EKF

TECHNICAL MANUAL

Changeover switch
100-2500 A PowerSwitch EKF

1 DESCRIPTION

Changeover switches PowerSwitch EKF are designed for operation in three-phase 50/60 Hz AC networks with rated voltage of up to 660 V in electrical distribution devices. It is used to switch from one supply line to the other one.

The housing, made of unsaturated glass fiber reinforced polyester resin, has excellent dielectric, flame-, CO2-, and impact-resistance properties, ensuring safe operation of the product when used as intended. The changeover switches PowerSwitch over 250 A can be complemented with with auxiliary NO/NC contact.

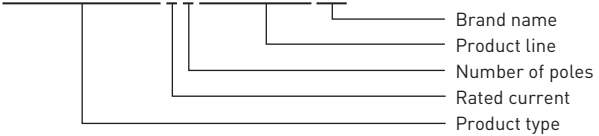
Changeover switches provide double break at each pole.

Silver-coated copper alloy contact surfaces ensure large insulation gap.

A mechanical lockout feature is available to prevent accidental handle operation.

TYPE CODE

Changeover switch X X PowerSwitch EKF



2 TECHNICAL DATA

The main technical data are listed in Table 1.

Table 1 – Technical data

Characteristics			Values				
Rated thermal current Ith, A			100	160	250	630	630
Rated current In, A			100	160	250	400	630
Rated insulation voltage Ui, V			690	1000			
Insulation dielectric strength, V			1890	160	2200		
Rated impulse withstand voltage Uimp, kV			8	12			
Rated operating current Ie, A	380-415 V	AC-21B	100	160	250	400	630
		AC-22B	100	160	250	400	630
		AC-23B	100	160	250	400	630
	660 V	AC-21B	100	160	250	400	500
		AC-22B	50	160	160	315	315
		AC-23B	40	80	125		
Motor power P, kW	380-415 V		40	80	132	220	315
	660 V		33	75	110	185	185
Rated short-time withstand current Icw, kA			2	6	9	12,6	12,6

Characteristics		Values				
Rated breaking capacity Icn, A		150	1080	2000	3200	5040
Rated making capacity Icm, A		150	1600	2500	4000	6300
Short-circuit current, kA		2,84	9,2	15,3	25,2	25,2
Mechanical endurance at 380-415 V, O-C cycles		1700	1400		800	
Electrical endurance at 380-415 V, O-C cycles		300	200			
Applied force on operating handle, N*m		1,2	6,5	10	21	21
Weight, kg	3 poles	0,55	1,2	2	4,3	4,7
	4 poles	0,62	1,5	2,35	5,4	6,3
Operating temperature, °C		-45 to +50				

Rated thermal current Ith, A			1600	1600	1600	3150	3150
Rated current In, A			1000	1250	1600	2000	2500
Rated insulation voltage Ui, V			1000				
Insulation dielectric strength, V			2200				
Rated impulse withstand voltage Uimp, kV			12				
Rated operating current Ie, A	380-415 V	AC-21B	1000	1250	1600	2000	2500
		AC-22B	1000	1250	1600		
		AC-23B					
	660 V	AC-21B	1000	1000	1600	2000	2500
		AC-22B	800			750	
		AC-23B					
Motor power P, kW	380-415 V		560			710	
	660 V		475			750	
Rated short-time withstand current Icw, kA			30			50	
Rated breaking capacity Icn, A			1500	1875	2400	3000	3750
Rated making capacity Icm, A			1500	1875	2400	3000	3750
Short-circuit current, kA			63			105	
Mechanical endurance at 380-415 V, O-C cycles			500			300	300
Electrical endurance at 380-415 V, O-C cycles			100			100	100
Applied force on operating handle, N*m			37		60		
Weight, kg	3 poles		13,2	13,2	15,6	25,5	
	4 poles		14,8	17,1	18	37,5	
Operating temperature, °C			-45 to +50				

Changeover switches comply with:

– IEC 60947-1: Low-voltage switchgear and controlgear – Part 1: General rules.
– IEC 60947-3: Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units.

