DATA SHEET

Selective Main Circuit-Breakers

S 750 DR series acc. to IEC/EN 60947-2

Selective main circuit-breakers (SMCB) of the S 750 DR series are circuit-breakers with particular selectivity functions based on voltage-independent operating principle. This means that they do not rely on a control circuit to make or break contact and are therefore particularly suitable for use in energy distribution-systems with maximum availability requirements. The unique working principle of “current limiting selectivity” offers new approaches for coordination of overcurrent protective devices.

- High short-circuit breaking capability of 25 kA over the complete rated current range
- High energy-limiting capacity by current-limiting selectivity without any configuration
- Suitable for selective overcurrent protection in generalpurpose electric main distribution boards
- Suitable to disconnect and isolate electric circuits
- Voltage-independent function (no connection to neutral)
- Applicable in installations acc. to: overvoltage category I ... IV, pollution degree 1 ... 3
- For DIN rail mounting
- Isolation function according to IEC 60364-5-53
- Additional contact position indicator RED = ON ; GREEN = OFF
- Lockable and sealable
- For operation by ordinary people

Fields of application

- As main isolating device in meter boards for downstream customer´s installation
- In main distribution boards or switchgear as a selective group or back-up protection device, especially where a high degree of continuity of supply is required, e.g. for installations related to “Safety Services” (IEC 60346-5-56), “Medical Locations” (IEC 60364-7-710) etc.
- For general applications: tripping characteristic E
- For the protection of circuits where high current peaks occur (e.g. inrush currents): tripping characteristic K

Purpose

- Ensure power supply capability over a large temperature range
- Protect wires and cables in case of operational overload or short-circuit
- Additional limitation of let-through current and let-through energy in case of short-circuit tripping in final circuit and therefore less stress for the installation
- Disconnection and isolation of the system, also by ordinary people
- Special selectivity with respect to downstream circuit breakers and upstream fuses
- Ensure a high availability of the electrical power supply

Function

Selective Main Circuit-Breaker series S 750 DR

Selective main circuit-breakers of the S 750 DR series are SMCBs based on DIN VDE 0641-21 with voltage-independent operating principle. This means that they do not rely on a control circuit to make or break contact (SHU) and are therefore particularly suitable for use in energy distribution-systems with maximum availability requirements. They offer total selectivity to downstream MCBs and outstanding selectivity to upstream protective devices due to unique current limiting selectivity.

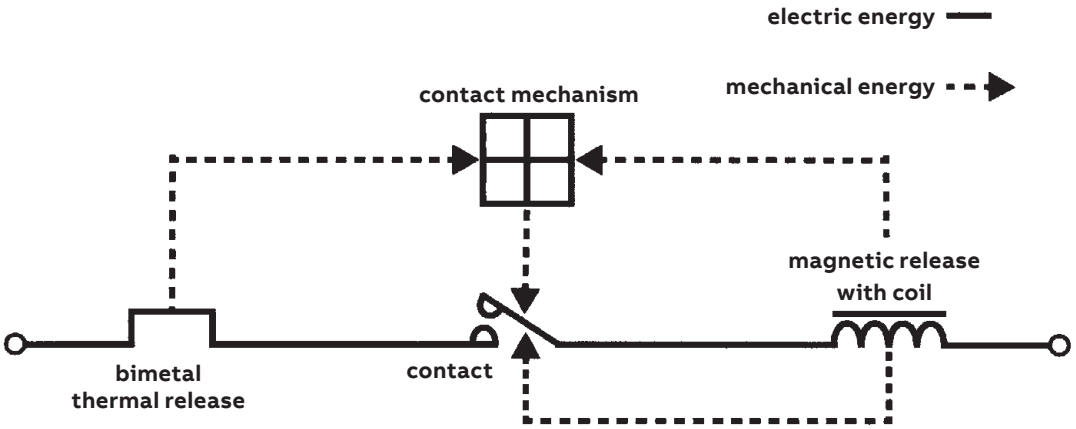
For overload tripping, a thermostatic bimetal is used. As usual for circuit-breaker, it is necessary to separate the main contacts in a time less than 1ms by using a short-circuit "hammer trip" solenoid to ensure effective short-circuit limitation. When the downstream protection device has tripped because of a short-circuit, the contact tips reclose automatically through a simple spring-type system without requiring auxiliary energy.

If a short-circuit occurs between the S 750 DR and the downstream circuit-breaker, another bimetal release enables short-time delayed tripping. Both the selective release and the overload release trip the mechanism and ensure that the contact tips remain in the open position enabling isolating.

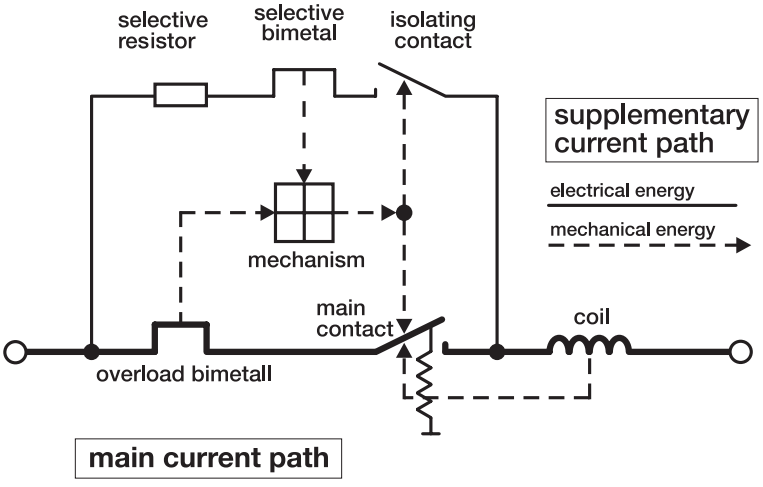
The current is limited and the arc is quenched as in the case of standard circuit-breakers by means of quick contact opening by a "hammer trip" solenoid and quick build-up of the arc voltage in the quenching chamber.

This operating principle achieves a particularly high selective behaviour – the current-limiting selectivity. In case of short- circuit in final circuits, the S 750 DR supports the downstream circuit breaker and limits the energy and thus minimizes the impact on the whole installation and the feeding supply network. This selective behaviour of the S 750 DR offers major advantages compared to fuse-based technologies.

Operating principle of a circuit-breaker



Operating principle of the selective main circuit breaker S 750 DR

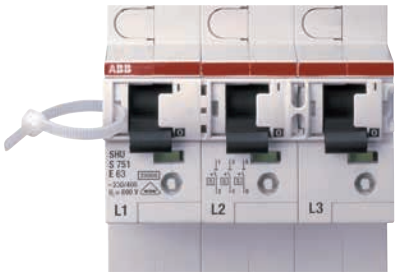


Function

Selective Main Circuit-Breaker series S 750 DR

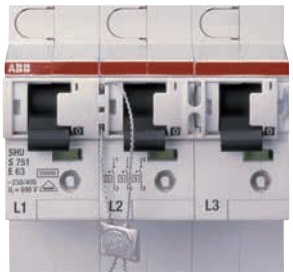
ABB's S 750 DR is used as a reliable group protection device worldwide. S 750 DR is the right choice when it comes to selectivity for critical power application such as hospitals, airports and data center. But also in residential application SMCB technology has big advantages. In Germany SMCB technology became the standard choice for meter board application where the products works as a group protection device for downstream circuits.
In order to avoid unauthorized manual switching the S 750 DR. The S 750 DR is provided with an integrated locking tab which makes it possible to block the all poles simultaneously. The integrated locking tab locks the circuit-breaker in ON or OFF position and can be additionally protected by a padlock, wire seal or cable tie. When locked in ON position, the protective function is maintained in case of a fault: The blocked switch handle still permits the tripping of the mechanism and opening of the contacts in case of overload or short-circuit (trip-free mechanism). The indicator shows "green" also in case of a fault with ON position locked – giving you the certainty that power is switched off.

