Elektra Cam Switch Catalogue

FM ELECTRICAL SUPPLIES
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VN cam switches

VN switches are hand-operated cam switches offering a wide application field and practically unlimited switching possibilities. The basic unit of the cam switch is the contact chamber with cam wheel for functional control. Each chamber includes 2 double interrupting contacts, the movable contact bridges are actuated via the contact slides of the cam wheel. Contact opening by enforced separation. Therefore VN switches are universally applicable and can be constructed as control switches, instrument switches, motor switches, and main switches.
VN series include 7 construction sizes: V2N, V3N, VN 32,
VN 50, VN 80, VN 125 and VN 200.
Cam switches VN series are developped, constructed and tested in accordance with national and international standards, based on VDE regulations, DIN standards, European standards, IEC publications and UL standards.
The products listed in this catalogue are within the EC Low Voltage Directive 2006/95/EG.

Approvals

Information as to approvals are included in the table Technical Data on page 55.
Approval obligation in Scandinavian countries
Finland / FIMKO
Sweden / SEMKO
Denmark / DEMKO as well as
Switzerland / SEV does no more exist.
Devices being used in the shipbuilding industry have to be in accordance with the rules and regulations given by the ship classification companies. The devices in this catalogue are approved by the German Lloyd.
In North America cames switches are classified as industrial control equipment. In the USA general obligation for approval exists. These devices are UL approved.

Declaration of conformity

The products of this catalogue are in conformity with the European low-voltage guidelines (2006/95/EG) as well as with the national and international norms for low-voltage switchgears
DIN EN 60947 resp. IEC 60947.
Declaration of conformity can be established on demand.

CE marking

Since 1.1.1997, all products concerned by the EU low-voltage directive and foreseen to be sold in the European Union, have to be marked with CE.
The CE marking procedure is an evaluation of conformity carried out at the own responsibility of the manufacturer. By putting the CE label on the device, packing or documents, the manufacturer certifies the conformity of the products with the basic require-ments of the low voltage directive. Products sold in EU countries must have the CE label. Products having the CE label are for free trade in the EU countries.
As devices with CE label do comply with harmonized norms, they do not require any further testing marks in any countries of the European Union.

D.C. switching

VN switches are alternating current switches and in their standard execution not suitable for direct current, since the contact ope-nings and the switching speed are too small for direct current. In case of dead interruption of the contacts a rated current capacity as mentioned below in the table Technical Data is possible. However this requires that for example a direct current contactor takes over the switching capacity. Nevertheless, the switches can be used for direct current, if a sufficient number of contacts is switched in series.

Switching capacity under direct current conditions

The number of contacts per pole, which must be switches in series in order to perfectly master the direct current arcs occur-ring, is based on:

1. Amperage
2. Voltage
3. Inductivity

Please specify for such switches current, voltage and, if possible,

time factor T_R of direct current circuit.

Technical data D.C. switching capacity

Type				V2N	V3L +V3N	VN 32	VN 50	VN 80	VN 125	VN 200
DC-23A	Motor switches L/R = 15 ms	24 V	A	16(1)	25(1)	40(1)	50(1)	100(1)	125(1)	150(1)
	Values in brackets: Number of contacts to be switched in series	48 V	A	16(2)	25(2)	40(2)	50(2)	100(2)	125(2)	150(2)
		60 V	A	16(3)	25(3)	40(3)	50(3)	100(3)	125(3)	150(3)
		120 V	A	8(3)	12(3)	20(3)	25(3)	40(3)	50(3)	60(3)
		240 V	A	8(5)	10(5)	16(6)	20(6)	–	–	–
DC-13	Control switches L/R = 50 ms									
	Rated operating current I_e		A	10	20	25	–	–	–	–
	Voltage per contact switched in series		V	32	32	24	–	–	–	–

Utilization categories for alternating current switches

Depending on the utilization purpose and service of load break and motor switches, the utilization categories, as defined in the VDE regulations 0660 and as the case may be in EN 60947, must be considered.

Utilization category	Examples of typical application	Load of the switch				cos. φ
		Normal operation		Disturbed operation		
		Make	Break	Make	Break	
AC-20A/B [3]	OFF-ON switching without load	–	–	[1]	[1]	[1]
AC-21A/B [3]	Switching of ohmic load, including less overload	I_e	I_e	1,5 I_e	1,5 I_e	0,95
AC-2	Slipring motors: Starting, reverse current braking, or reversing [2], switching off	2,0 I_e	2,0 I_e	4 I_e	4 I_e	0,65
AC-22A/B [3]	Switching of mixed ohmic and inductive load including less overload	I_e	I_e	3 I_e	3 I_e	0,80 0,65
AC-3	Squirrel cage motors: Starting, switching off during motor is running	2,0 I_e	2,0 I_e	10 I_e	8 I_e	I_e < 100 A = 0,45 I_e > 100 A = 0,35
AC-23A/B [3]	Switching of motors (Main switch, not for operatio-nal switching) or heavy duty inductive loads	I_e	I_e	10 I_e	8 I_e	I_e < 100 A = 0,45 I_e > 100 A = 0,35
AC-4	Squirrel cage motors: Starting, reverse current braking, reversing, inching [2]	6 I_e	6 I_e	12 I_e	10 I_e	I_e < 100 A = 0,45 I_e > 100 A = 0,35
AC-15	Control of electromagnetic load (higher than 72 VA)	10 I_e	I_e	10 I_e	10 I_e	0,3

1) Permissible values are given by the manufacturer.

2) Inching (jogging)-repeatedly once or energizing a motor for short periods of time to obtain small increments of movement. Plugging-stopping or reversing the motor rapidly by reversing motor primary connections while the motor is running.

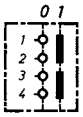
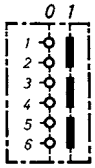
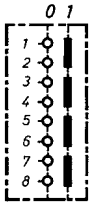
3) A: often actuation, B: occasional actuation

I_e = Rated operating current

Switch size				V2N	V3L V3N	VN 32	VN 50	VN 80	VN 125	VN 200
Rated insulating voltage (III/3)	U_i	V~		690	690	690	690	690	690	690
Rated impulse voltage rigidity (III/3)	$U_{imp.}$	kV		6	6	6	6	6	6	6
Rated permanent current	I_u	A		25	32	50	63	115	150	250
Connectable cross sections single resp. multi-strand		mm^2		0,75–4	1–6	2,5–10	2,5–16	4–35	16–50 [4]	35–120 [4]
fine wire with core end bush (DIN 46228)		mm^2		0,75–2,5	0,75–4	1,5–6	1,5–10	2,5–25	–	–
Terminal screws				M4	M4	M5	M5	2 x M4	M8	M10
Short-circuit protection, fusible cut-out	(gL)	A max.		25	35	63	80	125	160	250
Properties of main switches as per EN 60204										
Requirements for isolators as per EN 60947 complied with up to		V~		≤ 480	≤ 480	≤ 690	≤ 690	≤ 690	≤ 690	≤ 690
Switching capacity under alternating voltage conditions										
AC-21A/B	Load break switches									
	Rated operating current	I_e	A	25	32	50	63	115	150	250
	Rated operating voltage	U_e	V~	690	690	690	690	690	690	690
AC-23A/B	Motor switches (main switches)	220...240 V,3~	kW	5,5	7,5	11	18,5	30	45	55
		380...440 V,3~	kW	11	15	22	30	55	75	90
		500 V,3~	kW	–	–	18,5	30	45	90	110
		660...690 V,3~	kW	–	–	18,5	22	30	45	45
	Switching-off capacity	380...440 V,3~	A	180	240	345	460	835	1140	1360
AC-3	Motor switches, for operational switching	220...240 V,3~	kW	4	7,5	7,5	11	22	30	37
		380...440 V,3~	kW	7,5	11	15	22	37	55	65
		500 V,3~	kW	7,5	11	18,5	30	45	75	90
		660...690 V,3~	kW	11	15	18,5	22	30	45	45
AC-4	Motor switches, inching, reverse current braking	220...240 V,3~	kW	1,1	2,2	2,2	3	4	7,5	11
		380...440 V,3~	kW	2,2	3	5,5	7,5	11	18,5	22
		500 V,3~	kW	2,2	3	5,5	7,5	15	22	30
		660...690 V,3~	kW	3	4	5,5	7,5	7,5	15	15
AC-15	Control switches I_e at	220–240/380–440/500 V	A	6/4/–	9/6/–	16/8/7	–	–	–	–
Listings										
Germ. Lloyd Lloyd All.				•	•	•	•	•	•	•
USA c UL us General Use	600 Vac max., 3~		A	25	35	45	55	80	100	
Motor 3~/1~				3~ 1~	3~ 1~	3~ 1~	3~ 1~	3~ 1~	3~ 1~	3~ 1~
	120 V		hp	2 2	3 2	– 3	– –	– –	– –	– –
	240 V		hp	5 2	7,5 3	10 7,5	15 –	25 –	30 –	
	480 V		hp	10 5	15 5	20 –	30 –	40 –	60 –	
	600 V		hp	10 5	20 7,5	20 –	30 –	50 –	50 –	

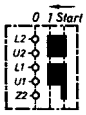
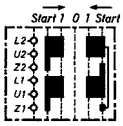
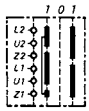
4) with DIN cable lug

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V3~) kW	Number of chambers	Switching angle °	IP 54  Panel/Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
A1 On-off switches single pole 	V2N	25	7,5	1	45	V2N A1-F1-B-SI 141 751	V2N A1-KZF15-B-SI 141 753
	V3N	32	11	1	45	V3N A1-F3-B-SI 146 252	V3N A1-KZF25-B-SI 146 254
	VN 32	50	15	1	45	VN A1 32-F3-B-SI 148 251	–
A2 On-off switches double pole 	V2N	25	7,5	1	45	V2N A2-F1-B-SI 141 754	V2N A2-KZF15-B-SI 141 756
	V3N	32	11	1	45	V3N A2-F3-B-SI 146 255	V3N A2-KZF25-B-SI 146 257
	VN 32	50	15	1	45	VN A2 32-F3-B-SI 148 252	–
A3 On-off switches triple pole 	V2N	25	7,5	2	45	V2N A-F1-B-SI 141 757	V2N A-KZF15-B-SI 141 759
	V3N	32	11	2	45	V3N A-F3-B-SI 146 258	V3N A-KZF25-B-SI 146 260
	VN 32	50	15	2	45	VN A 32-F3-B-SI 133 114	–
	VN 50	63	22	2	45	VN A 50-F4-B-SI 150 251	–
	VN 80	115	37	2	45	VN A 80-F4-B-SI 152 251	–
	VN 125	150	55	2	45	VN A 125-F5-B-SI 154 301	–
	VN 200	250	65	3	45	VN A 200-F5-B-SI 155 301	–
A4 On-off switches 4 poles 	V2N	25	7,5	2	45	V2N A4-F1-B-SI 141 760	V2N A4-KZF15-B-SI 141 762
	V3N	32	11	2	45	V3N A4-F3-B-SI 146 261	V3N A4-KZF25-B-SI 146 263
	VN 32	50	15	2	45	VN A4 32-F3-B-SI 148 254	–
	VN 50	63	22	2	45	VN A4 50-F4-B-SI 150 252	–
	VN 80	115	37	2	45	VN A4 80-F4-B-SI 152 252	–
	VN 125	150	55	2	45	VN A4 125-F5-B-SI 154 302	–
	VN 200	250	65	4	45	VN A4 200-F5-B-SI 155 302	–

* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54 Panel/ Front fixing * **F** Type Ref. No.	IP 65 Single hole mounting **KZF** Type Ref. No.
	V2N	25	7,5	2	60/30	V2N E-F1-B-SI 141 763	V2N E-KZF15-B-SI 141 765
	V3N	32	11	2	60/30	V3N E-F3-B-SI 146 264	V3N E-KZF25-B-SI 146 266
	VN 32	50	15	2	60/30	VN E 32-F3-B-SI 148 364	–
	V2N	25	7,5	3	60/30	V2N WE-F1-B-SI 141 766	V2N WE-KZF15-B-SI 141 768
	V3N	32	11	3	60/30	V3N WE-F3-B-SI 146 267	V3N WE-KZF25-B-SI 146 269
	VN 32	50	15	3	60/30	VN WE 32-F3-B-SI 148 366	–
	V2N	25	7,5	3	60	V2N WE4-F1-B-SI 141 769	V2N WE4-KZF15-B-SI 141 771
	V3N	32	11	3	60	V3N WE4-F3-B-SI 146 270	V3N WE4-KZF25-B-SI 146 272
	VN 32	50	15	3	60	VN WE4 32-F3-B-SI 148 368	–

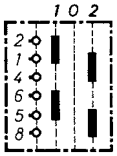
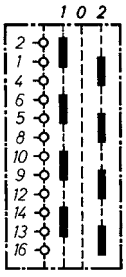
E
Single-phase starting switches

WE
Single-phase reversing starting switches

WE4
Single-phase reversing switches for motors with capacitor or centrifugal switch

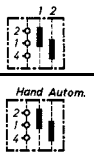
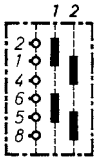
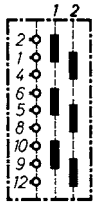
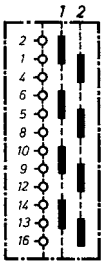
* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/ Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
U1 Change-over switches single pole with 0 position  	V2N	25	7,5	1	45	V2N U1-F1-B-SI 141 814	V2N U1-KZF15-B-SI 141 816
	V3N	32	11	1	45	V3N U1-F3-B-SI 146 318	V3N U1-KZF25-B-SI 146 320
	V2N	25	7,5	1	45	V2N U1-F1-B-SI9 141 947 (Hand 0-Auto)	V2N U1-KZF15-B-SI9 141 949
U2 Change-over switches double pole with 0 position 	V2N	25	7,5	2	45	V2N U2-F1-B-SI 141 817	V2N U2-KZF15-B-SI 141 819
	V3N	32	11	2	45	V3N U2-F3-B-SI 146 321	V3N U2-KZF25-B-SI 146 323
	VN 32	50	15	2	60	VN U2 32-F3-B-SI 148 272	–
	VN 50	63	22	2	60	VN U2 50-F4-B-SI 150 261	–
U3 Change-over switches triple pole with 0 position 	V2N	25	7,5	3	45	V2N U-F1-B-SI 141 820	V2N U-KZF15-B-SI 141 822
	V3N	32	11	3	45	V3N U-F3-B-SI 146 324	V3N U-KZF25-B-SI 146 326
	VN 32	50	15	3	60	VN U 32-F3-B-SI 148 273	–
	VN 50	63	22	3	60	VN U 50-F4-B-SI 150 262	–
	VN 80	115	37	3	60	VN U 80-F4-B-SI 152 258	–
	VN 125	150	55	3	60	VN U 125-F5-B-SI 154 304	–
	VN 200	250	65	6	60	VN U 200-F5-B-SI 155 303	–
U4 Change-over switches 4 poles with 0 position 	V2N	25	7,5	4	45	V2N U4-F1-B-SI 141 823	V2N U4-KZF15-B-SI 141 825
	V3N	32	11	4	45	V3N U4-F3-B-SI 146 327	V3N U4-KZF25-B-SI 146 329
	VN 32	50	15	4	60	VN U4 32-F3-B-SI 148 274	–
	VN 50	63	22	4	60	VN U4 50-F4-B-SI 150 263	–
	VN 80	115	37	4	60	VN U4 80-F4-B-SI 152 259	–
	VN 125	150	55	4	60	VN U4 125-F5-B-SI 154 332	–
	VN 200	250	65	8	60	VN U4 200-F5-B-SI 155 317	–

* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
	V2N	25	7,5	1	45	V2N UD1-F1-B-SI 141 826	V2N UD1-KZF15-B-SI 141 828
	V3N	32	11	1	45	V3N UD1-F3-B-SI 146 330	V3N UD1-KZF25-B-SI 146 332
	V2N	25	7,5	1	45	V2N UD1-F1-B-SI9 142 503	V2N UD1-KZF15-B-SI9 142 505
	V2N	25	7,5	2	45	V2N UD2-F1-B-SI 141 829	V2N UD2-KZF15-B-SI 141 831
	V3N	32	11	2	45	V3N UD2-F3-B-SI 146 333	V3N UD2-KZF25-B-SI 146 335
	VN 32	50	15	2	60	VN UD2 32-F3-B-SI 148 372	–
	VN 50	63	22	2	60	VN UD2 50-F4-B-SI 150 323	–
	V2N	25	7,5	3	45	V2N UD-F1-B-SI 141 832	V2N UD-KZF15-B-SI 141 834
	V3N	32	11	3	45	V3N UD-F3-B-SI 146 336	V3N UD-KZF25-B-SI 146 338
	VN 32	50	15	3	60	VN UD 32-F3-B-SI 148 275	–
	VN 50	63	22	3	60	VN UD 50-F4-B-SI 150 325	–
	VN 80	115	37	3	60	VN UD 80-F4-B-SI 152 318	–
	VN 125	150	55	3	60	VN UD 125-F5-B-SI 154 334	–
	VN 200	250	65	6	60	VN UD 200-F5-B-SI 155 326	–
	V2N	25	7,5	4	45	V2N UD4-F1-B-SI 141 835	V2N UD4-KZF15-B-SI 141 837
	V3N	32	11	4	45	V3N UD4-F3-B-SI 146 339	V3N UD4-KZF25-B-SI 146 341
	VN 32	50	15	4	60	VN UD4 32-F3-B-SI 148 375	–
	VN 50	63	22	4	60	VN UD4 50-F4-B-SI 150 327	–
	VN 80	115	37	4	60	VN UD4 80-F4-B-SI 152 320	–
	VN 125	150	55	4	60	VN UD4 125-F5-B-SI 154 336	–
	VN 200	250	65	8	60	VN UD4 200-F5-B-SI 155 331	–

UD1
Change-over switches single pole without 0 position

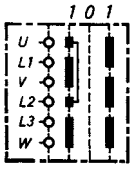
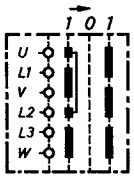
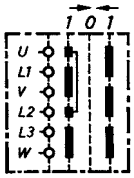
UD2
Change-over switches double pole without 0 position

UD3
Change-over switches triple pole without 0 position

UD4
Change-over switches 4 poles without 0 position

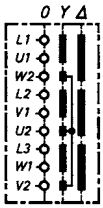
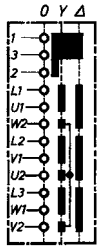
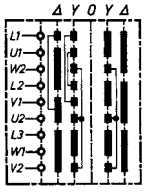
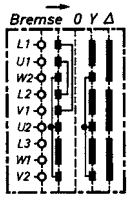
* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/ Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
W Reversing switches triple pole 	V2N	25	7,5	3	60	V2N W-F1-B-SI 141 775	V2N W-KZF15-B-SI 141 777
	V3N	32	11	3	60	V3N W-F3-B-SI 146 276	V3N W-KZF25-B-SI 146 278
	VN 32	50	15	3	60	VN W 32-F3-B-SI 148 306	–
	VN 50	63	22	3	60	VN W 50-F4-B-SI 150 284	–
	VN 80	115	37	3	60	VN W 80-F4-B-SI 152 278	–
	VN 125	150	55	3	60	VN W 125-F5-B-SI 154 315	–
	VN 200	250	65	5	60	VN W 200-F5-B-SI 155 313	–
WR Reversing switches triple pole, spring return from one side to 0 	V2N	25	7,5	3	30/60	V2N WR-F1-B-SI 141 778	V2N WR-KZF15-B-SI 141 780
	V3N	32	11	3	30/60	V3N WR-F3-B-SI 146 279	V3N WR-KZF25-B-SI 146 281
	VN 32	50	15	3	30/60	VN WR 32-F3-B-SI 148 379	–
	VN 50	63	22	3	30/60	VN WR 50-F4-B-SI 150 330	–
WR2 Reversing switches triple pole with spring return to 0 from both sides 	V2N	25	7,5	3	30	V2N WR2-F1-B-SI 141 781	V2N WR2-KZF15-B-SI 141 783
	V3N	32	11	3	30	V3N WR2-F3-B-SI 146 282	V3N WR2-KZF25-B-SI 146 284
	VN 32	50	15	3	30	VN WR2 32-F3-B-SI 148 344	–
	VN 50	63	22	3	30	VN WR2 50-F4-B-SI 150 322	–

* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
	V2N	25	7,5	4	60	V2N Y-F1-B-SI 141 784	V2N Y-KZF15-B-SI 141 786
	V3N	32	11	4	60	V3N Y-F3-B-SI 146 285	V3N Y-KZF25-B-SI 146 287
	VN 32	50	15	4	60	VN Y 32-F3-B-SI 148 255	–
	VN 50	63	22	4	60	VN Y 50-F4-B-SI 150 253	–
	VN 80	115	37	4	60	VN Y 80-F4-B-SI 152 253	–
	VN 125	150	55	4	60	VN Y 125-F5-B-SI 154 305	–
	V2N	25	7,5	5	60	V2N YJ-F1-B-SI 141 787	V2N YJ-KZF15-B-SI 141 789
	V3N	32	11	5	60	V3N YJ-F3-B-SI 146 288	V3N YJ-KZF25-B-SI 146 290
	VN 32	50	15	5	60	VN YJ 32-F3-B-SI 148 256	–
	VN 50	63	22	5	60	VN YJ 50-F4-B-SI 150 254	–
	VN 80	115	37	5	60	VN YJ 80-F4-B-SI 152 254	–
	VN 125	150	55	5	60	VN YJ 125-F5-B-SI 154 303	–
	V2N	25	7,5	5	60	V2N WY-F1-B-SI 141 790	V2N WY-KZF15-B-SI 141 792
	V3N	32	11	5	60	V3N WY-F3-B-SI 146 291	V3N WY-KZF25-B-SI 146 293
	VN 32	50	15	5	60	VN WY 32-F3-B-SI 148 257	–
	VN 50	63	22	5	60	VN WY 50-F4-B-SI 150 255	–
	VN 80	115	37	5	60	VN WY 80-F4-B-SI 152 255	–
	VN 125	150	55	5	60	VN WY 125-F5-B-SI 154 327	–
	V3N	32	11	5	30/60	V3N BY-F3-B-SI 146 294	V3N BY-KZF25-B-SI 146 296
	VN 32	50	15	5	45	VN BY 32-F3-B-SI 148 258	–
	VN 50	63	22	5	45	VN BY 50-F4-B-SI 150 256	–
	VN 80	115	37	5	45	VN BY 80-F4-B-SI 152 256	–

Y
Star-delta switches

YJ
Star-delta switches with J-contact for contactor control

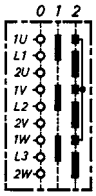
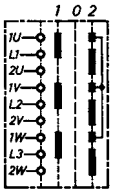
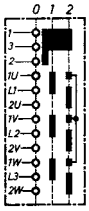
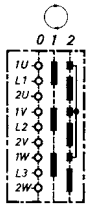
WY
Star-delta switches for 2 directions of rotation

BY
Braking star-delta switches with automatic spring return from „Brake“ to 0

* Din-rail/ base mount option available on request

3 PH. POLE C/O FOR SINGLE WINDING

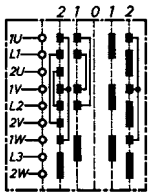
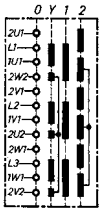
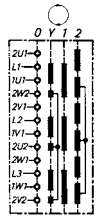
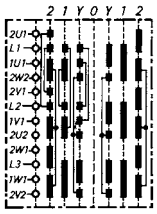
Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/ Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
PI Pole-change-over switches for 2 speeds, switching sequence 0–1–2 	V2N	25	7,5	4	60	V2N PI-F1-B-SI 141 793	V2N PI-KZF15-B-SI 141 795
	V3N	32	11	4	60	V3N PI-F3-B-SI 146 297	V3N PI-KZF25-B-SI 146 299
	VN 32	50	15	4	60	VN PI 32-F3-B-SI 148 259	–
	VN 50	63	22	4	60	VN PI 50-F4-B-SI 150 257	–
	VN 80	115	37	4	60	VN PI 80-F4-B-SI 152 305	–
PII Pole-change-over switches for 2 speeds, switching sequence 1–0–2 	V2N	25	7,5	4	60	V2N PII-F1-B-SI 141 796	V2N PII-KZF15-B-SI 141 798
	V3N	32	11	4	60	V3N PII-F3-B-SI 146 300	V3N PII-KZF25-B-SI 146 302
	VN 32	50	15	4	60	VN PII 32-F3-B-SI 148 260	–
	VN 50	63	22	4	60	VN PII 50-F4-B-SI 150 258	–
	VN 80	115	37	4	60	VN PII 80-F4-B-SI 152 306	–
PIJ Pole-change-over switches for 2 speeds with J-contact for contactor control 	V2N	25	7,5	5	60	V2N PIJ-F1-B-SI 141 799	V2N PIJ-KZF15-B-SI 141 801
	V3N	32	11	5	60	V3N PIJ-F3-B-SI 146 303	V3N PIJ-KZF25-B-SI 146 305
	VN 32	50	15	5	60	VN PIJ 32-F3-B-SI 148 382	–
	VN 50	63	22	5	60	VN PIJ 50-F4-B-SI 150 334	–
	VN 80	115	37	5	60	VN PIJ 80-F4-B-SI 152 324	–
PU Pole-change-over switches for rotary operation, back switching interlock from 2 to 1 and from 0 to 2 	V3N	32	11	4	60	V3N PU-F3-B-SI 146 483	V3N PU-KZF25-B-SI 146 489
	VN 32	50	15	5	60	VN PU 32-F3-B-SI 148 261	–
	VN 50	63	22	5	60	VN PU 50-F4-B-SI 150 335	–
	VN 80	115	37	5	60	VN PU 80-F4-B-SI 152 325	–

* Din-rail/ base mount option available on request

3 PH. POLE C/O FOR SINGLE WINDING

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54 Panel/Front fixing * **F** Type Ref. No.	IP 65 Single hole mounting **KZF** Type Ref. No.
	V2N	25	7,5	6	60	V2N WP-F1-B-SI 141 802	V2N WP-KZF15-B-SI 141 804
	V3N	32	11	6	60	V3N WP-F3-B-SI 146 306	V3N WP-KZF25-B-SI 146 308
	VN 32	50	15	7	60	VN WP 32-F3-B-SI 148 262	–
	VN 50	63	22	7	60	VN WP 50-F4-B-SI 150 336	–
	VN 80	115	37	7	60	VN WP 80-F4-B-SI 152 326	–
	V2N	25	7,5	6	60	V2N YP-F1-B-SI 142 099	V2N YP-KZF15-B-SI 142 101
	V3N	32	11	6	60	V3N YP-F3-B-SI 146 491	V3N YP-KZF25-B-SI 146 493
	VN 32	50	15	6	45	VN YP 32-F3-B-SI 148 263	–
	VN 50	63	22	6	45	VN YP 50-F4-B-SI 150 259	–
	VN 80	115	37	6	45	VN YP 80-F4-B-SI 152 327	–
	V3N	32	11	6	90	V3N YPU-F3-B-SI 146 494	V3N YPU-KZF25-B-SI 146 496
	VN 32	50	15	7	45	VN YPU 32-F3-B-SI 148 264	–
	VN 50	63	22	7	45	VN YPU 50-F4-B-SI 150 260	–
	VN 80	115	37	7	45	VN YPU 80-F4-B-SI 152 257	–
	V3N	32	11	9	45	V3N WYP-F3-B-SI 146 497	V3N WYP-KZF25-B-SI 146 499
	VN 32	50	15	9	45	VN WYP 32-F3-B-SI 148 265	–
	VN 50	63	22	9	45	VN WYP 50-F4-B-SI 150 337	–
	VN 80	115	37	9	45	VN WYP 80-F4-B-SI 152 328	–

WP
Pole-change-over switches for 2 speeds and 2 directions of rotation

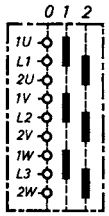
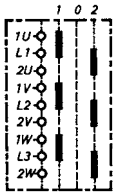
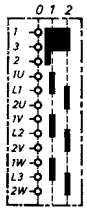
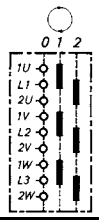
YP
Starting pole-change-over switches for 2 speeds

YPU
Starting pole-change-over switches for rotary operation, back switching interlock from 2 to 1 and from 0 to 2

WYP
Starting pole-change-over switches for 2 speeds and 2 directions of rotation

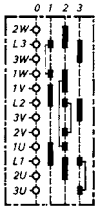
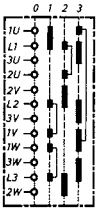
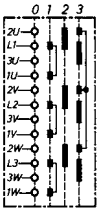
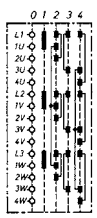
* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/ Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
PPI Pole-change-over switches for 2 speeds							
	V2N	25	7,5	3	60	V2N PPI-F1-B-SI 141 805	V2N PPI-KZF15-B-SI 141 807
	V3N	32	11	3	60	V3N PPI-F3-B-SI 146 309	V3N PPI-KZF25-B-SI 146 311
	VN 32	50	15	3	60	VN PPI 32-F3-B-SI 148 266	–
	VN 50	63	22	3	60	VN PPI 50-F4-B-SI 150 338	–
	VN 80	115	37	3	60	VN PPI 80-F4-B-SI 152 329	–
PPII Pole-change-over switches for 2 speeds, switching sequence 1–0–2							
	V2N	25	7,5	3	60	V2N PPII-F1-B-SI 141 808	V2N PPII-KZF15-B-SI 141 810
	V3N	32	11	3	60	V3N PPII-F3-B-SI 146 312	V3N PPII-KZF25-B-SI 146 314
	VN 32	50	15	3	60	VN PPII 32-F3-B-SI 148 267	–
	VN 50	63	22	3	60	VN PPII 50-F4-B-SI 150 339	–
	VN 80	115	37	3	60	VN PPII 80-F4-B-SI 152 330	–
PPIJ Pole-change-over switches for 2 speeds with J-contact for contactor control							
	V2N	25	7,5	4	60	V2N PPIJ-F1-B-SI 141 811	V2N PPIJ-KZF15-B-SI 141 813
	V3N	32	11	4	60	V3N PPIJ-F3-B-SI 146 315	V3N PPIJ-KZF25-B-SI 146 317
	VN 32	50	15	4	60	VN PPIJ 32-F3-B-SI 148 383	–
	VN 50	63	22	4	60	VN PPIJ 50-F4-B-SI 150 340	–
	VN 80	115	37	4	60	VN PPIJ 80-F4-B-SI 152 331	–
PPU Pole-change-over switches for 2 speeds for rotary operation, back switching interlock from 2 to 1 and from 0 to 2							
	V3N	32	11	3	60	V3N PPU-F3-B-SI 146 500	V3N PPU-KZF25-B-SI 146 502
	VN 32	50	15	4	60	VN PPU 32-F3-B-SI 148 384	–
	VN 50	63	22	4	60	VN PPU 50-F4-B-SI 150 341	–
	VN 80	115	37	4	60	VN PPU 80-F4-B-SI 152 332	–

* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
	V2N	25	7,5	6	60	V2N P3I-F1-B-SI 142 103	V2N P3I-KZF15-B-SI 142 105
	V3N	32	11	6	60	V3N P3I-F3-B-SI 146 503	V3N P3I-KZF25-B-SI 146 505
	VN 32	50	15	6	45	VN P3I 32-F3-B-SI 148 268	–
	VN 50	63	22	6	45	VN P3I 50-F4-B-SI 150 342	–
	VN 80	115	37	6	45	VN P3I 80-F4-B-SI 152 333	–
	V2N	25	7,5	6	45	V2N P3II-F1-B-SI 142 106	V2N P3II-KZF15-B-SI 142 108
	V3N	32	11	6	45	V3N P3II-F3-B-SI 146 506	V3N P3II-KZF25-B-SI 146 508
	VN 32	50	15	6	45	VN P3II 32-F3-B-SI 148 269	–
	VN 50	63	22	6	45	VN P3II 50-F4-B-SI 150 343	–
	VN 80	115	37	2	45	VN P3II 80-F4-B-SI 152 334	–
	V2N	25	7,5	6	60	V2N P3III-F1-B-SI 142 109	V2N P3III-KZF15-B-SI 142 111
	V3N	32	11	6	60	V3N P3III-F3-B-SI 146 509	V3N P3III-KZF25-B-SI 146 511
	VN 32	50	15	6	45	VN P3III 32-F3-B-SI 148 270	–
	VN 50	63	22	6	45	VN P3III 50-F4-B-SI 150 344	–
	VN 80	115	37	6	45	VN P3III 80-F4-B-SI 152 335	–
	V2N	25	7,5	8	60	V2N P4I-F1-B-SI 142 112	V2N P4I-KZF15-B-SI 142 114
	V3N	32	11	8	60	V3N P4I-F3-B-SI 146 512	V3N P4I-KZF25-B-SI 146 514
	VN 32	50	15	9	45	VN P4I 32-F3-B-SI 148 271	–
	VN 50	63	22	9	45	VN P4I 50-F4-B-SI 150 345	–
	VN 80	115	37	9	45	VN P4I 80-F4-B-SI 152 336	–

P3I
Pole-change-over switches for 3 speeds (1st and 2nd speed single winding, 3rd speed separated winding)

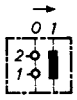
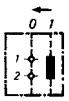
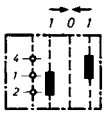
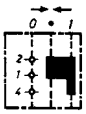
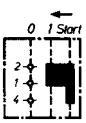
P3II
Pole-change-over switches for 3 speeds (1st and 3rd speed single winding, 2nd speed separated winding)

P3III
Pole-change-over switches for 3 speeds (2nd and 3rd speed single winding, 1st speed separated winding)

P4I
Pole-change-over switches for 4 speeds (1st and 2nd, 3rd and 4th speed single winding)

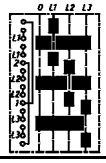
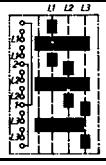
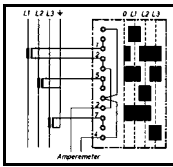
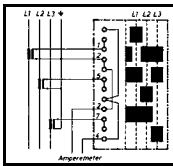
* Din-rail/ base mount option available on request

Types

	Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/ Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
KEDR0 Control switches (single pole for standard contactor, with impulse "off" position)		V2N	25	7,5	1	30	V2N KEDR0-F1-B-SI 141 932	V2N KEDR0-KZF15-B-SI 141 934
KEDRI Control switches (single pole for standard contactor, with impulse "on" position)		V2N	25	7,5	1	30	V2N KEDRI-F1-B-SI 141 935	V2N KEDRI-KZF15-B-SI 141 937
KADRII Control switches (single pole for reversing contactor, with impulse "on" position)		V2N	25	7,5	1	30	V2N KADRII-F1-B-SI 141 938	V2N KADRII-KZF15-B-SI 141 940
KIM Control switches with impulse and hold-in contact for standard and automatic star-delta contactor (key function to 0 and 1)		V2N	25	7,5	1	30	V2N KIM-F1-B-SI 141 941	V2N KIM-KZF15-B-SI 141 943
KOM Control switches with impulse and hold-in contact for standard and automatic star-delta contactor (key function from 1 to "Start")		V2N	25	7,5	1	60/30	V2N KOM-F1-B-SI 141 944	V2N KOM-KZF15-B-SI 141 946

* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
	V2N	25	7,5	5	90	V2N MT3-F1-B-SI 141 872	V2N MT3-KZF15-B-SI 141 874
	V3N	32	11	5	90	V3N MT3-F3-B-SI 146 358	V3N MT3-KZF25-B-SI 146 360
	VN 32	50	15	5	90	VN MT3 32-F3-B-SI 148 276	–
	V2N	25	7,5	5	90	V2N MT03-F1-B-SI 142 121	V2N MT03-KZF15-B-SI 142 123
	V3N	32	11	5	90	V3N MT03-F3-B-SI 146 518	V3N MT03-KZF25-B-SI 146 520
	VN 32	50	15	5	90	VN MT03 32-F3-B-SI 148 385	–
	V2N	25	7,5	3	90	V2N MA-F1-B-SI 142 124	V2N MA-KZF15-B-SI 142 126
	V3N	32	11	3	90	V3N MA-F3-B-SI 146 521	V3N MA-KZF25-B-SI 146 523
	VN 32	50	15	4	90	VN MA 32-F3-B-SI 148 386	–
	V2N	25	7,5	3	90	V2N MA0-F1-B-SI 142 127	V2N MA0-KZF15-B-SI 142 129
	V3N	32	11	3	90	V3N MA0-F3-B-SI 146 524	V3N MA0-KZF25-B-SI 146 526
	VN 32	50	15	4	90	VN MA0 32-F3-B-SI 148 387	–

MT3
Ammeter-change-over switches with 0 position (for 3 circuits to be used with or without current transformers)

MT03
Ammeter-change-over switches without 0 position (for 3 circuits to be used with or without current transformers)

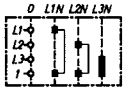
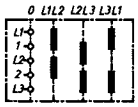
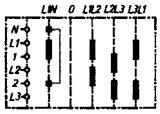
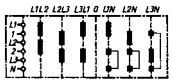
MA
Ammeter-change-over switches with 0 position (3 circuits with current transformers)

MA0
Ammeter-change-over switches without 0 position (3 circuits with current transformers)

* Din-rail/ base mount option available on request

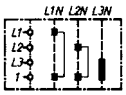
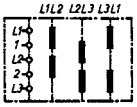
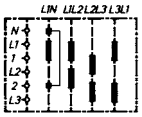
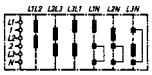
VOLTMETER WITH OFF

Types

	Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	IP 54  Panel/ Front fixing * **F** Type Ref. No.	IP 65  Single hole mounting **KZF** Type Ref. No.
V1 Voltmeter-change-over switches with 0 position (to measure 3 phases against N)		V2N	25	7,5	2	45	V2N V1-F1-B-SI 141 860	V2N V1-KZF15-B-SI 141 862
V2 Voltmeter-change-over switches with 0 position (to measure 3 inter-connected voltages)		V2N	25	7,5	2	45	V2N V2-F1-B-SI 141 863	V2N V2-KZF15-B-SI 141 865
V02 Voltmeter-change-over switches with 0 position (to measure 3 interconnected voltages and 1 phase against N)		V2N	25	7,5	3	30	V2N V02-F1-B-SI 141 866	V2N V02-KZF15-B-SI 141 868
V3 Voltmeter-change-over switches with 0 position (to measure 3 interconnected voltages and 3-phases against N)		V2N	25	7,5	3	45	V2N V3-F1-B-SI 141 869	V2N V3-KZF15-B-SI 141 871

* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/ Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
	V2N	25	7,5	2	45	V2N V11-F1-B-SI 142 130	V2N V11-KZF15-B-SI 142 132
	V2N	25	7,5	2	45	V2N V21-F1-B-SI 141 854	V2N V21-KZF15-B-SI 141 856
	V2N	25	7,5	3	45	V2N V021-F1-B-SI 142 133	V2N V021-KZF15-B-SI 142 135
	V2N	25	7,5	4	45	V2N V31-F1-B-SI 141 857	V2N V31-KZF15-B-SI 141 859

V11
Voltmeter-change-over switches without 0 position (to measure 3-phases against N)

V21
Voltmeter-change-over switches without 0 position (to measure 3 interconnected voltages)

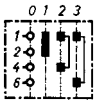
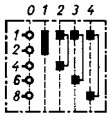
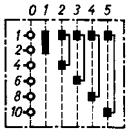
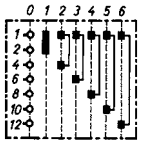
V021
Voltmeter-change-over switches without 0 position (to measure 3 interconnected voltages and 1 phase against N)

V31
Voltmeter-change-over switches without 0 position (to measure 3 interconnected voltages and 3-phases against N)

* Din-rail/ base mount option available on request

STEP 1 POLE WITH OFF

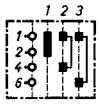
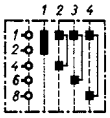
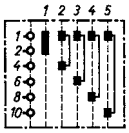
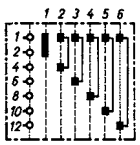
Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/ Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
S02 Step switch 1 pole with O position 2 steps 	V2N	25	7,5	1	45	V2N S02-F1-B-SI 141 875	V2N S02-KZF15-B-SI 141 877
	V3N	32	11	1	45	V3N S02-F3-B-SI 146 361	V3N S02-KZF25-B-SI 146 363
	VN 32	50	15	1	45	VN S02 32-F3-B-SI 148 388	–
	VN 50	63	22	1	45	VN S02 50-F4-B-SI 150 389	–
S03 Step switch 1 pole with O position 3 steps 	V2N	25	7,5	2	45	V2N S03-F1-B-SI 141 878	V2N S03-KZF15-B-SI 141 880
	V3N	32	11	2	45	V3N S03-F3-B-SI 146 364	V3N S03-KZF25-B-SI 146 366
	VN 32	50	15	2	45	VN S03 32-F3-B-SI 148 328	–
	VN 50	63	22	2	45	VN S03 50-F4-B-SI 150 391	–
S04 Step switch 1 pole with O position 4 steps 	V2N	25	7,5	2	45	V2N S04-F1-B-SI 141 881	V2N S04-KZF15-B-SI 141 883
	V3N	32	11	2	45	V3N S04-F3-B-SI 146 367	V3N S04-KZF25-B-SI 146 369
	VN 32	50	15	3	45	VN S04 32-F3-B-SI 148 389	–
	VN 50	63	22	3	45	VN S04 50-F4-B-SI 150 393	–
S05 Step switch 1 pole with O position 5 steps 	V2N	25	7,5	3	45	V2N S05-F1-B-SI 141 884	V2N S05-KZF15-B-SI 141 886
	V3N	32	11	3	45	V3N S05-F3-B-SI 146 370	V3N S05-KZF25-B-SI 146 372
	VN 32	50	15	3	45	VN S05 32-F3-B-SI 148 390	–
	VN 50	63	22	3	45	VN S05 50-F4-B-SI 150 395	–
S06 Step switch 1 pole with O position 6 steps 	V2N	25	7,5	3	45	V2N S06-F1-B-SI 141 887	V2N S06-KZF15-B-SI 141 889
	V3N	32	11	3	45	V3N S06-F3-B-SI 146 373	V3N S06-KZF25-B-SI 146 375
	VN 32	50	15	4	45	VN S06 32-F3-B-SI 148 391	–
	VN 50	63	22	4	45	VN S06 50-F4-B-SI 150 397	–

* Din-rail/ base mount option available on request

STEP 1 POLE WITHOUT OFF

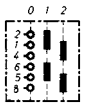
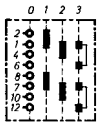
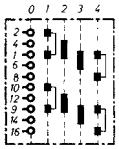
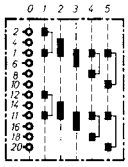
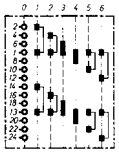
Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54 Panel/ Front fixing * **F** Type Ref. No.	 IP 65 Single hole mounting **KZF** Type Ref. No.	
	V2N	25	7,5	1	45	V2N UD1-F1-B-SI 141 826	V2N UD1-KZF15-B-SI 141 828	**UD1** Step switches single pole, without 0 position, 2 steps
	V3N	32	11	1	45	V3N UD1-F3-B-SI 146 330	V3N UD1-KZF25-B-SI 146 332	
	VN 32	50	15	1	45	VN UD1 32-F3-B-SI 148 558	–	
	VN 50	63	22	1	45	VN UD1 50-F4-B-SI 150 512	–	
	V2N	25	7,5	2	45	V2N S3-F1-B-SI 141 914	V2N S3-KZF15-B-SI 141 916	**S3** Step switches single pole, without 0 position, 3 steps
	V3N	32	11	2	45	V3N S3-F3-B-SI 146 400	V3N S3-KZF25-B-SI 146 402	
	VN 32	50	15	2	45	VN S3 32-F3-B-SI 148 317	–	
	VN 50	63	22	2	45	VN S3 50-F4-B-SI 150 401	–	
	V2N	25	7,5	2	45	V2N S4-F1-B-SI 141 917	V2N S4-KZF15-B-SI 141 919	**S4** Step switches single pole, without 0 position, 4 steps
	V3N	32	11	2	45	V3N S4-F3-B-SI 146 403	V3N S4-KZF25-B-SI 146 405	
	VN 32	50	15	2	45	VN S4 32-F3-B-SI 148 277	–	
	VN 50	63	22	2	45	VN S4 50-F4-B-SI 150 403	–	
	V2N	25	7,5	3	45	V2N S5-F1-B-SI 141 920	V2N S5-KZF15-B-SI 141 922	**S5** Step switches single pole, without 0 position, 5 steps
	V3N	32	11	3	45	V3N S5-F3-B-SI 146 406	V3N S5-KZF25-B-SI 146 408	
	VN 32	50	15	3	45	VN S5 32-F3-B-SI 148 278	–	
	VN 50	63	22	3	45	VN S5 50-F4-B-SI 150 405	–	
	V2N	25	7,5	3	45	V2N S6-F1-B-SI 141 923	V2N S6-KZF15-B-SI 141 925	**S6** Step switches single pole, without 0 position, 6 steps
	V3N	32	11	3	45	V3N S6-F3-B-SI 146 409	V3N S6-KZF25-B-SI 146 411	
	VN 32	50	15	3	45	VN S6 32-F3-B-SI 148 393	–	
	VN 50	63	22	3	45	VN S6 50-F4-B-SI 150 407	–	

* Din-rail/ base mount option available on request

STEP 2 POLE WITH OFF

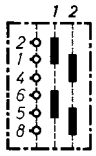
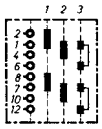
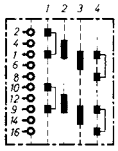
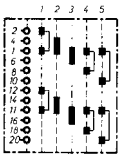
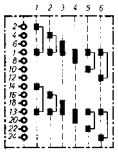
Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/ Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
S202 Step switches double pole, with 0 position, 2 steps 	V2N	25	7,5	2	45	V2N S202-F1-B-SI 141 896	V2N S202-KZF15-B-SI 141 898
	V3N	32	11	2	45	V3N S202-F3-B-SI 146 382	V3N S202-KZF25-B-SI 146 384
	VN 32	50	15	2	45	VN S202 32-F3-B-SI 148 394	–
	VN 50	63	22	2	45	VN S202 50-F4-B-SI 150 346	–
S203 Step switches double pole, with 0 position, 3 steps 	V2N	25	7,5	3	45	V2N S203-F1-B-SI 141 899	V2N S203-KZF15-B-SI 141 901
	V3N	32	11	3	45	V3N S203-F3-B-SI 146 385	V3N S203-KZF25-B-SI 146 387
	VN 32	50	15	3	45	VN S203 32-F3-B-SI 148 395	–
	VN 50	63	22	3	45	VN S203 50-F4-B-SI 150 347	–
S204 Step switches double pole, with 0 position, 4 steps 	V2N	25	7,5	4	45	V2N S204-F1-B-SI 141 987	V2N S204-KZF15-B-SI 142 137
	V3N	32	11	4	45	V3N S204-F3-B-SI 146 527	V3N S204-KZF25-B-SI 146 529
	VN 32	50	15	5	45	VN S204 32-F3-B-SI 148 396	–
	VN 50	63	22	5	45	VN S204 50-F4-B-SI 150 348	–
S205 Step switches double pole, with 0 position, 5 steps 	V2N	25	7,5	5	45	V2N S205-F1-B-SI 142 138	V2N S205-KZF15-B-SI 142 140
	V3N	32	11	5	45	V3N S205-F3-B-SI 146 530	V3N S205-KZF25-B-SI 146 532
	VN 32	50	15	6	45	VN S205 32-F3-B-SI 148 397	–
	VN 50	63	22	6	45	VN S205 50-F4-B-SI 150 349	–
S206 Step switches double pole, with 0 position, 6 steps 	V2N	25	7,5	6	45	V2N S206-F1-B-SI 142 141	V2N S206-KZF15-B-SI 142 143
	V3N	32	11	6	45	V3N S206-F3-B-SI 146 533	V3N S206-KZF25-B-SI 146 535
	VN 32	50	15	7	45	VN S206 32-F3-B-SI 148 398	–
	VN 50	63	22	7	45	VN S206 50-F4-B-SI 150 350	–