Use the rotary handle to switch in the manual mode. The rotary handle for operating the switch disconnector within the enclosure is included in the package. Additionally, an external handle is provided for operating the changeover switch through the enclosure door.

The external handle can be installed either directly to the enclosure door or using an extension shaft.

3 OVERALL AND INSTALLATION DIMENSIONS

For appearance and dimensions of changeover switches, refer to Figures 1-4.

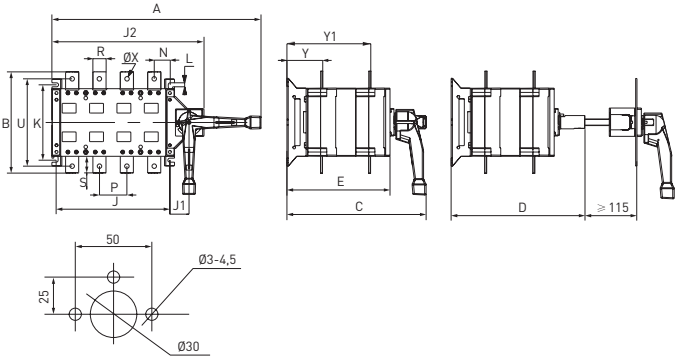


Figure 1 - Installation dimensions of 100 A – 630 A models

Table 2 - Dimensions of 100 A - 630 A models

Characteristics	Overall dimensions															Installation dimensions		
In	A	B	C	D	E	J1	J2	N	P	R	S	U	fX	Y	Y1	J	K	L
100A/3. 4	277	107	166	170	106	40	194	12,5	30	14	18	90	6,5	39,5	90,5	115	84	7
160A/3	273	135	212	221	153	29	195	28	36	20	25	115	8,5	55	120	120	95	7
160A/4	303	135	212	221	153	29	225	22	36	20	25	115	8,5	55	120	150	95	7
250A/3	345	170	251	250	182	30	235	33	50	25	30	140	11	64	144	160	116	9
250A/4	395	170	251	250	182	30	285	33	50	25	30	140	11	64	144	210	116	9
400A/3	436	240	327	311	243	45	298	42	65	32	40	206	11	84	197	210	179	9,5
400A/4	496	240	327	311	243	45	358	38	65	32	40	206	11	84	197	270	179	9,5
630A/3	436	260	327	311	243	45	298	42	65	40	50	220	13	84	197	270	179	9,5
630A/4	496	260	327	311	243	45	358	38	65	40	50	220	13	84	197	270	179	9,5

