

Fuse Switch Disconnectors

Fuse Switch

Type			FSD-00 Baseplate mounting				
According to standard			DIN EN 60947-3				
For NH fuse-links acc. to DIN VDE 0636-2		尺寸 Size	000/00				
Rated operational voltage		U_e V	AC690 DC440				
Rated operational current ¹⁾		I_e A	160				
Conv. free air thermal current with fuse-links ¹⁾		I_{th} A	160				
Conv. free air thermal current with solid-links ¹⁾		I_{th} A	210	On request			
Rated frequency		f Hz	50-60				
Rated insulation voltage		U_i V	AC800				
Electrical characteristics			1P	3P	1P	3P	
	Total power loss at I_{th} (without fuse-links)		P_v W	3	9	5	14
	Power loss at 80% I_{th} (without fuse-links) ²⁾		P_v W	1,9	5,8	3	9
	Rated impulse withstand voltage		U_{imp} kV	8			
	Utilization category ³⁾		-	AC-23B (400V/160A) AC-22B (500V/160A) AC-21B (690V/160A) DC-22B (250V/160A)			
	Rated conditional short-circuit current ^{3) 4)}		- kA	120 (500V) 50 (690V)			
	Rated short-time withstand current		I_{cw} kA	5/1s			
Max. permis. power loss per fuse-link		P_a W	12				

1). In case of mounting of several units in low voltage switchgear-combinations, please consider rated diversity factors acc. to DIN EN 61439.

2). Reference value for replacement of devices acc. to DIN EN 61439-1 clause 10.10.4.2.

3). It must be considered a minimum distance to earthed, conductive parts:Lateral: 20mm / Above: 50mm Lateral: 50mm/Above: 100mm

4). Type tested with NH fuse-links characteristic gG

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Type			FSD-00 Baseplate mounting			
Cable terminal	Flat terminal	Bolt diameter	-	-	M8	
			Tightening torque	M_a Nm	12-15	
	Clip terminal	S00-70		Clamping cross-section	-	mm ²
			Tightening torque		M_a Nm	2,6
	Clamp	P00-70 P00-95		Clamping cross-section	-	mm ²
			Tightening torque		M_a Nm	2,6
	Clamp			Clamping cross-section	-	mm ²
			Tightening torque		M_a Nm	4,5
Degree of protection	Front side Device fitted	Operat ing condition		-	-	IP20
		With clamp- and lateral cover		-	-	IP2XC
		Switching element open		-	-	IP10
Operating conditions	Ambient temperature ⁵⁾		T_{amb} °C	-25 bis / up to +70		
	Rated operating mode		-	-	Uninterrupted duty	
	Actuation		-	-	Dependent manual operation	
	Mounting position		-	-	vertical/horizontal	
	Altitude		-	m	Up to 2000	
	Pollution degree		-	-	3	
Overvoltage category		-	-	III		

Annotation: ○= Round conductor □= Strip conductor

5) 35°C Normal temperature, above 35°C up to 70°C with reduces operating current, see Appendix.

6) Pretread Al-conductors mechanically! Cleaning and greasing!

Fuse Switch Disconnectors

Fuse Switch

Type			FSD-1 Baseplate mounting				
According to standard			DIN EN 60947-3				
For NH fuse-links acc. to DIN VDE 0636-2		Size	1				
Rated operational voltage		U _o V	AC690 DC440				
Rated operational current ¹⁾		I _e A	250				
Conv. free air thermal current with fuse-links ¹⁾		I _{th} A	250				
Conv. free air thermal current with solid-links ¹⁾		I _{th} A	325				
Rated frequency		f Hz	50-60				
Rated insulation voltage		U _i V	AC800				
			1P	3P	1P	3P	
Electrical characteristics	Total power loss at I _{th} (without fuse-links)		P _v W	5	15	7	22
	Power loss at 80% I _{th} (without fuse-links) ²⁾		P _v W	3,2	9,6	4,7	14,1
	Rated impulse withstand voltage		U _{imp} kV	8			
	Utilization category ³⁾		-	AC-23B (400V/250A) AC-22B (500V/250A) AC-21B (690V/250A) DC-22B (250V/250A) 3P: DC-21B (440V/250A)			
Rated conditional short-circuit current ^{3) 4)}		-	kA	120 (500V) 50 (690V)			
Rated short-time withstand current		I _{cw} kA	8,6/1s				
Max. permis. power loss per fuse-link		P _a W	23				

1). In case of mounting of several units in low voltage switchgear-combinations, please consider rated diversity factors acc. to DIN EN 61439.

