, an effectively limitless number of special programs can be implemented.

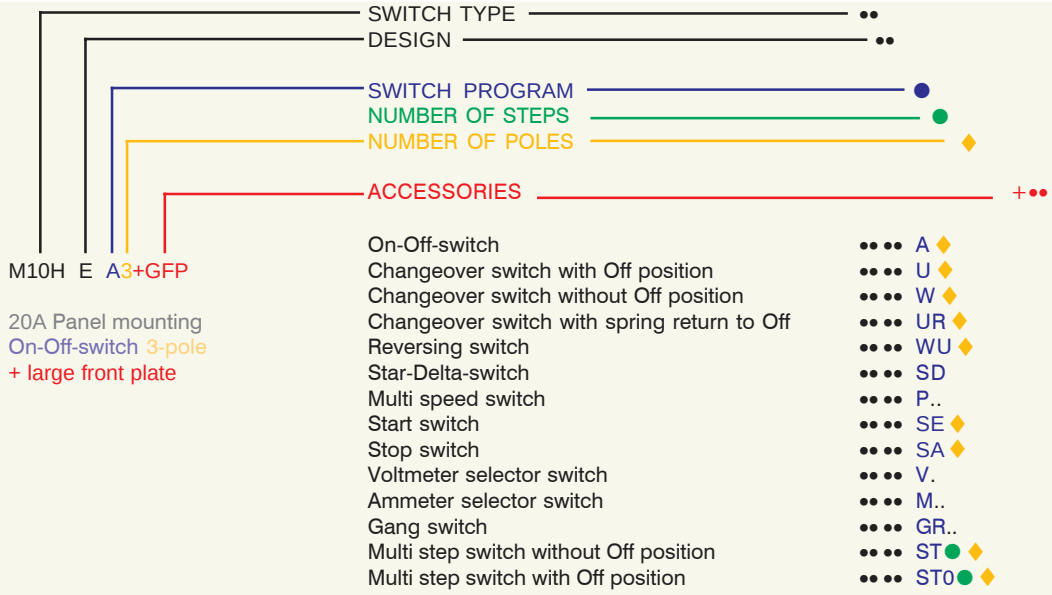
Load switch L.. 125 - 1200A

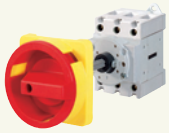
Load switches are primarily employed where resistive or slightly inductive current loads are to be switched on and off, or switching takes place without loading.
Load switches are assembled by parallel switching of two or more of cam switch contacts.
With customer built main terminal protection, load switch L.. can also be used as main switch.



Designs Base mounting IP40	DIN-rail mounting IP40	Modular IP40	Plastic enclosed ..P.. IP40 ..PF.. IP65	horizontal, IP65	Motor switch enclosed IP65	Terminal box mounting IP65	Cast enclosed ..G.. IP40 ..GF.. IP65
							
-	-	-	-	-	-	-	-
M10H V ●♦	M10H SM ●♦	M10H SMA ●♦	-	-	M10H PM ●♦	-	-
-	-	-	M10 P(F) ●♦	-	-	M10 KE ●♦	-
M20 V ●♦	M20 SM ●♦	M20 SMA ●♦	-	-	-	-	-
N20 V ●♦	N20 SM ●♦	-	N20 P(F) ●♦	-	N20 PM ●♦	N20 KE ●♦	N20 G(F) ●♦
N33F V ●♦	N33F SM ●♦	-	N33F P(F) ●♦	-	N33F PM ●♦	N33F KE ●♦	-
-	-	-	-	-	-	-	-
N40 V ●♦	-	-	N40 P(F) ●♦	N40 PLF ●♦	-	-	-
N60 V ●♦	-	-	N60 P(F) ●♦	N60 PLF ●♦	-	-	-
N80 V ●♦	-	-	N80 P(F) ●♦	N80 PLF ●♦	-	-	-
L100 V ●♦	-	-	-	-	-	-	-
L160 V ●♦	-	-	-	-	-	-	-
N100 V ●♦	-	-	N100 P(F) ●♦	-	-	-	-
N200 V ●♦	-	-	N200 P(F) ●♦	-	-	-	-
L400 V ●♦	-	-	-	-	-	-	-
L600 V ●♦	-	-	-	-	-	-	-
L800 V ●♦	-	-	-	-	-	-	-
L1200 V ●♦	-	-	-	-	-	-	-

Ordering

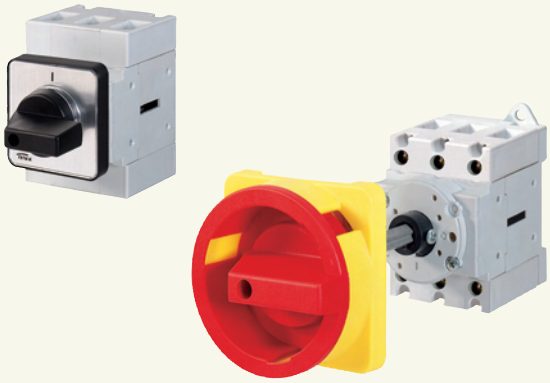


Type	Ratings: Rated current Therm. I_{th} open A	AC21 A	bei U_e V	Motor AC3 3~400V kW	AC23 3~400V A	kW	Plate Switch disconnector mm	Main Switch Emergency Stop: Panel mounting, Protection degree from front in mounted position IP66	Single hole mount. Ø22,5mm IP66	Base mounting with door coupling adjust. installation depth IP66
										
LTS20	20	**20**	690	5,5	16	7,5	48	LTS20 EHN1 .. LTS20 EHN4 ..	LTS20 ZHN1 ..	LTS20 VZVHN4 .. LTS20 VHN4 ..
LTS25	25	**25**	690	7,5	20	10	48	LTS25 EHN1 .. LTS25 EHN4 ..	LTS25 ZHN1 ..	LTS25 VZVHN4 .. LTS25 VHN4 ..
LTS32	32	**32**	690	11	25	12,5	48	LTS32 EHN1 .. LTS32 EHN4 ..	LTS32 ZHN1 ..	LTS32 VZVHN4 .. LTS32 VHN4 ..
LTS40	40	**40**	690	15	32	16	48	LTS40 EHN1 .. LTS40 EHN4 ..	LTS40 ZHN1 ..	LTS40 VZVHN4 .. LTS40 VHN4 ..
LTS63	63	**63**	690	18,5	45	22	48	LTS63 EHN1 .. LTS63 EHN4 ..	-	LTS63 VZVHN4 .. LTS63 VHN4 ..
LTS80	80	**80**	690	18,5	45	22	48	LTS80 EHN1 .. LTS80 EHN4 ..	-	LTS80 VZVHN4 .. LTS80 VHN4 ..
LTS85	85	**85**	690	22	60	30	64	LTS85 EHN4 ..	-	LTS85 VZVHN4 .. LTS85 VHN4 ..
LTS100	100	**100**	690	30	72	37	64	LTS100 EHN4 ..	-	LTS100 VZVHN4 .. LTS100 VHN4 ..
LTS125	125	**125**	690	37	85	45	64	LTS125 EHN4 ..	-	LTS125 VZVHN4 .. LTS125 VHN4 ..
LT160	160	**160**	690	45	110	55	88	LT160 EHN34 ..	-	LT160 VHN34 ..

Switch disconnector LT.. 20 - 160A

Switch disconnectors are to be used as an ON-OFF-switch where a high breaking capacity with high contact pressure and in fact better short circuit behavior is necessary. These applications are:

Main switches according to IEC/EN 60204 respectively VDE0113 with interlocking device, terminal protection and restrective contacts.
Switch disconnectors according to IEC/EN 60947-3 and VDE 0660 part 107 with break distance for 690V.
Motor switches 3-pole or 4-pole; according to IEC/EN 60947-3 respectively VDE 0660 part 107, motor switches series LT are dimensioned for switching high rated current AC3 and AC23A.

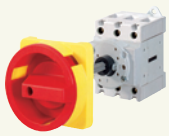


Main switches and **Main switches with Emergency-Stop function**

According to standards IEC/EN60204 or VDE0113, all electrical equipment of industrial machines must be equipped with a main switch. This must permit disconnection of all the electrical equipment during cleaning, maintenance and repair work, and other extended periods when it is stationary.
In case of two or more main switches, an interlock system must be used. It is recommended to use a multiple-pole main switch (cam switch).

Main switches have to correspond to:
a) Switch disconnector according to IEC/EN 60947-3 and VDE 0660 part 107 for utilization category AC23-B or DC-23B.
b) Disconnectors are selected according to thermal rated current. They must possess a contact that ensures load switching via the contactors (see switching program A3-10). This contact must have a sufficient AC15 switching capacity.
c) The interruption capacity of the switch must equal or exceed the locked rotor current of the largest motor plus the total current of all other electrical equipment in the circuit.

Requirements:
Interruption of the electrical equipment, with only on and off positions clearly marked with O and I.
It must be lockable in the off setting.
The line terminals of the main switch must be protected according to utilization category IP2X.
Colour of handle black or grey.
Main switches with Emergency-Off function are additional supplied with red handles and contrasting yellow escutcheon plates.

Main Switch Emergency Stop Base mounting w. door coupling depth not adjustable IP66	for Distribution Boards IP40	Plastic enclosed IP65	**Main Switch** Panel mounting IP66	Base mounting with door coupling IP66	**Switch Disconnectors** Panel mounting IP66	for Distribution Boards IP40
						
LTS20 VZHN1 ..	LTS20 SMAHN1 ..	LTS20 PFHN4 ..	LTS20 EH1 ..	LTS20 VZVH4 ..	LTS20 E ..	LTS20 SMA ..
LTS20 VZHN4 ..			LTS20 EH4 ..	LTS20 VH4 ..		
LTS25 VZHN1 ..	LTS25 SMAHN1 ..	LTS25 PFHN4 ..	LTS25 EH1 ..	LTS25 VZVH4 ..	LTS25 E ..	LTS25 SMA ..
LTS25 VZHN4 ..			LTS25 EH4 ..	LTS25 VH4 ..		
LTS32 VZHN1 ..	LTS32 SMAHN1 ..	LTS32 PFHN4 ..	LTS32 EH1 ..	LTS32 VZVH4 ..	LTS32 E ..	LTS32 SMA ..
LTS32 VZHN4 ..			LTS32 EH4 ..	LTS32 VH4 ..		
LTS40 VZHN1 ..	LTS40 SMAHN1 ..	LTS40 PFHN4 ..	LTS40 EH1 ..	LTS40 VZVH4 ..	LTS40 E ..	LTS40 SMA ..
LTS40 VZHN4 ..			LTS40 EH4 ..	LTS40 VH4 ..		
LTS63 VZHN1 ..	LTS63 SMAHN1 ..	LTS63 PFHN4 ..	LTS63 EH1 ..	LTS63 VZVH4 ..	LTS63 E ..	LTS63 SMA ..
LTS63 VZHN4 ..			LTS63 EH4 ..	LTS63 VH4 ..		
LTS80 VZHN1 ..	LTS80 SMAHN1 ..	LTS80 PFHN4 ..	LTS80 EH1 ..	LTS80 VZVH4 ..	LTS80 E ..	LTS80 SMA ..
LTS80 VZHN4 ..			LTS80 EH4 ..	LTS80 VH4 ..		
LTS85 VZHN4 ..	LTS85 SMAHN1 ..	LTS85 PFHN4 ..	LTS85 EH4 ..	LTS85 VZVH4 ..	LTS85 E ..	LTS85 SMA ..
				LTS85 VH4 ..		
LTS100 VZHN4 ..	LTS100 SMAHN1 ..	LTS100 PFHN4 ..	LTS100 EH4 ..	LTS100 VZVH4 ..	LTS100 E ..	LTS100 SMA ..
				LTS100 VH4 ..		
LTS125 VZHN4 ..	LTS125 SMAHN1 ..	LTS125 PFHN4 ..	LTS125 EH4 ..	LTS125 VZVH4 ..	LTS125 E ..	LTS125 SMA ..
				LTS125 VH4 ..		
-	-	LT160 PFHN34 ..	LT160 EH34 ..	LT160 VH34 ..	LT160 E ..	-

Switch program

On-Off Switch 3-pole	•• •••• A3	
On-Off Switch 4-pole	•• •••• A4	
On-Off Switch 6-pole	•• •••• A6	
On-Off Switch 8-pole	•• •••• A8	
Changeover Switches 3-pole	•• •••• U3	
Changeover Switches 4-pole	•• •••• U4	
On-Off Switch 3-pole	•• •••• T300	(for LT160)
On-Off Switch 4-pole	•• •••• T400	(for LT160)

Panel mounting designs

Switches of the panel mounting designs listed below have protection from front IP40. Where a shaft seal (appendix +WD) is used, the protection is increased to IP54. Use of a moisture proofing cap (appendix +FR) results in an increase in rear protection to IP54. In the standard version, the switches are delivered with a square escutcheon plate and black twist knob. Forward mounting is possible for some of the design E switches. The position of the terminals of the standard switches is left and right, at switch M10H the terminals are above and below. Where a knob insert is turned by 90° (can easily be performed after delivery), the position of the terminals can be changed.
Dimensions see page 75.

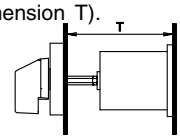
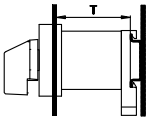
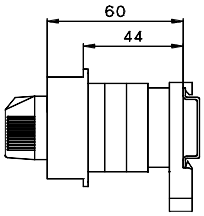
Design Description	Type appendix	Possible switch sizes M10H	M20	N20 N33F	N40 N60 N80	N100 N200	L...
Panel mounting For installation in control panels, machines and equipment. For panel thickness of over 5mm, an extended switch shaft is required (appendix +VW). Protection from front: M10H, M20 IP65 all others IP40	**E**	**X**	**X**	**X**	**X**	**X**	**X**
Central fixing 22,5mm Switch for mounting with standard 22,5mm mounting holes and 1-4mm panel thickness. Protection from front: IP65 Wrench J7049 necessary	**Z**	**X**	**X**	**X** [3]	-	-	-
Central fixing 22,5mm Switch **without escutcheon plate**, for installation with standard 22,5mm mounting holes and 1-4mm panel thickness. Protection from front: IP65 Wrench J7049 necessary	**ZO**	**X**	**X**	-	-	-	-
Flush mounting version Switch with white instrument knob, cream escutcheon plate with black markings, for installation in 65mm flush mounting boxes and use of Unitas plate. Supplied with flush mounting box: appendix +UP. Maximum number of cells with: M10 FM box 45mm deep 2 FM box 65mm deep 4	**UP**	**X** [1]	-	-	-	-	-
Flush mounting version Switch without flush mounting box and special square cover, black markings and white instrument knob. Supplied with flush mounting box: appendix +UP. Max. 4 cells	**UP**	-	-	**X** [2]	-	-	-

1) Switches are delivered with switch type M10
2) For switch types N20 only
3) For switch types N33F only, max. 3 poles and 3 cells

Base mounting designs

Switches of the designs listed below have protection from front IP40. When a shaft seal (appendix +WD) is used, the front protection type is increased to IP54. In the standard version, the switches are delivered with a square escutcheon plate and black twist knob (design SMA with grey cover and grey toggle knob). Door couplings are advisable for switchgear cabinets with hinged doors.

The position of the terminals of the standard switches is left and right, at switch M10H the terminals are above and below. Where a knob insert is turned by 90° (can easily be performed after delivery), the position of the terminals can be changed.
Dimensions see page 76.

Design		Possible switch sizes					
Description	**Type appendix**	M10H	M20	N20 N33F	N40 N60 N80	N100 N200	L...
 **Base mounting** For screw mounting to the back wall or floor of distributor boxes, or of appliances with removable lids. Additional it is necessary to state the installation depth - that is the distance between mounting level of the switch and the inside edge of the door (dimension T).  Door couplings see page 62	**V ... +T/...**	**X**	**X**	**X**	**X**	**X**	**X**
 **Snap-on mounting on DIN-rail** Switch with square escutcheon plate, for snap-on mounting on standard DIN EN 50022 rail. Additional it is necessary to state the installation depth - that is the distance between mounting level of the switch and the inside edge of the door (dimension T).  Door couplings see page 62	**SM ... +T/...**	**X**	**X**	**X**	-	-	-
 **Snap-on mounting on DIN-rail** with installation cover for standard opening and toggle knob. The lay-out of the terminals of the standard switches is above and below. Dimensions for Switch types M10H SMA .. with1-3 cells M20 SMA .. with1 or 2 cells  further dimensions see page 76	**SMA**	**X**	**X**	-	-	-	-

Plastic enclosed switches

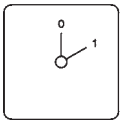
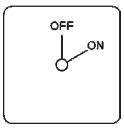
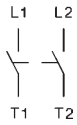
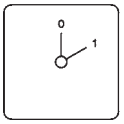
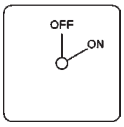
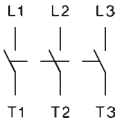
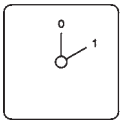
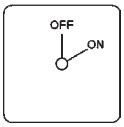
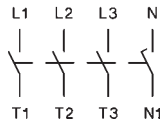
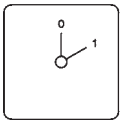
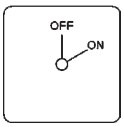
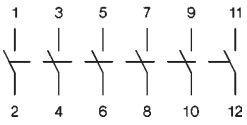
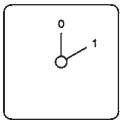
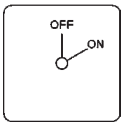
The switches, which have durable plastic enclosures, are intended for wall mounting or attachment to machines. In the standard version, they are supplied with a light-grey enclosure, square escutcheon plate, black markings on a silver background, and a black twist knob. Other colours and colour combinations are available for most enclosure types. It is not possible to mount an additional rectangular plate. The enclosure base is equipped with 4 entry glands with heavy-gauge conduit threads (see drawings). In all types of plastic enclosures, two terminals that are connected and insulated from switch column can be provided for a PE conductor (appendix +PE). In addition, 1 or 2 pilot lamps (appendix +SL..) with neon lights can be installed.
Dimensions see page 77.

Cast aluminium enclosed switches

The switches with cast aluminium enclosures are intended for wall mounting or attachment to machines, under heavy-duty operating conditions. The switches are delivered with a square escutcheon plate, black markings on a silver background, and a black instrument knob. It is not possible to mount an additional rectangular plate. The enclosure base makes provision for 2 (4) entry glands with heavy-gauge conduit threads. If a switch with an aluminium enclosure is to be mounted directly on the terminal box of a motor, a 35mm or 50mm hole can be made in the floor of the switch enclosure. Design PLF is the replacement for designs G and GF at types N40 to N80.
Dimensions see page 78.

Design		Possible switch sizes							
Description	**Type appendix**	M10H	N20	N33F	N40	N60	N80	N100	N200
Plastic enclosure light grey Protection class IP40 Maximum number of cells	**P**	**X** 6	**X** 6	**X** 6	**X** 6	**X** 2	-	-	-
Plastic enclosure light grey Moisture protection Protection class IP65 Maximum number of cells	**PF**	**X** 6	**X** 6	**X** 6	**X** 6	**X** 5	**X** 5	**X** 4	**X** 3
Plastic enclosure horizontal light grey Moisture protection Protection class IP65 Maximum number of cells	**PLF**	- -	- -	- -	**X** 10	**X** 6	**X** 6	-	-
Cast enclosure Protection class IP40 Maximum number of cells	**G**	- -	**X** 6	**-**	-	**-**	**-**	**-**	**-**
Cast enclosure Moisture protection Protection class IP65 Maximum number of cells	**GF**	**-** -	**X** 6	**-**	-	**-**	**-**	**-**	**-**
Terminal box mounting Protection class IP65 These switches are front mounted on a terminal box. The switch cells protrude through a hole into the terminal compartment. Maximum number of cells	**KE**	**X** 12	**X** 12	**X** 12	-	-	-	-	-
Plastic motor switch enclosure Moisture protection Protection class IP65 Maximum number of cells	**PM**	**-**	**X** 6	**-**	-	-	-	-	_

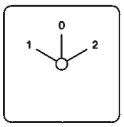
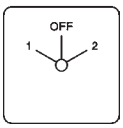
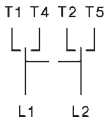
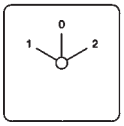
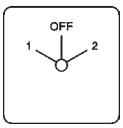
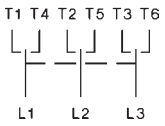
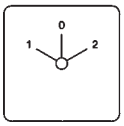
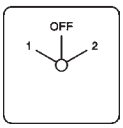
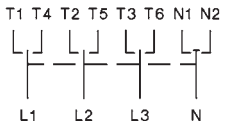
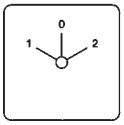
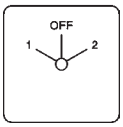
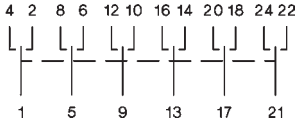
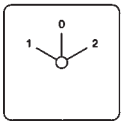
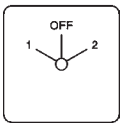
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
On-Off-switches A							
1-pole		*60°*	1 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. A1**	
			32A	**M20 .**	x x x x - -	**. A1**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. A1**	
			50A	**N33F .**	x x x - x x[2]	**. A1**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. A1**	**+003**
			80A	**N60 .**	x - x - x -	**. A1**	
			115A	**N80 .**	x - x - - -	**. A1**	
			132❐ 150A	**N100 .**	x - x - - -	**. A1**	
			250A	**N200 .**	x - x - - -	**. A1**	
2-pole		*60°*	1 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. A2**	
			32A	**M20 .**	x x x x - -	**. A2**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. A2**	
			50A	**N33F .**	x x x - x x[2]	**. A2**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. A2**	**+003**
			80A	**N60 .**	x - x - x -	**. A2**	
			115A	**N80 .**	x - x - - -	**. A2**	
			132❐ 150A	**N100 .**	x - x - - -	**. A2**	
			250A	**N200 .**	x - x - - -	**. A2**	
3-pole		*60°*	2 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. A3**	
			32A	**M20 .**	x x x x - -	**. A3**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. A3**	
			50A	**N33F .**	x x x - x x[2]	**. A3**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. A3**	**+003**
			80A	**N60 .**	x - x - x -	**. A3**	
			115A	**N80 .**	x - x - - -	**. A3**	
			132❐ 150A	**N100 .**	x - x - - -	**. A3**	
			250A	**N200 .**	x - x - - -	**. A3**	
4-pole 4. pole early make		*60°*	2 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. A4**	
			32A	**M20 .**	x x x x - -	**. A4**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. A4**	
			50A	**N33F .**	x - x - x x[2]	**. A4**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. A4**	**+003**
			80A	**N60 .**	x - x - x -	**. A4**	
			115A	**N80 .**	x - x - - -	**. A4**	
			132❐ 150A	**N100 .**	x - x - - -	**. A4**	
			250A	**N200 .**	x - x - - -	**. A4**	
6-pole		*60°*	3 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. A6**	
			32A	**M20 .**	x x x x - -	**. A6**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. A6**	
			50A	**N33F .**	x - x - x x[2]	**. A6**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. A6**	**+003**
			80A	**N60 .**	x - x - x -	**. A6**	
			115A	**N80 .**	x - x - - -	**. A6**	
			132❐ 150A	**N100 .**	x - x - - -	**. A6**	
			250A	**N200 .**	x - x - - -	**. A6**	

Ordering example: AC21 250A panel mounting, On-Off-switch 6-pole, Escutcheon plate OFF - ON **N200 E A6+003**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

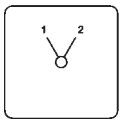
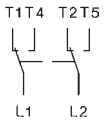
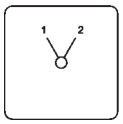
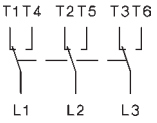
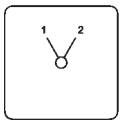
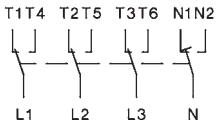
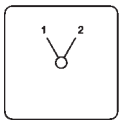
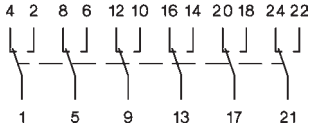
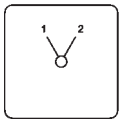
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Changeover switches U							
1-pole		*60°*	1 48 ❐ 20A	**M10H .**	**x x x x x** [1]	**. U1**	
			32A	**M20 .**	**x x x x - -**	**. U1**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. U1**	
			50A	**N33F .**	**x x x - x x** [2]	**. U1**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. U1**	**+007**
			80A	**N60 .**	**x - x - x -**	**. U1**	
			115A	**N80 .**	**x - x - - -**	**. U1**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. U1**	
			250A	**N200 .**	**x - x - - -**	**. U1**	
2-pole		*60°*	2 48 ❐ 20A	**M10H .**	**x x x x x** [1] **-**	**. U2**	
			32A	**M20 .**	**x x x x - -**	**. U2**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. U2**	
			50A	**N33F .**	**x x x - x x** [2]	**. U2**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. U2**	**+007**
			80A	**N60 .**	**x - x - x -**	**. U2**	
			115A	**N80 .**	**x - x -**	**. U2**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. U2**	
			250A	**N200 .**	**x - x - - -**	**. U2**	
3-pole		*60°*	3 48 ❐ 20A	**M10H .**	**x x x x x** [1] **-**	**. U3**	
			32A	**M20 .**	**x x x x - -**	**. U3**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. U3**	
			50A	**N33F .**	**x x x - x x** [2]	**. U3**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. U3**	**+007**
			80A	**N60 .**	**x - x - x -**	**. U3**	
			115A	**N80 .**	**x - x - - -**	**. U3**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. U3**	
			250A	**N200 .**	**x - x - - -**	**. U3**	
4-pole 4. pole early make		*60°*	4 48 ❐ 20A	**M10H .**	**x x x x x** [1] **-**	**. U4**	
			32A	**M20 .**	**x x x x - -**	**. U4**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. U4**	
			50A	**N33F .**	**x - x - x x** [2]	**. U4**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. U4**	**+007**
			80A	**N60 .**	**x - x - x -**	**. U4**	
			115A	**N80 .**	**x - x - - -**	**. U4**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. U4**	
			250A	**N200 .**	**x - x - - -**	**. U4**	
6-pole		*60°*	6 48 ❐ 20A	**M10H .**	**x x x - x** [1] **-**	**. U6**	
			32A	**M20 .**	**x x x - - -**	**. U6**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. U6**	
			50A	**N33F .**	**x - x - x -**	**. U6**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. U6**	**+007**
			80A	**N60 .**	**x - x - x -**	**. U6**	
			115A	**N80 .**	**x - x - - -**	**. U6**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. U6**	
			250A	**N200 .**	**x - x - - -**	**. U6**	

Ordering example: AC21 250A panel mounting, changeover switch 6-pole, Escutcheon plate 1 - OFF - 2 **N200 E U6+007**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

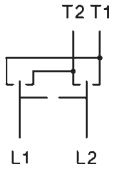
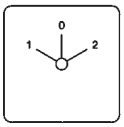
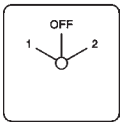
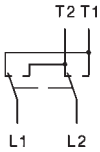
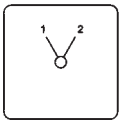
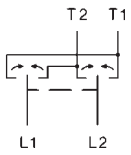
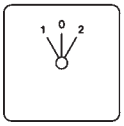
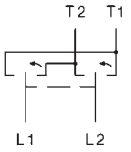
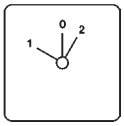
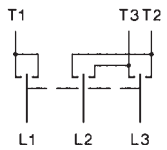
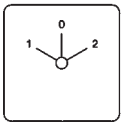
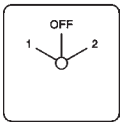
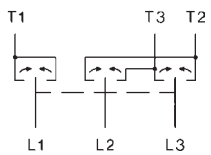
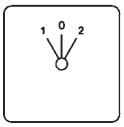
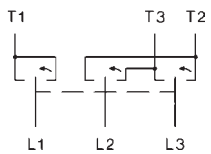
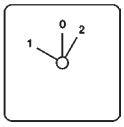
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Changeover switches without off W							
1-pole		*60°*	1 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. W1**	
			32A	**M20 .**	**x x x x - -**	**. W1**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. W1**	
			50A	**N33F .**	**x x x - x x**[2]	**. W1**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. W1**	
			80A	**N60 .**	**x - x - x -**	**. W1**	
			115A	**N80 .**	**x - x - - -**	**. W1**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. W1**	
			250A	**N200 .**	**x - x - - -**	**. W1**	
2-pole		*60°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. W2**	
			32A	**M20 .**	**x x x x - -**	**. W2**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. W2**	
			50A	**N33F .**	**x x x - x x**[2]	**. W2**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. W2**	
			80A	**N60 .**	**x - x - x -**	**. W2**	
			115A	**N80 .**	**x - x - - -**	**. W2**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. W2**	
			250A	**N200 .**	**x - x - - -**	**. W2**	
3-pole		*60°*	3 48❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. W3**	
			32A	**M20 .**	**x x x x - -**	**. W3**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. W3**	
			50A	**N33F .**	**x x x - x x**[2]	**. W3**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. W3**	
			80A	**N60 .**	**x - x - x -**	**. W3**	
			115A	**N80 .**	**x - x - - -**	**. W3**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. W3**	
			250A	**N200 .**	**x - x - - -**	**. W3**	
4-pole 4. pole early make		*60°*	4 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. W4**	
			32A	**M20 .**	**x x x x - -**	**. W4**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. W4**	
			50A	**N33F .**	**x - x - x x**[2]	**. W4**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. W4**	
			80A	**N60 .**	**x - x - x -**	**. W4**	
			115A	**N80 .**	**x - x - - -**	**. W4**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. W4**	
			250A	**N200 .**	**x - x - - -**	**. W4**	
6-pole		*60°*	6 48 ❐ 20A	**M10H .**	**x x x - x**[1] **- -**	**. W6**	
			32A	**M20 .**	**x x x - - -**	**. W6**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. W6**	
			50A	**N33F .**	**x - x - x -**	**. W6**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. W6**	
			80A	**N60 .**	**x - x - x -**	**. W6**	
			115A	**N80 .**	**x - x - - -**	**. W6**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. W6**	
			250A	**N200 .**	**x - x - - -**	**. W6**	

Ordering example: AC21 250A panel mounting, changeover switch without off 6-pole, **N200 E W6**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

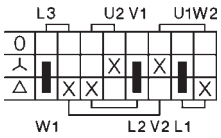
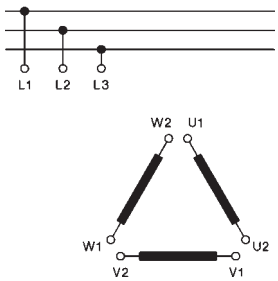
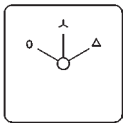
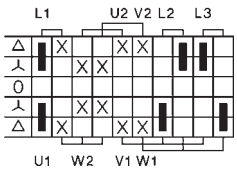
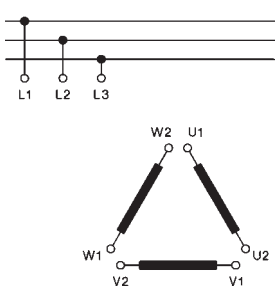
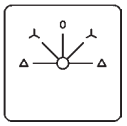
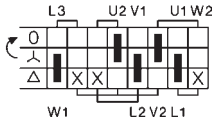
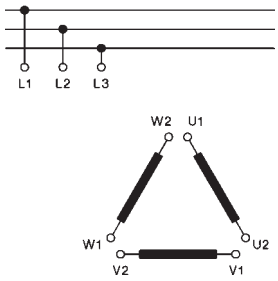
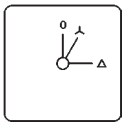
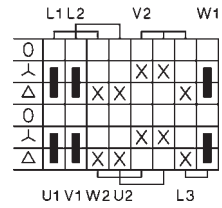
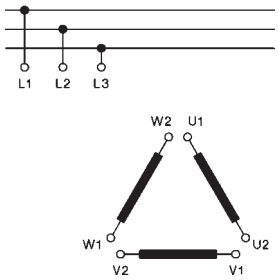
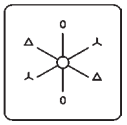
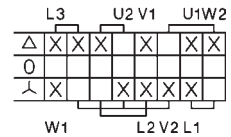
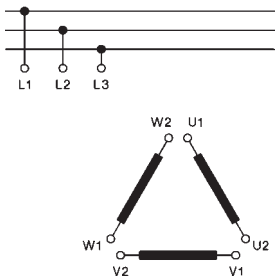
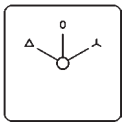
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Reversing switches WU							
2-pole		*60°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WU2**	
			32A	**M20 .**	**x x x x - -**	**. WU2**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WU2**	
			50A	**N33F .**	**x x x - x x**[2]	**. WU2**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. WU2**	**+007**
			80A	**N60 .**	**x - x - x -**	**. WU2**	
			115A	**N80 .**	**x - x - - -**	**. WU2**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. WU2**	
			250A	**N200 .**	**x - x - - -**	**. WU2**	
2-pole without off cross switch		*60°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WK2**	
			32A	**M20 .**	**x x x x - -**	**. WK2**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WK2**	
			50A	**N33F .**	**x x x - x x**[2]	**. WK2**	
			88 ❐ 63A	**N40 .**	**x x - x -**	**. WK2**	
			80A	**N60 .**	**x - x - x -**	**. WK2**	
			115A	**N80 .**	**x - x - - -**	**. WK2**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. WK2**	
			250A	**N200 .**	**x - x - - -**	**. WK2**	
2-pole with spring return from both sides to off		*30°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WU2R2**	
			32A	**M20 .**	**x x x x - -**	**. WU2R2**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WU2R2**	
			50A	**N33F .**	**x x x - x x**[2]	**. WU2R2**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. WU2R2**	
2-pole position 1 latched position 2 with spring return to off		*60°+30°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WU2R1**	
			32A	**M20 .**	**x x x x - -**	**. WU2R1**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WU2R1**	
			50A	**N33F .**	**x x x - x x**[2]	**. WU2R1**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. WU2R1**	
3-pole		*60°*	3 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WU3**	
			32A	**M20 .**	**x x x x - -**	**. WU3**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WU3**	
			50A	**N33F .**	**x x x - x x**[2]	**. WU3**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. WU3**	**+007**
			80A	**N60 .**	**x - x - x -**	**. WU3**	
			115A	**N80 .**	**x - x - - -**	**. WU3**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. WU3**	
			250A	**N200 .**	**x - x - - -**	**. WU3**	
3-pole with spring return from both sides to off		*30°*	3 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WU3R2**	
			32A	**M20 .**	**x x x x - -**	**. WU3R2**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WU3R2**	
			50A	**N33F .**	**x x x - x x**[2]	**. WU3R2**	
			88 ❐ 63A	**N40 .**	**x - x x -**	**. WU3R2**	
3-pole position 1 latched position 2 with spring return to off		*60°+30°*	3 48 ❐ 20A	**M10H .**	**x x x x x**[1] **- -**	**. WU3R1**	
			32A	**M20 .**	**x x x x - -**	**. WU3R1**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. WU3R1**	
			50A	**N33F .**	**x - x - x x**[2]	**. WU3R1**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. WU3R1**	

Ordering example: AC21 63A base mounting, reversing switch 3-pole, position 2 with spring to off **N40 V WU3R1**

1) Plastic enclosed switches are delivered with switch type M10. 2) Cast enclosed switches are delivered with switch type N32.

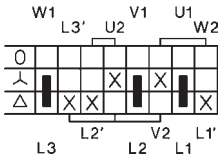
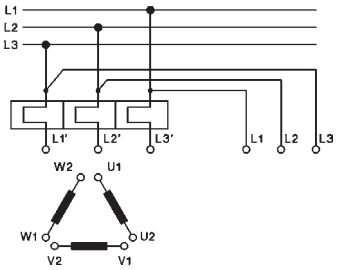
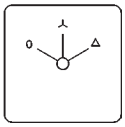
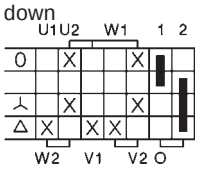
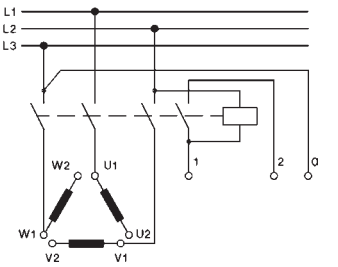
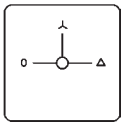
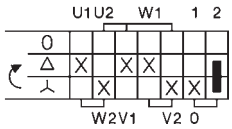
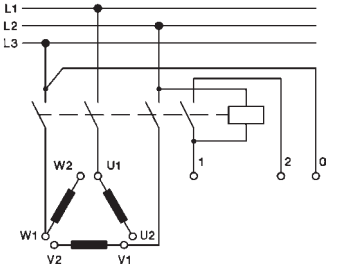
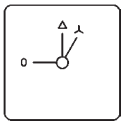
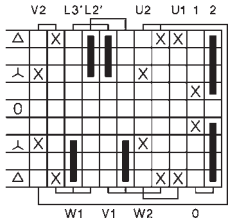
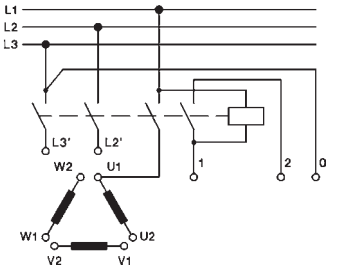
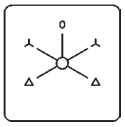
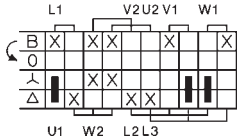
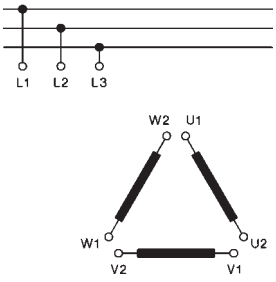
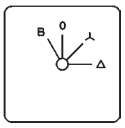
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Star-Delta switches SD							
1 rotary direction 		*60°*	4 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x x x[1] - x x x x - -	**. SD** **. SD**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - x x x - x - x x[2]	**. SD** **. SD**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - x - x - x - x - x - x - - -	**. SD** **. SD** **. SD**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. SD** **. SD**	
both rotary directions 		*45°*	5 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x x x[1] - x x x x - -	**. SDR** **. SDR**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - x x x - x - x x[2]	**. SDR** **. SDR**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - x - x - x - x - x - x - - -	**. SDR** **. SDR** **. SDR**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. SDR** **. SDR**	
1 rotary direction spring return from ⅄ to off 		⁾	4 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x x x[1] - x x x x - -	**. SRD** **. SRD**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - x x x - x - x x[2]	**. SRD** **. SRD**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - x - x - x - x - x - x - - -	**. SRD** **. SRD** **. SRD**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. SRD** **. SRD**	
1 rotary direction with clockwise operation and backswitch interlock 		*60°*	5 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x x x[1] - x x x x - -	**. SDRU** **. SDRU**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - x x x - x - x x[2]	**. SDRU** **. SDRU**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - x - x - x - x - x - x - - -	**. SDRU** **. SDRU** **. SDRU**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. SDRU** **. SDRU**	
Star-Delta selector switch 		*60°*	4 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x x x[1] - x x x x - -	**. SDU** **. SDU**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - x x x - x - x x[2]	**. SDU** **. SDU**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - x - x - x - x - x - x - - -	**. SDU** **. SDU** **. SDU**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. SDU** **. SDU**	

Ordering example: AC21 32A cast enclosed, star-delta selector switch **N20 G SDU**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

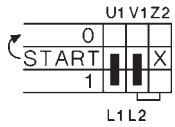
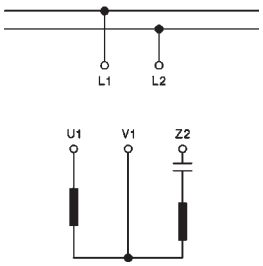
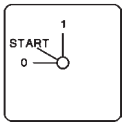
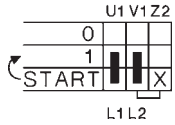
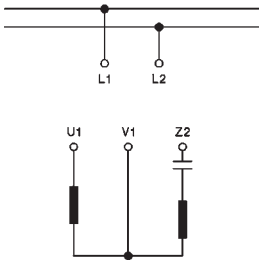
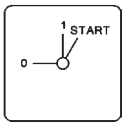
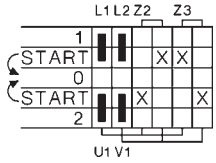
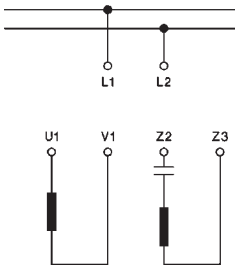
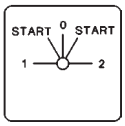
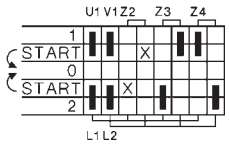
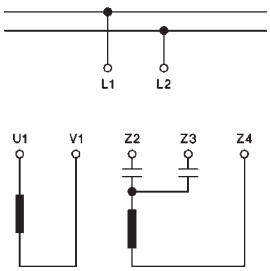
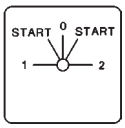
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Star-Delta switches SD							
with double outfeed phases for use with manual motor starter 		*60°*	4 48 ❐ 20A	**M10H .**	x x x x x[1] -	. SDMO	
			32A	**M20 .**	x x x x - -	. SDMO	
			64 ❐ 32A	**N20 .**	x - x - x x	. SDMO	
			50A	**N33F .**	x - x - x x[2]	. SDMO	
			88 ❐ 63A	**N40 .**	x - x x -	. SDMO	
			80A	**N60 .**	x - x - x -	. SDMO	
			115A	**N80 .**	x - x - - -	. SDMO	
			132 ❐ 150A	**N100 .**	x - x - - -	. SDMO	
			250A	**N200 .**	x - x - - -	. SDMO	
with auxiliary contacts for contactor control, without main contacts, automatic zero setting in event of mains break-down 		*90°*	4 48 ❐ 20A	**M10H .**	x x x x x[1] -	. SDJ1	
			32A	**M20 .**	x x x x - -	. SDJ1	
			64 ❐ 32A	**N20 .**	x - x - x x	. SDJ1	
			50A	**N33F .**	x - x - x x[2]	. SDJ1	
			88 ❐ 63A	**N40 .**	x - x - x -	. SDJ1	
			80A	**N60 .**	x - x - x -	. SDJ1	
			115A	**N80 .**	x - x - - -	. SDJ1	
			132 ❐ 150A	**N100 .**	x - x - - -	. SDJ1	
			250A	**N200 .**	x - x - - -	. SDJ1	
with auxiliary contacts for contactor control, without main contacts, automatic zero setting in event of mains break-down, spring return to 		*90°+30°*	4 48 ❐ 20A	**M10H .**	x x x x x[1] -	. SDJ2	
			32A	**M20 .**	x x x x - -	. SDJ2	
			64 ❐ 32A	**N20 .**	x - x - x x	. SDJ2	
			50A	**N33F .**	x - x - x x[2]	. SDJ2	
			88 ❐ 63A	**N40 .**	x - x - x -	. SDJ2	
			80A	**N60 .**	x - x - x -	. SDJ2	
			115A	**N80 .**	x - x - - -	. SDJ2	
			132 ❐ 150A	**N100 .**	x - x - - -	. SDJ2	
			250A	**N200 .**	x - x - - -	. SDJ2	
as type SDJ1 but for both rotary directions 		*60°*	7 48 ❐ 20A	**M10H .**	x x x - - -	. SDRJ1	
			32A	**M20 .**	x x x - - -	. SDRJ1	
			64 ❐ 32A	**N20 .**	x - x - x x	. SDRJ1	
			50A	**N33F .**	x - x - - -	. SDRJ1	
			88 ❐ 63A	**N40 .**	x - x - x -	. SDRJ1	
			80A	**N60 .**	x - x - - -	. SDRJ1	
			115A	**N80 .**	x - x - - -	. SDRJ1	
			132 ❐ 150A	**N100 .**	x - x - - -	. SDRJ1	
			250A	**N200 .**	x - x - - -	. SDRJ1	
with brake position (counter current braking) brake position is a momentary operation 		*45°+30°*	5 48 ❐ 20A	**M10H .**	x x x x x[1] -	. SDB	
			32A	**M20 .**	x x x x - -	. SDB	
			64 ❐ 32A	**N20 .**	x - x - x x	. SDB	
			50A	**N33F .**	x - x - x x[2]	. SDB	
			88 ❐ 63A	**N40 .**	x - x - x -	. SDB	
			80A	**N60 .**	x - x - x -	. SDB	
			115A	**N80 .**	x - x - - -	. SDB	
			132 ❐ 150A	**N100 .**	x - x - - -	. SDB	
			250A	**N200 .**	x - x - - -	. SDB	