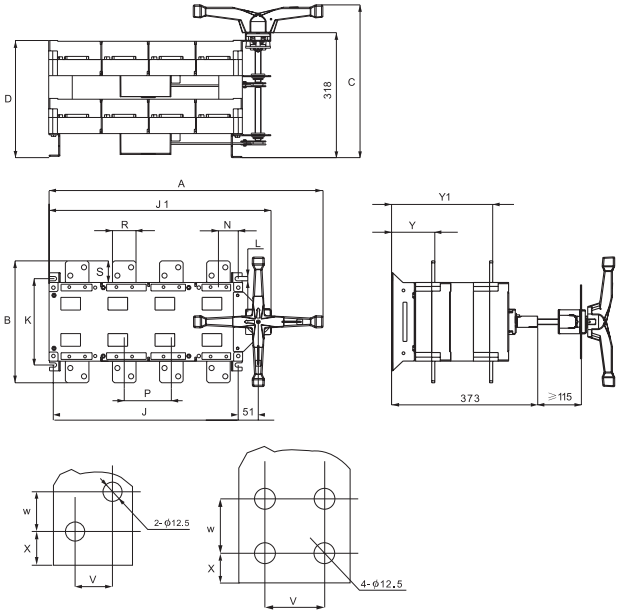


Figure 2 - Installation dimensions of 1000 A – 1600 A models

Table 3 - Dimensions of 1000 A - 1600 A models

Characteristics	Overall dimensions														Installation dimensions		
In	A	B	C	D	J1	N	P	R	S	V	W	X	Y	Y1	J	K	L
1000A/3	582	308	389	298	450	53,5	120	60	55	35	20	16,5	109	256,5	353	220	11
1000A/4	697	310	389	298	565	50,5	120	60	55	35	20	16,5	110	257,5	471	220	11
1250A/3	582	336	389	298	450	53,5	120	80	68	40	35	16	109	256,5	353	220	11
1250A/4	697	338	389	298	565	50,5	120	80	68	40	35	16	110	257,5	471	220	11
1600A/3	582	336	389	298	450	53,5	120	80	68	40	35	16	110	257,5	353	220	11
1600A/4	697	338	389	298	565	50,5	120	80	68	40	35	16	111	258,5	471	220	11

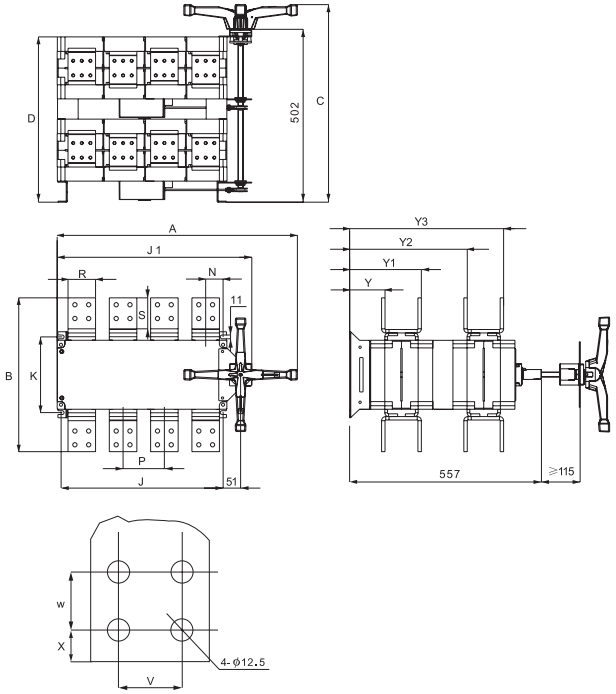


Figure 3 – Installation dimensions of 2000 A – 2500 A models

Table 4 - Dimensions of 2000 A - 2500 A models

Characteristics	Overall dimensions																Installation dimensions	
In	A	B	C	D	J1	N	P	R	S	V	W	X	Y	Y1	Y2	Y3	J	K
2000A/3	582	445	574	480	450	53,3	120	80	90	40	40	20	102	208	341	447	353	220
2000A/4	697	447	574	480	565	50,5	120	80	90	40	40	20	103	209	342	448	471	220
2500A/3	582	445	574	480	450	53,3	120	80	90	40	40	20	102	208	341	447	353	220
2500A/4	697	447	574	480	565	50,5	120	80	90	40	40	20	103	209	342	448	471	220

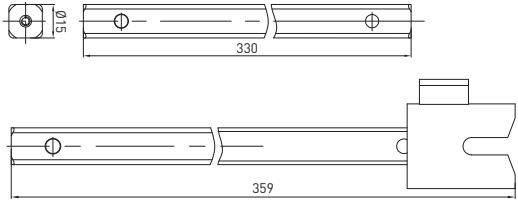


Figure 5 - Overall dimensions of extension shaft

4 WIRING DIAGRAM

For wiring diagrams of changeover switches, refer to Figure 6.

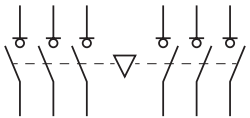
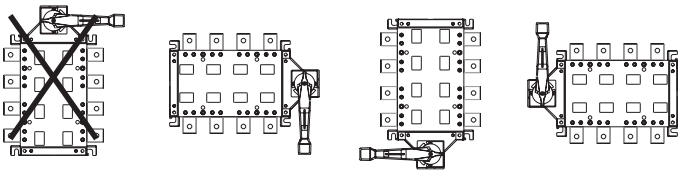


Figure 6

5 INSTALLATION

The switch disconnectors must be mounted and connected by qualified electrical personnel. Changeover switches are mounted onto the mounting plate. For operating position of changeover switches, refer to Figure 7.



