Electrical installation solutions for buildings

Arc Fault Detection Devices

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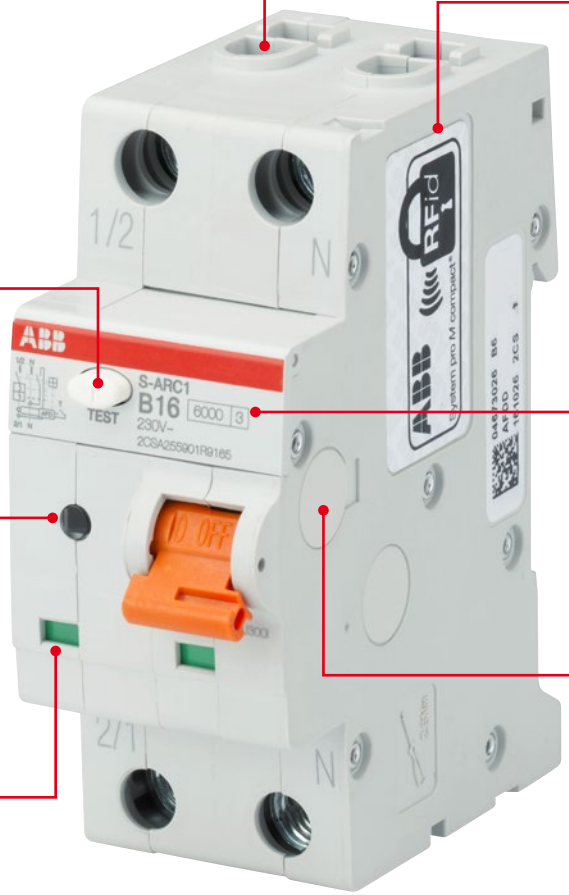
AFDD S-ARC1:
Arc Fault Detection Device Integrated with MCB

Easy to install
Twin terminals for separate feeding with busbar and cables. Connection possible both from top and bottom side.

Test pushbutton and self test
Test pushbutton to verify the correct functioning of the arc fault detection device. Internal self test is also continuously running in order to check the arc detection circuit.

LED for troubleshooting
LED troubleshooting indicator to monitor the operation of the AFDD and give indication of the cause of the trip.

Contact position indicator (CPI)
To always know the status of the contacts (red: closed; green: open) Independent from the toggle position



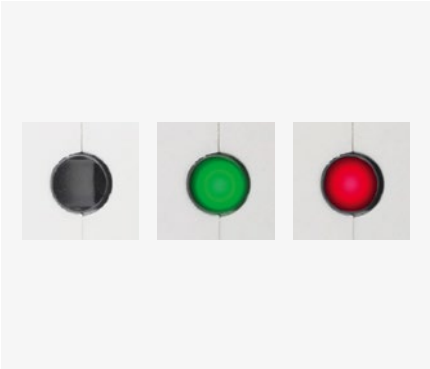
Anti counterfeiting
RFid tag containing a unique serial number assigned to ABB in order to authenticate the product.

Laser printed information
Information on the device are laser printed to ensure readability over time.

Combination with auxiliary elements
Platform suitable for combination with System pro M compact® accessories.

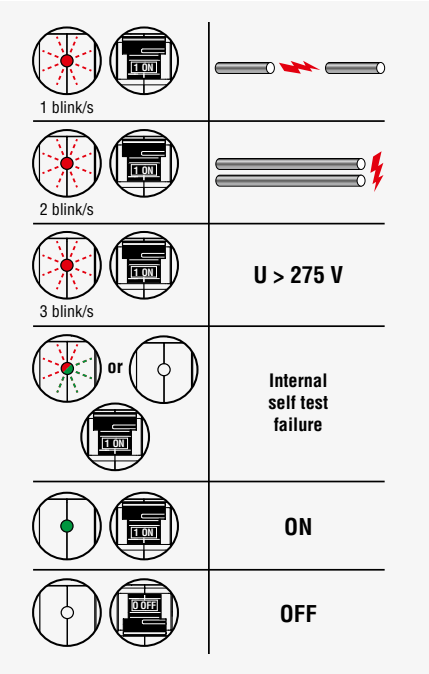
The S-ARC1 is the new 1P+N Arc Fault Detection Device (AFDD) with an integrated Miniature Circuit Breaker (MCB) in only two module width. Besides the overcurrent protection of the MCB, the S-ARC1 provides additional protection against series, parallel and earth arc faults. The series is perfectly integrated with ABB's System pro M compact® range. Combined with a Residual Current Circuit Breaker (RCCB) as upstream device, the S-ARC1 provides the best solution for complete protection of electrical installations in buildings.

