

## DSE201 D

Compact design with enhanced protection





## DSE201D 6kA

Complete protection in one module width

The electronic RCBOs series is perfectly integrated with the System Pro M compact line for modular products, synonymous of ABB quality around the world.

With the same width as standard MCBs, these electronic RCBOs are fully integrated with modern Consumer Units and Distribution Boards. Suitable to work from -25 °C to +55 °C ambient temperatures, the DSE201D series of 1P+N electronic RCBOs cover all applications, offering a complete protection of single-phase systems from short circuit, overload and residual current conditions.

With breaking capacity of 6kA and rated current from 6 to 50A, the series is suitable for installation in residential, light commercial, commercial and industrial applications.

Installation is made simpler by reduced heights compared to the previous series. The availability of two slots of different dimensions at the bottom side allows the use of both cables and busbars. Installation and removal operations from busbar and cabling are very easy and can be done with a standard insulated screwdriver. Line side terminals are fail-safe type to avoid improper connection, while double clips ensure a secure mounting of the devices in any type of consumer unit or distribution board.

The possibility to lock the toggle in ON/OFF positions with a padlock avoids unwanted manipulation of the lines.

The DSE201D series is equipped with an earth fault indicator to detect any earth fault trip and also with a contact position indicator window to clearly identify the contacts status.



DSE201D 6kA

## DSE201D

### Technical features and overall dimensions

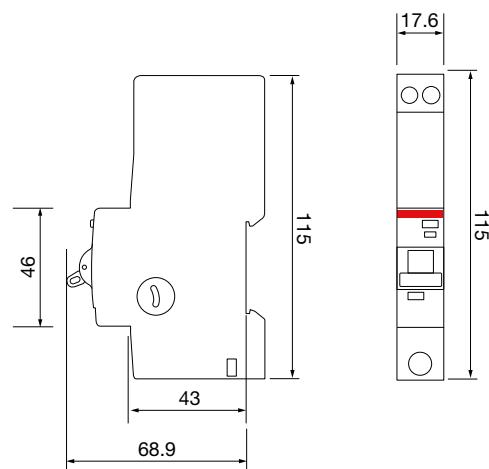
<b>Electrical features</b>			
Standards		IEC 61009-1 ; IEC 61009-2-2; BS EN 61009-1; AS/NZS 61009	
Type (wave form of the earth leakage sensed)		A	
Number of poles		1P+N	
Rated current $I_n$	A	$6 \leq I_n \leq 50$	
Rated sensitivity $I_{\Delta n}$	mA	30	
Rated voltage $U_e$	V	230-240	
Insulation voltage $U_i$	V	500 V AC	
Overvoltage category		III	
Pollution degree		2	
Max. operating voltage	V	264	
Min. operating voltage for protection against $I_{\Delta n}$ residual sinusoidal alternating currents	V	85	
Operating voltage of circuit test	V	195-264	
Rated frequency	Hz	50/60	
Rated breaking capacity acc. to IEC 61009	ultimate $I_{cn}$	A	6000
Rated breaking capacity acc. to IEC 60947-2	ultimate $I_{cu}$	kA	10
	service $I_{cs}$	kA	7.5
Rated residual breaking capacity $I_{\Delta m}$		kA	6
Rated impulse withstand voltage (1.2/50) $U_{imp}$	kV	4 kV (test voltage 6.2kV at sea level, 5kV at 2000m)	
Dielectric test voltage at ind. freq. for 1 min.	kV	2.5 kV (50 / 60Hz, 1 min.)	
Thermomagnetic release - characteristic	B: $3 I_n \leq I_m \leq 5 I_n$ C: $5 I_n \leq I_m \leq 10 I_n$	■	■
Surge current resistance (wave 8/20)	A	NA	
<b>Mechanical data</b>			
Housing		insulation group II, RAL 7035	
Toggle		insulation group II, black, sealable in ON-OFF positions	
Earth fault indicator		blue window	
Contact position indication		green/red Window	
Electrical life	operations	10000	
Mechanical life	operations	20000	
Protection degree	in enclosure with cover	IP40	
	terminals	IP20	
Shock resistance acc. to IEC/EN 60068-2-27		30g - 2 shocks - 13ms	
Vibration resistance acc. to IEC/EN 60068-2-6		0.35mm or 5g - 20 cycles at 5...150...5 Hz without load	
Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30	°C/RH	28 cycles with 55°C/90-96% and 25°C/95-100%	
Reference temperature for setting of thermal element	°C	30	
Ambient temperature (with daily average $\leq +35$ °C)	°C	-25...+55	
Storage temperature	°C	-40...+70	

