Technical Brochure

Switch Fuses
DIN and NFC-Standard

Selection Table

PowerLine

Fuse Monitor

Low Voltage Products

ABB

Powerline OS switch fuses
20...160A, 690 V


Unique patented design for the 21st century

Total user safety

- Fuse carriers fully IP 20 protected
- Fuse covers cannot be opened while the switch fuse is in the ON position
- Patented, operator-independent quick make/ quick break mechanism
- Fuse links are isolated on both sides of the fuse
- Fully-protected construction, IP 20, in types OS 20-63 for both cable terminals and fuses, optional IP 20 terminal shrouds in OS 160 types
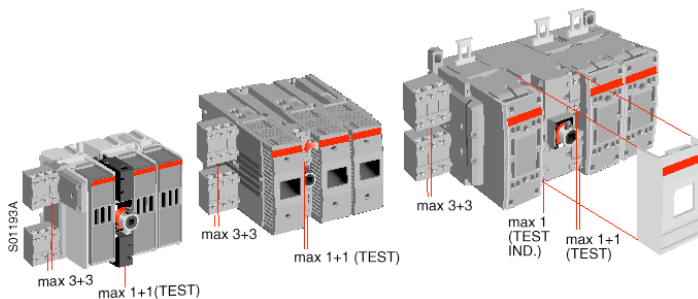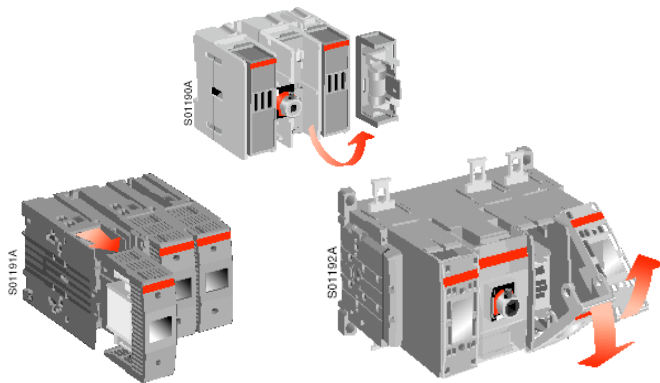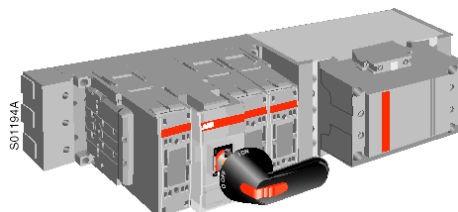
Auxiliary Contacts

- Compact and costsaving
- Auxiliary contacts with simple snap-on mounting
- All blocks IP 20 protected
- Test function - easy and quick commissioning
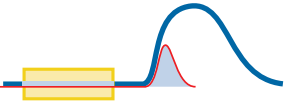- N.O. contacts with positive opening feature
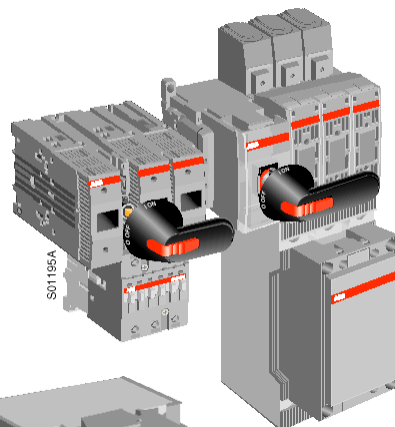
Flexible Mounting

- Easy to adapt for different applications

Powerline OESA Switch fuses 250... 800A, 690V

Easy selectivity and standardisation with switch fuses

Selectivity is easily achieved with different fuses. The low cut-off current and energy of standard fuses allow for a minimum size of contactor and overload relay to be used in type 2 co-ordinated motor starters. This leads to cost and space saving as well as better standardisation in large motor starters.

Selectivity is assured, by maintaining a minimum ratio (1.6:1) of fuse amp. rating between up the upstream and downstream fuse.

