



DSE201  
Compact design with enhanced  
protection

# The best of safety

## DSE201 6 kA: the highest level of reliability



The 1P+N electronic residual current circuit-breakers with overcurrent protection (RCBOs) DSE201 meet the demand for devices that fully protect modern installations against short-circuit currents, overloads earth fault currents and indirect contacts, providing additional protection against direct contacts (30 mA versions). Each RCBO is fitted with a functional earth wire to guarantee the highest level of safety, even in case of loss of neutral.

In only one module width, these electronic residual current circuit-breakers with overcurrent protection offer a technologically advanced and comprehensive range with outstanding features, sizes and tripping characteristics.

The 1P+N electronic RCBOs DSE201 share the same profile of the System pro *M compact*<sup>®</sup> range of modular products, offering a smart retrofit solution for space constrained applications.

These electronic RCBO can be installed in countries where the use of 1P+N RCBO with functional earth is consolidated.

## The module for total safety DSE201 6 kA: the highest level of reliability

In only one module width, the RCBOs DSE201 combine protection against earth-fault currents and overcurrents, providing a breaking capacity of 6 kA.



The compact shape of the RCBOs is perfectly integrated with ABB's System pro *M* compact® line of modular products. With the same width as standard MCBs, the RCBOs are fully integrated with ABB's range of Consumer Units and Distribution Boards.

Suitable to work from -25 °C to +55 °C ambient temperatures, the DSE201 RCBOs cover all applications offering, in only one module width, a complete protection of single-phase circuits: short circuit, overload and residual current.

The possibility to lock the toggle in ON/OFF positions with a

padlock avoids unwanted manipulation of the lines.

Installation is made simpler by reduced height (10 cm only) and the availability of two terminals in the bottom part allows the use of both cables and busbars. All operations of installation and removal from busbar and tightening of the terminals are very easy and can be done with a standard insulated screwdriver.

Line side terminal is fail-safe type to avoid improper connection, while double clips ensure a secure mounting of the device in any type of consumer unit or distribution board.

# The value of quality

## Made in Italy and attention to details

### Space for insulated screwdrivers

The larger neutral hole allows the use of an insulated screwdriver to tighten the screw of neutral terminals, ensuring maximum operation safety. All versions are equipped with cage type terminals (16mm<sup>2</sup> load side), with tightening torque of 1.2 Nm.

### Product coding

All the necessary technical and installation information can be found directly on the device. Product range, tripping characteristics, rated currents, sensitivity, type, breaking capacity, rated voltage, order code, EAN code, electrical scheme, reference standards and many other specifications are laser printed on the front and side of units.

### Real contact position indicator on toggle

Directly connected to the moving contact of the device, it indicates the exact position of the contacts at all times (red: closed contacts, green: open contacts).

### Friendly and protected

Fast installation is supported by the two flying leads for neutral cable and functional earth, each integrated in the device, which can be directly connected to the main neutral bar and main earth bar.

### Anti counterfeiting

Each DSE201 is equipped with a RFID tag containing a unique serial number assigned by ABB according to ISO/IEC FCD 15693-3 standard in order to authenticate the product. Through this unique serial number, ABB can easily identify counterfeited products and verify the authenticity of each single device.

### In control

Test button allows the regular check of the functionality of the device.

### Reduced height

Thanks to its reduced height, only 10 cm, DSE201 makes easier wiring operation inside the consumer unit or the distribution board.



Thanks to the combination of a thermomagnetic circuit breaker and a residual current circuit breaker, the ABB's range DSE201 of 1P+N electronic RCBOs meet all the protection requirements in only one module width.

At home or in the office, these devices are essential for the safety of people, utilities and equipment, protecting not only against earth fault residual currents - due to loss of isolation or accidental contact with live parts - but also against overcurrents. The DSE201 RCBOs are particularly compact, flexible and easy to install, either in consumer units or in distribution boards: they offer superior performance and features, and the total integration with ABB's range of modular products.



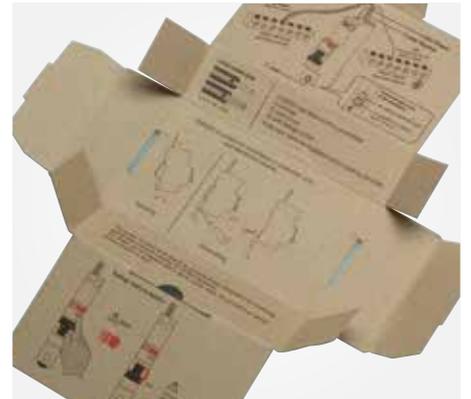
#### **Double slot terminal**

On the line side, the availability of a terminal with two slots allows to use different types of conductors: one housing is designed for cables up to 25 mm<sup>2</sup>, the other for busbars or cables up to 10 mm<sup>2</sup>.