Ordering example: AC21 250A panel mounting star-delta switch with brake position **N200 E SDB**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

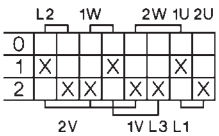
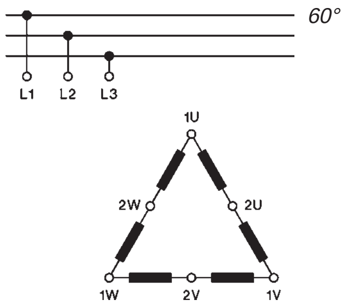
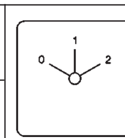
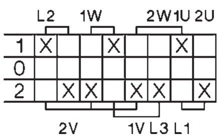
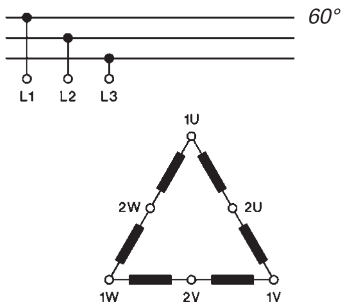
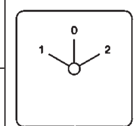
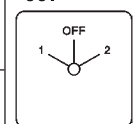
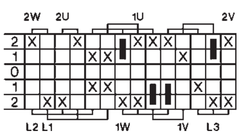
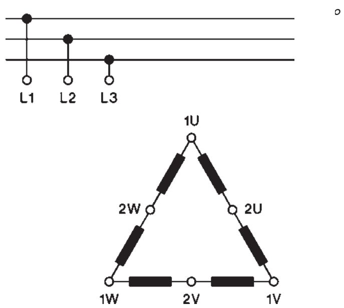
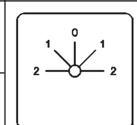
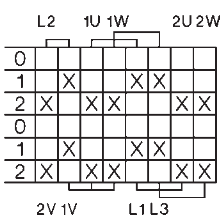
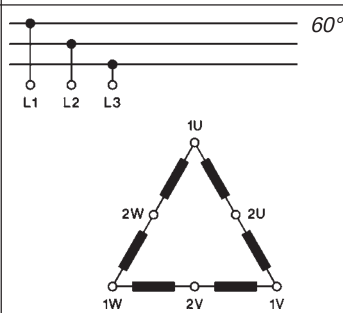
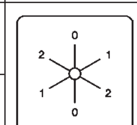
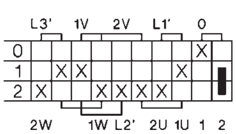
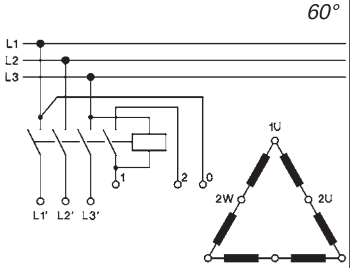
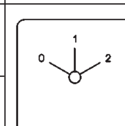
Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21			Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Split phase switches HP									
for starting up single-phase motors with split-phase, spring return from START to Off 		*30°+60°*	2	48 ❒	20A	**M10H .**	x x x x x[1] -	**. HP1**	
					32A	**M20 .**	x x x x - -	**. HP1**	
				64 ❒	32A	**N20 .**	x - x - x x	**. HP1**	
					50A	**N33F .**	x - x - x x[2]	**. HP1**	
				88 ❒	63A	**N40 .**	x - x - x -	**. HP1**	
for starting up single-phase motors with split-phase, spring return from START to 1 		*90°+30°*	2	48 ❒	20A	**M10H .**	x x x x x[1] -	**. HP2**	
					32A	**M20 .**	x x x x - -	**. HP2**	
				64 ❒	32A	**N20 .**	x - x - x x	**. HP2**	
					50A	**N33F .**	x - x - x x[2]	**. HP2**	
				88 ❒	63A	**N40 .**	x - x - x -	**. HP2**	
for starting up single-phase motors with split-phase, both rotary directions 		*60°+30°*	3	48 ❒	20A	**M10H .**	x x x x x[1] -	**. HPR1**	
					32A	**M20 .**	x x x x - -	**. HPR1**	
				64 ❒	32A	**N20 .**	x - x - x x	**. HPR1**	
					50A	**N33F .**	x - x - x x[2]	**. HPR1**	
				88 ❒	63A	**N40 .**	x - x - x -	**. HPR1**	
as type HPR1 with starting and phase-shifting capacitor 		*60°+30°*	4	48 ❒	20A	**M10H .**	x x x x x[1] -	**. HPR2**	
					32A	**M20 .**	x x x x - -	**. HPR2**	
				64 ❒	32A	**N20 .**	x - x - x x	**. HPR2**	
					50A	**N33F .**	x - x - x x[2]	**. HPR2**	
				88 ❒	63A	**N40 .**	x - x - x -	**. HPR2**	

Ordering example: AC21 63A panel mounting, split phase switch, both rotary directions **N40 E HPR1**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Multi speed switches P

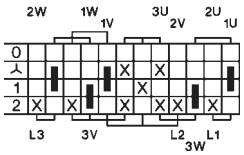
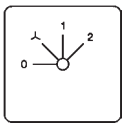
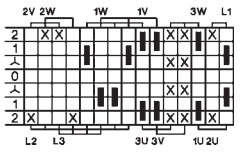
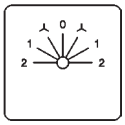
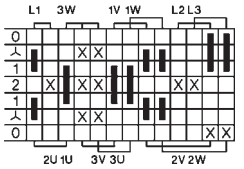
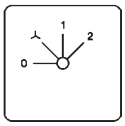
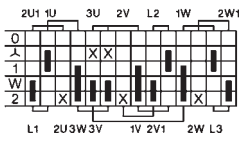
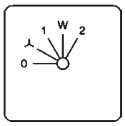
Description	Wiring diagram	Switching angle	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program	Escutcheon plate
1 Dahlander winding 1 rotary direction 		60°	4	48 □	20A	M10H .	x	x	x	x	x[1]	-	. P61	
					32A	M20 .	x	x	x	x	-	-	. P61	
				64 □	32A	N20 .	x	-	x	-	x	x	. P61	
					50A	N33F .	x	-	x	-	x	x[2]	. P61	
				88 □	63A	N40 .	x	-	x	-	x	-	. P61	
					80A	N60 .	x	-	x	-	x	-	. P61	
					115A	N80 .	x	-	x	-	-	-	. P61	
				132 □	150A	N100 .	x	-	x	-	-	-	. P61	
					250A	N200 .	x	-	x	-	-	-	. P61	
1 Dahlander winding 1 rotary direction 		60°	4	48 □	20A	M10H .	x	x	x	x	x[1]	-	. P62	
					32A	M20 .	x	x	x	x	-	-	. P62	
				64 □	32A	N20 .	x	-	x	-	x	x	. P62	
					50A	N33F .	x	-	x	-	x	x[2]	. P62	
				88 □	63A	N40 .	x	-	x	-	x	-	. P62	+007
					80A	N60 .	x	-	x	-	x	-	. P62	
					115A	N80 .	x	-	x	-	-	-	. P62	
				132 □	150A	N100 .	x	-	x	-	-	-	. P62	
					250A	N200 .	x	-	x	-	-	-	. P62	
1 Dahlander winding both rotary directions 		°	7	48 □	20A	M10H .	x	x	x	-	-	-	. P61R	
					32A	M20 .	x	x	x	-	-	-	. P61R	
				64 □	32A	N20 .	x	-	x	-	x	-	. P61R	
					50A	N33F .	x	-	x	-	-	-	. P61R	
				88 □	63A	N40 .	x	-	x	-	x	-	. P61R	
					80A	N60 .	x	-	x	-	-	-	. P61R	
					115A	N80 .	x	-	x	-	-	-	. P61R	
				132 □	150A	N100 .	x	-	x	-	-	-	. P61R	
					250A	N200 .	x	-	x	-	-	-	. P61R	
1 Dahlander winding 1 rotary direction, clockwise operation 		60°	5	48 □	20A	M10H .	x	x	x	x	x[1]	-	. P61RU	
					32A	M20 .	x	x	x	x	-	-	. P61RU	
				64 □	32A	N20 .	x	-	x	-	x	x	. P61RU	
					50A	N33F .	x	-	x	-	x	x[2]	. P61RU	
				88 □	63A	N40 .	x	-	x	-	x	-	. P61RU	
					80A	N60 .	x	-	x	-	x	-	. P61RU	
					115A	N80 .	x	-	x	-	-	-	. P61RU	
				132 □	150A	N100 .	x	-	x	-	-	-	. P61RU	
					250A	N200 .	x	-	x	-	-	-	. P61RU	
1 Dahlander winding 1 rotary direction, with auxiliary contacts for contactor control 		60°	5	48 □	20A	M10H .	x	x	x	x	x[1]	-	. P61J	
					32A	M20 .	x	x	x	x	-	-	. P61J	
				64 □	32A	N20 .	x	-	x	-	x	x	. P61J	
					50A	N33F .	x	-	x	-	x	x[2]	. P61J	
				88 □	63A	N40 .	x	-	x	-	x	-	. P61J	
					80A	N60 .	x	-	x	-	x	-	. P61J	
					115A	N80 .	x	-	x	-	-	-	. P61J	
				132 □	150A	N100 .	x	-	x	-	-	-	. P61J	
					250A	N200 .	x	-	x	-	-	-	. P61J	

Design: see page 6-8

Ordering example: AC21 32A cast enclosed, multi speed switch, 1 Dahlander winding, 1 rotary direction **N20 G P61**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

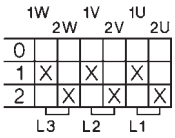
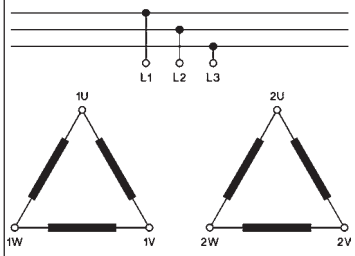
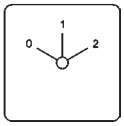
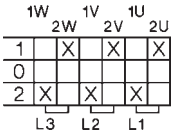
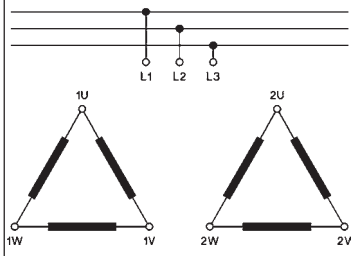
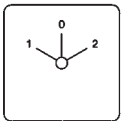
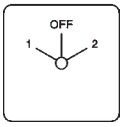
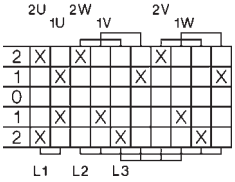
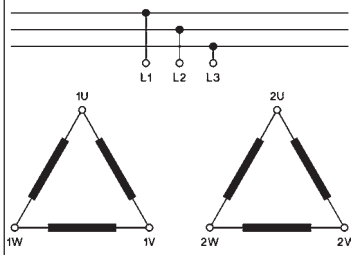
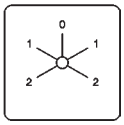
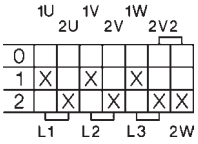
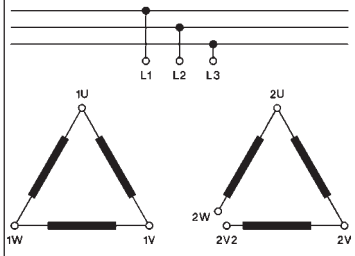
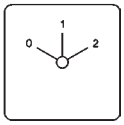
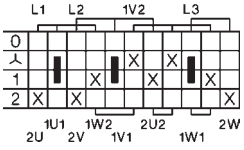
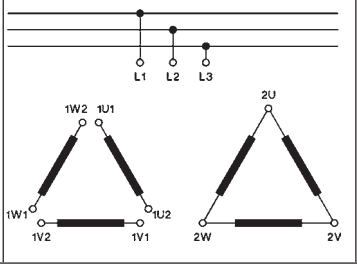
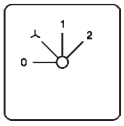
Switching programs

Description Schaltbild	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi speed switches P							
open Dahlander winding 1 rotary direction low speed with star-delta-start		*45°*	6 48 ❐ 20A 32A	**M10H .** **M20 .**	**x x x - x[1] - . P91** **x x x - - - . P91**		
			64 ❐ 32A 50A	**N20 .** **N33F .**	**x - x - x x . P91** **x - x - x - . P91**		
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	**x - x - x - . P91** **x - x - x - . P91** **x - x - - - . P91**		
			132❐ 150A 250A	**N100 .** **N200 .**	**x - x - - - . P91** **x - x - - - . P91**		
open Dahlander winding both rotary directions low speed with star-delta-start		*30°*	8 48 ❐ 20A 32A	**M10H .** **M20 .**	**x x x - - - . P91R** **x x x - - - . P91R**		
			64 ❐ 32A 50A	**N20 .** **N33F .**	**x - x - x - . P91R** **x - x - - - . P91R**		
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	**x - x - x - . P91R** **x - x - - - . P91R** **x - x - - - . P91R**		
			132❐ 150A 250A	**N100 .** **N200 .**	**x - x - - - . P91R** **x - x - - - . P91R**		
same as type P91 no load return from 2 to Off		*45°*	10 48 ❐ 20A 32A	**M10H .** **M20 .**	**- - - - - - . P91S** **- - - - - - . P91S**		
			64 ❐ 32A 50A	**N20 .** **N33F .**	**x - x - - - . P91S** **x - x - - - . P91S**		
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	**x - x - - - . P91S** **x - x - - - . P91S** **x - x - - - . P91S**		
			132❐ 150A 250A	**N100 .** **N200 .**	**- - - - - - . P91S** **- - - - - - . P91S**		
open Dahlander winding 1 rotary direction, low speed with star-delta-start, with additional start position (starting resistor)		*30°*	7 48 ❐ 20A 32A	**M10H .** **M20 .**	**x x x - - - . P91W** **x x x - - - . P91W**		
			64 ❐ 32A 50A	**N20 .** **N33F .**	**x - x - x - . P91W** **x - x - - - . P91W**		
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	**x - x - x - . P91W** **x - x - - - . P91W** **x - x - - - . P91W**		
			132❐ 150A 250A	**N100 .** **N200 .**	**x - x - - - . P91W** **x - x - - - . P91W**		

Ordering example: AC21 250A panel mounting, multi speed switch, 1 rotary direction, low speed with star-delta-start **N200 E P91**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

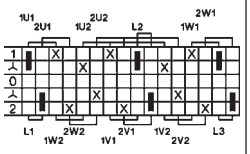
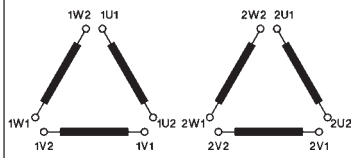
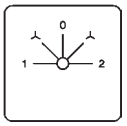
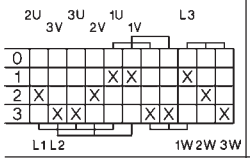
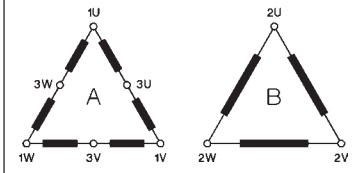
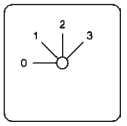
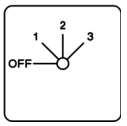
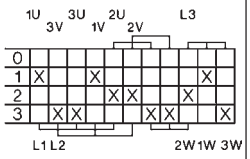
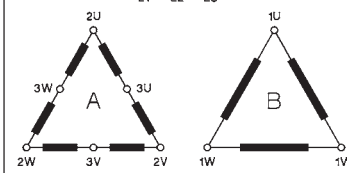
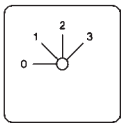
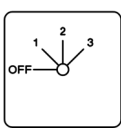
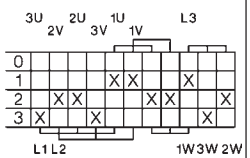
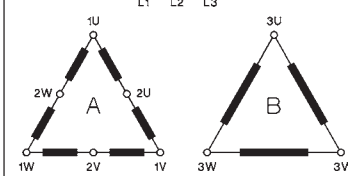
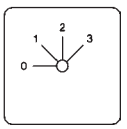
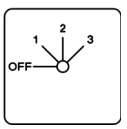
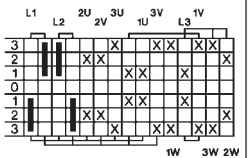
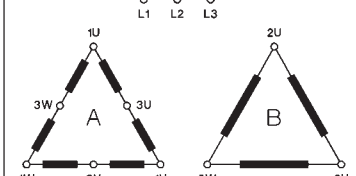
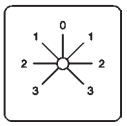
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi speed switches P							
2 separate windings 1 rotary direction 		*60°*	3 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132 ❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x x x**[1] **- . P63** **x x x x - - . P63** **x - x - x x . P63** **x - x - x x**[2] **. P63** **x - x - x - . P63** **x - x - x - . P63** **x - x - - - . P63** **x - x - - - . P63** **x - x - - - . P63**		
2 separate windings 1 rotary direction 		*60°*	3 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132 ❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x x x**[1] **- . P64** **x x x x - - . P64** **x - x - x x . P64** **x - x - x x**[2] **. P64** **x - x - x - . P64** **x - x - x - . P64** **x - x - - - . P64** **x - x - - - . P64** **x - x - - - . P64**	**+007**	 
2 separate windings both rotary directions 		*60°*	5 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132 ❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x x x**[1] **- . P66** **x x x x - - . P66** **x - x - x x . P66** **x - x - x x**[2] **. P66** **x - x - x - . P66** **x - x - x - . P66** **x - x - - - . P66** **x - x - - - . P66** **x - x - - - . P66**		
2 separate windings 1 opened 1 rotary direction 		*60°*	4 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132 ❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x x x**[1] **- . P71** **x x x x - - . P71** **x - x - x x . P71** **x - x - x x**[2] **. P71** **x - x - x - . P71** **x - x - x - . P71** **x - x - - - . P71** **x - x - - - . P71** **x - x - - - . P71**		
2 separate windings 1 rotary direction low speed with star-delta-start 		*45°*	6 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132 ❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x - x**[1] **- . P96** **x x x - - - . P96** **x - x - x x . P96** **x - x - x - . P96** **x - x - x - . P96** **x - x - x - . P96** **x - x - - - . P96** **x - x - - - . P96** **x - x - - - . P96**		

Ordering example: AC21 250A panel mounting, multi speed switch, 2 separate windings, low speed with star-delta-start **N200 E P96**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

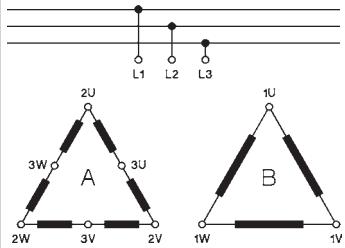
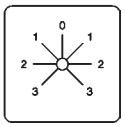
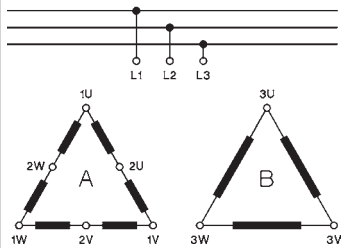
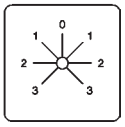
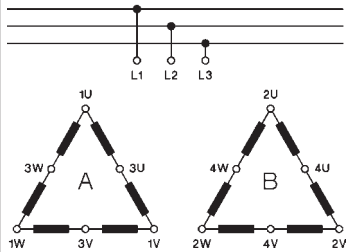
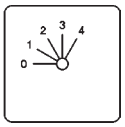
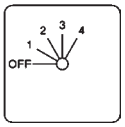
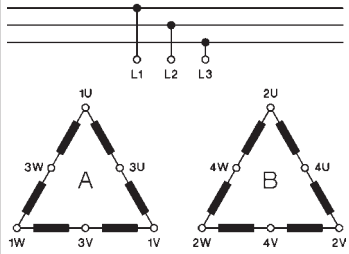
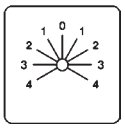
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi speed switches P							
2 separate windings 1 rotary direction both speeds with star-delta-start	 	*45°*	8 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x - - -** **x x x - - -** **x - x - x -** **x - x - - -** **x - x - x -** **x - x - - -** **x - x - - -** **x - x - - -** **x - x - - -**	**. P122** **. P122** **. P122** **. P122** **. P122** **. P122** **. P122** **. P122** **. P122**	
1 Dahlander winding A 1 normal winding B 3 speeds 1 rotary direction 0 - A △ - B △ or 人 - A 从	 	*45°*	6 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x - x[1] -** **x x x - - -** **x - x - x x** **x - x - x -** **x - x - x -** **x - x - x -** **x - x - - -** **x - x - - -** **x - x - - -**	**. P93** **. P93** **. P93** **. P93** **. P93** **. P93** **. P93** **. P93** **. P93**	 **+127** 
1 Dahlander winding A 1 normal winding B 3 speeds 1 rotary direction 0 - B △ or 人 - A △ - A 从	 	*45°*	6 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x - x[1] -** **x x x - - -** **x - x - x -** **x - x - x -** **x - x - x -** **x - x - x -** **x - x - - -** **x - x - - -** **x - x - - -**	**. P94** **. P94** **. P94** **. P94** **. P94** **. P94** **. P94** **. P94** **. P94**	 **+127** 
1 Dahlander winding A 1 normal winding B 3 speeds 1 rotary direction 0 - A △ - A 从 - B △ or 人	 	*45°*	6 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x - x[1] -** **x x x - - -** **x - x - x x** **x - x - x -** **x - x - x -** **x - x - x -** **x - x - - -** **x - x - - -** **x - x - - -**	**. P95** **. P95** **. P95** **. P95** **. P95** **. P95** **. P95** **. P95** **. P95**	 **+127** 
1 Dahlander winding A 1 normal winding B 3 speeds both rotary directions	 	*45°*	9 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	**x x x - - -** **x x x - - -** **x - x - - -** **x - x - - -** **x - x - - -** **x - x - - -** **x - x - - -** **x - x - - -** **x - x - - -**	**. P93R** **. P93R** **. P93R** **. P93R** **. P93R** **. P93R** **. P93R** **. P93R** **. P93R**	

Ordering example: AC21 250A panel mounting, multi speed switch, 1 Dahlander winding A,
1 normal winding B, 3 speeds, both rotary directions **N200 E P93R**

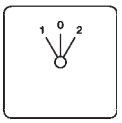
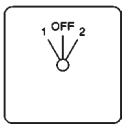
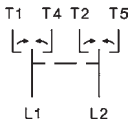
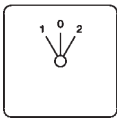
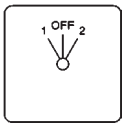
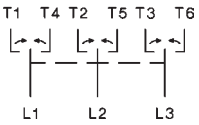
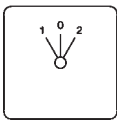
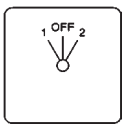
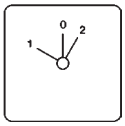
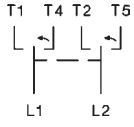
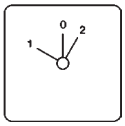
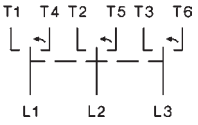
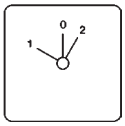
1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi speed switches P							
1 Dahlander winding A 1 normal winding B 3 speeds both rotary directions		*45°*	9 48 ❐ 20A	**M10H .**	**x x x - - -**	**. P94R**	
			32A	**M20 .**	**x x x - - -**	**. P94R**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. P94R**	
			50A	**N33F .**	**x - x - - -**	**. P94R**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. P94R**	
			80A	**N60 .**	**x - x - - -**	**. P94R**	
			115A	**N80 .**	**x - x - - -**	**. P94R**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. P94R**	
			250A	**N200 .**	**x - x - - -**	**. P94R**	
1 Dahlander winding A 1 normal winding B 3 speeds both rotary directions		*45°*	8 48 ❐ 20A	**M10H .**	**x x x - - -**	**. P95R**	
			32A	**M20 .**	**x x x - - -**	**. P95R**	
			64 ❐ 32A	**N20 .**	**x - x - x -**	**. P95R**	
			50A	**N33F .**	**x - x - - -**	**. P95R**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. P95R**	
			80A	**N60 .**	**x - x - - -**	**. P95R**	
			115A	**N80 .**	**x - x - - -**	**. P95R**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. P95R**	
			250A	**N200 .**	**x - x - - -**	**. P95R**	
2 Dahlander windings 4 speeds 1 rotary direction 0 - A △ - B △ - A 丛 - B 丛		*30°*	8 48 ❐ 20A	**M10H .**	**x x x - - -**	**. P124**	
			32A	**M20 .**	**x x x - - -**	**. P124**	
			64 ❐ 32A	**N20 .**	**x - x - x -**	**. P124**	
			50A	**N33F .**	**x - x - - -**	**. P124**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. P124**	+112
			80A	**N60 .**	**x - x - - -**	**. P124**	
			115A	**N80 .**	**x - x - - -**	**. P124**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. P124**	
			250A	**N200 .**	**x - x - - -**	**. P124**	
2 Dahlander windings 4 speeds both rotary directions		*30°*	12 48 ❐ 20A	**M10H .**	**x x x - - -**	**. P124R**	
			32A	**M20 .**	**x x x - - -**	**. P124R**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. P124R**	
			50A	**N33F .**	**x - x - - -**	**. P124R**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. P124R**	
			80A	**N60 .**	**x - x - - -**	**. P124R**	
			115A	**N80 .**	**x - x - - -**	**. P124R**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. P124R**	
			250A	**N200 .**	**x - x - - -**	**. P124R**	

Ordering example: AC21 250A Base mounting, multi speed switch, 2 Dahlander windings, 4 speeds, 1 rotary direction **N200 V P124**

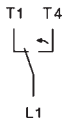
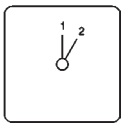
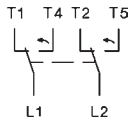
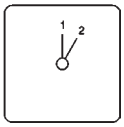
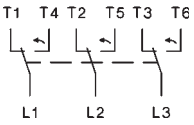
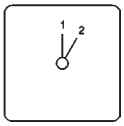
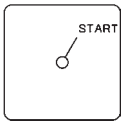
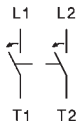
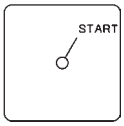
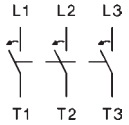
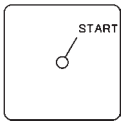
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓	Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Changeover switches with spring return to off UR								
1-pole		*30°*	1	48 ❒ 20A	**M10H .**	x x x x x[1] -	**. UR1**	
				32A	**M20 .**	x x x x - -	**. UR1**	
				64 ❒ 32A	**N20 .**	x - x - x x	**. UR1**	
				50A	**N33F .**	x - x - x x[2]	**. UR1**	
				88 ❒ 63A	**N40 .**	x - x - x -	**. UR1**	**+264** 
2-pole		*30°*	2	48 ❒ 20A	**M10H .**	x x x x x[1] -	**. UR2**	
				32A	**M20 .**	x x x x - -	**. UR2**	
				64 ❒ 32A	**N20 .**	x - x - x x	**. UR2**	
				50A	**N33F .**	x - x - x x[2]	**. UR2**	
				88 ❒ 63A	**N40 .**	x - x - x -	**. UR2**	**+264** 
3-pole		*30°*	3	48 ❒ 20A	**M10H .**	x x x x x[1] -	**. UR3**	
				32A	**M20 .**	x x x x - -	**. UR3**	
				64 ❒ 32A	**N20 .**	x - x - x x	**. UR3**	
				50A	**N33F .**	x - x - x x[2]	**. UR3**	
				88 ❒ 63A	**N40 .**	x - x - x -	**. UR3**	**+264** 
Changeover switches with 1 latched and 1 momentary position UK								
1-pole position 1 latched position 2 with spring return		*60°+30°*	1	48 ❒ 20A	**M10H .**	x x x x x[1] -	**. UK1**	
				32A	**M20 .**	x x x x - -	**. UK1**	
				64 ❒ 32A	**N20 .**	x - x - x x	**. UK1**	
				50A	**N33F .**	x - x - x x[2]	**. UK1**	
				88 ❒ 63A	**N40 .**	x - x - x -	**. UK1**	
2-pole position 1 latched position 2 with spring return		*60°+30°*	2	48 ❒ 20A	**M10H .**	x x x x x[1] -	**. UK2**	
				32A	**M20 .**	x x x x - -	**. UK2**	
				64 ❒ 32A	**N20 .**	x - x - x x	**. UK2**	
				50A	**N33F .**	x - x - x x[2]	**. UK2**	
				88 ❒ 63A	**N40 .**	x - x - x -	**. UK2**	
3-pole position 1 latched position 2 with spring return		*60°+30°*	3	48 ❒ 20A	**M10H .**	x x x x x[1] -	**. UK3**	
				32A	**M20 .**	x x x x - -	**. UK3**	
				64 ❒ 32A	**N20 .**	x - x - x x	**. UK3**	
				50A	**N33F .**	x - x - x x[2]	**. UK3**	
				88 ❒ 63A	**N40 .**	x - x - x -	**. UK3**	

Ordering example: AC21 63A panel mounting, changeover switch, position 1 latched, position 2 with spring return, 3-pole: **N40 E UK3**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

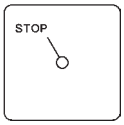
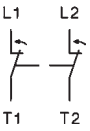
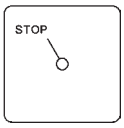
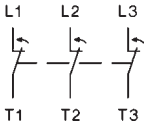
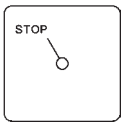
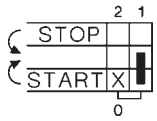
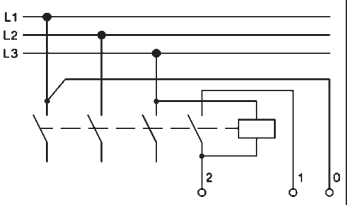
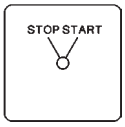
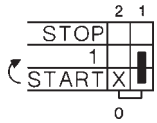
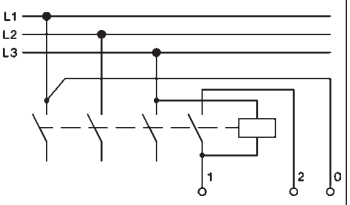
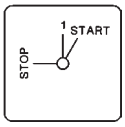
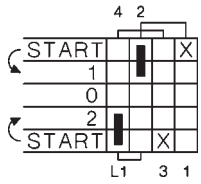
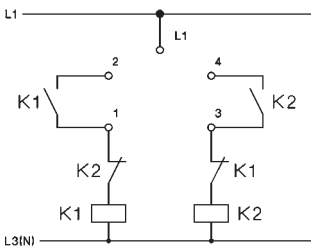
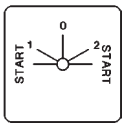
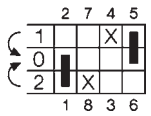
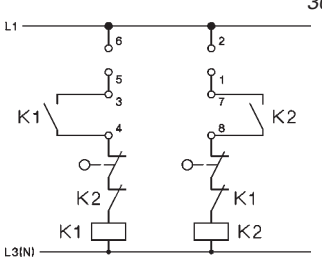
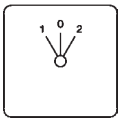
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21			Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Double throw switches with spring return to off WR									
1-pole		*30°*	1	48 ❒	20A	**M10H .**	**x x x x x**[1] **- -**	**. W1R**	
					32A	**M20 .**	**x x x x - -**	**. W1R**	
				64 ❒	32A	**N20 .**	**x - x - x x**	**. W1R**	
					50A	**N33F .**	**x - x - x x**[2]	**. W1R**	
				88 ❒	63A	**N40 .**	**x - x - x -**	**. W1R**	
2-pole		*30°*	2	48 ❒	20A	**M10H .**	**x x x x x**[1] **- -**	**. W2R**	
					32A	**M20 .**	**x x x x - -**	**. W2R**	
				64 ❒	32A	**N20 .**	**x - x - x x**	**. W2R**	
					50A	**N33F .**	**x - x - x x**[2]	**. W2R**	
				88 ❒	63A	**N40 .**	**x - x - x -**	**. W2R**	
3-pole		*30°*	3	48 ❒	20A	**M10H .**	**x x x x x**[1] **- -**	**. W3R**	
					32A	**M20 .**	**x x x x - -**	**. W3R**	
				64 ❒	32A	**N20 .**	**x - x - x x**	**. W3R**	
					50A	**N33F .**	**x - x - x x**[2]	**. W3R**	
				88 ❒	63A	**N40 .**	**x - x - x -**	**. W3R**	
Start-Stop switches S									
Start-switch,1-pole		*30°*	1	48 ❒	20A	**M10H .**	**x x x x x**[1] **- -**	**. SE**	
					32A	**M20 .**	**x x x x - -**	**. SE**	
				64 ❒	32A	**N20 .**	**x - x - x x**	**. SE**	
					50A	**N33F .**	**x - x - x x**[2]	**. SE**	
Start-switch, 2-pole		*30°*	1	48 ❒	20A	**M10H .**	**x x x x x**[1] **- -**	**. S2E**	
					32A	**M20 .**	**x x x x - -**	**. S2E**	
				64 ❒	32A	**N20 .**	**x - x - x x**	**. S2E**	
					50A	**N33F .**	**x - x - x x**[2]	**. S2E**	
Start-switch, 3-pole		*30°*	2	48 ❒	20A	**M10H .**	**x x x x x**[1] **- -**	**. S3E**	
					32A	**M20 .**	**x x x x - -**	**. S3E**	
				64 ❒	32A	**N20 .**	**x - x - x x**	**. S3E**	
					50A	**N33F .**	**x - x - x x**[2]	**. S3E**	

Bestellbeispiel: AC21 50A base mounting, Start-switch, 3-pole **N33F V S3E**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

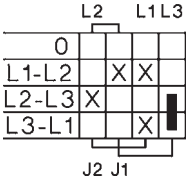
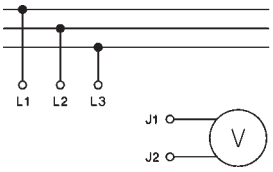
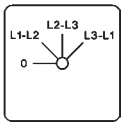
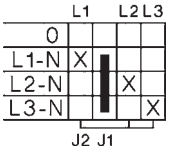
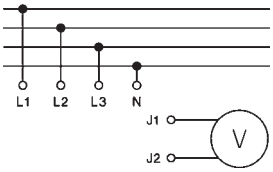
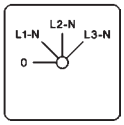
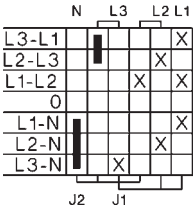
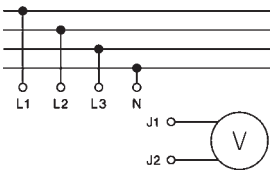
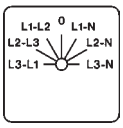
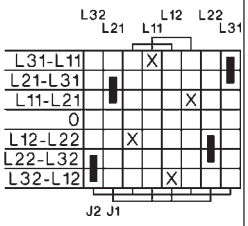
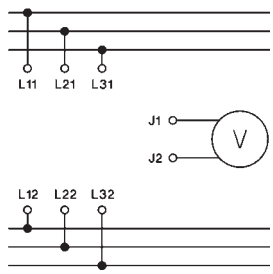
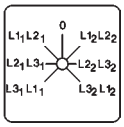
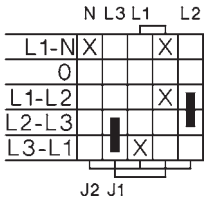
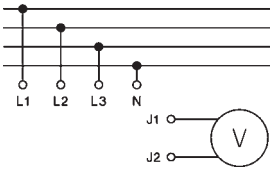
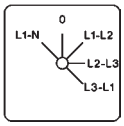
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Start-Stop switches S							
Stop-switch,1-pole		*30°*	1 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. SA** **. SA**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. SA** **. SA**	
			88 ❒ 63A	**N40 .**	**x - x - x -**	**. SA**	
Stop-switch, 2-pole		*30°*	1 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. S2A** **. S2A**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. S2A** **. S2A**	
			88 ❒ 63A	**N40 .**	**x - x - x -**	**. S2A**	
Stop-switch, 3-pole		*30°*	2 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. S3A** **. S3A**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. S3A** **. S3A**	
			88 ❒ 63A	**N40 .**	**x - x - x -**	**. S3A**	
Start-Stop-switch, 1-pole 		*30°*	1 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. SEA** **. SEA**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. SEA** **. SEA**	
Start-Stop-switch, 1-pole position START with spring return to 1 		*90°+30°*	1 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. S392** **. S392**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. S392** **. S392**	
Start-Stop-switch, 1-pole for reversing contactors 		*60°+30°*	2 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. S2EA** **. S2EA**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. S2EA** **. S2EA**	
Start-Stop-switch, 1-pole for reversing contactors with limit switches 		*30°*	2 48 ❒ 20A 32A	**M10H .** **M20 .**	**x x x x x[1] - x x x x - -**	**. S22** **. S22**	
			64 ❒ 32A 50A	**N20 .** **N33F .**	**x - x - x x** **x - x - x x[2]**	**. S22** **. S22**	

Ordering example: AC21 50A panel mounting, Start-Stop-switch,1-pole for reversing contactors **N33F E S2EA**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

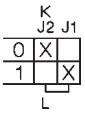
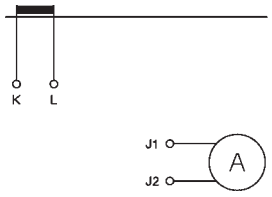
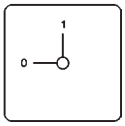
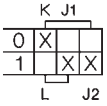
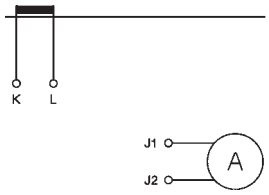
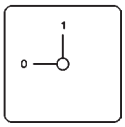
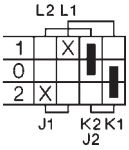
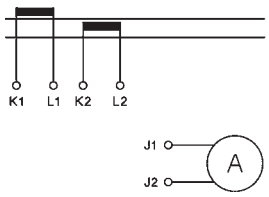
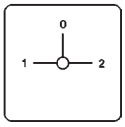
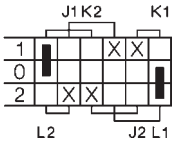
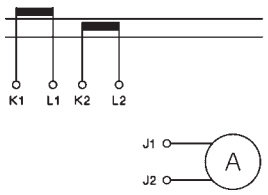
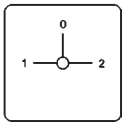
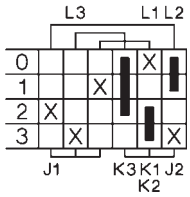
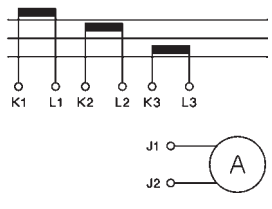
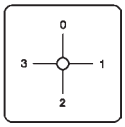
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21		Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Voltmeter selector switches V								
3 line voltages	 	*45°*	2	48 ❒ 20A	**M10H .**	**x x x x x¹⁾ - -**	**. V3**	
				32A	**M20 .**	**x x x x - -**	**. V3**	
				64 ❒ 32A	**N20 .**	**x - x - x x**	**. V3**	
				50A	**N33F .**	**x x x - x x²⁾**	**. V3**	
3 phase voltages	 	*45°*	2	48 ❒ 20A	**M10H .**	**x x x x x¹⁾ - -**	**. V0**	
				32A	**M20 .**	**x x x x - -**	**. V0**	
				64 ❒ 32A	**N20 .**	**x - x - x x**	**. V0**	
				50A	**N33F .**	**x x x - x x²⁾**	**. V0**	
3 line voltages and 3 phase voltages	 	*30°*	3	48 ❒ 20A	**M10H .**	**x x x x x¹⁾ - -**	**. V1**	
				32A	**M20 .**	**x x x x - -**	**. V1**	
				64 ❒ 32A	**N20 .**	**x - x - x x**	**. V1**	
				50A	**N33F .**	**x x x - x x²⁾**	**. V1**	
2 3-phase systems 2 x 3 line voltages	 	*45°*	4	48 ❒ 20A	**M10H .**	**x x x x x¹⁾ - -**	**. V32**	
				32A	**M20 .**	**x x x x - -**	**. V32**	
				64 ❒ 32A	**N20 .**	**x - x - x x**	**. V32**	
				50A	**N33F .**	**x - x - x x²⁾**	**. V32**	
3 line voltages and 1 phase voltage	 	*45°*	3	48 ❒ 20A	**M10H .**	**x x x x x¹⁾ - -**	**. V13**	
				32A	**M20 .**	**x x x x - -**	**. V13**	
				64 ❒ 32A	**N20 .**	**x - x - x x**	**. V13**	
				50A	**N33F .**	**x x x - x x²⁾**	**. V13**	

Ordering example: AC21 50A panel mounting, Voltmeter selector switch, 3 line voltages and1 phase voltage **N33F E V13**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Ammeter selector switches M							
1-pole, for current transformer 		*90°*	1 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .**	x x x x x[1] - . M11 x x x x - - . M11 x - x - x x . M11 x x x - x x[2] . M11 x - x - x - . M11		
2-pole, for 1 current transformer or direct current measurement 		*90°*	2 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	x x x x x[1] - . M12 x x x x - - . M12 x - x - x x . M12 x x x - x x[2] . M12 x - x - x - . M12 x - x - x - . M12 x - x - - - . M12 x - x - - - . M12 x - x - - - . M12		
1-pole, for 2 current transformers 		*90°*	2 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .**	x x x x x[1] - . M21 x x x x - - . M21 x - x - x x . M21 x x x - x x[2] . M21 x - x - x - . M21		
2-pole, for 2 current transformers or direct current measurement in 2 phases 		*90°*	3 48 ❐ 20A 32A 64 ❐ 32A 50A 88 ❐ 63A 80A 115A 132❐ 150A 250A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .** **N60 .** **N80 .** **N100 .** **N200 .**	x x x x x[1] - . M22 x x x x - - . M22 x - x - x x . M22 x x x - x x[2] . M22 x - x - x - . M22 x - x - x - . M22 x - x - - - . M22 x - x - - - . M22 x - x - - - . M22		
1-pole, for 3 current transformers 		*90°*	3 48 ❐ 20A 32A 64 ❐ 32A 4 50A 88 ❐ 63A	**M10H .** **M20 .** **N20 .** **N33F .** **N40 .**	x x x x x[1] - . M31 x x x x - - . M31 x - x - x x . M31 x - x - x x[2] . M31 x - x - x - . M31		

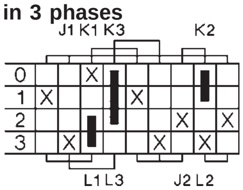
Ordering example: AC21 63A panel mounting, ammeter selector switch, for 3 current transformers 1-pole **N40 V M31**

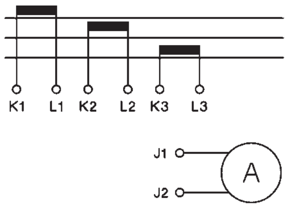
1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

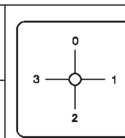
Switching programs

Ammeter selector switches M

2-pole, for 3 current transformers or direct current measurement in 3 phases

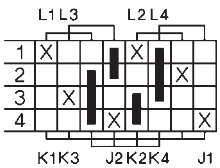


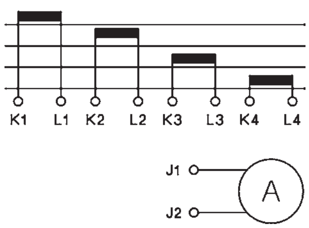


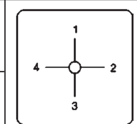


Description	Switching angle	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program
2-pole, for 3 current transformers or direct current measurement in 3 phases	90°	6	48 ❐	20A	**M10H .**	x	x	x	x	x[1]	-	**. M32**
				32A	**M20 .**	x	x	x	-	-	-	**. M32**
			64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. M32**
				50A	**N33F .**	x	-	x	-	x	-	**. M32**
			88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. M32**
				80A	**N60 .**	x	-	x	-	x	-	**. M32**
				115A	**N80 .**	x	-	x	-	-	-	**. M32**
			132❐	150A	**N100 .**	x	-	x	-	-	-	**. M32**
				250A	**N200 .**	x	-	x	-	-	-	**. M32**