Increased safety and versatility

- Compact size
- Visible contacts
- Mechanical and electrical interlocking
- All live parts are protected with snap-on mounting fuse cover and terminal shrouds
- Aluminium cable can also be connected
  directly into the switch terminal by means of space-saving Al/Cu clamps
- Double break contacts for safe fuse replacement
- Remote control by motor operator

Patented contact construction

The contact uses magnetic attraction forces in an innovative iron circuit in fault level situations. High breaking and making capacity even at 690 V is achieved, so the derating on motor duty is minimal. The wiping effect of the contacts guarantees long thermal stability in both the chemical industry, and tropical climates. Not only is the switch fuse maintenance free, it also has a long electrical lifetime, despite the circumstances.
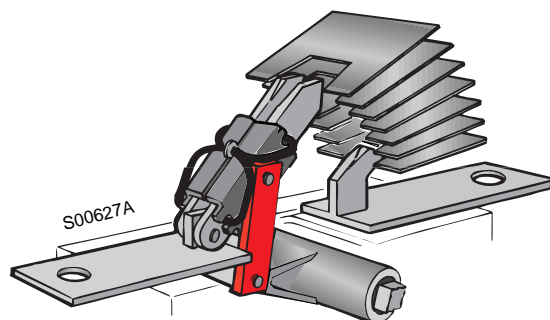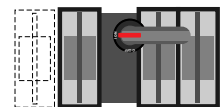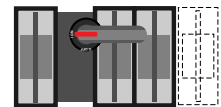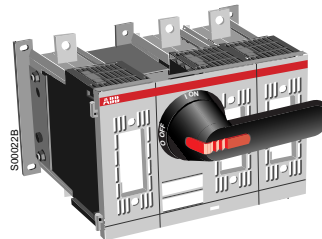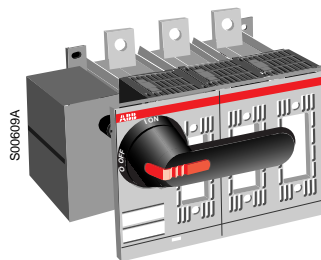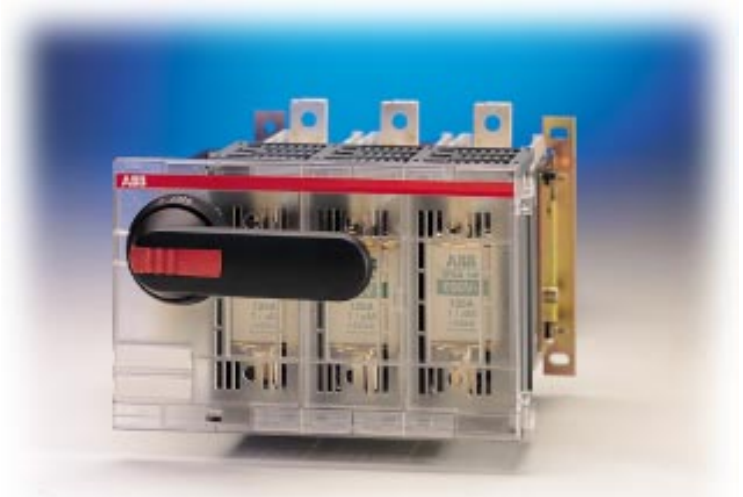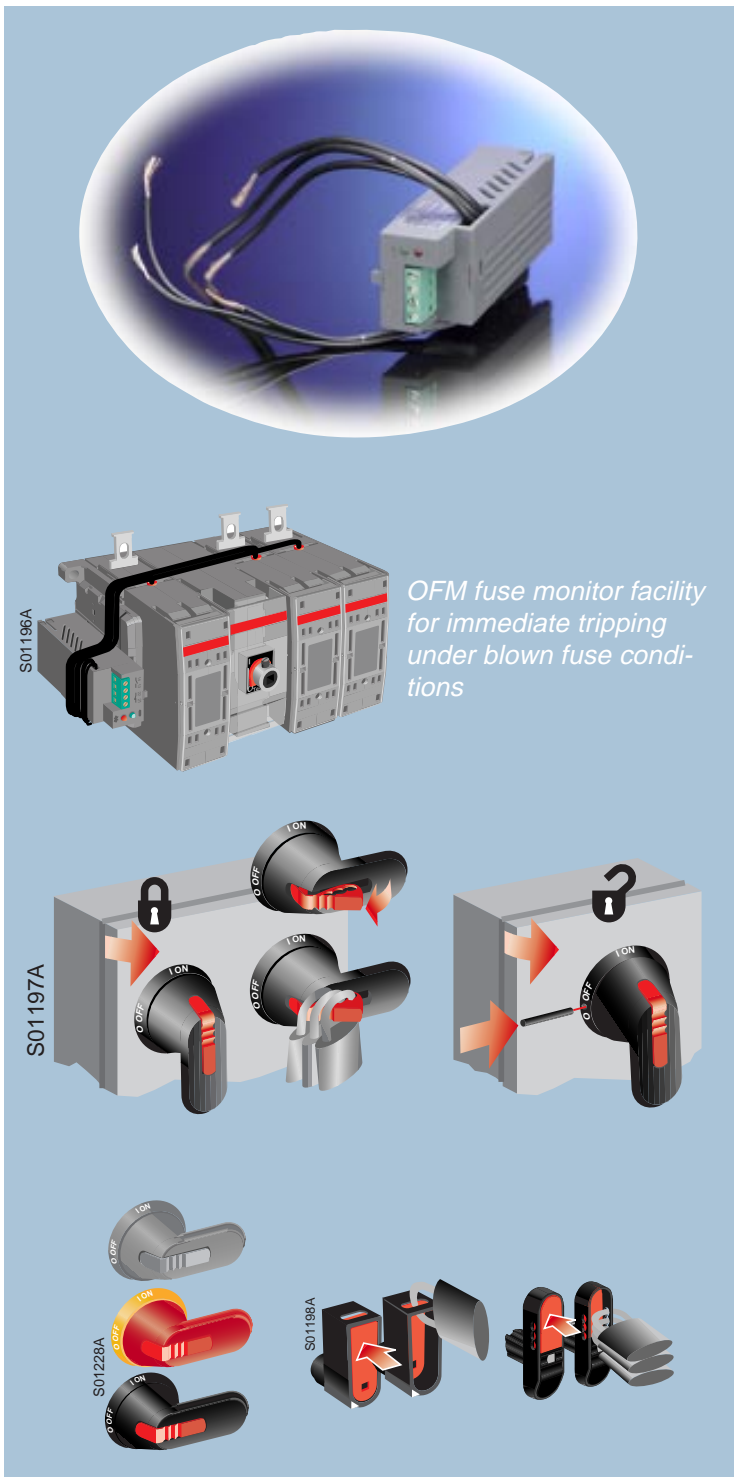
Fuse Monitor