LED for easy troubleshooting
LED to monitor the correct working conditions of the device and have an easier troubleshooting in case of trip. Consequently the downtime for maintenance can be reduced.
– Toggle ON: GREEN LED
– Toggle OFF: LED OFF
– Different indications after the trip, after reclosing the toggle



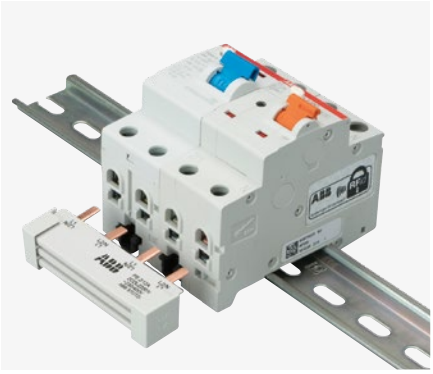
LED color	Blink/ sec	Signalling duration	Cause of trip
Green		Permanent	Manual trip, manual test , overcurrent
Red blinking	1	5 sec	Series arc
Red blinking	2	5 sec	Parallel arc
Red blinking	3	5 sec	Over voltage

In case of internal self test failure, the led can switch off or start blinking green/red alternatively.



Dedicated sticker for LED
Dedicated sticker that summarizes the LED function is present in addition to the instructions sheet.

Double slot terminals
Fail-safe terminals to avoid improper connection. Two slots of different dimensions (25 mm² and 10 mm²) available to allow the connection both with cables and busbars. Connection possible both from top and bottom side. Standard System pro M compact® clip ensures a stable fixing on DIN rail and easy and fast mounting and dismounting operations.



Compatibility with busbars
A quick and easy installation is possible in one step using a standard ABB System pro M compact® busbar: no additional cables required for the wiring.

All information on the device
Main technical information are laser-printed on the front and left side of product to ensure long readability.

AFDD

Technical features and overall dimensions

			S-ARC1	S-ARC1 M
Electrical features				
Standards			IEC/EN 62606; IEC/EN 60898-1	IEC/EN 62606; IEC/EN 60898-1
Number of poles			1P + N	1P + N
Rated current I_n		A	6≤ In ≤ 20	6≤ In ≤ 20
Rated voltage U_e		V	230-240	230-240
Insulation voltage U_i		V	500 V AC	500 V AC
Overvoltage category			III	III
Pollution degree			2	2
Min. operating voltage		V	170	170
Threshold for protection against overvoltage		V	275	275
Rated frequency		Hz	50/60	50/60
Rated breaking capacity acc. to IEC 60898-1	ultimate I_{cn}	A	6000	10000
Rated breaking capacity acc. to IEC 60947-2	ultimate I_{cu}	kA	7.5	10
	service I_{cs}	kA	6	7.5
Rated residual breaking capacity Icn1		A	6000	6000
Rated impulse withstand voltage (1.2/50) U_{imp}		kV	4 kV (test voltage 6,2 kV at sea level, 5 kV at 2 000 m)	4 kV (test voltage 6,2 kV at sea level, 5 kV at 2 000 m)
Dielectric test voltage at ind. freq. for 1 min.		kV	2 kV (50 / 60H z, 1 min.)	2 kV (50 / 60Hz, 1 min.)
Thermomagnetic release - characteristic	B: 3 I_n ≤ I_m ≤ 5 I_n		■	■
	C: 5 I_n ≤ I_m ≤ 10 I_n		■	■
Energy limitation class			3	3
Mechanical features				
Housing			Insulation group II, RAL 7035	Insulation group II, RAL 7035
Toggle			Insulation group IIIA, Orange RAL 2004, sealable in ON-OFF positions	Insulation group IIIA, Orange RAL 2004, sealable in ON-OFF positions
Contact position indication			Green/Red Window	Green/Red Window
Electrical life		opera-tions	10000	10000
Mechanical life		opera-tions	20000	20000
Protection degree acc. to EN 60529	housing		IP4X	IP4X
	terminals		IP2X	IP2X
Shock resistance acc. to IEC/EN 60068-2-27			30 g - 2 shocks - 13ms	30 g - 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	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 %	28 cycles with 55 °C/90-96 % and 25 °C/95-100 %
Reference temperature for setting of thermal element		°C	30	30
Ambient temperature (with daily average ≤ +35 °C)		°C	-25…+55	-25…+55
Storage temperature		°C	-40…+70	-40…+70

