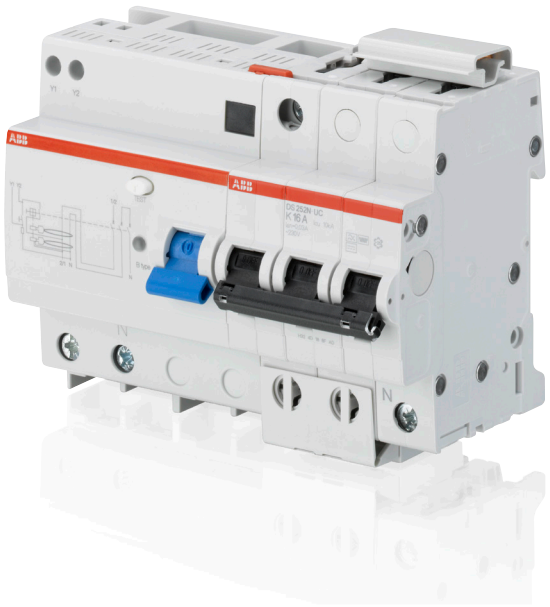
Rail RCBOs DS250N-UC
for use in direct current railway systems

The devices of the DS250N-UC series are special RCBO combinations used in direct current local railway systems, in the area of overhead lines. They have been developed on the basis of DIN EN 61009-1 (VDE 0664-20) Appendix G and DIN EN 60947-2 (VDE 0660-101) and comply with the recommendations of VDV (Association of German Transport Companies) Recommendation 509 (10/08): "Application of Residual Current Protective Circuits in Electrical Power Installations of DC Urban Rail Systems".

DS250N-UC units consist of an AC-DC sensitive RCD Block (type B) and a miniature circuit breaker. The circuit breaker module consists of 1- or 3-pole AC MCB unit and 2 neutral UC poles which are connected in reverse direction. The devices are completely factory-assembled.



Product features

- 2- and 4-pole versions
- RCD Block type B (AC-DC sensitive)
- Rated sensitivity 30 mA, 300 mA
- Surge current resistance ≥ 3000 A, 5000 A (4-pole, 300 mA, selective)
- MCB module with trip characteristic B and K
- Rated current 16 A, 32 A, 63 A
- Rated short-circuit capacity 10 kA (AC poles and N-UC pole)
- CPI: Contact Position Indicator
- Residual current or line protection error tripping can be recognized by the position of the switching toggle

Accessories

- Signal contact/auxiliary switch
- Auxiliary switch (single track)
- Shunt trips
- Integrated auxiliary contact

Application benefits

- Selectivity and high availability as RCBO combination normally assigned to individual circuits.
- Safe, all-pole disconnection in fault conditions.
- Protection against all types of residual currents.
- Thanks to a general short-time delay with a surge current resistance ≥ 3000 A or 5000 A (4-pole, 300 mA, selective), high resistance to unwanted tripping and therefore high availability of the connected equipment.
- Rail RCBO provides protection with a high short-circuit capacity of 10 kA.
- No additional thermal protection of the residual current unit required.
- Reduction in installation effort.
- Easy installation.

Recommended application areas and composition

Application areas

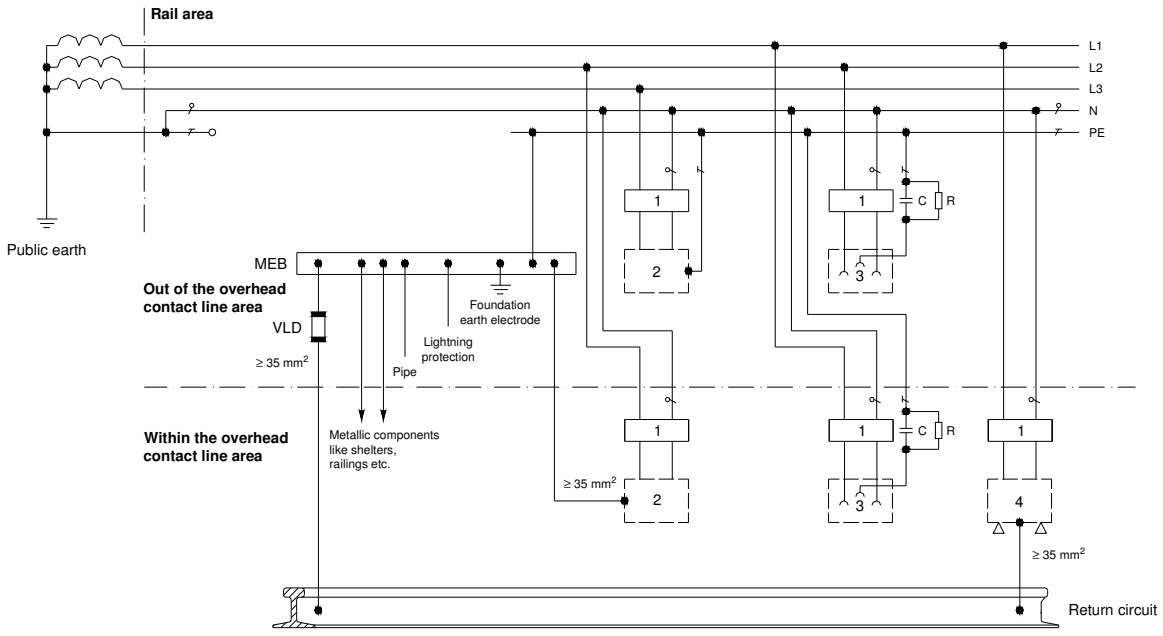
As a general rule, VDV (Association of German Transport Companies) Recommendation 509 recommends the use of rail RCBOs in all direct-current railway systems (see figure below). For technical reasons RCBOs in sockets and final circuits are absolutely necessary in areas of overhead lines for direct-current local railways. This is due to the fact that differences in potential of 120 V between the grounding system of the alternating/three-phase network and the return conductor of the direct current rail network can occur continuously, with up to 350 V temporarily in the event of a fault. When work is being carried out on railway lines with protection class 1 equipment powered by alternating current, this can cause compensating direct currents from the return conductor of the direct current network to the neutral conductor of the three-phase network and vice versa (depending on which network has the higher voltage potential). Such compensating direct currents may also occur in the event of faults in the overhead line such as touching the overhead line with metal objects and pulling down the overhead line.
The solution for these applications is the use of rail RCBOs that comply with VDV Recommendation 509.