- No danger for 2-phase motor loading, prevents unsafe neutral voltages
- Operates with all standard fuses; striker-type fuses are not required, thus reducing overall costs
- No need for external supply voltage
- Wide voltage ranges, 380-690 VAC and 100-260 VAC, +/- 10%
- Safe and reliable
- EMC tested
- Fuse monitor is automatically reset after the blown fuses have been replaced
- One trip contact, one alarm contact, and LEDs (red and green)
- Full operational ability even with phase imbalance
- Compact size
- Snap on mounting for OS switch fuses

OFM fuse monitor facility for immediate tripping under blown fuse conditions

S01196A

S01197A

S01228A

S01198A

Handles

- External front or side operated IP 65 handle with an adjustable shaft. Available in three colours: black, yellow/red and grey
- Optional switch-mounted handle for OS-types (mounting behind the door) also enabling the use of switches padlocked in the OFF position together with an external handle
- Defeatable door interlocking, even with IP 65 protection class
- The door cannot be opened if switch is padlocked in OFF position
- Handle can be padlocked in OFF position with three padlocks, thus preventing door from opening, and closing circuit during maintenance
- Handle can only be padlocked in OFF position if all contacts are totally open

The technical data and dimensions are valid at the time of printing. We reserve the right to subsequent alterations.