## DSE201D

### Technical features and overall dimensions

<b>Installation</b>			
Terminal type	top (load side)	failsafe cage (shock protected)	
	bottom (line side)	failsafe bi-directional cylinder-lift terminal (shock protected)	
Terminal size for cables	load side	mm <sup>2</sup>	16
	line side (solid/ flexible)	mm <sup>2</sup>	35/25
Terminal size for busbars	load side		only for wire connection
	line side	mm <sup>2</sup>	10 (Standard ABB busbar / distribution board system)
Tightening torque	top (load side)	Nm	1.2
	bottom (line side)	Nm	2.8
Neutral load cable	Type		low smoke halogen free
	Lenght	mm	750
	Section	mm <sup>2</sup>	2.5 mm <sup>2</sup> up to 20 A; 4 mm <sup>2</sup> up to 50 A
	Color		black
Functional earth cable	Type		low smoke halogen free
	Lenght	mm	750
	Section	mm <sup>2</sup>	0.75
	Color		white
Mounting	on DIN rail EN 60715 (35 mm) by means of fast clip device in consumer unit Type A according to IEC 61439-1&3, BS EN 61439-1&3 in distribution board Type B according to IEC 61439-1&3, BS EN 61439-1&3		
Supply from	bottom terminal		
<b>Dimensions and weight</b>			
Dimensions (H x D x W)	mm	115 x 68.9 x 17.6	
Weight	g	200	
<b>Combination with auxiliary elements</b>			
Auxiliary contact	yes		
Signal contact / auxiliary switch	yes		
Shunt trip	yes		
Undervoltage release	yes		
Oversupply release	yes		
Auxiliary contact for MCBs bottom fitting	yes		

### Dimensions



Dimensions in mm

## eRCBOs

DSE201D series [6000] A  type, B characteristic



DSE201D ... A30

### DSE201D A type, B characteristic

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ( $I_{\Delta n} = 30 \text{ mA}$ ).

**Application: commercial, industrial**

**Standard: IEC 61009-1; IEC 61009-2-2; BS EN 61009-1; AS/NZS 61009.1**

**$I_{cn} = 6 \text{ 000 A}$**

N. of poles	Rated residual current $I_{\Delta n}$ [mA]	Rated Current In [A]	Bbn	Order details		Weight 1 piece [kg]	Pack unit pc.
			8012542 EAN	Type code	Order code		
<b>B characteristic</b>							
1P+N	30	6	425755	2CSR255158R1065	DSE201DB6A30	0.200	1
		10	425854	2CSR255158R1105	DSE201DB10A30	0.200	1
		16	425953	2CSR255158R1165	DSE201DB16A30	0.200	1
		20	426059	2CSR255158R1205	DSE201DB20A30	0.200	1
		25	426158	2CSR255158R1255	DSE201DB25A30	0.200	1
		32	426257	2CSR255158R1325	DSE201DB32A30	0.200	1
		40	426356	2CSR255158R1405	DSE201DB40A30	0.200	1
		50	426455	2CSR255158R1505	DSE201DB50A30	0.200	1

## eRCBOs

DSE201D series [6000] A  type, C characteristic



DSE201D ... A30

### DSE201D A type, C characteristic

Function: protection of end user single-phase circuits against overload and short-circuit currents; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ( $I_{\Delta n} = 30 \text{ mA}$ ).

**Application: commercial, industrial**

**Standard: IEC 61009-1; IEC 61009-2-2; BS EN 61009-1; AS/NZS 61009.1**

**$I_{cn} = 6 \text{ 000 A}$**

N. of poles	Rated residual current $I_{\Delta n}$ [mA]	Rated Current In [A]	Bbn	Order details		Weight 1 piece [kg]	Pack unit pc.
			8012542	EAN	Type code		
<b>C characteristic</b>							
1P+N	30	6	424956	2CSR255158R1064	DSE201DC6A30	0.200	1
		10	425052	2CSR255158R1104	DSE201DC10A30	0.200	1
		16	425151	2CSR255158R1164	DSE201DC16A30	0.200	1
		20	425250	2CSR255158R1204	DSE201DC20A30	0.200	1
		25	425359	2CSR255158R1254	DSE201DC25A30	0.200	1
		32	425458	2CSR255158R1324	DSE201DC32A30	0.200	1
		40	425557	2CSR255158R1404	DSE201DC40A30	0.200	1
		50	425656	2CSR255158R1504	DSE201DC50A30	0.200	1