Composition

These devices consist of a special factory-assembled RCBO combination.

- RCD-Block type B for detecting leakage currents to ground for the following residual current shapes:
  - Alternating residual currents
  - Pulsating direct residual currents
  - Smooth direct residual currents
- Miniature circuit breakers:
  - With one or three phase conductor poles for switching from alternating or three-phase currents
  - With two reverse connected N-UC poles for switching alternating/three-phase currents and direct currents (independent of polarity)
  - The circuit-breaker therefore provides protection against:
    - Short circuit
    - Overload
    - Compensating direct currents between the N-conductor of the alternating current network and the return conductor of the direct current rail network

TT system in installations of DC rail systems (Extract from VDV (Association of German Transport Companies) Recommendation 509)



MEB	Main earthing busbar
VLD	Voltage limiting device (VLD)
1	Rail-RCBO
2	Non-portable equipment
3	Socket outlet
4	Equipment insulated from the base

Protection functions and applications

All the protection functions listed are included in one device which, in the event of a fault, disconnects the equipment in the faulty circuit or the socket circuit from the mains at all poles.
The devices are available in the versions:
- 30 mA → Additional protection against indirect and direct contacts
- 300 mA → Fault protection, preventive fire protection

The trip characteristics “B” and “K” provide optimum protection for the different items of electrical equipment.
- B characteristic to connect standard consumers, mainly in final and socket circuits
  - Train stations
  - Stops
- K characteristic to connect equipment with high inrush currents, in particular
  - Tunnel sockets
  - Line sockets
  - Final circuits at train stations and stops with electrical equipment with high inrush currents

Description of the choice of protective functions

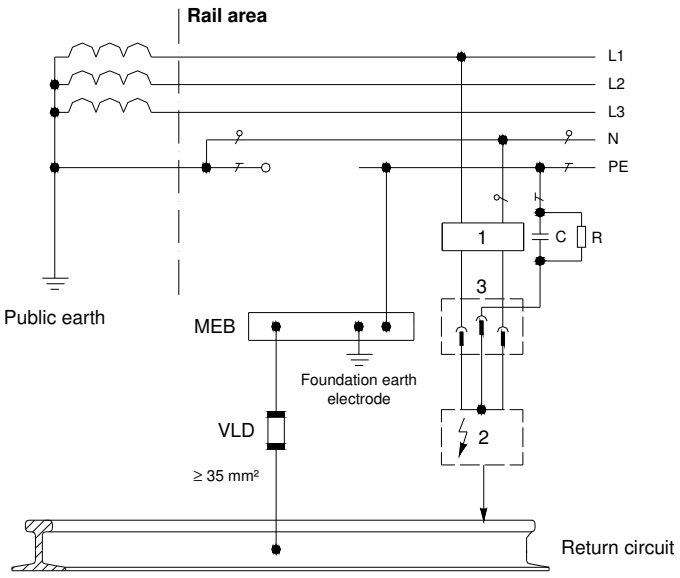
Protection against electric shock and faults in the electrical installation
- Additional protection/protection against direct contact, protection of persons ($I_{\Delta n} \leq 30$ mA).
  - Additional protection against electric shock during normal operation in the event of faults with other protective measures (basic protection) or carelessness of the user.
- Indirect contact protection/fault protection
  - Protection against electric shock under fault conditions through interrupting dangerous touch voltage as a result of a short circuit to an exposed conductive part on the operating equipment.
- Protection against excessive heating of electrical equipment in the event of overload current, caused by overloading, a short circuit or a short circuit to ground.
- Protection of the neutral conductor against overloading by compensating direct currents, as can occur in the case of differences in potential between different grounding systems (e.g. in the DC railway systems).

Preventive fire protection
- Protection against fires caused by ground fault currents (for $I_{\Delta n} \leq 300$ mA).

Application example

Below is an example of socket circuits in the area of overhead lines for DC local railways. Please note here that the protective conductors of socket outlets must be equipped with RC circuit in order to prevent compensating direct currents from flowing via the protective conductor during fault-free operation and damaging the protective conductor irreparably. This RC circuit is not included in ABB's delivery program and must be prepared by the customer or purchased from elsewhere. See VDV (Association of German Transport Companies) Recommendation 509, point 3.2 (page 26) for a description of the components for RC circuit.

Example of a socket-outlet in the overhead area of direct current local trains (extract from VDV (Association of German Transport Companies) Recommendation 509).



MEB	Main earthing busbar
VLD	Voltage Limiting Device (VLD)
1	Rail-RCBO
2	Portable equipment of class I
3	Socket outlet

Warning:
In order to carry out the insulation tests, switch off the RCBO: Put the blue and black toggle in the “0-OFF” position and disconnect the conductors connected at the RCD-Block.