2). Reference value for replacement of devices acc. to DIN EN 61439-1 clause 10.10.4.2.

3). It must be considered a minimum distance to earthed, conductive parts: Lateral: 20mm / Above: 50mm Lateral: 50mm/Above: 100mm

4). Type tested with NH fuse-links characteristic gG

Fuse Switch Disconnectors

Fuse Switch

Type			FSD-1 Baseplate mounting					
Cable terminal	Flat terminal	Bolt diameter		-	-	M10		
		Tightening torque		M _a	Nm	30-35		
	Clip terminal	S1	Clamping cross-section		-	mm ²	○: 25-150 Cu □: 6 x 16 x 0,8 Cu	
			Tightening torque		M _a	Nm	9,5	
	Clamp	P1	Clamping cross-section		-	mm ²	10-150 Al/Cu	
			Tightening torque		M _a	Nm	4,5	
	Clamp	P12	Clamping cross-section		-	mm ²	2 x (10-150) Al/Cu	
			Tightening torque		M _a	Nm	4,5	
		R150	Clamping cross-section		-	mm ²	35-150 Al/Cu	
			Tightening torque		M _a	Nm	12	
Degree of protection	Front side Device fitted	Operating condition		-	-	IP20		
		With clamp- and lateral cover		-	-	IP2XC		
		Switching element open		-	-	IP10		
Operating conditions	Ambient temperature ⁵⁾		T _{amb}	°C	-25 bis / up to +70			
	Rated operating mode		-	-	Uninterrupted duty			
	Actuation		-	-	Dependent manual operation			
	Mounting position		-	-	vertical/horizontal			
	Altitude		-	m	Up to 2000			
	Pollution degree		-	-	3			
	Overvoltage category		-	-	III			

Annotation: ○ = Round conductor □ = Strip conductor

5) 35°C Normal temperature, above 35°C up to 70°C with reduces operating current, see Appendix.

Fuse Switch Disconnectors

Fuse Switch

Type			FSD-2 Baseplate mounting			
According to standard			DIN EN 60947-3			
For NH fuse-links acc. to DIN VDE 0636-2	Size		2			
Rated operational voltage	U_e	V	AC690 DC440			
Rated operational current ¹⁾	I_e	A	400			
Conv. free air thermal current with fuse-links ¹⁾	I_{th}	A	400			
Conv. free air thermal current with solid-links ¹⁾	I_{th}	A	520			
Rated frequency	f	Hz	50-60			
Rated insulation voltage	U_i	V	AC1000			
			1P	3P	1P	3P
Total power loss at I_{th} (without fuse-links)	P_v	W	9	28	12	36
Power loss at 80% I_{th} (without fuse-links) ²⁾	P_v	W	6	17,9	7,7	23
Rated impulse withstand voltage	U_{imp}	kV	8			
Utilization category ³⁾	-	-	AC-23B (400V/400A) AC-22B (500V/400A) AC-21B (690V/400A) DC-22B (440V/400A)			
Rated conditional short-circuit current ^{3) 4)}	-	kA	120 (500V) 50 (690V)			
Rated short-time withstand current	I_{cw}	kA	15/1s			
Max. permis. power loss per fuse-link	P_a	W	34			

1). In case of mounting of several units in low voltage switchgear-combinations, please consider rated diversity factors acc. to DIN EN 61439.

2). Reference value for replacement of devices acc. to DIN EN 61439-1 clause 10.10.4.2.

3). It must be considered a minimum distance to earthed, conductive parts: Lateral: 20mm / Above: 50mm