## RCDs technical details

Coordination tables: back-up DSE201D

Fuses - DSE201D @ 230/240 V

Supply side				Fuse gG
Load side	Char.	Icu [kA]	In [A]	In [A]
DSE201D	B	6	6	63
			10, 16, 20	100
			25, 32	100
			40	125
			50	160
	C	6	6	40
			10, 16, 20	100
			25, 32	100
			40	125
			50	160

This table shows coordination between DSE201D and the Supply side fuse maximum current value. Combination of the two protections allows the breaking capacity to be elevated up to that of the combined fuse.

i.e. Load side RCBO DSE201D-C16, Supply side fuse with In up to 100 A (breaking capacity: 100 kA). RCBO protection up to 100 kA

## RCDs technical details

Coordination tables: back-up DSE201D

### MCCB @ 415 V - DSE201D @ 230/240 V

Supply side			XT1	XT1	XT1	XT2	XT3	XT4	XT1	XT2	XT3	XT4	XT1	XT2	XT4	XT2	XT4	XT2	XT4	
			B	C	N	N	N	N	S	S	S	S	H	H	H	L	L	V	V	
Load side	Char.	Icu [kA]	In [A]	18	25	36	36	36	36	50	50	50	50	70	70	70	120	120	150	150
DSE201D	B,C	6		6...40	16	22	22	25	22	25	22	25	22	25	25	25	25	25	25	25
				50	16	22	22	25	16	25	22	25	16	25	22	25	25	25	25	25

### MCCB @ 415 V - DSE201D @ 230/240 V

Supply side			T1	T1	T1	T2	T3	T4	T2	T3	T4	T2	T4	T2	T4	T2	T4	T4
			B	C	N	N	N	N	S	S	S	H	H	L	L	V		
Load side	Char.	Icu [kA]	In [A]	16	25	36	36	36	36	50	50	50	50	70	70	85	120	200
DSE201D	B,C	6		6...40	15	22	22	25	22	25	25	22	25	25	25	25	25	25
				50	15	22	22	25	16	25	25	16	25	25	25	25	25	25

## RCDs technical details

## Coordination tables: selectivity DSE201D

## Fuses - DSE201D @ 230/240V

**MCCB @ 415 V - DSE201D @ 230/240 V**

## RCDs technical details

Coordination tables: selectivity DSE201D

### MCCB @ 415 V - DSE201D @ 230/240 V

			Supply side								XT2					XT3				
			Version								N,S,H,L,V								N,S	
			Release								TM								TM	
			Iu [kA]								160								250	
			Icu [A]								36,50,70,120,150								36,50	
Load side	Char.	Icu [kA]	Icn [A]	12.5	63	80	100	125	160	63	80	100	125	160	200	250				
DSE201D	B,C	6	6	3	10	T	T	T	T	10	T	T	T	T	T	T	T	T		
			10		7.5	7.5	T	T	T	7.5	7.5	T	T	T	T	T	T	T		
			16		5	7.5	12.5	T	T	5	7.5	12.5	T	T	T	T	T	T		
			20		5	6	10	T	T	5	6	10	T	T	T	T	T	T		
			25		5	6	10	T	5	6	10	10	T	T	T	T	T	T		
			32		3	6	7.5	10	T	3	6	7.5	10	T	T	T	T	T		
			40			7.5	10	T			7.5	10	T	T	T	T	T	T		
			50					T	T			10	10	T	T	T	T	T		

### MCCB @ 415 V - DSE201D @ 230/240 V

			Supply side								XT4									
			Version								N,S,H,L,V									
			Release								TM									
			Iu [kA]								250									
			Icu [A]								36,50,70,120,150									
Load side	Char.	Icu [kA]	Icn [A]	20	25	32	40	50	63	80	100	125	160	200	225	250				
DSE201D	B,C	6	6	6	6	6	6	7.5	10	T	T	T	T	T	T	T	T	T		
			10	3	3	4.5	5	6.5	7.5	9	T	T	T	T	T	T	T	T		
			16		3	4.5	5	6.5	5	8	T	T	T	T	T	T	T	T		
			20			5	5	5	7.5	T	T	T	T	T	T	T	T	T		
			25				5	5	7.5	T	T	T	T	T	T	T	T	T		
			32					5	6	T	T	T	T	T	T	T	T	T		
			40						5	T	T	T	T	T	T	T	T	T		
			50						5	T	T	T	T	T	T	T	T	T		

