

S800U series

High performance circuit breakers—UL 489 series



Description

The S800U high performance MCB offers a compact solution to circuit protection. The S800U devices are DIN rail mounted. The S800U is available with application-specific trip characteristics to provide maximum circuit protection.

The breakers offer thermal-magnetic trip protection according to Z and K characteristics.

For the worldwide market, the breakers carry CSA, IEC, CE and many other agency approvals.

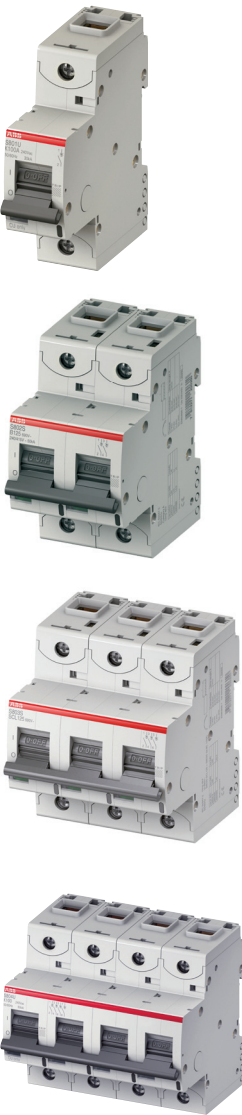
Features

- Energy limiting
- Fast breaking time (2.3-2.5 ms)
- Wide range of accessories
- DIN rail mounting
- Finger safe terminals
- Multi-function terminals
- Ring tongue compatible
- UL 489 File #E312425

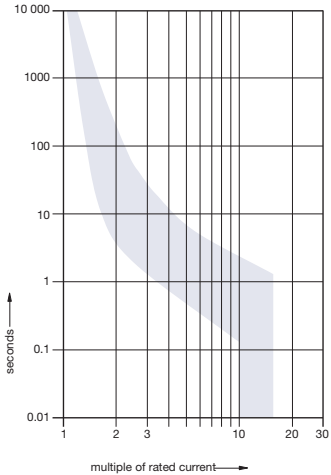
	S800U	S800U-UCZ	S800U-PVS
Amperage	10-100 A	10-80 A	5 A
Voltage	240 VAC	600 VDC	1000 VDC
Poles	1, 2, 3, 4	4 in series	4 in series
Trip curves	Z, K	Z	PVS
Short circuit interrupt rating	30/50 kA (single-/multi-pole)	10 kA	3 kA
Auxiliary contacts	Yes	—	—
Bell alarm	Yes	—	—
Shunt trip	Yes	—	—
Undervoltage release	Yes	—	—
Terminals	Compression/ring tongue	Compression	Compression

S800U-K, 240 VAC

Branch circuit protection—UL 489



Number of poles	Rated current		Number of poles	Rated current	
	I_n A	Catalog number		I_n A	Catalog number
1	10	S801U-K10	3	10	S803U-K10
	15	S801U-K15		15	S803U-K15
	20	S801U-K20		20	S803U-K20
	25	S801U-K25		25	S803U-K25
	30	S801U-K30		30	S803U-K30
	40	S801U-K40		40	S803U-K40
	50	S801U-K50		50	S803U-K50
	60	S801U-K60		60	S803U-K60
	70	S801U-K70		70	S803U-K70
	80	S801U-K80		80	S803U-K80
	90	S801U-K90		90	S803U-K90
	100	S801U-K100		100	S803U-K100
2	10	S802U-K10	4	10	S804U-K10
	15	S802U-K15		15	S804U-K15
	20	S802U-K20		20	S804U-K20
	25	S802U-K25		25	S804U-K25
	30	S802U-K30		30	S804U-K30
	40	S802U-K40		40	S804U-K40
	50	S802U-K50		50	S804U-K50
	60	S802U-K60		60	S804U-K60
	70	S802U-K70		70	S804U-K70
	80	S802U-K80		80	S804U-K80
	90	S802U-K90		90	S804U-K90
	100	S802U-K100		100	S804U-K100