Technical data

Rail RCBO

Type			DS250N-UC
Standards			Based on E DIN VDE 0664-200 (VDE 0664-200), DIN EN 62423 (VDE 0664-40), DIN EN 61009-1 (VDE 0664-20) Appendix G and/or DIN EN 60947-2 (VDE 0660-101) and in accordance with VDV (Association of German Transport Companies) Recommendation 509
RCD type/Number of poles			Type B (AC-DC sensitive) / 2-pole (DS252N-UC), 4-pole (DS254N-UC)
Rated currents I_n			16, 32, 63 A [1]
Rated residual currents $I_{\Delta n}$			30, 300 mA
Tripping characteristic			B in accordance with DIN EN 60898-1 (VDE 0641-11)
			K in accordance with DIN EN 60947-2 (VDE 0660-101)
Tripping range	at ~		0.50 ... 1.0 x $I_{\Delta n}$
	at ≂		0.11 ... 1.4 x $I_{\Delta n}$
	at ⎓		0.50 ... 2.0 x $I_{\Delta n}$
Tripping times	at ~	1 x 1.0 x $I_{\Delta n}$	≤ 300 ms
		5 x 1.0 x $I_{\Delta n}$	≤ 40 ms
	at ≂	1 x 1.4 x $I_{\Delta n}$	≤ 300 ms
		5 x 1.4 x $I_{\Delta n}$	≤ 40 ms
	at ⎓	1 x 2.0 x $I_{\Delta n}$	≤ 300 ms
		5 x 2.0 x $I_{\Delta n}$	≤ 40 ms
Tripping times 300 mA version, 4-pole S	at ~	1 x 1.0 x $I_{\Delta n}$	0.13 ... 0.5 s
		2 x 1.0 x $I_{\Delta n}$	0.06 ... 0.2 s
		5 x 1.0 x $I_{\Delta n}$	0.05 ... 0.15 s
		500 A	0.04 ... 0.15 s
	at ≂	1 x 1.4 x $I_{\Delta n}$	0.13 ... 0.5 s
		2 x 1.4 x $I_{\Delta n}$	0.06 ... 0.2 s
		5 x 1.4 x $I_{\Delta n}$	0.05 ... 0.15 s
		500 A	0.04 ... 0.15 s
	at ⎓	1 x 2.0 x $I_{\Delta n}$	0.13 ... 0.5 s
		2 x 2.0 x $I_{\Delta n}$	0.06 ... 0.2 s
		5 x 2.0 x $I_{\Delta n}$	0.05 ... 0.15 s
		500 A	0.04 ... 0.15 s
Surge current resistance (surge current shape 8/20 µs)			3000 A or 5000 A (4-pole, 300 mA, selective)
Rated short-circuit capacity I_{cn}			10000 A for B characteristic
Rated ultimate short-circuit breaking capacity I_{cu}			10 kA for K characteristic
Rated residual breaking capacity $I_{\Delta m}$			10 kA
Rated voltage U_n			230 V AC (2-pole), 230/400 V AC (4-pole)
Max. operational voltage U_{max}			U_n + 10%
Insulation voltage U_i			500 V
Minimum operating voltage for detecting of:	residual current type AC / A /F		0 V AC (Independent of main voltage)
	residual current type B		30 V AC
Operating voltage of circuit test U_t			195-254 V AC (170-254 V AC for 30 mA) 2-pole 195-254 V AC (300-440 V AC for 30 mA) 4-pole
Rated frequency			50/60 Hz
Insulation coordination			In accordance with DIN EN 60664 (VDE 0110-1)
Overvoltage category			III
Pollution degree			2
Rated impulse withstand capacity U_{imp} (1.2/50 µs)			4 kV (test voltage 6.2 kV at NN)
Dielectric test voltage at ind. freq. 50 ... 60 Hz for 1 min.			2.5 kV
Housing			Moulded material, gray
Toggle / test button			Blue / white (RCD), black (miniature circuit breaker)
Protection degree in accordance with EN 60529			IP 20[2], IP 40 in distribution board with cover
Conductor cross section			RCD: up to 25 mm² finely stranded / solid; MCB: big terminal finely stranded / solid: 35 mm², flexible: 25 mm², small terminal: 10 mm²
Tightening torque / stripping length			2.8 Nm /12,5 mm (Y1 / Y2: 10,2 Nm / 10,2 mm)
Mounting position / mounting			any / on DIN rail EN 60715 (35 mm) by means of fast clip device
Electrical life / Mechanical life			10000 switching cycles (AC) / 20000 switching cycles
Environmental conditions acc. to DIN EN 60068-2-30 (RH=relative humidity)			28 cycles with 55 °C / 90 – 96 % RH and 25 °C / 95 – 100 % RH
Ambient temperature (with daily average ≤ +35 °C) / Storage temperature			-25 °C ... +55 °C / -40 °C ... +70 °C

[1] All Rail RCBOs are provided with 2 additional terminals Y1 / Y2 for remote tripping.

[2] This ensures compliance with the requirement for protection type IPXXB.