1-pole, for 4 current transformers

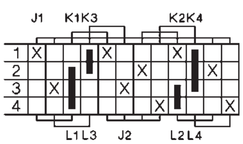


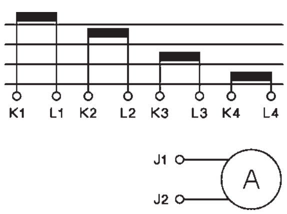


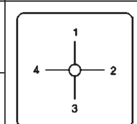


Description	Switching angle	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program
1-pole, for 4 current transformers	90°	4	48 ❐	20A	**M10H .**	x	x	x	x	x[1]	-	**. M41**
				32A	**M20 .**	x	x	x	x	-	-	**. M41**
			64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. M41**
				50A	**N33F .**	x	-	x	-	x	x[2]	**. M41**
			88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. M41**

2-pole, for 4 current transformers or direct current measurement in 4 phases

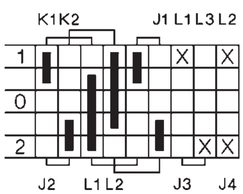


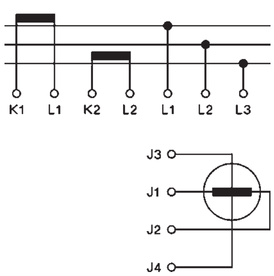


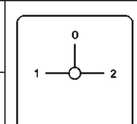


Description	Switching angle	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program
2-pole, for 4 current transformers or direct current measurement in 4 phases	90°	6	48 ❐	20A	**M10H .**	x	x	x	x	x[1]	-	**. M42**
				32A	**M20 .**	x	x	x	-	-	-	**. M42**
			64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. M42**
				50A	**N33F .**	x	-	x	-	x	-	**. M42**
			88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. M42**
				80A	**N60 .**	x	-	x	-	x	-	**. M42**
				115A	**N80 .**	x	-	x	-	-	-	**. M42**
			132❐	150A	**N100 .**	x	-	x	-	-	-	**. M42**
				250A	**N200 .**	x	-	x	-	-	-	**. M42**

f. output measurement in 3-phase ystems by 2-wattmeter method







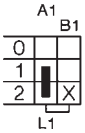
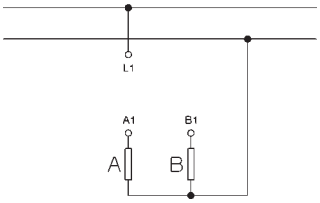
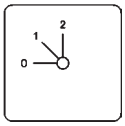
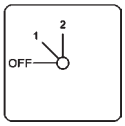
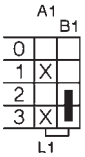
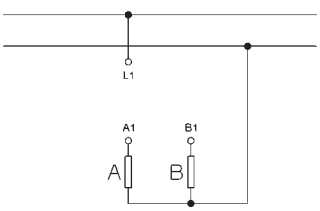
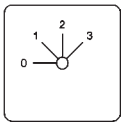
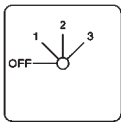
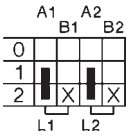
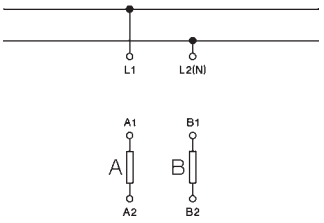
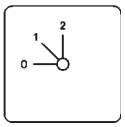
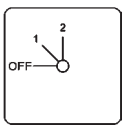
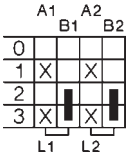
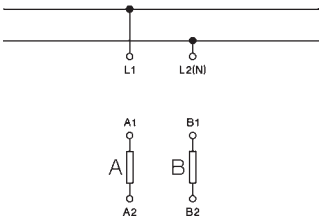
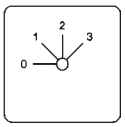
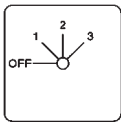
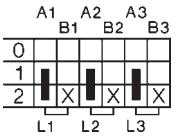
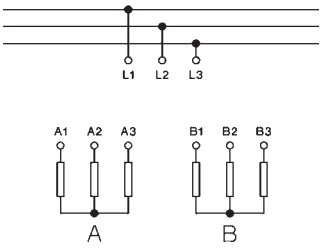
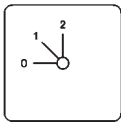
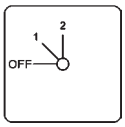
Description	Switching angle	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program
f. output measurement in 3-phase ystems by 2-wattmeter method	90°	5	48 ❐	20A	**M10H .**	x	x	x	x	x[1]	-	**. M2W**
				32A	**M20 .**	x	x	x	x	-	-	**. M2W**
			64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. M2W**
				50A	**N33F .**	x	-	x	-	x	x[2]	**. M2W**
			88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. M2W**
				80A	**N60 .**	x	-	x	-	x	-	**. M2W**
				115A	**N80 .**	x	-	x	-	-	-	**. M2W**
			132❐	150A	**N100 .**	x	-	x	-	-	-	**. M2W**
				250A	**N200 .**	x	-	x	-	-	-	**. M2W**

Column headings: Description | Wiring diagram *Switching angle* | Number of cells ↓ Size ↓ AC21 | Type | Design see page 6-8 E. Z. V. SMA. P. G. | Switch program | Escutcheon plate

Ordering example: AC21 63A panel mounting, ammeter selector switch, for 4 current transformers 1-pole **N40 V M41**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Gang switches GR							
2 circuits A and B 1-pole 0 - A - A+B 		*45°*	1 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. GR11**	
			32A	**M20 .**	**x x x x - -**	**. GR11**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. GR11**	
			50A	**N33F .**	**x x x - x x**[2]	**. GR11**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. GR11**	**+126**
			80A	**N60 .**	**x - x - x -**	**. GR11**	
			115A	**N80 .**	**x - x - - -**	**. GR11**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. GR11**	
			250A	**N200 .**	**x - x - - -**	**. GR11**	
2 circuits A and B 1-pole 0 - A - B - A+B 		*45°*	1 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. GR12**	
			32A	**M20 .**	**x x x x - -**	**. GR12**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. GR12**	
			50A	**N33F .**	**x x x - x x**[2]	**. GR12**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. GR12**	**+127**
			80A	**N60 .**	**x - x - x -**	**. GR12**	
			115A	**N80 .**	**x - x - - -**	**. GR12**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. GR12**	
			250A	**N200 .**	**x - x - - -**	**. GR12**	
2 circuits A and B 2-pole 0 - A - A+B 		*45°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. GR21**	
			32A	**M20 .**	**x x x x - -**	**. GR21**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. GR21**	
			50A	**N33F .**	**x x x - x x**[2]	**. GR21**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. GR21**	**+126**
			80A	**N60 .**	**x - x - x -**	**. GR21**	
			115A	**N80 .**	**x - x - - -**	**. GR21**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. GR21**	
			250A	**N200 .**	**x - x - - -**	**. GR21**	
2 circuits A and B 2-pole 0 - A - B - A+B 		*45°*	2 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. GR22**	
			32A	**M20 .**	**x x x x - -**	**. GR22**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. GR22**	
			50A	**N33F .**	**x x x - x x**[2]	**. GR22**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. GR22**	**+127**
			80A	**N60 .**	**x - x - x -**	**. GR22**	
			115A	**N80 .**	**x - x - - -**	**. GR22**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. GR22**	
			250A	**N200 .**	**x - x - - -**	**. GR22**	
2 circuits A and B 3-pole 0 - A - A+B 		*45°*	3 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. GR31**	
			32A	**M20 .**	**x x x x - -**	**. GR31**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. GR31**	
			50A	**N33F .**	**x - x - x x**[2]	**. GR31**	
			88 ❐ 63A	**N40 .**	**x - x - x x**	**. GR31**	**+126**
			80A	**N60 .**	**x - x - x -**	**. GR31**	
			115A	**N80 .**	**x - x - - -**	**. GR31**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. GR31**	
			250A	**N200 .**	**x - x - - -**	**. GR31**	

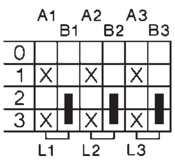
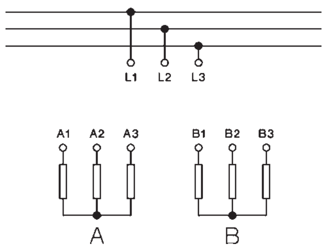
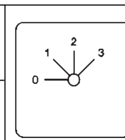
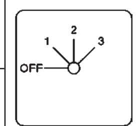
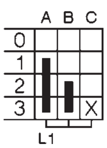
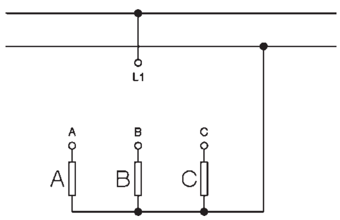
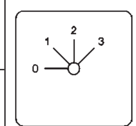
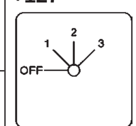
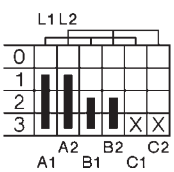
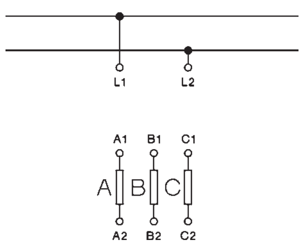
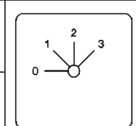
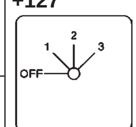
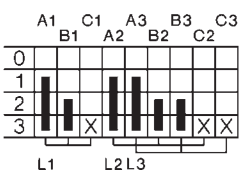
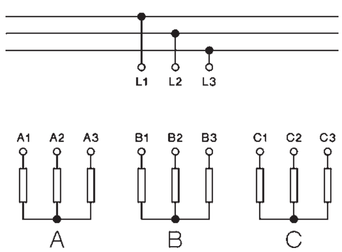
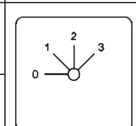
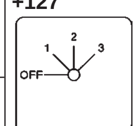
Ordering example: AC21 250A panel mounting, gang switch, 2 circuits A and B, 3-pole **N200 E GR31**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	Switching angle	Number of cells	Size	AC21	Type	Design see page 6-8 E.	Z.	V.	SMA.	P.	G.	Switch program	Escutcheon plate

Gang switches GR

Description	Wiring diagram	Switching angle	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program	Escutcheon plate
2 circuits A and B 3-pole 0 - A - B - A+B 		45°	3	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	. GR32	
					32A	**M20 .**	x	x	x	x	-	-	. GR32	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	. GR32	
					50A	**N33F .**	x	-	x	-	x	x 2)	. GR32	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	. GR32	+127 
					80A	**N60 .**	x	-	x	-	x	-	. GR32	
					115A	**N80 .**	x	-	x	-	-	-	. GR32	
				132 ❐	150A	**N100 .**	x	-	x	-	-	-	. GR32	
					250A	**N200 .**	x	-	x	-	-	-	. GR32	
3 circuits A, B and C 1-pole 0 - A - A+B - A+B+C 		45°	2	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	. GR14	
					32A	**M20 .**	x	x	x	x	-	-	. GR14	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	. GR14	
					50A	**N33F .**	x	-	x	-	x	x 2)	. GR14	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	. GR14	+127 
					80A	**N60 .**	x	-	x	-	x	-	. GR14	
					115A	**N80 .**	x	-	x	-	-	-	. GR14	
				132 ❐	150A	**N100 .**	x	-	x	-	-	-	. GR14	
					250A	**N200 .**	x	-	x	-	-	-	. GR14	
3 circuits A, B and C 2-pole 0 - A - A+B - A+B+C 		45°	3	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	. GR23	
					32A	**M20 .**	x	x	x	x	-	-	. GR23	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	. GR23	
					50A	**N33F .**	x	-	x	-	x	x 2)	. GR23	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	. GR23	+127 
					80A	**N60 .**	x	-	x	-	x	-	. GR23	
					115A	**N80 .**	x	-	x	-	-	-	. GR23	
				132 ❐	150A	**N100 .**	x	-	x	-	-	-	. GR23	
					250A	**N200 .**	x	-	x	-	-	-	. GR23	
3 circuits A, B and C 3-pole 0 - A - A+B - A+B+C 		45°	5	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	. GR33	
					32A	**M20 .**	x	x	x	x	-	-	. GR33	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	. GR33	
					50A	**N33F .**	x	-	x	-	x	x 2)	. GR33	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	. GR33	+127 
					80A	**N60 .**	x	-	x	-	x	-	. GR33	
					115A	**N80 .**	x	-	x	-	-	-	. GR33	
				132 ❐	150A	**N100 .**	x	-	x	-	-	-	. GR33	
					250A	**N200 .**	x	-	x	-	-	-	. GR33	

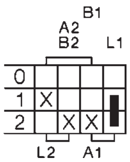
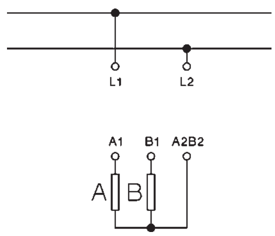
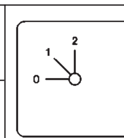
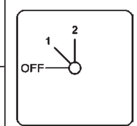
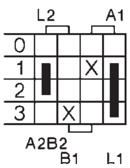
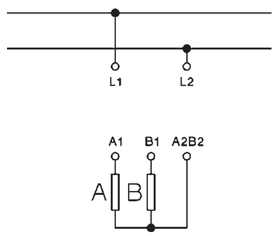
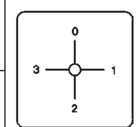
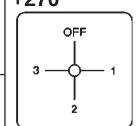
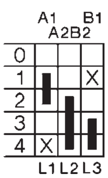
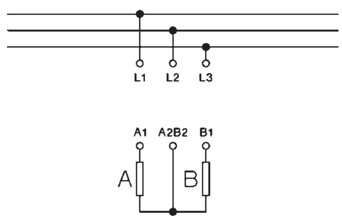
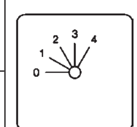
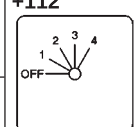
Ordering example: AC21 250A panel mounting, gang switch, 3 circuits A, B and C, 3-pole **N200 E GR33**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description / Schaltbild	Wiring diagram	*Switching angle*	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program	Escutcheon plate

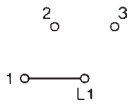
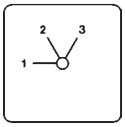
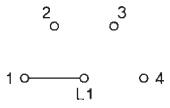
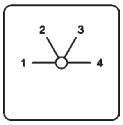
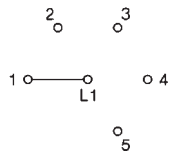
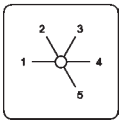
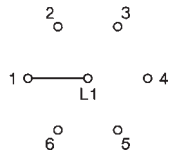
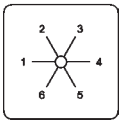
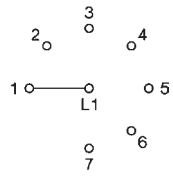
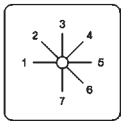
Series-Parallel switches SP

Description / Schaltbild	Wiring diagram	*Switching angle*	Number of cells	Size	AC21	Type	E.	Z.	V.	SMA.	P.	G.	Switch program	Escutcheon plate
2 circuits A and B **2-pole** 0 - A + B - A,B (parallel) 		*45°*	2	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	**. SP1**	
					32A	**M20 .**	x	x	x	x	-	-	**. SP1**	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. SP1**	
					50A	**N33F .**	x	x	x	-	x	x2)	**. SP1**	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. SP1**	**+126** 
					80A	**N60 .**	x	-	x	-	x	-	**. SP1**	
					115A	**N80 .**	x	-	x	-	-	-	**. SP1**	
				132❐	150A	**N100 .**	x	-	x	-	-	-	**. SP1**	
					250A	**N200 .**	x	-	x	-	-	-	**. SP1**	
2 circuits A and B **2-pole** 0 - A,B (parall.) - A - A+B 		*90°*	3	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	**. SP4**	
					32A	**M20 .**	x	x	x	x	-	-	**. SP4**	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. SP4**	
					50A	**N33F .**	x	x	x	-	x	x2)	**. SP4**	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. SP4**	**+270** 
					80A	**N60 .**	x	-	x	-	x	-	**. SP4**	
					115A	**N80 .**	x	-	x	-	-	-	**. SP4**	
				132❐	150A	**N100 .**	x	-	x	-	-	-	**. SP4**	
					250A	**N200 .**	x	-	x	-	-	-	**. SP4**	
2 circuits A and B for 3-phase systems 0 - A+B - A - B - A,B 		*30°*	2	48 ❐	20A	**M10H .**	x	x	x	x	x1)	-	**. SP3**	
					32A	**M20 .**	x	x	x	x	-	-	**. SP3**	
				64 ❐	32A	**N20 .**	x	-	x	-	x	x	**. SP3**	
					50A	**N33F .**	x	x	x	-	x	x2)	**. SP3**	
				88 ❐	63A	**N40 .**	x	-	x	-	x	-	**. SP3**	**+112** 
					80A	**N60 .**	x	-	x	-	x	-	**. SP3**	
					115A	**N80 .**	x	-	x	-	-	-	**. SP3**	
				132❐	150A	**N100 .**	x	-	x	-	-	-	**. SP3**	
					250A	**N200 .**	x	-	x	-	-	-	**. SP3**	

Ordering example: AC21 250A panel mounting, series-parallel switch, 2 circuits for 3-phase systems **N200 E SP3**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

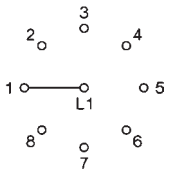
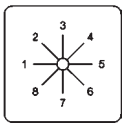
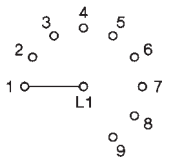
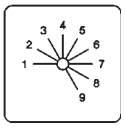
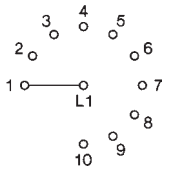
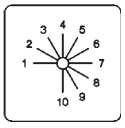
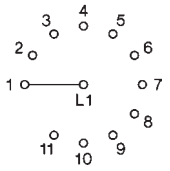
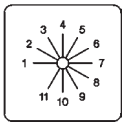
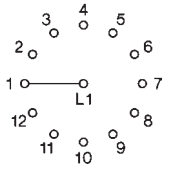
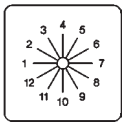
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Multi step switches 1-pole without Off ST.1							
3 steps		*60°*	2 48 ❐ 20A	**M10H .**	**x x x x** x[1] **-**	**. ST31**	
			32A	**M20 .**	**x x x x - -**	**. ST31**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST31**	
			50A	**N33F .**	**x x x - x** x[2]	**. ST31**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST31**	
			80A	**N60 .**	**x - x - x -**	**. ST31**	
			115A	**N80 .**	**x - x - - -**	**. ST31**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST31**	
			250A	**N200 .**	**x - x - - -**	**. ST31**	
4 steps		*60°*	2 48 ❐ 20A	**M10H .**	**x x x x** x[1] **-**	**. ST41**	
			32A	**M20 .**	**x x x x - -**	**. ST41**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST41**	
			50A	**N33F .**	**x x x - x** x[2]	**. ST41**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST41**	
			80A	**N60 .**	**x - x - x -**	**. ST41**	
			115A	**N80 .**	**x - x - - -**	**. ST41**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST41**	
			250A	**N200 .**	**x - x - - -**	**. ST41**	
5 steps		*60°*	3 48 ❐ 20A	**M10H .**	**x x x x** x[1] **-**	**. ST51**	
			32A	**M20 .**	**x x x x - -**	**. ST51**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST51**	
			50A	**N33F .**	**x x x - x** x[2]	**. ST51**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST51**	
			80A	**N60 .**	**x - x - x -**	**. ST51**	
			115A	**N80 .**	**x - x - - -**	**. ST51**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST51**	
			250A	**N200 .**	**x - x - - -**	**. ST51**	
6 steps		*60°*	3 48 ❐ 20A	**M10H .**	**x x x x** x[1] **-**	**. ST61**	
			32A	**M20 .**	**x x x x - -**	**. ST61**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST61**	
			50A	**N33F .**	**x x x - x** x[2]	**. ST61**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST61**	
			80A	**N60 .**	**x - x - x -**	**. ST61**	
			115A	**N80 .**	**x - x - - -**	**. ST61**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST61**	
			250A	**N200 .**	**x - x - - -**	**. ST61**	
7 steps		*45°*	4 48 ❐ 20A	**M10H .**	**x x x x** x[1] **-**	**. ST71**	
			32A	**M20 .**	**x x x x - -**	**. ST71**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST71**	
			50A	**N33F .**	**x - x - x** x[2]	**. ST71**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST71**	
			80A	**N60 .**	**x - x - x -**	**. ST71**	
			115A	**N80 .**	**x - x - - -**	**. ST71**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST71**	
			250A	**N200 .**	**x - x - - -**	**. ST71**	

Ordering example: AC21 250A panel mounting, multi step switch 1-pole without off, 7 steps **N200 E ST71**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

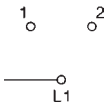
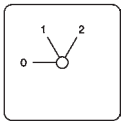
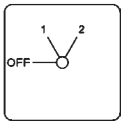
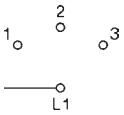
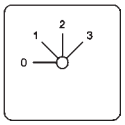
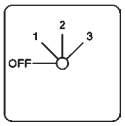
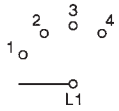
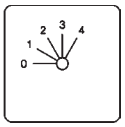
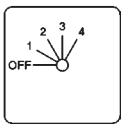
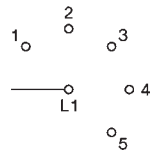
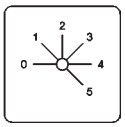
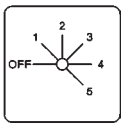
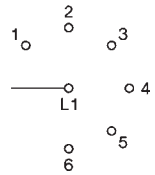
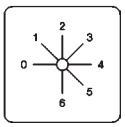
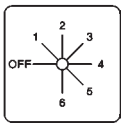
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓	Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Multi step switches 1-pole without Off ST.1								
8 steps		*45°*	4	48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST81**	
				32A	**M20 .**	x x x x - -	**. ST81**	
				64 ❐ 32A	**N20 .**	x - x - x x	**. ST81**	
				50A	**N33F .**	x - x - x x[2]	**. ST81**	
				88 ❐ 63A	**N40 .**	x - x - x -	**. ST81**	
				80A	**N60 .**	x - x - x -	**. ST81**	
				115A	**N80 .**	x - x - - -	**. ST81**	
				132❐ 150A	**N100 .**	x - x - - -	**. ST81**	
				250A	**N200 .**	x - x - - -	**. ST81**	
9 steps		*30°*	5	48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST91**	
				32A	**M20 .**	x x x x - -	**. ST91**	
				64 ❐ 32A	**N20 .**	x - x - x x	**. ST91**	
				50A	**N33F .**	x - x - x x[2]	**. ST91**	
				88 ❐ 63A	**N40 .**	x - x - x -	**. ST91**	
				80A	**N60 .**	x - x - x -	**. ST91**	
				115A	**N80 .**	x - x - - -	**. ST91**	
				132❐ 150A	**N100 .**	x - x - - -	**. ST91**	
				250A	**N200 .**	x - x - - -	**. ST91**	
10 steps		*30°*	5	48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST101**	
				32A	**M20 .**	x x x x - -	**. ST101**	
				64 ❐ 32A	**N20 .**	x - x - x x	**. ST101**	
				50A	**N33F .**	x - x - x x[2]	**. ST101**	
				88 ❐ 63A	**N40 .**	x - x - x -	**. ST101**	
				80A	**N60 .**	x - x - x -	**. ST101**	
				115A	**N80 .**	x - x - - -	**. ST101**	
				132❐ 150A	**N100 .**	x - x - - -	**. ST101**	
				250A	**N200 .**	x - x - - -	**. ST101**	
11 steps		*30°*	6	48 ❐ 20A	**M10H .**	x x x - x[1] -	**. ST111**	
				32A	**M20 .**	x x x - - -	**. ST111**	
				64 ❐ 32A	**N20 .**	x - x - x x	**. ST111**	
				50A	**N33F .**	x - x - x -	**. ST111**	
				88 ❐ 63A	**N40 .**	x - x - x -	**. ST111**	
				80A	**N60 .**	x - x - x -	**. ST111**	
				115A	**N80 .**	x - x - - -	**. ST111**	
				132❐ 150A	**N100 .**	x - x - - -	**. ST111**	
				250A	**N200 .**	x - x - - -	**. ST111**	
12 steps		*30°*	6	48 ❐ 20A	**M10H .**	x x x - x[1] -	**. ST121**	
				32A	**M20 .**	x x x - - -	**. ST121**	
				64 ❐ 32A	**N20 .**	x - x - x x	**. ST121**	
				50A	**N33F .**	x - x - x -	**. ST121**	
				88 ❐ 63A	**N40 .**	x - x - x -	**. ST121**	
				80A	**N60 .**	x - x - x -	**. ST121**	
				115A	**N80 .**	x - x - - -	**. ST121**	
				132❐ 150A	**N100 .**	x - x - - -	**. ST121**	
				250A	**N200 .**	x - x - - -	**. ST121**	

Ordering example: AC21 250A panel mounting, multi step switch 1-pole without off, 12 steps **N200 E ST121**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

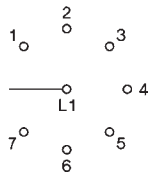
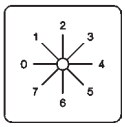
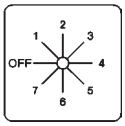
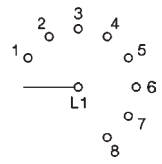
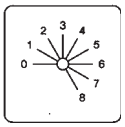
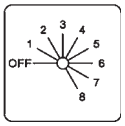
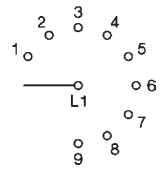
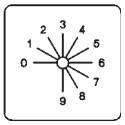
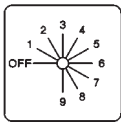
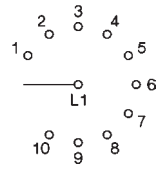
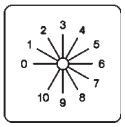
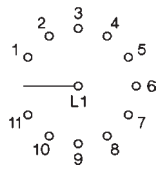
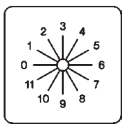
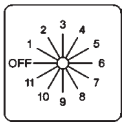
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Multi step switches 1-pole with Off ST0.1							
2 steps		*60°*	1 48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST021**	
			32A	**M20 .**	**x x x x - -**	**. ST021**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST021**	
			50A	**N33F .**	**x x x - x x[2]**	**. ST021**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST021**	**+422**
			80A	**N60 .**	**x - x - x -**	**. ST021**	
			115A	**N80 .**	**x - x - - -**	**. ST021**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST021**	
			250A	**N200 .**	**x - x - - -**	**. ST021**	
3 steps		*45°*	2 48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST031**	
			32A	**M20 .**	**x x x x - -**	**. ST031**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST031**	
			50A	**N33F .**	**x x x - x x[2]**	**. ST031**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST031**	**+127**
			80A	**N60 .**	**x - x - x -**	**. ST031**	
			115A	**N80 .**	**x - x - - -**	**. ST031**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST031**	
			250A	**N200 .**	**x - x - - -**	**. ST031**	
4 steps		*30°*	2 48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST041**	
			32A	**M20 .**	**x x x x - -**	**. ST041**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST041**	
			50A	**N33F .**	**x x x - x x[2]**	**. ST041**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST041**	**+112**
			80A	**N60 .**	**x - x - x -**	**. ST041**	
			115A	**N80 .**	**x - x - - -**	**. ST041**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST041**	
			250A	**N200 .**	**x - x - - -**	**. ST041**	
5 steps		*45°*	3 48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST051**	
			32A	**M20 .**	**x x x x - -**	**. ST051**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST051**	
			50A	**N33F .**	**x x x - x x[2]**	**. ST051**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST051**	**+423**
			80A	**N60 .**	**x - x - x -**	**. ST051**	
			115A	**N80 .**	**x - x - - -**	**. ST051**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST051**	
			250A	**N200 .**	**x - x - - -**	**. ST051**	
6 steps		*45°*	4 48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST061**	
			32A	**M20 .**	**x x x x - -**	**. ST061**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST061**	
			50A	**N33F .**	**x - x - x x[2]**	**. ST061**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST061**	**+128**
			80A	**N60 .**	**x - x - x -**	**. ST061**	
			115A	**N80 .**	**x - x - - -**	**. ST061**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST061**	
			250A	**N200 .**	**x - x - - -**	**. ST061**	

Ordering example: AC21 250A panel mounting, multi step switch 1-pole with off, 6 steps **N200 E ST061**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

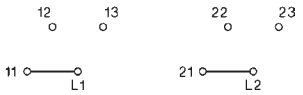
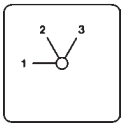
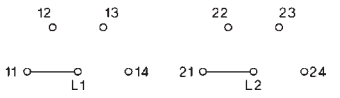
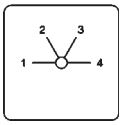
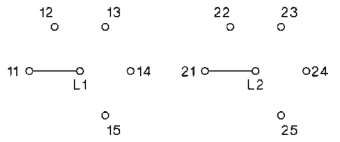
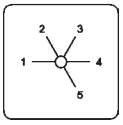
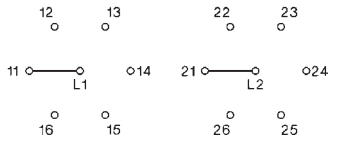
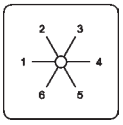
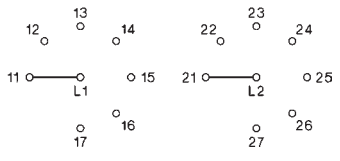
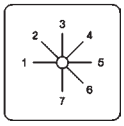
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 1-pole with Off ST0.1							
7 steps		*45°*	4 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST071**	
			32A	**M20 .**	x x x x - -	**. ST071**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST071**	
			50A	**N33F .**	x - x - x x[2]	**. ST071**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST071**	**+129**
			80A	**N60 .**	x - x - x -	**. ST071**	
			115A	**N80 .**	x - x - - -	**. ST071**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST071**	
			250A	**N200 .**	x - x - - -	**. ST071**	
8 steps		*30°*	5 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST081**	
			32A	**M20 .**	x x x x - -	**. ST081**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST081**	
			50A	**N33F .**	x - x - x x[2]	**. ST081**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST081**	**+114**
			80A	**N60 .**	x - x - x -	**. ST081**	
			115A	**N80 .**	x - x - - -	**. ST081**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST081**	
			250A	**N200 .**	x - x - - -	**. ST081**	
9 steps		*30°*	5 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST091**	
			32A	**M20 .**	x x x x - -	**. ST091**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST091**	
			50A	**N33F .**	x - x - x x[2]	**. ST091**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST091**	**+115**
			80A	**N60 .**	x - x - x -	**. ST091**	
			115A	**N80 .**	x - x - - -	**. ST091**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST091**	
			250A	**N200 .**	x - x - - -	**. ST091**	
10 steps		*30°*	6 48 ❐ 20A	**M10H .**	x x x - x[1] -	**. ST0101**	
			32A	**M20 .**	x x x - - -	**. ST0101**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST0101**	
			50A	**N33F .**	x - x - x -	**. ST0101**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST0101**	**+116**
			80A	**N60 .**	x - x - x -	**. ST0101**	
			115A	**N80 .**	x - x - - -	**. ST0101**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST0101**	
			250A	**N200 .**	x - x - - -	**. ST0101**	
11 steps		*30°*	6 48 ❐ 20A	**M10H .**	x x x - x[1] -	**. ST0111**	
			32A	**M20 .**	x x x - - -	**. ST0111**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST0111**	
			50A	**N33F .**	x - x - x -	**. ST0111**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST0111**	**+117**
			80A	**N60 .**	x - x - x -	**. ST0111**	
			115A	**N80 .**	x - x - - -	**. ST0111**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST0111**	
			250A	**N200 .**	x - x - - -	**. ST0111**	

Ordering example: AC21 250A panel mounting, multi step switch 1-pole with off, 11 steps **N200 E ST0111**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

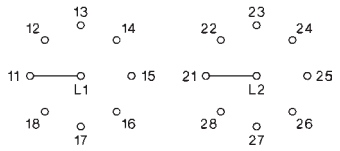
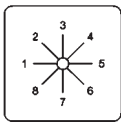
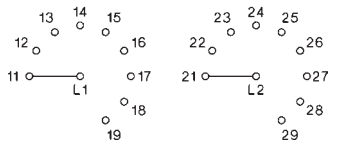
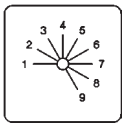
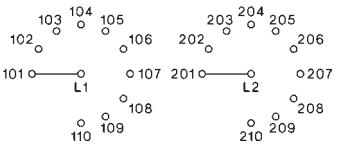
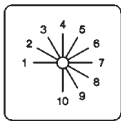
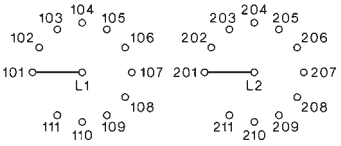
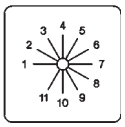
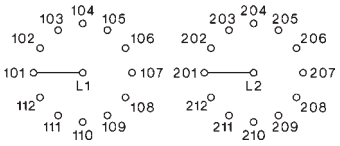
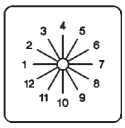
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 2-pole without Off ST.2							
3 steps		*60°*	3 48 ❐ 20A	**M10H .**	**x x x x** $x^{1)}$ **-**	**. ST32**	
			32A	**M20 .**	**x x x x - -**	**. ST32**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST32**	
			50A	**N33F .**	**x x x - x** $x^{2)}$	**. ST32**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST32**	
			80A	**N60 .**	**x - x - x -**	**. ST32**	
			115A	**N80 .**	**x - x - - -**	**. ST32**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST32**	
			250A	**N200 .**	**x - x - - -**	**. ST32**	
4 steps		*60°*	4 48 ❐ 20A	**M10H .**	**x x x x** $x^{1)}$ **-**	**. ST42**	
			32A	**M20 .**	**x x x x - -**	**. ST42**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST42**	
			50A	**N33F .**	**x - x - x** $x^{2)}$	**. ST42**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST42**	
			80A	**N60 .**	**x - x - x -**	**. ST42**	
			115A	**N80 .**	**x - x - - -**	**. ST42**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST42**	
			250A	**N200 .**	**x - x - - -**	**. ST42**	
5 steps		*60°*	5 48 ❐ 20A	**M10H .**	**x x x x** $x^{1)}$ **-**	**. ST52**	
			32A	**M20 .**	**x x x x - -**	**. ST52**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST52**	
			50A	**N33F .**	**x - x - x** $x^{2)}$	**. ST52**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST52**	
			80A	**N60 .**	**x - x - x -**	**. ST52**	
			115A	**N80 .**	**x - x - - -**	**. ST52**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST52**	
			250A	**N200 .**	**x - x - - -**	**. ST52**	
6 steps		*60°*	6 48 ❐ 20A	**M10H .**	**x x x -** $x^{1)}$ **-**	**. ST62**	
			32A	**M20 .**	**x x x - - -**	**. ST62**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST62**	
			50A	**N33F .**	**x - x - x -**	**. ST62**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST62**	
			80A	**N60 .**	**x - x - x -**	**. ST62**	
			115A	**N80 .**	**x - x - - -**	**. ST62**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST62**	
			250A	**N200 .**	**x - x - - -**	**. ST62**	
7 steps		*45°*	7 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST72**	
			32A	**M20 .**	**x x x - - -**	**. ST72**	
			64 ❐ 32A	**N20 .**	**x - x - x -**	**. ST72**	
			50A	**N33F .**	**x - x - - -**	**. ST72**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST72**	
			80A	**N60 .**	**x - x - - -**	**. ST72**	
			115A	**N80 .**	**x - x - - -**	**. ST72**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST72**	
			250A	**N200 .**	**x - x - - -**	**. ST72**	

Ordering example: AC21 250A panel mounting, multi step switch 2-pole without off, 7 steps **N200 E ST72**

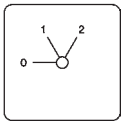
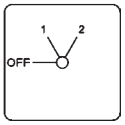
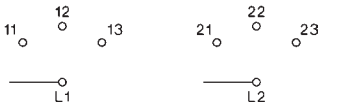
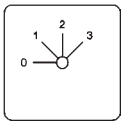
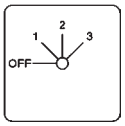
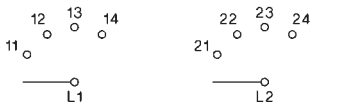
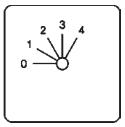
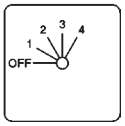
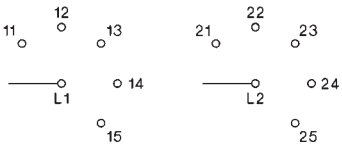
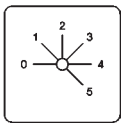
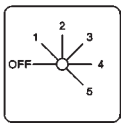
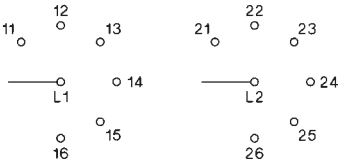
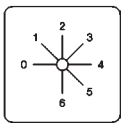
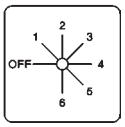
1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 2-pole without Off ST.2							
8 steps		*45°*	8 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x - - - x x x - - -	**. ST82** **. ST82**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - x - x - x - - -	**. ST82** **. ST82**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - x - x - x - - - x - x - - -	**. ST82** **. ST82** **. ST82**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. ST82** **. ST82**	
9 steps		*30°*	9 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x - - - x x x - - -	**. ST92** **. ST92**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - - - x - x - - -	**. ST92** **. ST92**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - - - x - x - - - x - x - - -	**. ST92** **. ST92** **. ST92**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. ST92** **. ST92**	
10 steps		*30°*	10 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x - - - x x x - - -	**. ST102** **. ST102**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - - - x - x - - -	**. ST102** **. ST102**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - - - x - x - - - x - x - - -	**. ST102** **. ST102** **. ST102**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. ST102** **. ST102**	
11 steps		*30°*	11 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x - - - x x x - - -	**. ST112** **. ST112**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - - - x - x - - -	**. ST112** **. ST112**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - - - x - x - - - x - x - - -	**. ST112** **. ST112** **. ST112**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. ST112** **. ST112**	
12 steps		*30°*	12 48 ❐ 20A 32A	**M10H .** **M20 .**	x x x - - - x x x - - -	**. ST122** **. ST122**	
			64 ❐ 32A 50A	**N20 .** **N33F .**	x - x - - - x - x - - -	**. ST122** **. ST122**	
			88 ❐ 63A 80A 115A	**N40 .** **N60 .** **N80 .**	x - x - - - x - x - - - x - x - - -	**. ST122** **. ST122** **. ST122**	
			132❐ 150A 250A	**N100 .** **N200 .**	x - x - - - x - x - - -	**. ST122** **. ST122**	

Ordering example: AC21 250A panel mounting, multi step switch 2-pole without off, 12 steps **N200 E ST122**

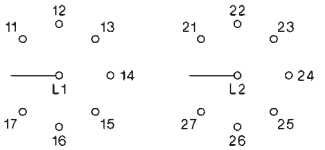
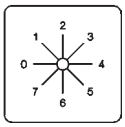
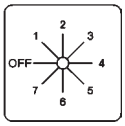
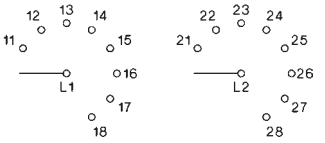
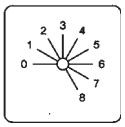
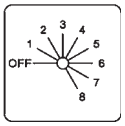
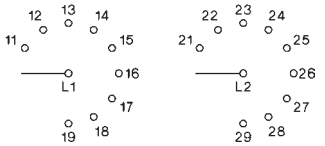
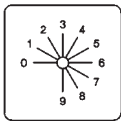
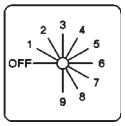
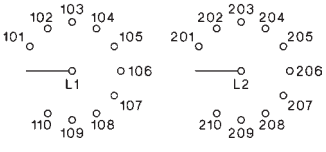
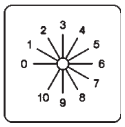
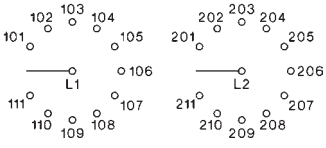
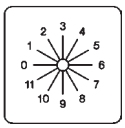
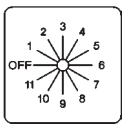
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21		Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 2-pole with Off ST0.2								
2 steps		*60°*	2	48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST022**	
				32A	**M20 .**	**x x x x - -**	**. ST022**	
				64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST022**	
				50A	**N33F .**	**x x x - x x[2]**	**. ST022**	
				88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST022**	**+422**
				80A	**N60 .**	**x - x - x -**	**. ST022**	
				115A	**N80 .**	**x - x - - -**	**. ST022**	
				132❐ 150A	**N100 .**	**x - x - - -**	**. ST022**	
				250A	**N200 .**	**x - x - - -**	**. ST022**	
3 steps		*45°*	3	48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST032**	
				32A	**M20 .**	**x x x x - -**	**. ST032**	
				64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST032**	
				50A	**N33F .**	**x x x - x x[2]**	**. ST032**	
				88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST032**	**+127**
				80A	**N60 .**	**x - x - x -**	**. ST032**	
				115A	**N80 .**	**x - x - - -**	**. ST032**	
				132❐ 150A	**N100 .**	**x - x - - -**	**. ST032**	
				250A	**N200 .**	**x - x - - -**	**. ST032**	
4 steps		*30°*	4	48 ❐ 20A	**M10H .**	**x x x x x[1] -**	**. ST042**	
				32A	**M20 .**	**x x x x - -**	**. ST042**	
				64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST042**	
				50A	**N33F .**	**x - x - x x[2]**	**. ST042**	
				88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST042**	**+112**
				80A	**N60 .**	**x - x - x -**	**. ST042**	
				115A	**N80 .**	**x - x - - -**	**. ST042**	
				132❐ 150A	**N100 .**	**x - x - - -**	**. ST042**	
				250A	**N200 .**	**x - x - - -**	**. ST042**	
5 steps		*45°*	6	48 ❐ 20A	**M10H .**	**x x x - x[1] -**	**. ST052**	
				32A	**M20 .**	**x x x - - -**	**. ST052**	
				64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST052**	
				50A	**N33F .**	**x - x - x -**	**. ST052**	
				88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST052**	**+423**
				80A	**N60 .**	**x - x - x -**	**. ST052**	
				115A	**N80 .**	**x - x - - -**	**. ST052**	
				132❐ 150A	**N100 .**	**x - x - - -**	**. ST052**	
				250A	**N200 .**	**x - x - - -**	**. ST052**	
6 steps		*45°*	7	48 ❐ 20A	**M10H .**	**x x x - x[1] -**	**. ST062**	
				32A	**M20 .**	**x x x - - -**	**. ST062**	
				64 ❐ 32A	**N20 .**	**x - x - x -**	**. ST062**	
				50A	**N33F .**	**x - x - - -**	**. ST062**	
				88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST062**	**+128**
				80A	**N60 .**	**x - x - - -**	**. ST062**	
				115A	**N80 .**	**x - x - - -**	**. ST062**	
				132❐ 150A	**N100 .**	**x - x - - -**	**. ST062**	
				250A	**N200 .**	**x - x - - -**	**. ST062**	

Ordering example: AC21 250A panel mounting, multi step switch 2-pole with off, 6 steps **N200 E ST062**