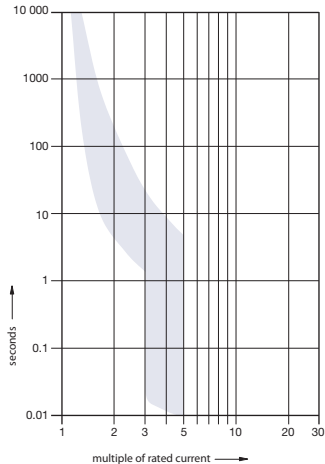


S800U-Z, 240 VAC

Branch circuit protection—UL 489

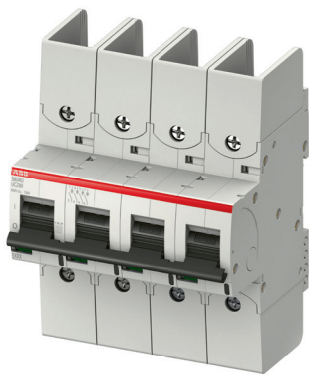


Number of poles	Rated current I_n A	Catalog number	Number of poles	Rated current I_n A	Catalog number
1	10	S801U-Z10	3	10	S803U-Z10
	15	S801U-Z15		15	S803U-Z15
	20	S801U-Z20		20	S803U-Z20
	25	S801U-Z25		25	S803U-Z25
	30	S801U-Z30		30	S803U-Z30
	40	S801U-Z40		40	S803U-Z40
	50	S801U-Z50		50	S803U-Z50
	60	S801U-Z60		60	S803U-Z60
	70	S801U-Z70		70	S803U-Z70
	80	S801U-Z80		80	S803U-Z80
	90	S801U-Z90		90	S803U-Z90
2	100	S801U-Z100		100	S803U-Z100
	10	S802U-Z10	4	10	S804U-Z10
	15	S802U-Z15		15	S804U-Z15
	20	S802U-Z20		20	S804U-Z20
	25	S802U-Z25		25	S804U-Z25
	30	S802U-Z30		30	S804U-Z30
	40	S802U-Z40		40	S804U-Z40
	50	S802U-Z50		50	S804U-Z50
	60	S802U-Z60		60	S804U-Z60
	70	S802U-Z70		70	S804U-Z70
	80	S802U-Z80		80	S804U-Z80
	90	S802U-Z90		90	S804U-Z90
	100	S802U-Z100		100	S804U-Z100



S804U-PVS5

The S804U-PVS5 is for GFDI applications (Ground-Fault Detector Interrupter) in photovoltaic systems. In case of a ground fault, the breaker will trip and the PV generator will not be damaged. The breaker is tested acc. to UL 489B for 1000VDC.



Technical specifications

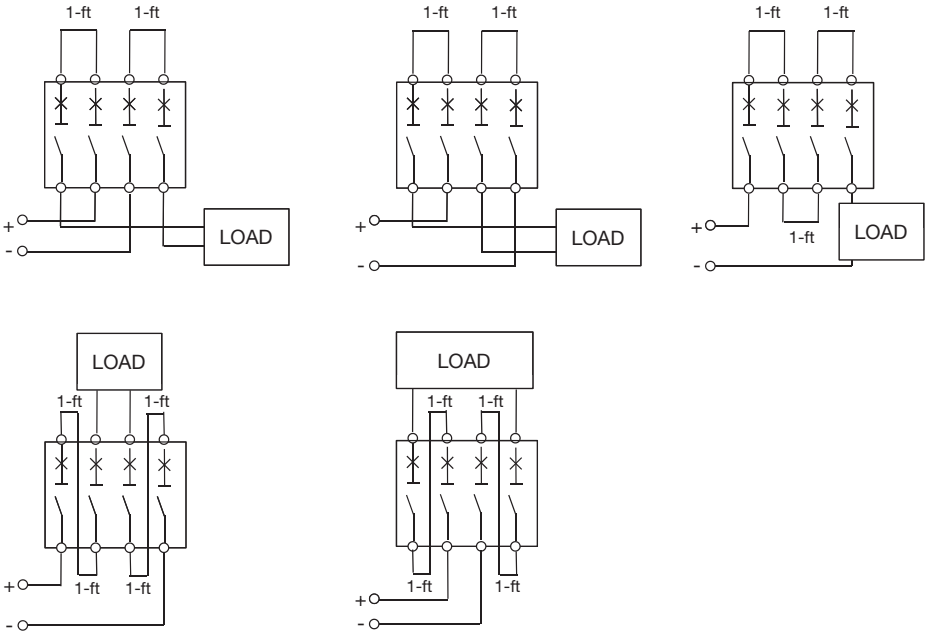
Standard		UL 489B
Characteristic		PV-S
Rated current I _n	[A]	5
Rated voltage U _e	[V]	1000 DC
No. of poles		4
Short-circuit current rating acc. to UL 489B	[kA]	3
Connections 5 A		
Single conductor per terminal – copper only, 75C wire		14 AWG – 2 AWG Cu, Solid or stranded
Tightening torque	[Nm]	3.5 (31 in.lb)
Protection category		IP40 (actuating end only)
Mounting position		Any
Contacts		Cadmium-free
Reference temperature for tripping characteristic	50 °C	
Ambient temperature	[°C]	–25...+60
Storage temperature	[°C]	–40...+70
Approval		cULus File #E351317

Ordering information

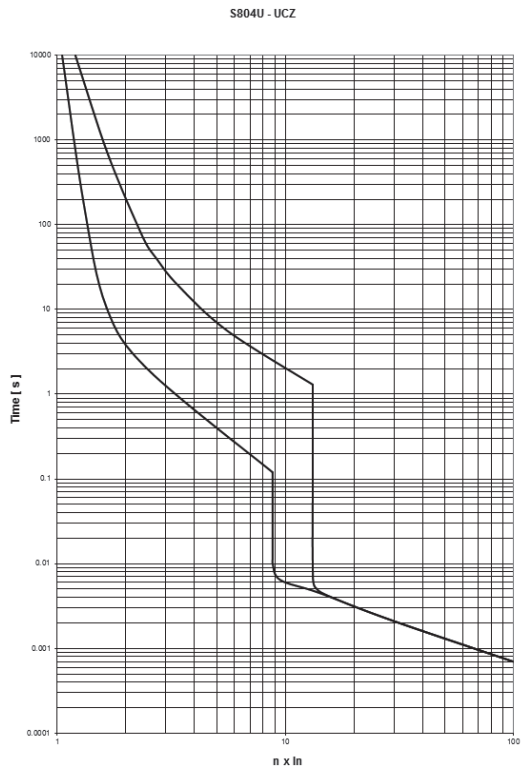
Rated current (A)	Catalog number
5	S804U-PVS5