Installation				
Terminal type	top / bottom		failsafe bi-directional cylinder-lift terminal (shock protected)	failsafe bi-directional cylinder-lift terminal (shock protected)
Terminal size for cables	top / bottom	mm^2	25/25	25/25
Terminal size for busbars	top / bottom	mm^2	10/10	10/10
Tightening torque	top / bottom	Nm	2.8	2.8
Stripping length of the cable		mm	12,5	12,5
Mounting			on DIN rail EN 60715 (35mm) by means of mounting clip	on DIN rail EN 60715 (35mm) by means of mounting clip
Mounting position			Any	Any
Supply from			Top/Bottom terminals	Top/Bottom terminals
Dimensions and weight				
Dimensions (H x D x W)		mm	85 x 69 x 35 mm	85 x 69 x 35 mm
Weight		g	180	180
Combinable with accessories and auxiliaries	Auxiliary contact, signal contact/auxiliary switch, shunt trip, undervoltage release, overvoltage release			

AFDD

S-ARC1, B and C characteristic

S-ARC1, B and C characteristics
Function: protection of end user single-phase circuits against short-circuit currents, overload, earth arc faults, parallel arc faults and series arc faults.

Application: residential, commercial
Standard: IEC 62606; EN 62606; IEC 60898-1; EN 60898-1
Icn = 6 000 A

B-Characteristic

No. of poles	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
1+N	6	750130	S-ARC1 B6	2CSA255901R9065		0.18	1
	10	178132	S-ARC1 B10	2CSA255901R9105		0.18	1
	13	750031	S-ARC1 B13	2CSA255901R9135		0.18	1
	16	178033	S-ARC1 B16	2CSA255901R9165		0.18	1
	20	749936	S-ARC1 B20	2CSA255901R9205		0.18	1

C-Characteristic

No. of poles	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
1+N	6	177937	S-ARC1 C6	2CSA255901R9064		0.18	1
	10	749837	S-ARC1 C10	2CSA255901R9104		0.18	1
	13	500735	S-ARC1 C13	2CSA255901R9134		0.18	1
	16	886136	S-ARC1 C16	2CSA255901R9164		0.18	1
	20	175438	S-ARC1 C20	2CSA255901R9204		0.18	1

AFDD

S-ARC1 M, B and C characteristic

S-ARC1 M, B and C characteristics
Function: protection of end user single-phase circuits against short-circuit currents, overload, earth arc faults, parallel arc faults and series arc faults.

Application: residential, commercial
Standard: IEC 62606; EN 62606; IEC 60898-1; EN 60898-1
Icn = 10 000 A

S-ARC1 M - B characteristics

No. of poles	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
1P+N	6	374312	S-ARC1 M B6	2CSA275901R9065		0.18	1
	10	342113	S-ARC1 M B10	2CSA275901R9105		0.18	1
	13	342014	S-ARC1 M B13	2CSA275901R9135		0.18	1
	16	342212	S-ARC1 M B16	2CSA275901R9165		0.18	1
	20	341215	S-ARC1 M B20	2CSA275901R9205		0.18	1

S-ARC1 M - C characteristics

No. of poles	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
1P+N	6	339816	S-ARC1 M C6	2CSA275901R9064		0.18	1
	10	339717	S-ARC1 M C10	2CSA275901R9104		0.18	1
	13	339618	S-ARC1 M C13	2CSA275901R9134		0.18	1
	16	340416	S-ARC1 M C16	2CSA275901R9164		0.18	1
	20	340317	S-ARC1 M C20	2CSA275901R9204		0.18	1