* Din-rail/ base mount option available on request

STEP 2 POLE WITHOUT OFF

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54	 IP 65
						Panel/ Front fixing * **F**	Single hole mounting **KZF**
						Type Ref. No.	Type Ref. No.
	V2N	25	7,5	2	45	V2N UD2-F1-B-SI 141 829	V2N UD2-KZF15-B-SI 141 831
	V3N	32	11	2	45	V3N UD2-F3-B-SI 146 333	V3N UD2-KZF25-B-SI 146 335
	VN 32	50	15	2	45	VN UD2 32-F3-B-SI 148 372	–
	VN 50	63	22	2	45	VN UD2 50-F4-B-SI 150 323	–
	V2N	25	7,5	3	45	V2N S23-F1-B-SI 141 902	V2N S23-KZF15-B-SI 141 904
	V3N	32	11	3	45	V3N S23-F3-B-SI 146 388	V3N S23-KZF25-B-SI 146 390
	VN 32	50	15	3	45	VN S23 32-F3-B-SI 148 400	–
	VN 50	63	22	3	45	VN S23 50-F4-B-SI 150 352	–
	V2N	25	7,5	4	45	V2N S24-F1-B-SI 142 145	V2N S24-KZF15-B-SI 142 147
	V3N	32	11	4	45	V3N S24-F3-B-SI 146 537	V3N S24-KZF25-B-SI 146 539
	VN 32	50	15	4	45	VN S24 32-F3-B-SI 148 401	–
	VN 50	63	22	4	45	VN S24 50-F4-B-SI 150 353	–
	V2N	25	7,5	5	45	V2N S25-F1-B-SI 142 148	V2N S25-KZF15-B-SI 142 150
	V3N	32	11	5	45	V3N S25-F3-B-SI 146 540	V3N S25-KZF25-B-SI 146 542
	VN 32	50	15	5	45	VN S25 32-F3-B-SI 148 402	–
	VN 50	63	22	5	45	VN S25 50-F4-B-SI 150 354	–
	V2N	25	7,5	6	45	V2N S26-F1-B-SI 142 151	V2N S26-KZF15-B-SI 142 153
	V3N	32	11	6	45	V3N S26-F3-B-SI 146 543	V3N S26-KZF25-B-SI 146 545
	VN 32	50	15	6	45	VN S26 32-F3-B-SI 148 403	–
	VN 50	63	22	6	45	VN S26 50-F4-B-SI 150 355	–

UD2
Step switches double pole, without 0 position, 2 steps

S23
Step switches double pole, without 0 position, 3 steps

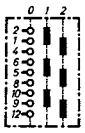
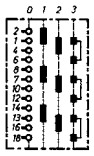
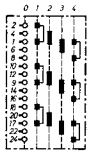
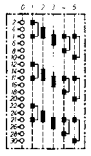
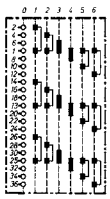
S24
Step switches double pole, without 0 position, 4 steps

S25
Step switches double pole, without 0 position, 5 steps

S26
Step switches double pole, without 0 position, 6 steps

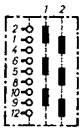
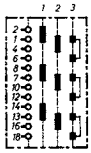
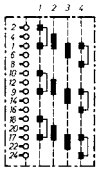
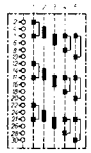
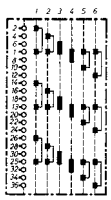
* Din-rail/ base mount option available on request

Types

Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54 Panel/ Front fixing * **F** Type Ref. No.	 IP 65 Single hole mounting **KZF** Type Ref. No.
S302 Step switches triple pole, with 0 position, 2 steps 	V2N	25	7,5	3	45	V2N S302-F1-B-SI 141 905	V2N S302-KZF15-B-SI 141 907
	V3N	32	11	3	45	V3N S302-F3-B-SI 146 391	V3N S302-KZF25-B-SI 146 393
	VN 32	50	15	3	45	VN S302 32-F3-B-SI 148 404	–
	VN 50	63	22	3	60	VN S302 50-F4-B-SI 150 356	–
S303 Step switches triple pole, with 0 position, 3 steps 	V2N	25	7,5	5	45	V2N S303-F1-B-SI 141 908	VN S303-KZF15-B-SI 141 910
	V3N	32	11	5	45	V3N S303-F3-B-SI 146 394	VN S303-KZF25-B-SI 146 396
	VN 32	50	15	5	45	VN S303 32-F3-B-SI 148 308	–
	VN 50	63	22	5	45	VN S303 50-F4-B-SI 150 357	–
S304 Step switches triple pole, with 0 position, 4 steps 	V2N	25	7,5	6	45	V2N S304-F1-B-SI 142 154	V2N S304-KZF15-B-SI 142 156
	V3N	32	11	6	45	V3N S304-F3-B-SI 146 546	V3N S304-KZF25-B-SI 146 548
	VN 32	50	15	8	45	VN S304 32-F3-B-SI 148 405	–
	VN 50	63	22	8	45	VN S304 50-F4-B-SI 150 358	–
S305 Step switches triple pole, with 0 position, 5 steps 	V2N	25	7,5	8	45	V2N S305-F1-B-SI 142 157	V2N S305-KZF15-B-SI 142 159
	V3N	32	11	8	45	V3N S305-F3-B-SI 146 549	V3N S305-KZF25-B-SI 146 551
	VN 32	50	15	9	45	VN S305 32-F3-B-SI 148 406	–
	VN 50	63	22	9	45	VN S305 50-F4-B-SI 150 359	–
S306 Step switches triple pole, with 0 position, 6 steps 	V2N	25	7,5	8	45	V2N S306-F1-B-SI 142 160	V2N S306-KZF15-B-SI 142 162
	V3N	32	11	8	45	V3N S306-F3-B-SI 146 552	V3N S306-KZF25-B-SI 146 554
	VN 32	50	15	9	45	VN S306 32-F3-B-SI 148 407	–
	VN 50	63	22	9	45	VN S306 50-F4-B-SI 150 360	–
	VN 80	115	37	11	45	VN S306 80-F4-B-SI 152 359	–

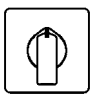
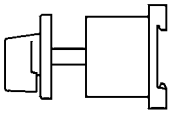
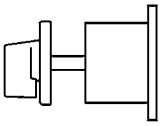
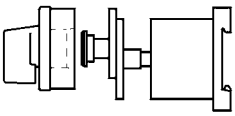
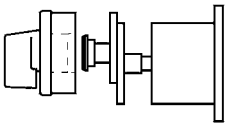
* Din-rail/ base mount option available on request

Types

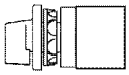
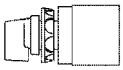
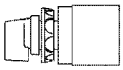
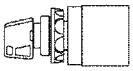
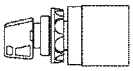
Basic type/Circuit diagramm	Switch size	Rated permanent current I_u A	Max. switching capacity (AC-3/400 V 3~) kW	Number of chambers	Switching angle °	 IP 54 Panel/Front fixing * **F** Type Ref. No.	 IP 65 Single hole mounting **KZF** Type Ref. No.	
	V2N	25	7,5	3	45	V2N UD-F1-B-SI 141 832	V2N UD-KZF15-B-SI 141 834	**UD** Step switches triple pole, without 0 position, 2 steps
	V3N	32	11	3	45	V3N UD-F3-B-SI 146 336	V3N UD-KZF25-B-SI 146 338	
	VN 32	50	15	3	45	VN UD 32-F3-B-SI 148 275	–	
	VN 50	63	22	3	45	VN UD 50-F4-B-SI 150 325	–	
	V2N	25	7,5	5	45	V2N S33-F1-B-SI 141 911	V2N S33-KZF15-B-SI 141 913	**S33** Step switches triple pole, without 0 position, 3 steps
	V3N	32	11	5	45	V3N S33-F3-B-SI 146 397	V3N S33-KZF25-B-SI 146 399	
	VN 32	50	15	5	45	VN S33 32-F3-B-SI 148 280	–	
	VN 50	63	22	5	45	VN S33 50-F4-B-SI 150 362	–	
	V2N	25	7,5	6	45	V2N S34-F1-B-SI 142 044	V2N S34-KZF15-B-SI 142 164	**S34** Step switches triple pole, without 0 position, 4 steps
	V3N	32	11	6	45	V3N S34-F3-B-SI 146 555	V3N S34-KZF25-B-SI 146 557	
	VN 32	50	15	6	45	VN S34 32-F3-B-SI 148 281	–	
	VN 50	63	22	6	45	VN S34 50-F4-B-SI 150 363	–	
	V2N	25	7,5	8	45	V2N S35-F1-B-SI 142 165	V2N S35-KZF15-B-SI 142 167	**S35** Step switches triple pole, without 0 position, 5 steps
	V3N	32	11	8	45	V3N S35-F3-B-SI 146 558	V3 S35-KZF25-B-SI 146 560	
	VN 32	50	15	8	45	VN S35 32-F3-B-SI 148 282	–	
	VN 50	63	22	8	45	VN S35 50-F4-B-SI 150 364	–	
	V2N	25	7,5	9	45	V2N S36-F1-B-SI 142 168	V2N S36-KZF15-B-SI 142 170	**S36** Step switches triple pole, without 0 position, 6 steps
	V3N	32	11	9	45	V3N S36-F3-B-SI 146 561	V3N S36-KZF25-B-SI 146 563	
	VN 32	50	15	9	45	VN S36 32-F3-B-SI 148 283	–	
	VN 50	63	22	9	45	VN S36 50-F4-B-SI 150 333	–	
	VN 80	115	37	9	45	VN S36 80-F4-B-SI 152 361	–	

* Din-rail/ base mount option available on request

Accessories

	Type		Switch size	Size of front plates	Code
Panel Mount			V2N V3N, VN 32 VN 50, VN 80 VN 125, VN 200	48 x 48 mm 65 x 65 mm 72 x 72 mm 96 x 96 mm 125 x 125 mm	F1 F2 F3 F4 F5
Panel Mount with rubber boot			V2N V3N, VN 32 VN 50	48 x 48 mm 65 x 65 mm 72 x 72 mm 96 x 96 mm	HF1 HF2 HF3 HF4
Base Mount		with snap-on fixing on standard rail according to EN 50022 with additionally integrated screw fixing	V2N V3N	48 x 48 mm 72 x 72 mm	NF1 NF3
		with mounting plate	VN 32 VN 50, VN 80 VN 125, VN 200	72 x 72 mm 96 x 96 mm 125 x 125 mm	PF3 PF4 PF5
Base mount with door coupling and door interlock, degree of protection front side IP 65 – Standard		with snap-on fixing on standard rail according to EN 50022, with additionally integrated screw fixing and centering adjustment	V2N V3N	48 x 48 mm 65 x 65 mm 72 x 72 mm	NOF15 NOF25 NOF35
		with mounting plate for screw fixing and centering adjustment	VN 32 VN 50, VN 80 VN 125, VN 200	72 x 72 mm 96 x 96 mm 125 x 125 mm	POF35 POF45 POF55

Accessories

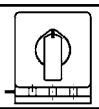
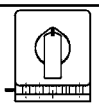
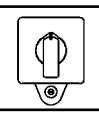
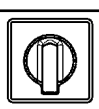
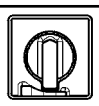
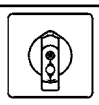
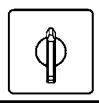
Type			Switch size	Size of front plates	Code	
		with face plate	V2N V3N	48 x 48 mm 65 x 65 mm	KZF15 KZF25	Ø With additional ring Ø 30,5 mm
		Face plate, round	V2N, V3N	30 mm	KZR15	
		Face plate, square	V2N, V3N	30 x 30 mm	KZR25	
		Face plate, round, key-operated	V2N, V3N	30 mm	KZR15-ZB	Single hole mounting Ø 22,5 mm
		Face plate, square key-operated	V2N, V3N	30 x 30 mm	KZR25-ZB	

Colour combinations for handle and face for operating and interlocking device. Code of design is stated after the code

1. Position handle code		2. Position face plate code		Code Design
black	S	silver	I	SI
black	S	black	S	SS
black	S	yellow	G	SG
red	R	yellow	G	RG
black	S	white	W	SW

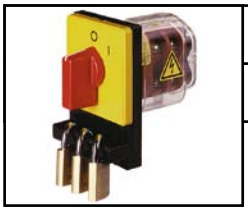
Heading plate on request

Accessories

	Operating and interlocking device		Size of front plates	Code	Code colour e.g.
Plastic knob		with front plate	F1–F5	B	SI
		with interlocking device for 2 padlocks	F2–F3	BS	SI
		with interlocking device for 3 padlocks in circular arrangement Only available with 90 degrees inscription	F1–F5	D	SS
		with interlocking device for 3 padlocks	F3	VD	SI
		with interlocking device for 5 padlocks	F4–F5	VF	RG
		and locking device with cylinder lock Euro-Locks	F1–F3	B2ZB	SI
		with front plate – according to hygienic regulations	F2	BH	SS
		with front plate – according to hygienic regulations and interlocking device for 1 padlock	F2	BEH	RG
		with brake lifting contact device	F2–F3	BK	SI
Key-operated		with cylinder lock	F1	**ZB**	XI

Accessories

Front fixing with padlock interlocking

Color optionally			Switch size	Size of front plates	Code colour e.g.	
	Handle red, plate yellow	RG	V2N	F2 65 x 65 mm	BS-RG	Interlocking device for 2 padlock Interlocking device for 3 padlocks in cir-cular arrangement D
			V3N	F3 72 x 72 mm	BS-RG	
	Handle black, plate silver	SI	V2N	F2 65 x 65 mm	BS-SI	
			V3N	F3 72 x 72 mm	BS-SI	
	Handle red, plate yellow	RG	V2N	F3 72 x 72 mm	D-RG	Interlocking device for 3 padlocks VD – lock bar with metal slide
			V2N	F2 65 x 65 mm Special size	D-RG	
	SS Handle black, plate black		V3N, VN 32	F3 72 x 72 mm	D-SS	
			VN 50, VN 80	F4 96 x 96 mm	D-SS	
			VN 125, VN 200	F5 125 x 125 mm	D-SS	
	Handle red, plate yellow	RG	V2N, V3N, VN 32	F3 72 x 72 mm	VD-RG	
	Handle black, plate silver	SI	V2N, V3N, VN 32	F3 72 x 72 mm	VD-SI	
	Handle red, plate yellow	RG	VN 50, VN 80	F4 96 x 96 mm	VF-RG	Interlocking device for 5 padlocks VF – lock bar with metal slide
			VN 125, VN 200	F5 125 x 125 mm	VF-RG	
	Handle black, plate silver	SI	VN 50, VN 80	F4 96 x 96 mm	VF-SI	
			VN 125, VN 200	F5 125 x 125 mm	VF-SI	

Flush mounting types – Standard switches

Type F3-B-SI

Front fixing F

Switch for front fixing.
Switch sizes V2N–VN 80 with 2-point-fixing.
Switch sizes VN 125–VN 200 with 4-point-fixing.
Degree of protection IP 54 front side.
Face plate black with impressed aluminium foil.
Legend indicating switching positions printed in black, coated with protective foil. Plastic knob b-

Dimensions page **90-91**

Type PF3-B-SI

Rear fixing NF/PF

Switch for rear fixing.
Switch sizes V2N–V3N with screw fixing and integrated snap-on fixing NF.
Switch sizes VN 32–VN 200 with mounting plate for screw fixing PF.
Degree of protection IP 54 front side.
Front unit see type F.