Ykkös-Offset Oy, 12/1999

ABB

ISO 9001 SFS CERTIFIED QUALITY SYSTEM

CERTIFIED ENVIRONMENTAL SYSTEM ISO 14001 SFS

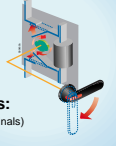CERTIFIED OH & S MANAGEMENT SYSTEM BS 8800 SFS

Technical Data According to IEC 947 for OS Switch-Fuses and PowerLine OESA

Switch fuse range (DIN and NFC -pattern) from 25A to 800A, 690V
- Main switches
- Motor circuit switches (AC 23 ratings up to 690 V)
- Isolator switches
- Local safety switches
- Special switches

Standard switch fuse delivery includes:
- Terminal bolts (sizes 25...63 have protected tunnel terminals)
- Black IP 65 handle with I-O/ON-OFF indication

Switch fuse + fuse cover

			OS Mini		OS 32	OS 50	OS 63	OS 100	OS 125	OS 160	OESA 250	OESA 400	OESA 630	OESA 800
Switch fuse size		A	**25**	**32**	**32**	**50**	**63**	**100**	**125**	**160**	**250**	**400**	**630**	**800**
Rated insulation voltage	Pollution degree 3	V	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Rated thermal current in ambient 40 °C / max. fuse	In open air	A / W	25 / 3,5	32 / 3,5	32 / 7,5	50 / 7,5	63 / 7,5	125 / 12	125 / 12	160 / 12	250 / 32	400 / 45	630 / 60	800 / 65
power dissipation	In enclosure	A / W	25 / 3,5	32 / 3,5	32 / 7,5	50 / 7,5	63 / 7,5	125 / 12	125 / 12	160 / 12	250 / 23, 230 / 27	400 / 34, 360 / 37	600 / 45, 570 / 50	720 / 55
Rated operational current, AC-21A / AC-22A / AC-23 A	up to 500 V	A	25 / 25 / 25	32 / 32 / 32	32 / 32 / 32	50 / 50 / 50	63 / 63 / 63	100 / 100 / 100	125 / 125 / 125	160 / 160 / 160	250 / 250 / 250	400 / 400 / 400	630 / 630 / 630	800 / 800 / 720
	690 V	A	25 / 25 / 25	32 / 32 / 32	32 / 32 / 32	50 / 50 / 50	63 / 63 / 63 (AC-23B)	100 / 100 / 100 (AC-23B)	125 / 125 / 125 (AC-23B)	160 / 160 / 160 (AC-23B)	250 / 250 / 250	400 / 400 / 400	630 / 630 / 630	800 / 800 / 720
Rated breaking capacity in category AC-23A	up to 690 V	A	5760	5760	256	504	800	504	1000	1280	3200	5760	5760	5760
Built-in terminal size or terminal bolt size		mm² or Cu	0,5...10	0,5...10	2,5...25	2,5...25	2,5...25	M6x20 (M8x25)	M6x20 (M8x25)	M6x20 (M8x25)	M10x40	M10x40	M12x40	M12x40
Rated conditional short-circuit current r.m.s.	80 kA, 415 V	kA	9	9	17	17	17	22	22	22	40	40	75	75
and corresponding max. allowed cut-off current, peak value.	100 kA, 500 V	kA	7,5	7,5	17	17	17	22	22	22	40	40	75	75
-The cut-off currents refer to single phase fuse tests.	50 kA, 690 V	kA	6	6	13	13	13	15	15	15	35	35	60	60
Weight without accessories	3-pole	kg	0,7	0,7	1,3	1,3	1,3	1,5	1,5	1,5	6,9	7,8	15,5	17,0
	4-pole	kg	0,9	0,9	1,6	1,6	1,6	1,8	1,8	1,8	7,9	8,8	19,0	21,0
Rated operational power, AC-23A 1)	230 V	kW	6	8	9	15	18,5	30	37	45	70	110	180	200
The kW-ratings are accurate for three-phase 1500 R.P.M	400 V	kW	11	14	15	25	30	45	60	80	132	210	315	350