Protecting the locked position with a cable tie



Protecting the locked position with a padlock

Protecting the locked position with a wire seal



Furthermore ABB offers the auxiliary contact for the S 750 DR range. S 750 DR-AUX is a two change-over contact that indicates the contact position of the S 750 DR pole(s) independently and potential-free. This helps to easily monitor individual circuits

Technical data

Selective Main Circuit-Breaker series S 750 DR

General Data		**S 750 DR**
Standards		IEC/EN 60947-2
Poles		1-, 2-, 3-, 4-pole
Rated current I_n	A	16…100
Rated frequency f	Hz	50 / 60
Electrical Data acc. to IEC/EN 60947-2		
Rated operational voltage U_e	V AC	230 (1-pole), 400 (2-, 3-, 4-pole)
Rated breaking capacity I_{cu}	kA	25
Rated service breaking capacity I_{cs}	kA	12.5
Rated insulation voltage U_i	V	690
Selectivity limit current I_{s1}	kA	rated breaking capacity of downstream breaker (min.) – see selectivity tables
Overvoltage category		IV
Pollution degree		3
Rated impulse withstand voltage U_{imp}	kV	6
Impulse withstand voltage acc. to IEC 60364-5-53 (at 2000m above sea level)	kV	8
Impulse withstand test voltage (1.2 / 50 µs)	kV	9.8
Isolation function acc. to IEC 60364-53		yes
Dielectric test voltage (50 / 60 Hz, 1 min.)	kV	2 (50 / 60 Hz, 1 min.)
Mechanical Data		
Contact position indication		via toggle (I-ON / O-OFF), via trip indicator (red-ON / green-OFF)
IP protection degree acc. to IEC / EN 60529		IP40 (when protected by cabinet cover)
Shock resistance acc. to IEC / EN 60068-2-27		25 g, min. 3 shocks, duration 13 ms
Vibration resistance acc. to IEC/EN 60068-2-6		2 g, 20 cycles 5…150…5 Hz
Environmental conditions (damp heat cyclic) acc. to IEC / EN 60068-2-30	°C / RH	28 cycles: 55 / 90…96 – 25 / 95…100
Ambient temperature	°C	-25 … +55
Storage temperature	°C	-40 … +70
Installation		
Wire connection (Top)		frame terminal to connect solid and rigid stranded conductors incl. flexible conductors 2.5…50 mm²
Wire connection (Bottom)		frame terminal to connect solid and rigid stranded conductors incl. flexible conductors 2.5…50 mm²
Max. torque	Nm	2.5 … 3
Recommended Screwdriver		slotted: 1 x 5.5, Pozidrive: PZ 2
Mounting		DIN rail 35 mm acc. to EN 60715
Locking		integrated blocking device, additional locking by 3 mm padlock, 1mm seal wire or cabel binder
Mouting position		any
Supply		any
Dimensions and weight		
Pole dimensions (H x T x B)	mm	see drawings
Pole weight	g	see order tables
Accessories		
		3 mm padlock
		auxiliary contact S750DR-aux

Technical data

Selective Main Circuit-Breaker series S 750 DR

Tripping behavior

		delayed overload tripping			short-time delayed short-circuit tripping		
tripping characteristic	reference ambient temperature T_{ref} [1]	conventional non-tripping current I_{nt}	conventional tripping current I_t	tripping time t	delayed tripping current I_{tv}	short-time delayed tripping current I_{tk}	tripping time t
							0.05 s < t < 5 s ($I_n \leq 32$ A)
		1.05 x I_n		≥ 2 h	5 x I_n		0.05 s < t < 10 s ($I_n \leq 32$ A)
E selective	30°C		1.2 x I_n	< 2 h		6.25 x I_n	0.01 s < t < 0.3 s
		1.05 x I_n		≥ 2 h	8 x I_n		0.05 s < t < 15 s
K selective	30°C		1.2 x I_n	< 2 h		12 x I_n	0.01 s < t < 0.3 s

[1] Reference ambient temperature 30 °C (in the case of higher ambient temperatures, the current values are reduced by ca. 5 % per each 10 K) Internal resistance

Deviating ambient temperature

Tripping characteristic	Rated current I_n / A	Maximum operating current at ambient temperature T							
		-20°C	-10°C	0°C	+10°C	+20°C	+30°C	+40°C	+50°C
	16	21.4	20.4	19.3	18.2	17.1	16.0	15.2	14.4
	20	26.8	25.4	24.1	22.7	21.4	20.0	19.0	18.0
	25	33.5	31.8	30.1	28.4	26.7	25.0	23.8	22.5
	32	42.9	40.7	38.5	36.4	34.2	32.0	30.4	28.8
	40	53.6	50.9	48.2	45.4	42.7	40.0	38.0	36.0
	50	67.0	63.6	60.2	56.8	53.4	50.0	47.5	45.1
	63	84.5	80.2	75.9	71.6	67.3	63.0	59.9	56.8
	80	107.2	101.8	96.3	90.9	85.4	80.0	76.0	72.1
E selective	100	134.1	127.2	120.4	113.6	106.8	100.0	95.1	90.1
	16	21.4	20.4	19.3	18.2	17.1	16.0	15.2	14.4
	20	26.8	25.4	24.1	22.7	21.4	20.0	19.0	18.0
	25	33.5	31.8	30.1	28.4	26.7	25.0	23.8	22.5
	32	42.9	40.7	38.5	36.4	34.2	32.0	30.4	28.8
	40	53.6	50.9	48.2	45.4	42.7	40.0	38.0	36.0
	50	67.0	63.6	60.2	56.8	53.4	50.0	47.5	45.1
	63	84.5	80.2	75.9	71.6	67.3	63.0	59.9	56.8
	80	107.2	101.8	96.3	90.9	85.4	80.0	76.0	72.1
K selective	100	134.1	127.2	120.4	113.6	106.8	100.0	95.1	90.1