S804U-PVS5

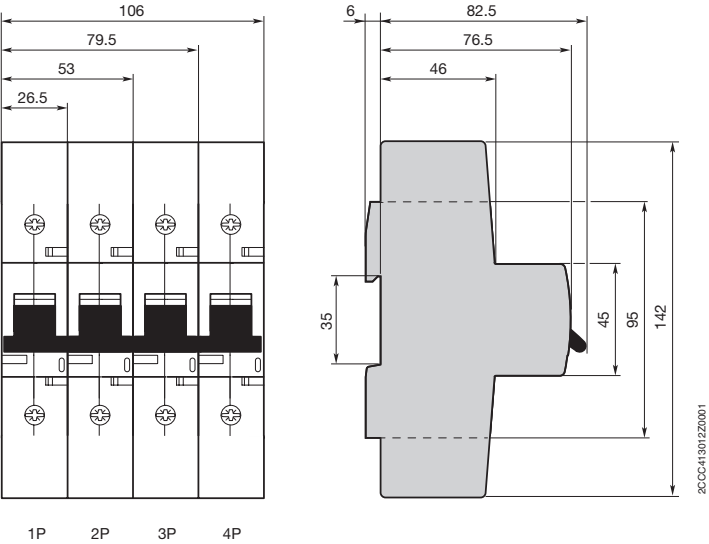
Tested and listed wirings



Trip curve for S804U-PVS5



Dimension S804U-PVS5

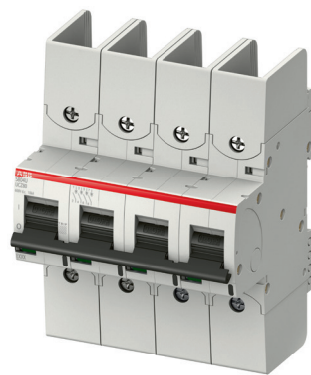


Tripping behavior acc. to UL 489

Thermal release: 1.13 – 1.30 x I_n
Magnetic release: 6 x I_n

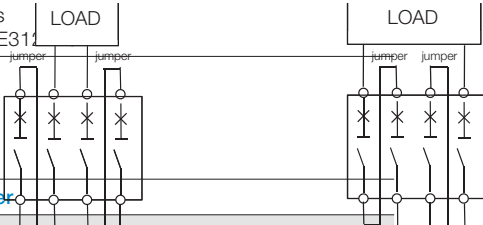
S804U-UCZ

This breaker is specially designed for networks up to 600 VDC, i.e., a data center. It is available as 4-pole version with a short-circuit current rating of 10 kA acc. to UL 489.



Technical specifications

Standard		UL 489
Characteristic		Z
Rated current I _n	[A]	10–80
Rated voltage U _n	[V]	600 DC
No. of poles		4
Short-circuit current rating acc. to UL 489	[kA]	10
Tightening torque	[Nm]	3.5 (31 in.lb)
Protection category		IP40 (actuating end only)
Mounting position		Any
Contacts		Cadmium-free
Reference temperature for tripping characteristic		25 °C
Ambient temperature	[°C]	–25...+60
Storage temperature	[°C]	–40...+70
Approval		cULus File #E311

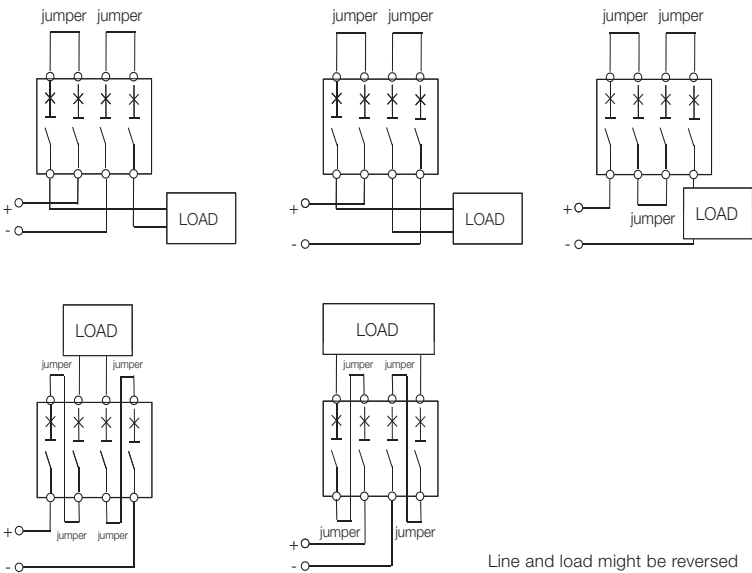


Ordering information

Rated current (A)	Catalog number
10	S804U-UCZ10
15	S804U-UCZ15
20	S804U-UCZ20
25	S804U-UCZ25
30	S804U-UCZ30
40	S804U-UCZ40
50	S804U-UCZ50
60	S804U-UCZ60
70	S804U-UCZ70
80	S804U-UCZ80