Dimensions page **92-93**

Typ Type NOF35-B-SI

Rear fixing with door coupling and door interlock NOF/POF

Switch for rear fixing.
Switch sizes V2N–V3N with screw fixing and integrated snap-on fixing NOF. Switch sizes VN 32–VN 200 with mounting plate for screw fixing POF.
Coupling drive in door or cover with centering adjustment.
Degree of protection IP 65 front side.

Dimensions page **94-95**

Flush mounting types – Padlockable switches

Type F3-B2Z**B**·SI

Front fixing with incorporated cylinder lock, handle-operated

Switch for front fixing.
Switch sizes V2N–VN 200 available with cylinder lock.
Standard lock V2N–VN 32 **B2ZB**
Switch sizes VN50 - VN200 available with as shown in the picture.
Switching function at option, according to catalogue. If not otherwise stated, switch lockable and key with-drawable in 0-position only.

The key cannot be withdrawn in unlocked condition of the switch.
If required the lock is lockable also in several positions and the key is to take out.
Special locking upon request.

Dimensions page 98

Interlocked V2N/V3N switches with locking device B2ZB (we are able to supply the same switch with up to 100 different keys / locking

Type F15-Z**B**·XI

Front fixing with incorporated cylinder lock, key-operated

Switch for front fixing.
Switch size V2N–V3N available with key operating facility.
Standard lock **ZB** Special locking upon request.
Switching function at option, according to catalogue. If not otherwise stated, switch lockable and key withdrawable in 0-position only. The key cannot be withdrawn in unlocked condition of the switch.
If required the lock is lockable also in several positions and the key is to take out.
Degree of protection IP 65

Dimensions page 98

Flush mounting types – Special executions

Type HF3-B-SI

Front fixing with cover HF

Switch for front fixing.
Switch sizes V2N–VN 32 available with rubber boot cover.
The size of front plate is adapted to the relevant switch size.
Degree of protection frontside IP 65, behind machine wall IP 54.
Degree of protection of cover IP 54.

Dimensions page 100

Type HT24/9-B-MSI

Front fixing – Enclosed switch insert HT

Enclosed switch insert – degree of protection IP 54.
The plastic enclosure avoids penetration of dust and water
in case of open machine rooms.
The size of front plate is adapted to the relevant switch size.
Degree of protection frontside IP 65, behind machine wall IP 54.

Type RF3-B-SW

Mounting into flush sockets RF3

Switch size V2N allows to be mounted with mounting frame 80 x 80 mm into flush sockets.
Design:
face plate silver – handle black **SI**
face plate white (RAL 1013) – handle black **SW**
face plate yellow – handle red **RG**
Degree of protection IP 54 frontside.
Switch predestinated for application as step switch for ventilation appliances or as main-/emergency-off switch, lockable for flush mounting. Special flush sockets are necessary (switch socket Ø 60 mm).

Dimensions page 100

Flush mounting types – Special executions

Type RF3-Z**B**XW

Mounting into flush sockets with built-in cylinder lock, key-operated RF3-Z**B**

The mounting frame 80 x 80 mm is also available with built-in cylinder lock for direct key operation. For this execution switching function must be indicated.

Design: face plate silver, face plate white (RAL 1013). Degree of protection I

Dimensions page 100

Type F3-BK-SI

Brake-lifting switch for wood processing machines BLK

At 0-position the special handle “Two in One” allows the contact function for release of the mechanical brake by turning the inner part. This makes possible to hand-operate the unbraked motor.
Size of front plate F3, degree of protection IP 54.
Auxiliary contacts for actuation of brake device according to instructions.
BLK = Brake-lifting contact.

Type F25H-BEH-RG

Hygienic front unit for food-industry machines BEH/Degree of protection IP 69K

The frontplate with integrated handle meets the requirements of the European norm DIN EN 1672 for food-industry machines.
The front unit has a degree of protection IP 69K as per DIN EN 40050 T9. This degree of protection allows to spray with stream jet with 14-16 L/min, with warm water up to 80 ± 5°C, with a pressure of 80-100 bar, with a distance of 100-150 mm per 30 s.

Type KZF1-BL-TI

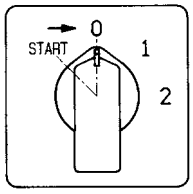
LED indicator light drive with front plate, single hole mounting

Front plate size 48x48mm, Single hole mounting for hole Ø 22,5mm
Degree of protection IP54 front side, Switch size V2N and V3N, LED in standard white or 2-colour (red/green), LED for various voltages up to 230V AC/DC, Pre-wired control of the LED through the control switch or after customers request.

Optional extras

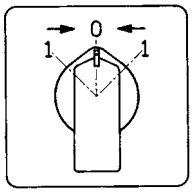
Spring returns

VN-type switches can be fitted with spring returns as follows:



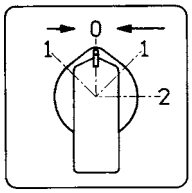
Spring return in one direction from one position (1 positioning)

V2N–VN 80



Spring return to centre

V2N–VN 80



Spring return over several positions (3 positionings)
Other variations of spring returns depend on the contact function (on request)

V2N–V3N

Connection terminals

.Additional angled connection terminals can be fitted to the normal ones of sizes VN 32–VN 200, thus allowing connection from the front or rear. In addition the control switches of the size V2N can be provided with flat plug-in connection likewise.

Switch with angled connection terminals for front or rear connection

VN 32–VN 200

Switch with flat plug-in connection 6,3 DIN 46342

V2N

Optional extras

Protection against contact

Upon request, the switch size VN 80 can be supplied with individual terminal shrouds for the contact protection. (IP2X)

Degree of protection IP 65

All units of the switch size V2N to VN 200 can be supplied in increased degree of protection IP 65 front side.
The inserted O-ring seals on the backside of the front plate against the mounting wall.
The axle wall entrance is sealed by a separate sealing element in the front plate.

Linked switch inserts

For switching applications where the contacts have very different current loading, switch inserts of various sizes can be linked.

Single-hole-mounting fixing

The single-hole-mounting execution is usable for all sizes of front-plates until 65 x 65 mm (F2) with a tooling-wall-drilling of 22,5 mm as per DIN EN 50 007. Frontplates with sizes of 48 x 48 and
65 x 65 (F1 and F2) can also be used with a drilling of 30,5 mm by putting an additional ring. Locking and un-locking is done by a lever, which can be activated from the back with a screwdriver if the fitting space is too tight.

1

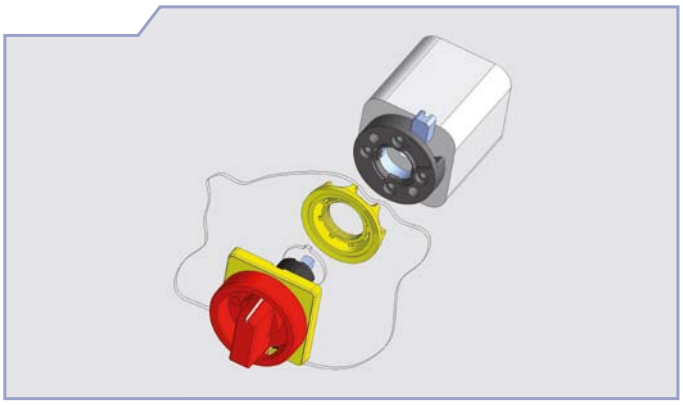
2

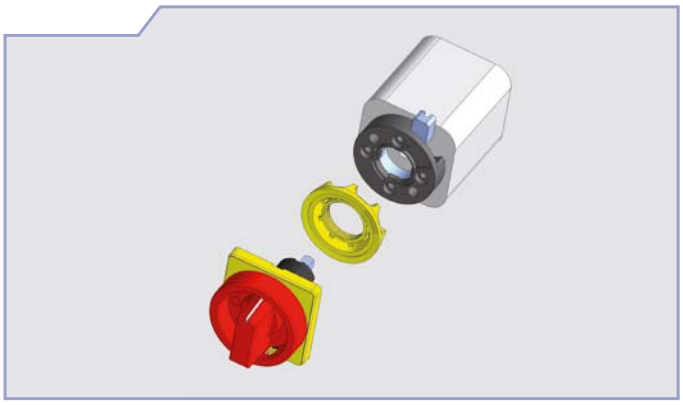
3

4

5

6





Flush mounting types – Single-hole-mounting

Type KZF15-B-SI

Single-hole-mounting with front plate, handle operated KZF

Size of front plate 48 x 48 mm = **KZF15**
Size of front plate 65 x 65 mm = **KZF25**
Central fixing for mounting hole Ø 22,5 mm.
„Installation by one person only“:
The front unit is screwed to the mounting wall by means of a cap nut.
For central fixing Ø 30,5 mm, a metal ring will be available as accessory.
Degree of protection IP 65 front side. Switch sizes V2N and V3N.

Type KZR15-B-SS

Single-hole-mounting with round face plate, Ø 30 mm handle operated KZR15

Central fixing for mounting hole Ø 22,5 mm.
„Installation by one person only“: The front unit is screwed to the mounting wall by means of a cap nut. Degree of protection IP 65 front side. Switch sizes V2N and V3N.

Type KZR25-B-RG

Single-hole-mounting with quadratic face plate 30 x 30 mm, handle operated KZR25

Central fixing for mounting hole Ø 22,5 mm.
„Installation by one person only“: The front unit is screwed to the mounting wall by means of a cap nut. Degree of protection IP 65 front side. Switch sizes V2N and V3N.

Flush mounting types – Single-hole-mounting

Type KZF15-ZB-XI

Single hole mounting with quadratic face plate 30 x 30 mm KZF

Central fixing for mounting hole Ø 22,5 mm.
„Installation by one person only“:
The front unit is screwed to the mounting wall by means of a cap nut. Front unit quadratic shape 30 x 30 mm.
Degree of protection IP 65 front side. Switch sizes V2N and V3N. [1)]

Type KZR15-ZB-XS

Single hole mounting with round face plate, Ø 30 mm key operated KZR15

Central fixing for mounting hole Ø 22,5 mm.
„Installation by one person only“: The front unit is screwed to the mounting wall by means of a cap nut. Front unit quadratic shape with heading plate 30 x 45 mm.
Degree of protection IP 65 front side. Switch sizes V2N and V3N. [1)]

Type KZR25-ZB-XG

Single hole mounting with quadratic face plate 30 x 30 mm, key operated KZR25

Central fixing for mounting hole Ø 22,5 mm.
„Installation by one person only“: The front unit is screwed to the mounting wall by means of a cap nut. Degree of protection IP 65 front side. Switch sizes V2N and V3N. [1)]

[1)] Switch size V2N–V3N available with key operating facility.

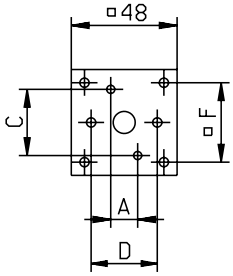
Standard lock Euro-Locks 801. Special locking upon request.
Switching function at option, according to catalogue. If not otherwise stated, switch lockable and key withdrawable in O-position only. The key cannot be withdrawn in unlocked condition of the switch.
If required the lock is lockable also in several positions and the key is to take out.
Degree of protection IP 65.

Dimensions

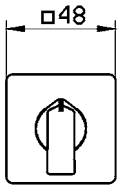
Fixing

Front unit

Dimensions in mm

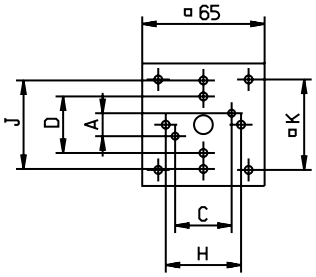


V1K/ V2N

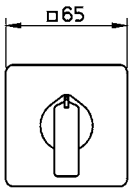


F1 = 48x48mm

F1

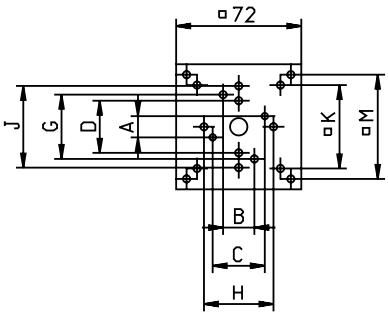


V2N/ V3N

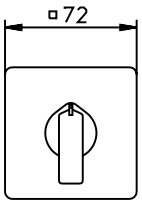


F2 = 65x65mm

F2

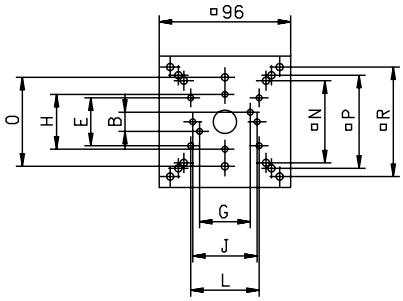


V3N/ VN32

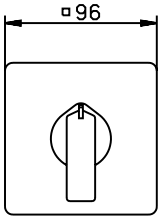


F3 = 72x72mm

F3

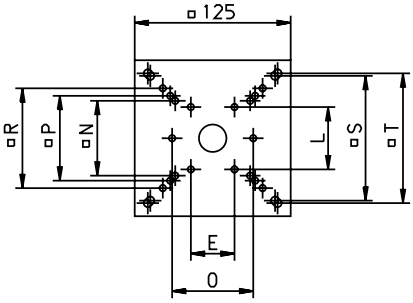


VN50/ VN80

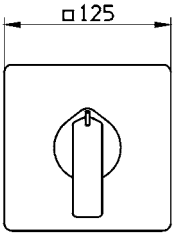


F4 = 96x96mm

F4



VN125/
VN200



F5 = 125x125mm

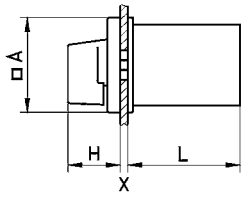
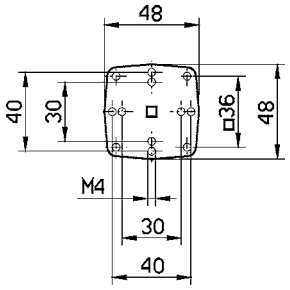
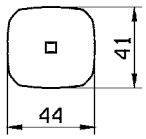
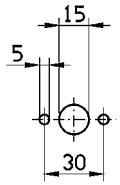
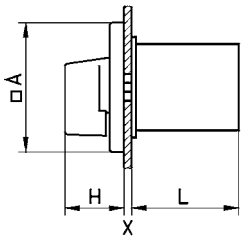
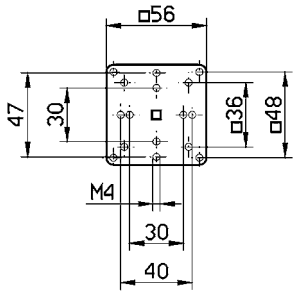
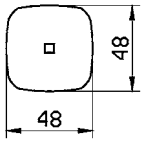
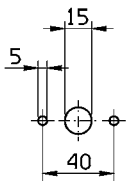
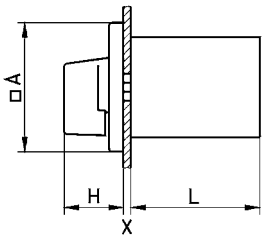
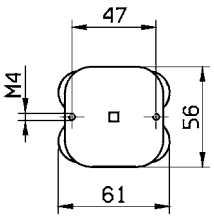
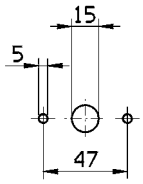
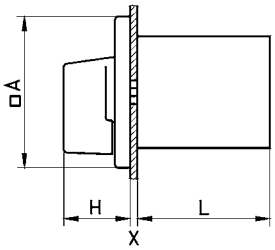
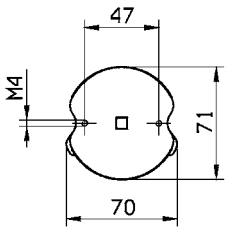
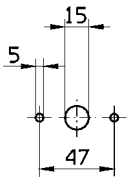
F5