Technical data of auxiliary equipment

Auxiliary contact and signal/auxiliary contact

Type		S2C-S/H6R, S2C-H6R
Utilization category:	AC14	U_e = 400 V, I_e = 1 A
		U_e = 230 V, I_e = 2 A
	DC12	U_e = 220 V, I_e = 1 A
		U_e = 110 V, I_e = 1.5 A
	DC13	U_e = 60 V, I_e = 2 A
		U_e = 24 V, I_e = 4 A
Min. rated voltage U_{Bmin}		12 V AC, 12 V DC [1]
Min. operating current and voltage [1]		10 mA bei 12 V AC / DC; 5 mA bei 24 V AC / DC
Conventional free air thermal (test) current (in accordance with EN 60947-5-1)		10 A
Short-circuit resistance		230 V AC 1000 A with S 201 K 4
Insulation coordination		In accordance with DIN VDE 0110 Parts 1 and 2
Overvoltage category		III
Rated impuls withstand voltage		4 kV (1.2/50 µs)
Pollution degree		2
Cross-section of conductors		0.75 ... 2.5 mm² (to 2 x 1.5 mm²)
Tightening torque		Max. 1.2 Nm
Contact stability in vibration resistance according to DIN EN 60068-2-6		5 g, 20 sweep cycles 5 ... 150 ... 5 Hz at 24 V AC / DC, 5 mA automatic reclosing 10 ms
Mechanical endurance		10000 switching cycles
Electrical endurance		6000 switching cycles

Integrated auxiliary contract

Type		S2C-H10, S2C-H01 (can be retrofitted at bottom to external N-UC pole of DS250N-UC)
Contact assembly:		1 NO (1 normally open)
		1 NC (1 normally closed)
Utilization category:	DC12	U_e = 30 V, I_e = 2 A
		U_e = 50 V, I_e = 1 A
	DC13	U_e = 30 V, I_e = 2 A
		U_e = 50 V, I_e = 1 A
	AC14	U_e = 230 V, I_e = 2 A
Min. operating current and voltage (AC/DC) [1]		8 mA at 12 V
		4 mA at 24 V
Short-circuit protection		With S201-K2 or -Z2
Electrical service life		> 4000 switching cycles
Standard		Reliable connection between auxiliary and main circuit DIN EN 61140 (VDE 0140-1)
Connection cross-section		0.75 to 2.5 mm² (fine-strand conductors are fitted with connector sleeves)
Tightening torque		0.5 Nm
Contact stability in vibration test		5 g, 20 sweep cycles 5 … 150 … 5 Hz
according to DIN EN 60068-2-6		at 24 V AC / DC, 5 mA automatic reclosing 10 ms

[1] With operating and environmental conditions in accordance with EN 60-204-1/1998 and EN 60-439-1/2000 for installation inside in clean ambient air.

Shunt trips S2C-A[2]

Type	S2C-A1						S2C-A2				
Operating voltage U_B:	12 V DC	12 V AC	24 V DC	24 V AC	60 V DC	60 V AC	110 V DC	110 V AC	220 V DC	230 V AC	415 V AC
Max. operating current I_{Bmax}:	2.2 A	2.5 A	4.5 A	5 A	14 A	8.8 A	0.35 A	0.5 A	1.1 A	1.0 A	2.7 A

[2] Shunt trip with automatic disconnection within 10 ms; $U_B = U_n$ +10 % / -30 %

Technical details

These rail RCBOs are a special RCBO combination for use in the area of direct current local railway systems, in particular in the area of overhead lines. The speciality in direct current systems for railways is that potential differences can occur between the grounding system of the (general) alternating current network and the grounding system of the direct current railway network. The result of this is that high compensating direct currents may flow between the neutral conductor for the general network and the return conductor of the direct current railway network – or vice versa – in addition to the usual fault types which are short-circuits, overloads and ground fault currents. Normally, these cannot be switched off by a conventional type A or type B RCD because the contacts of these devices are not designed to switch direct currents. The rail RCBO, however, is equipped with two reverse connected N-UC poles, which can switch the compensating direct currents independently of polarity (N-UC: N Pol for Universal Current).

The rail RCBOs of the DS250N-UC range are residual current operated circuit-breakers with integral overcurrent protection and are assembled in the factory as an electrically and mechanically coupled combination of devices.

The RCD-Block (type B) is AC-DC sensitive and has a summation current transformer and a residual current transformer, which are connected to a permanent magnetic trip unit via their secondary windings. The summation current transformer is voltage independent and can identify AC residual currents and pulsating DC residual currents; the residual current trans-former is voltage dependent and detects smooth DC fault currents.

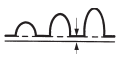
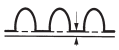
Function of the green LED: the green LED indicates that the supply voltage of the RCD-Block is sufficient for the AC-DC fault current detection (type B). If the green LED is switched off, this means that the switch-off is only guaranteed with fault currents of type A and type F (sensitive to pulsating fault currents and multi-frequencies; at single phase converter). There has to be an alternating current of > 30 V on at least two arbitrary conductors in order to guarantee the AC-DC fault current detection (type B).

● Green LED ON: RCDs functioning like type B
○ Green LED OFF: RCDs functioning like type A and type F

To avoid unwanted tripping, ABB's rail RCBOs always include a short time delay and have a surge current resistance of ≥ 3000 A. They are therefore more resistant to temporary leakage currents to ground. The four-pole devices of the 300 mA version are selective versions of the device with a surge current resistance of ≥ 5000 A.

The miniature circuit breaker includes an electromagnetic trip unit with instantaneous tripping and a thermal trip unit, as well as two reverse connected UC poles (UC = universal current for direct and alternating current AC/DC) in the N-conductor current path. UC miniature circuit-breakers include permanent magnets to support direct current arc distinguishing. Compensating direct currents are switched off independently of the direction of current flow thanks to the reverse connection of the two UC poles.