standard asynchronous motors.	415 V	kW	12	15	25	25	30	55	60	90	140	230	340	380
	500 V	kW	14	18	22	33	37	60	80	110	170	280	400	470
	690 V	kW	22	25	30	45	60	90	110	132	230	330	540	600
Switch fuse type and ordering information	Fuse type		NFC 10 x 38 / 25A	NFC 14 x 51 / 32 A	DIN 000, 00	NFC 14 x 51 / 50 A	DIN 000, 00	NFC 22 x 58 / 63 A	NFC 22 x 58 / 100 A	DIN 000, 00	DIN 0-1	DIN 0-2	DIN 3	DIN 3
Mechanism at the end of the switch	3-pole		OS 25 F1210	OS 32 F1214	OS 32D12	OS 50F12	OS 63D12	OS 63F12	OS 100F03	OS 125D03	OS 160D03	OESA 250 D3 PL	OESA 400 D3 PL	OESA 630 D3 PL	OESA 800 D3 PL
	4-pole switched neutral		OS 25 F2210N1	OS 32 F2214N1	OS 32D22N1	OS 50F22N1	OS 63D22N1	OS 63F22N1	OS 100F04N2	OS 125D04N2	OS 160D04N2	OESA 250 D4 PL	OESA 400 D4 PL	OESA 630 D4 PL	OESA 800 D4 PL
	4-pole fused neutral		OS 25 F2210F	OS 32 F2214F	OS 32D22F	OS 50F22F	OS 63D22F	OS 63F22F	OS 100F04F	OS 125D04F	OS 160D04F	OESA 250 DF4 PL	OESA 400 DF4 PL	OESA 630 DF4 PL	OESA 800 DF4 PL
Mechanism between the poles	3-pole		OS 25 FS3010	OS 32 FS3014	OS 32D30	OS 50F30	OS 63D30	OS 63F30	OS 100F12	OS 125D12	OS 160D12	OESA 250 DV3 PL	OESA 400 DV3 PL	OESA 630 DV3 PL	OESA 800 DV12 PL
	4-pole switched neutral		OS 25 FS4010N1	OS 32 FS4014N1	OS 32DS40N1	OS 50FS40N1	OS 63DS40N1	OS 63FS40N1	OS 100FS40N1	OS 125D22N1	OS 125F22N1	OESA 250 DV2 PL	OESA 400 DV22 PL	OESA 630 DV22 PL	OESA 800 DV22 PL
	4-pole fused neutral		OS 25 FS4010F	OS 32 FS4014F	OS 32DS40F	OS 50FS40F	OS 63DS40F	OS 63FS40F	OS 100FS40F	OS 125D22F	OS 125F22F				
Side operated	3-pole				OS 32DS30	OS 50FS30	OS 63DS30	OS 63FS30	OS 100FS30	OS 125DS30	OS 125FS30	OESA 250 DM3 PL	OESA 400 DM3 PL	-	-
	4-pole switched neutral on left				OS 32DS40N1	OS 50FS40N1	OS 63DS40N1	OS 63FS40N1	OS 100FS40N1	OS 125DS40N1	OS 125FS40N1	OESA 250 DM4 PL	OESA 400 DM4 PL	-	-
	4-pole switched neutral on right								OS 100FS40N2	OS 125DS40N2	OS 125FS40N2			-	-
	4-pole fused neutral				OS 32DS40F	OS 50FS40F	OS 63DS40F	OS 63FS40F	OS 100FS40F	OS 125DS40F	OS 160DS40F	OESA 250 DMF4 PL	OESA 400 DMF4 PL	-	-
Standard delivery includes	Black IP 65 handle, indication I-O/ ON-OFF		OHB65J5		OHB 65J5		OHB 65J6			OHB65J6				OHB125J12	OHB145J12
	Shaft/length		OXP5X150 / 150 mm		OXP 6X161 / 161 mm					OXP6X161 / 161 mm				OXP12X250 / 250 mm	OXP 12x250 / 250 mm
Accessories, See brochures OS1GB and OESA1GB			Mounting onto side: Max 6		Mounting onto side: Max 6		Mounting onto side: Max 6		Mounting onto side: Max 12				1 N.O. + 1 N.C.: OZXK 1	4 N.O. + 4 N.C.: OZXK 3	Mounting onto side: Max 2xOZXK3 (8N.O. + 8N.C.) or 2xOZXK6 (16N.O.)