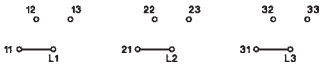
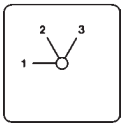
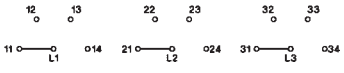
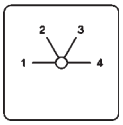
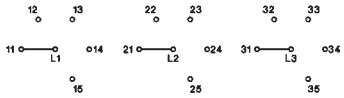
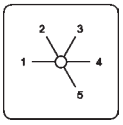
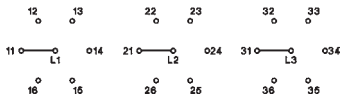
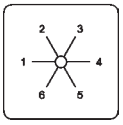
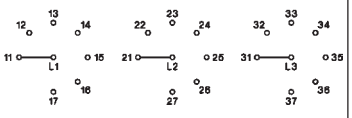
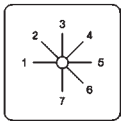
1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Multi step switches 2-pole with Off ST0.2							
7 steps		*45°*	8 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST072**	
			32A	**M20 .**	**x x x - - -**	**. ST072**	
			64 ❐ 32A	**N20 .**	**x - x - x -**	**. ST072**	
			50A	**N33F .**	**x - x - - -**	**. ST072**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST072**	**+129**
			80A	**N60 .**	**x - x - - -**	**. ST072**	
			115A	**N80 .**	**x - x - - -**	**. ST072**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST072**	
			250A	**N200 .**	**x - x - - -**	**. ST072**	
8 steps		*30°*	9 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST082**	
			32A	**M20 .**	**x x x - - -**	**. ST082**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. ST082**	
			50A	**N33F .**	**x - x - - -**	**. ST082**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. ST082**	**+114**
			80A	**N60 .**	**x - x - - -**	**. ST082**	
			115A	**N80 .**	**x - x - - -**	**. ST082**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST082**	
			250A	**N200 .**	**x - x - - -**	**. ST082**	
9 steps		*30°*	10 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST092**	
			32A	**M20 .**	**x x x - - -**	**. ST092**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. ST092**	
			50A	**N33F .**	**x - x - - -**	**. ST092**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. ST092**	**+115**
			80A	**N60 .**	**x - x - - -**	**. ST092**	
			115A	**N80 .**	**x - x - - -**	**. ST092**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST092**	
			250A	**N200 .**	**x - x - - -**	**. ST092**	
10 steps		*30°*	11 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST0102**	
			32A	**M20 .**	**x x x - - -**	**. ST0102**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. ST0102**	
			50A	**N33F .**	**x - x - - -**	**. ST0102**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. ST0102**	**+116**
			80A	**N60 .**	**x - x - - -**	**. ST0102**	
			115A	**N80 .**	**x - x - - -**	**. ST0102**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST0102**	
			250A	**N200 .**	**x - x - - -**	**. ST0102**	
11 steps		*30°*	12 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST0112**	
			32A	**M20 .**	**x x x - - -**	**. ST0112**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. ST0112**	
			50A	**N33F .**	**x - x - - -**	**. ST0112**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. ST0112**	**+117**
			80A	**N60 .**	**x - x - - -**	**. ST0112**	
			115A	**N80 .**	**x - x - - -**	**. ST0112**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST0112**	
			250A	**N200 .**	**x - x - - -**	**. ST0112**	

Ordering example: AC21 250A panel mounting, multi step switch 2-pole with off, 11 steps **N200 E ST0112**

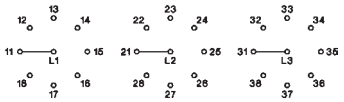
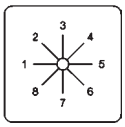
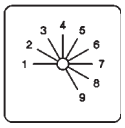
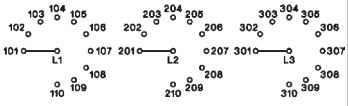
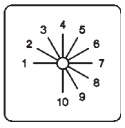
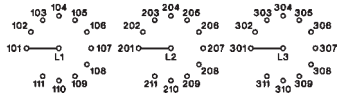
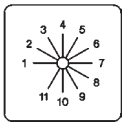
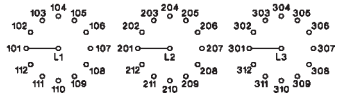
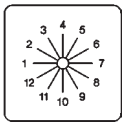
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	**Type**	**Design** see page 6-8 **E. Z. V. SMA. P. G.**	**Switch pro-gram**	Escutcheon plate
Multi step switches 3-pole without Off ST.3							
3 steps		*60°*	5 48 ❐ 20A	**M10H .**	x x x x x[1] -	**. ST33**	
			32A	**M20 .**	x x x x - -	**. ST33**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST33**	
			50A	**N33F .**	x - x - x x[2]	**. ST33**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST33**	
			80A	**N60 .**	x - x - x -	**. ST33**	
			115A	**N80 .**	x - x - - -	**. ST33**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST33**	
			250A	**N200 .**	x - x - - -	**. ST33**	
4 steps		*60°*	6 48 ❐ 20A	**M10H .**	x x x - x[1] -	**. ST43**	
			32A	**M20 .**	x x x - - -	**. ST43**	
			64 ❐ 32A	**N20 .**	x - x - x x	**. ST43**	
			50A	**N33F .**	x - x - x -	**. ST43**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST43**	
			80A	**N60 .**	x - x - x -	**. ST43**	
			115A	**N80 .**	x - x - - -	**. ST43**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST43**	
			250A	**N200 .**	x - x - - -	**. ST43**	
5 steps		*60°*	8 48 ❐ 20A	**M10H .**	x x x - - -	**. ST53**	
			32A	**M20 .**	x x x - - -	**. ST53**	
			64 ❐ 32A	**N20 .**	x - x - x -	**. ST53**	
			50A	**N33F .**	x - x - - -	**. ST53**	
			88 ❐ 63A	**N40 .**	x - x - x -	**. ST53**	
			80A	**N60 .**	x - x - - -	**. ST53**	
			115A	**N80 .**	x - x - - -	**. ST53**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST53**	
			250A	**N200 .**	x - x - - -	**. ST53**	
6 steps		*60°*	9 48 ❐ 20A	**M10H .**	x x x - - -	**. ST63**	
			32A	**M20 .**	x x x - - -	**. ST63**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST63**	
			50A	**N33F .**	x - x - - -	**. ST63**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST63**	
			80A	**N60 .**	x - x - - -	**. ST63**	
			115A	**N80 .**	x - x - - -	**. ST63**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST63**	
			250A	**N200 .**	x - x - - -	**. ST63**	
7 steps		*45°*	11 48 ❐ 20A	**M10H .**	x x x - - -	**. ST73**	
			32A	**M20 .**	x x x - - -	**. ST73**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST73**	
			50A	**N33F .**	x - x - - -	**. ST73**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST73**	
			80A	**N60 .**	x - x - - -	**. ST73**	
			115A	**N80 .**	x - x - - -	**. ST73**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST73**	
			250A	**N200 .**	x - x - - -	**. ST73**	

Ordering example: AC21 250A panel mounting, multi step switch 3-pole without off, 7 steps **N200 E ST73**

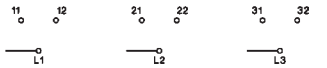
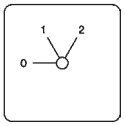
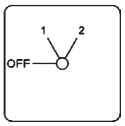
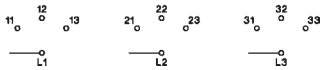
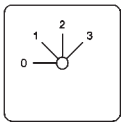
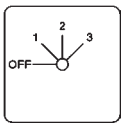
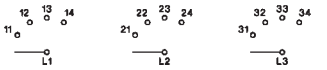
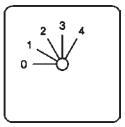
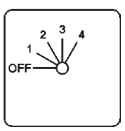
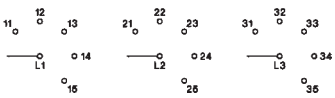
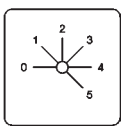
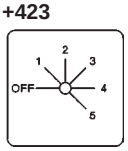
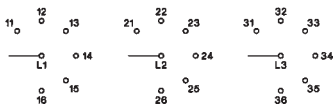
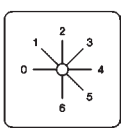
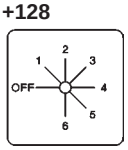
1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 3-pole without Off ST.3							
8 steps		*45°*	12 48 ❐ 20A	**M10H .**	x x x - - -	**. ST83**	
			32A	**M20 .**	x x x - - -	**. ST83**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST83**	
			50A	**N33F .**	x - x - - -	**. ST83**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST83**	
			80A	**N60 .**	x - x - - -	**. ST83**	
			115A	**N80 .**	x - x - - -	**. ST83**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST83**	
			250A	**N200 .**	x - x - - -	**. ST83**	
9 steps		*30°*	14 48 ❐ 20A	**M10H .**	x - x - - -	**. ST93**	
			32A	**M20 .**	x - x - - -	**. ST93**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST93**	
			50A	**N33F .**	x - x - - -	**. ST93**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST93**	
			80A	**N60 .**	x - x - - -	**. ST93**	
			115A	**N80 .**	x - x - - -	**. ST93**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST93**	
			250A	**N200 .**	x - x - - -	**. ST93**	
10 steps		*30°*	15 48 ❐ 20A	**M10H .**	x - x - - -	**. ST103**	
			32A	**M20 .**	x - x - - -	**. ST103**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST103**	
			50A	**N33F .**	x - x - - -	**. ST103**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST103**	
			80A	**N60 .**	x - x - - -	**. ST103**	
			115A	**N80 .**	x - x - - -	**. ST103**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST103**	
			250A	**N200 .**	x - x - - -	**. ST103**	
11 steps		*30°*	17 48 ❐ 20A	**M10H .**	x - x - - -	**. ST113**	
			32A	**M20 .**	x - x - - -	**. ST113**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST113**	
			50A	**N33F .**	x - x - - -	**. ST113**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST113**	
			80A	**N60 .**	x - x - - -	**. ST113**	
			115A	**N80 .**	x - x - - -	**. ST113**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST113**	
			250A	**N200 .**	x - x - - -	**. ST113**	
12 steps		*30°*	18 48 ❐ 20A	**M10H .**	x - x - - -	**. ST123**	
			32A	**M20 .**	x - x - - -	**. ST123**	
			64 ❐ 32A	**N20 .**	x - x - - -	**. ST123**	
			50A	**N33F .**	x - x - - -	**. ST123**	
			88 ❐ 63A	**N40 .**	x - x - - -	**. ST123**	
			80A	**N60 .**	x - x - - -	**. ST123**	
			115A	**N80 .**	x - x - - -	**. ST123**	
			132❐ 150A	**N100 .**	x - x - - -	**. ST123**	
			250A	**N200 .**	x - x - - -	**. ST123**	

Ordering example: AC21 250A panel mounting, multi step switch 3-pole without off, 12 steps **N200 E ST123**

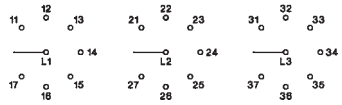
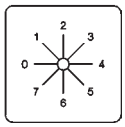
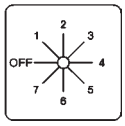
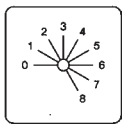
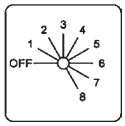
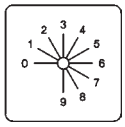
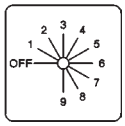
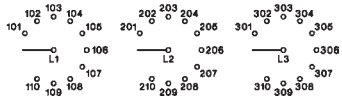
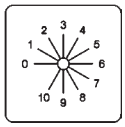
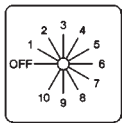
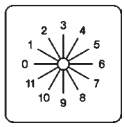
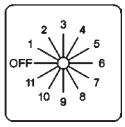
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 3-pole with Off ST0.3							
2 steps		*60°*	3 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. ST023**	
			32A	**M20 .**	**x x x x - -**	**. ST023**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST023**	
			50A	**N33F .**	**x x x - x x**[2]	**. ST023**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST023**	**+422**
			80A	**N60 .**	**x - x - x -**	**. ST023**	
			115A	**N80 .**	**x - x - - -**	**. ST023**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST023**	
			250A	**N200 .**	**x - x - - -**	**. ST023**	
3 steps		*45°*	5 48 ❐ 20A	**M10H .**	**x x x x x**[1] **-**	**. ST033**	
			32A	**M20 .**	**x x x x - -**	**. ST033**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST033**	
			50A	**N33F .**	**x - x - x x**[2]	**. ST033**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST033**	**+127**
			80A	**N60 .**	**x - x - x -**	**. ST033**	
			115A	**N80 .**	**x - x - - -**	**. ST033**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST033**	
			250A	**N200 .**	**x - x - - -**	**. ST033**	
4 steps		*30°*	6 48 ❐ 20A	**M10H .**	**x x x - x**[1] **-**	**. ST043**	
			32A	**M20 .**	**x x x - - -**	**. ST043**	
			64 ❐ 32A	**N20 .**	**x - x - x x**	**. ST043**	
			50A	**N33F .**	**x - x - x -**	**. ST043**	
			88 ❐ 63A	**N40 .**	**x - x - x -**	**. ST043**	**+112**
			80A	**N60 .**	**x - x - x -**	**. ST043**	
			115A	**N80 .**	**x - x - - -**	**. ST043**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST043**	
			250A	**N200 .**	**x - x - - -**	**. ST043**	
5 steps		*45°*	9 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST053**	
			32A	**M20 .**	**x x x - - -**	**. ST053**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. ST053**	
			50A	**N33F .**	**x - x - - -**	**. ST053**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. ST053**	**+423**
			80A	**N60 .**	**x - x - - -**	**. ST053**	
			115A	**N80 .**	**x - x - - -**	**. ST053**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST053**	
			250A	**N200 .**	**x - x - - -**	**. ST053**	
6 steps		*45°*	11 48 ❐ 20A	**M10H .**	**x x x - - -**	**. ST063**	
			32A	**M20 .**	**x x x - - -**	**. ST063**	
			64 ❐ 32A	**N20 .**	**x - x - - -**	**. ST063**	
			50A	**N33F .**	**x - x - - -**	**. ST063**	
			88 ❐ 63A	**N40 .**	**x - x - - -**	**. ST063**	**+128**
			80A	**N60 .**	**x - x - - -**	**. ST063**	
			115A	**N80 .**	**x - x - - -**	**. ST063**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST063**	
			250A	**N200 .**	**x - x - - -**	**. ST063**	

Ordering example: AC21 250A panel mounting, multi step switch 3-pole with off, 6 steps **N200 E ST063**

1) Plastic enclosed switches are delivered with switch type M10.
2) Cast enclosed switches are delivered with switch type N32.

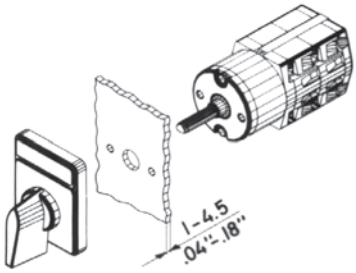
Switching programs

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ AC21	Type	Design see page 6-8 E. Z. V. SMA. P. G.	Switch pro-gram	Escutcheon plate
Multi step switches 3-pole with Off ST0.3							
7 steps		*45°*	12 48❐ 20A	**M10H .**	**x x x - - -**	**. ST073**	
			32A	**M20 .**	**x x x - - -**	**. ST073**	
			64❐ 32A	**N20 .**	**x - x - - -**	**. ST073**	
			50A	**N33F .**	**x - x - - -**	**. ST073**	
			88❐ 63A	**N40 .**	**x - x - - -**	**. ST073**	**+129**
			80A	**N60 .**	**x - x - - -**	**. ST073**	
			115A	**N80 .**	**x - x - - -**	**. ST073**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST073**	
			250A	**N200 .**	**x - x - - -**	**. ST073**	
8 steps		*30°*	14 48❐ 20A	**M10H .**	**x - x - - -**	**. ST083**	
			32A	**M20 .**	**x - x - - -**	**. ST083**	
			64❐ 32A	**N20 .**	**x - x - - -**	**. ST083**	
			50A	**N33F .**	**x - x - - -**	**. ST083**	
			88❐ 63A	**N40 .**	**x - x - - -**	**. ST083**	**+114**
			80A	**N60 .**	**x - x - - -**	**. ST083**	
			115A	**N80 .**	**x - x - - -**	**. ST083**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST083**	
			250A	**N200 .**	**x - x - - -**	**. ST083**	
9 steps		*30°*	15 48❐ 20A	**M10H .**	**x - x - - -**	**. ST093**	
			32A	**M20 .**	**x - x - - -**	**. ST093**	
			64❐ 32A	**N20 .**	**x - x - - -**	**. ST093**	
			50A	**N33F .**	**x - x - - -**	**. ST093**	
			88❐ 63A	**N40 .**	**x - x - - -**	**. ST093**	**+115**
			80A	**N60 .**	**x - x - - -**	**. ST093**	
			115A	**N80 .**	**x - x - - -**	**. ST093**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST093**	
			250A	**N200 .**	**x - x - - -**	**. ST093**	
10 steps		*30°*	17 48❐ 20A	**M10H .**	**x - x - - -**	**. ST0103**	
			32A	**M20 .**	**x - x - - -**	**. ST0103**	
			64❐ 32A	**N20 .**	**x - x - - -**	**. ST0103**	
			50A	**N33F .**	**x - x - - -**	**. ST0103**	
			88❐ 63A	**N40 .**	**x - x - - -**	**. ST0103**	**+116**
			80A	**N60 .**	**x - x - - -**	**. ST0103**	
			115A	**N80 .**	**x - x - - -**	**. ST0103**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST0103**	
			250A	**N200 .**	**x - x - - -**	**. ST0103**	
11 steps		*30°*	18 48❐ 20A	**M10H .**	**x - x - - -**	**. ST0113**	
			32A	**M20 .**	**x - x - - -**	**. ST0113**	
			64❐ 32A	**N20 .**	**x - x - - -**	**. ST0113**	
			50A	**N33F .**	**x - x - - -**	**. ST0113**	
			88❐ 63A	**N40 .**	**x - x - - -**	**. ST0113**	**+117**
			80A	**N60 .**	**x - x - - -**	**. ST0113**	
			115A	**N80 .**	**x - x - - -**	**. ST0113**	
			132❐ 150A	**N100 .**	**x - x - - -**	**. ST0113**	
			250A	**N200 .**	**x - x - - -**	**. ST0113**	

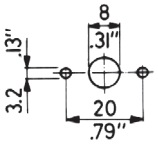
Ordering example: AC21 250A panel mounting, multi step switch 3-pole with off, 11 steps **N200 E ST0113**

Mini-Cam Switches M4H

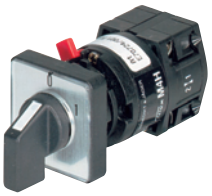
Panel mounting E, IP40

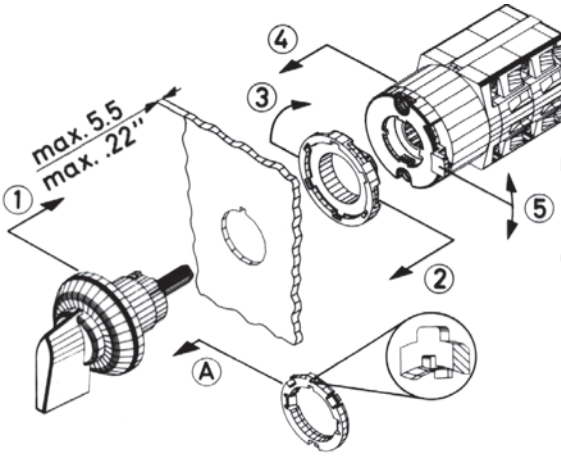


Mounting holes



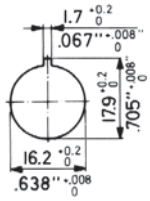
Central fixing Z



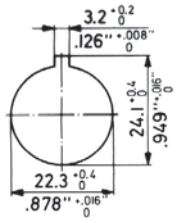


Central fixing without escutcheon plate ZO

Central fixing 16mm



Central fixing 22mm

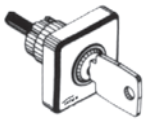


Single hole mountings are generally delivered for a 16mm (.64") mounting.
Using the forwarded adapter ring, it is possible to alter the single hole mountings from 22mm (.88"). For that purpose the adapter ring has to be attatched onto the threded part of the body in such a manner, that
1. the flat side of the adapter ring shows towards the front seal and
2. the inner nose fits into the notch of the body.
The adapter ring has to be pushed towards the front seal.

Optional extras	ordering code	for design
Additional escutcheon plate	**+SRE**	E, Z, ZO
Additional escutcheon plate	**+SRE2**	E, Z, ZO
Key operated switch with lock KABA	**+SA1**	Z, ZO
with lock Ronis	**+SA2**	Z, ZO

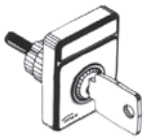
M4H Z ... +SRE

M4H Z ... +SA.



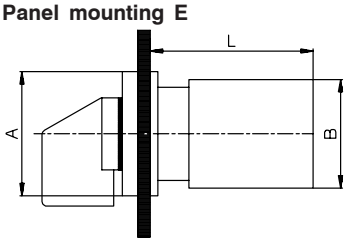
M4H ZO ... +SA.

M4H Z ... +SRE+SA.

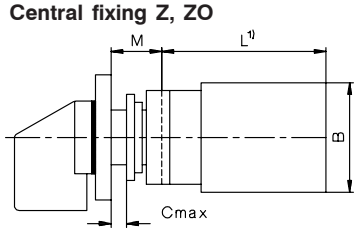


Wrench J7400
for switches M4H with central fixing is necessary

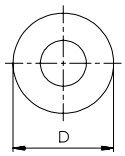
Panel mounting E



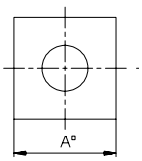
Central fixing Z, ZO



ZO



Z



Type		A	B	D	M	Dimension L for ... cells 1	2	3	4	5	6	7	8
M4H	mm	30	28	29,5	12,5	38,5	50,5	62,5	74,5	86,5	98,5	110,5	122,5

Technical data

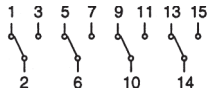
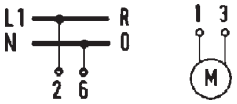
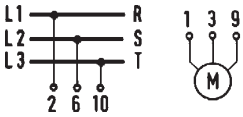
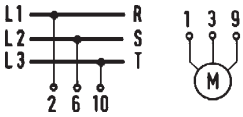
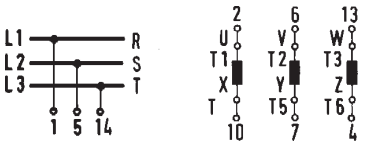
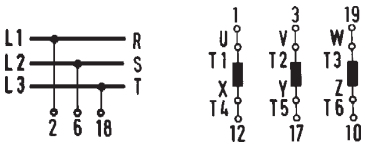
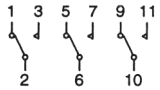
Type	according to specifications	AC21A	AC15			Motor rating AC3							
			110V 380V			3 phase 3-pole			1 phase 2-pole			
			240V 440V		Volt	110 220 380			110 220		380	
		General use	Pilot Duty			120 240 440			120 240	277	440	
M4H	IEC, VDE, BS, SEV	10A/500V	2,5A 1,5A		kW	0,65 1,5 2,2			0,3 0,55	-	0,75	
	UL, CSA	10A/300V	A300		HP	0,75 1 -			0,33 0,75	0,75	-	

Type	according to specifications	Motor rating AC23					
			3-pole			2-pole	
		Volt	110 220 380			110 220 380	
			120 240 440			120 240 440	
M4H	IEC, VDE, BS, SEV	kW	0,75 1,8 3			0,37 0,75 1,1	
	UL, CSA	HP	- - -			- - -	

additional data for wiring according to UL and CSA

Type	type of wire	temp. rating of wire	torque value for field wiring terminals
M4H	copper wire only	60/75°C	0,6Nm / 5lb - inch

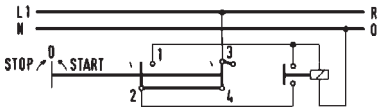
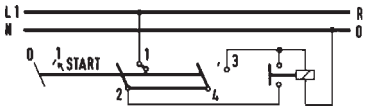
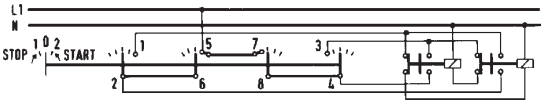
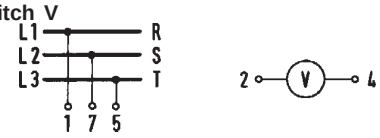
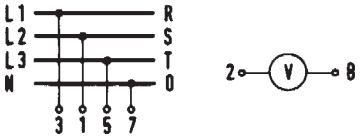
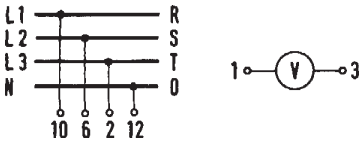
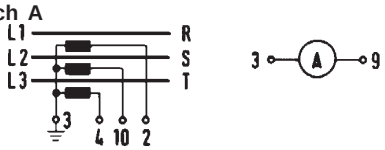
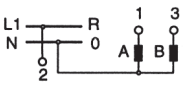
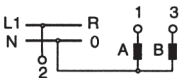
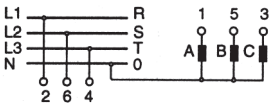
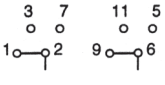
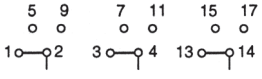
Switch programs

Description	Wiring diagram	AC21 500V 10A AC15 230V 2,5A AC3 4x400V 2,2kW	escutch. 30 x 30	numb. of cells	Type	Design .E. ↓	.Z. ↓	.ZO. ↓	Switch pro-gram
On-Off-switch A									
1-pole				1	**M4H .**	**x**	**x**	**x**	**. A1**
2-pole				1	**M4H .**	**x**	**x**	**x**	**. A2**
3-pole				2	**M4H .**	**x**	**x**	**x**	**. A3**
4-pole				2	**M4H .**	**x**	**x**	**x**	**. A4**
6-pole				3	**M4H .**	**x**	**x**	**x**	**. A6**
Changeover switch U									
1-pole				1	**M4H .**	**x**	**x**	**x**	**. U1**
2-pole				2	**M4H .**	**x**	**x**	**x**	**. U2**
3-pole				3	**M4H .**	**x**	**x**	**x**	**. U3**
4-pole				4	**M4H .**	**x**	**x**	**x**	**. U4**
Changeover switch without off W									
1-pole				1	**M4H .**	**x**	**x**	**x**	**. W1**
2-pole				2	**M4H .**	**x**	**x**	**x**	**. W2**
3-pole				3	**M4H .**	**x**	**x**	**x**	**. W3**
4-pole				4	**M4H .**	**x**	**x**	**x**	**. W4**
6-pole				6	**M4H .**	**x**	**x**	**x**	**. W6**
Reversing switch WU									
2-pole				2	**M4H .**	**x**	**x**	**x**	**. WU2**
3-pole				3	**M4H .**	**x**	**x**	**x**	**. WU3**
3-pole with spring return to 0				3	**M4H .**	**x**	**x**	**x**	**. WU3R2**
Star-delta switch SD									
1 rotary direction				4	**M4H .**	**x**	**x**	**x**	**. SD**
both rotary directions				5	**M4H .**	**x**	**x**	**x**	**. SDR**
Changeover with spring return UR									
1-pole				1	**M4H .**	**x**	**x**	**x**	**. UR1**
2-pole				2	**M4H .**	**x**	**x**	**x**	**. UR2**
3-pole				3	**M4H .**	**x**	**x**	**x**	**. UR3**
Start switch									
1-pole				1	**M4H .**	**x**	**x**	**x**	**. SE**
Stop switch									
1-pole				1	**M4H .**	**x**	**x**	**x**	**. SA**

Ordering example: Stop switch, 1-pole, Central fixing: **M4H Z SA**

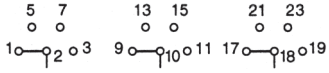
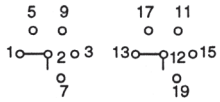
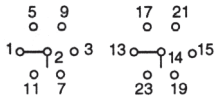
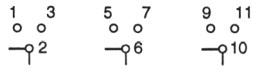
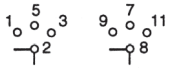
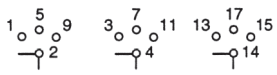
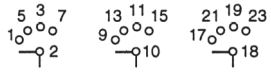
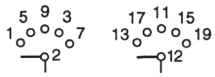
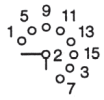
Mini-Cam Switches M4H

Switch programs

Description	Wiring diagram	AC21 500V 10A AC15 230V 2,5A AC3 4x400V 2,2kW	escutch. 30 x 30	numb. of cells	Type	Design .E. ↓	.Z. ↓	.ZO. ↓	Switch pro-gram
Start-Stop switch				1	**M4H .**	x	x	x	**. SEA**
Start-Stop switch position START with spring return to 1				1	**M4H .**	x	x	x	**. S392**
Start-Stop switch for reversing contactors				2	**M4H .**	x	x	x	**. S2EA**
Voltmeter selector switch V **3 line voltages**				2	**M4H .**	x	x	x	**. V3**
3 phase voltages				2	**M4H .**	x	x	x	**. V0**
3 line voltages **3 phase voltages**				3	**M4H .**	x	x	x	**. V1**
Ammeter selector switch A **1-pole, 3 current transformer**				4	**M4H .**	x	x	x	**. M31**
Gang switch GR **2 circuits A and B** **1-pole** **0 - A - A+B**				1	**M4H .**	x	x	x	**. GR11**
2 circuits A and B **1-pole** **0 - A - B - A+B**				1	**M4H .**	x	x	x	**. GR12**
3 circuits A, B and C **1-pole**				2	**M4H .**	x	x	x	**. GR14**
Multi step switch without 0 ST **3 steps, 1-pole**				2	**M4H .**	x	x	x	**. ST31**
3 steps, 2-pole				3	**M4H .**	x	x	x	**. ST32**
3 steps, 3-pole				5	**M4H .**	x	x	x	**. ST33**

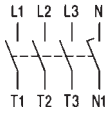
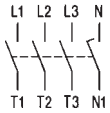
Ordering example: Multi step switch without 0, 3 steps, 3-pole, panel mounting: **M4H E ST33**

Switch programs

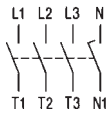
Description	Wiring diagram	AC21 500V 10A AC15 230V 2,5A AC3 4x400V 2,2kW	escutch. 30 x 30	numb. of cells	Type	Design .E. ↓	.Z. ↓	.ZO. ↓	Switch pro-gram
Multi step switch without 0 ST									
4 steps, 1-pole				2	**M4H .**	**x**	**x**	**x**	**. ST41**
4 steps, 2-pole				4	**M4H .**	**x**	**x**	**x**	**. ST42**
4 steps, 3-pole				6	**M4H .**	**x**	**x**	**x**	**. ST43**
5 steps, 1-pole				3	**M4H .**	**x**	**x**	**x**	**. ST51**
5 steps, 2-pole				5	**M4H .**	**x**	**x**	**x**	**. ST52**
6 steps, 1-pole				3	**M4H .**	**x**	**x**	**x**	**. ST61**
6 steps, 2-pole				6	**M4H .**	**x**	**x**	**x**	**. ST62**
Multi step switch with 0 ST0.									
2 steps, 1-pole				1	**M4H .**	**x**	**x**	**x**	**. ST021**
2 steps, 2-pole				2	**M4H .**	**x**	**x**	**x**	**. ST022**
2 steps, 3-pole				3	**M4H .**	**x**	**x**	**x**	**. ST023**
3 steps, 1-pole				2	**M4H .**	**x**	**x**	**x**	**. ST031**
3 steps, 2-pole				3	**M4H .**	**x**	**x**	**x**	**. ST032**
3 steps, 3-pole				5	**M4H .**	**x**	**x**	**x**	**. ST033**
4 steps, 1-pole				2	**M4H .**	**x**	**x**	**x**	**. ST041**
4 steps, 2-pole				4	**M4H .**	**x**	**x**	**x**	**. ST042**
4 steps, 3-pole				6	**M4H .**	**x**	**x**	**x**	**. ST043**
5 steps, 1-pole				3	**M4H .**	**x**	**x**	**x**	**. ST051**
5 steps, 2-pole				5	**M4H .**	**x**	**x**	**x**	**. ST052**
6 steps, 1-pole				4	**M4H .**	**x**	**x**	**x**	**. ST061**
7 steps, 1-pole				4	**M4H .**	**x**	**x**	**x**	**. ST071**
8 steps, 1-pole				5	**M4H .**	**x**	**x**	**x**	**. ST081**
9 steps, 1-pole				5	**M4H .**	**x**	**x**	**x**	**. ST091**
10 steps, 1-pole				6	**M4H .**	**x**	**x**	**x**	**. ST0101**

Ordering example: Multi step switch with 0, 10 steps, 1-pole, Central fixing without escutcheon plate: **M4H ZO ST0101**

Emergency-Stop-Main Switches for Panel Mounting, lockable, **IP66**

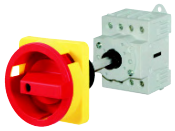
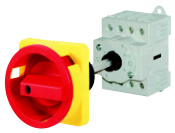
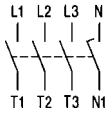
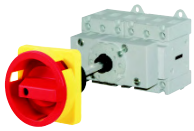
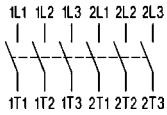
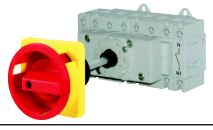
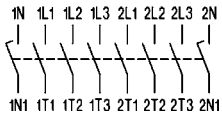
	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV1	🔒🔒						
 		20A	7,5kW	48 ❐ 1)	**LTS20 EHN1 A3**	1	0,15
		25A	10kW	48 ❐ 1)	**LTS25 EHN1 A3**	1	0,15
		32A	12,5kW	48 ❐ 1)	**LTS32 EHN1 A3**	1	0,15
		40A	16kW	48 ❐ 1)	**LTS40 EHN1 A3**	1	0,15
		63A	22kW	48 ❐ 1)	**LTS63 EHN1 A3**	1	0,17
		80A	22kW	48 ❐ 1)	**LTS80 EHN1 A3**	1	0,17
4-**pole**, padlock device SV1	🔒🔒						
 		20A	7,5kW	48 ❐ 1)	**LTS20 EHN1 A4**	1	0,19
		25A	10kW	48 ❐ 1)	**LTS25 EHN1 A4**	1	0,19
		32A	12,5kW	48 ❐ 1)	**LTS32 EHN1 A4**	1	0,19
		40A	16kW	48 ❐ 1)	**LTS40 EHN1 A4**	1	0,19
		63A	22kW	48 ❐ 1)	**LTS63 EHN1 A4**	1	0,21
		80A	22kW	48 ❐ 1)	**LTS80 EHN1 A4**	1	0,21
3-pole, padlock device SV4(34)	🔒🔒🔒						
 		20A	7,5kW	64 ❐ 2)	**LTS20 EHN4 A3**	1	0,17
		25A	10kW	64 ❐ 2)	**LTS25 EHN4 A3**	1	0,17
		32A	12,5kW	64 ❐ 2)	**LTS32 EHN4 A3**	1	0,17
		40A	16kW	64 ❐ 2)	**LTS40 EHN4 A3**	1	0,17
		63A	22kW	64 ❐ 2)	**LTS63 EHN4 A3**	1	0,19
		80A	22kW	64 ❐ 2)	**LTS80 EHN4 A3**	1	0,19
		85A	30kW	64 ❐ 2)	**LTS85 EHN4 A3**	1	0,39
		100A	37kW	64 ❐ 2)	**LTS100 EHN4 A3**	1	0,39
		125A	45kW	64 ❐ 2)	**LTS125 EHN4 A3**	1	0,39
		160A	55kW	88 ❐	**LT160 EHN34 T300**	1	1,16
4-pole, padlock device SV4(34)	🔒🔒🔒						
 		20A	7,5kW	64 ❐ 2)	**LTS20 EHN4 A4**	1	0,20
		25A	10kW	64 ❐ 2)	**LTS25 EHN4 A4**	1	0,20
		32A	12,5kW	64 ❐ 2)	**LTS32 EHN4 A4**	1	0,20
		40A	16kW	64 ❐ 2)	**LTS40 EHN4 A4**	1	0,20
		63A	22kW	64 ❐ 2)	**LTS63 EHN4 A4**	1	0,23
		80A	22kW	64 ❐ 2)	**LTS80 EHN4 A4**	1	0,23
		85A	30kW	64 ❐ 2)	**LTS80 EHN4 A4**	1	0,44
		100A	37kW	64 ❐ 2)	**LTS100 EHN4 A4**	1	0,44
		125A	45kW	64 ❐ 2)	**LTS125 EHN4 A4**	1	0,44
		160A	55kW	88 ❐	**LT160 EHN34 T400**	1	1,55
6-pole, 8-pole					on request		

Main Switches Emergency-Stop for Single Hole Mounting, lockable, **IP66**

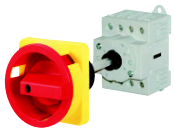
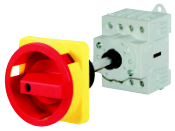
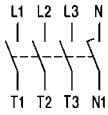
	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV1	🔒🔒						
 		20A	7,5kW	48 ❐	**LTS20 ZHN1 A3**	1	0,16
		25A	10kW	48 ❐	**LTS25 ZHN1 A3**	1	0,16
		32A	12,5kW	48 ❐	**LTS32 ZHN1 A3**	1	0,16
		40A	16kW	48 ❐	**LTS40 ZHN1 A3**	1	0,16
4-pole, padlock device SV1	🔒🔒						
 		20A	7,5kW	48 ❐	**LTS20 ZHN1 A4**	1	0,20
		25A	10kW	48 ❐	**LTS25 ZHN1 A4**	1	0,20
		32A	12,5kW	48 ❐	**LTS32 ZHN1 A4**	1	0,20
		40A	16kW	48 ❐	**LTS40 ZHN1 A4**	1	0,20

1) Types with padlock device 64 ❐ type suffix **64,** ordering example: LTS32 EHN1**64** A3, on request
2) Types with padlock device 88 ❐ type suffix **88,** ordering example: LTS32 EHN4**88** A3, on request

Emergency-Stop-Main Switches, Base Mounting with **Door Clutch, Padlock Device** for **Single-Hole Mounting** Depth X is adjustable (delivered with X_{max} see page 50), **IP66**

	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV4							
 		20A	7,5kW	64	**LTS20 VZVHN4 A3**	1	0,19
		25A	10kW	64	**LTS25 VZVHN4 A3**	1	0,19
		32A	12,5kW	64	**LTS32 VZVHN4 A3**	1	0,19
		40A	16kW	64	**LTS40 VZVHN4 A3**	1	0,19
		63A	22kW	64	**LTS63 VZVHN4 A3**	1	0,22
		80A	22kW	64	**LTS80 VZVHN4 A3**	1	0,22
		85A	30kW	64	**LTS85 VZVHN4 A3**	1	0,40
		100A	37kW	64	**LTS100 VZVHN4 A3**	1	0,40
		125A	45kW	64	**LTS125 VZVHN4 A3**	1	0,40
4-pole, padlock device SV4							
 		20A	7,5kW	64	**LTS20 VZVHN4 A4**	1	0,20
		25A	10kW	64	**LTS25 VZVHN4 A4**	1	0,20
		32A	12,5kW	64	**LTS32 VZVHN4 A4**	1	0,20
		40A	16kW	64	**LTS40 VZVHN4 A4**	1	0,20
		63A	22kW	64	**LTS63 VZVHN4 A4**	1	0,26
		80A	22kW	64	**LTS80 VZVHN4 A4**	1	0,26
		85A	30kW	64	**LTS85 VZVHN4 A4**	1	0,45
		100A	37kW	64	**LTS100 VZVHN4 A4**	1	0,45
		125A	45kW	64	**LTS125 VZVHN4 A4**	1	0,45
6-pole, padlock device SV4							
 		20A	7,5kW	64	**LTS20 VZVHN4 A6**	1	0,32
		25A	10kW	64	**LTS25 VZVHN4 A6**	1	0,32
		32A	12,5kW	64	**LTS32 VZVHN4 A6**	1	0,32
		40A	16kW	64	**LTS40 VZVHN4 A6**	1	0,32
		63A	22kW	64	**LTS63 VZVHN4 A6**	1	0,37
		80A	22kW	64	**LTS80 VZVHN4 A6**	1	0,37
8-pole, padlock device SV4							
 		20A	7,5kW	64	**LTS20 VZVHN4 A8**	1	0,34
		25A	10kW	64	**LTS25 VZVHN4 A8**	1	0,34
		32A	12,5kW	64	**LTS32 VZVHN4 A8**	1	0,34
		40A	16kW	64	**LTS40 VZVHN4 A8**	1	0,34
		63A	22kW	64	**LTS63 VZVHN4 A8**	1	0,45
		80A	22kW	64	**LTS80 VZVHN4 A8**	1	0,45

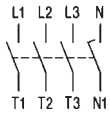
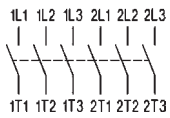
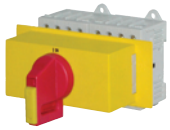
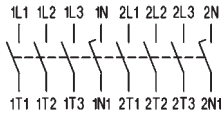
in Switches, Base Mounting with **Door Clutch, Padlock Device** for **Four-Hole Mounting** Depth T is adjustable (delivered with T_{max} see page 50), **IP66**

	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV4(SV34)							
 		20A	7,5kW	64	**LTS20 VHN4 A3**	1	0,20
		25A	10kW	64	**LTS25 VHN4 A3**	1	0,20
		32A	12,5kW	64	**LTS32 VHN4 A3**	1	0,20
		40A	16kW	64	**LTS40 VHN4 A3**	1	0,20
		63A	22kW	64	**LTS63 VHN4 A3**	1	0,24
		80A	22kW	64	**LTS80 VHN4 A3**	1	0,24
		85A	30kW	64	**LTS85 VHN4 A3**	1	0,40
		100A	37kW	64	**LTS100 VHN4 A3**	1	0,40
		125A	45kW	64	**LTS125 VHN4 A3**	1	0,40
		160A	55kW	88	**LT160 VHN34 T300**	1	1,38
4-pole, padlock device SV4(SV34)							
 		20A	7,5kW	64	**LTS20 VHN4 A4**	1	0,21
		25A	10kW	64	**LTS25 VHN4 A4**	1	0,21
		32A	12,5kW	64	**LTS32 VHN4 A4**	1	0,21
		40A	16kW	64	**LTS40 VHN4 A4**	1	0,21
		63A	22kW	64	**LTS63 VHN4 A4**	1	0,28
		80A	22kW	64	**LTS80 VHN4 A4**	1	0,28
		85A	30kW	64	**LTS85 VHN4 A4**	1	0,45
		100A	37kW	64	**LTS100 VHN4 A4**	1	0,45
		125A	45kW	64	**LTS125 VHN4 A4**	1	0,45
		160A	55kW	88	**LT160 VHN34 T400**	1	1,77
6-pole, 8-pole					on request		

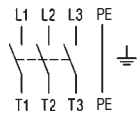
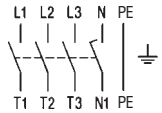
Emergency-Stop-Main Switches, Base Mounting with **Door Clutch, Padlock Device** for **Single-Hole Mounting** Depth X is not adjustable, **IP65** on request [1)]

1) For order the installation depth **X** is necessary, see page 50, Preference value for X: 80, 85, 104, 129 (tolerance -3, +1,5)

Emergency-Stop-Main Switches for Distribution Boards, lockable IP40

	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	**Type**	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV1							
 		20A	7,5kW	52x45	**LTS20 SMAHN1 A3**	1	0,15
		25A	10kW	52x45	**LTS25 SMAHN1 A3**	1	0,15
		32A	12,5kW	52x45	**LTS32 SMAHN1 A3**	1	0,15
		40A	16kW	52x45	**LTS40 SMAHN1 A3**	1	0,15
		63A	22kW	52x45	**LTS63 SMAHN1 A3**	1	0,18
		80A	22kW	52x45	**LTS80 SMAHN1 A3**	1	0,18
		80A	30kW	78x45	**LTS85 SMAHN1 A3**	1	0,37
		100A	37kW	78x45	**LTS100 SMAHN1 A3**	1	0,37
		125A	45kW	78x45	**LTS125 SMAHN1 A3**	1	0,37
4-pole, padlock device SV1							
 		20A	7,5kW	52x45	**LTS20 SMAHN1 A4**	1	0,16
		25A	10kW	52x45	**LTS25 SMAHN1 A4**	1	0,16
		32A	12,5kW	52x45	**LTS32 SMAHN1 A4**	1	0,16
		40A	16kW	52x45	**LTS40 SMAHN1 A4**	1	0,16
		63A	22kW	52x45	**LTS63 SMAHN1 A4**	1	0,21
		80A	22kW	52x45	**LTS80 SMAHN1 A4**	1	0,21
		80A	30kW	78x45	**LTS85 SMAHN1 A3**	1	0,42
		100A	37kW	78x45	**LTS100 SMAHN1 A3**	1	0,42
		125A	45kW	78x45	**LTS125 SMAHN1 A3**	1	0,42
6-pole, padlock device SV1(64)							
 		20A	7,5kW	52x45	**LTS20 SMAHN1 A6**	1	0,29
		25A	10kW	52x45	**LTS25 SMAHN1 A6**	1	0,29
		32A	12,5kW	52x45	**LTS32 SMAHN1 A6**	1	0,29
		40A	16kW	52x45	**LTS40 SMAHN1 A6**	1	0,29
		63A	22kW	97x45	**LTS63 SMAHN1 A6** [1]	1	0,34
		80A	22kW	97x45	**LTS80 SMAHN1 A6** [1]	1	0,34
8-pole, padlock device SV164							
 		20A	7,5kW	97x45	**LTS20 SMAHN1 A8**	1	0,31
		25A	10kW	97x45	**LTS25 SMAHN1 A8**	1	0,31
		32A	12,5kW	97x45	**LTS32 SMAHN1 A8**	1	0,31
		40A	16kW	97x45	**LTS40 SMAHN1 A8**	1	0,31
		63A	22kW	126x45	**LTS63 SMAHN1 A8**	1	0,42
		80A	22kW	126x45	**LTS80 SMAHN1 A8**	1	0,42