S804U-UCZ

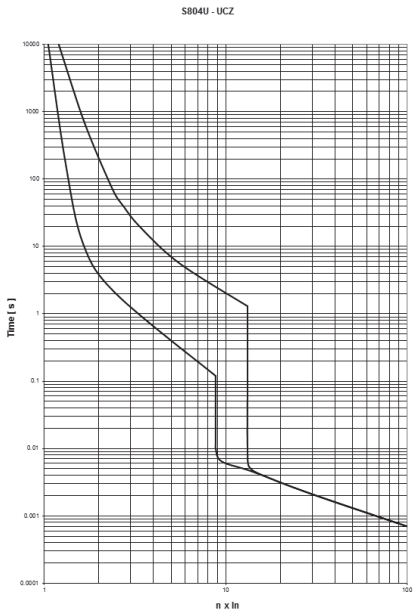
Tested and listed wirings



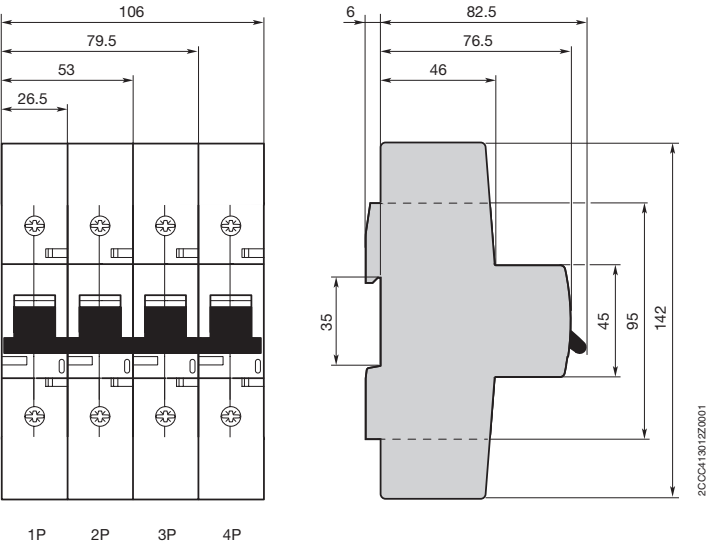
Line and load might be reversed

Ampere rating (A)	10–32	40–63	70–80
Conductor type	Single conductor per terminal – copper only, 60/75 °C wire	Single conductor per terminal – copper only, 60 °C wire only	Single conductor per terminal – copper only, 60 °C wire only
AWG, wire range	14 AWG–2 AWG Cu, solid or stranded	1/0 AWG–8 AWG Cu, solid or stranded	1/0 AWG–8 AWG Cu, solid or stranded
Jumper length (ft) Jumper length (cm)	1 30.5	1 30.5	2 61

Trip curves for S804U-UCZ



Dimension of S804U-UCZ



Tripping behavior acc. to UL489

Thermal tripping: 1.00...1.35 x I_e
 Electromagnetic tripping 11 x I_e ± 20 %

S803W-SCL-SR UL Short circuit current limiter, self-resetting



UL version short circuit current limiter, self-resetting, 3 pole

Description	Catalog number
32A Self-resetting current limiter	S803W-SCL32-SR
63A Self resetting current limiter	S803W-SCL63-SR
100A Self resetting current limiter	S803W-SCL100-SR

Technical specifications

Rated voltage	600 VAC per UL508
Short circuit current rating according to UL508, CSA 22.2	480 VAC 50/60 Hz, 65 kA
	600 VAC 50/60 Hz, 65 kA

Approved combinations with motor starter

Downstream devices		Upstream devices	
Rated current I_n [A]	32	63	100
MS/MO325			
0.1-2.5	•	•	•
4	•	•	•
6.3	•	•	•
9	•	•	•
12.5	•	•	•
16	•	•	•
20		•	•
25		•	•
MS/MO132			
0.1-2.5	•	•	
4	•	•	
6.3	•	•	•
10	•	•	•
16	•	•	•
20		•	•
25		•	•
32		•	•

-Combinations with S500-K and S500-KM on request.