Internal resistance and power loss per pole

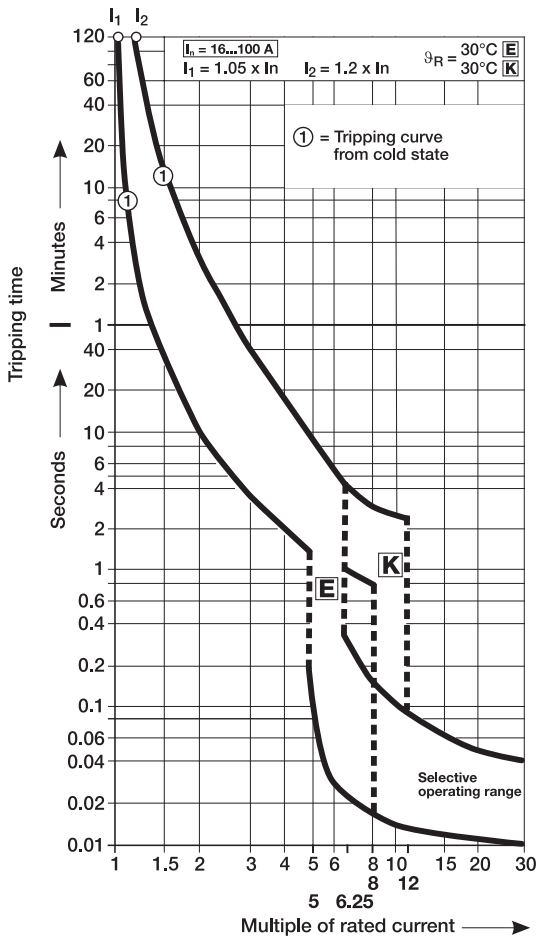
	S750DR E		S750DR K	
Rated current I_n / A	Internal resistance [1] R_i / mΩ	Power loss [2] P_V / W	Internal resistance [1] R_i / mΩ	Power loss [2] P_V / W
16	15.3	4.1	14.5	3.9
20	11.3	5.4	10.7	5.1
25	8.7	5.9	8.3	5.5
32	6.0	6.1	4.3	6.2
40	3.4	6.1	3.2	5.8
50	2.9	7.6	2.8	7.2
63	2.1	8.7	2.1	8.7
80	1.6	10.5	1.6	10.5
100	1.3	12.0	1.3	12.0

[1] in cold state
[2] at rated current

Tripping characteristics

Selective Main Circuit-Breaker series S 750 DR

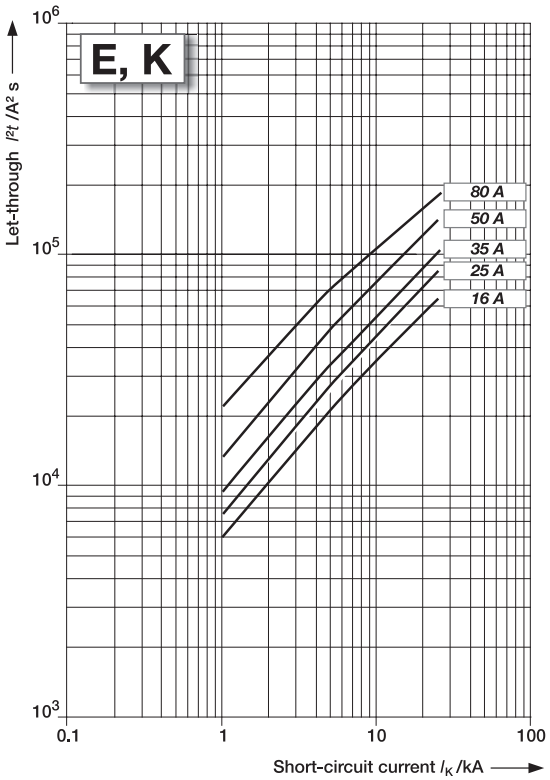
trip curve 16 ... 100 A

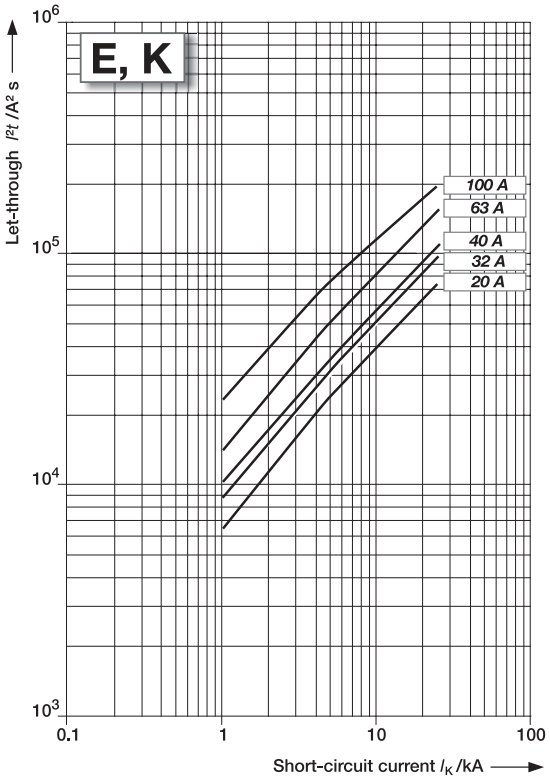


Let-through values

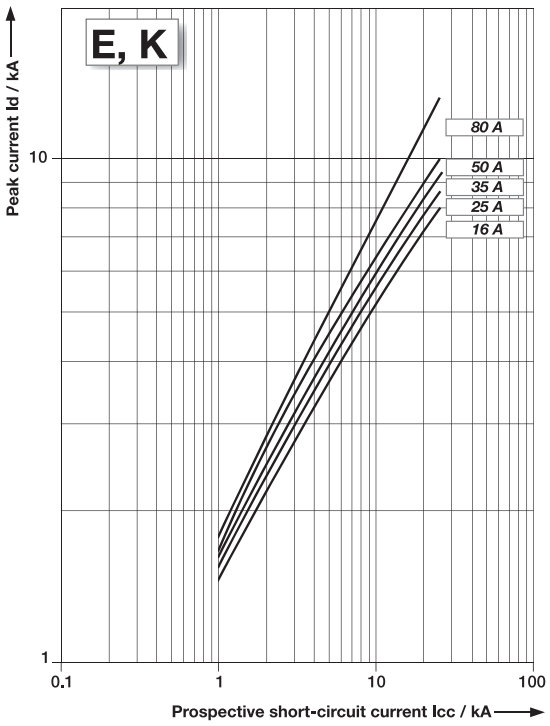
Selective Main Circuit-Breaker series S 750 DR

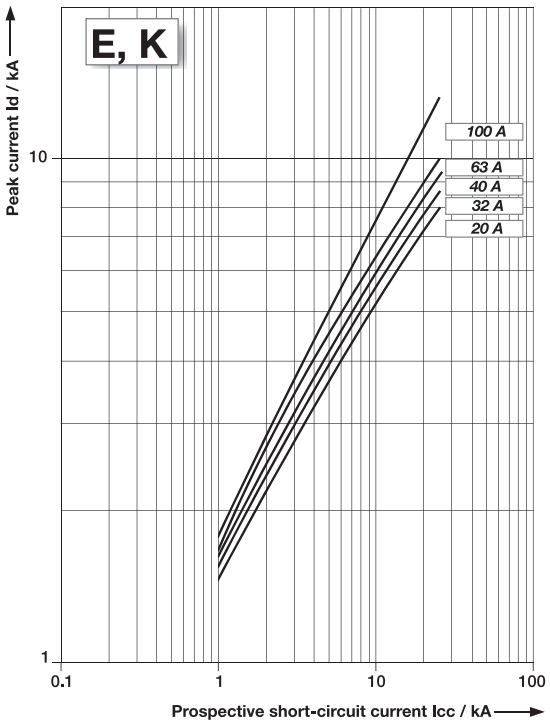
diagrams of let-through values I^2t 16…100 A





diagrams of let-through values I_D 16…100 A





Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

When ABB miniature circuit-breaker are used in combination with the S 750 DR, higher short-circuit currents can be disconnected than are indicated as permissible rated switching capacity of device. Considering the values given in the table, the S 750 DR operates selectively with respect to the combination with the final device. If other mcbs are used selectivity for 6 kA and 10 kA devices is available up to the rated switching capacity of the downstream device.