Maintenance and Safety Switches, in Plastic Enclosure, lockable, **IP65**

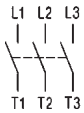
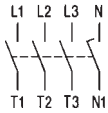
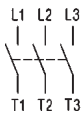
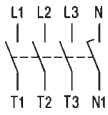
3-pole, padlock device SV4(SV34)							
 		20A	7,5kW	64 ❐	**LTS20 PFHN4 A3**	1	0,32
		25A	10kW	64 ❐	**LTS25 PFHN4 A3**	1	0,32
		32A	12,5kW	64 ❐	**LTS32 PFHN4 A3**	1	0,32
		40A	16kW	64 ❐	**LTS40 PFHN4 A3**	1	0,32
		63A	22kW	64 ❐	**LTS63 PFHN4 A3**	1	0,60
		80A	22kW	64 ❐	**LTS80 PFHN4 A3**	1	0,60
		85A	30kW	64 ❐	**LTS85 PFHN4 A3**	1	0,78
		100A	37kW	64 ❐	**LTS100 PFHN4 A3**	1	0,78
		125A	45kW	64 ❐	**LTS125 PFHN4 A3**	1	0,78
		160A	55kW	88 ❐	**LT160 PFHN34 T300**	1	2,09
4-pole, padlock device SV4(SV34)							
 		20A	7,5kW	64 ❐	**LTS20 PFHN4 A4**	1	0,33
		25A	10kW	64 ❐	**LTS25 PFHN4 A4**	1	0,33
		32A	12,5kW	64 ❐	**LTS32 PFHN4 A4**	1	0,33
		40A	16kW	64 ❐	**LTS40 PFHN4 A4**	1	0,33
		63A	22kW	64 ❐	**LTS63 PFHN4 A4**	1	0,64
		80A	22kW	64 ❐	**LTS80 PFHN4 A4**	1	0,64
		85A	30kW	64 ❐	**LTS85 PFHN4 A4**	1	0,83
		100A	37kW	64 ❐	**LTS100 PFHN4 A4**	1	0,83
		125A	45kW	64 ❐	**LTS125 PFHN4 A4**	1	0,83
		160A	55kW	88 ❐	**LT160 PFHN34 T400**	1	2,47

6-pole, 8-pole on request

Add-on modules (4th pole, aux. contacts, PE-terminal, terminal cover plates, escutcheon plates) see page 51

1) With padlock device SV164

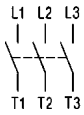
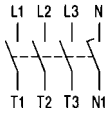
Main Switches for Panel Mounting, lockable, **IP66**

	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV1	🔒🔒						
 		20A	7,5kW	48 ❐ 1)	**LTS20 EH1 A3**	1	0,15
		25A	10kW	48 ❐ 1)	**LTS25 EH1 A3**	1	0,15
		32A	12,5kW	48 ❐ 1)	**LTS32 EH1 A3**	1	0,15
		40A	16kW	48 ❐ 1)	**LTS40 EH1 A3**	1	0,15
		63A	22kW	48 ❐ 1)	**LTS63 EH1 A3**	1	0,17
		80A	22kW	48 ❐ 1)	**LTS80 EH1 A3**	1	0,17
4-pole, padlock device SV1	🔒🔒						
 		20A	7,5kW	48 ❐ 1)	**LTS20 EH1 A4**	1	0,19
		25A	10kW	48 ❐ 1)	**LTS25 EH1 A4**	1	0,19
		32A	12,5kW	48 ❐ 1)	**LTS32 EH1 A4**	1	0,19
		40A	16kW	48 ❐ 1)	**LTS40 EH1 A4**	1	0,19
		63A	22kW	48 ❐ 1)	**LTS63 EH1 A4**	1	0,21
		80A	22kW	48 ❐ 1)	**LTS80 EH1 A4**	1	0,21
6-pole, 8-pole, padlock device SV164					on request		
3-pole, padlock device SV4(34)	🔒🔒🔒						
 		20A	7,5kW	64 ❐ 2)	**LTS20 EH4 A3**	1	0,17
		25A	10kW	64 ❐ 2)	**LTS25 EH4 A3**	1	0,17
		32A	12,5kW	64 ❐ 2)	**LTS32 EH4 A3**	1	0,17
		40A	16kW	64 ❐ 2)	**LTS40 EH4 A3**	1	0,17
		63A	22kW	64 ❐ 2)	**LTS63 EH4 A3**	1	0,19
		80A	22kW	64 ❐ 2)	**LTS80 EH4 A3**	1	0,19
		85A	30kW	64 ❐ 2)	**LTS85 EH4 A3**	1	0,39
		100A	37kW	64 ❐ 2)	**LTS100 EH4 A3**	1	0,39
		125A	45kW	64 ❐ 2)	**LTS125 EH4 A3**	1	0,39
		160A	55kW	88 ❐	**LT160 EHN34 T300**	1	1,16
4-pole, padlock device SV4(34)	🔒🔒🔒						
 		20A	7,5kW	64 ❐ 2)	**LTS20 EH4 A4**	1	0,20
		25A	10kW	64 ❐ 2)	**LTS25 EH4 A4**	1	0,20
		32A	12,5kW	64 ❐ 2)	**LTS32 EH4 A4**	1	0,20
		40A	16kW	64 ❐ 2)	**LTS40 EH4 A4**	1	0,20
		63A	22kW	64 ❐ 2)	**LTS63 EH4 A4**	1	0,23
		80A	22kW	64 ❐ 2)	**LTS80 EH4 A4**	1	0,23
		85A	30kW	64 ❐ 2)	**LTS80 EH4 A4**	1	0,44
		100A	37kW	64 ❐ 2)	**LTS100 EH4 A4**	1	0,44
		125A	45kW	64 ❐ 2)	**LTS125 EH4 A4**	1	0,44
		160A	55kW	88 ❐	**LT160 EH34 T400**	1	1,55
6-pole, 8-pole, padlock device SV4					on request		

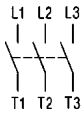
Add-on modules see page 51

1) Types with padlock device 64 ❐ type suffix **64,** ordering example: LTS32 EH1**64** A3, on request
2) Types with padlock device 88 ❐ type suffix **88,** ordering example: LTS32 EH4**88** A3, on request

Main Switches, Base Mounting with **Door Clutch, Padlock Device** for **Single-Hole Mounting**
Depth X is adjustable (delivered with X_{max} see below), **IP66**

	max. padlocks	AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
3-pole, padlock device SV4							
 		20A	7,5kW	64	**LTS20 VZVH4 A3**	1	0,19
		25A	10kW	64	**LTS25 VZVH4 A3**	1	0,19
		32A	12,5kW	64	**LTS32 VZVH4 A3**	1	0,19
		40A	16kW	64	**LTS40 VZVH4 A3**	1	0,19
		63A	22kW	64	**LTS63 VZVH4 A3**	1	0,22
		80A	22kW	64	**LTS80 VZVH4 A3**	1	0,22
		85A	30kW	64	**LTS85 VZVH4 A3**	1	0,40
		100A	37kW	64	**LTS100 VZVH4 A3**	1	0,40
		125A	45kW	64	**LTS125 VZVH4 A3**	1	0,40
4-pole, padlock device SV4							
 		20A	7,5kW	64	**LTS20 VZVH4 A4**	1	0,20
		25A	10kW	64	**LTS25 VZVH4 A4**	1	0,20
		32A	12,5kW	64	**LTS32 VZVH4 A4**	1	0,20
		40A	16kW	64	**LTS40 VZVH4 A4**	1	0,20
		63A	22kW	64	**LTS63 VZVH4 A4**	1	0,26
		80A	22kW	64	**LTS80 VZVH4 A4**	1	0,26
		85A	30kW	64	**LTS85 VZVH4 A4**	1	0,45
		100A	37kW	64	**LTS100 VZVH4 A4**	1	0,45
		125A	45kW	64	**LTS125 VZVH4 A4**	1	0,45
6-pole, 8-pole					on request		

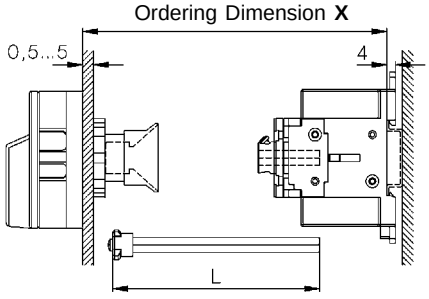
Main Switches, Base Mounting with **Door Clutch, Padlock Device** for **Four-Hole Mounting**
Depth T is adjustable (delivered with T_{max} see below), **IP66**

3-pole, padlock device SV4(SV34)							
 		20A	7,5kW	64	**LTS20 VH4 A3**	1	0,20
		25A	10kW	64	**LTS25 VH4 A3**	1	0,20
		32A	12,5kW	64	**LTS32 VH4 A3**	1	0,20
		40A	16kW	64	**LTS40 VH4 A3**	1	0,20
		63A	22kW	64	**LTS63 VH4 A3**	1	0,24
		80A	22kW	64	**LTS80 VH4 A3**	1	0,24
		85A	30kW	64	**LTS85 VH4 A3**	1	0,40
		100A	37kW	64	**LTS100 VH4 A3**	1	0,40
		125A	45kW	64	**LTS125 VH4 A3**	1	0,40
		160A	55kW	88	**LT160 VH34 T300**	1	1,38
4-pole, 6-pole, 8-pole					on request		

Depth

LTS.. VZV..

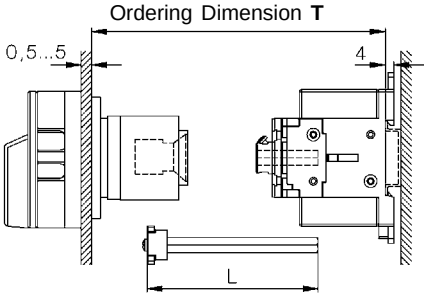
Ordering Dimension **X**



Type	X min	X max	L
LTS20-80 VZV.. 3, 4-pole	91 -	190	**X - 40±3**
LTS20-80 VZV.. 6, 8-pole	111 -	190	**X - 60±3**
LTS85-125 VZV.. 3, 4-pole	95-	190	**X - 44±3**

LTS.. V(HN).. (3, 4-pole)

Ordering Dimension **T**

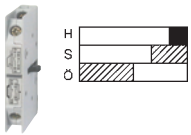
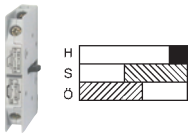


Type	T min	T max	L
LTS20-80 VH..	111 -	190	**T - 60±3**
LTS85-125 VH..	115 -	190	**T - 64±3**

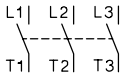
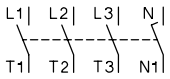
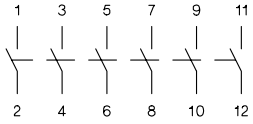
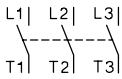
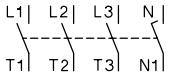
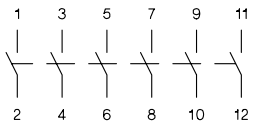
Type	T min	T max
LT160 VH..	120 -	450

greater X- and T-Dimensions (max. 380mm for LTS..) on request

Add-on Modules for main switches and Switch Disconnectors

	for switch	for designs panel-mounting	base-mounting	distrib. boards	Type	Pack pcs.	Weight kg/pcs
4th add-on neutral switching pole							
 	LTS20 to LTS40	x	-	-	**N40E**	1	0,035
	LTS63 to LTS80	x	-	-	**N80E**	1	0,042
	LTS20 to LTS40	-	x	x	**N40V**	1	0,035
	LTS63 to LTS80	-	x	x	**N80V**	1	0,042
Aux. contact block 1NO + 1NC							
 	LTS20 to LTS125	x	x	x	**LH11**	1	0,02
Aux. contact block 1NO + 1NC overlapping							
 	LTS20 to LTS125	x	x	x	**LH11X**	1	0,02
PE-Terminal							
 	LTS20 to LTS80	x	-	-	**PE80E**	1	0,04
	LT160	x	-	-	**LTXX-E/E**	1	0,2
	LTS20 to LTS80	-	x	-	**PE80V**	1	0,04
	LT160	-	x	-	**LTXX-E/V**	1	0,2
N-Terminal							
 	LTS20 to LTS80	x	-	-	**PEN80E**	1	0,04
	LT160	x	-	-	**LTXX-N/E**	1	0,2
	LTS20 to LTS80	-	x	-	**PEN80V**	1	0,04
	LT160	-	x	-	**LTXX-N/V**	1	0,2
Additional escutcheon plate yellow marked with: HAUPTSCHALTER							
	48mm LTS.. .HN1..	x	x	-	**A91501**	1	0,003
	64mm LTS.. .HN4..	x	x	-	**E91501**	1	0,005
Additional escutcheon plate yellow marked with: MAIN SWITCH							
	48mm LTS.. .HN1..	x	x	-	**A91524**	1	0,003
	64mm LTS.. .HN4..	x	x	-	**E91524**	1	0,005
Terminal cover plate 3-pole							
	LTS20 to LTS40	-	x	x	**KLAD40**	1	0,005
	LTS20 bis LTS40	x	-	-	**KLAD70**	1	0,005
	LTS63 to LTS80	x	x	x	**KLAD70**	1	0,005
	LTS85 to LTS125	x	x	x	**KLAD125**	1	0,01
	LT125 to LT160	x	x	-	**XX-KLAD3**	1	0,02
Terminal cover plate for 4. Pole							
	Mains LTS63 to LTS80	x	x	x	**KLAD70N**	1	0,002
	Load circuit LTS63 to LTS80	x	x	x	**KLAD70N1**	1	0,002
Terminal cover plate 4-pole							
	LTS20 to LTS40	-	x	x	**KLAD40**	1	0,005
	LTS85 to LTS125	x	x	x	**KLAD125**	1	0,01
	LT125 to LT160	x	x	-	**XX-KLAD4**	1	0,02
Flat Terminal 6,3 x 0,8mm							
	LTS20 to LTS40	-	x	x	**LG11073**	10	0,001

Main Switches for panel mounting, Cam Switches

		AC21 A	AC23 kW	Plate	with Emergency-Off **Type**	without Emergency-Off **Type**
	**2-polig**	20	7,5	48 ❐	**M10H EHN1 A2+731**	**M10H EH1 A2+731**
	3-polig	20	7,5	48 ❐	**M10H EHN1 A3+731**	**M10H EH1 A3+731**
	4-polig	20	7,5	48 ❐	**M10H EHN1 A4+731**	**M10H EH1 A4+731**
	6-polig	20	7,5	48 ❐	**M10H EHN1 A6+731**	**M10H EH1 A6+731**
	**3-polig**	63	22	88 ❐	**N40 EHN3 A3**	**N40 EH3 A3**
		80	30	88 ❐	**N60 EHN3 A3**	**N60 EH3 A3**
		115	45	88 ❐	**N80 EHN3 A3**	**N80 EH3 A3**
		150	55	132 ❐	**N100 EHN3 A3**	**N100 EH3 A3**
		250	70	132 ❐	**N200 EHN3 A3**	**N200 EH3 A3**
	4-polig	63	22	88 ❐	**N40 EHN3 A4**	**N40 EH3 A4**
		80	30	88 ❐	**N60 EHN3 A4**	**N60 EH3 A4**
		115	45	88 ❐	**N80 EHN3 A4**	**N80 EH3 A4**
		150	55	132 ❐	**N100 EHN3 A4**	**N100 EH3 A4**
		250	70	132 ❐	**N200 EHN3 A4**	**N200 EH3 A4**
	6-polig	63	22	88 ❐	**N40 EHN3 A6** *)	**N40 EH3 A6** *)
		80	30	88 ❐	**N60 EHN3 A6** *)	**N60 EH3 A6** *)
		115	45	88 ❐	**N80 EHN3 A6** *)	**N80 EH3 A6** *)
		150	55	132 ❐	**N100 EHN3 A6** *)	**N100 EH3 A6** *)
		250	70	132 ❐	**N200 EHN3 A6** *)	**N200 EH3 A6** *)
	**3-polig**	20	7,5	64 ❐	**M10H EHN4 A3**	**M10H EH4 A3**
		32	15	64 ❐	**N20 EHN4 A3**	**N20 EH4 A3**
		50	22	64 ❐	**N33F EHN4 A3**	**N33F EH4 A3**
		63	22	88 ❐	**N40 EHN4 A3**	**N40 EH4 A3**
		80	30	88 ❐	**N60 EHN4 A3**	**N60 EH4 A3**
		115	45	88 ❐	**N80 EHN4 A3**	**N80 EH4 A3**
	4-polig	20	7,5	64 ❐	**M10H EHN4 A4**	**M10H EH4 A4**
		32	15	64 ❐	**N20 EHN4 A4**	**N20 EH4 A4**
		50	22	64 ❐	**N33F EHN4 A4**	**N33F EH4 A4**
		63	22	88 ❐	**N40 EHN4 A4**	**N40 EH4 A4**
		80	30	88 ❐	**N60 EHN4 A4**	**N60 EH4 A4**
		115	45	88 ❐	**N80 EHN4 A4**	**N80 EH4 A4**
	6-polig	20	7,5	64 ❐	**M10H EHN4 A6**	**M10H EH4 A6**
		32	15	64 ❐	**N20 EHN4 A6** *)	**N20 EH4 A6** *)
		50	22	64 ❐	**N33F EHN4 A6**	**N33F EH4 A6**
		63	22	88 ❐	**N40 EHN4 A6** *)	**N40 EH4 A6** *)
		80	30	88 ❐	**N60 EHN4 A6** *)	**N60 EH4 A6** *)
		115	45	88 ❐	**N80 EHN4 A6** *)	**N80 EH4 A6** *)

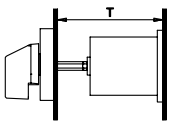
*) Main terminal protection must be installed by user.

Switches with other switch programs, auxiliary contacts, PE-terminals on request

Main Switches for base mounting

Like main switches for panel mounting
The order number changes from
N.. **E..** A. to N.. **V..** A.

Depth T is necessary for order



We recommend to use a **door coupling**, **see page 64**

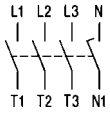
Maintenance and Safety Switches, plastic enclosed on request

Switch Disconnectors for Panel Mounting, IP65

On-Off Switches 3-pole

AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
20A	7,5kW	48 ❐	**LTS20 E A3**	1	0,15
25A	10kW	48 ❐	**LTS25 E A3**	1	0,15
32A	12,5kW	48 ❐	**LTS32 E A3**	1	0,15
40A	16kW	48 ❐	**LTS40 E A3**	1	0,15
63A	22kW	48 ❐	**LTS63 E A3**	1	0,17
80A	22kW	48 ❐	**LTS80 E A3**	1	0,17
85A	30kW	64 ❐	**LTS85 E A3**	1	0,39
100A	37kW	64 ❐	**LTS100 E A3**	1	0,39
125A	45kW	64 ❐	**LTS125 E A3**	1	0,39
160A	55kW	88 ❐	**LT160 E T300**	1	1,10

On-Off Switches 4-pole

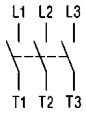


AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
20A	7,5kW	48 ❐	**LTS20 E A4**	1	0,18
25A	10kW	48 ❐	**LTS25 E A4**	1	0,18
32A	12,5kW	48 ❐	**LTS32 E A4**	1	0,18
40A	16kW	48 ❐	**LTS40 E A4**	1	0,18
63A	22kW	48 ❐	**LTS63 E A4**	1	0,21
80A	22kW	48 ❐	**LTS80 E A4**	1	0,21
85A	30kW	64 ❐	**LTS85 E A4**	1	0,44
100A	37kW	64 ❐	**LTS100 E A4**	1	0,44
125A	45kW	64 ❐	**LTS125 E A4**	1	0,44
160A	55kW	88 ❐	**LT160 E T400**	1	1,50

6-pole, 8-pole	on request
Changeover 3-pole, 4-pole	on request

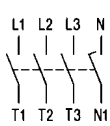
Switch Disconnectors for Distribution Boards

On-Off Switches 3-pole



AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
20A	7,5kW	52x45	**LTS20 SMA A3**	1	0,15
25A	10kW	52x45	**LTS25 SMA A3**	1	0,15
32A	12,5kW	52x45	**LTS30 SMA A3**	1	0,15
40A	16kW	52x45	**LTS40 SMA A3**	1	0,15
63A	22kW	52x45	**LTS63 SMA A3**	1	0,17
80A	22kW	52x45	**LTS80 SMA A3**	1	0,17
85A	30kW	78x45	**LTS85 SMA A3**	1	0,37
100A	37kW	78x45	**LTS100 SMA A3**	1	0,37
125A	45kW	78x45	**LTS125 SMA A3**	1	0,37

On-Off Switches 4-pole



AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
20A	7,5kW	52x45	**LTS20 SMA A4**	1	0,16
25A	10kW	52x45	**LTS25 SMA A4**	1	0,16
32A	12,5kW	52x45	**LTS32 SMA A4**	1	0,16
40A	16kW	52x45	**LTS40 SMA A4**	1	0,16
63A	22kW	52x45	**LTS63 SMA A4**	1	0,21
80A	22kW	52x45	**LTS80 SMA A4**	1	0,21
85A	30kW	78x45	**LTS85 SMA A4**	1	0,42
100A	37kW	78x45	**LTS100 SMA A4**	1	0,42
125A	45kW	78x45	**LTS125 SMA A4**	1	0,42

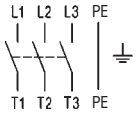
6-pole, 8-pole	on request
Changeover 3-pole, 4-pole	on request

Switch Disconnectors for Base mounting on request

Add-on modules (4th pole, aux. contacts, PE-terminal, terminal cover plates, escutcheon plates) see page 51

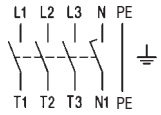
Switch Disconnectors in Plastic Enclosure, IP65

On-Off Switches 3-pole



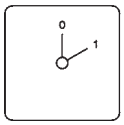
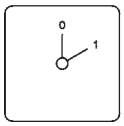
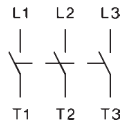
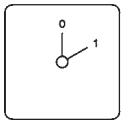
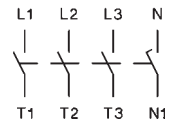
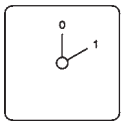
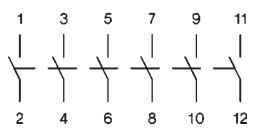
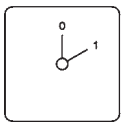
AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
20A	7,5kW	64 ❐	**LTS20 PF A3**	1	0,30
25A	10kW	64 ❐	**LTS25 PF A3**	1	0,30
32A	12,5kW	48 ❐	**LTS32 PF A3**	1	0,30
40A	16kW	64 ❐	**LTS40 PF A3**	1	0,30
63A	22kW	64 ❐	**LTS63 PF A3**	1	0,58
80A	22kW	64 ❐	**LTS80 PF A3**	1	0,58

On-Off Switches 4-pole

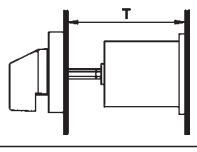


AC21 690V	AC23 3x400V	plate IP65	Type	Pack pcs.	Weigth kg/pcs.
20A	7,5kW	64 ❐	**LTS20 PF A4**	1	0,31
25A	10kW	64 ❐	**LTS25 PF A4**	1	0,31
32A	12,5kW	64 ❐	**LTS32 PF A4**	1	0,31
40A	16kW	64 ❐	**LTS40 PF A4**	1	0,31
63A	22kW	64 ❐	**LTS63 PF A4**	1	0,62
80A	22kW	64 ❐	**LTS80 PF A4**	1	0,62

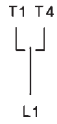
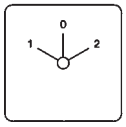
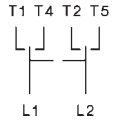
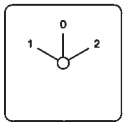
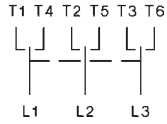
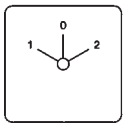
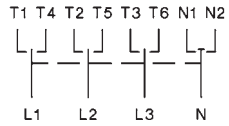
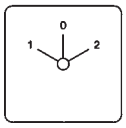
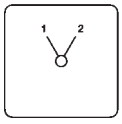
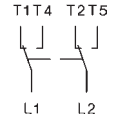
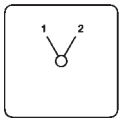
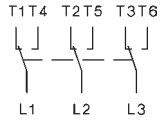
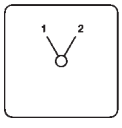
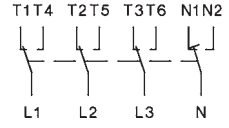
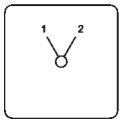
Load Switches for resistive or slightly inductive loads or switching without load

Description	Wiring diagram *Switching angle*	Number of cells ↓ Size ↓ **AC21**	**Type** **Design** **.E.** ↓ **.V.** ↓	**Switch pro-gram**	Escutcheon plate
On-Off-switches A					
1-pole	*60°* 	2 88 ❐ 125A 1 180A 1 132 ❐ 400A 3 600A 2 800A 3 1200A	**L100 . x x** **L160 . x x** **L400 . x x** **L600 . x x** **L800 . x x** **L1200 . x x**	**. A1** **. A1** **. A1** **. A1** **. A1** **. A1**	
2-pole	*60°* 	2 88 ❐ 125A 2 180A 2 132 ❐ 400A 3 600A 4 800A 6 1200A	**L100 . x x** **L160 . x x** **L400 . x x** **L600 . x x** **L800 . x x** **L1200 . x x**	**. A2** **. A2** **. A2** **. A2** **. A2** **. A2**	
3-pole	*60°* 	4 88 ❐ 125A 3 180A 3 132 ❐ 400A 6 600A 6 800A 9 1200A	**L100 . x x** **L160 . x x** **L400 . x x** **L600 . x x** **L800 . x x** **L1200 . x x**	**. A3** **. A3** **. A3** **. A3** **. A3** **. A3**	
4-pole **4. pole early make**	*60°* 	4 88 ❐ 125A 4 180A 4 132 ❐ 400A 6 600A 8 800A 12 1200A	**L100 . x x** **L160 . x x** **L400 . x x** **L600 . x x** **L800 . x x** **L1200 . x x**	**. A4** **. A4** **. A4** **. A4** **. A4** **. A4**	
6-pole	*60°* 	6 88 ❐ 125A 6 180A 6 132 ❐ 400A 9 600A 12 800A 18 1200A	**L100 . x x** **L160 . x x** **L400 . x x** **L600 . x x** **L800 . x x** **L1200 . x x**	**. A6** **. A6** **. A6** **. A6** **. A6** **. A6**	

For switches with the design **V..** it is necessary to state the installation depth - that is, the distance between mounting level of the switch and the inside edge of the door (dimension T).



Load Switches for resistive or slightly inductive loads or switching without load

Description	Wiring diagram	*Switching angle*	Number of cells ↓ Size ↓ **AC21**	**Type**	**Design** **.E.** ↓	**.V.** ↓	**Switch pro-gram**	Escutcheon plate
Changeover switches U								
1-pole		*60°*	2 88 ❐ 125A	**L100 .**	**x**	**x**	**. U1**	
			2 180A	**L160 .**	**x**	**x**	**. U1**	
			2 132❐ 400A	**L400 .**	**x**	**x**	**. U1**	
			3 600A	**L600 .**	**x**	**x**	**. U1**	
			4 800A	**L800 .**	**x**	**x**	**. U1**	
			6 1200A	**L1200 .**	**x**	**x**	**. U1**	
2-pole		*60°*	4 88 ❐ 125A	**L100 .**	**x**	**x**	**. U2**	
			4 180A	**L160 .**	**x**	**x**	**. U2**	
			4 132❐ 400A	**L400 .**	**x**	**x**	**. U2**	
			6 600A	**L600 .**	**x**	**x**	**. U2**	
			8 800A	**L800 .**	**x**	**x**	**. U2**	
			12 1200A	**L1200 .**	**x**	**x**	**. U2**	
3-pole		*60°*	6 88 ❐ 125A	**L100 .**	**x**	**x**	**. U3**	
			6 180A	**L160 .**	**x**	**x**	**. U3**	
			6 132❐ 400A	**L400 .**	**x**	**x**	**. U3**	
			9 600A	**L600 .**	**x**	**x**	**. U3**	
			12 800A	**L800 .**	**x**	**x**	**. U3**	
			18 1200A	**L1200 .**	**x**	**x**	**. U3**	
4-pole **4. pole early make**		*60°*	8 88 ❐ 125A	**L100 .**	**x**	**x**	**. U4**	
			8 180A	**L160 .**	**x**	**x**	**. U4**	
			8 132❐ 400A	**L400 .**	**x**	**x**	**. U4**	
			12 600A	**L600 .**	**x**	**x**	**. U4**	
			16 800A	**L800 .**	**x**	**x**	**. U4**	
			24 1200A	**L1200 .**	**x**	**x**	**. U4**	
Changeover switches without off W								
1-pole		*60°*	2 88 ❐ 125A	**L100 .**	**x**	**x**	**. W1**	
			2 180A	**L160 .**	**x**	**x**	**. W1**	
			2 132❐ 400A	**L400 .**	**x**	**x**	**. W1**	
			3 600A	**L600 .**	**x**	**x**	**. W1**	
			4 800A	**L800 .**	**x**	**x**	**. W1**	
			6 1200A	**L1200 .**	**x**	**x**	**. W1**	
2-pole		*60°*	4 88 ❐ 125A	**L100 .**	**x**	**x**	**. W2**	
			4 180A	**L160 .**	**x**	**x**	**. W2**	
			4 132❐ 400A	**L400 .**	**x**	**x**	**. W2**	
			6 600A	**L600 .**	**x**	**x**	**. W2**	
			8 800A	**L800 .**	**x**	**x**	**. W2**	
			12 1200A	**L1200 .**	**x**	**x**	**. W2**	
3-pole		*60°*	6 88 ❐ 125A	**L100 .**	**x**	**x**	**. W3**	
			6 180A	**L160 .**	**x**	**x**	**. W3**	
			6 132❐ 400A	**L400 .**	**x**	**x**	**. W3**	
			9 600A	**L600 .**	**x**	**x**	**. W3**	
			12 800A	**L800 .**	**x**	**x**	**. W3**	
			18 1200A	**L1200 .**	**x**	**x**	**. W3**	
4-pole **4. pole early make**		*60°*	8 88 ❐ 125A	**L100 .**	**x**	**x**	**. W4**	
			8 180A	**L160 .**	**x**	**x**	**. W4**	
			8 132❐ 400A	**L400 .**	**x**	**x**	**. W4**	
			12 600A	**L600 .**	**x**	**x**	**. W4**	
			16 800A	**L800 .**	**x**	**x**	**. W4**	
			24 1200A	**L1200 .**	**x**	**x**	**. W4**	

Ordering example: AC1 1200A panel mounting, changeover switch without off 4-pole **L1200 E W4**

Operating Knobs and Handles

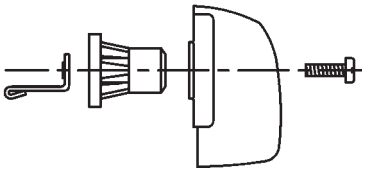
Types of handles

In the standard version, the switches are supplied with a black twist knob or instrument knob (M10H - N33F), except for design SMA, which has a grey toggle knob. Switches of size L, which consist of 2 or 3 switch columns, come with a black hand wheel. If required, the switch can be supplied with other knobs, which can later easily be exchanged.
All operating knobs have an insert, which sets the position of the knob in relation to the switch shaft. This insert can be mounted in 8 different positions (at intervals of 45°), causing the angle of each individual switch setting to be rotated by 45°.

All operating knobs can be moved on the hexagonal shaft, to permit adaptation to different sheet thicknesses, etc.

Type		M10 M10H M20	N20 N33F	N40 N60 N80 L100 L160	N100 N200 L400 L600 L800 L1200
Knob movement	mm	5	5	7	9
Hexagonal shaft dimension	mm	5	7	9	12

In the standard version, the switch terminals are positioned left and right (except M10H). When the knob insert is turned by 90°, the lay-out of the terminals changes to top and bottom.



Ordering example: Cam switch N60 V U3 with ball type handle red
Order type: **N60 V U3 +B3**
Dimensions see page 84

Knobs and handles Description	Colour	**Ordering Code**	M10 M10H M20	N20 N33F	N40 N60 N80 L100 L160	N100 N200 L400 L600 L800 L1200
 **Instrument knob** Standard for M10 to N33F	grey black red white	**+G1** **+G2** **+G3** **+G5**	**X** **X** **X** **X**	**X** **X** **X** **X**		
 **Twist knob** Standard for N40 to N200	grey black red white yellow	**+R1** **+R2** **+R3** **+R5** **+R7**	**X** **X** **X** **X**	**X** **X** **X** **X** **X**	**X** **X** **X** **X** **X**	**X** **X** **X**
 **Toggle knob**	grey black red white blue	**+K1** **+K2** **+K3** **+K5** **+K6**	**X** **X** **X** **X** **X**	**X** **X** **X** **X**		
 **Ball type handle**	grey black red	**+B1** **+B2** **+B3**		**X** **X** **X**	**X** **X** **X**	**X** **X** **X**
 **Hand wheel**	black	**+HR**				**X**

Escutcheon Plates

TELUX-Cam Switches in designs E, V, P, PF, SM, UP, Z and KE are supplied with a square escutcheon plate consisting of a black frame and plexi insert plate. The markings are printed in black are on the back of the insert plate. To protect the markings so that they remain easy to read, the back of the insert plate is lined with silver foil. In addition, rectangular plates can be provided for all switch sizes, which can fitted on all switches after mounting.

Square plate

Rectangular plate
(with square plate)

TELUX-Cam Switches in design SMA, for distribution boards with 45mm inside edge of installation cover, is supplied with a grey cover and black markings.

Special engraved markings on escutcheon plates are limited by the available space. In the case of relatively large production runs or frequent use of the text, we recommend ordering of a printing block. This will be invoiced at cost price, and the engraving will not be charged for. This investment generally pays with batches from 50 pieces upwards.
The "escutcheon plate" column of the selection and ordering tables for switch programs indicates the standard plate and, in some cases, an additional plate that is often used for the programs in question. If such a plate, listed in the selection table, is desired, the appropriate code number should be stated when ordering a switch and switch program.

Should only **plates** or **parts** of the latter be ordered, the order type is assembled as shown by the following example.

Code letter of switch sizes

M10, M10H, M20	**A**
N20, N33F	**E**
N40, N60, N80, L100, L160	**H**
N100, N200, L400, L600, L800, L1200	**L**

Ordering example: Escutcheon plate silver, complete, for cam switch M10, marked with MAN OFF AUTO, angle of rotation 60°

Order type:

A82088

Switch size	**Plate**	**Marking**
Code letter for M10, M10H and M20	Art.No. for standard plate with markings, complete	Code number with label MAN OFF AUTO angle of rot. 60°

However, if a **switch** with non-standard lettering is required, only three-digit code number for the marking need be added to the order type (see next page).

Dimensions see page 86

Description	**Order type** Switch size Code letter	Plate Art.No.	Marking Code number
Escutcheon plate for designs E, V, P., Z, SM, KE and UP Escutcheon frame black, plexi insert plate silver, markings black			
Escutcheon plate complete silver	A E H L	.82...	... (see pp. 58-60)
Escutcheon plate complete yellow	A E H L	.90...	... (see pp. 58-60)
Plexi insert plate silver	A E H L	.85...	... (see pp. 58-60)
Plexi insert plate yellow	A E H L	.80...	... (see pp. 58-60)
Escutcheon frame black	A E H L	.8203	-
Rectangular escutcheon plate for designs E, V, Z and SM Escutcheon frame black, plexi insert plate silver, markings black			
Rectangular additional escutcheon plate complete silver	A E H L	.865..	... (see pp. 58-60)
Rectangular additional escutcheon plate complete yellow	A E H L	.915..	... (see pp. 58-60)
Plexi insert plate silver	A E H L	.885..	... (see pp. 58-60)
Plexi insert plate yellow	A E H L	.895..	... (see pp. 58-60)
Escutcheon frame black	A E H L	.8503	-
Installation cover for design SMA			
grey cover , markings black	A - - -	.68...	... (see page 60)

Escutcheon Plates

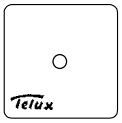
Selected standard markings
The markings that are most commonly required are shown below, together with code letters for the switch size and the code number.
Ordering example: Switch type M10H E A3 with escutcheon plate "OFF ON" and additional rectangular escutcheon plate "PUMP"
Order type: **M10H E A3 +003 +516**

Code letter of switch sizes

M10, M10H, M20	**A**
N20, N33F	**E**
N40, N60, N80, L100, L160	**H**
N100, N200, L400, L600, L800, L1200	**L**

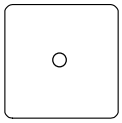
Blank escutcheon plates

000



A E H L

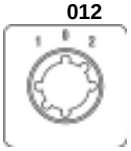
001



A E H L

Switching angle 30°

012



A E H

013

A E

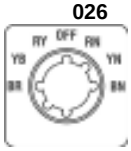
014

A

016

A

026



A

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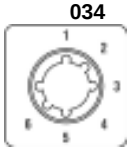

A

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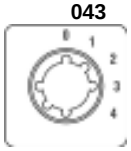

A

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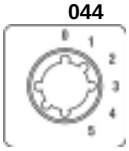

A

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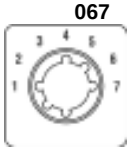
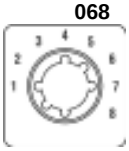


A

068



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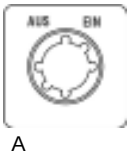

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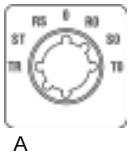
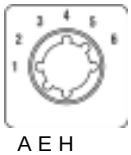


A

097

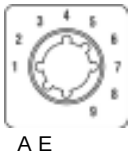
A

101



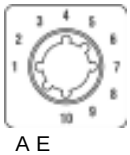
A E H

102



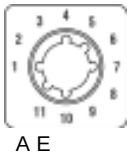
A E

103



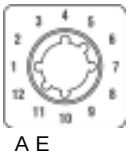
A E

104



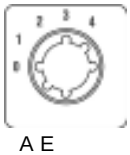
A E

105



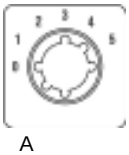
A E

106



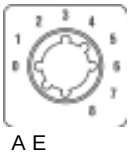
A E

107



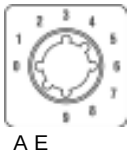
A

108



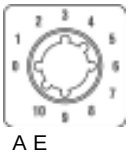
A E

109



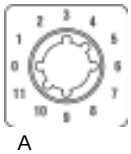
A E

110



A E

111



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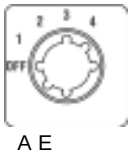
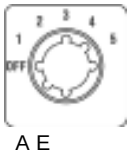


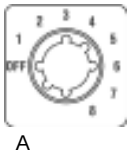
A E

113



A E

114



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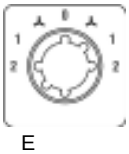
153



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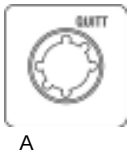
157



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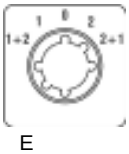

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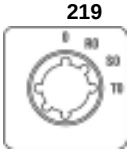
219



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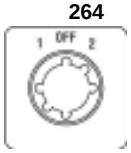

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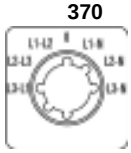
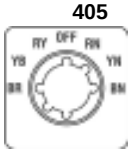


A E

371

A

405



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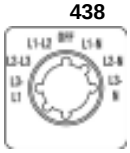
438



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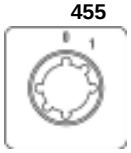

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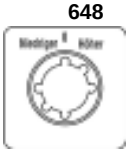
648



A E

714

E

749

A

Switching angle 45°

018

A E

019

A E H L

021

A

022

E

025

E

031

A

032

A

036

E

041

A

042

A E

045

A

051

A E

118

A E

119

A E

120

E

121

A E

122

A E

123

A E H L

124

A E

125

A E

126

A E

127

A E

128

A E

129

A

131

E

160

E H

221

A

243

A E

244

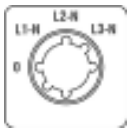
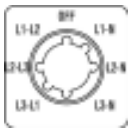
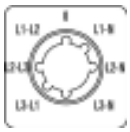
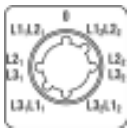
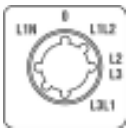
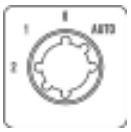
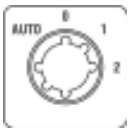
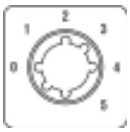
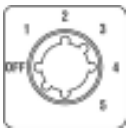
A E

247

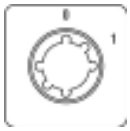
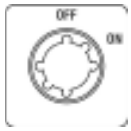
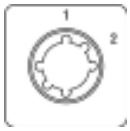
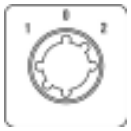
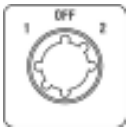
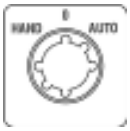
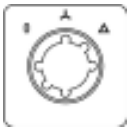
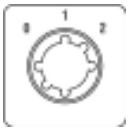
A E

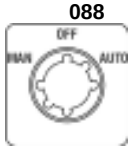
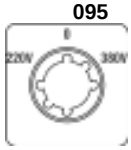
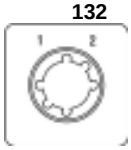
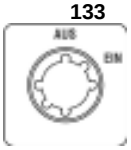
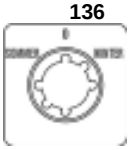
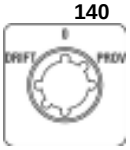
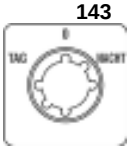
Escutcheon Plates

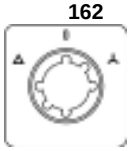
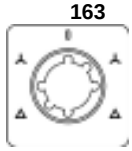
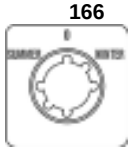
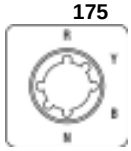
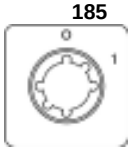
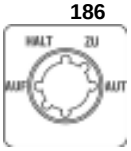
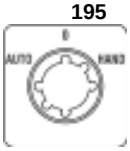
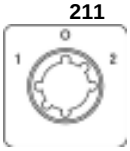
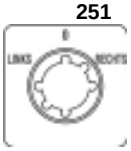
Switching angle 45°

248	249	250	303	304	336	412	421	423
								
A	A	E	A E	A E	A	A	A E	A E

Switching angle 60°

002	003	004	006	007	008	009	010	011	015
									
A E H L	A E H L	A E H L	A E H L	A E H L	A	A	A E H L	A E H L	A E

081	082	088	095	132	133	134	136	140	143
									
A E	A E	A E H	A E	A E H	A E	A E	A	A	A

162	163	166	175	185	186	195	211	241	251
									
A	E	A	E	A E H L	A	A E	E H L	A	A E

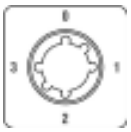
252	266	273	277	279	292	334	338	355	408
									
A	A E	A	A	A E H	A	A	A E	A	A

416	417	418	419	420	422	439	446	448	489
A E	A E	A E	A E	A E	A E	A	A E	A	A

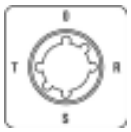
634	635	636	675	699	702	706	739	798
A	A	A	E H	A	A H	A	A	A

Escutcheon Plates

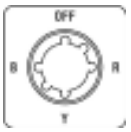
Switching angle 90°

028


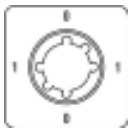
A E

029


A E

030


A E

056


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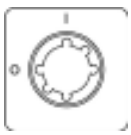

A E H L

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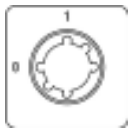
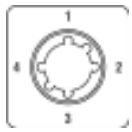
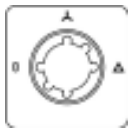


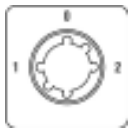
A E

089


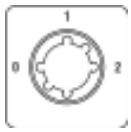
A E

144


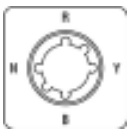
A E H

145


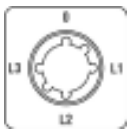
E

217


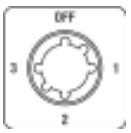
A

230


A E

246


A E

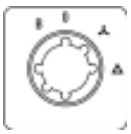
270


A

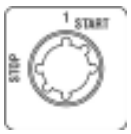
330


A

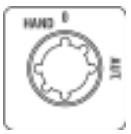
Miscellaneous

020


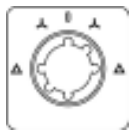
E

054


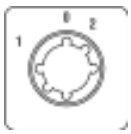
A

071


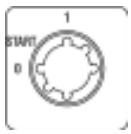
A

092


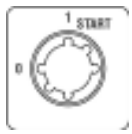
E

147


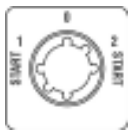
A E H

148


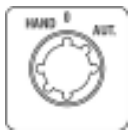
A E

149


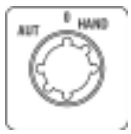
E

172


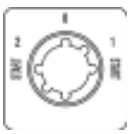
A E

225


A

289


A

760


A

Rectangular additional escutcheon plates

500
A E H L

501
HAUPTSCHALTER
A E

503
AMMETER
A E

504
VOLTMETER
A E

505
PUMPE 1
A

506
PUMPE 2
A

509
FRAMMDÖRR
E

519
STEUERUNG
A E

520
LEISTUNGSSCHALTER
E

524
MAIN SWITCH
A E

534
NACHTLICHT
A

535
RAUMBELEUCHTUNG
A

542
Drehzahlverstellung
A E

543
Glimmlampentest
A

546
ALARMUNTERDRÜCKUNG
A

549
VEILLEUSE
A

550
PRISES
A

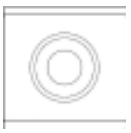
551
ECLAIRAGE
A

552
HOOFDSCHAKELAAR
A E

556
PUMPE 3
E

557
PUMPE 4
A

Covers for design SMA

001


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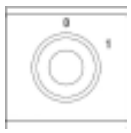

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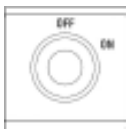

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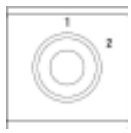

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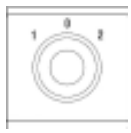

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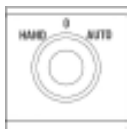

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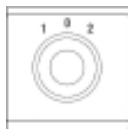
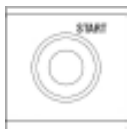
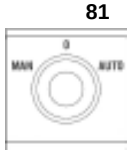


013

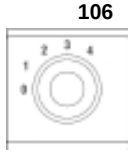

014


015


028


81


82


106


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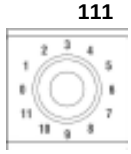

122

123

132

143

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234

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355

370

416

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637

717

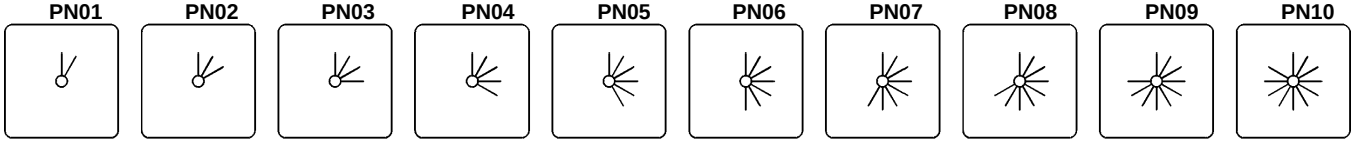
Switching angles

Arrangement of switch settings

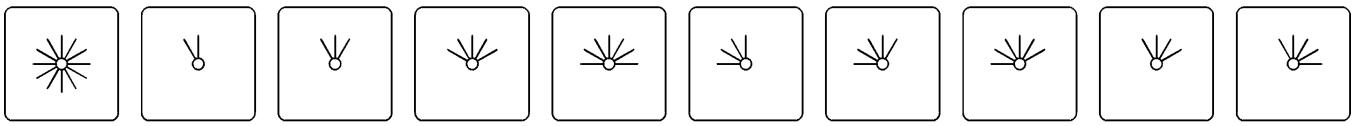
All feasible arrangements of switch settings are shown, and defined by position numbers, in the following tables. Not only the switching angles, but also switches with latched or momentary settings, or combinations of the two, are distinguished from one another.
Knowledge of the following variations is particularly important when planning special switches. It is necessary to state the position number when ordering special switches, as the cheapest version will otherwise be selected.
All the switches types listed can be supplied with switching angles other than those indicated, provided that they are permitted by the switch program (additional charge).