Auxiliary contacts			Aux. contact frame needed OSZ4		Between poles: Max 2		Between poles: Max 2		Between poles: Max 2+1				2 N.O. + 2 N.C.: OZXK 2	2 N.O.: OZXK 4	4 N.O.: OZXK 5
			1 N.O.: OA1G10	c/o 1 N.O.- N.C.: OA4B1C	1 N.O.: OA1G10		1 N.O.: OA1G10		1 N.O.: OA 1G10				1 N.C. + 1 N.O.: OZXK 6		8 N.O.: OZXK 6
			1 N.C.: OA3G01	1 N.C.: OA4B01	1 N.C.: OA3G01		1 N.C.: OA 3G10								
Terminal shrouds	3-pole / 4-pole		not required		OSS 63 G1 only needed for < 10 mm² wires				OSS160T1 (single pole)				OESAZX 119 (single pole)	OESAZX 102 (single pole)
Fuse cover	3-pole / 4-pole		not required						Not required					
Fuse monitor / rated voltage (includes auxiliary contacts 1 N.O. + 1 N.C.)	3-pole		OFM 260/100...260V, OFM 690/380...690V		OFM 260 /100...260V, OFM 690/380...690V				OFM 260/100...260V, OFM 690/380...690V				Type code OESA .PL1 includes fuse covers		
													OFM 260/100...260V, OFM 690/380...690V		
Mounting accessories for fuse monitor			OFMZX 2 + OSZ 4		OFMZX2				OFMZX2				OFMZX4		
Optional handles, IP 65	For front operated switches		OHY 65J5 Yellow/red (I-O/ON-OFF)		OHY 65J6 Yellow-red (I-O, ON-OFF)		OHB 65J6T Black (TEST-I-O/ON-OFF)		OHB 4 Panel board handle		Length 125 mm	Length 145 mm	Length 175 mm	Metallic
			OHG 65J5 Grey (I-O)		OHG 65J6 Grey (I-O)		OHY 65J6T Yellow/red (TEST-I-O/ON-OFF)				OHY 125J12 Yellow-red (I-O/ON-OFF)	OHB 145J12 Black (I-O/ON-OFF)	OHB 175J12 Black (I-O/ON-OFF)	YASDA 7 220 mm (I-O)
			OHB 65J5T Black, indication (TEST-I-O/ON-OFF)				OHG 65J6T Grey (TEST-I-O)				OHG 125J12 Grey (I-O)	OHY 145J12 Yellow-red (I-O/ON-OFF)	OHY 175J12 Yellow-red (I-O/ON-OFF)	YASDA 8 220mm (ON-OFF)
			OHY 65J5T Yellow/red, indication (TEST-I-O/ON-OFF)									OHG 145J12 Grey (I-O)	OHG 175J12 Grey (I-O)	YASDA 21 220 mm(I-O-II)
			OHG 65J5T Grey, indication (TEST-I-O)											YASDA 6 320 mm (I-O-II)
			OHB5 Panel board handle (I-O/ON-OFF/TEST)											
	For side operated switches		OHB 65J5TE00S Black (TEST-I-O/ON-OFF)		OHB 65J6T5E001S Black (TEST-I-O/ON-OFF)						OHB 145J12E0002S Black (I-O/ON-OFF)			OETLZX 74 145 mm (ON-OFF/I-O)
			OHY 65J5TE00S Yellow/red (TEST-I-O/ON-OFF)		OHY 65J6TE001S Red/yellow (TEST-I-O/ON-OFF)						OHY 145J12E0002S Red/yellow (I-O/ON-OFF)			
			OHG 65J5TE00S Grey (TEST-I-O)		OHG 65J6TE0001S Grey (TEST-I-O)						OHG 145J12E0002S Grey (I-O)			
Extended shafts			OXP5X265 / 265 mm		OXP6X150 / 150 mm	OXP6X290 / 290 mm	OXP6X430 / 430 mm				OXP12X185 / 185 mm	OXP12X280 / 280 mm	OXP12X395 / 395 mm	OXP12X535 / 535 mm
			OXP5X170 / 170 mm	OXP5X400 / 400 mm	OXP6X210 / 210 mm	OXP6X360 / 360 mm					OXP12X250 / 250 mm	OXP12X350 / 350 mm	OXP12X465 / 465 mm	

Remarks: 1) Some fuse links limit these figures further. Starting current characteristics must be considered separately.