MCBs

Discrimination of S 750 DR with respect to downstream MCB S 200 / S 400 compared to fuse protection

		supply side:																			fuse
	Char.																				gG
final circuit:		I_{cn} [kA]									25										
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 S 400 E	B, C	6	<=2	10	10	10	10	10	10	10	10	10	0.3	0.7	1.2	4.6	5.0	10.0	10.0	10.0	10.0
			3	10	10	10	10	10	10	10	10	10	0.3	0.7	1.2	4.6	5.0	10.0	10.0	10.0	10.0
			4	10	10	10	10	10	10	10	10	10	0.3	0.6	0.9	2.8	3.5	6.0	10.0	10.0	10.0
			6	10	10	10	10	10	10	10	10	10	0.2	0.5	0.8	2.0	2.5	3.3	5.5	10.0	10.0
			8	10	10	10	10	10	10	10	10	10			0.7	1.5	2.0	2.5	3.5	5.0	6.0
			10	10	10	10	10	10	10	10	10	10			0.7	1.5	2.0	2.5	3.5	5.0	6.0
			13	10	10	10	10	10	10	10	10	10			0.7	1.5	2.0	2.5	3.5	5.0	6.0
			16		10	10	10	10	10	10	10	10				1.3	1.4	2.0	2.9	4.1	6.0
			20			10	10	10	10	10	10	10					0.7	1.8	2.6	3.5	5.0
			25				10	10	10	10	10	10					0.7	1.8	2.6	3.5	5.0
			32					10	10	10	10	10							2.2	3.0	4.0
			40						10	10	10	10							2.2	3.0	4.0
			50							10	10	10									3.5
			63								10	10									3.5

Discrimination of S 750 DR with respect to downstream MCB S 200 / S 400 compared to fuse protection

		supply side:																			fuse
	Char.																				gG
final circuit:		I_{cn} [kA]									25										
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 S 400 E	K	6	<=2	10	10	10	10	10	10	10	10	10	0.3	1.2	4.0	6.0	10.0	10.0	10.0	10.0	10.0
			3	10	10	10	10	10	10	10	10	10	0.3	0.7	1.2	4.6	5.0	10.0	10.0	10.0	10.0
			4	10	10	10	10	10	10	10	10	10	0.3	0.6	0.9	2.8	3.5	6.0	10.0	10.0	10.0
			6	10	10	10	10	10	10	10	10	10			0.7	1.7	2.5	3.0	5.9	9.0	10.0
			8	10	10	10	10	10	10	10	10	10			0.4	0.8	1.0	1.7	2.5	4.0	6.0
			10	10	10	10	10	10	10	10	10	10			0.4	0.8	1.0	1.7	2.5	4.0	6.0
			16		10	10	10	10	10	10	10	10				0.7	0.9	1.2	2.2	3.1	4.6
			20			10	10	10	10	10	10	10					0.7	1.1	1.7	2.6	3.5
			25				10	10	10	10	10	10					0.7	1.1	1.7	2.6	3.5
			32					10	10	10	10	10							1.5	2.2	3.5
			40						10	10	10	10							1.5	2.2	3.5
			50							10	10	10									2.2
			63								10	10									2.2

Limited overload selectivity

Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

MCBs

Discrimination of S 750 DR with respect to downstream MCB S 200 / S 400 compared to fuse protection

		supply side:								S 750 DR									fuse
	Char.									E / K									gG
final circuit:		I_{cn} [kA]								25									
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200	Z	6	<=2	10	10	10	10	10	10	10	10	10	0.5	2.0	6.0	6.0	10.0	10.0	10.0	10.0	10.0
S 400 E			3	10	10	10	10	10	10	10	10	10	0.3	0.7	1.8	6.0	10.0	10.0	10.0	10.0	10.0
			4	10	10	10	10	10	10	10	10	10	0.3	0.6	1.3	3.5	4.0	7.0	10.0	10.0	10.0
			6	10	10	10	10	10	10	10	10	10	0.2	0.5	0.9	1.3	2.7	3.8	6.0	10.0	10.0
			8	10	10	10	10	10	10	10	10	10		0.4	0.6	1.3	1.5	2.4	4.0	6.0	6.0
			10	10	10	10	10	10	10	10	10	10		0.4	0.6	1.3	1.5	2.4	4.0	6.0	6.0
			16		10	10	10	10	10	10	10	10			0.5	1.1	1.5	1.7	3.0	4.5	6.0
			20			10	10	10	10	10	10	10					0.7	1.4	2.0	3.0	4.4
			25				10	10	10	10	10	10					0.7	1.4	2.0	3.0	4.4
			32					10	10	10	10	10							2.0	3.0	4.0
			40						10	10	10	10							2.0	3.0	4.0
			50							10	10	10									3.0
			63								10	10									3.0

MCBs

Discrimination of S 750 DR with respect to downstream MCB S 200 M / S 400 M compared to fuse protection

		supply side:								S 750 DR									fuse
	Char.									E / K									gG
final circuit:		I_{cn} [kA]								25									
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 M	B, C	10	<=2	15	15	15	15	15	15	15	15	15	1.0	1.2	4.0	10.0	10.0	15.0	15.0	15.0	15.0
S 400 M			3	15	15	15	15	15	15	15	15	15	0.3	0.7	1.2	4.6	5.0	15.0	15.0	15.0	15.0
			4	15	15	15	15	15	15	15	15	15	0.3	0.6	0.9	2.8	3.5	6.0	15.0	15.0	15.0
			6	15	15	15	15	15	15	15	15	15	0.2	0.5	0.8	2.0	2.5	3.3	5.5	15.0	15.0
			8	15	15	15	15	15	15	15	15	15			0.7	1.5	2.0	2.5	3.5	5.0	6.0
			10	15	15	15	15	15	15	15	15	15			0.7	1.5	2.0	2.5	3.5	5.0	6.0
			13	15	15	15	15	15	15	15	15	15			0.7	1.5	2.0	2.5	3.5	5.0	6.0
			16		15	15	15	15	15	15	15	15				1.3	1.4	2.0	2.9	4.1	6.0
			20			15	15	15	15	15	15	15					0.7	1.8	2.6	3.5	5.0
			25				15	15	15	15	15	15					0.7	1.8	2.6	3.5	5.0
			32					15	15	15	15	15							2.2	3.0	4.0
			40						15	15	15	15							2.2	3.0	4.0
			50							15	15	15									3.5
			63								15	15									3.5