	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T
Dimensions	12,2	14	30	30	35	36	37	40	47	48	50	60	60	65	68	80	100	104
Hole Ø	3,7	4,2	3,7	4,2	5,2	4,2	4,2	4,2	4,2	4,2	5,2	4,2	5,2	5,2	5,2	5,2	6,5	6,5

Dimensions

Dimensions in mm

Front fixing F

	Insert	Front view	Switch body	Panel drilling
V2N				
V3N				
VN 32				
VN 50				

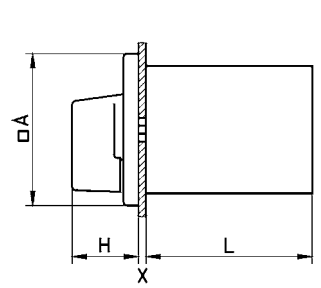
Type	□A	H	$X_{max.}$	Dim.	Number of contact chambers										
					1	2	3	4	5	6	7	8	9	10	11
V2N	48	27	4	L	33	45	57	69	81	93	105	117	129	141	153
V3N	72	34	4		34	47	60	73	86	99	112	125	138	151	164
VN 32	72	34	4		44	60	76	92	108	124	140	156	172	188	204
VN 50	96	44	4		49	68	86	105	123	142	160	179	197	216	234

Dimensions

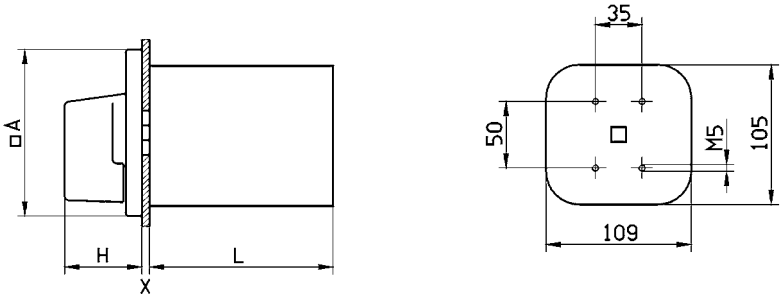
Dimensions in mm

Front fixing F

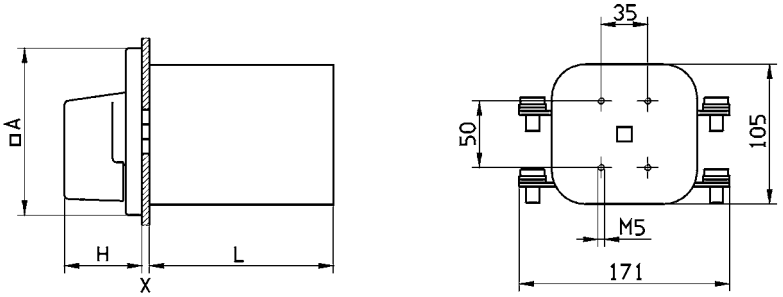
VN 80



VN 125



VN 200

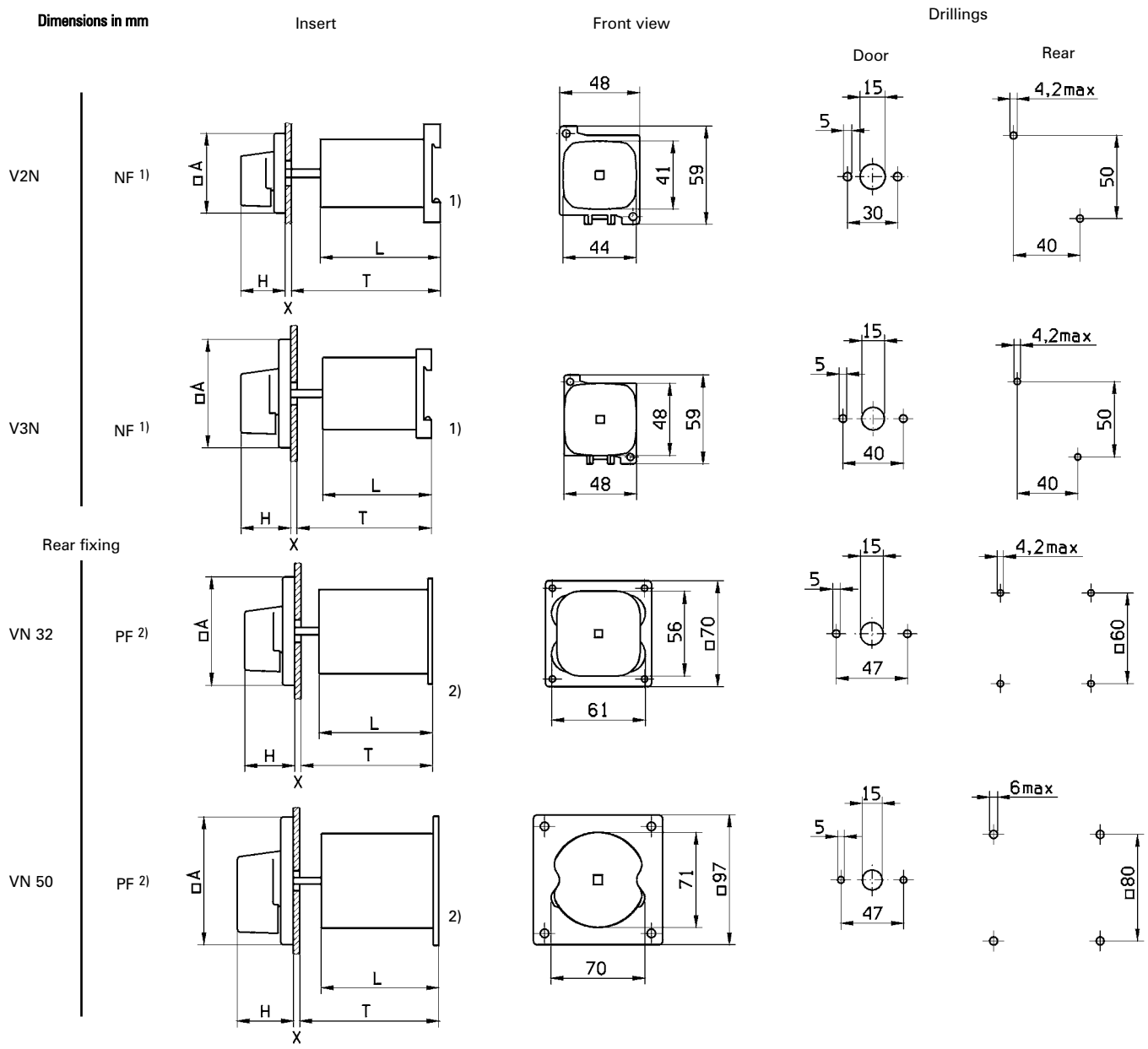


Type	□A	H	$X_{max.}$	Dim.	Number of contact chambers										
					1	2	3	4	5	6	7	8	9	10	11
VN 80	96	44	4	L	57	81	105	129	153	177	201	225	249	273	297
VN 125	125	60	4		77	108	139	170	201	232	263	294	325	356	387
VN 200	125	60	4		77	108	139	170	201	232	263	294	325	356	387

Dimensions

Dimensions in mm

Rear fixing

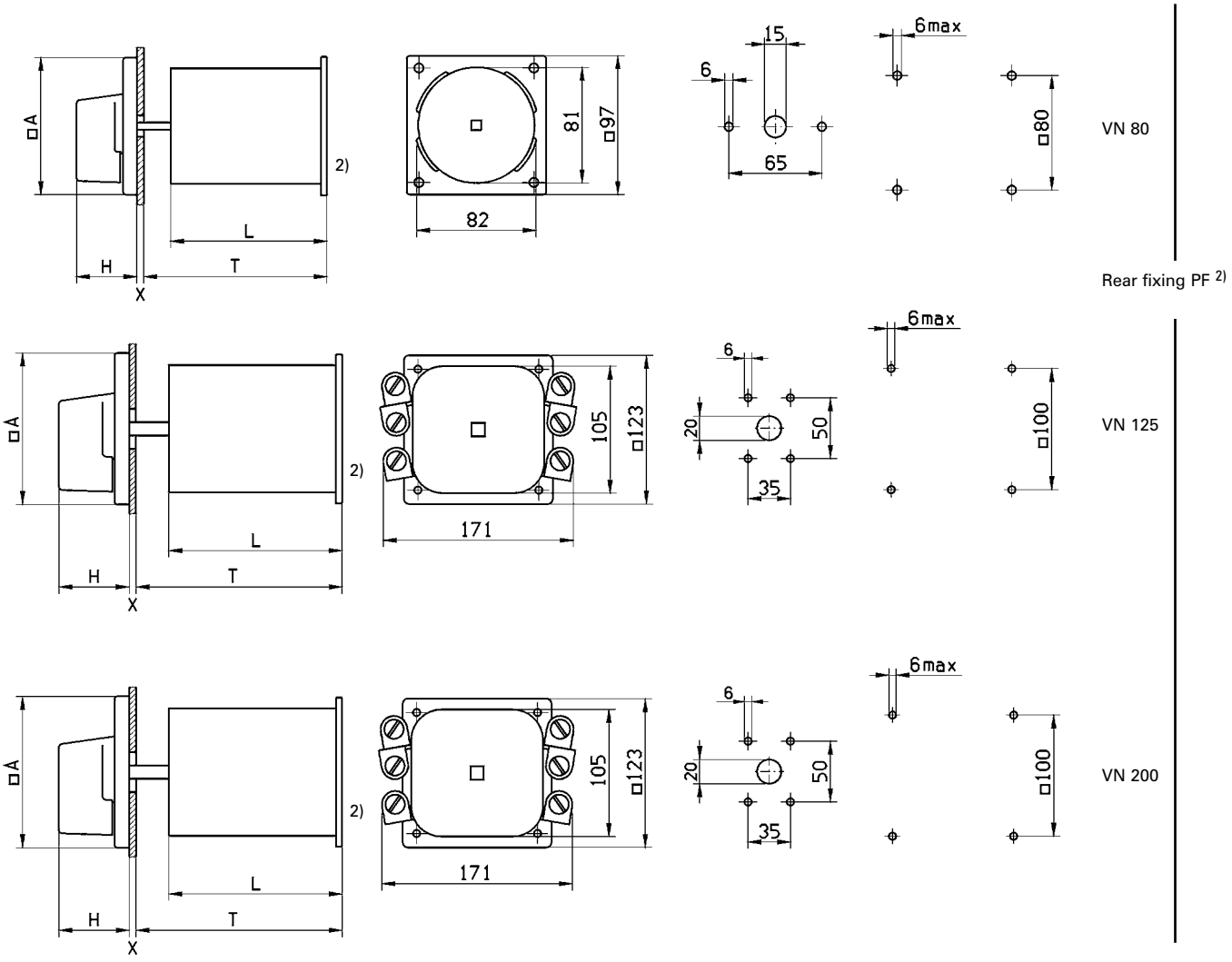


Type	□A	H	$X_{max.}$	Dim.	Number of contact chambers										
					1	2	3	4	5	6	7	8	9	10	11
V2N	48	27	4	L	39	51	63	75	87	99	111	123	135	147	159
				T	51–57	63–69	75–81	87–93	99-105	111–117	123–129	135–141	147–153	159–165	171–177
V3N	72	34	4	L	40	53	66	79	92	105	118	131	144	157	170
				T	52–58	64–70	76–82	88–94	100–106	112–118	124–130	136–142	148–154	160–166	172–178
VN 32	72	34	4	L	45	61	77	93	109	125	141	157	173	189	205
				T	54–60	70–76	86–92	102–109	118–125	134–141	150–157	166–173	182–189	198–205	214–221
VN 50	96	44	4	L	52	71	89	108	126	145	163	182	200	219	237
				T	66–72	85–91	103–109	122–128	141–147	159–165	177–183	196–202	214–220	233–239	251–257

Dimensions

Insert | Front view | Drillings | Dimensions in mm

Door | Rear



Type	□A	H	$X_{max.}$	Dim.	Number of contact chambers										
					1	2	3	4	5	6	7	8	9	10	11
VN 80	96	44	4	L	59	83	107	131	155	179	203	227	251	275	299
				T	79–85	103–109	127–133	151–157	175–181	199–205	223–229	247–253	271–277	295–301	319–325
VN 125	125	60	4	L	80	111	142	173	204	235	266	297	328	359	390
				T	107–113	138–144	169–175	200–206	231–237	262–268	293–299	324–330	355–361	386–392	417–423
VN 200	125	60	4	L	80	111	142	173	204	235	266	297	328	359	390
				T	107–113	138–144	169–175	200–206	231–237	262–268	293–299	324–330	355–361	386–392	417–423