### MCCB @ 415 V - DSE201D @ 230/240 V

			Supply side								XT2					XT4				
			Version								N,S,H,L,V									
			Release								EL									
			Iu [kA]								160								250	
			Icu [A]								36,50,70,120,150								36,50,70,120,150	
Load side	Char.	Icu [kA]	Icn [A]	10	25	63	100	160	40	63	100	160	200	250						
DSE201D	B,C	6	6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
			10		T	T	T	T	T	T	T	T	T	T	T	T	T	T		
			16			T	T	T	T	T	T	T	T	T	T	T	T	T		
			20			T	T	T	T	T	T	T	T	T	T	T	T	T		
			25			T	T	T		T	T	T	T	T	T	T	T	T		
			32			T	T	T			T	T	T	T	T	T	T	T		
			40			T	T				T	T	T	T	T	T	T	T		
			50				T	T				T	T	T	T	T	T	T		

## RCDs technical details

Coordination tables: selectivity DSE201D

### MCCB @ 415 V - DSE201D @ 230/240 V

			Supply side		T2					T1-T2					T1-T2-T3				T3							
			Version		B,C,N,S,H,L										B,C,N,S,H,L,V											
			Release		TM																					
Load side	Char.	Icu [kA]	In [A]		12.5	16	20	25	32	40	50	63	80	100	125	160	200	250								
DSE201D	B,C	6	6		5.5 <sup>1</sup>	5.5	5.5	5.5	5.5	5.5	5.5	10.5	T	T	T	T	T	T	T							
			10		3 <sup>1</sup>	3	3	3	3	4.5	7.5	8.5	T	T	T	T	T	T	T							
			16			3 <sup>1</sup>	3	4.5	5	7.5	12	T	T	T	T	T	T	T	T							
			20				3 <sup>1</sup>	3	5	6	10	T	T	T	T	T	T	T	T							
			25					3 <sup>1</sup>	5	6	10	T	T	T	T	T	T	T	T							
			32					3 <sup>1</sup>	6	7.5	12	T	T	T	T	T	T	T	T							
			40						5.5 <sup>1</sup>	7.5	12	T	T	T	T	T	T	T	T							
			50						3 <sup>1</sup>	5 <sup>2</sup>	7.5	10.5	T	T	T	T	T	T	T							

<sup>1</sup>) Value valid only for T2 magnetic only supply side circuit-breaker

<sup>2</sup>) Value valid only for T2-T3 magnetic only supply side circuit-breaker

### MCCB @ 415 V - DSE201D @ 230/240 V

			Supply side		T4										T5				
			Version		B,C,N,S,H,L,V														
			Release		TM														
Load side	Char.	Icu [kA]	In [A]		20	25	32	50	80	100	125	160	200	250	320-500				
DSE201D	B,C	6	6		7.5	7.5 <sup>3</sup>	7.5	7.5	T	T	T	T	T	T	T	T	T	T	T
			10		5	5 <sup>3</sup>	5	6.5	9	T	T	T	T	T	T	T	T	T	T
			16			3 <sup>3</sup>	5	6.5	8	T	T	T	T	T	T	T	T	T	T
			20				5	7.5	T	T	T	T	T	T	T	T	T	T	T
			25				5	7.5	T	T	T	T	T	T	T	T	T	T	T
			32				5 <sup>3</sup>	7.5	T	T	T	T	T	T	T	T	T	T	T
			40					6.5	T	T	T	T	T	T	T	T	T	T	T
			50					5 <sup>3</sup>	T	T	T	T	T	T	T	T	T	T	T