Discrimination of S 750 DR with respect to downstream MCB S 200 M / S 400 M compared to fuse protection

		supply side:								S 750 DR									fuse
	Char.									E / K									gG
final circuit:		I_{cn} [kA]								25									
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 M	K	10	<=2	15	15	15	15	15	15	15	15	15	0.3	1.2	4.0	10.0	10.0	15.0	15.0	15.0	15.0
S 400 M			3	15	15	15	15	15	15	15	15	15	0.3	0.7	1.2	4.6	5.0	15.0	15.0	15.0	15.0
			4	15	15	15	15	15	15	15	15	15	0.3	0.6	0.9	2.8	3.5	6.0	15.0	15.0	15.0
			6	15	15	15	15	15	15	15	15	15			0.7	1.7	2.5	3.0	5.9	9.0	15.0
			8	15	15	15	15	15	15	15	15	15			0.4	0.8	1.0	1.7	2.5	4.0	6.0
			10	15	15	15	15	15	15	15	15	15			0.4	0.8	1.0	1.7	2.5	4.0	6.0
			16		15	15	15	15	15	15	15	15				0.7	0.9	1.2	2.2	3.1	4.6
			20			15	15	15	15	15	15	15					0.7	1.1	1.7	2.6	3.5
			25				15	15	15	15	15	15					0.7	1.1	1.7	2.6	3.5
			32					15	15	15	15	15							1.5	2.2	3.5
			40						15	15	15	15							1.5	2.2	3.5
			50							15	15	15									2.2
			63								15	15									2.2

Limited overload selectivity

Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

MCBs

Discrimination of S750 DR with respect to downstream MCB S 200 M / S 400 M compared to fuse protection

		supply side:																			
	Char.																				
final circuit:		I_{cn} [kA]																			
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 M	Z	10	<=2	15	15	15	15	15	15	15	15	15	0.5	2.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0
S 400 M			3	15	15	15	15	15	15	15	15	15	0.3	0.7	1.8	6.0	15.0	15.0	15.0	15.0	15.0
			4	15	15	15	15	15	15	15	15	15	0.3	0.6	1.3	3.5	4.0	7.0	15.0	15.0	15.0
			6	15	15	15	15	15	15	15	15	15	0.2	0.5	0.9	1.3	2.7	3.8	6.0	15.0	15.0
			8	15	15	15	15	15	15	15	15	15		0.4	0.6	1.3	1.5	2.4	4.0	6.0	6.0
			10	15	15	15	15	15	15	15	15	15		0.4	0.6	1.3	1.5	2.4	4.0	6.0	6.0
			16		15	15	15	15	15	15	15	15			0.5	1.1	1.5	1.7	3.0	4.5	6.0
			20			15	15	15	15	15	15	15					0.7	1.4	2.0	3.0	4.4
			25				15	15	15	15	15	15					0.7	1.4	2.0	3.0	4.4
			32					15	15	15	15	15							2.0	3.0	4.0
			40						15	15	15	15							2.0	3.0	4.0
			50							15	15	15									3.0
			63								15	15									3.0

MCBs

Discrimination of S 750 DR with respect to downstream MCB S 200 P compared to fuse protection

		supply side:																			
	Char.																				
final circuit:		I_{cn} [kA]																			
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 P	B	25	6	25	25	25	25	25	25	25	25	25	0.2	0.4	0.6	1.3	2.5	3.0	5.5	12.0	25.0
			10	25	25	25	25	25	25	25	25	25			0.6	1.0	1.5	1.8	2.5	3.7	5.5
			13	25	25	25	25	25	25	25	25	25			0.6	1.0	1.5	1.8	2.5	3.7	5.5
			16		25	25	25	25	25	25	25	25				1.0	1.4	1.6	2.0	3.0	5.0
			20			25	25	25	25	25	25	25					0.7	1.5	2.0	3.0	4.0
			25				25	25	25	25	25	25					0.7	1.5	2.0	3.0	4.0
		15	32					15	15	15	15	15							1.9	2.7	3.5
			40						15	15	15	15							1.9	2.7	3.5
			50							15	15	15								2.7	3.4
			63								15	15								2.7	3.4

Discrimination of S 750 DR with respect to downstream MCB S 200 P compared to fuse protection

		supply side:																			
	Char.																				
final circuit:		I_{cn} [kA]																			
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 P	C	25	<=2	25	25	25	25	25	25	25	25	25	0.3	0.8	1.5	6.0	10.0	25.0	25.0	25.0	25.0
			3	25	25	25	25	25	25	25	25	25	0.3	0.8	1.5	6.0	10.0	25.0	25.0	25.0	25.0
			4	25	25	25	25	25	25	25	25	25	0.3	0.6	1.0	3.3	4.0	6.0	25.0	25.0	25.0
			6	25	25	25	25	25	25	25	25	25	0.2	0.4	0.6	1.3	2.5	3.0	5.5	12.0	25.0
			8	25	25	25	25	25	25	25	25	25			0.6	1.0	1.5	1.8	2.5	3.7	5.5
			10	25	25	25	25	25	25	25	25	25			0.6	1.0	1.5	1.8	2.5	3.7	5.5
			13	25	25	25	25	25	25	25	25	25			0.6	1.0	1.5	1.8	2.5	3.7	5.5
			16		25	25	25	25	25	25	25	25				1.0	1.4	1.6	2.0	3.0	5.0
			20			25	25	25	25	25	25	25					0.7	1.5	2.0	3.0	4.0
			25				25	25	25	25	25	25					0.7	1.5	2.0	3.0	4.0
		15	32					15	15	15	15	15							1.9	2.7	3.5
			40						15	15	15	15							1.9	2.7	3.5
			50							15	15	15								2.7	3.4
			63								15	15								2.7	3.4

Limited overload selectivity

Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

MCBs

Discrimination of S 750 DR with respect to downstream MCB S 200 P compared to fuse protection

		supply side:								S 750 DR									fuse
	Char.									E / K									gG
final circuit:		I_{cn} [kA]								25									
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 P	K	25	<=2	25	25	25	25	25	25	25	25	25	0.3	0.8	1.5	6.0	7.5	25.0	25.0	25.0	25.0
			3	25	25	25	25	25	25	25	25	25	0.3	0.8	1.5	6.0	7.5	25.0	25.0	25.0	25.0
			4	25	25	25	25	25	25	25	25	25	0.3	0.6	1.0	3.3	3.5	6.0	25.0	25.0	25.0
			6	25	25	25	25	25	25	25	25	25			0.6	1.3	1.5	3.0	5.5	9.0	25.0
			8	25	25	25	25	25	25	25	25	25			0.4	0.8	1.0	1.6	2.2	3.2	5.5
			10	25	25	25	25	25	25	25	25	25			0.4	0.8	1.0	1.6	2.2	3.2	5.5
			13	25	25	25	25	25	25	25	25	25			0.4	0.8	1.0	1.6	2.2	3.2	5.5
			16		25	25	25	25	25	25	25	25				0.7	0.9	1.5	2.0	3.0	5.0
			20			25	25	25	25	25	25	25					0.7	1.1	1.7	2.5	3.5
			25				25	25	25	25	25	25					0.7	1.1	1.7	2.5	3.5
		15	32					15	15	15	15	15							1.5	2.2	3.1
			40						15	15	15	15							1.5	2.2	3.1
			50							15	15	15									2.2
			63								15	15									2.2