With snap-on fixing on standard rail according to EN 50 022

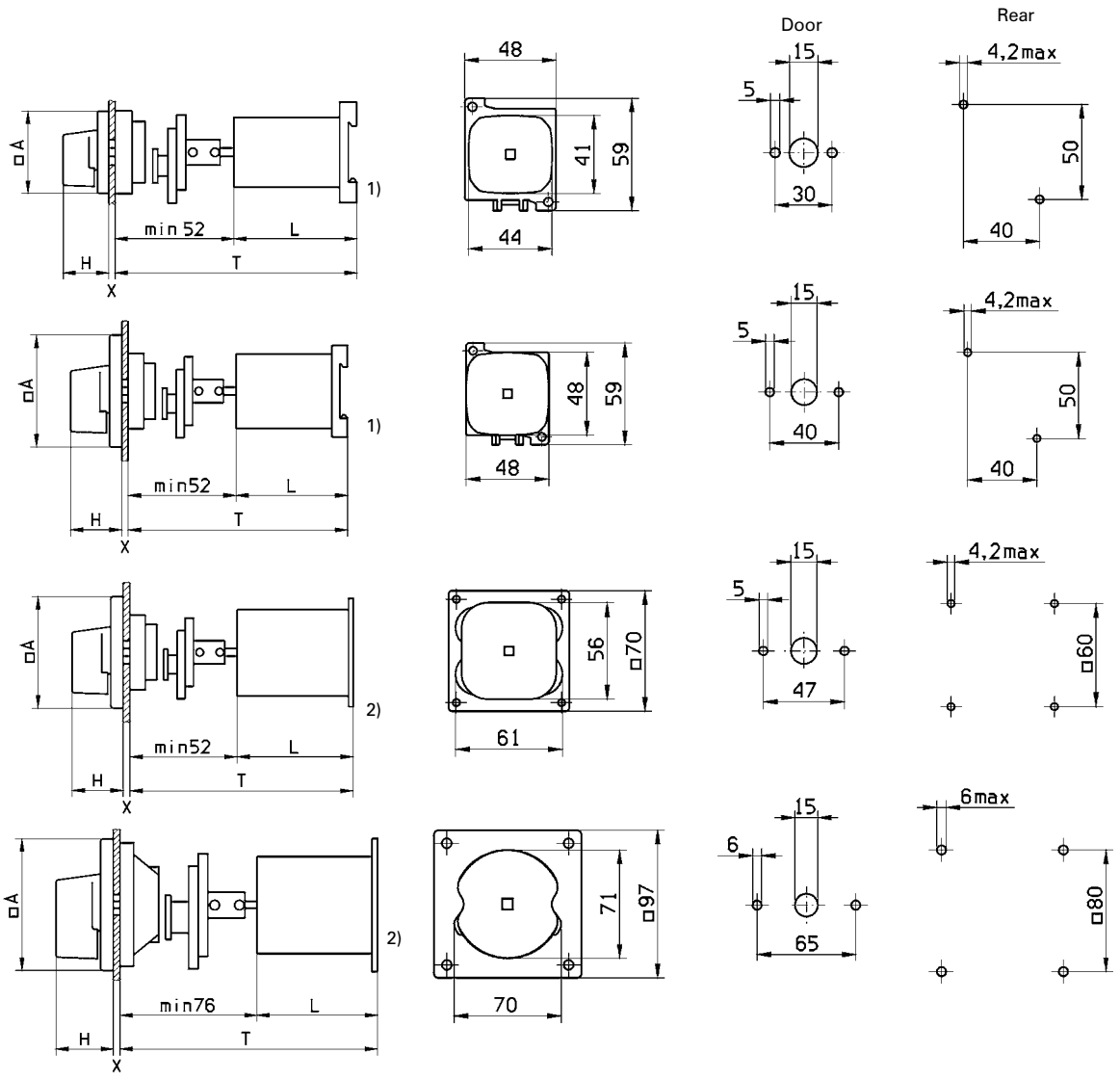
Screw fixing

Dimensions

Dimensions in mm

Rear fixing NOF [1]/ POF [2] with door coupling and door interlock

V2N, V3N, VN 32, VN 50



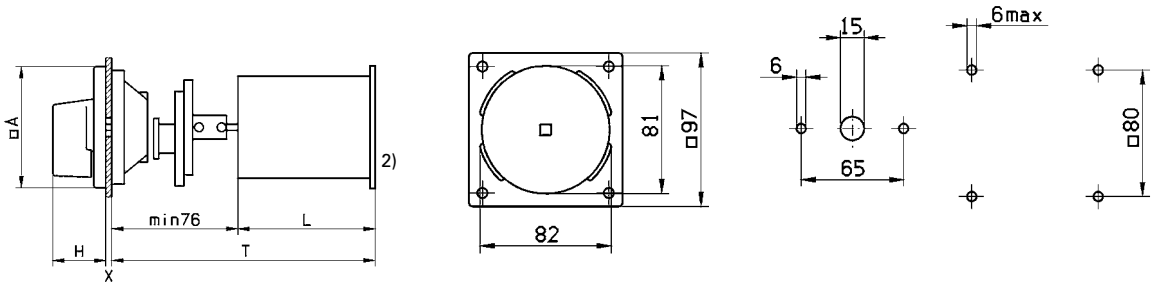
Type	□A	H	$X_{max.}$	Dim.	Number of contact chambers										
					1	2	3	4	5	6	7	8	9	10	11
V2N	48	27	4	L	39	51	63	75	87	99	111	123	135	147	159
				T	100–106	112–118	124–130	136–142	148-154	160–166	172–178	184–190	196-202	208-214	220–226
V3N	72	34	4	L	40	53	66	79	92	105	118	131	144	157	170
				T	106–112	118–124	130–136	142–148	154–160	166–172	178–184	190–196	202–208	214–220	226–232
VN 32	72	34	4	L	45	61	77	93	109	125	141	157	173	189	205
				T	114–120	130–136	146–152	162–168	178–184	194–200	210–216	226–232	242–248	258–264	274–280
VN 50	96	44	4	L	52	71	89	108	126	145	163	182	200	219	237
				T	130–136	149–155	167–173	186–192	204–210	223–229	241–247	260–266	278–284	297–303	315–321

Coupling disc displaceable from the middle of the
V2N – VN 32 displacement ± 4 mm, VN 50 – VN 200 ± 8 mm

Dimensions

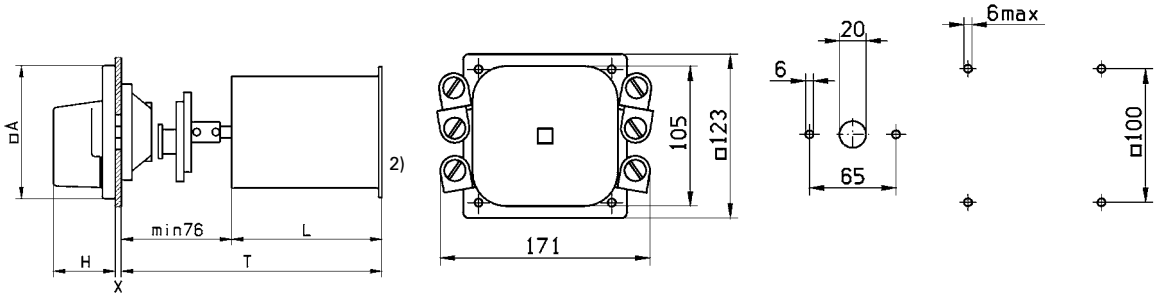
Insert | Front view | Drillings | Dimensions in mm

Door | Rear

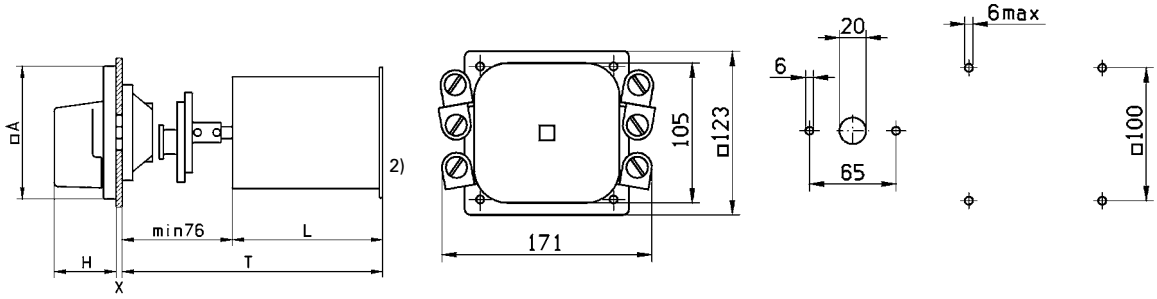


VN 80

Rear fixing with door coupling and door interlock POF[2]–IP 65



VN 125



VN 200

Type	□A	H	$X_{max.}$	Dim.	Number of contact chambers										
					1	2	3	4	5	6	7	8	9	10	11
VN 80	96	44	4	L	59	83	107	131	155	179	203	227	251	275	299
				T	137–143	161–167	185–191	209–215	233–239	257–263	281–287	305–311	329–335	353–359	377–383
VN 125	125	60	4	L	79	110	141	172	203	234	265	296	327	358	389
				T	157–163	188–194	219–225	250–256	281–287	312–318	343–349	374–380	405–411	436–442	467–473
VN 200	125	60	4	L	79	110	141	172	203	234	265	296	327	358	389
				T	157–163	188–194	219–225	250–256	281–287	312–318	343–349	374–380	405–411	436–442	467–473

With snap-on fixing on standard rail according to EN 50 022 **Screw fixing**

Dimensions

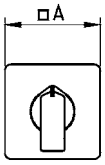
Dimensions in mm

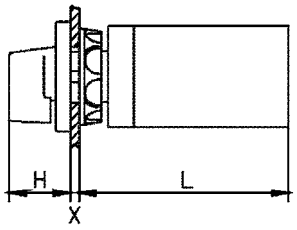
Front unit **KZF**

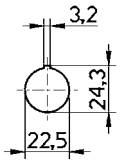
Insert

Panel drilling

V2N/ V3N



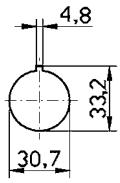




Single hole mounting KZF

Additional fixing ring for single hole mounting Ø 30,5 mm **KZF**

Panel drilling



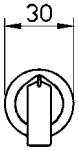
Face plate round **KZR15**

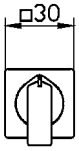
Face plate **KZR25**

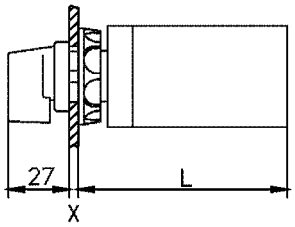
Insert

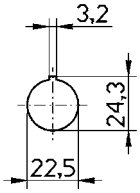
Panel drilling

V2N/ V3N









Single hole mounting KZR

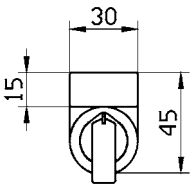
Face plate round with heading plate **KZR35**

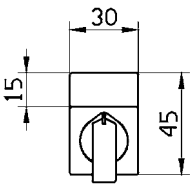
Face plate with heading plate **KZR45**

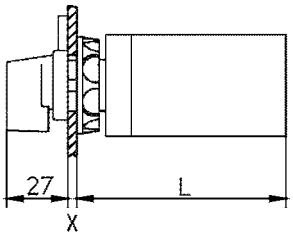
Insert

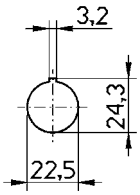
Panel drilling

V2N/ V3N







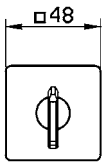


Type	□A	H	$X_{max.}$	Dimension L										
				Number of contact chambers										
				1	2	3	4	5	6	7	8	9	10	11
V2N	48	27	4	56	68	80	92	104	116	128	140	152	164	176
V3N	65	34	4	57	70	83	96	109	122	135	148	161	174	187

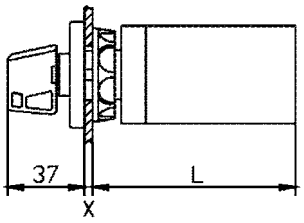
Dimensions

Dimensions in mm

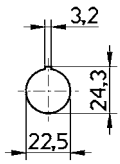
Front unit
KZF



Insert



Panel drilling

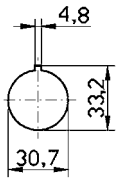


V2N/
V3N

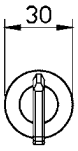
Single hole mounting
KZF-Z**B**

Additional fixing ring for single hole mounting Ø 30,5 mm **KZF**

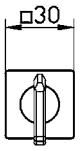
Panel drilling



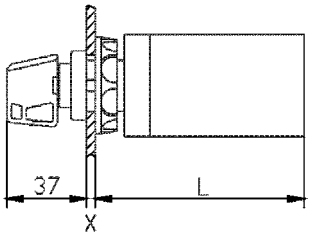
Face plate round
KZR15-ZB



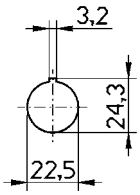
Face plate
KZR25-ZB



Insert



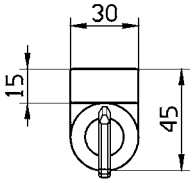
Panel drilling



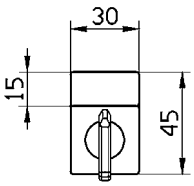
V2N/
V3N

Single hole
mounting KZR-ZB

Face plate round with heading plate
KZR35-ZB



Face plate with heading plate
KZR45-Z B



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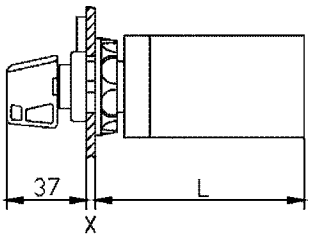
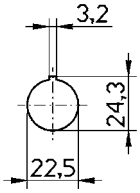


Panel drilling



V2N/
V3N

Type	$X_{max.}$	Dimension L										
		Number of contact chambers										
		1	2	3	4	5	6	7	8	9	10	11
V2N	4	56	68	80	92	104	116	128	140	152	164	176
V3N	4	57	70	83	96	109	122	135	148	161	174	187

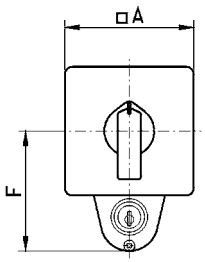
Dimensions

Dimensions in mm

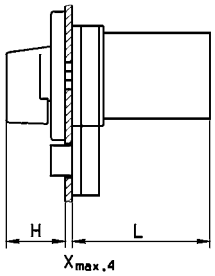
V2N-
VN200

Front fixing with incor-porated cylinder lock, handle-operated

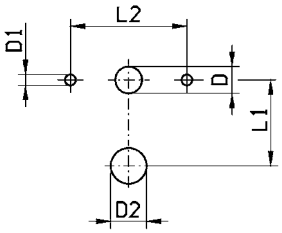
Front unit



Insert



Panel drilling

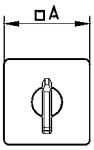


Type	Lock	□ A	F	H	Dimension L Number of contact chambers						L1	L2	D	D1	D2
					1	2	3	4	5	6					
V2N	B2ZB	48	67	27	51	63	75	87	99	111	48	30	15	5	20
V3N	B2ZB	72	67	34	52	65	78	91	104	117	48	40	15	5	20
VN 32	B2ZB	72	67	34	58	74	90	106	122	138	48	47	15	5	20

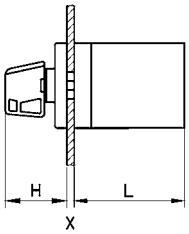
V2N/
V3N

Front fixing with incorporated cylinder lock, key-operated

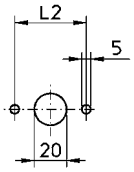
Front unit



Insert



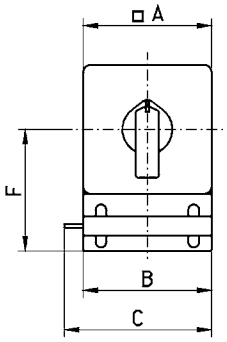
Panel drilling



Type	Lock	□ A	H	$X_{max.}$	Dimension L Number of contact chambers								L2
					1	2	3	4	5	6	7	8	
V2N	ZB	48	37	4	47	59	71	83	95	107	119	131	30
V3N	ZB	48	37	4	48	61	74	87	100	113	126	139	30

Dimensions

Front unit
VD



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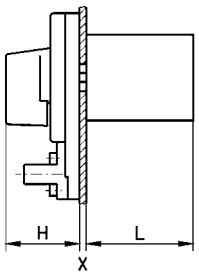
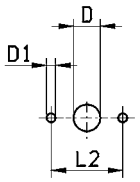


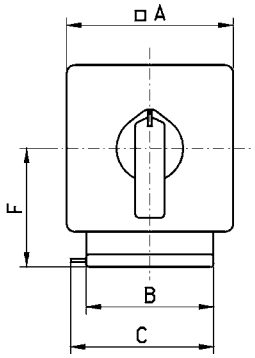
Panel drilling



Dimensions in mm

V2N–
VN 32

Front unit
VF



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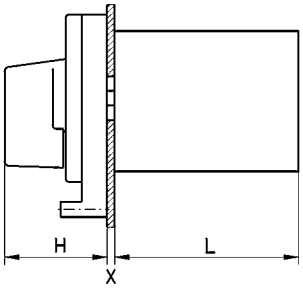
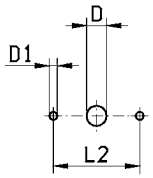
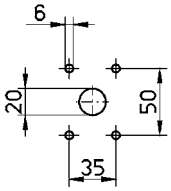