4). Type tested with NH fuse-links characteristic gG

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Fuse Switch

Type			FSD-2 Baseplate mounting			
Cable terminal	Flat terminal		Bolt diameter	-	-	M10
			Tightening torque	M_a	Nm	30-35
	Clip terminal	S2	Clamping cross-section	-	mm ²	○: 25-185 Cu □: 10 x 16 x 0,8 Cu
			Tightening torque	M_a	Nm	23
	Clamp	P2	Clamping cross-section	-	mm ²	120-240 Al/Cu
			Tightening torque	M_a	Nm	11
	Clamp	P22	Clamping cross-section	-	mm ²	2 x (120-150) Al/Cu
			Tightening torque	M_a	Nm	11
		R300	Clamping cross-section	-	mm ²	95-300 Al/Cu
			Tightening torque	M_a	Nm	20
Degree of protection	Front side Device fitted	Operating condition	-	-	IP20	
		With clamp- and lateral cover	-	-	IP2XC	
		Switching element open	-	-	IP10	
Operating conditions	Ambient temperature ⁵⁾	T_{amb}	°C	-25 bis / up to +70		
	Rated operating mode	-	-	Uninterrupted duty		
	Actuation	-	-	Dependent manual operation		
	Mounting position	-	-	vertical/horizontal		
	Altitude	-	m	Up to 2000		
	Pollution degree	-	-	3		
	Overvoltage category	-	-	III		

Annotation: ○= Round conductor □= Strip conductor

5) 35°C Normal temperature, above 35°C up to 70°C with reduces operating current, see Appendix.

Fuse Switch Disconnectors

Fuse Switch

Type			FSD-3 Baseplate mounting			
According to standard			DIN EN 60947-3			
For NH fuse-links acc. to DIN VDE 0636-2		Size	3			
Rated operational voltage		U _e V	AC690 DC440			
Rated operational current ¹⁾		I _e A	630			
Conv. free air thermal current with fuse-links ¹⁾		I _{th} A	630			
Conv. free air thermal current with solid-links ¹⁾		I _{th} A	910	On request		
Rated frequency		f Hz	50-60			
Rated insulation voltage		U _i V	AC1000			
			1P	3P	1P	3P
Total power loss at I _{th} (without fuse-links)		P _v W	17	51	29	86
Power loss at 80% I _{th} (without fuse-links) ²⁾		P _v W	10,9	32,6	18,3	55
Rated impulse withstand voltage		U _{imp} kV	8			
Utilization category ³⁾		-	AC-23B (400V/630A) AC-22B (500V/630A) AC-21B (690V/630A) DC-21B (250V/630A) 3P: DC-22B (440V/630A)			
Rated conditional short-circuit current ^{3) 4)}		- kA	120 (500V) 50 (690V)			
Rated short-time withstand current		I _{cw} kA	15kA/1s			
Max. permis. power loss per fuse-link		P _a W	48			

1). In case of mounting of several units in low voltage switchgear-combinations, please consider rated diversity factors acc. to DIN EN 61439.

2). Reference value for replacement of devices acc. to DIN EN 61439-1 clause 10.10.4.2.

3). It must be considered a minimum distance to earthed, conductive parts:Lateral: 20mm / Above: 50mm

4). Type tested with NH fuse-links characteristic gG

Fuse Switch Disconnectors

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Type			FSD-3 Baseplate mounting				
Cable terminal	Flat terminal	Bolt diameter	-	-	M10/M12		
		Tightening torque	M _a	Nm	30-35		
	Clip terminal	S3	Clamping cross-section	-	mm ²	□: 11 x 21 x 1 Cu	
			Tightening torque	M _a	Nm	23	
	Clamp	P3	Clamping cross-section	-	mm ²	120-300 Al/Cu	
			Tightening torque	M _a	Nm	11	
	Clamp	P32	Clamping cross-section	-	mm ²	2 x (120-240) Al/Cu	
			Tightening torque	M _a	Nm	11	
		R300	Clamping cross-section	-	mm ²	95-300 Al/Cu	
			Tightening torque	M _a	Nm	20	
Degree of protection	Front side Device fitted	Operating condition	-	-	IP20		
		With clamp- and lateral cover	-	-	IP2XC		
		Switching element open	-	-	IP10		
Operating conditions	Ambient temperature ⁵⁾		T _{amb}	°C	-25 bis / up to +70		
	Rated operating mode		-	-	Uninterrupted duty		
	Actuation		-	-	Dependent manual operation		
	Mounting position		-	-	vertical/horizontal		
	Altitude		-	m	Up to 2000		
	Pollution degree		-	-	3		
Overvoltage category		-	-	III			

Annotation: ○ = Round conductor □ = Strip conductor

5) 35°C Normal temperature, above 35°C up to 70°C with reduces operating current, see Appendix.