Protection through residual current devices (RCDs) of the types AC, A, F and B

Shape of residual current			Correct functioning of residual current devices			
			Sensitive to alternating current Type AC	Sensitive to pulsating current Type A	Sensitive to multi-frequency Type F	AC-DC sensitive Type B
Sinusoidal AC		Rampant	~	⩙	⩙ ⎍	⩙ ⎍ ⎓
		Slowly rising				
Pulsating DC		Rampant applied with and without superposition with smooth DC fault current of 6 mA		⩙	⩙ ⎍	⩙ ⎍ ⎓
		Slowly rising				
Pulsating DC		Superpositioned with DC fault current of 10 mA			⩙ ⎍	⩙ ⎍ ⎓
Multi-frequency						
Smoothed DC						⩙ ⎍ ⎓

Tripping response, switch-off times, tripping values for RCDs

Tripping currents

In accordance with the product standard VDE 0664-10/-20/-100/-200 RCDs must respond as follows to the different shapes of residual currents:

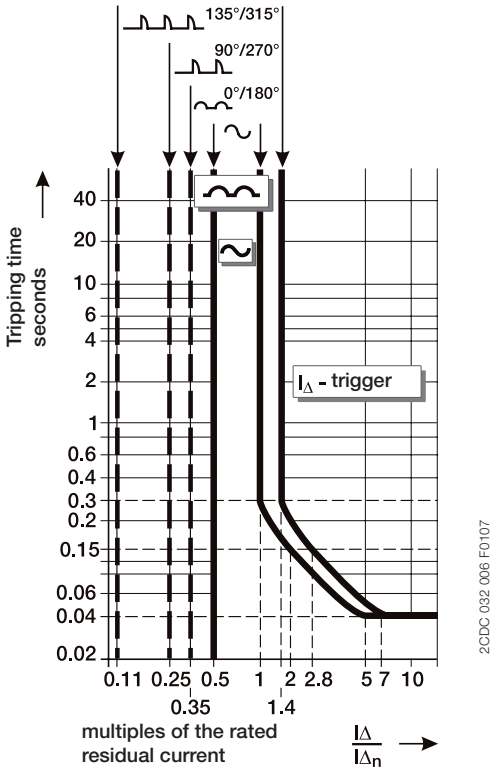
Type of residual current	Shape of residual current	Permissible triggering range
Sinusoidal alternating current		0.5 ... 1 $I_{\Delta n}$
Pulsating direct current (positive or negative half-waves)		0.35 ... 1.4 $I_{\Delta n}$
Phase-angle controlled half-wave currents Phase angle of 90° el Phase angle of 135° el		 0.25 ... 1.4 $I_{\Delta n}$ 0.11 ... 1.4 $I_{\Delta n}$
Pulsating direct current superimposed with		
- smooth DC fault current of 6 mA		max 1.4 $I_{\Delta n}$ + 6 mA
- smooth DC fault current of 10 mA		max 1.4 $I_{\Delta n}$ + 10 mA
Multi-frequency		0.5 ... 1.4 $I_{\Delta n}$
Smooth direct current		0.5 ... 2 $I_{\Delta n}$

Switch-off times in accordance with VDE 0664

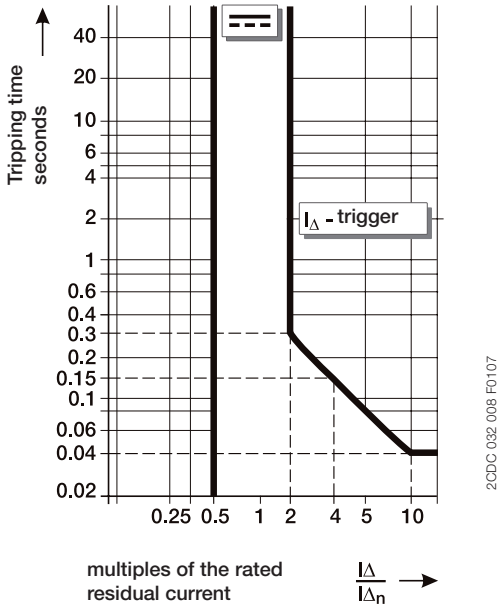
Version	Residual current type	Switch-off times for			
	Alternating residual currents	1 x $I_{\Delta n}$	2 x $I_{\Delta n}$	5 x $I_{\Delta n}$	500 A
	Pulsating direct residual currents	1.4 x $I_{\Delta n}$	2 x 1.4 x $I_{\Delta n}$	5 x 1.4 x $I_{\Delta n}$	500 A
	Smooth direct residual currents	2 x $I_{\Delta n}$	2 x 2 x $I_{\Delta n}$	5 x 2 x $I_{\Delta n}$	500 A
Standard (without time delay) or with short-time delay		Max. 0.3 s	Max. 0.15 s	Max. 0.04 s	Max. 0.04 s
selective Ⓢ		0.13 – 0.5 s	0.06 – 0.2 s	0.05 – 0.15 s	0.04 – 0.15 s

Tripping values

RCD – type A tripping values
(Valid for general types, not selective types Ⓢ)



RCD tripping values for DC fault currents



Tripping response, tripping characteristics for MCB and power loss data

Tripping characteristics MCB part

Acc. to	Tripping charac-teristic	Rated current	Thermal release [1]			Electromagnetic release [3]		
			Test currents: conventional non-tripping current	conventional tripping current	Tripping time	Range of instantaneous tripping		Tripping time
		I_n	I_1	I_2				
DIN EN 60898-1	B	16 to 63 A	1.13 · I_n		> 1 h	3 · I_n		0.1 ... 45 s ($I_n \leq$ 32 A)/0.1 ... 90 s ($I_n >$ 32 A)
(VDE 0641-11)				1.45 · I_n	< 1 h [2]		5 · I_n	< 0.1 s
DIN EN 60947-2	K	16 to 63 A	1.05 · I_n		> 1 h	10 · I_n		> 0.2 s
(VDE 0660-101)				1.2 · I_n	< 1 h [2]		14 · I_n	< 0.2 s