Switching angle 30°

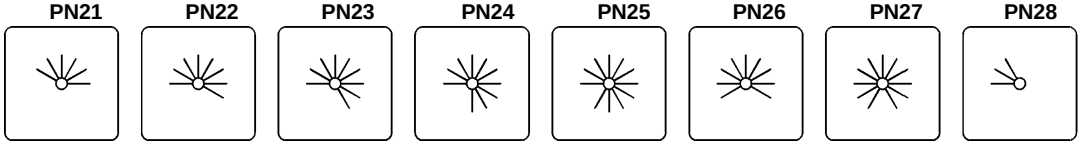
PN01 PN02 PN03 PN04 PN05 PN06 PN07 PN08 PN09 PN10



PN11 PN12 PN13 PN14 PN15 PN16 PN17 PN18 PN19 PN20

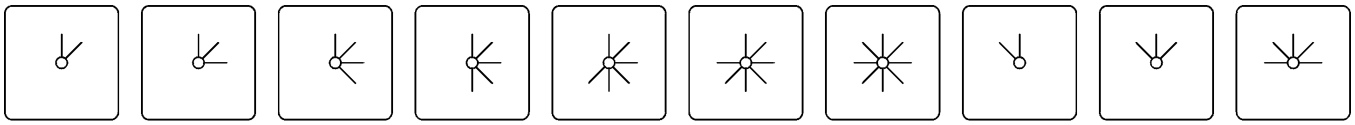


PN21 PN22 PN23 PN24 PN25 PN26 PN27 PN28

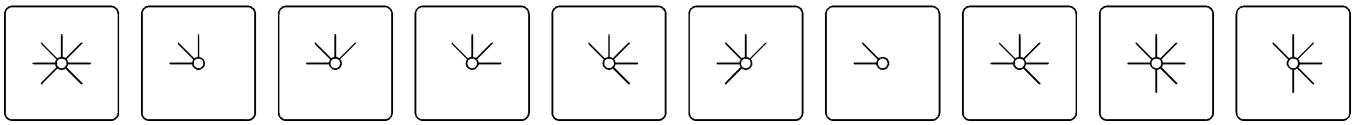


Switching angle 45°

PN30 PN31 PN32 PN33 PN34 PN35 PN36 PN37 PN38 PN39

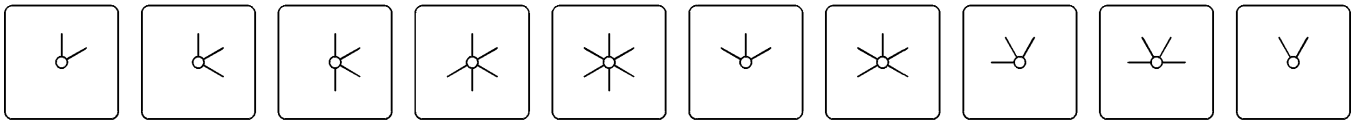


PN40 PN41 PN42 PN43 PN44 PN45 PN46 PN47 PN48 PN49

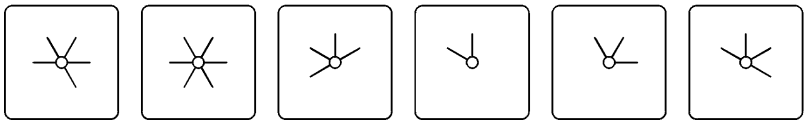


Switching angle 60°

PN50 PN51 PN52 PN53 PN54 PN55 PN56 PN57 PN58 PN59

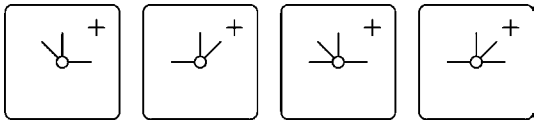


PN76 PN77 PN78 PN79 PN150 PN151



Switching angle 45/90°

PN70 PN71 PN72 PN73

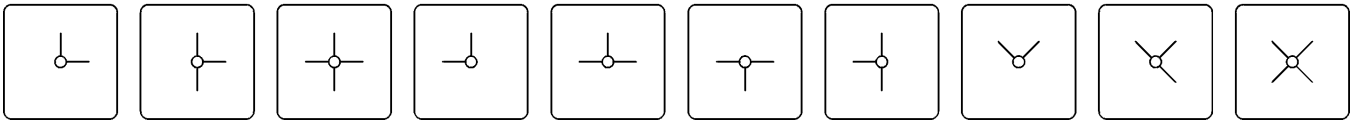


+) Not available for switch types M10, M10H and M20

Switching angles

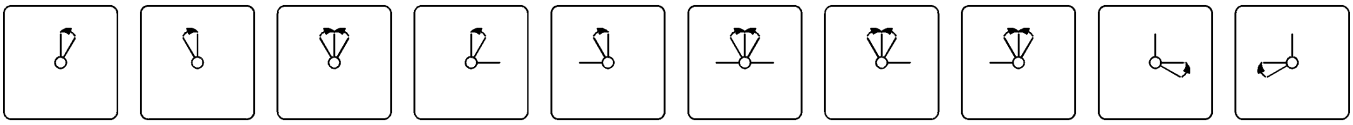
Switching angle 90°

PN60 PN61 PN62 PN63 PN64 PN65 PN66 PN67 PN68 PN69

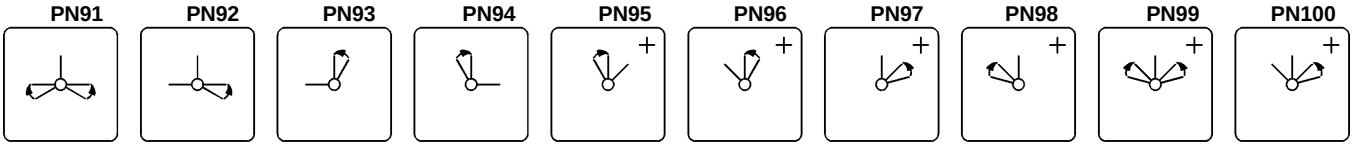


Momentary settings and special combinations

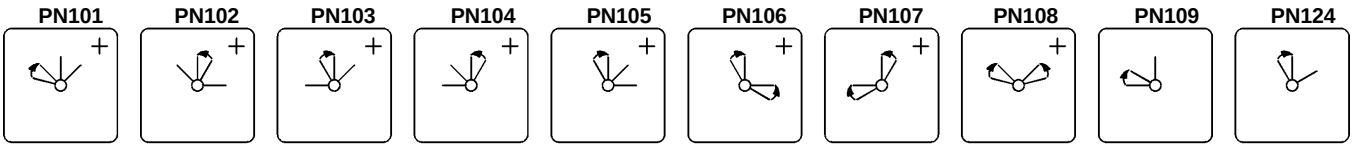
PN80 PN82 PN83 PN84 PN85 PN86 PN87 PN88 PN89 PN90



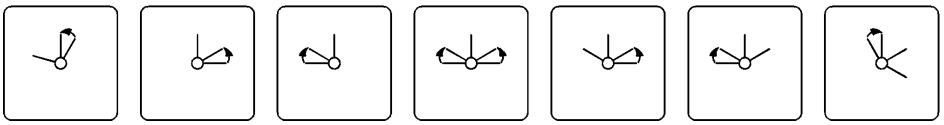
PN91 PN92 PN93 PN94 PN95 PN96 PN97 PN98 PN99 PN100



PN101 PN102 PN103 PN104 PN105 PN106 PN107 PN108 PN109 PN124

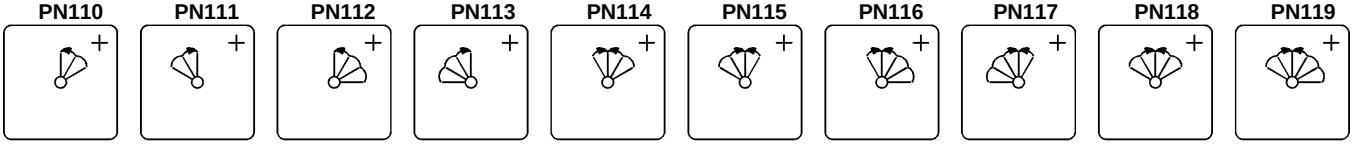


PN125 PN126 PN127 PN128 PN129 PN130 PN131

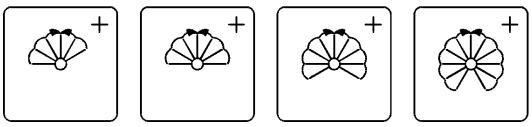


Spring return over several settings

PN110 PN111 PN112 PN113 PN114 PN115 PN116 PN117 PN118 PN119



PN120 PN121 PN122 PN123



+) Not available for switch types M10, M10H and M20

Handles and drive units

Special actuating mechanisms and ancillary attachments can be provided for many switch sizes and designs. Here, the switch type is followed by order code for the ancillary attachment.

Ordering example: Cam switch N20 GF W3R for foot operation
Order type: **N20 GF W3R +FUSS1**

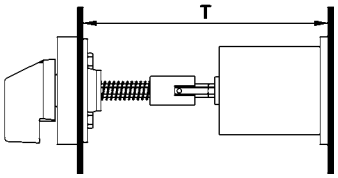
Dimensions see page 87

	Ordering Code	Suitable for designs	Suitable for switch type
Removable knob drive The operating knob is designed to be removable, and can be withdrawn in any setting. The switch shaft is covered when the knob is withdrawn.	**+STGR**	E P	M10H, M20, N20, N33F M10, N20, N33F
Removable knob drive 2 The operating knob is designed to be removable. It can be withdrawn in one setting, to be stated when ordering.	**+STGR2**	E P	M10H, M20, N20, N33F M10, N20, N33F

1) Cast enclosed switches are delivered with switch type N32

Door couplings

For switches with door couplings it is necessary to state the installation depth - that is, the distance between mounting level of the switch and the inside edge of the door (dimension T).



Door couplings are available for switches to be installed in switchgear cabinets or distribution boards with hinged doors. These permit the doors to be openened without removal of the operating knobs.

Ordering example: Cam switch N100 V A3 with lockable door coupling, moisture protected IP65, dimension T=580mm
Order type: **N100 V A3 +TK2FR/580**

Dimensions see page 88

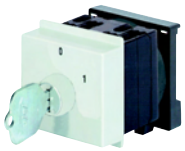
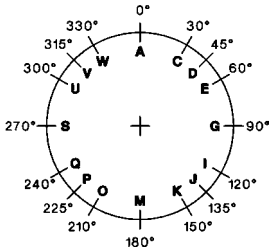
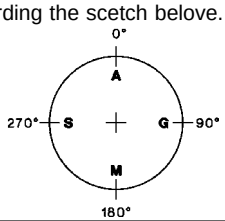
	Ordering Code	Suitable for designs	Suitable for switch type
Door coupling Protection class from front: IP65 5-hole mounting	**+TKE/...**	V, SM	M10H, M20, N20, N33F
Door coupling locked Protection class from front: IP65 5-hole mounting Doors only open at a given switch setting: unless otherwise stated, the "OFF" setting.	**+TK2E/...**	V, SM	M10H, M20, N20, N33F
Door coupling locked Protection class from front: IP65 Central fixing Ø22mm Doors only open at a given switch setting: unless otherwise stated, the "OFF" setting.	**+TK2Z/...**	V, SM	M10H, M20, N20, N33F
Door coupling Protection class from front: IP40 5-hole mounting	**+TK/...**	V	N40, N60, N80, N100, N200 L100, L160, L400, L600 L800
Door coupling Protection class from front: IP65 5-hole mounting	**+TKFR/...**	V	N40, N60, N80, N100, N200 L100, L160, L400, L600 L800
Door coupling locked Protection class from front: IP40 5-hole mounting Doors only open at a given switch setting: unless otherwise stated, the "OFF" setting.	**+TK2/...**	V	N40, N60, N80, N100, N200 L100, L160, L400, L600 L800
Door coupling locked Protection class from front: IP65 5-hole mounting Doors only open at a given switch setting: unless otherwise stated, the "OFF" setting.	**+TK2FR/...**	V	N40, N60, N80, N100, N200 L100, L160, L400, L600 L800

Lockable switches

Key-operated and lockable switches are supplied with two keys. Additional keys or other types of lock on request.

Ordering example: Cam switch N20 E A3 key operated
Order type: **N20 E A3 +SA**

Dimensions see page 89 and 90

		Ordering Code	Suitable for designs	Suitable for switch type
	**Key operated switch** Lock Willenhal FT101, key removable in all lockable settings. Other types of lock on request. Maximum number of cells M10 - N33F: 6 N40, N60: 2	**+SA**	E, V, SM E, V P SMA UP	M10H, M20, N20, N33F N40, N60 M10, N20, N33F, N40, N60 M10H, M20 M10
	**Key operated switch,** key removable only in some settings. Add letter of setting where key is removable to ordering code according to the scetch below. 	**+SA/.**		
	**Key operated switch IP65** Lock Ronis R455, key removable in all lockable settings. **Key operated switch,** key removable only in some settings. Add letter of setting where key is removable to ordering code according to the scetch above.	**+SA** **+SA/.**	Z, ZO	M10H, M20
	**Key operated switch** Lock KABA8, key removable in all lockable settings. **Key operated switch,** key removable only in some settings. Add letter of setting where key is removable to ordering code according the scetch below. 	**+SAK** **+SAK/.**	E	M10H, M20
	**Key operated switch with barrel for special security functions** Lock EVVA EHZ50/5 Nickel matt Special version which prevents not only switching but also access to the cable ends and removal of the switch when locked. Maximum number of cells Design E, P: 4 Design UP : 3	**+SASI**	E P UP	M10H, M20 M10, M20 M10, M20
	Key operated switch for special security functions without lock for use of lock EVVA EHZ50/5 or with same dimensions Maximum number of cells Design E, P: 4 Design UP : 3	**+SASO**	E P UP	M10H, M20 M10, M20 M10, M20

Padlock devices

A range of padlock devices designed to prevent from being turned on by unauthorized personnel, or during maintenance and repair work, can be supplied.
Dimensions see page 91

Ordering example: Cam switch N33F E A3 with interlocking device SV3 suitable for 3 padlocks
Order type: **N33F E A3 +SV3**

	Padlock device Description	**Ordering Code**	Suitable for designs	Suitable for switch type
	**Padlock device** Standard version **black**, otherwise **red**, for 1 or 2 padlocks. Shackles up to Ø6mm Standard version **black** 64 x 64mm, otherwise **red** 64 x 64mm	**+SV1** **+SV1R** **+SV164** **+SV164R**	E, V, SM P, PF E, V P, PF	M10H, M20 M10 M10H, N20, N33F N20, N33F
	**Padlock device** Standard version **black**, otherwise **yellow** insert plate and **red** twist knob for 1-3 padlocks. Shackles up to Ø8,5mm Prior to insertion of the first padlock, a red locking ledge must be depressed. This indicates that the switch is locked.	**+SV3** **+SV3R**	E, V E, V E, V PF	N40, N60, N80, L100, L160 N100, N200, L400, L600, L800, L1200 N40, N60, N80, N100, N200
	**Padlock device** Standard base **grey**, locking ring **black**, or with **yellow** base and **red** locking ring. Locking ring for 1-3 padlocks. Shackles up to Ø6mm Standard base **grey**, locking ring **black** 88 x 88mm, or with **yellow** base and **red** locking ring 88 x 88mm	**+SV4** **+SV4R** **+SV488** **+SV488R**	E, V SM P, PF E, V E, V P, PF	M10H, N20, N33F M10H, N20, N33F N20, N33F M10H, N20, N33F N40, N60, N80 N40, N60, N80
	**Key lock device** With a cylinder lock in the lock attachment, one or more switch settings are lockable (state when ordering). The operating knob can only be turned when unlocked. The key can be withdrawn wheter locked or unlocked. Special versions, in which the key cannot be withdrawn when in some (unlokkable) settings can be supplied.	**+SZ**	E, V SM	alle M10H, M20, N20, N33F
	Key lock device Special version for on-off switches, in which it is possible to switch off without a key.	**+SZ2**	E, V SM	alle M10H, M20, N20, N33F

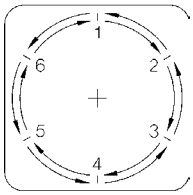
Switch interlocks

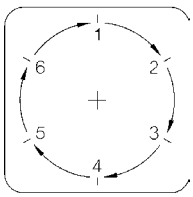
A wide range of locks and interlocking devices, designed to prevent accidental or hazardous switching, can be supplied.

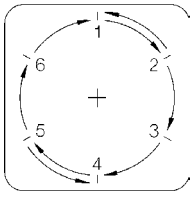
Ordering example: Cam switch N20 E A3 with push button switch lock
Order type: **N20 E A3 +DV**

Dimensions see page 92

Description	Ordering Code	Suitable for designs	Suitable for switch type
Push button interlock The switch can only be actuated when the pushbutton is simultaneously depressed (two-handed operation).	**+DV**	E, V	all
Interlock with electrical contact The switch can only be actuated when the pushbutton, which also operates a make and break contact, is actuated (for external interlocking devices or safety measures).	**+ET**	E, V	all
Magnetic interlock The switch can only be actuated when an electromagnet is simultaneously excited. When ordering, voltage and percentage duty cycle of the magnet coll should be stated.	**+MV**	E	N20, N33F, N40, N60, N80 N100, N200
Mutual interlock Two or more switches, mounted on the same front plate, can be mutually interlocked, such that one switch can only be actuated when the other is in given settings.	**+GV**	E, V	N20, N33F, N40, N60, N80 N100, N200
Circular switch Switches that have the maximum number of settings for a given switching angle can be made without a stop position, permitting direct switching from the last to the first setting.	**+RU**	all	all
Backswitch 1 Special version of the circular switch, in which the switch can only be turned in one direction.	**+RS1**	all	all
Backswitch 2 Special version of the circular switch, in which, in given positions, the switch can only be operated in one direction.	**+RS2**	all	all







Couplings and stop mechanism

A range of couplings and stop mechanisms for trouble-free operation of switches with a very large number of contacts can be supplied.
Dimension see page 93

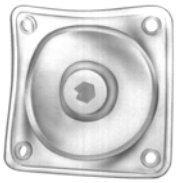
Ordering example: Cam switch N200 V ST0113 spread over three columns interconnected by gears
Order type: **N200 V ST0113 +ZK3**

Description	Ordering Code	Suitable for designs	Suitable for switch type
Coupling of two columns For simultaneous drive of two switch columns (with very large number of switch cells or limited installation depth).	**+ZK2**	E, V	all
Coupling of three columns For simultaneous drive of three switch columns.	**+ZK3**	E, V	all
Coupling of different switch sizes For attachment of control switches (auxiliary contacts) to larger switches. M10H, M20 in sizes E and H. N20 to N80 in size L.	**+ZWK**	E	N40, N60, N80, L100, L160 N100, N200, L400, L600, L800, L1200
Delayed action switch Using a delayed action coupling, two switch shafts - a main shaft and delayed shaft - can be coupled, such that the delayed shaft is rotated together with the main shaft once a given angle of rotation is reached (e.g. for off-load return of switches used with pole-changing motors).	**+SK**	E, V G, GF	N20, N33F, N40, N60, N80 N20
Second stop mechanism With switches in which a large number of contacts is simultaneously operated, use of a second stop mechanism is sometimes necessary, in order to ensure precise switching to the next setting.	**+RW2**	all	all
Metal stop mechanism for extreme mecanical stress on the stop mechanism, e.g. where many contacts are switched at the same time. Not for PN110 to PN123	**+MRW**	E, V E, V E, V G, GF	N40, N60, N80, L100, L160 N100, N200, L400, L600, L800, L1200 N20

Special versions

A number of special versions can be supplied for adaptation of switches to various conditions of use.

Ordering example: Cam switch M10H E U3 with large front plate
Order type: **M10H E U3 +GFP**



Description	Ordering Code	Suitable for designs	Suitable for switch type
Switch shaft sealing For increased front protection class on IP54.	**+WD**	E, V SM	N20 to L1200 N20, N33F
Front plate/switch shaft sealing For increased front protection class on IP65. In this version, a wider hole is required for the shaft. Dimensions see page 89	**+FPWD**	E, V, SM	N20, N33F
Extended switch shaft For adaptation of switch designs V and SM to the enclosure depth. State additional shaft length when ordering.	**+VW/...**	E, V SM	all M10H, M20, N20, N33F
Large front plate Switch with front plate and operating knob of the next size (for replacement of older, larger switches or aesthetic reasons).	**+GFP**	E, V, SM	M10H, N20, N33F
Switch with pilot lamp lamp red, 230V lamp red, 400V lamp green, 230V lamp green, 400V	 **+SLR/230** **+SLR/400** **+SLG/230** **+SLG/400**	E P UP	all M10, N20, N33F, N40, N60 M10, N20
Gold plated contacts For electronic circuits with low voltages and currents.	**+GK**	all	M10H, M20, N20, N33F
Tropical proof type	**+TR**	all	all
Neon safety switch For all-pole switching off of neon advertisement circuits by the Fire Brigade. Dimensions see page 91	**+FEU**	E	N20, N33F

Accessories

A number of special versions can be supplied for adaptation of switches to various conditions of use.
Dimensions see page 92

Ordering example: Cam switch N20 E A3 with terminal cover plate
Order type: **N20 E A3 +KLAD**

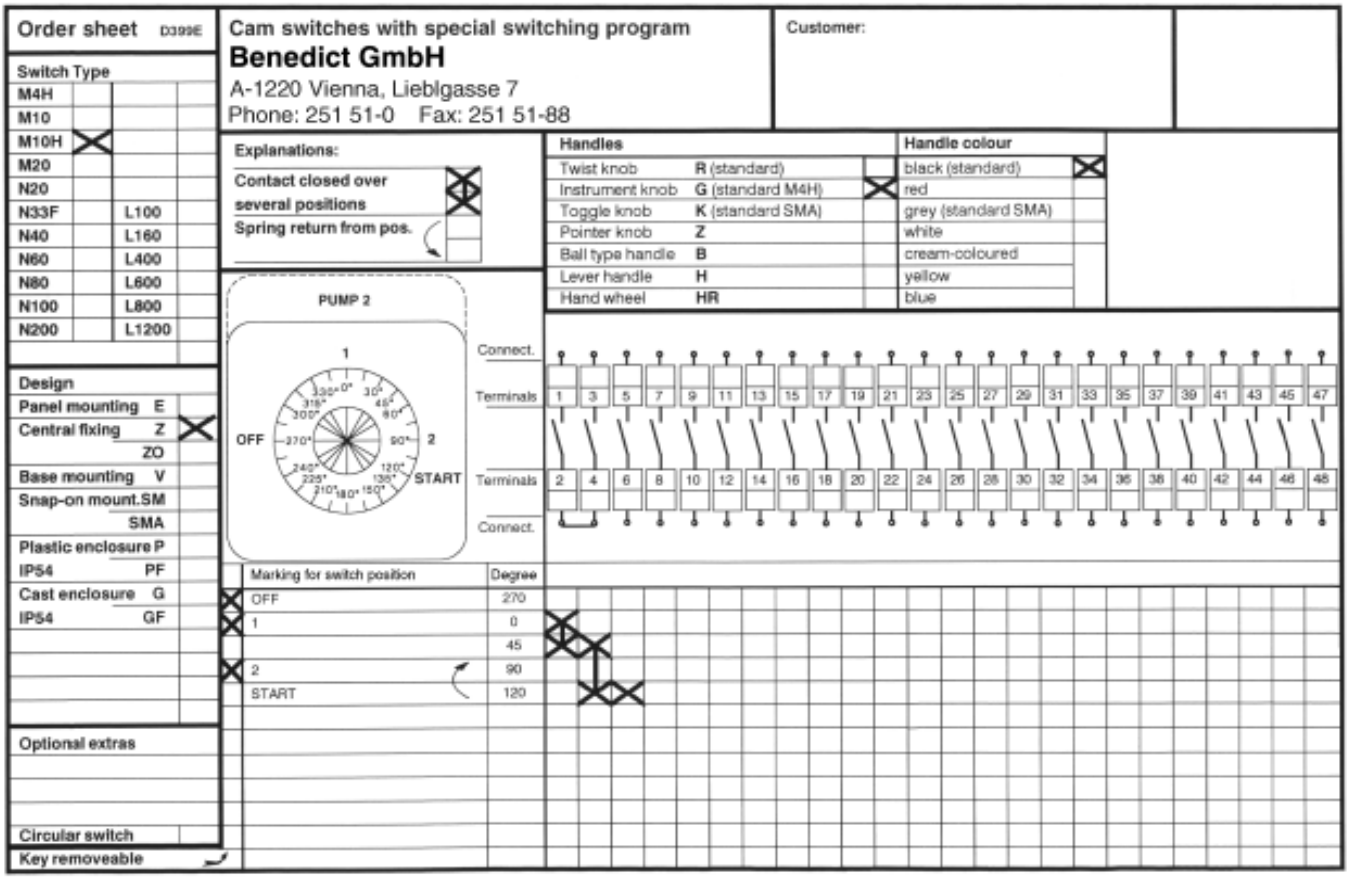
Description	**Ordering Code**	Suitable for designs	Suitable for switch type
Terminal cover plate Prevents accidental touching of live terminals (requirement for main switches according to VDE 0113) only for 2 cells for all cells	**+KLAD** **+KLAD**	E, V E, V	N20, N40, N60, N80 N100, N200 N33F
Moisture proofing caps Protection class from rear: IP54. For protection of the switch from dust and moisture (e.g. when installed in machine pedestals). For switch mounting from the front and rear. Conical cable entry glands. Maximum number of cells: M10H 7 N20 5 N40 4 N60 2	**+FR**	E	M10H, N20, N40, N60
 **Angled terminals** For easy connection of inaccessible switches. Unless otherwise stated, all terminals specified with markings are equipped in this manner. A distinction is drawn between left and right angled terminals. Seen from the switch end, the left terminals are located above left and below right; conversely, right terminals are above right and below left.	**+WK**	E,V	M20, N20, N40, N60, N80, N100
 **Fast-on connectors** For 6,3 x 0,8mm plugs.	**+AMPZ**	E, V	M20, N20
Earth terminals 2 terminals, connected with one another, insulated from switch column: for earth conductors.	**+PE**	E, V, P, PF PF G, GF	all M10, N20, N33F, N40, N60 N80, N100, N200 N20
Additional rectangular escutcheon plate 1 line Dimensions see page 84	**SRE**	E, Z, V, SM	all
Big additional rectangular escutcheon plate for 2 lines Dimensions see page 84	**SRE2**	E, V	M10H, M20, N20, N33F
Spare key for key operated switches with Lock Willenhal FT101	**J7101**	E, V, P SMA	M10H, M20, N20, N33F,N40 M10H, M20
Spare key for key operated switches with Lock Ronis R455	**B4-R455**	Z, ZO	M10H, M20
Wrench for switches with central fixing	**J7049**	Z, ZO	M10H, M20

Switching Programs to Customer Requirements

As a result of their modular construction, TELUX cam switches are particularly suitable for manufacturing of special variants. According to its function, each pair of contacts in the switch is adapted to the desired program by appropriate design of the cam plate. In the case of switches with an overall switching angle of more than 180°, provision must made for a cam plate in each switching cell, controlling two opposite, independent contact pairs with matching programs (does not apply to M10, M10H, M20 and N20).
Depending on the desired contact program for the special switch, it may often be impossible to make full use of all switching cells, that is, to include the maximum possible number of contacts. In determining the number of cells or switch length, one-contact cells will sometimes be resorted to.
Switch sizes M10, M10H, M20 and N20 are exceptions to this rule. Here, two cam plates can be built into each cell, so that both contacts are independently controlled (full use of the cells with special programs).

In all special switches with overall switching angles of less than 180°, the number of cells required is calculated by having the total number of contacts in the switching program.
When planning for switches with special programs, choice of the optimum switching angle thus plays an important part. The listing of all the options for lay-out of switch settings, on pages 59 and 60, should be an aid to planning (position numbers PN).
If special markings are to be engraved on the escutcheon plates, it is vital to take account of the available space. It is advisable to use abbreviations.
We provide forms (see final page) on request, free of charge, to give a clear overview when special programs are being defined. Switch size, design, type of operating knob and desired switching angle, as well as the function of the contacts, are entered on these forms. Provision has also been made in them for entry of details as to escutcheon plate engravings or other special requirements.

Ordering Example



Order sheet A4 see last page

Technical Data

Benedikt & Jäger-Low voltage switchgear are built and tested decisive national and international specifications. All devices suit all important specifications without any test obligation, like VDE 0660, BS 5419 and also relative to IEC-recommendations.

That is the reason why Benedikt & Jäger-Low voltage switchgear are used all over the world. In order to provide special versions are sometimes limitations to the max. voltages, currents and power ratings or special markings necessary.

Country	Canada	USA	Switzer-land	Den-mark	Norway	Sweden	Finland	Poland	Slowa-kia	Czech	Hun-garia
State deputy or private examination (state admitted)	CSA UL	UL	SEV	DEMKO	NEMKO	SEMKO	SETI	SEP	SKTC	EZU	MEEI
Label marking of examination boards	1)	c UL us c UL us									
Duty of approbation	All switchgear	UL or Approbation of switchgear commendable	No duty of approbation since 1. 1. 1994 Our devices are according to the harmonised European Standards e.g. EN 60947 (IEC 947, VDE 0660) and can be used generally					All switch-gear	All switch-gear	All switch-gear	All switch-gear
Specification	UL is authorised for approbations acc. to Canadian Standards		Marking with approbation label is no longer necessary								

1) CSA-approbations will be removed by UL-approbations valid for USA and Canada. On and after 1. 1. 2000 switchgear will be marked with the combined UL-mark c UL us or c UL us only.

Utilization Categories

For easier choice of devices and in order to make the comparison of different products simplier are utilization categories for cam switches according to IEC 947-3, VDE 0660 Part 107 and auiliary contacts according to IEC 947-5-1 and VDE 0660 Part 200 determind. The Table below offers divers utilization catagories and assorted test conditions.

Kind of current	Category fre-quent oper-ation	Category infre-quent oper-ation	Typical applications	Rated operational current	Test conditions for the number of on-load operating cycles (normal service) Make I/Ie	Make U/Ue	Make cosφ	Break Ic/Ie	Break Ur/Ue	Break cosφ	Test conditions for making and breaking capacities (operation in fault case) Make I/Ie	Make U/Ue	Make cosφ	Break Ic/Ie	Break Ur/Ue	Break cosφ
Alter-nating Current	AC20A	AC20B	No-load conditions	all values	-	-	-	-	-	-	-	-	-	-	-	-
	AC21A	AC21B	Switching of resistive loads including moderate overloads	all values	1	1	0,95	1	1	0,95	1,5	1,05	0,95	1,5	1,05	0,95
	AC22A	AC22B	Switching of mixed resistive and inductive loads including moderate overloads	all values	1	1	0,8	1	1	0,8	3	1,05	0,65	3	1,05	0,65
	AC23A	AC23B	Switching of motor loads or other highly inductive loads	0<Ie≤100A all values 100A<Ie	1	1	0,65	1	1	0,65	10 10	1,05	0,45 0,35	8 8	1,05	0,45 0,35
	AC2		Slip-ring motors: Starting, plugging	all values	2,5	1	0,65	2,5	1	0,65	4	1,05	0,65	4	1,05	0,65
	AC3		Squirrel-cage motors: Starting, switching off motors during runing	0<Ie≤100A all values 100A<Ie	Ie≤17A 6 Ie>17A	1	0,65 0,35	Ie≤17A 1 Ie>17A	0,17	0,65 0,35	10	1,05	0,45 0,35	8	1,05	0,45 0,35
	AC4		Squirrel-cage motors: Starting, plugging, inching	0<Ie≤100A all values 100A<Ie	Ie≤17A 6 Ie>17A	1	0,65 0,35	Ie≤17A 6 Ie>17A	1	0,65 0,35	12	1,05	0,45 0,35	10	1,05	0,45 0,35
	AC15		Control of electromagnetic loads (> 72VA)	-	10	1	0,7	1	1	0,4	10	1,1	0,3	10	1,1	0,3
					Ie	U/Ue	L/R1)	Ic/Ie	Ur/Ue	L/R1)	Ie	U/Ue	L/R1)	Ic/Ie	Ur/Ue	L/R1)
Direct current	DC20A	DC20B	No-load conditions	all values	-	-	-	-	-	-	-	-	-	-	-	-
	DC21A	DC21B	Switching of resistive loads including moderate overloads	all values	1	1	1	1	1	1	1,5	1,05	1	1,5	1,05	1
	DC22A	DC22B	Switching of mixed resistive a. induct. loads incl. moderate overloads (shunt motors)	all values	1	1	2	1	1	2	4	1,05	2,5	4	1,05	2,5
	DC23A	DC23B	Switching of highly inductive loads (e.g. series motors)	all values	1	1	7,5	1	1	7,5	4	1,05	15	4	1,05	15
	DC3		Shunt-motors: Starting, plugging, inching	all values	2,5	1	2	2,5	1	2	4	1,05	2,5	4	1,05	2,5
	DC5		Series-motors: Starting, plugging, inching	all values	2,5	1	7,5	2,5	1	7,5	4	1,05	15	4	1,05	15

Ue Rated operational voltage, U Voltage before make, Ur Recovery voltage, Ie Rated operational current, I Current made, Ic Current broken
1) Time in milliseconds (ms)

Note:
By plugging, is understood stopping or reversing the motor rapidly by reversing motor primary connections while the motor is running.

By inching (jogging), is understood energizing a motor once or repeatly for short periods to obtain small movements of the driven mechanism.

Technical Data

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1

Type			M10 P	M10H	M20	N20	N33F	N40	N60	N80	N100	N200
Rated therm. current I_{th}	open	A	20	20	32	32	50	63	85	115	150	250
Rated therm. current I_{the}	encl.	A	20	20	32	32	50	63	85	115	150	250
Rated operational voltage U_e		V	440	690 [1]	690 [1]	690 [1]	690 [1]	690 [1]	690 [1]	690 [1]	690 [1]	690 [1]
Disconnection property [2] acc. to VDE, IEC up to		V	440	440	440	440	440	690	440	440	690	690
Breaking capacity I_{eff}												
3 x 220-440V		A	160	160	220	220	260	380	520	740	900	1100
3 x 500V		A	-	100	160	160	200	290	380	560	680	850
3 x 660-690V		A	-	80	120	120	150	150	200	290	520	450	-
Utilization categ. AC21A, AC21B Switching of resistive loads including moderate overloads Rated operational current I_e		A	20	20	32	32	50	63	85	115	150	250
Utilization categ. AC23A, AC23B Switching of motor loads or other highly inductive loads Rated current I_e	400V	A	16	16	30	30	45	45	60	85	105	135
Power rating	220-240V	kW	4	4	7,5	7,5	11	15	22	30	40	40
3-phase 3-pole	380-440V	kW	7,5	7,5	15	15	22	22	30	45	55	70
	500V	kW	-	7,5	15	15	22	22	30	45	55	70
	660-690V	kW	-	7,5	15	15	22	18,5	30	45	45	-
Star-Delta-Switches for squirrel cage motors Power rating												
3-phase 3-pole	220-240V	kW	3,7	3,7	7,5	7,5	8	11	15	18,5	37	40
	380-415V	kW	7,5	7,5	15	15	18,5	18,5	25	30	40	70
Utilization category AC3 Switching of three-phase motors Rated current I_e	400V	A	12	12	22	22	30	30	50	60	80	135
Power rating	220-240V	kW	3	3	5,5	5,5	7,5	7,5	15	18,5	37	40
3-phase 3-pole	380-440V	kW	5,5	5,5	11	11	15	15	25	30	40	70
	500V	kW	-	5,5	11	11	15	15	25	30	40	70
	660-690V	kW	-	5,5	11	11	15	15	25	30	40	-
Utilization category AC4 squirrel cage motors, inching												
Power rating	220-240V	kW	0,55	0,55	2,2	2,2	3,7	4	5,5	6	11	18,5
3-phase 3-pole	380-440V	kW	1,5	1,5	4	4	5,5	7,5	11	15	18,5	35
	500V	kW	-	1,5	4	4	5,5	7,5	11	15	22	35
	660-690V	kW	-	1,5	4	4	5,5	7,5	11	15	22	-
Utilization category AC15 Control of electromagnetic loads, contactors, Rated current I_e												
	up to 240V	A	6	6	12	12	16	-	-	-	-	-
	380 -440V	A	4	4	6	6	7	-	-	-	-	-
2-pole in series	500V	A	-	5	8	8	10	-	-	-	-	-
Utilization categ. DC21A, DC21B Switching of resistive loads Time constant L/R≤1ms Rated current I_e												
1-pole	30V	A	20	20	32	32	40	63	80	100	150	250
	60V	A	4	4	6	6	20	30	30	30	-	-
	110V	A	0,6	0,6	3	3	4	6	6	6	-	-
	220V	A	0,3	0,3	0,8	0,8	0,8	1,3	1,3	1,3	2,5	2,5
	440V	A	-	-	0,4	0,4	0,4	0,6	0,6	0,6	0,7	0,7
Utilization category DC3 - DC5 Switching of shunt motors and series motors Time constant L/R≤15ms Rated current I_e												
1-pole	30V	A	8	8	13	13	16	25	32	40	60	100
	60V	A	1	1	2,4	2,4	4	12	12	12	-	-
	110V	A	0,3	0,3	0,5	0,5	1,6	2,4	2,4	2,4	-	-
Protection class ot terminals			IP00	IP20	IP00	IP00	IP20	IP00	IP00	IP00	IP00	IP00

1) suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): Uimp = 6kV. Data for other conditions on request
2) valid for lines with grounded common neutral termination, overvoltage category III , pollution degree 3.