Fgure 7 – Operating position of changeover switches

Before installation of the changeover switch, make sure:
– The device complies with intended purpose.
– There is no visible damage.
For direct handle mounting to changeover switches, refer to Figure 8a.
For handle lockout, refer to Figure 8b.

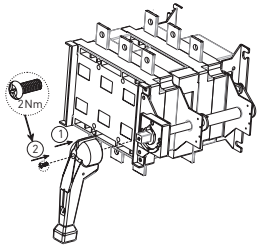


Figure 8a - Handle direct mounting to changeover switches

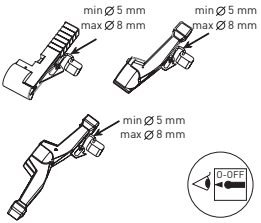


Figure 8b - Handle padlocking

For external handle mounting to an enclosure door, refer to Figure 9.

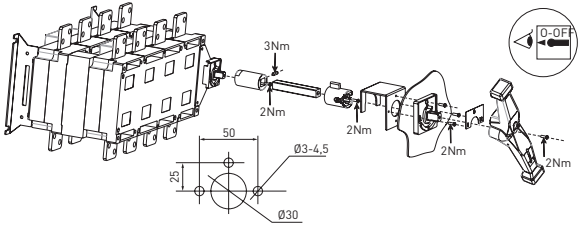


Figure 9 - External handle mounting to an enclosure door

6 OPERATION

Make sure the power is off before installation and maintenance! Under normal operating conditions, visually inspect the switch disconnectors once a year and after every short circuit.

During inspection:
– Remove dust and grease;
– Tighten the screws;
– Switch the device on/off without loads.

Do not touch terminals and non-insulated live conductors when operating the device.

7 OPERATION CONDITIONS

The changeover switches shall be stored indoors in the original package at the ambient temperature from -45°C to +50°C and relative humidity of max. 95%. Altitude above sea level shall not exceed 2000 m. Do not operate switch disconnectors in corrosive environment.

Do not operate the switch disconnectors in Ex-zone!

8 DELIVERY SCOPE

The changeover switches are supplied in a group package. For all available documentation, scan the QR-code on the insert or on the inside of the package.

9 STORAGE AND TRANSPORTATION

Changeover switches can be transported by any means of enclosed transport that protects the packaged goods from mechanical impact and weather exposure.

The changeover switches shall be stored indoors in the original package at the ambient temperature from -45°C to 50°C and relative humidity of max. 50% at +40°C.

10 DISPOSAL

Life-expired and failed products shall be disposed of in compliance with the effective national and local laws and regulations. To dispose of the product, send it to an authorized company for recycling in compliance with the national and local laws and regulations in force.

11 MANUFACTURER'S WARRANTY

The manufacturer guarantees that the changeover switches PowerSwitch EKF comply with the requirements of IEC 60947-1 & IEC 60947-3, provided that consumers follow the operation, transportation and storage conditions.

Warranty period: 7 years from the date of sale specified in the sales receipt.

Shelf life: 7 years from the date of manufacture specified on the product package or housing.

Service life: 10 years.

Manufacturer: ООО Electroresheniya, Otradnaya st., 2b/9, 127273, Moscow, Russia, tel. +7 (495) 788-88-15.

MEA regional headquarters: EKF ELECTRICAL SOLUTION FZCO, Techno Hub-2, DSO, P. O. box 341079, Dubai, United Arab Emirates, tel. +971-4-547-06-18.

Importer and EKF trademark service representative in the territory of the Republic of Kazakhstan: ТОО «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

12 CERTIFICATE OF ACCEPTANCE

The changeover switches PowerSwitch EKF have been manufactured in compliance with laws and regulations in force and have been approved for operation.

Date of manufacture: for information, refer to the product package.

Quality control stamp 

EAC

v3

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