Discrimination of S 750 DR with respect to downstream MCB S 200 P compared to fuse protection

		supply side:								S 750 DR									fuse
	Char.									E / K									gG
final circuit:		I_{cn} [kA]								25									
			I_n [A]	16	20	25	32	40	50	63	80	100	16	20	25	35	40	50	63	80	100
S 200 P	Z	25	<=2	25	25	25	25	25	25	25	25	25	0.3	0.6	1.8	4.0	25.0	25.0	25.0	25.0	25.0
			3	25	25	25	25	25	25	25	25	25	0.3	0.6	1.8	4.0	25.0	25.0	25.0	25.0	25.0
			4	25	25	25	25	25	25	25	25	25	0.3	0.6	0.8	2.5	4.0	7.0	25.0	25.0	25.0
			6	25	25	25	25	25	25	25	25	25			0.6	1.3	2.0	2.8	6.0	25.0	25.0
			8	25	25	25	25	25	25	25	25	25			0.4	0.8	1.2	1.5	2.3	3.7	6.0
			10	25	25	25	25	25	25	25	25	25			0.4	0.8	1.2	1.5	2.3	3.7	6.0
			16		25	25	25	25	25	25	25	25				0.7	0.9	1.5	1.9	2.9	4.5
			20			25	25	25	25	25	25	25					0.7	1.3	2.0	2.8	4.4
			25				25	25	25	25	25	25					0.7	1.3	2.0	2.8	4.4
		15	32					15	15	15	15	15							1.8	2.7	4.0
			40						15	15	15	15							1.8	2.7	4.0
			50							15	15	15									3.0
			63								15	15									3.0

Limited overload selectivity

Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

Discrimination (in kA) apply for combinations [1]: fuse gL / gG – S 750 DR – S 200 / S 400 E

MCBs

		fuse:	63 A gG				80 A gG					100 A gG						125 A gG						160 A gG					
		supply side:	S 750 DR E / K																										
final circuit:	Char.	I_{cn} [kA]	25																										
		I_n [A]	32	40	50	63	32	40	50	63	80	32	40	50	63	80	100	32	40	50	63	80	100	32	40	50	63	80	100
S 200 S 400 E	B, C, D, K, Z	6	<=2	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			4	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			8	7	6	6	5	10	10	10	8	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			10	7	6	6	5	10	10	10	8	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			13	6	6	6	5	9	8	8	7	6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			16	6	6	6	5	9	8	8	7	6	10	10	10	10	9	8	10	10	10	10	10	10	10	10	10	10	10
			20	5	5	4,5	4,5	6	7	7	6,5	5,5	10	10	10	10	9	8	10	10	10	10	10	10	10	10	10	10	10
			25		4,5	4,5	4		7	6	6	5,5		10	10	10	9	8		10	10	10	10	10		10	10	10	10	10
			32			4	3,5			6	5,5	5			9	9	8	7			10	10	10	10			10	10	10	10
			40				3				5	4				8	7	6				10	10	10				10	10	10
			50									2					5	4					10	10					10	10
			63															4					9						10

[1] The selectivity limit current I_{s1} results from the let-through I^2t-value of S 750 DR plus S 200 / S 400 and the pre-arcing (melting) I^2t-value of a fuse acc. to IEC / EN 60269.

Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

Discrimination (in kA) apply for combinations [1]: fuse gL / gG – S 750 DR – S 200 M / S 400 M

MCBs

final circuit:	Char.	I_{cn} [kA]	fuse:	63 A gG				80 A gG					100 A gG						>=125A gG						160 A gG					
			supply side:	S 750 DR E / K																										
			I_n [A]	32	40	50	63	32	40	50	63	80	32	40	50	63	80	100	32	40	50	63	80	100	32	40	50	63	80	100
				25																										
S 200 M S 400 M	B, C, D, K, Z	10	<=2	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			3	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			4	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			6	10	10	10	10	15	15	15	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			8	7	6	6	5	10	10	10	8	7	15	15	15	15	15	14	15	15	15	15	15	15	15	15	15	15	15	15
			10	7	6	6	5	10	10	10	8	7	15	15	15	15	15	14	15	15	15	15	15	15	15	15	15	15	15	15
			13	6	6	6	5	9	8	8	7	6	10	10	10	10	15	14	15	15	15	15	15	15	15	15	15	15	15	15
			16	6	6	6	5	9	8	8	7	6	10	10	10	10	9	8	15	15	15	15	15	15	15	15	15	15	15	15
			20	5	5	4,5	4,5	6	7	7	6,5	5,5	10	10	10	10	9	8	15	15	15	15	15	15	15	15	15	15	15	15
			25		4,5	4,5	4		7	6	6	5,5		10	10	10	9	8		15	15	15	15	12		15	15	15	15	15
			32			4	3,5			6	5,5	5			9	9	8	7			15	15	15	12			15	15	15	15
			40				3				5	4				8	7	6				14	12	10				15	15	15
			50									2					5	4					10	10					15	15
			63															4						9						15

[1] The selectivity limit current I_{s1} results from the let-through I^2t-value of S 750 DR plus S 200 M / S 400 M and the pre-arcing (melting) I^2t-value of a fuse acc. to IEC / EN 60269.

Short-circuit selectivity

Selective Main Circuit-Breaker series S 750 DR

Discrimination (in kA) apply for combinations [1]: fuse gL / gG – S 750 DR – S 200 P

MCBs

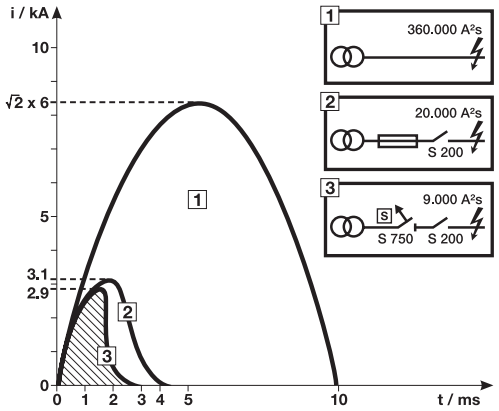
		fuse:	63 A gG				80 A gG					100 A gG						125 A gG						160 A gG					
		supply side:	S 750 DR E / K																										
final circuit:	Char.	I_{cn} [kA]	25																										
		I_n [A]	32	40	50	63	32	40	50	63	80	32	40	50	63	80	100	32	40	50	63	80	100	32	40	50	63	80	100
S 200 P	B, C, D, K, Z	25	<=2	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			4	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			8	7	6	6	5	10	10	10	8	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			10	7	6	6	5	10	10	10	8	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			13	6	6	6	5	9	8	8	7	6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			16	6	6	6	5	9	8	8	7	6	10	10	10	10	9	8	10	10	10	10	10	10	10	10	10	10	10
			20	5	5	4,5	4,5	6	7	7	6,5	5,5	10	10	10	10	9	8	10	10	10	10	10	10	10	10	10	10	10	10
		15	25		4,5	4,5	4		7	6	6	5,5		10	10	10	9	8		10	10	10	10	10		10	10	10	10	10
			32			4	3,5			6	5,5	5			9	9	8	7			10	10	10	10			10	10	10	10
			40				3				5	4				8	7	6				10	10	10				10	10	10
			50									2					5	4					10	10					10	10
			63															4					9						10

[1] The selectivity limit current Is1 results from the let-through I^2t-value of S 750 DR plus S 200 P and the pre-arcing (melting) I^2t-value of a fuse acc. to IEC / EN 60269.