#### **Easy and flexible**

The double clip eases dismantling even when the unit is installed in a high density system. A single device can be removed from the cluster without disconnecting other units. The same screwdriver used to tighten terminals can also be used to unlock the DIN rail fixing device of the unit.



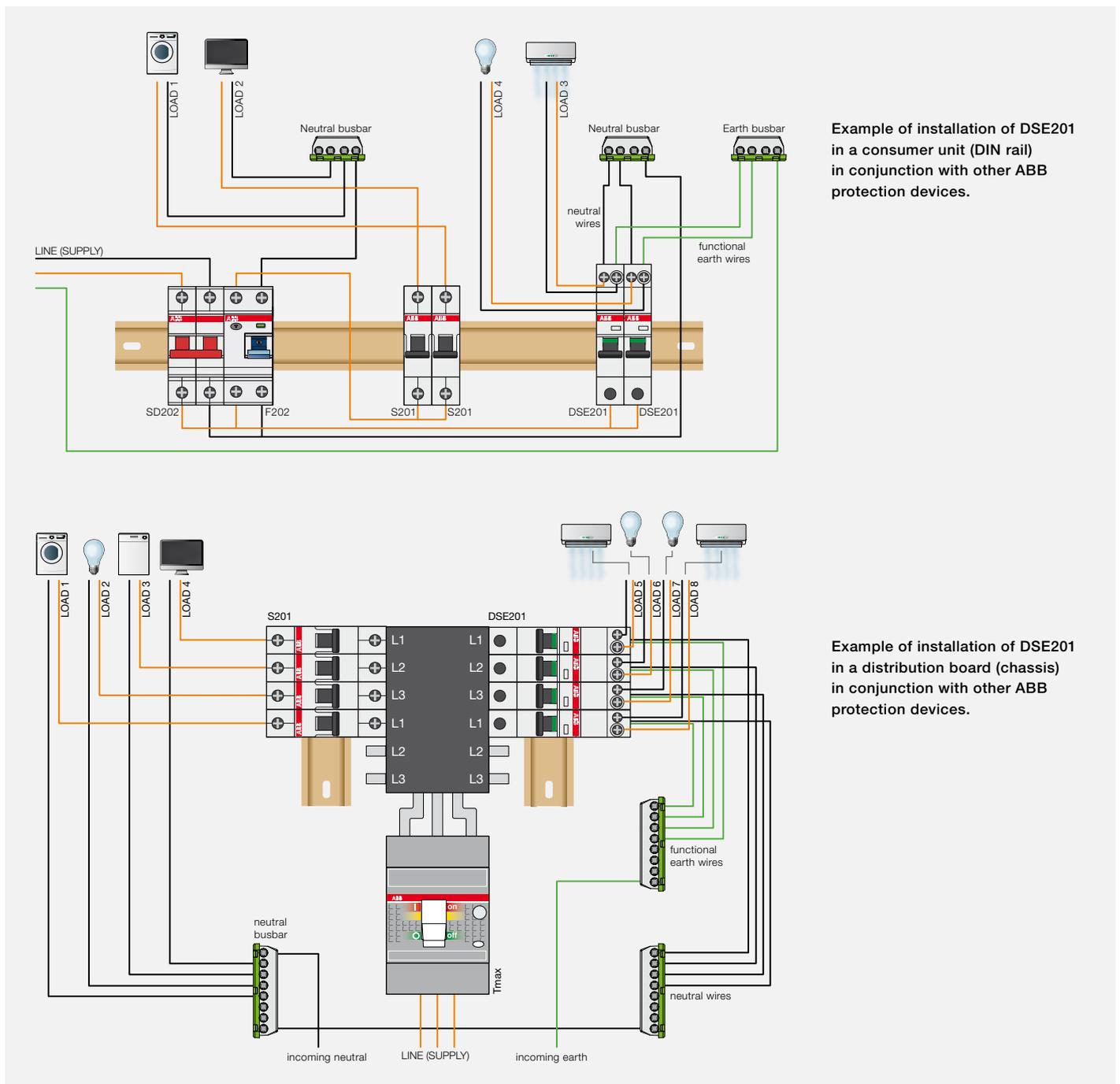
#### **Environmentally friendly**

The user manual is an integral part of the package. The information have been printed inside the box to make easy the reading and to reduce consumption of paper.