Fuse Switch Disconnectors

Dimensions

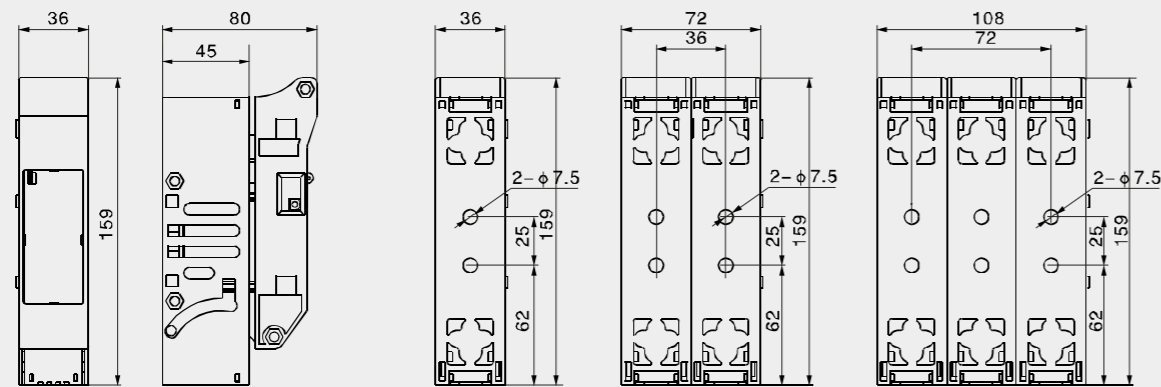
Technical Data

Rated Voltage: 690V

Breaking Capacity: 200kA

Function Level: aR/gR-gG/gL-aM/gM-gtr

Type	Size	Rated Voltage (V)	Rated Current	Rated Voltage (V)	Rated Current	Dimensions (mm)
FSD-000-100	100	380/500	100	690	80	Drawing 1
FSD-00-160	160	380/500	160	690	100	Drawing 1



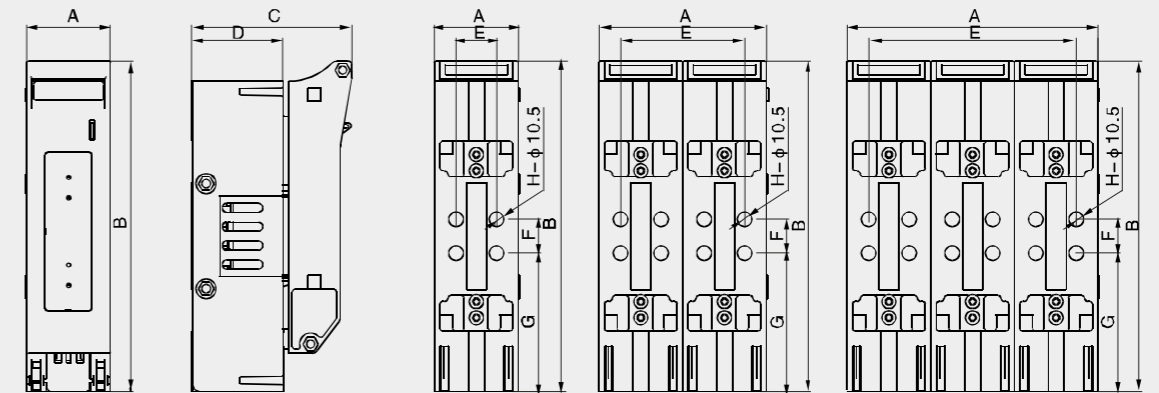
FSD-000-160 Fuse Switch (Drawing 1)

Fuse Switch Disconnectors

Dimensions

Technical Data

Type	Pole	Pre-Heating Current	Dimensions (mm)							
			A	B	C	D	E	F	G	H
FSD-1	1P	250	62	245	118	67	30	25	102.5	4
	2P		124	245	118	67	92	25	102.5	8
	3P		186	245	118	67	154	25	102.5	12
FSD-2	1P	400	70	272	133	81	30	25	115.5	4
	2P		140	272	133	81	100	25	115.5	8
	3P		210	272	133	81	170	25	115.5	12
FSD-3	1P	630	85	285	147	96	30	25	122.5	4
	2P		170	285	147	96	115	25	122.5	8
	3P		255	285	147	96	200	25	122.5	12



FSD-1 to 3 Fuse Switch (Drawing)