Energy limitation

S 750 DR selective main circuit breakers operate in such a way that they support cascaded downstream mcbs when a short-circuit occurs. Its energy-limiting features preserve the installation and reduce harmful repercussions on the network of the operator to a minimum.

Independant of current rating of S 750 DR, short-circuit selectivity of up to 10,000 A or even higher is available for the downstream miniature circuit-breakers.



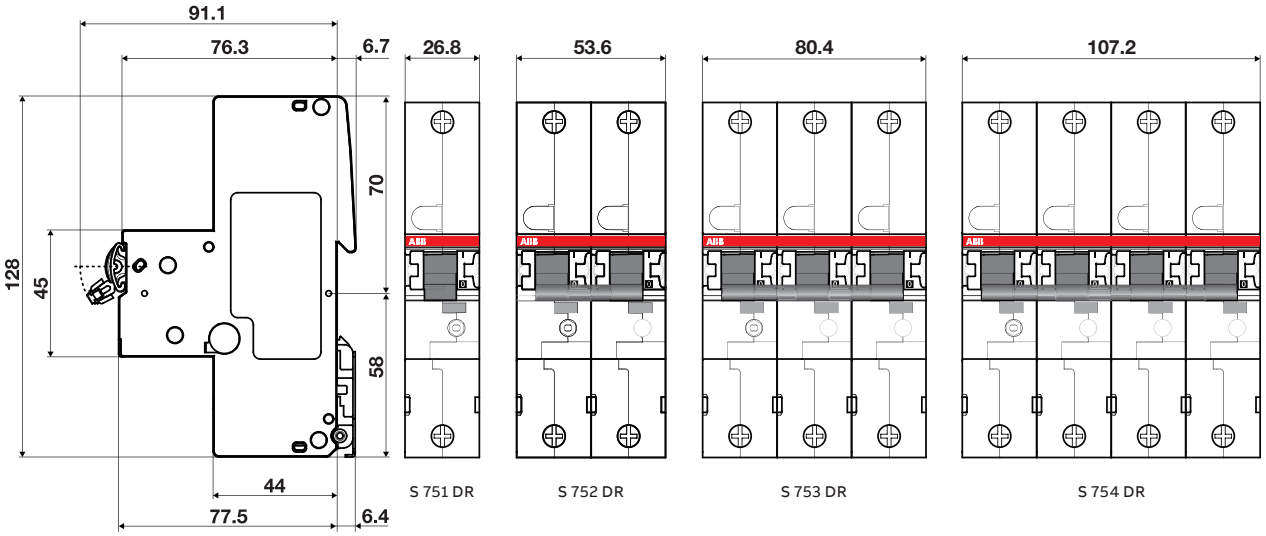
Back-up protection

Main circuit breakers of the S 750 DR series are capable of switching off short-circuit currents of up to 25 kA automatically in networks with a rated voltage of 230 / 400 V. Back-up protection is only necessary if the prospective short-circuit current may exceed 25 kA prosp. at the installation point. Further information on back-up protection is available on request.

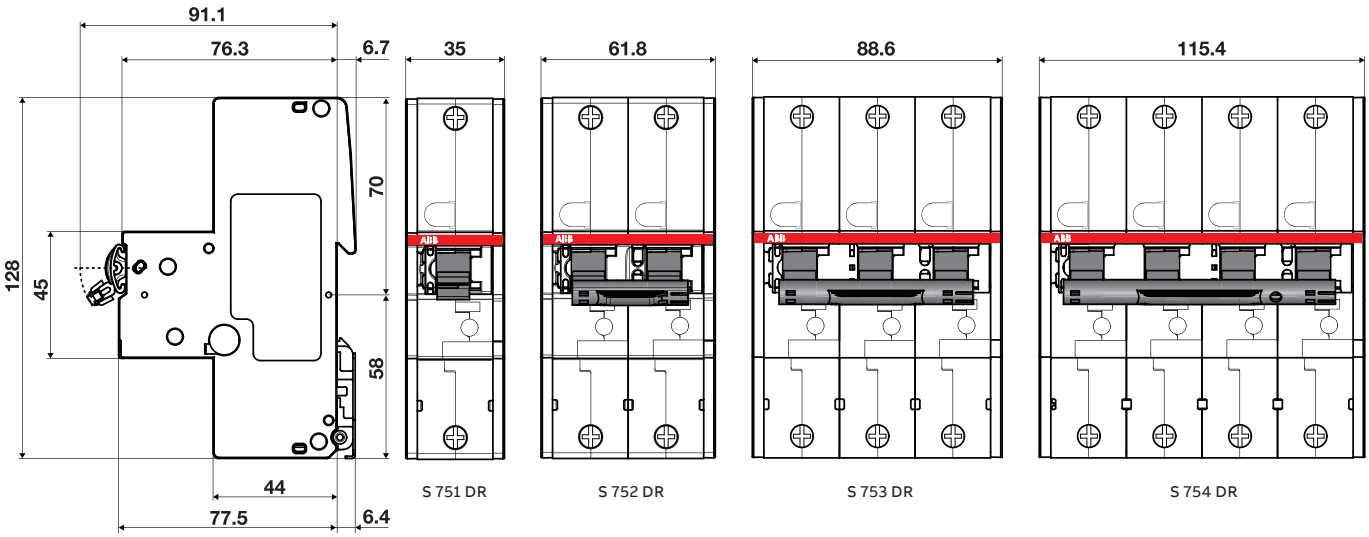
Dimensional drawing

Selective Main Circuit-Breaker series S 750 DR

S 750 DR 16...63A



S 750 DR 80/100A



Selective Main Circuit-Breaker series S 750 DR

Order data S 750 DR, Tripping characteristic E

E selektiv

No. of poles	Rated current	Order details		EAN 4016779	Weight	pack. unit
	I_n A	Type	Order code		1 pc. kg	pc.
S 751 DR						
1	16	S751DR-E16	2CDH781010R0162	878968	0.35	3
1	20	S751DR-E20	2CDH781010R0202	878975	0.35	3
1	25	S751DR-E25	2CDH781010R0252	878982	0.35	3
1	32	S751DR-E32	2CDH781010R0322	878999	0.35	3
1	40	S751DR-E40	2CDH781010R0402	879019	0.35	3
1	50	S751DR-E50	2CDH781010R0502	879026	0.35	3
1	63	S751DR-E63	2CDH781010R0632	879033	0.35	3
1	80	S751DR-E80	2CDH781010R0802	879040	0.4	3
1	100	S751DR-E100	2CDH781010R0822	879057	0.4	3
S 752 DR						
2	16	S752DR-E16	2CDH782010R0162	879361	0.7	2
2	20	S752DR-E20	2CDH782010R0202	879378	0.7	2
2	25	S752DR-E25	2CDH782010R0252	879385	0.7	2
2	32	S752DR-E32	2CDH782010R0322	879392	0.7	2
2	40	S752DR-E40	2CDH782010R0402	879415	0.7	2
2	50	S752DR-E50	2CDH782010R0502	879422	0.7	2
2	63	S752DR-E63	2CDH782010R0632	879439	0.7	2
2	80	S752DR-E80	2CDH782010R0802	879446	0.75	2
2	100	S752DR-E100	2CDH782010R0822	879453	0.75	2
S 753 DR						
3	16	S753DR-E16	2CDH783010R0162	879569	1.05	1
3	20	S753DR-E20	2CDH783010R0202	879576	1.05	1
3	25	S753DR-E25	2CDH783010R0252	879583	1.05	1
3	32	S753DR-E32	2CDH783010R0322	879590	1.05	1
3	40	S753DR-E40	2CDH783010R0402	879613	1.05	1
3	50	S753DR-E50	2CDH783010R0502	879620	1.05	1
3	63	S753DR-E63	2CDH783010R0632	879637	1.05	1
3	80	S753DR-E80	2CDH783010R0802	879644	1.1	1
3	100	S753DR-E100	2CDH783010R0822	879651	1.1	1
S 754 DR						
4	16	S754DR-E16	2CDH784010R0162	879767	1.4	1
4	20	S754DR-E20	2CDH784010R0202	879774	1.4	1
4	25	S754DR-E25	2CDH784010R0252	879781	1.4	1
4	32	S754DR-E32	2CDH784010R0322	879798	1.4	1
4	40	S754DR-E40	2CDH784010R0402	879811	1.4	1
4	50	S754DR-E50	2CDH784010R0502	879828	1.4	1
4	63	S754DR-E63	2CDH784010R0632	879835	1.4	1
4	80	S754DR-E80	2CDH784010R0802	879842	1.45	1
4	100	S754DR-E100	2CDH784010R0822	879859	1.45	1