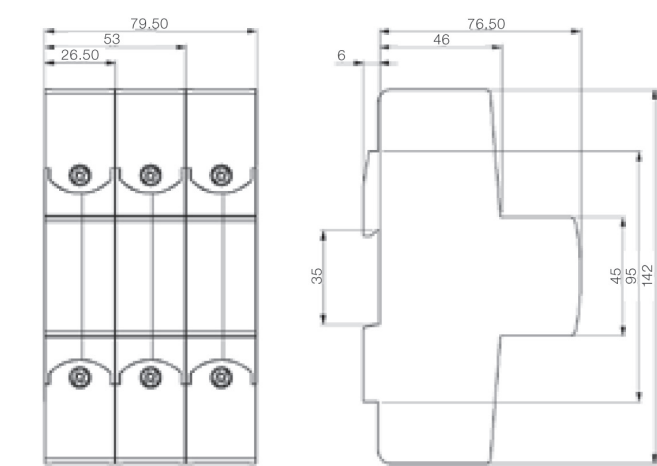
•Applies for all voltages according to the table below

Rated ultimate short-circuit breaking capacity

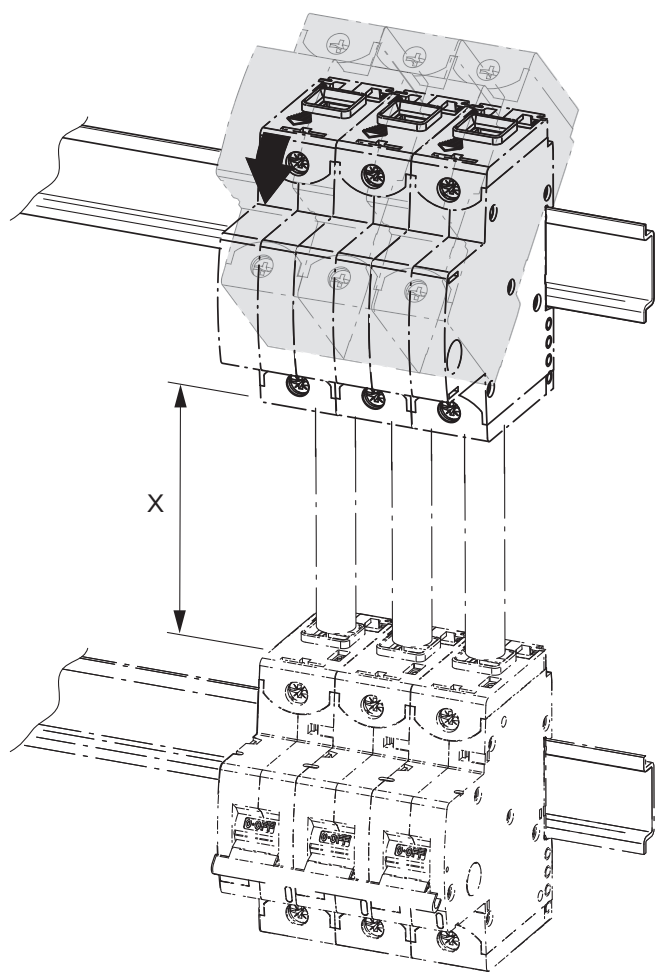
Short-circuit rating according to UL 508, CSA 22.2		
(AC) 50/60 Hz 480 V	[kA]	65
(AC) 50/60 Hz 600 V	[kA]	65
$I_{cu} = I_{cs}$ according to IEC 60947-2		
(AC) 50/60 Hz 240/415 V	[kA]	100
(AC) 50/60 Hz 254/440 V	[kA]	100
(AC) 50/60 Hz 277/480 V	[kA]	65
(AC) 50/60 Hz 289/500 V	[kA]	65
(AC) 50/60 Hz 346/600 V	[kA]	65
(AC) 50/60 Hz 400/690 V	[kA]	50

Approximate dimensions

S803W-SCL-SR UL508 Short circuit current limiter, self-resetting



Minimum cable length between S803W-SCL-SR and downstream devices
(Connection has to be short-circuit proofed acc. to IEC 61439-1)



MS/M0325		
MS/M0132		
S800		
S800-SCL-SR	min. length X	min. cross section
32 A	80 mm	6 mm ²
63 A	80 mm	16 mm ²
100/125 A	250 mm	35 mm ²

S800W-RSU Remote switching unit

UL 489



S800W-RSU
(breaker is not included)



S800-RSU-CP

Remote switching unit

Description	Catalog number
Remote switching unit	S800W-RSU

S800-RSU cable including plug

Description	Catalog number
3 meter cable 0.5 mm ² (AWG20) including 10-pole Micro-Fit 3.0™ plug	S800-RSU-CP

Key features

- The remote switching unit S800W-RSU has a brushless high precision DC motor to ensure fast remote control operation
- Low power consumption
- Short switching times
- The S800W-RSU is mounted on any multi-pole S800 high-performance MCB
- Installation and wiring can be field installable
- The connection is done by a 10-pole Micro-Fit 3.0™ (not included in delivery)
- The S800W-RSU can be operated by a standard pushbutton or drive by a PLC

Switching times

- OFF -> ON <<500ms
from signal to contact closing
- ON -> OFF <<250ms
from signal to contact opening
- TRIP -> OFF -> ON <<1500ms
from signal to contact closing

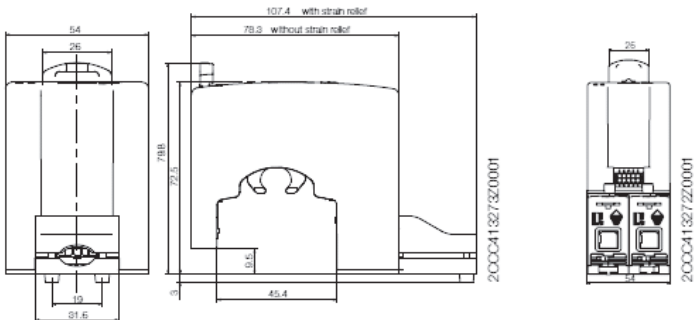
For different requirements, please contact your local ABB partner