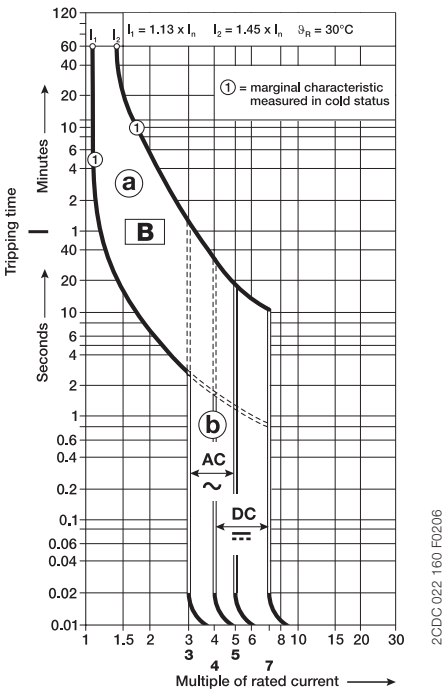
[1] The thermal releases are calibrated to a nominal reference ambient temperature; for K, the value is 20 °C, for B = 30 °C. In the case of higher ambient temperatures, the current values fall by ca. 6 % for each 10 K temperature rise.

[2] As from operating temperature (after I_1 > 1 h or, as applicable, 2 h).

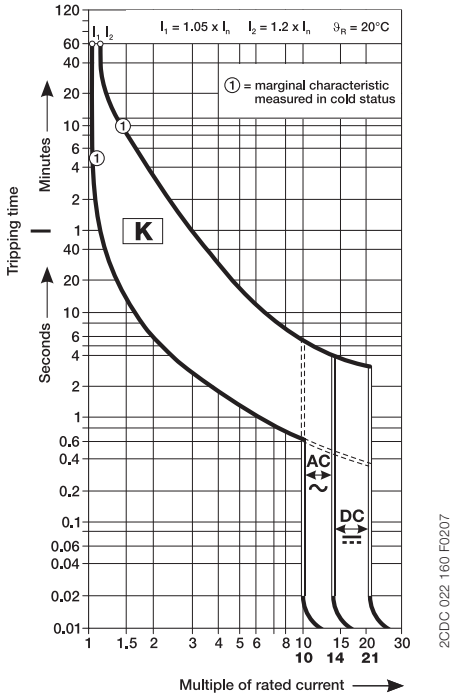
[3] The indicated electromagnetic tripping values apply to a frequency range of 16.7 ... 60 Hz. For different network frequencies or direct current the values change according to the correction factor in the table below. The thermal tripping performance is independent from the network frequency.

	AC			DC
	100 Hz	200 Hz	400 HZ	
Correction factor	Approx. 1.1	Approx. 1.2	Approx. 1.5	Approx. 1.5

Tripping characteristic: B, I_n = 16 ... 63 A



Tripping characteristic: K, I_n = 16 ... 63 A



Important: Varying ambient temperatures and reciprocal influences must also be taken into account.

Power loss

Rail-RCBO DS250N-UC

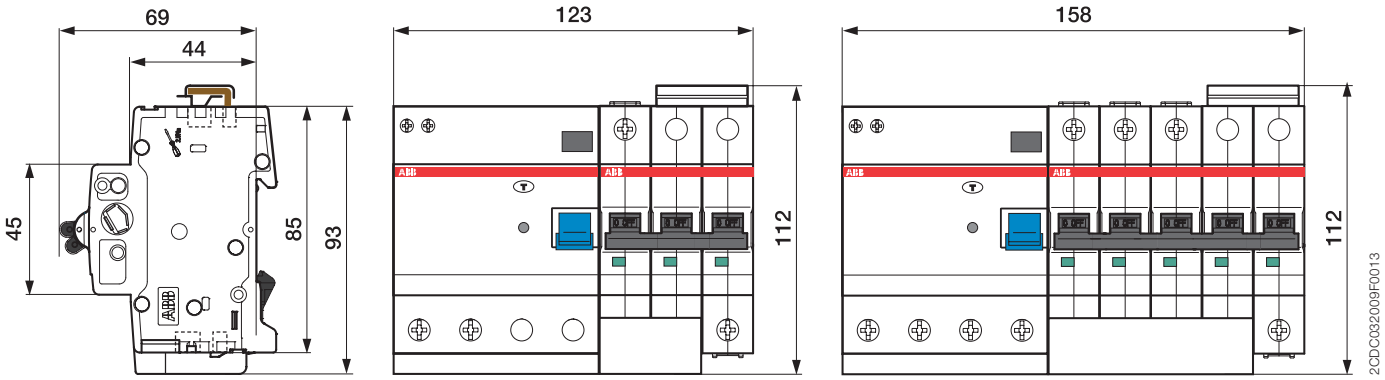
Characteristic	B				K			
Pole	1P+N	1P+N	3P+N	3P+N	1P+N	1P+N	3P+N	3P+N
Rated residual currents I_{dn} (mA)	30	300	30	300	30	300	30	300
Rated currents I_n (A)	**Power loss P_v (W)**							
16	5.4	7.2	11.1	13.9	4.3	6.1	6.3	9.1
32	6.9	8.7	13.5	16.3	6.8	8.6	11.2	14.1
63	9.8	9.8	22	22	9.4	9.4	20.8	20.8

* per device at 50 Hz AC 1 phase respectively 3 phases loaded

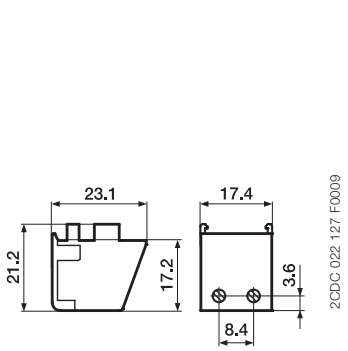
Dimensional drawings and wiring diagrams