Selective Main Circuit-Breaker series S 750 DR

Order data S 750 DR, Tripping characteristic K

K selektiv

No. of poles	Rated current	Order details		EAN 4016779	Weight	pack. unit
	I_n A	Type	Order code		1 pc. kg	pc.
S 751 DR						
1	16	S751DR-K16	2CDH781010R0467	879064	0.35	3
1	20	S751DR-K20	2CDH781010R0487	879071	0.35	3
1	25	S751DR-K25	2CDH781010R0517	879088	0.35	3
1	32	S751DR-K32	2CDH781010R0537	879095	0.35	3
1	40	S751DR-K40	2CDH781010R0557	879118	0.35	3
1	50	S751DR-K50	2CDH781010R0577	879125	0.35	3
1	63	S751DR-K63	2CDH781010R0607	879132	0.35	3
1	80	S751DR-K80	2CDH781010R0627	879149	0.4	3
1	100	S751DR-K100	2CDH781010R0637	879156	0.4	3
S 752 DR						
2	16	S752DR-K16	2CDH782010R0467	879460	0.7	2
2	20	S752DR-K20	2CDH782010R0487	879477	0.7	2
2	25	S752DR-K25	2CDH782010R0517	879484	0.7	2
2	32	S752DR-K32	2CDH782010R0537	879491	0.7	2
2	40	S752DR-K40	2CDH782010R0557	879514	0.7	2
2	50	S752DR-K50	2CDH782010R0577	879521	0.7	2
2	63	S752DR-K63	2CDH782010R0607	879538	0.7	2
2	80	S752DR-K80	2CDH782010R0627	879545	0.75	2
2	100	S752DR-K100	2CDH782010R0637	879552	0.75	2
S 753 DR						
3	16	S753DR-K16	2CDH783010R0467	879668	1.05	1
3	20	S753DR-K20	2CDH783010R0487	879675	1.05	1
3	25	S753DR-K25	2CDH783010R0517	879682	1.05	1
3	32	S753DR-K32	2CDH783010R0537	879699	1.05	1
3	40	S753DR-K40	2CDH783010R0557	879712	1.05	1
3	50	S753DR-K50	2CDH783010R0577	879729	1.05	1
3	63	S753DR-K63	2CDH783010R0607	879736	1.05	1
3	80	S753DR-K80	2CDH783010R0627	879743	1.1	1
3	100	S753DR-K100	2CDH783010R0637	879750	1.1	1
S 754 DR						
4	16	S754DR-K16	2CDH784010R0467	879866	1.4	1
4	20	S754DR-K20	2CDH784010R0487	879873	1.4	1
4	25	S754DR-K25	2CDH784010R0517	879880	1.4	1
4	32	S754DR-K32	2CDH784010R0537	879897	1.4	1
4	40	S754DR-K40	2CDH784010R0557	879910	1.4	1
4	50	S754DR-K50	2CDH784010R0577	879927	1.4	1
4	63	S754DR-K63	2CDH784010R0607	879934	1.4	1
4	80	S754DR-K80	2CDH784010R0627	879941	1.45	1
4	100	S754DR-K100	2CDH784010R0637	879958	1.45	1
Accessories						
Padlock						
with 2 keys		SA2	GFJ1101903R0002		0.02	10
identical locking		SA2i	GFJ1109999R0001		0.02	10

SA2

Auxiliary elements for
S 750 DR series

Auxiliary contact S 750 DR-AUX

Two change-over contacts indicate the contact position of the S 750 DR pole(s) independently and potential-free. A test button can be used to verify the correct indication of the contact position without switching the pole(s).

The change-over contacts fulfill the requirements of electrical separation of the main circuit connected to the pole(s).

The S 750 DR-AUX can be mounted on S 750 DR 1-4 pole-devices without tools.

Electrical data									
Standards								DIN EN 62019 (VDE 0640), IEC/EN 62019 DIN EN 60947-5-1 (VDE 0660-200), IEC/EN 60947-5-1	
Conventional free air thermal current I_{th}								6 A	
Utilisation categories		AC 14		AC15		DC12		DC13	
	U_e	400 V	230 V	400 V	230 V	250 V	125 V	60 V	24 V
	I_e (max)	2 A	6 A	2 A	6 A	0.5 A	1.5 A	2 A	4 A
Rated insulation voltage U acc. to IEC/EN 60664-1								690 V AC	
Overvoltage category								IV	
Pollution Degree								3	
Protection degree acc. to IEC/EN 60529								IP20	
Min. switching power DC								5V DC/5 mA ,12V DC/5 mA	
Rated impuls withstand voltage U_{imp} (1.2/50 µs)								6 kV	
Installation									
Cross-section of	1 conductor	0.75 - 2.5 mm² solid, flexibel with and without insulated ferrule							
	2 conductor	2 x 0.75 - 2 x 2.5 mm² solid, flexibel with and without insulated ferrule							
Tightening torque								0.8 Nm	
Mechanical data									
Vibration resistance according to IEC/ EN 60 068-2-6								5 g, 20 cycles at 5 ...150...5 Hz with 24 V AC/DC, 5 mA, without switching operation	
Mechanical endurance								10,000 ops.	
Pole dimensions (H x D x W)								128 x 77 x 8.7	
Mounting									
								Only 1 auxiliary contact mountable on the right site	

Description	**Order details**		**EAN 4016779**	**Weight**	**pack. unit**
	Type	**Order code**		**1 pc. kg**	**pc.**
Auxiliary contact	S750DR-AUX	2CDH700901R0001	941891	0,07	1

ABB STOTZ-KONTAKT GmbH
Kundencenter
Eppelheimer Straße 82
69123 Heidelberg, Germany
Tel. +49 (0) 6221 701-777
Fax +49 (0) 6221 701-771
info.stotz@de.abb.com

www.abb.de/stotzkontakt

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