<sup>3</sup>) Value valid only for T4 magnetic only supply side circuit-breaker

### MCCB @ 415 V - DSE201D @ 230/240 V

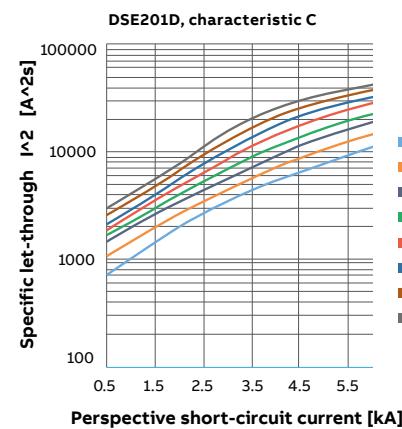
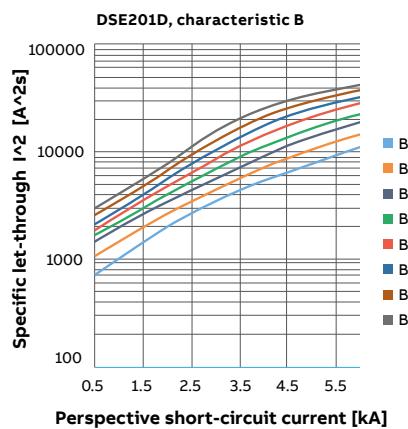
			Supply side		T2					T4				T5								
			Version		B,C,N,S,H,L,V																	
			Release		EL																	
Load side	Char.	Icu [kA]	In [A]		25	63	100	160	100,160	250,320	320-630											
DSE201D	B,C	6	6		T	T	T	T	T	T	T											
			10		T	T	T	T	T	T	T											
			16			T	T	T	T	T	T											
			20			T	T	T	T	T	T											
			25			T	T	T	T	T	T											
			32			T	T	T	T	T	T											
			40				T	T	T	T	T											
			50					10.5	10.5	T	T											

## DSE201D

Limitation of specific let-through energy  $I^2t$ , Peak current  $I_p$  and tripping characteristic

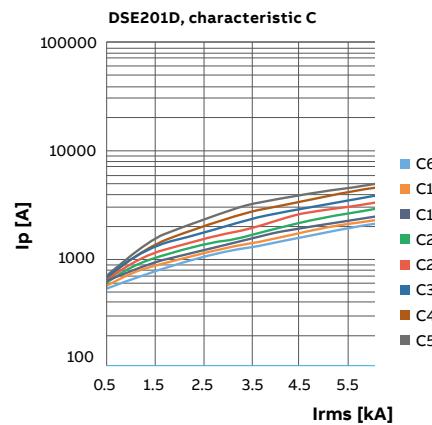
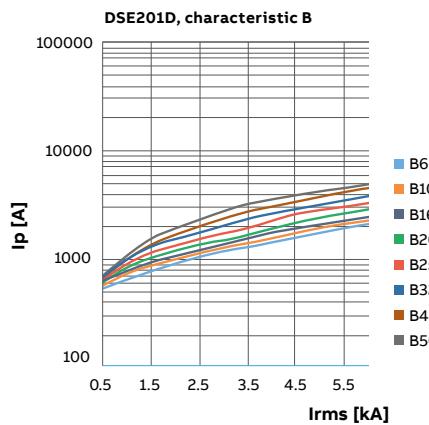
### Limitation of specific let-through energy $I^2t$

The  $I^2t$  curves give the values of the specific let-through energy expressed in  $A^2s$  ( $A$ =amps;  $s$ =seconds) in relation to the perspective short-circuit current ( $I_{rms}$ ) in kA.

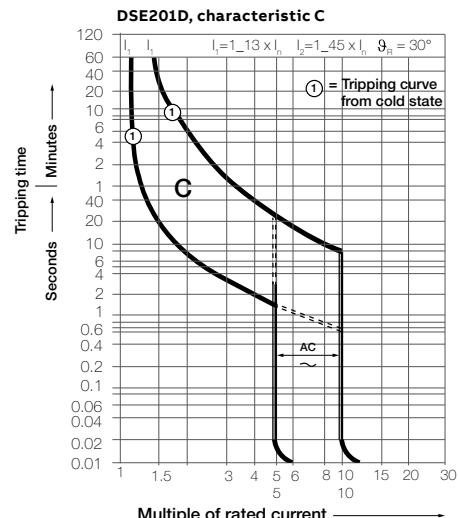
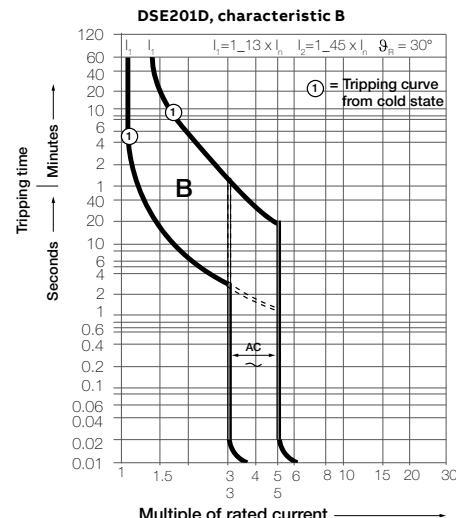