Dimensional drawings

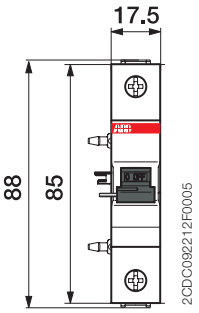
Rail RCBO

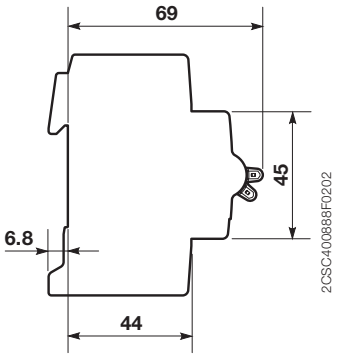


Accessories

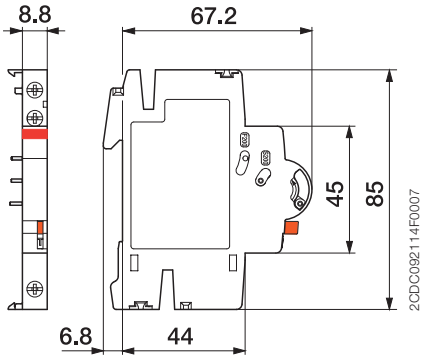


S2C-H10, S2C-H01



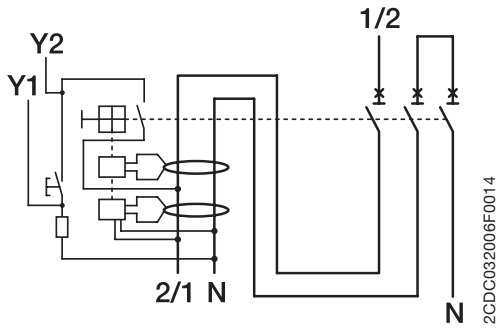


S2C-A1
S2C-A2

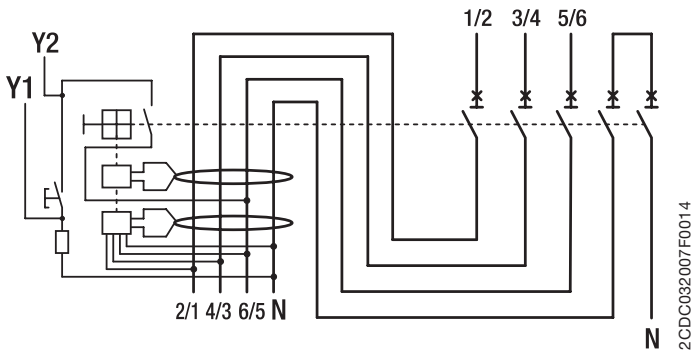


S2C-H6R
S2C-S/H6R

Wiring diagrams

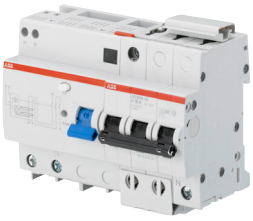


DS252N-UC



DS254N-UC

Order details rail RCBO



DS252N-UC

DS254N-UC

Description

RCBO combinations provide protection for operators and equipment, as well as protection against electrical fires in accordance with DIN VDE 0100-410 and DIN VDE 0100-530. The RCBO combinations of series DS250N-UC provide protection for alternating sinusoidal currents, pulsating currents to ground and smooth DC residual currents with a wide variety of (high) frequencies, as well as fault protection (protection for indirect contact), additional protection (with $I_{\Delta n} \leq 30$ mA) and fire protection (with $I_{\Delta n} \leq 300$ mA). They fulfil the product standards for Type A DIN EN 61009-1 (VDE 0664-20) Attachment G and Type B DIN EN 60947-2 (VDE 0660-101).

The DS250N-UC series consists of special RCBO combinations used in direct current local railway systems, in particular in the area of overhead lines. They were developed on the basis of the above product standards and comply exactly with the recommendations of VDV (Association of German Transport Companies) specification 509 (10/08): “Use of RCBOs in electrical power systems of direct current local railway systems”. DS250N-UC units consist of an RCD Block (type B) sensitive to universal current and a circuit-breaker consisting of one or three AC poles and 2 neutral UC poles which are connected in reverse direction. The devices are completely factory-assembled.

Order details

RCD type	Time delay[1]	Characteristic	Number of poles	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Installation width Depth module	Type description	Order code	Pack unit pc.	Weight 1 piece kg
B	AP-R	K	2	30	16	7	DS252N-UC-K16/0.03	2CDR272568R1167	1	0.79
					32	7	DS252N-UC-K32/0.03	2CDR272568R1327	1	0.79
					63	7	DS252N-UC-K63/0.03	2CDR272568R1637	1	0.79
				300	16	7	DS252N-UC-K16/0.3	2CDR272568R3167	1	0.79
					32	7	DS252N-UC-K32/0.3	2CDR272568R3327	1	0.79
					63	7	DS252N-UC-K63/0.3	2CDR272568R3637	1	0.79
			4	30	16	9	DS254N-UC-K16/0.03	2CDR274568R1167	1	1,1
					32	9	DS254N-UC-K32/0.03	2CDR274568R1327	1	1.1
					63	9	DS254N-UC-K63/0.03	2CDR274568R1637	1	1.1
	S			300	16	9	DS254N-UC-K16/0.3	2CDR274568R3167	1	1.1
					32	9	DS254N-UC-K32/0.3	2CDR274568R3327	1	1.1
					63	9	DS254N-UC-K63/0.3	2CDR274568R3637	1	1.1
	AP-R	B	2	30	16	7	DS252N-UC-B16/0.03	2CDR272568R1165	1	0.79
					32	7	DS252N-UC-B32/0.03	2CDR272568R1325	1	0.79
					63	7	DS252N-UC-B63/0.03	2CDR272568R1635	1	0.79
				300	16	7	DS252N-UC-B16/0.3	2CDR272568R3165	1	0.79
					32	7	DS252N-UC-B32/0.3	2CDR272568R3325	1	0.79
					63	7	DS252N-UC-B63/0.3	2CDR272568R3635	1	0.79
			4	30	16	9	DS254N-UC-B16/0.03	2CDR274568R1165	1	1.1
					32	9	DS254N-UC-B32/0.03	2CDR274568R1325	1	1.1
					63	9	DS254N-UC-B63/0.03	2CDR274568R1635	1	1.1
	S			300	16	9	DS254N-UC-B16/0.3	2CDR274568R3165	1	1.1
					32	9	DS254N-UC-B32/0.3	2CDR274568R3325	1	1.1
					63	9	DS254N-UC-B63/0.3	2CDR274568R3635	1	1.1