Technical Data

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1

Type		M10 P	M10H	M20	N20	N33F	N40	N60	N80	N100	N200
Cable cross-sections											
solid	mm^2	1-2,5	1-2,5 [1]	1,5-6	1,5-6	2,5-10	2,5-16 [1]	6-25 [1]	6-35	10-50 [1]	50-150
flexible	mm^2	0,75-2,5	0,75-2,5 [1]	1-4	1-4	1,5- 6	2,5-10 [1]	6-25 [1]	6-35	10-35 [1]	35-120
flexible w. multicore cable end	mm^2	0,75-2,5	0,75-1,5	1-4	1-4	1,5- 6	2,5-6	6-16	6-35	10-25	-
Conductors to clamp per pole		2	2	2	2	2	2	1	1	1	1
Size of terminal screw		M3	M3,5	M4	M4	M4	M5	2xM5	2xM5	2xM6	M10
Tightening torque	Nm	0,6-1,2	0,8-1,4	1,2-1,8	1,2-1,8	1,2-1,8	2,5-3	2,5-3	2,5-3	3,5-4,5	10
	lb.inch	5-11	7-12	11-16	11-16	11-16	22-26	22-26	22-26	31-40	88
Short circuit protection											
Max. fuse size	gL (gG) A	20	20	35	35	50	63	100	125	160	250
Rated short-time withstand current (1sec. current)	A	250	250	400	400	500	800	1000	1400	1800	3000
Rated conditional short-circuit current	kA_{eff}	10	10	10	10	10	10	10	10	10	10
Short-time capacity											
Load duration	3s A	100	100	200	200	350	400	600	720	1000	2000
	10s A	60	60	130	130	230	250	400	480	600	1200
Note: Ratings applies to	30s A	35	35	85	85	110	160	250	300	500	600
contacts already closed	60s A	25	25	65	65	80	110	200	250	370	480
Power loss at AC21A	A	20	20	32	32	50	63	85	115	150	250
per pole	W	0,6	0,5	0,9	1,1	1,9	2	2,8	4,4	5,7	21
Switching of capacitive loads maximum making capacity up to 500V	A	140	140	300	300	350	400	600	700	900	1800

Data according to UL and cUL

Type			M10 P	M10H	M20	N20	N33F	N80	N100	N200	L400
Rated voltage		V~	300	600	600	600	600	600	600	600	600
Rated operational current	"General Use"	A	20	20	35	35	60	115	130	250	350
	with jumper	A	15	-	25	25	40	80	-	-	-
DOL-Rating 3-phase	110-120V	hp	1½	1½	5	5	7½	10	15	15	15
	200-208V	hp	2	2	5	5	10	15	25	25	25
	220-240V	hp	3	3	5	5	15	20	30	30	30
	440-480V	hp	-	5	10	10	25	40	40	60	60
	550-600V	hp	-	7½	15	15	30	50	50	75	75
DOL-Rating 1-phase	110-120V	hp	½	½	1½	1½	3	5	7½	7½	7½
	200-208V	hp	1	1	3	3	5	7½	15	15	15
	220-240V	hp	1½	1½	5	5	7½	10	15	20	20
Fuse size (RK5) 5kA / 600V	Manual Motor Controller and Motor Disconnect	A	40 [2]	40	80	80	150	200	300	350	350
Heavy pilot duty		AC	A300	A600	A600	A600	A600	-	-	-	-
Cable cross sections											
solid		AWG	12 - 20	12 - 20	10 - 18	10 - 18	10 - 12	10 - 12	10 - 14	-	-
flexible		AWG	14 - 20	14 - 20	8 - 18	8 - 18	6 - 12	2 - 12	1 - 14	250kcmil	500kcmil
Tightening torque		Nm	1.7	1-1.7	1.7-2.8	1.7-2.8	2.3-2.8	2.8	4.5	-	-
		lb.inch	15	9-15	15-25	15-25	20-25	25	40	-	-

1) Maximum cable cross-section with prepared conductor
2) 5kA / 300V

Technical Data

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1

Type				LTS20	LTS25	LTS32	LTS40	LTS63	LTS80	LTS85	LTS100	LTS125	LT160
Main contacts													
Rated thermal current I_{th} open			A	20	25	32	40	63	80	85	100	125	160
Rated thermal current I_{the} enclosed			A	20	25	32	40	63	80	85	100	110	160
Rated insulation voltage U_i 1)			V	690	690	690	690	690	690	1000 5)	1000 5)	1000 5)	1000 3)
Rated operational current I_e AC21A			A	20	25	32	40	63	80	85	100	125	160
Making capacity I_{eff}		3x380-440V	A	160	190	220	300	370	440	600	725	850	1050
Breaking capacity		3x220-240V	A	160	180	200	250	330	380	480	580	680	900
		3x380-440V	A	160	180	200	250	330	380	480	580	680	850
		3x660-690V	A	80	110	140	170	190	220	250	330	420	340
Disconnection property performed up to			V	690	690	690	690	690	690	1000	1000	1000	1000 3)
Motor Switch	AC3	3x400V	A	12	16	23	30	37	37	45	60	72	85
Motor Switch	AC3	3x220-240V	kW	3	4	5,5	7,5	11	11	15	18,5	22	30
Direct switching of single motors		3x380-440V	kW	5,5	7,5	11	15	18,5	18,5	22	30	37	45
		3x660-690V	kW	5,5	7,5	11	15	18,5	18,5	18,5	22	30	37
Main Switch	AC23	3x400V	A	16	20	25	32	45	45	60	72	85	110
Motor Switch,	AC23A,	3x220-240V	kW	4	5,5	7,5	9	15	15	18,5	22	30	30
Main Switch,	AC23B	3x380-440V	kW	7,5	10	12,5	16	22	22	30	37	45	55
Safety Switch		3x660-690V	kW	5,5	7,5	11	15	18,5	18,5	22	30	37	37
Rated conditional short-circuit current			kA_{eff}	10	10	10	10	10	10	10	10	10	30
Max. fuse size		gL (gG)	A	25	35	40	50	63	80	100	100	125	160
Mechanical life			x10^3	200	200	200	200	100	100	100	100	100	100
Rated short-time withstand current (1sec. current)			A	250	300	400	500	600	850	1000	1200	1500	3000
Maximum cable cross sections													
solid			mm^2	10	10	10	10	25	25	50	50	50	95
			AWG	8	8	8	8	4	4	0	0	0	3/0
flexible (+ multicore cable end)			mm^2	6	6	6	6	16	16	35	35	35	70
			AWG	10	10	10	10	6	6	2	2	2	2/0
Size of terminal screw				M3,5	M3,5	M3,5	M3,5	M5	M5	M6	M6	M6	M10
Tightening torque			Nm	0,8-1,7	0,8-1,7	0,8-1,7	0,8-1,7	2-4	2-4	3,5-4,5	3,5-4,5	3,5-4,5	14
Auxiliary contacts													
Rated insulation voltage U_i 1)			V	690	690	690	690	690	690	690	690	690	690
Rated thermal current I_{th} , I_{the}			A	10	10	10	10	10	10	10	10	10	16
Switching capacity	AC15	220-240V	A	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	6
	AC15	380-440V	A	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	4
Rated conditional short-circuit current			kA_{eff}	3	3	3	3	3	3	3	3	3	3
Max. short circuit protection		gL (gG)	A	10	10	10	10	10	10	10	10	10	16
Maximum cable cross sections													
solid			mm^2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	4
			AWG	12	12	12	12	12	12	12	12	12	12
flexible (+ multicore cable end)			mm^2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
			AWG	14	14	14	14	14	14	14	14	14	14

Data according to UL und cUL

Type				LTS20	LTS25	LTS32	LTS40	LTS63	LTS80	LTS85	LTS100	LTS125	LT160
Rated voltage			V	600	600	600	600	600	600	600	600	600	600
Ampere-Rating "General use"			A	20	25	32	40	63	80	85	100	125	200
DOL-Rating 3-phase		110-120V	HP	1	1,5	2	2	3	5	7.5	10	15	20
		220-240V	HP	3	5	5	5	10	10	20	25	30	40
		440-480V	HP	7,5	10	10	10	20	20	40	50	60	60
		550-600V	HP	10	10	15	15	25	25	50	60	60	60
DOL-Rating 1-phase		110-120V	HP	1	1	1	1	2	2	3	5	7.5	-
		200-208V	HP	1	2	2	2	3	3	7,5	10	10	-
		220-240V	HP	2	2	3	3	5	5	10	15	15	-
Fuse size (RK5)	Manual Motor Controller		A	40	50	50	70	90	110	125	125	125	400 4)
5kA / 600V	Motor Disconnect		A	40	50	50	50	70	70	125	125	125	400 4)
Tightening torque			Nm	1,2-2,3	1,2-2,3	1,2-2,3	1,2-2,3	2,8-4	2,8-4	1,7-4,5	1,7-4,5	1,7-4,5	14
			lb.inch	11-20	11-20	11-20	11-20	24-35	24-35	15-40	15-40	15-40	124

1) suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): Uimp = 6kV. Data for other conditions on request
2) the values after the slash are valid for switches 6-pole or more
3) Suitable for no load applications(AC20A) above 690V
4)Fuse RK1 / 10kA / 600V
5) Uimp = 8kV

Technical Data

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1

Type		L100	L160	L400	L600	L800	L1200	
Rated insulation voltage U_i	V	690 [2]	690 [2]	690 [2]	690 [2]	690 [2]	690 [2]	
Rated thermal current I_{th} open	A	125	180	400	600	800	1200	
Rated thermal current I_{the} encl.	A	125	180	400	600	800	1200	
with conductor	mm^2	50	70	40x5	40x10	busbar 2x40x10	busbar 2x50x10	
Utilization category AC21A, AC21B Switching of resistive loads, including moderate overloads Rated operational current I_e	A	125	180	400	400	400	400	
Shot-time current-carrying capacity Load duration	1s	-	-	4800	6500	8500	10000	
	3s	800	1200	3600	5000	6500	8000	
	10s	500	800	2000	3200	4000	5800	
Note: Ratings applies to	30s	320	480	1200	1700	2200	3200	
contacts already closed	60s	180	380	960	1300	1700	2300	
Cable cross-sections solid or stranded	mm^2	25-50 [1]	cable lug	busbar	busbar	busbar	busbar	
flexible	mm^2	25-50 [1]	70	40x5	40x10	2x40x10	2x50x10	
flexible with multicore cable end	mm^2	25-35	-	-	-	-	-	
Size of terminal screw		2xM5	M8	M12	M16	M16	M16	
Number of conductors to clamp per pole		1	1	1	2	1	1	
Short circuit protection Max. fuse size	slow, gL (gG)	A	125	200	400	630	800	1250

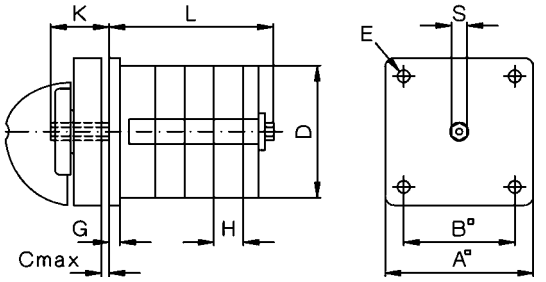
1) Maximum cable cross-section with prepared conductor
2) suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): U_{imp} = 6kV. Data for other conditions on request

Approvals

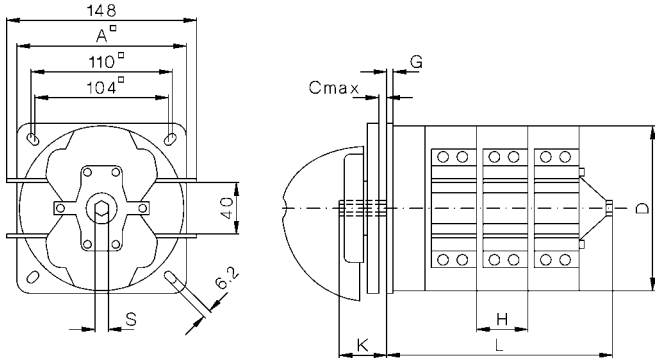
Country	USA, Canada UL	Switzerland SEV	Europe	Russia GOST	CB/CCA-Certificates
Type	c UL us		CE	PG	
Cam Switches (UL-Listed as MANUAL MOTOR CONTROLLER and suitable as MOTOR DISCONNECT)					
M10	o	o	o	o	o
M10H	o	o	o	o	o
M20	o	o	o	o	o
N20	o	o	o	o	o
N33F	o	o	o	o	o
N40	-	o	o	o	o
N60	-	o	o	o	o
N80	o	o	o	o	o
N100	o	o	o	o	o
N200	o	o	o	o	o
L400	o	-		-	-
Switch disconnectors (UL-Listed as MANUAL MOTOR CONTROLLER and suitable as MOTOR DISCONNECT)					
LTS20	o	o	o	o	o
LTS25	o	o	o	o	o
LTS32	o	o	o	o	o
LTS40	o	o	o	o	o
LTS63	o	o	o	o	o
LTS80	o	o	o	o	o
LTS85	o	-	o	-	o
LTS100	o	-	o	-	o
LTS125	o	-	o	-	-
LT160	o	-	o	-	o

o In standard version approved / No testing required CE x In test
- Not provided for test till now

Panel mounting E
M10 - N100



N200

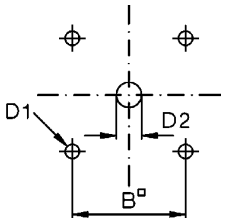


Type	A	B	C	D	D1	D2	D3	E	G	H	K	S
M10H	48	36	5	44 [1)]	5	8	-	4	3,5	9,5	19	SW5
M20	48	36	5	56	5	8	57	4	3,5	12,5	19	SW5
N20	64	48	5	56	5	12	57	4,2	3	12,5	20	SW7
N33F	64	48	5	58 [2)]	5	12	-	4,2	3	15,5	20	SW7
N40	86	68	7	80	6	12	82	5,2	3,5	18	24,5	SW9
N60	86	68	7	80	6	12	82	5,2	3,5	29,5	24,5	SW9
N80	86	68	7	80	6	12	82	5,2	3,5	29,5	24,5	SW9
N100	132	110	9	128	7	16	129	6,2	5	30	37	SW12
N200	132	110	9	128	7	16	-	6,2	5	40	37	SW12

1) 44,5 x 42

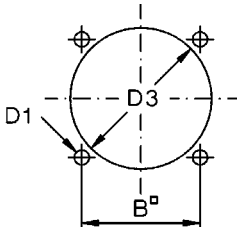
2) 58 x 58

Mounting holes: built in from ear

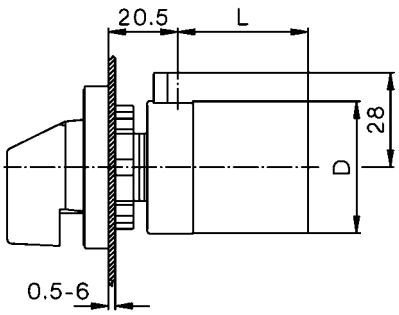


Type	Dimension L with .. cells 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
M10H	36,5	46	55,5	65	74,5	84	93,5	103	112,5	122	131,5	141	-	-	-
M20	38,5	51	63,5	76	88,5	101	113,5	126	138,5	151	163,5	176	-	-	-
N20	40,5	53	65,5	78	90,5	103	115,5	128	140,5	153	165,5	178	190,5	203	215,5
N33F	44	59,5	75	90,5	106	121,5	137	152,5	168	183,5	199	214,5	230	245,5	261
N40	52,5	70,5	88,5	106,5	124,5	142,5	160,5	178,5	196,5	214,5	232,5	250,5	268,5	286,5	304,5
N60	64	93,5	123	152,5	182	211,5	241	270,5	300	329,5	359	388,5	-	-	-
N80	64	93,5	123	152,5	182	211,5	241	270,5	300	329,5	359	388,5	-	-	-
N100	88	118	148	178	208	238	268	298	328	358	388	418	-	-	-
N200	96	136	176	216	256	296	336	376	416	456	496	536	-	-	-

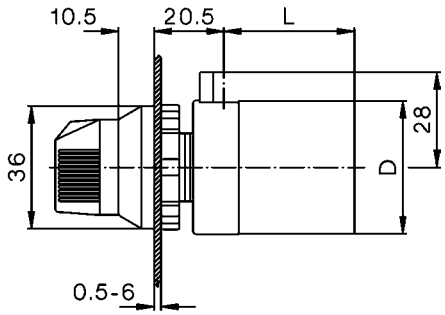
Mounting holes: built in from front



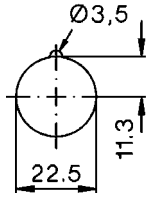
Central fixing Z
M10H, M20, N33F



Central fixing without escutcheon plate ZO
M10H, M20



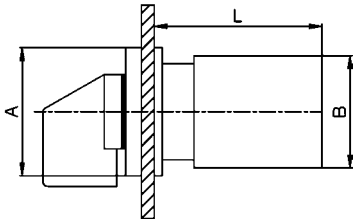
Mounting hole:



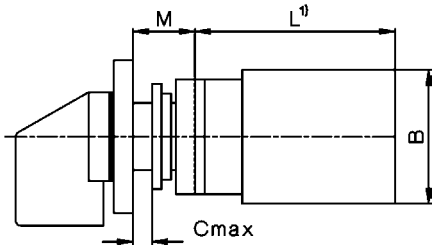
Further dimensions see tables above

Mini-Cam Switches M4H

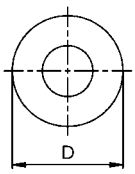
Panel mounting E



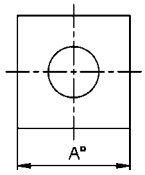
Central fixing Z, ZO



ZO



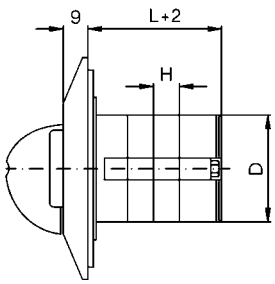
Z

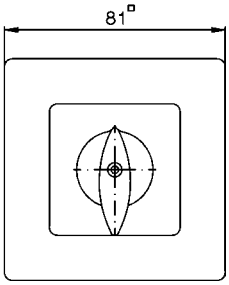


Type		A	B	D	M	Dimension L with .. cells 1	2	3	4	5	6	7	8
M4H	mm	30	28	29,5	12,5	38,5	50,5	62,5	74,5	86,5	98,5	110,5	122,5

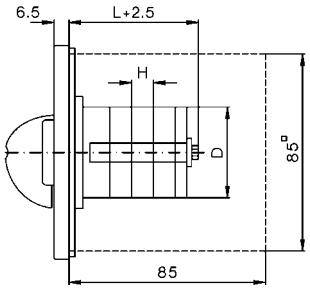
Mounting holes see page 42

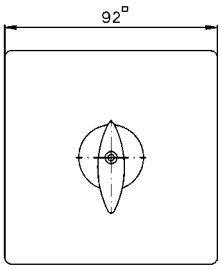
Flush mounting UP
M10



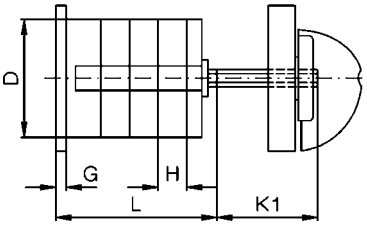


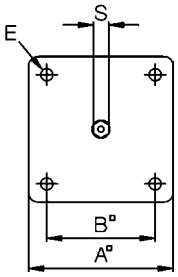
N20 (dimensions of standard flush wall mounting box see page 90)



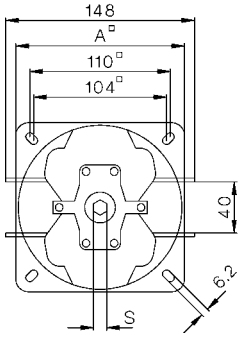


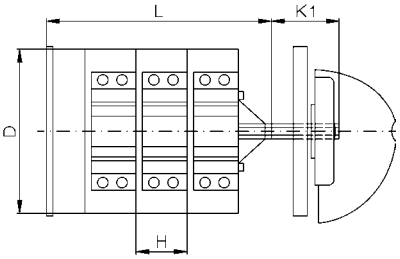
Base mounting V
M10H - N100





N200



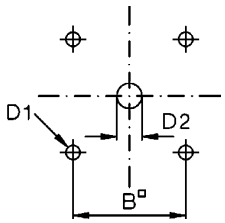


Type	A	B	D	D1	D2	E	G	H	I	K	K1	S
M10	48	36	39	5	8	4	3,5	9,5	6	19	41	SW5
M10H	48	36	44 [1)]	5	8	4,2	3	9,5	6	19	41	SW5
M20	48	36	56	5	8	4,2	3	12,5	6	19	47	SW5
N20	64	48	56	5	12	4,2	3	12,5	0	20	29	SW7
N33F	64	48	58 [2)]	5	12	4,2	3	15,5	0	20	31,5	SW7
N40	86	68	80	6	12	5,2	3,5	18	-	-	38,5	SW9
N60	86	68	80	6	12	5,2	3,5	29,5	-	-	49,5	SW9
N80	86	68	80	6	12	5,2	3,5	29,5	-	-	49,5	SW9
N100	132	110	128	7	16	6,2	5	30	-	-	79,5	SW12
N200	132	110	128	7	16	6,2	5	40	-	-	104	SW12

1) 42 x 44,5

2) 58 x 58

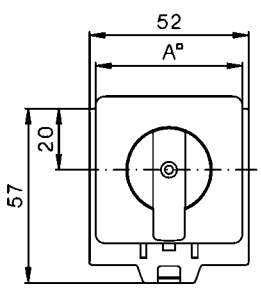
Mounting holes: for escutcheon plate

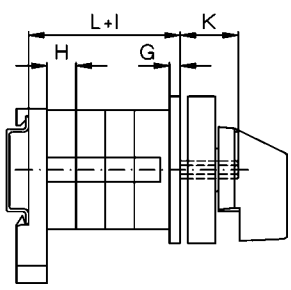


	Dimensions L with .. cells														
Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
M10	34,5	44	53,5	63	72,5	82	91,5	101	110,5	120	129,5	139	-	-	-
M10H	36,5	46	55,5	65	74,5	84	93,5	103	112,5	122	131,5	141	-	-	-
M20	38,5	51	63,5	76	88,5	101	113,5	126	138,5	151	163,5	176	-	-	-
N20	40,5	53	65,5	78	90,5	103	115,5	128	140,5	153	165,5	178	190,5	203	215,5
N33F	44	59,5	75	90,5	106	121,5	137	152,5	168	183,5	199	214,5	230	245,5	261
N40	52,5	70,5	88,5	106,5	124,5	142,5	160,5	178,5	196,5	214,5	232,5	250,5	268,5	286,5	304,5
N60	64	93,5	123	152,5	182	211,5	241	270,5	300	329,5	359	388,5	-	-	-
N80	64	93,5	123	152,5	182	211,5	241	270,5	300	329,5	359	388,5	-	-	-
N100	88	118	148	178	208	238	268	298	328	358	388	418	-	-	-
N200	96	136	176	216	256	296	336	376	416	456	496	536	-	-	-

Snap-on mounting SM
M10H - N33F for 35mm DIN-rail mounting according to DIN EN 50022

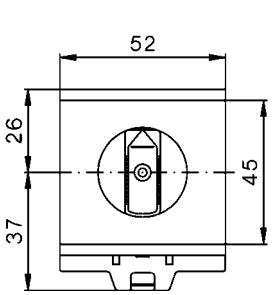
Dimensions see tables above

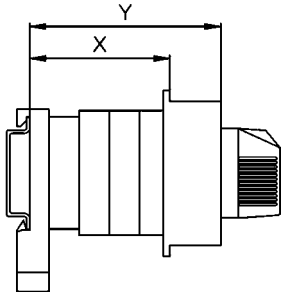




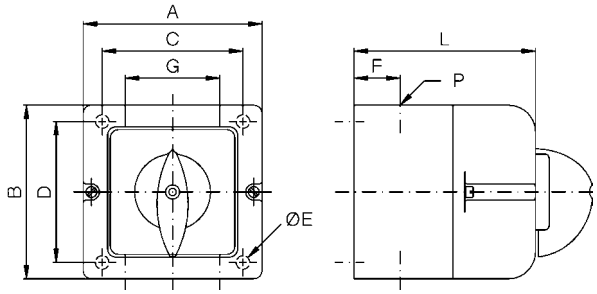
Swich with installation cover SMA
M10H, M20 for 35mm DIN-rail mounting according to DIN EN 50022

	Dimension X with .. cells				Dimension Y with .. cells			
Type	1, 2	3	4	5	1, 2	3	4	5
M10H	44	44	61	76	60	60	75	90
M20	44	61	76	76	60	75	90	90

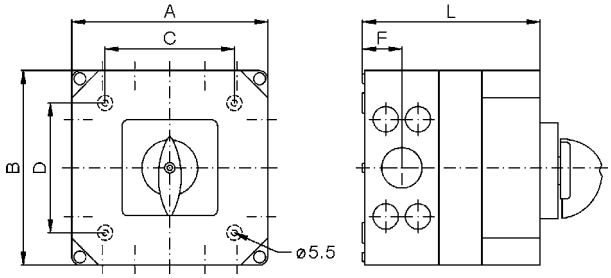




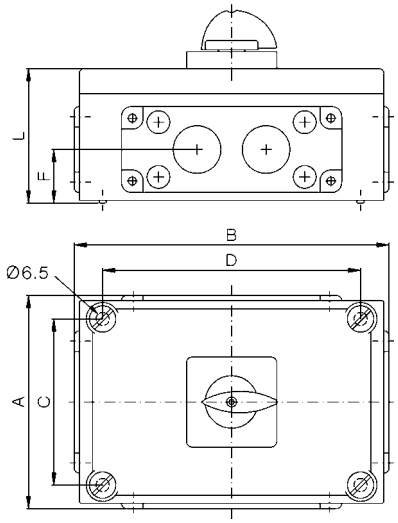
Plastic enclosed switches P, PF
M10 - N60



N60, N80



N100, N200



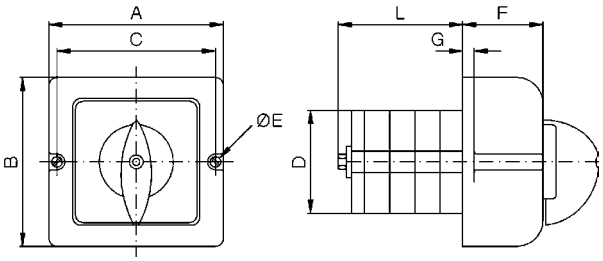
1) knock outs for M40/M32 + 4x M20 at top and bottom
M32/M25 + 4x M20 at the right and left hand side,

2) 2 flange plates with hole 50,5 at top and bottom

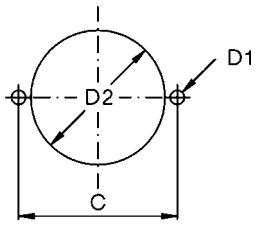
3) 2 flange plates with hole 50,5 at top and bottom, can also be mounted at the right and left hand side

Type	A	B	C	D	E	F	G	P	Dimension L with .. cells 1	2	3	4	5	6
M10	66	64	50	36	5	15,5	26	M20	43	52	62	71	81	90
N20	82	78	57	53	4,5	17	35	M20	66	66	80	94	108	122
N33F	112	108	85	50	5	20	50	M25	92	92	92	110	128	146
N40	112	108	85	50	5	20	50	M25	92	92	110	128	146	164
N60	112	108	85	50	5	20	50	M25	92	110	-	-	-	-
N60	182	180	120	120	5,5	36,5	-	1)	-	-	165	215	215	-
N80	182	180	120	120	5,5	36,5	-	1)	110	110	165	215	215	-
N100	210	310	165	255	6,5	52,5	-	2)	130	130	180	-	-	-
N200	310	310	255	255	6,5	52,5	-	3)	130	180	230	-	-	-

Motor terminal box mounting KE
M10 - N33F



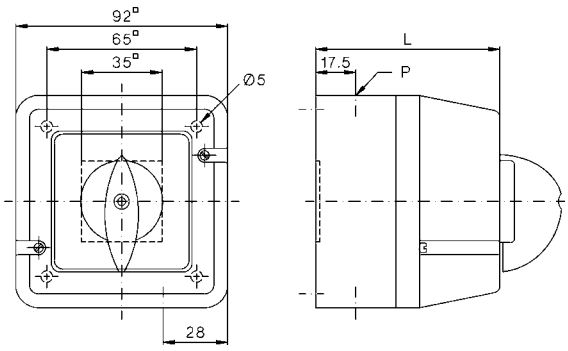
Mounting holes



Type	A	B	C	D	D1	D2	E	F	G	Dimension L with .. cells 2	3	4	5	6
M10	66	64	58	39	4	48	3,2	24	6	22	31,5	41	50,5	60
N20	82	78	71	48	5	57	4,2	34	5	24,5	37	49,5	62	74,5
N33F	112	108	100	56	5	70	4,2	49	11	32,5	48	63,5	79	94,5

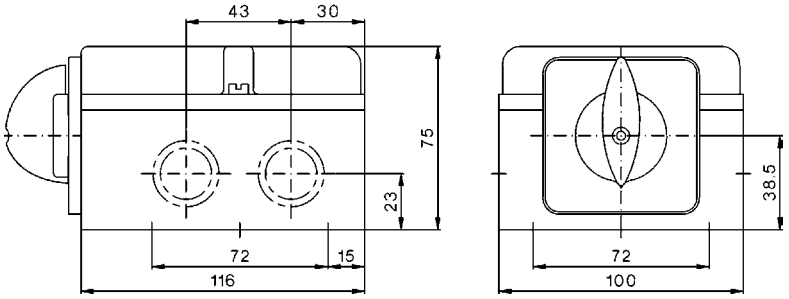
Plastic enclosed motor starter PM
N20

Typ	P	Dimension L with .. cells 1	2	3	4	5	6
N20	M25	80	80	80	92,5	105	117,5



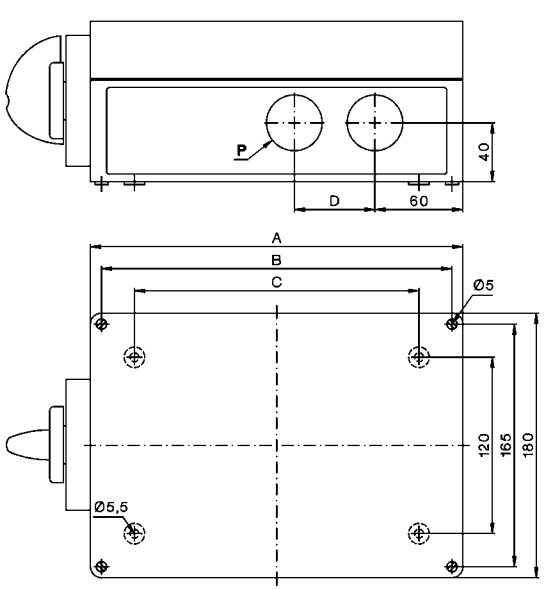
4) old version

Cast aluminium enclosed switches G, GF
N20



N20 4 x M25

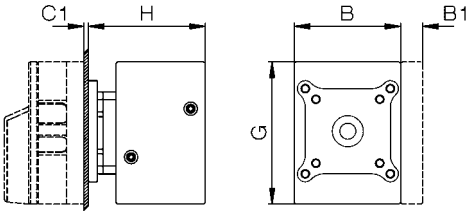
Plastic enclosure horizontal PLF (Replacement for cast aluminium enclosure G, GF)
N40, N60, N80



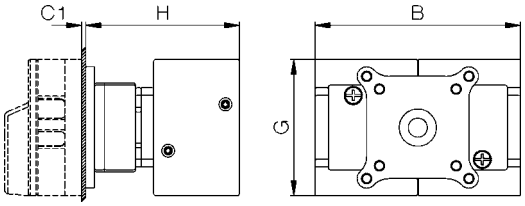
Type	**N40** 1 - 6 cells **N60** 1 - 3 cells **N80** 1 - 3 cells	**N40** 7 - 10 cells **N60** 4 - 6 cells **N80** 4 - 6 cells
A	182	254
B	167	239
C	120	190
D	-	65
P	2 x Ø40,5 (M40)	4 x Ø40,5 (M40)

Main Switches, Switch Disconnectors LT(S)..

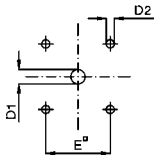
Panel mounting LT(S).. E(HN)..
ON-OFF Switches 3-pole, 4-pole



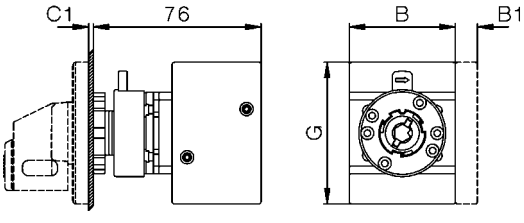
ON-OFF Switches 6-pole, 8-pole
Changeover Switches 3-pole, 4-pole



Mounting holes

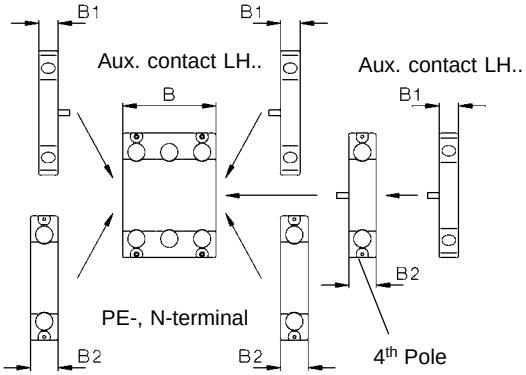


Single hole mounting LTS.. Z(HN)..
ON-OFF Switches 3-pole, 4-pole



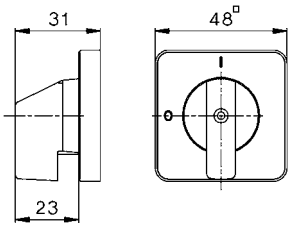
Mounting holes

MMounting of add-on modules LTS20 - LTS80
Panel mounting, Single hole mounting

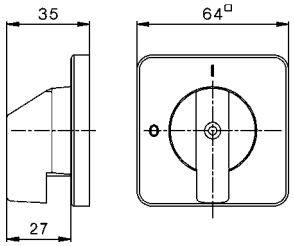


Type	Changeover ON-OFF Escutch. plate or padlock device	A	3-pole B	4-pole B	3-pole 6-pole B	4-pole 8-pole B	aux. contact B1	4. Pole PE B2	C1	D1	D2	E	F	G	3-pole 4-pole H	3,4-pole 6-pole 8-pole H
LTS..	48 ❐, SV1	48	48	62,5	-	-	10	14,5	1-5	10	5	36	-	64	54	-
LTS..	64 ❐, SV4, SV164	64	48	62,5	97	126	10	14,5	1-5	10	5	48	-	64	54	74
LTS85-125..	64 ❐, SV4	64	78	78	-	-	10	-	1-5	10	5	48	-	85	60	-
LT125/160	88 ❐, SV34	88	112	150	224	-	-	-	1-4	13-17	6	68	49,3	108	96	98

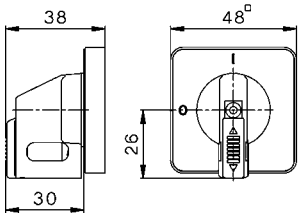
Escutcheon plate
48 ❐



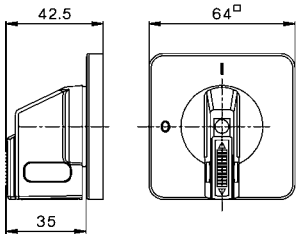
64 ❐



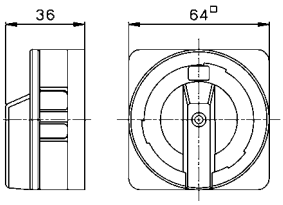
Padlock devices
SV1



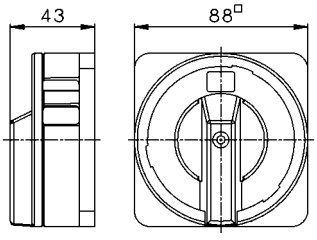
SV164



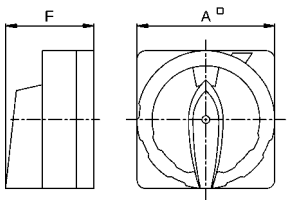
Padlock devices
SV4



SV488



SV34



Switch disconnectors LT(S)

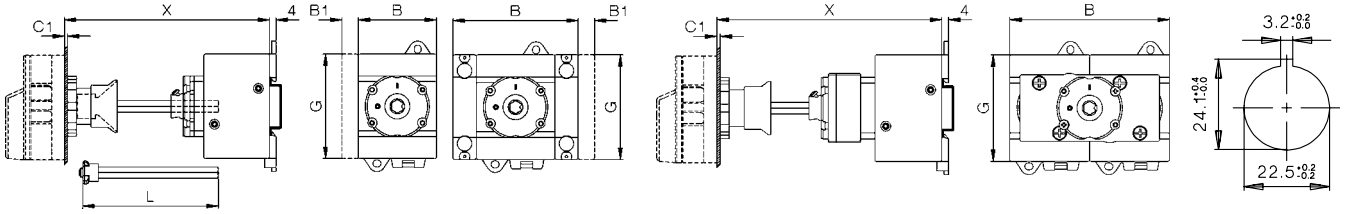
Main Switches, Switch Disconnectors LT(S)..

Base mounting LTS.. VZV(HN)..
ON-OFF Switches 3-pole, 4-pole
L = X - 40±3

6-pole
for LTS20 - 40 only
L = X - 40±3

ON-OFF Switches 6-pole, 8-pole
Changeover Switches 3-pole, 4-pole
L = X - 60±3

Mounting holes

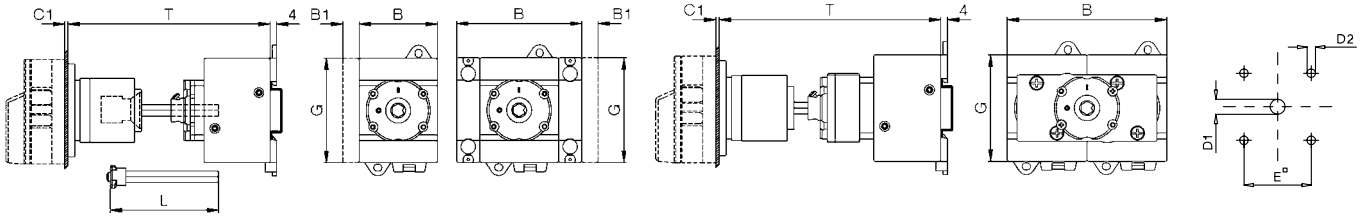


Base mounting LT(S).. V(HN)..
ON-OFF Switches 3-pole, 4-pole
L = T - 60±3 for LTS20 - 80 only

6-pole
for LTS20 - 40 only
L = X - 60±3

ON-OFF Switches 6-pole, 8-pole
Changeover Switches 3-pole, 4-pole
L = T - 80±3 for LTS20 - 80 only

Mounting holes

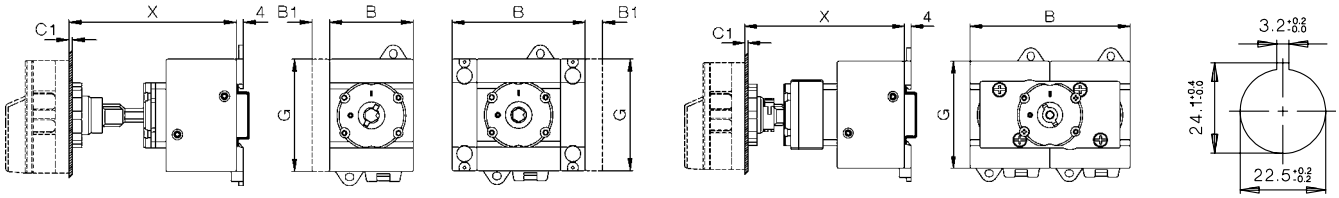


Base mounting LTS.. VZ(HN)..
ON-OFF Switches 3-pole, 4-pole

6-pole
for LTS20 - 40 only

ON-OFF Switches 6-pole, 8-pole
Changeover Switches 3-pole, 4-pole

Mounting holes

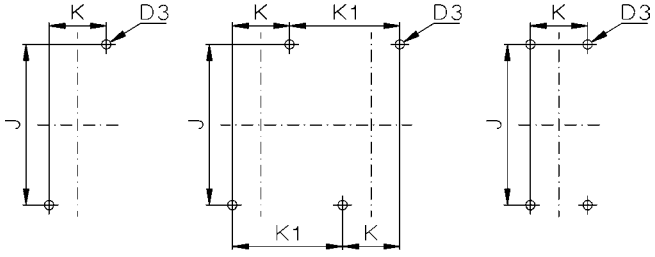


Type	Changeover ON-OFF Escutch. plate or padlock device	A	3-pole B	4-pole B	6-pole B	3,4-pole 8-pole B	aux. contact B1	4.Pole PE B2	C1	D1	D2	D3	E	G	K	K1	J
LTS20 -40	64 ❐, SV4, SV164	64	48	48	77	97	10	14,5	1-5	10	5	M4	48	64	25	48	70
LTS63, 80	64 ❐, SV4, SV164	64	48	62,5	97	126	10	14,5	1-5	10	5	M4	48	64	25	48	70
LTS85-125..	64 ❐, SV4	64	78	78	-	-	10	-	1-5	10	5	M4	48	85	38	-	90
LT125/160	88 ❐, SV34	88	112	150	224	-	-	-	1-4	13/27[2)]	6	M6	68	108	36	-	120

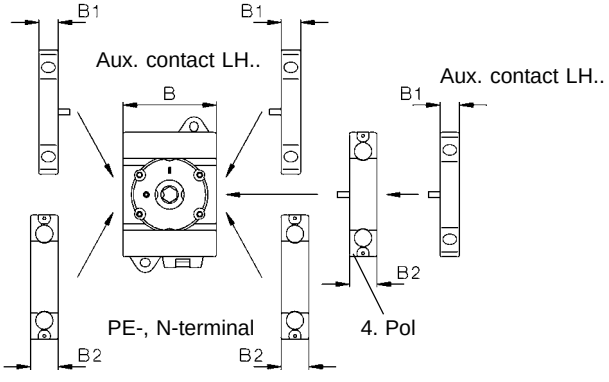
Base mounting
ON-OFF Switches **LTS20 - LTS80**
3-pole, 4-pole
6-pole LTS20 -40

6-pole, 8-pole
Changeover Switches

LTS85-125, LT160
3-pole, 4-pole



Mounting of Accessories LTS20 - LTS80
Base mounting, for distribution boards

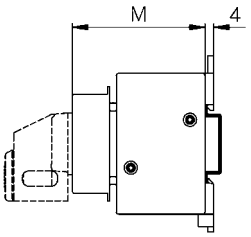


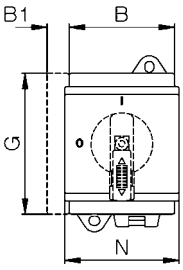
1) Ø 22-25 for LT80(100) VH(N)34 .. only
2) Ø 26-30 for LT125(160) VH(N)34 .. only

Main Switches, Switch Disconnectors LT(S)..

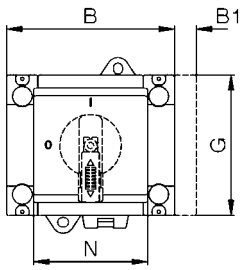
Installation cover LT(S).. SMA(HN)..

ON-OFF Switches 3-pole, 4-pole

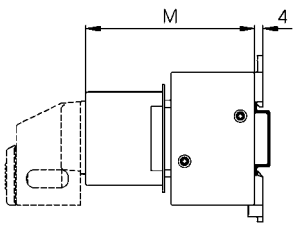


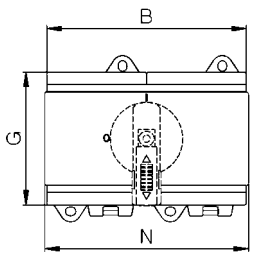


ON-OFF Switches 6-pole
for LTS20 - 40 only



ON-OFF Switches 6-pole, 8-pole
Changeover Switches 3-pole, 4-pole



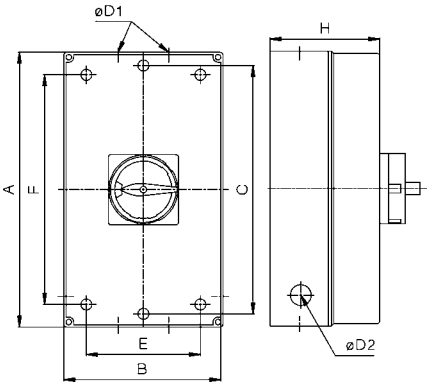


Type	Changeover ON-OFF padlock device	3-pole B	4-pole B	6-pole B	3,4-pole 8-pole B	aux. contact B1	4.pole PE B2	G	3-pole 4-pole M	6-pole M	3,4-pole 8-pole M	3-pole 4-pole N	6-pole N	3,4-pole 8-pole N
LTS20 - 40	SV1, SV164	48	48	77	96	10	14,5	64	60	60	74	52	52	97[1)]
LTS63, 80	SV1, SV164	48	62,5	96	125	10	14,5	64	60	74	74	52	97[1)]	126
LT80..	SV1	70	92	140	-	11	-	80	70	70	70	70	70	-
LT100..	SV1	70	92	140	-	11	-	80	70	70	70	70	70	-

1) inclusiv removable cover parts 126mm

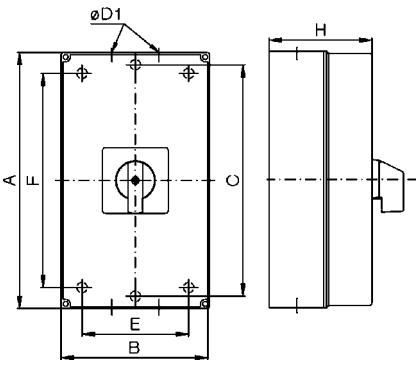
Maintenance and Safety Switches LT(S)..PF..

Type	Pole	A	B	D1	D2	E	F	H
LTS20 PFH.. A., LTS40 PFH.. A	3, 4	130	98	2x25,5/20,5	-	75	100	77
LTS63 PFH.. - LTS125 PFH.. A.	3, 4	200	120	40,5/32,5 +16,5	-	95	165	86
LTS20 PFH.. A., LTS40 PFH.. A	6	200	120	40,5/32,5 +16,5	-	95	165	86
LTS20 PFH.. A., LTS40 PFH.. A	8	240	160	40,5/32,5	-	130	228	120
LTS63 PFH.. A., LTS80 PFH.. A.	6, 8	240	160	40,5/32,5	-	130	228	120
LT125 PFH.., LT160 PF..	3	300	200	2x50,5	25,5	172	272	172
LT125 PFH.., LT160 PF..	4	300	280	2x50,5	-	254	254	180



Switch Disconnectors in Plastic Enclosure LTS..PF..