Safety intelligence

- Inputs are deactivated when detecting manual use
- All outputs become active when spindle is rotated more than 360 degrees
- S800W-RSU is locked for five minutes after three switching attempts leading to a trip
- Manual switch off possible for three- and four-pole devices

Technical specifications

Operational voltage	24 VDC
Current consumption I _{ms}	2, 5
Standby current I _{Standby}	< 50 mA
Switching time OFF-ON	< 500 msec
Switching time ON-OFF	<250 msec
Ambient operation temperature	-25...+70 °C
Number of switching operations	10.000
Maximum cable lengths (AWG20/0.5mm ²)	10 m
Degree of protection (mounted)	IP2
Weight	0.661387 lb.
Connection	10-pole Micro-Fit 3.0™



Approximate dimensions

Accessories

S800U



S800-SOR

Shunt trip

For remote tripping of breaker, a shunt trip device can be added to the MCB. The device opens the breaker after control voltage is applied.

Description (for field mounting, left side)	Catalog number
Shunt operation release 24 VAC/DC	S800-SOR24
Shunt operation release 48...130 VAC/DC	S800-SOR130
Shunt operation release 110...250 VAC/DC	S800-SOR250



S800-UVR

Undervoltage release

When control voltage drops below approximately 50 percent of rated voltage, the UVR opens the breaker. The breaker cannot be operated unless proper control voltage is first applied to the UVR coil.

Description	Catalog number
Undervoltage release 24...36 VAC/DC	S800-UVR36
Undervoltage release 48...60 VAC/DC	S800-UVR60
Undervoltage release 110...130 VAC/DC	S800-UVR130
Undervoltage release 220...250 VAC/DC	S800-UVR250



S800-AUX

Auxiliary contacts

The auxiliary contacts will signal whether the breaker is in the ON or OFF position.

Description	Catalog number
Auxiliary contact	S800-AUX



S800-AUX/ALT

Bell alarm

The bell alarm includes a set of contacts that will only signal when the breaker has tripped. Typically, the contacts would be connected to an alarm or bell to signal the operator that an overcurrent trip has occurred. The bell alarm also includes a test button for testing the alarm contacts without opening the breaker.

Description	Catalog number
Bell alarm	S800-AUX/ALT

Ring tongue adaptor

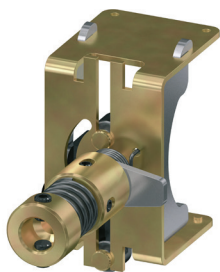
Description	Catalog number
Ring terminal cable connection, 40-125 A	S800-RT2125



S800-RT2125

Accessories

S800U



S800-RD

Rotary operating mechanism

Allows “through the door” operation.

Description	Catalog number
Handle mechanism	S800-RD

Description	Catalog number
Gray rotary handle	S800-RHE-H



S800-RHE-H

Description	Catalog number
Red rotary handle	S800-RHE-EM

UL locking device

Description	Catalog number
Shaft extension	S800-RHE-S

Description	Catalog number
Padlock not included	S800U-PLL



S800-RHE-EM



S800-RHE-S



S800U-PLL

Technical specifications

S800

Characteristics					S800U K, Z
Rated operational current I_n				[A]	10...100
Pole					1...4
Rated operational voltage U_n compliant to UL489					
(AC)	50/60 Hz			[V]	240
Rated ultimate short-circuit breaking capacity compliant to UL489					
(AC)	50/60 Hz	240 V	Single-pole	[kA]	30
(AC)	50/60 Hz	240 V	Multi-pole	[kA]	50
Rated operational voltage U_n compliant to IEC 60947-2					
(AC)				[V]	240/415
Rated ultimate short-circuit breaking capacity I_{cu} compliant to IEC 60947-2					
(AC)	50/60 Hz	240/415 V	Single-pole	[kA]	30
(AC)	50/60 Hz	240/415 V	Multi-pole	[kA]	50
Rated service short-circuit breaking capacity I_{cs} compliant to IEC 60947-2					
(AC)	50/60 Hz	240/415 V	Single-pole	[kA]	25
(AC)	50/60 Hz	240/415 V	Multi-pole	[kA]	40
Connections C_u					
				10...30 A	14-2 AWG
				40...100 A	8-1 AWG
Rated frequency					50/60
Tightening torque				[Hz]	3,5 (31 in. lb.)
Protection category				[Nm]	IP40 (actuating end only)
Mounting position					Any
Contacts					Cadmium-free
Permissible ambient temperature				[°C]	-25...+60
Standards					UL489 IEC 60947-2 CSA22.2 No.5-02
Approval					cULus File E312425

Technical specifications

S800U

Typical internal resistances and power losses at 25 °C ambient temperature

Rated current I _n [A]	Internal resistance R _i [mΩ] K, Z	Power loss P _v [W] K, Z
10	15.2	1.5
15	12.1	2.7
20	8.7	3.5
25	6.8	4.2
30	3.1	2.8
40	2.3	3.7
50	1.7	4.3
60	1.6	5.8
70	1.0	6.4
80	1.0	6.4
90	0.8	6.5
100	0.8	8.3