[1] Time delay (AP-R: short-time delay, high immunity and surge current resistance 3000 A, S: selektive and surge current resistance 5000 A)

Note:
When connecting to aluminium ladders (≥ 4 mm²) please note that the ladder contact surfaces must be cleaned, brushed and treated with grease. The contact clips must be tightened after approx. 6 – 8 weeks. When working with fine-strand wires, it is advisable to use end sleeves.

Order details accessories and combination of auxiliary elements

2CDC 091 055 F0007

S2C-H6...

SK 209 B 02

S2C-A

2CDC 400 155 F0204

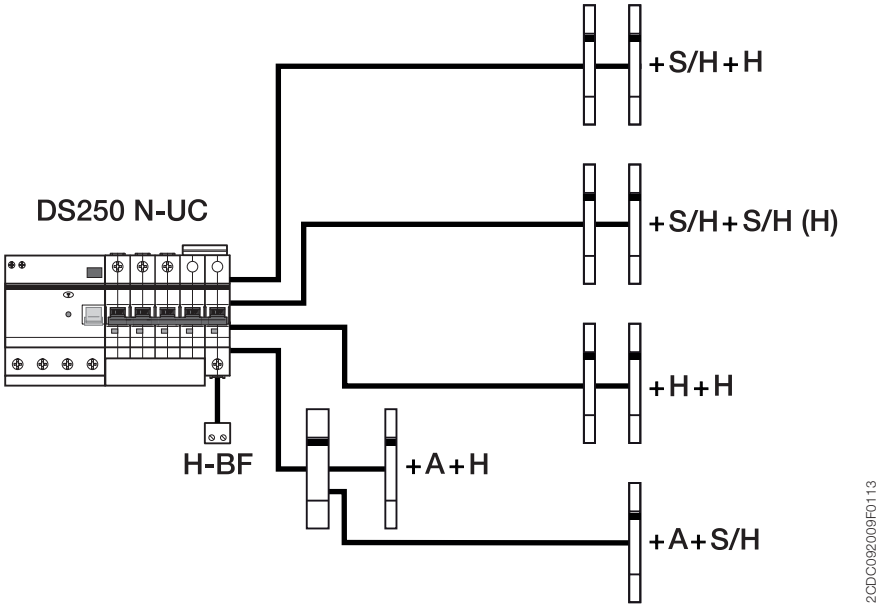
S2C-H01
S2C-H10

Order details

Description	Type designation	Order number	Pack unit pc.	Weight 1 piece kg
Signal contact/auxiliary switch (can be retrofitted on right)[1)]				
1 Changeover contact	S2C-S/H6R	2CDS200922R0001	1	0.4
Auxiliary switch (can be retrofitted on right)[1)]				
1 Changeover contact	S2C-H6R	2CDS200912R0001	1	0.04
Shunt trips (can be retrofitted on right)				
12 ... 60 V AC/DC	S2C-A1	2CDS200909R0001	1	0.15
110 ... 415 V AC 110 ... 250 V DC	S2C-A2	2CDS200909R0002	1	0.15
Integrated auxiliary contact (can be retrofitted at bottom on outer N-UC pole of DS250N-UC)				
1 Normally closed contact	S2C-H01	2CDS200970R0001	1	0.01
1 Normally open contacts	S2C-H10	2CDS200970R0002	1	0.01
1 Normally closed contact	S2C-H01 15x	2CDS200970R0011	15	0.01
1 Normally open contacts	S2C-H10 15x	2CDS200970R0012	15	0.01

[1)] Max. 2 modules can be combined, max. 1 signal contact with positioning possible on outer N-UC pole.

Combination of auxiliary elements



Description

H:	Auxiliary contact S2C-H6R
S/H:	Signal/Auxiliary contact S2C-S/H6R
S/H (H):	Signal/Auxiliary contact used as auxiliary contact
A:	Shunt trip S2C-A1/A2
H-BF:	Auxiliary contact for bottom fitting S2C-H01 / S2C-H10

Contact

ABB STOTZ-KONTAKT GmbH
Eppelheimerstraße 82
69123 Heidelberg, Germany
Phone: +49 (0) 6221 7 01–0
Fax: +49 (0) 6221 7 01–13 25
E-mail: info.desto@de.abb.com

www.abb.de/stotzkontakt

Note:
We reserve the right to make technical changes to the products or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or incomplete information in this document.

Brochure number 2CDC420021D0201 (07/16-pdf)

Power and productivity
for a better world™