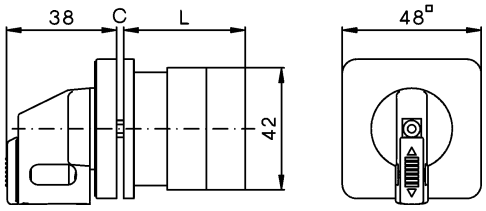
Type	Pole	A	B	D1	E	F	H
LTS20 PF A., LTS40 PF A	3, 4	130	98	2x25,5/20,5	75	100	77
LTS63 PF A., LTS80 PF A.	3, 4	200	120	40,5/32,5 +16,5	95	165	86



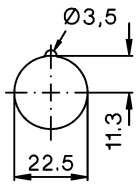
Main and Emergency Off Switches

Panel mounting , Central fixing M10H ..

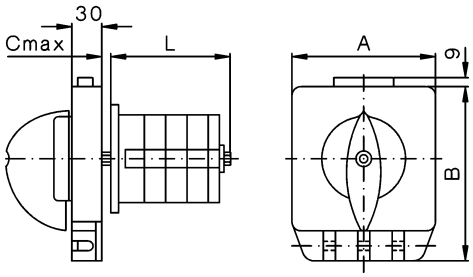
Type	C	D1	D2	E	L
M10H EHN1 A2	1-5	8	5	36	36,5
M10H EHN1 A3	1-5	8	5	36	46
M10H EHN1 A4	1-5	8	5	36	46
M10H ZHN1 A2	1-5	-	-	-	52
M10H ZHN1 A3	1-5	-	-	-	63
M10H ZHN1 A4	1-5	-	-	-	63



Mounting holes
Panel mounting M10H E .. **Central fixing M10H Z ..**

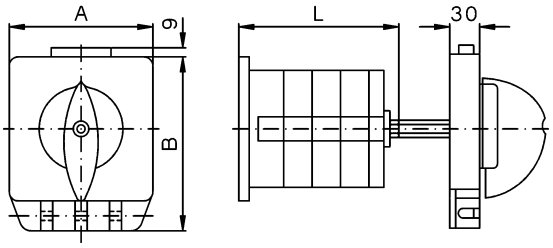


Panel mounting EH3, EHN3 N40 - N200

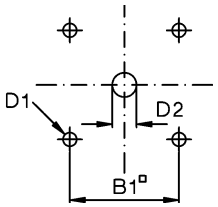


Type	A	B	B1	C	D1	D2	Dimension L with .. cells 1	2	3
N40	102	128	68	5	6	12	52,5	70,5	88,5
N60	102	128	68	5	6	12	64	93,5	123
N80	102	128	68	5	6	12	64	93,5	123
N100	132	160	110	8	7	16	88	118	148
N200	132	160	110	8	7	16	96	136	176

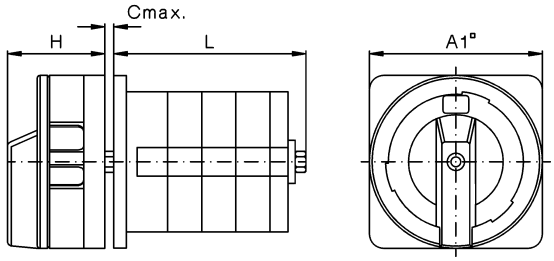
Base mounting VH3, VHN3 N40 - N200



Bohrplan

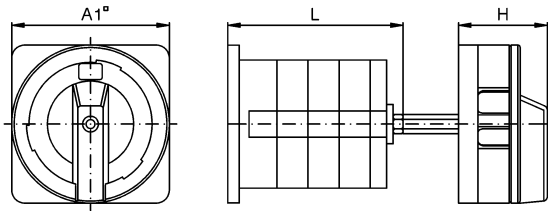


Panel mounting EH4, EHN4 N20 - N80

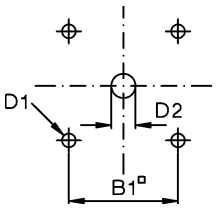


Type	A1	B1	C	D1	D2	H	Dimension L with .. cells 1	2	3
M10H	64	48	5	5	12	36	36,5	46	55,5
N20	64	48	5	5	12	36	40,5	53	65,5
N33F	64	48	5	5	12	36	44	59,5	75
N40	88	68	7	6	20	43	52,5	70,5	88,5
N60	88	68	7	6	20	43	64	93,5	123
N80	88	68	7	6	20	43	64	93,5	123

Base mounting VH4, VHN4 N20 - N80

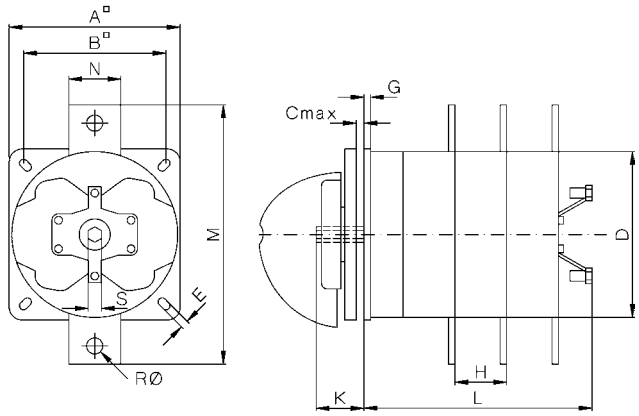


Mounting holes

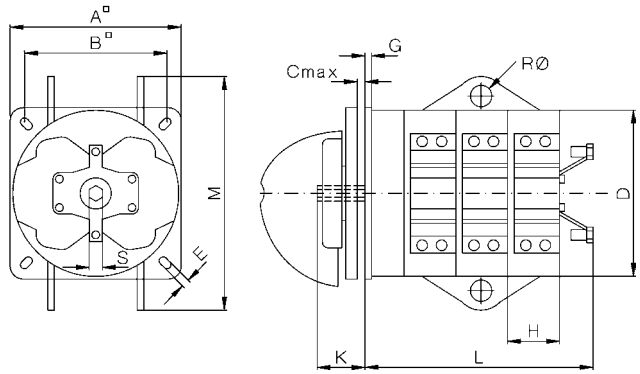


Load Switches

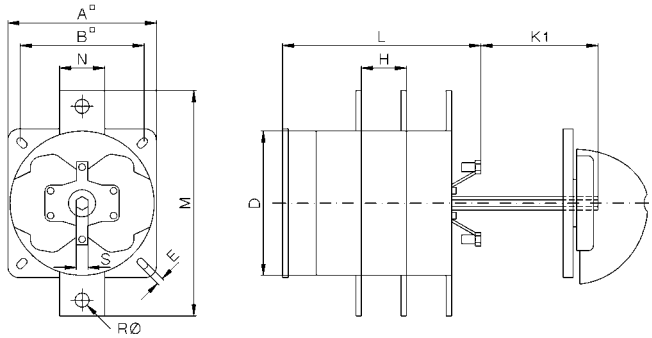
Panel mounting E
L100 - 400, L800, L1200



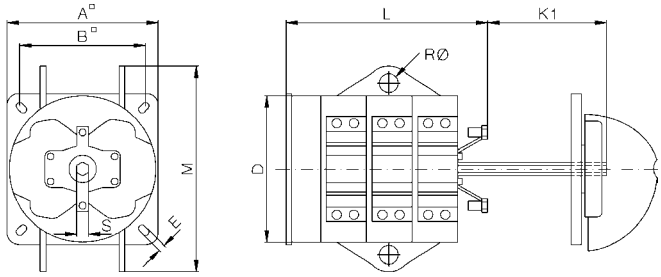
L600



Base mounting V
L100 - 400, L800, L1200

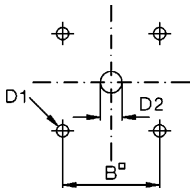


L600



Type	A	B	C	D	D1	D2	E	G	H	K	K1	M	N	R	S
L100	86	68	7	80	6	12	5,2	3,5	18	24,5	38,5	103	27	-	SW9
L160	86	68	7	80	6	12	5,2	3,5	29,5	24,5	38,5	115	-	8,5	SW9
L400	132	110	9	128	7	16	6,2	5	40	37	104	200	40	12,5	SW12
L600	132	110	9	128	7	16	6,2	5	40	37	104	180	-	16,5	SW12
L800	132	110	9	128	7	16	6,2	5	40	37	104	240	40	16,5	SW12
L1200	132	110	9	128	7	16	6,2	5	40	37	104	240	40	16,5	SW12

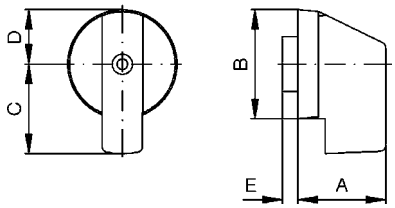
Mounting holes :



	Dimension L with .. cells											
Type	1	2	3	4	5	6	7	8	9	10	11	12
L100	52,5	70,5	88,5	106,5	124,5	142,5	160,5	178,5	196,5	214,5	232,5	250,5
L160	64	93,5	123	152,5	182	211,5	241	270,5	300	329,5	359	388,5
L400	96	136	176	216	256	296	336	376	416	456	496	536
L600	96	136	176	216	256	296	336	376	416	456	496	536
L800	96	136	176	216	256	296	336	376	416	456	496	536
L1200	96	136	176	216	256	296	336	376	416	456	496	536

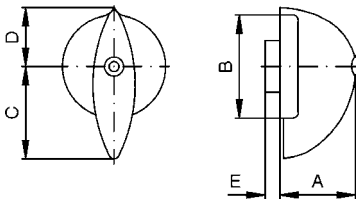
Operating Knobs and Handles

Instrument knob G.



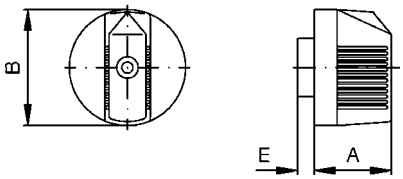
Type	A	B	C	D	E
M10, M10H, M20	23	28	24	14	4
N20, N33F	27	36	32	18	3

Twist knob R.



Type	A	B	C	D	E
M10, M10H, M20	20,5	28	25	15	4
N20, N33F	24	36	29,5	19	3
N40, N60, N80, L100, L160	31	49	41	28	3,5
N100, N200, L400, L600, L800, L1200	50	75	62	41	2,5

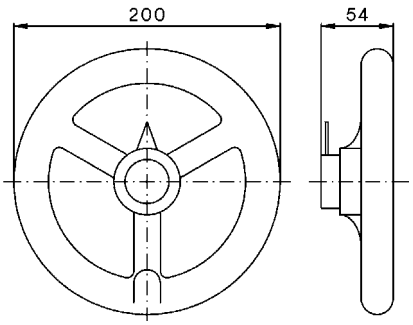
Toggle knob K.



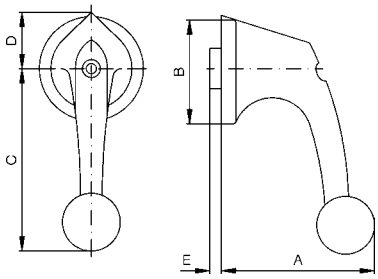
Type	A	B	E
M10, M10H, M20	18,5	28	4
N20, N33F	24	36	3

Hand wheel HR

N100, N200,
L400, L600, L800, L1200



Ball type handle B.



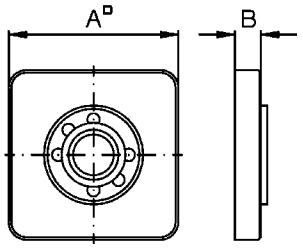
Type	A	B	C	D	E
N20, N33F	53	36,5	64	21	3
N40, N60, N80, L100, L160	62	49	82	31	3,5
N100, N200, L400, L600, L800, L1200	63	75	110	45	2,5

Code number for colour

grey	**.1**	white	**.5**
black	**.2**	blue	**.6**
red	**.3**	yellow	**.7**
cream-coloured	**.4**	euro-white	**.8**

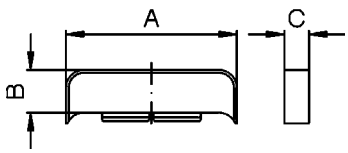
Escutcheon plates

Escutcheon plate



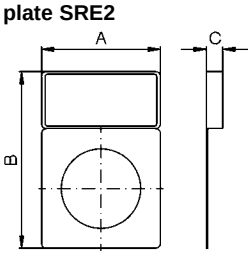
Type	A	B
M10, M10H, M20	48	7,5
N20, N33F	64	7,5
N40, N60, N80, L100, L160	88	8
N100, N200, L400, L600, L800, L1200	132	9

Rectangular additional plate SRE



Type	A	B	C
M10, M10H, M20	48	12	7,5
N20, N33F	64	14	7,5
N40, N60, N80, L100, L160	88	22	8
N100, N200, L400, L600, L800, L1200	132	31	9

Big rectangular additional plate SRE2



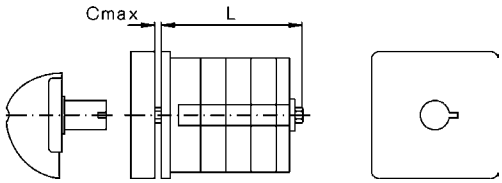
Type	A	B	C
M10, M10H, M20	48	69	6
N20, N33F	64	91	6

Special drives

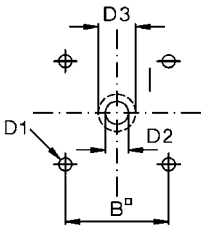
Removable knob drive STGR, STGR2
M10H - N33F

Type	B	C	D1	D2	D3
M10H, M20	36	5	5	12	18
N20, N33F	48	5	5	12	18

Replace dimension D2 with dimension D3 for STGR2
Dimension L see page 77



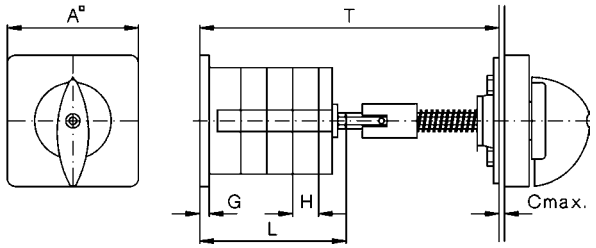
Mounting holes



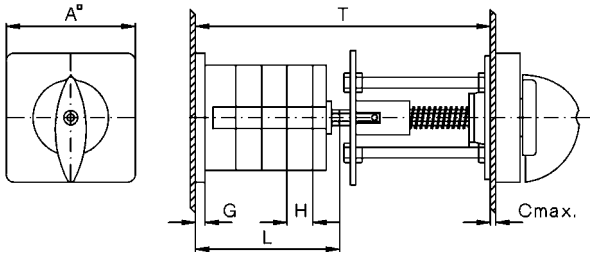
Door couplings

Dimension T is a minimum value. In case of order the dimension T is necessary.

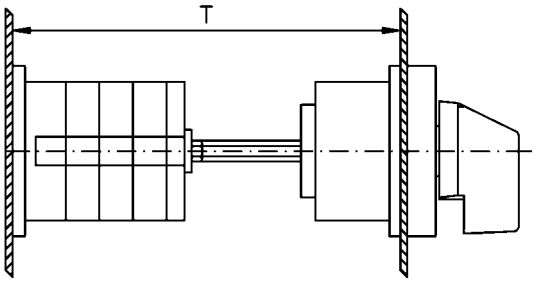
Door coupling TK, TKFR
N40 - L1200



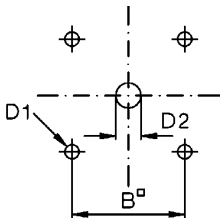
Door coupling, lockable TK2, TK2FR
N40 - L1200



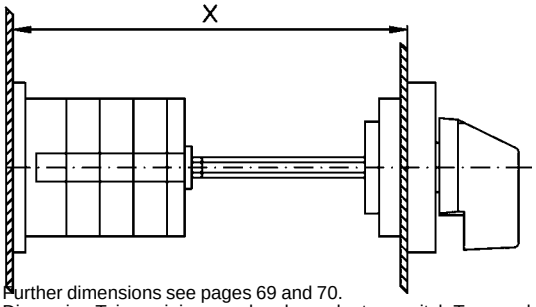
Door coupling TKE, TK2E
M10H, M20, N20, N33F



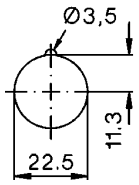
Mounting holes:
TK, TKFR, TK2, TK2FR
TKE, TK2E



Door coupling, lockable TK2Z
M10H, M20, N20, N33F



Mounting holes:
TKZ



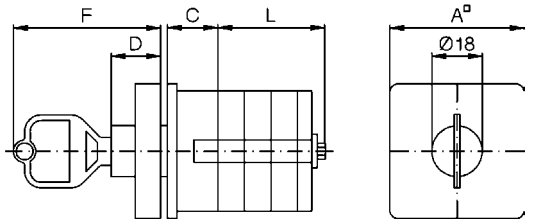
Further dimensions see pages 69 and 70.

Dimension T is a minimum value dependent on switch Type and number of cells. For ordering dimension T is necessary

						Minimum dimension T with .. cells							
Type	A	B	C	D1	D2	1	2	3	4	5	6	7	8
M10H	48	36	5	5	8	108	117,5	127	136,5	146	155,5	165	174,5
M20	48	36	5	5	8	100	112,5	125	137,5	150	162,5	175	187,5
N20	64	48	5	5	10	100	112,5	125	137,5	150	162,5	175	187,5
N33F	64	48	5	5	10	103	118,5	134	149,5	165	180,5	196	211,5
N40	88	48	7	6	12	134	152	170	188	206	224	242	260
N60	88	48	7	6	12	145,5	175	245,5	234	263,5	293	322,5	352
N80	88	48	7	6	12	145,5	175	245,5	234	263,5	293	322,5	352
N100	132	110	9	7	15	202	232	262	292	322	352	382	412
N200	132	110	9	7	15	212	252	292	332	372	412	452	492
L100	88	48	7	6	12	-	152	-	188	-	224	-	260
L160	88	48	7	6	12	145,5	175	245,5	234	263,5	293	322,5	352
L400	132	110	9	7	15	212	252	292	332	372	412	452	492
L600	132	110	9	7	15	-	-	292	-	-	412	-	-
L800	132	110	9	7	15	-	252	-	332	-	412	452	492
L1200	132	110	9	7	15	-	-	292	-	-	412	-	-

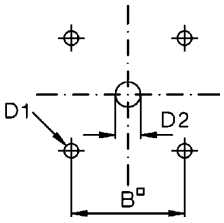
Key operated switches SA

Panel mounting E
M10 - N60



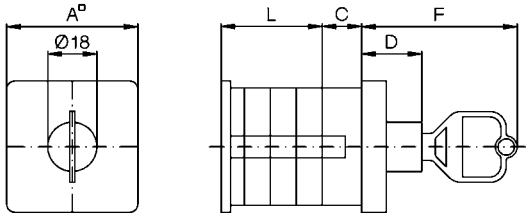
Type	A	B	C	D	D1	D2	F
M10H, M20	48	36	18	17,5	5	18,5	52,5
N20, N33F	64	48	10	17,5	5	18,5	52,5
N40,N60	88	68	23,5	15	6	18,5	50

Mounting holes



Dimension L see page 77

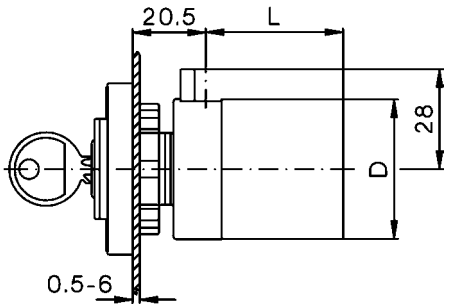
Base mounting V
M10 - N60



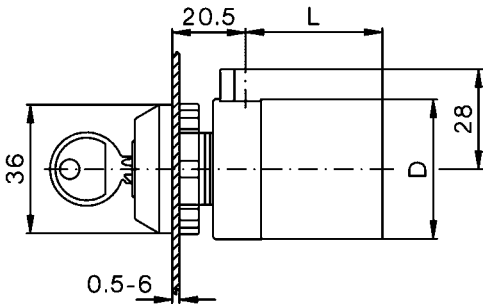
Type	A	C	D	F
M10H, M20	48	18	22	57
N20, N33F	64	8	22	57
N40,N60	88	15	15	50

Dimension L see page 78

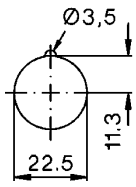
Central fixing Z
M10H Z ... + SA
M20 Z ... + SA



Central fixing without escutcheon plate ZO
M10H ZO ... + SA
M20 ZO ... + SA

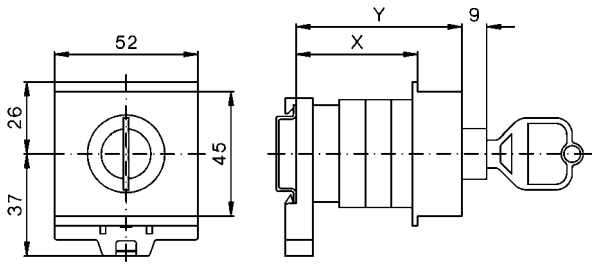


Mounting holes:



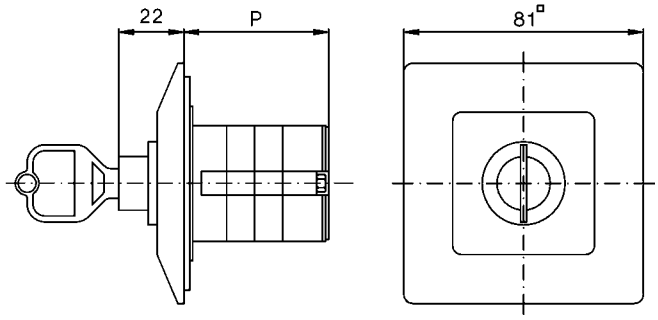
Further dimensions see page 77

DIN rail mounting SMA
M10H, M20



Type	Dimension X with .. cells 1	2	3	4	Dimension Y with .. cells 1	2	3	4
M10H	44	75	75	91	60	90	90	107
M20	59	75	75	91	75	90	90	107

Flush mounting UP
M10

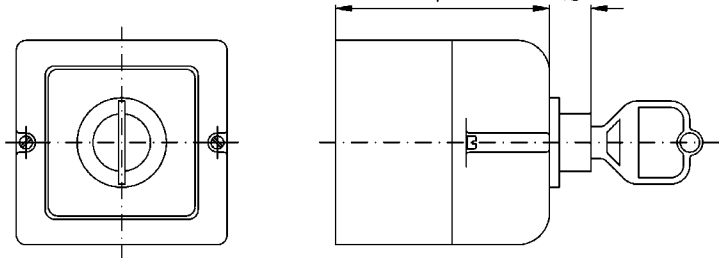


Type	Dimension P with .. cells 1	2
M10	47,5	57

Plastic enclosured switches P, PF
M10, N20, N33F, N40, N60

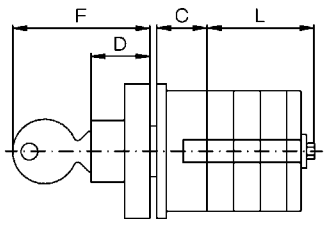
Type	Dimension P with .. cells 1	2	3	4
M10	62	71	81	90
N20	66	80	94	108
N33F	92	110	110	128
N40	92	110	-	-
N60	110	-	-	-

Further dimensions see page 79



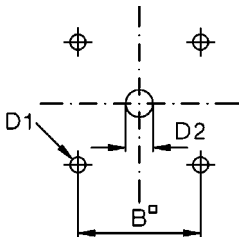
Key operated switches

Key operated switch SAK
Panel mounting E M10H, M20

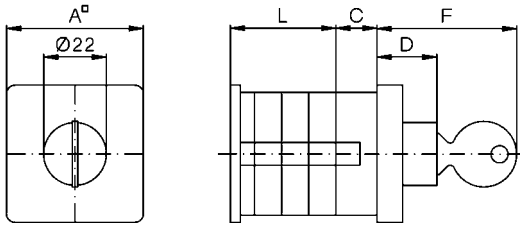


Type	A	B	C	D	D1	D2	F
M10H, M20	48	36	25	21	5	22,5	49

Mounting holes

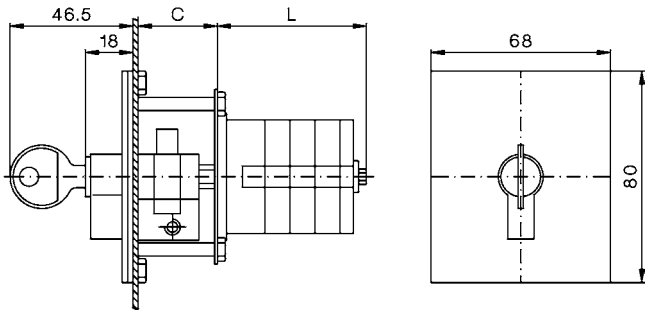


Key operated switch SAK
Base mounting V M10H, M20



Type	A	C	D	F
M10H, M20	48	25	21	49

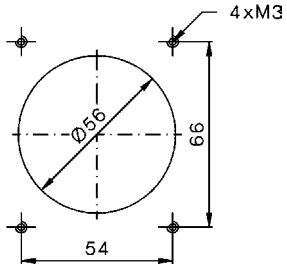
Key operated switch SASI
Panel mounting E M10, M20



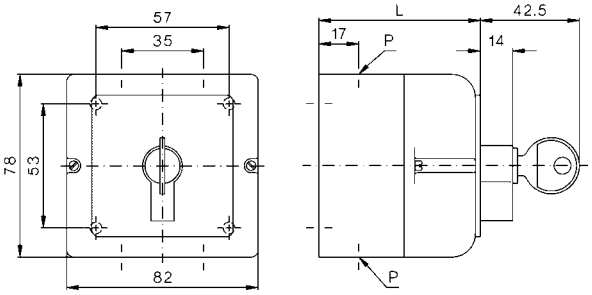
Type	M10	M20
C	20	20

Dimension L see page 77

Mounting holes M10, M20

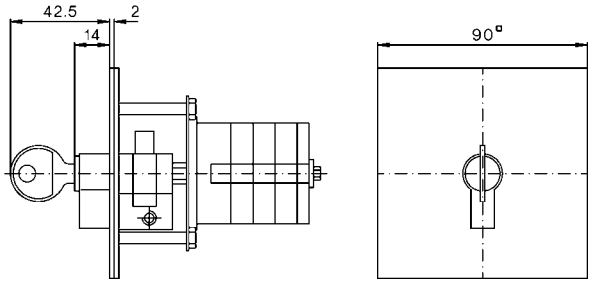


Key operated switch SASI
Plastic enclosured P M10, M20

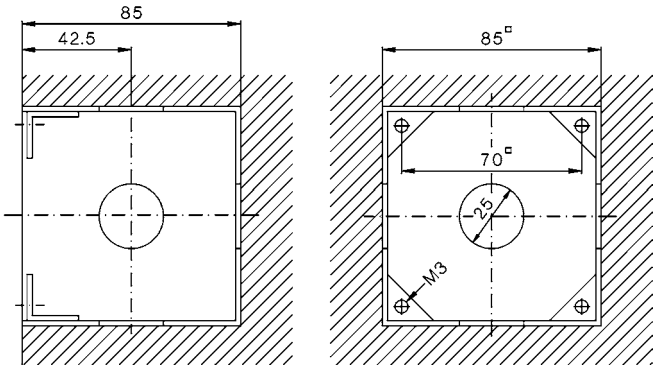


Typ	Dimension P with .. cells 1	2	3	4	P
M10	67	79,5	92	104,5	2xM20
M20	79,5	92	104,5	117	2xM20

Key operated switch SASI
Flush mounting UP M10, M20



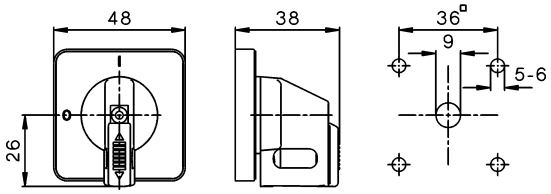
Flush mounting box UP
N20



Padlock devices

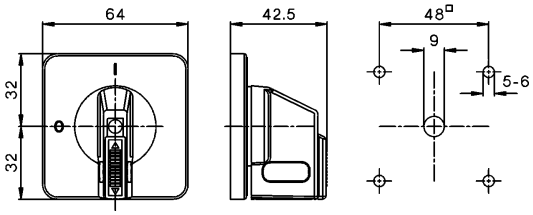
Padlock device SV1 (max. 2 padlocks with stirrup Ø6mm)
M10H, M20

Mounting holes design E, V

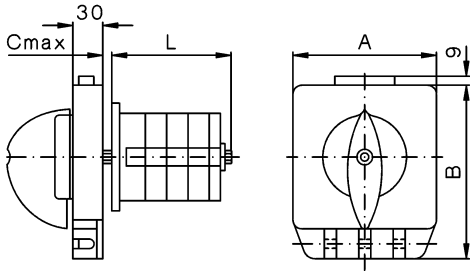


Padlock device SV164
M10H - N33F

Mounting holes design E, V



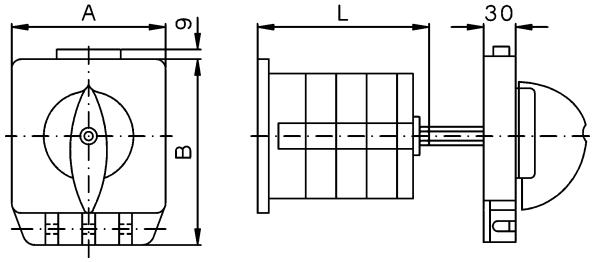
Padlock device SV3 (max. 3 padlocks with stirrup Ø8,5mm)
Panel mounting E
N20 - N200, L100 - L1200



Further dimensions see page 77

Type	A	B	C
N20, N33F	102	128	5
N40, N60, N80, L100, L160	102	128	7
N100, N200, L400, L600, L800, L1200	132	159	9

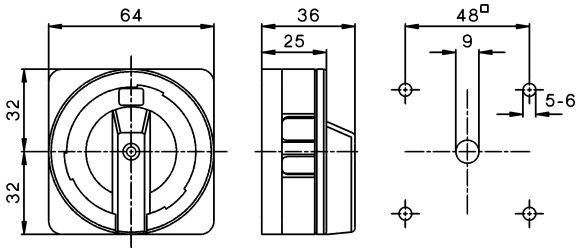
Base mounting V
N20 - N200, L100 - L1200



Further dimensions see page 78

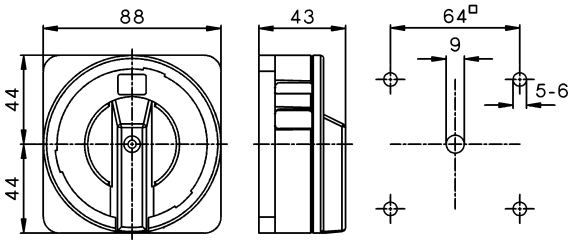
Padlock device SV4 (max. 3 padlocks with stirrup Ø6mm)
M10H - N33F

Mounting holes design E, V

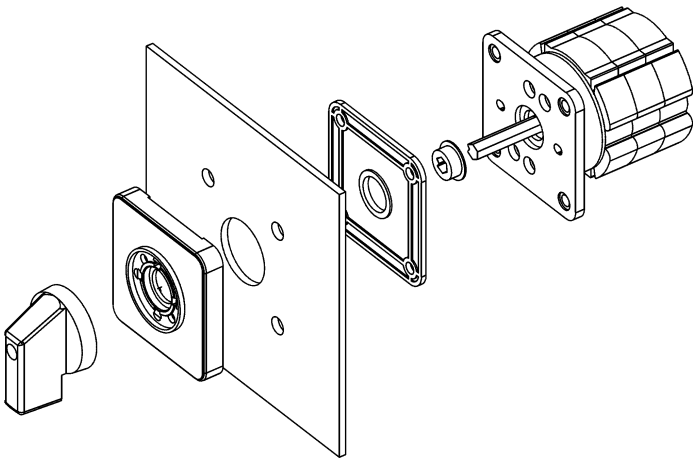


Padlock device SV4 (max. 3 padlocks with stirrup Ø6mm)
N40 - N80, L100 - L160
Padlock device SV488
N20, N33F

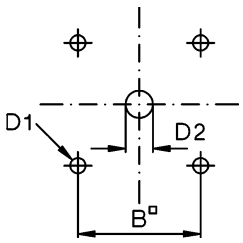
Mounting holes design E, V



Front plate/switch shaft sealing FPWD
N20, N33F



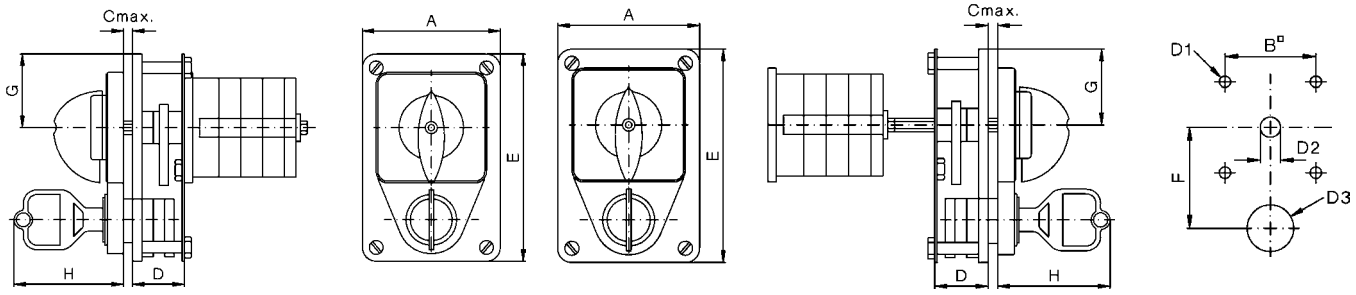
Mounting holes



Typ	B	D1	D2
N20, N33F	48	5	17

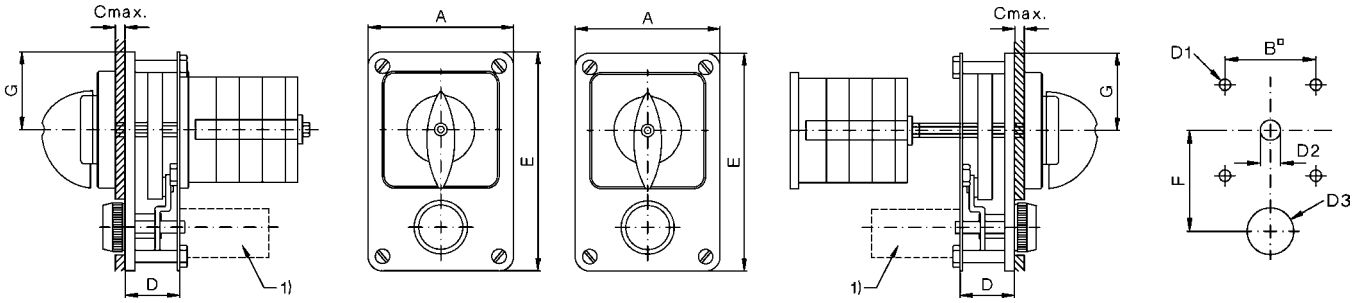
Interlocks

Lock switch SZ, SZ2
Panel mounting E | **Base mounting V** | **Mounting holes**



Type	A	B	C	D	D1	D2	D3	E	F	G	H
M10H, M20	60	36	3	22,5	5	8	18,5	90	40	32	47,5
N20, N33F	60	36	3	22,5	5	12	18,5	90	45	32	47,5
N40, N60, N80, L100, L160	90	68	4	24	6	12	18,5	142	61	61,5	48
N100, N200, L400, L600, L800, L1200	140	110	4	27	7	15	18,5	180	83	90,5	49

Push-button switch lock DV
Switch interlock with electrical contact ET
Panel mounting E | **Base mounting V** | **Mounting holes**

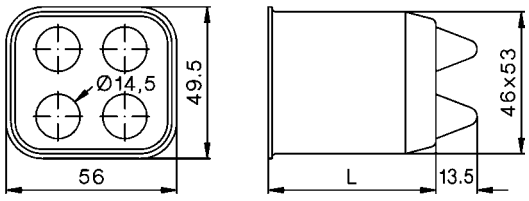


Type	A	B	C	D	D1	D2	D3	E	F	G
M10H, M20	60	36	3	22,5	5	8	26	90	40	32
N20, N33F	60	36	3	22,5	5	12	26	90	45	32
N40, N60, N80, L100, L160	90	68	4	25	6	12	29	142	61	61,5
N100, N200, L400, L600, L800, L1200	140	110	4	41	7	15	29	180	83	90,5

1) only at +ET

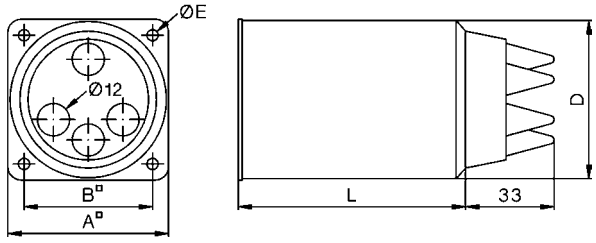
Moisture proofing caps for panel switches FR
M10H

Type	Dimension L with .. cells 1	2	3	4	5	6	7
M10H	55	55	75	75	88	106	106



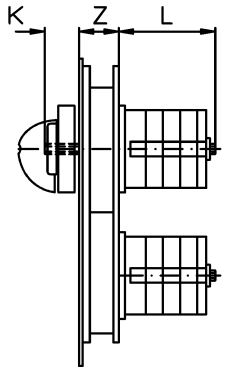
Moisture proofing caps for panel switches FR
N20, N40, N60

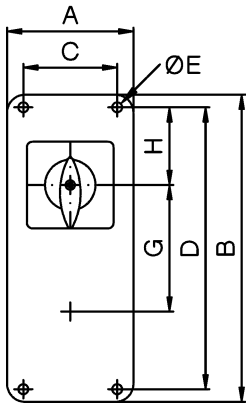
Type	A	B	D	E	Dimension L with .. cells 1	2	3	4	5
N20	60	48	59	5,5	68	68	68	91	91
N40	87	68	83	5,5	82	82	117	117	-



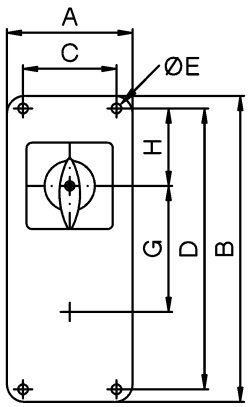
Interlocks

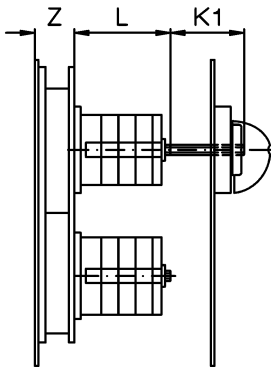
Geared switch with two columns ZK2
Panel mounting E





Base mounting V

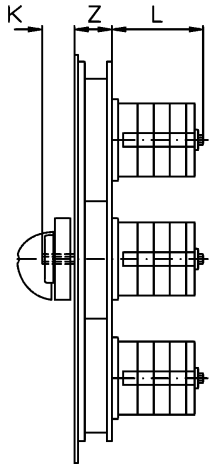


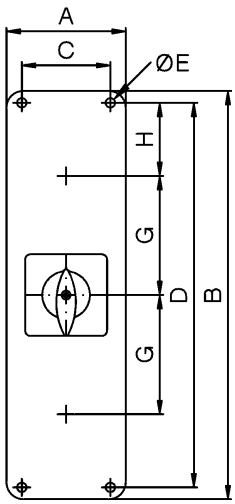


Type	A	B	C	D	E	G	H	Z
M10H, M20	70	170	52	156	5,5	70	43	22
N20, N33F	70	170	52	156	5,5	70	43	22
N40, N60, N80, L100, L160	170	190	150	168	6,5	100	43	23
N100, N200, L400, L600, L800, L1200	180	340	150	310	6,5	140	80	25

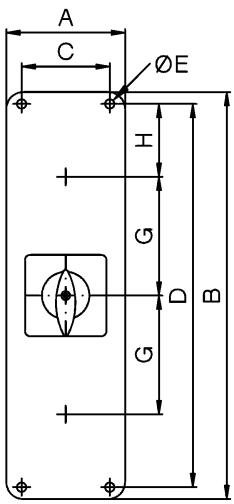
Further dimensions see pages 77 and 78

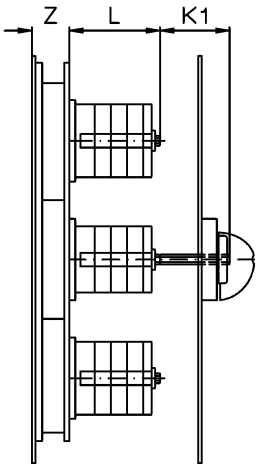
Geared switch with tree columns ZK3
Panel mounting E





Base mounting V

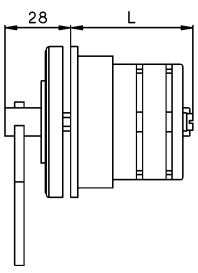


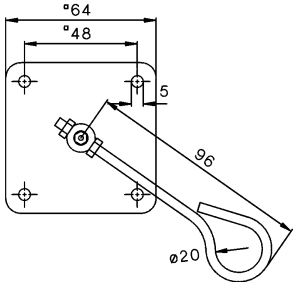


Type	A	B	C	D	E	G	H	Z
M10H, M20	70	240	52	226	5,5	70	43	22
N20, N33F	70	240	52	226	5,5	70	43	22
N40, N60, N80, L100, L160	170	290	150	269	6,5	100	43	23
N100, N200, L400, L600, L800, L1200	180	490	150	460	6,5	140	80	25

Further dimensions see pages 77 and 78

Neon safety switch N20 E .. +FEU, N33F E .. +FEU





Further dimensions see pages 77

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ZW - Harare

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Fax: 4 / 754 790
stardh@mweb.co.zw

Order sheet D399E

Switch Type

M4H		
M10		
M10H		
M20		
N20		
N33F	**L100**	
N40	**L160**	
N60	**L400**	
N80	**L600**	
N100	**L800**	
N200	**L1200**	

Design

Panel mounting E	
Central fixing Z	
ZO	
Base mounting V	
Snap-on mount. SM	
SMA	
Plastic enclosure P	
IP54 PF	
Cast enclosure G	
IP54 GF	

Optional extras

Circular switch

Key removeable

Cam switches with special switching program

Benedict GmbH
A-1220, Vienna, Lieblgasse 7
Tel.: 251 51-0 Fax: 251 51-88

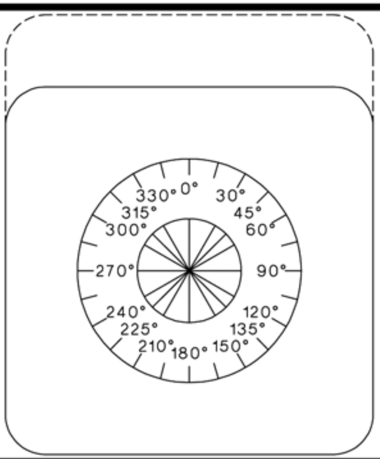
Customer:

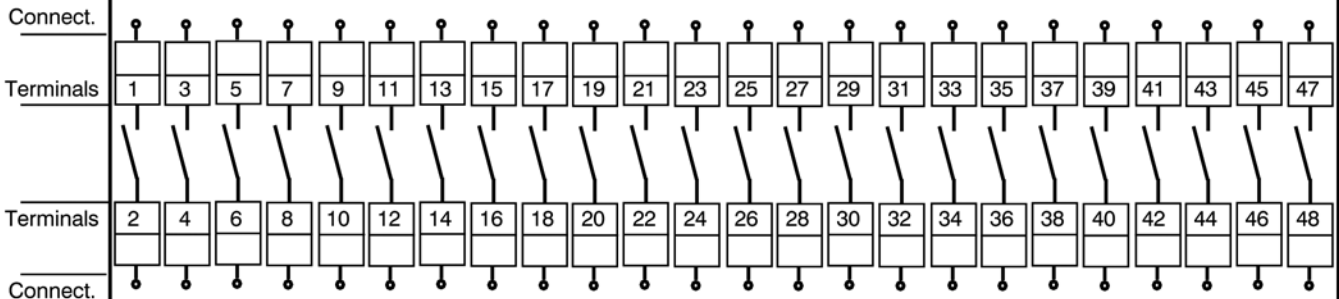
Explanations:

Contact closed over several positions

Spring return from pos.

Handles			**Handle colour**	
Instrument knob	**G** (standard)		black (standard)	
Twist knob	**R** (standard N40 ->)		red	
Toggle knob	**K** (standard SMA)		grey (standard SMA)	
Ball type handle	**B**		white	
Hand wheel	**HR**		cream-coloured	
			yellow	
			blue	





Marking for switch positions	Degree