Panel drilling
VN 50–VN 80



Panel drilling
VN 125–VN 200



Front fixing with padlock interlock-ing VD/VF

VN 50–
VN 200

Type	Lock	□A	B	C	F	H	$X_{max.}$	Dimension L Number of contact chambers					L2	D	D1
								1	2	3	4	5			
V2N	VD	72	72	84	68	42	4	33	45	57	69	81	40	15	5
V3N	VD	72	72	84	68	42	4	34	47	60	73	86	40	15	5
VN 32	VD	72	72	84	68	42	4	44	60	76	92	108	47	15	5
VN 50	VF	96	96	107	84	61	4	49	68	86	105	123	47	15	5
VN 80	VF	96	96	107	84	61	4	57	81	105	129	153	65	15	6
VN 125	VF	125	96	107	89	77	4	77	108	139	170	201	–	–	–
VN 200	VF	125	96	107	89	77	4	77	108	139	170	201	–	–	–

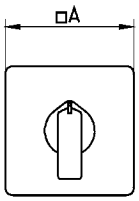
Dimensions

Dimensions in mm

V2N–
VN 50

Front fixing with
rubber boot cover
HF

Front unit



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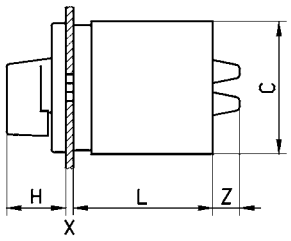
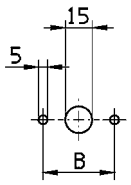


Panel drilling

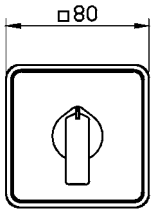


Type	□A	H	$X_{max.}$	Dimension L								C	Z	B
				Number of contact chambers										
				1	2	3	4	5	6	7	8			
V2N	48	27	4	68	68	68	94	94	120	120	–	62	13	30
V3N	72	34	4	78	78	78	110	110	110	142	142	74	15	40
VN 32	72	34	4	102	102	102	102	152	152	152	–	94	20	47
VN 50	96	44	4	102	102	102	152	152	152	–	–	94	20	47

Installation into
flush sockets RF3

V2N

Front unit
RF3



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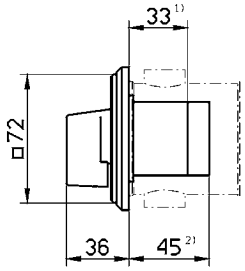
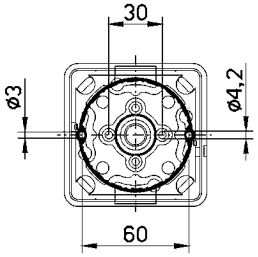
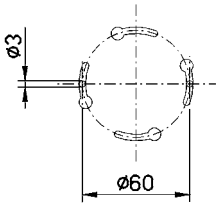


Front view

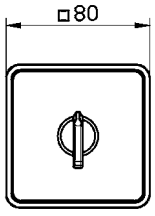


Panel drilling



V2N

Front unit
RF3-ZB



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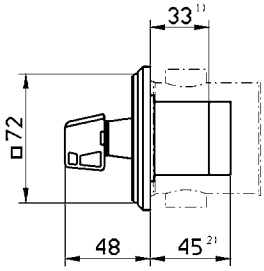
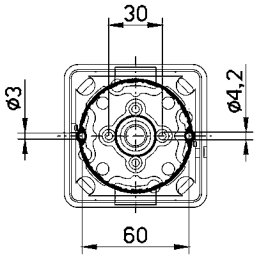
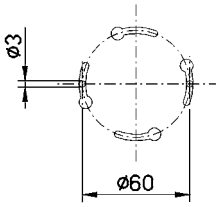


Front view



Panel drilling



1 contact chamber

2 contact chambers

- back of the hand protection as per VDE 0106 Part 100
- with opened terminal clamps
- unlooseable plus-minus screws
- degree of protection IP 65
- modern design

The buried terminal clamps are free accessible from the rear side and are arranged on two sides of the switch.
Therefore the switches can be placed side by side or directly adjacent to the cable channel.
The two-point front fixing allows quick and time-saving mounting of the switches.
Other executions and functions available on request.

Technical data as per EN IEC 60947

1. Switching capacity

AC-21 A/B load break switches
Rared operating voltage U_e 690 V~
Rated permanent current I_u 25 A

AC-3 motor switches, for operation, switching

4	kW 220 ... 240 V, 3~
5,5	**kW 380 ... 440 V, 3~**
7,5	kW 500 V, 3~
7,5	kW 660 ... 690 V, 3~

AC-23 A/B motor switches (main switches)

5,5	kW 220 ... 240 V, 3~
7,5	**kW 380 ... 440 V, 3~**
11	kW 500 V, 3~

Switching off capacity
125 A 380 ... 440 V, 3~

Requirements for isolators complied with up to 480 V~
Rated insulating voltage (III/3)
U_i 690 V~

Auxillary switches
AC-15 rated operating current I_e

6 A	220 ... 240 V
4 A	380 ... 440 V
3 A	500 V

2. Mechanical lifetime

3 x 10^5 operating cycles

3. Approbations

USA Germ. Lioyd

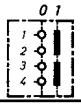
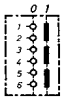
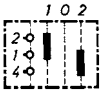
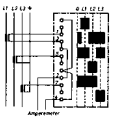
Switching capacity CSA/USA

Nominal operating current 25 A 600 V~

Motor Capacity 3 phase
240 V ac 5 hp
490 V ac 7,5 hp
600 V ac 7,5 hp

Front fixing

Operating handle
black – Face plate
silver SI

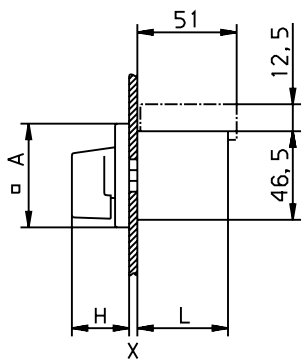
Face plate	Circuit diagram	Switch size	Rated permanent current I A	Max. Switching capacity AC-3 kW/400 V 3~	IP 65 Type	Ref. No.
		D1	25	5,5	D1 A1-F15-B-SI	3199 0100
		On-off switch, single pole				
		D1	25	5,5	D1 A2-F15-B-SI	3199 0101
		On-off switch, double pole				
		D1	25	5,5	D1 A-F15-B-SI	3199 0102
		On-off switch, triple pole				
		D1	25	5,5	D1 U1-F15-B-SI	3199 0104
		Change-over switch, single pole, with 0 position				
		D1	25	5,5	D1 V3-F15-B-SI	3199 0118
		Voltmeter-change-over switch with 0 position (to measure 3 interconnected voltages and 3-phases against N)				
		D1	25	5,5	D1 MA-F15-B-SI	3199 0120
		Ammeter-change-over switch with 0 position (3 circuits with current transformers)				

Dimensions page 103

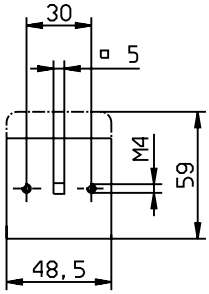
Dimensions

Dimensions in mm

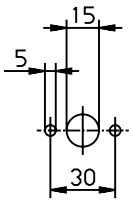
Switch insert



Face plate



Panel drilling

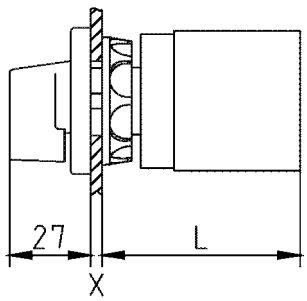


Front fixing

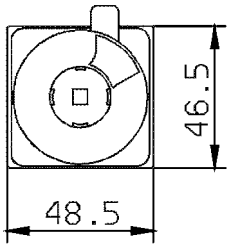
Number of contact chambers	1	2	3	4	Dimension X max. 4
Dimension L	36	47	59	71	

Dimensions in mm

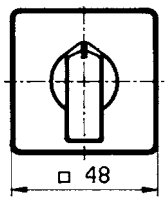
Switch insert



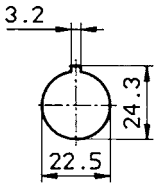
Front view



Face plate



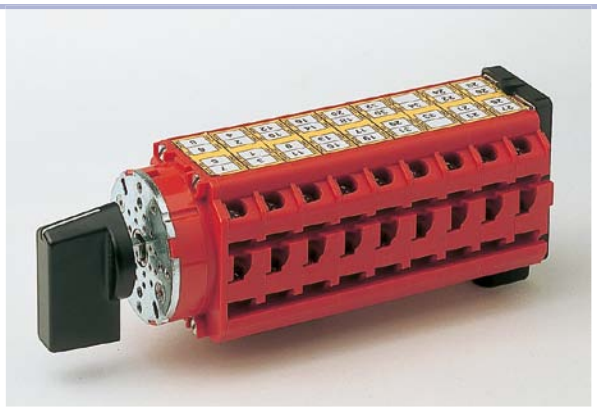
Panel drilling



Single-hole mounting

Number of contact chambers	1	2	3	4	Dimension X max. 4
Dimension L	53	65	76	88	

Technical data as per EN 60 947



This kind of cam switch has one contact chamber equipped with 2 contact systems separated from each other. All terminals are therefore accessible from one direction. The switch series V3L is predestined for applications where connecting terminals are only accessible from one direction as for example by enclosure fixing.

Rated insulating voltage (III/3) EN 60 947	U_i	690 V~
Rated impulse voltage rigidity (III/3) EN 60 947	$U_{imp.}$	6 kV
Rated permanent current I_u switch insert/Ithe under enclosure		32 A

Connectable cross sections single resp. multi-strand	1–6 mm^2
fine wire with core end bush (DIN 46228)	0,75–4 mm^2
Terminal screws	M4
Short-circuit protection, fusible cut-out	(gL) 35 A max.

Features of main switches as per EN 60 204
Requirements for isolators as per EN 60 947 complied with up to < 480 V

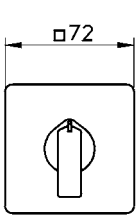
Switching capacity under alternating voltage conditions as per EN 60 947

Load break switches		32 A
Rated operating current	I_e	690 V~
Rated operating voltage Motor switches (main switches)	U_e	220...240 V, 7,5 kW, 3~ 380...440 V, 15 kW, 3~
Motor switches, for operational switching		220...240 V, 7,5 kW, 3~ 380...440 V, 11 kW, 3~
Motor switches, inching, reverse current braking Control switches	I_e at	220...240 V, 2,2 kW, 3~ 380...440 V, 3 kW, 3~ 220–240/380–440 V 9/6 A

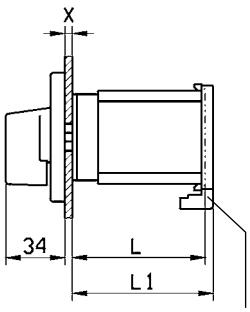
Dimensions

Face plate

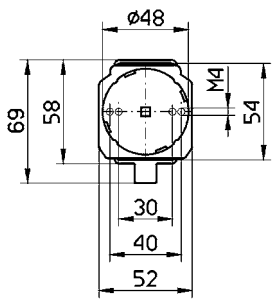
Front fixing



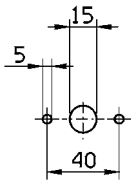
Insert



Front view



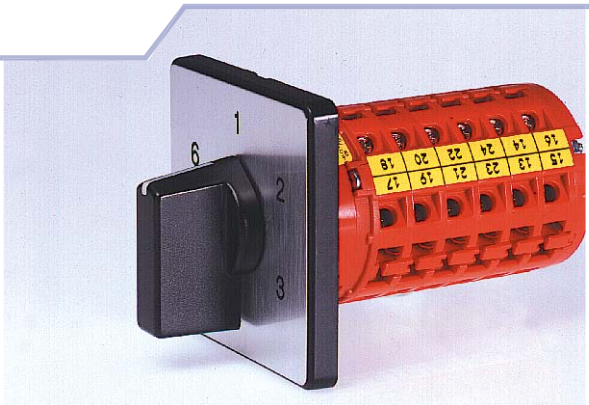
Panel drilling



Angle to support switches with large dimension in length

X max	Dimension	Dimension L								
		1	2	3	4	5	6	7	8	9
4	L	34	47	60	73	86	99	112	125	138
	L1	-	-	-	-	-	103	116	129	142

Technical data



On this cam switch 3 separately arranged contact systems are positioned in one contact chamber. In addition each contact can be controlled via a separately operating cam wheel.

Construction specific features:

Reduced kind of construction in comparison with other so far used cam switches due to 3 contact systems per contact chamber. This results in an essentially reduced installation depth compared to switches with only 2 contact systems per contact chamber.

- finger-protected respectively handprotected in accordance with VDE 0106 part 100
- Protection class IP X2
- opened terminals
- captive plus-minus screws
- Types of construction: Front fixing, rear fixing

Switching capacity under alternating voltage conditions as per EN 60 947

AC-21A/B Load break switch
Rated operating current I_e 20 A
Rated operating voltage U_e 500 V~

AC-3 Motor switch, for operational switching
220...240 V 2,2 kW, 3~
380...440 V 4 kW, 3~
500 V 4 kW, 3~

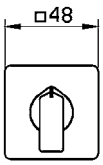
AC-23A/B Motor switch (Main switch)
220...240 V 3 kW, 3~
380...440 V 5,5 kW, 3~

Requirements for isolators complied with up to	480 V~
Rated insulating voltage(III/3) EN 60 947	U_i 500 V~
Max. connectible cross sections	
single resp. multi-strand	2,5 mm²
fine wire with core end bush (DIN 46228)	2,5 mm²

Switching angle 30/60° Switching shaft square 5 mm

Dimensions

Face plate



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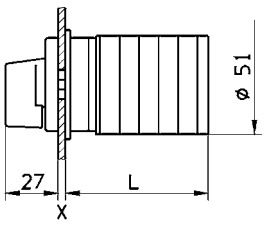
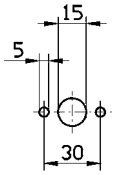


Drilling



Front fixing

X max	Dimension	Dimension L											
		1	2	3	4	5	6	7	8	9	10	11	12
4	L	33,5	43,5	53,5	63,5	73,5	83,5	93,5	103,5	113,5	123,5	133,5	143,5

Email order to sales@fmes.com.au

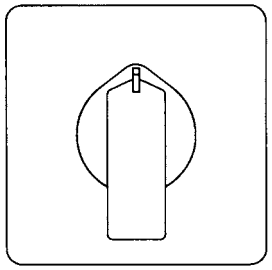
Customer	Order-Nr.	Quantity	Date

Circuit
Enter desired contact functions in the order form below

Frontplate

- ☐ Silver Frontplate (Standard)
- ☐ Black Frontplate
- ☐ Yellow Frontplate
- ☐ Black Handle
- ☐ Red Handle

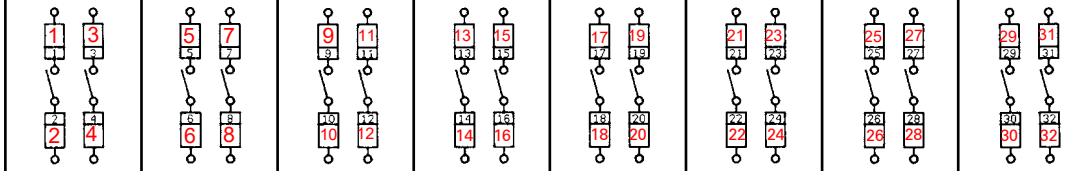
Please enter special label



Contact Plan

- ☒ Contact
- ☐ Closed

Circuit



			Switch chambers															
			1		2		3		4		5		6		7		8	
			Contact name/label															
Switch Position	Switch Position-Label	Spring Return	1 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	31 32
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Switch Size/ Current Rating:	Design:	Switching angle:	Accessories:	Circuit diagram:

Alternatively if you wish to use an alternate type of special order form go to https://fmes.com.au/cam-switches-special-order-form/