Influence of ambient temperature

Devices mounted singly (specifications in A)

S800U-K, -Z

I _n [A]	10 °C	15 °C	20 °C	25 °C	30 °C	35 °C	40 °C	45 °C	50 °C	55 °C	60 °C
10	10.9	10.7	10.4	10.0	9.6	9.3	9.0	8.7	8.4	8.0	7.6
15	16.5	16.0	15.6	15.0	14.4	14.0	13.5	13.0	12.6	12.0	11.4
20	22.0	21.4	20.8	20.0	19.2	18.6	18.0	17.4	16.8	16.0	15.2
25	27.5	26.8	26.0	25.0	24.0	23.3	22.5	21.8	21.0	20.0	19.0
30	33.1	32.1	31.2	30.0	28.8	27.9	27.0	26.1	25.2	24.0	22.9
40	44.0	42.8	41.6	40.0	38.4	37.2	36.0	34.8	33.6	32.0	30.9
50	55.1	53.5	52.0	50.0	48.0	46.5	45.0	43.5	42.0	40.0	38.3
60	66.2	64.2	62.4	60.0	57.6	55.8	54.0	52.2	50.4	48.0	46.0
70	76.9	74.9	72.8	70.0	67.2	65.1	63.0	60.9	58.8	56.0	53.4
80	88.0	85.6	83.2	80.0	76.8	74.4	72.0	69.6	67.1	64.0	61.6
90	99.1	96.3	93.6	90.0	86.4	83.7	81.0	78.3	75.6	72.0	69.5
100	110.5	107.0	104.0	100.0	96.0	93.0	90.0	87.0	83.8	80.0	77.8

Technical specifications

S800U-UL

Auxiliary contact S800-AUX

	S800-AUX
Usage category	AC15 400/2 A-UL AC15 240/ -UL DC13 250/0.55 A125 V/1.1A-IEC DC13 125 V/1.1A DC13 60 V/2A DC13 24 V/4A
Continuous thermal current I_n	6 A
Rated insulation voltage U_i	690 V
Number of contacts	2
Surge U_{test} (1.2/50µs)	6 kV
Degree of protection	3
Function of contact	Changeover contacts
Connection CU	1 x 2.5 mm ² 2 x 1.5 mm ²
Tightening torque	1 Nm
Ensured contacts during shake test acc. to IEC 68-2-6	5g, 20 frequency cycle at 24 VAC/DC, 5mA brief interrupt <10 ms
AC/DC supply	any EN 60715
Mounting on DIN top hat rail	EN 60715 IP20
Type of protection	IP20
Permissible ambient temperature for operations	-25...+60 °C; -13 °F...140 °F
Storage temperature	-40...+70 °C; -40 °F...158 °F
Mechanical device service life	6000 switching cycles
I_{cu} with S450E	1000 A
Resistance to vibration	IEC 60068-2-27; IEC 60068-2; EN 61373 Cat. 1/class B

Undervoltage release S800-UVR

	S800-UVR36	S800-UVR60	S800-UVR130	S800-UVR250
Rated voltage U_e	24...36 VAC/DC	48...60 VAC/DC	110...130 VAC/DC	220...250 VAC/DC
Operating range				
Operating opening			35...70% U_e	
Operating closing			85% U_e	
Rated insulation voltage U_i			690 V	
Coil pull in consumption	1 W, 14 vA	1 W, 25 vA	1 W, 41 vA	1 W, 91 vA
Rated frequency			DC; 50/60 Hz	
Protection degree			3	
Connection Cu			1...35 cable	
Tightening torque			min. 3/max. 4 Nm	
AC/DC supply			Any	
DIN top hat rail			EN 60715	
Type of protection			IP20 IP40 (only actuation side)	
Permissible ambient temperature of operations			-25...+60 °C; -13 °F...140 °F	
Storage temperature			-40...+70 °C; -40 °F...158 °F	
S800-UVR36		IEC 60068-2-27; IEC 60068-2; EN61373 Cat. 1/class B		

Technical specifications

S800U-UL

Combined auxiliary and bell alarm

Usage category	AC15 400/2 A-UL AC15 240/6A-UL DC13 250/0.55 A125 V/1.1A-IEC DC13 125 V/1.1A-IEC DC13 60 V/2A DC13 24 V/4A
Continuous thermal current I_n	6 A
Rated insulation voltage U_i	690 V
Number of contacts	2 (1x AUX, 1 x AUX/ALT)
Surge U_{test} (1.2/50µs)	6 kV
Degree of protection	3
Function of contact	Changeover contacts
Connection CU	1 x 2.5 mm ² 2 x 1.5 mm ²
Tightening torque	1 Nm
Ensured contacts during shake test acc. to IEC 68-2-6	5g, 20 frequency cycle 5...150...5 Hz at 24 VAC/DC, 5 mA brief interrupt <10 ms
AC/DC supply	any EN 60715
Mounting on DIN top hat rail	EN 60715
Type of protection	IP20
Permissible ambient temperature for operations	-25...+60 °C; -13 °F...140 °F
Storage temperature	-40...+70 °C; -40 °F...150 °F
Mechanical device service life	6000 switching cycles
I_{cu} with S450E	1000 A
Resistance to vibration	IEC 60068-2-27; IEC 60068-2; EN 61373 Cat. 1/class B