### Peak current $I_p$

The  $I_p$  curves give the values of the peak current, expressed in kA, in relation to the perspective symmetrical short-circuit current (kA).



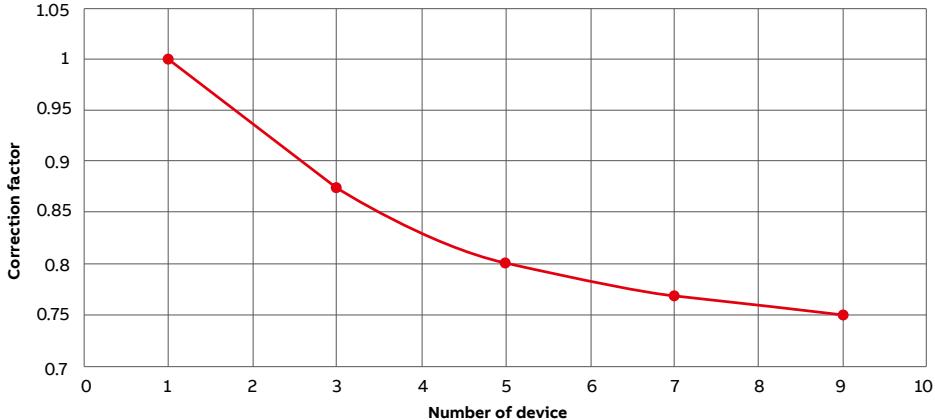
### Tripping characteristic



## DSE201D

Influence of adjacent devices, derating in temperature, performance in altitude and power loss

### Influence of adjacent devices (DSE201D)



N. of devices	Correction factor
1	1.00
3	0.87
5	0.80
7	0.77
9	0.75

### Derating in temperature

Temperature (°C)										
In	-25	-20	-10	0	10	20	30	40	50	55
6A	7.3	7.2	6.9	6.7	6.4	6.2	6.0	5.9	5.9	5.8
10A	13.0	12.9	12.2	11.4	10.9	10.4	10.0	9.8	9.7	9.5
16A	20.2	19.7	18.7	17.8	17.3	16.6	16.0	15.8	15.4	15.2
20A	26.0	25.2	24.0	22.8	21.9	20.7	20.0	19.8	19.6	19.5
25A	32.6	31.5	30.4	29.0	27.5	26.0	25.0	24.6	24.2	23.9
32A	41.1	39.7	38.0	36.3	34.8	33.1	32.0	30.9	29.8	29.6
40A	50.3	49.4	47.9	45.6	43.7	41.5	40.0	39.0	38.4	38.1
50A	61.1	60.4	59.2	57.1	54.7	51.7	50.0	48.8	48.0	47.9

Max operating current depending on the ambient temperature of a circuit breaker in load circuit of characteristics type B and C

### Performance in altitude

Elevation (m)	3000	4000	5000	6000
Rated Current (A)	$0.96 \times In$	$0.94 \times In$	$0.92 \times In$	$0.90 \times In$
Rated Voltage (V)	$0.877 \times Un$	$0.775 \times Un$	$0.676 \times Un$	$0.588 \times Un$

### Voltage drop, power loss and internal resistance

In	Voltage drop (V)	Power loss (W)	Internal resistance (mΩ)
6A	0.30	1.8	49
10A	0.18	1.8	18
16A	0.15	2.4	9.5
20A	0.15	3.0	7.6
25A	0.13	3.3	5.3
32A	0.14	4.4	4.3
40A	0.14	5.5	3.4
50A	0.11	5.3	2.1





---

**ABB Australia Pty Limited**

For enquiries

Phone: 1800 60 20 20

E-mail: AU-EP-Sales@abb.com

**abbaustralia.com.au**