# The importance of simplicity

## Smart solutions for easier and safer installation

Due to the compact, flexible design, DSE201 products can be easily installed either in consumer units (mounting on DIN rail) or distribution boards (mounting on chassis). The devices can be supplied with single phase and three phases busbars.



## The advantage to be flexible Maximum versatility and simplicity

A breaking capacity of 6 kA makes the electronic RCBOs suitable for residential and commercial installations. The System pro *M* compact® shape of the DSE201 offers full integration with ABB's range of modular devices. This allows to use the residual current circuit-breakers with overcurrent protection as retrofit solution to renew distribution boards.

In only one module width, the residual current circuit breakers with overcurrent protection DSE201 combine the protection against earth-fault currents and overcurrents, and a high breaking capacity of 6 kA. The DSE201 RCBOs are available in A and AC types, with sensitivity of 30 mA and rated currents from 6 to 32A.

Type A allows to detect pulsating DC earth fault components generated by modern electronic appliances, such as data communication equipment.

DSE201 is also equipped with an overvoltage protection feature in order to monitor the voltage level of the network. When the voltage exceeds a preset threshold (330 V) the DSE201 trips, shielding loads from damage.

In this way, more safety is ensured to the installation.



# Technical features and overall dimensions

## Electrical features

Standards			IEC 61009
Type (wave form of the earth leakage sensed)			AC, A
Number of poles			1P+N
Rated current $I_n$		A	$6 \leq I_n \leq 32A$
Rated sensitivity $I_{\Delta n}$		mA	30-100
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 residual current protection		V	85
Min. operating voltage of circuit test		V	195
Rated frequency		Hz	50/60
Rated breaking capacity acc. to IEC 61009	ultimate $I_{cn}$	kA	6
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	250

## Mechanical data

Housing			insulation group II, RAL 7035
Toggle			insulation group IIIA, black, sealable in ON-OFF positions
Contact position indication			CPI on toggle (I ON / 0 OFF)
Electrical life		operations	10000
Mechanical life		operations	20000
Protection degree	housing		IP4X
	terminals		IP2X
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

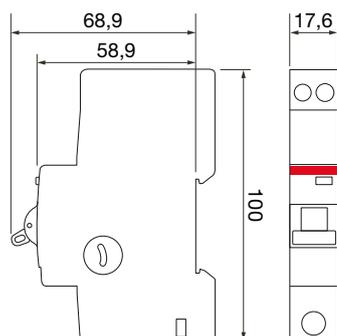
## Installation

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 (top)	mm <sup>2</sup>	16
	line side (bottom)	mm <sup>2</sup>	25
Terminal size for busbars	load side (top)		only for wire connection
	line side (bottom)	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
	Length	mm	750
	Section	mm <sup>2</sup>	2.5 up to 20 A; 4 for 25-32 A
	Color		black
Functional earth cable	Type		low smoke halogen free
	Length	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 60439-1&3, BS EN 60439-1&3, in distribution board Type B according to IEC 60439-1&3, BS EN 60439-1&3.
Supply from			bottom terminal

## Dimensions and weight

Dimensions (H x D x W)		mm	100 x 68,9 x 17,6
Weight		g	180

## Dimensions



Dimensions in mm

# Order code



DSE201 ... A30

## DSE201 - Type A

N. of poles	Rated residual current $I_{\Delta n}$ [mA]	Rated Current $I_n$ [A]	Bbn 8012542 EAN	Order details		Weight 1 piece [kg]	Pack unit pc.
				Type code	Order code		
<b>B characteristic</b>							
1P+N	30	6	660323	2CSR255153R1065	DSE201 B6 A30	0,180	1
		10	660729	2CSR255153R1105	DSE201 B10 A30	0,180	1
		16	660224	2CSR255153R1165	DSE201 B16 A30	0,180	1
		20	660620	2CSR255153R1205	DSE201 B20 A30	0,180	1
		25	647010	2CSR255153R1255	DSE201 B25 A30	0,180	1
		32	647515	2CSR255153R1325	DSE201 B32 A30	0,180	1
<b>C characteristic</b>							
1P+N	30	6	295426	2CSR255153R1064	DSE201 C6 A30	0,180	1
		10	295327	2CSR255153R1104	DSE201 C10 A30	0,180	1
		16	498520	2CSR255153R1164	DSE201 C16 A30	0,180	1
		20	305422	2CSR255153R1204	DSE201 C20 A30	0,180	1
		25	647614	2CSR255153R1254	DSE201 C25 A30	0,180	1
		32	643913	2CSR255153R1324	DSE201 C32 A30	0,180	1