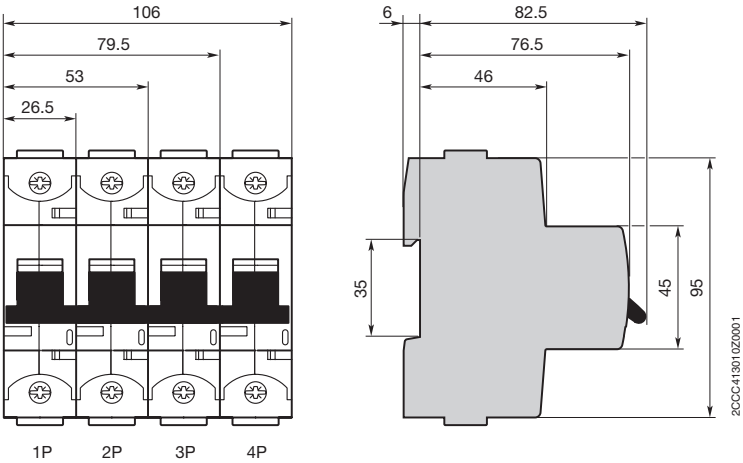
Shunt operation release — S800-SOR

	S800-SOR24	S800-SOR130	S800-SOR250	S800-SOR400
Rated voltage U _o	24 VAC/DC	48...130 VAC/DC	110...250 VAC/DC	220...250 VAC/DC
Operating range	70...110% U _e			
Rated insulation voltage U _i	690 V			
Coil pull in consumption	19.2 W/vA	On request		
Rated frequency	DC; 50/60 Hz			
Protection degree	3			
Connection Cu	1...35 AWG			
Tightening torque	min. 3/max. 4 Nm			
AC/DC supply	Any			
DIN top hat rail	EN 60715			
Type of protection	IP20 IP40 (only actuation side)			
Permissible ambient temperature of operations	-25...+60 °C; -13 °F...140 °F			
Storage temperature	-40...+70 °C; -40 °F...158 °F			
S800-UVR36	IEC 60068-2-27; IEC 60068-2; EN61373 Cat. 1/class B			

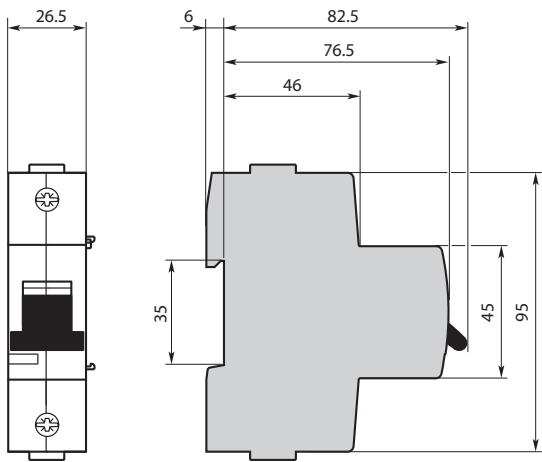
Approximate dimensions

S800U-UL

S800U



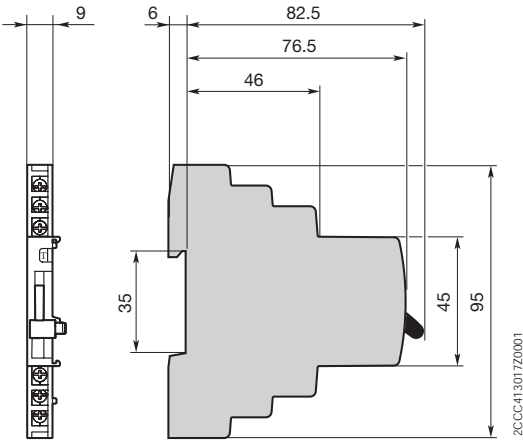
S800-SOR and S800-UVR



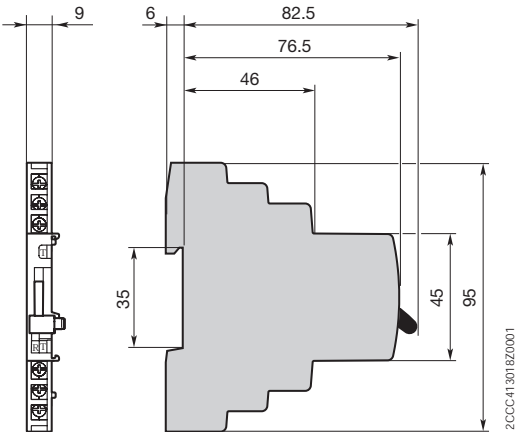
Approximate dimensions

S800U-UL

S800-AUX



S800-AUX/ALT



S800-RD AND S800-RHE