DSE201 ... ACXX

## DSE201 - Type AC

N. of poles	Rated residual current $I_{\Delta n}$ [mA]	Rated Current $I_n$ [A]	Bbn 8012542 EAN	Order details		Weight 1 piece [kg]	Pack unit pc.
				Type code	Order code		
<b>B characteristic</b>							
1P+N	30	6	771524	2CSR255053R1065	DSE201 B6 AC30	0,180	1
		10	587620	2CSR255053R1105	DSE201 B10 AC30	0,180	1
		16	575825	2CSR255053R1165	DSE201 B16 AC30	0,180	1
		20	564027	2CSR255053R1205	DSE201 B20 AC30	0,180	1
		25	586722	2CSR255053R1255	DSE201 B25 AC30	0,180	1
		32	574927	2CSR255053R1325	DSE201 B32 AC30	0,180	1
<b>C characteristic</b>							
1P+N	30	6	575924	2CSR255053R1064	DSE201 C6 AC30	0,180	1
		10	564126	2CSR255053R1104	DSE201 C10 AC30	0,180	1
		16	586821	2CSR255053R1164	DSE201 C16 AC30	0,180	1
		20	575023	2CSR255053R1204	DSE201 C20 AC30	0,180	1
		25	563228	2CSR255053R1254	DSE201 C25 AC30	0,180	1
		32	775928	2CSR255053R1324	DSE201 C32 AC30	0,180	1
1P+N	100	6	775829	2CSR255053R2064	DSE201 C6 AC100	0,180	1
		10	773627	2CSR255053R2104	DSE201 C10 AC100	0,180	1
		16	771425	2CSR255053R2164	DSE201 C16 AC100	0,180	1
		20	587521	2CSR255053R2204	DSE201 C20 AC100	0,180	1
		25	575726	2CSR255053R2254	DSE201 C25 AC100	0,180	1
		32	563921	2CSR255053R2324	DSE201 C32 AC100	0,180	1

# Frequently Asked Questions

## Why is the DSE201 range fitted with two external wires?

DSE201 electronic RCBO range is fitted with two external wires to connect neutral and functional earth.

– Neutral wire (black wire on photo):

In order to ensure residual current protection, the RCBO constantly monitors the flowing current difference between the phase and neutral wires. The neutral must therefore pass into the RCBO. Due to the fact that DSE201 is designed for British Standard distribution boards, that distribute the phases with a fixed busbar system, the neutral connection cannot be on the bottom part of the device. An additional neutral wire is therefore foreseen.

– Functional earth (white wire):

Electronic RCBOs use the line voltage to supply an embedded electronic circuit that manages the residual current protection. In case of loss of neutral the electronic circuit would not be supplied, thus not ensuring RCD protection. In this very uncommon case, the functional earth connection allows the product to work, by using the earth as neutral potential. Even if the risk of loss of neutral is very low, DSE201 range is suited with the functional earth feature in order to guarantee RCD protection in all cases.

## What happens if I don't connect the functional earth wire?

Not connecting the functional earth wire does not affect the standard use of the product unless the neutral connection is interrupted. In this specific case, only thermomagnetic protection is ensured. We warmly recommend connecting the Functional Earth of each device to reach the maximum level of safety.

## Under which voltages can the DSE201 range be installed?

Two voltages values define the working range of the RCBOs:

- Operating voltage: it indicates the range of voltage under which the RCBOs ensure thermal, magnetic and residual current protections. For DSE201 this range is 85...264V.
- Test circuit voltage: it indicates the range of voltage under which the testing of the residual current protection (with the test button) can be realized. For DSE201 this range is 204...264 V.
  - The voltage values for which DSE201 can be installed are therefore 204...264V, range in which both RCBO protection and test circuits active. In addition, even in a case of dramatic reduction in voltage, DSE201 would ensure protection down to 85V for a complete safety.

## What are the advantages of protecting each line with an RCBO instead of a unique RCCB for a group of circuits?

Installing an RCBO for each single line guarantees the best continuity of service: in case of residual current fault on a line, only the faulty line turns out of service, maintaining the service on all the others. It is possible to upgrade existing installations, adding RCD protection on each line without additional space, with the electronic RCBOs DSE201.

# Contact us

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