



# ST200 MTR. Endurance and safety for rolling stock applications

ST200 MTR - Miniature circuit breaker  
range dedicated for the UL traction market



- Current limiting function
- Ring tongue connection
- NFPA-130 certified material and compliant to many other relevant standards
- Resistance to vibration and shock according to IEC/EN 61373
- Wide range of compatible accessories
- Space saving solution
- Available for AC and DC

**Rail is being rediscovered as a sustainable and energy-efficient form of transport. We understand the importance and implications of running these railway networks.**

**We provide complete solutions that protect your infrastructure, and meet the expectations of our users and transport stakeholders.**

**When it comes to passenger safety in trains, trams and metros, ABB's miniature circuit breakers meet the highest possible safety standards, complying with the specific standards of the railway sector such as fire protection, resistance to shock and vibrations and fire and smoke protection standards.**

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# ST200 MTR

## Endurance and safety for rolling stock applications

ST200 MTR range of miniature circuit breakers has been developed especially for rolling stock applications such as trains for passengers, freight and lines maintenance, metros, and trams.

ABB is a leading IRIS certified manufacturer of innovative solutions, quality products and materials certified in many different standards, aimed to increase energy efficiency and productivity in the traction industry, by improving comfort and ensuring passenger safety.

As one of the world's leading suppliers, we work with all rolling stock manufacturers. As well as service, maintenance and retrofit suppliers for trains, trams and metros.

**As a recognized reliable railway industry partner, ABB implements a global approach in the sector and operates locally in most markets, developing state-of-the-art technologies tailored to the specific requirements and regulations of each individual market.**

For improved protection ABB offers a range of circuit-breakers specifically designed and developed for rolling stock applications. The range is NFPA-130 & BSS-7239 material certified and is compliant with UL1077 / CSA 22.2 No.235 and Vibration & shock IEC/EN 61373 concerning to Modular Circuit Breakers for installation on rolling stock.



Ring tongue technology is used to prevent disconnections generated by vibrations, to ensure stable and durable connection.

A woman with long dark hair, wearing a white button-down shirt and dark trousers, sits in a red train seat. She is looking thoughtfully out of the window on her right. Her hands are clasped around a silver smartphone. The interior of the train is visible, with wooden paneling and another seat next to hers.

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Our products are used all over the world both on rolling stock and in infrastructure. Our mission is to provide customers with quality, state-of-the-art technology, and “green” products. Thus, contributing to the most sustainable means of transport: the train.

# ST200 MTR

## MCBs Main benefits

### ST200 MTR

#### APPLICATION BENEFITS



##### High technical performance

With high breaking capacity.



##### Compact dimensions

100 x 69 x 17.5 mm.



##### Compatibility with standard accessories

Additional functionalities like lock, remote control and device status visualization.



##### European quality

Designed and made in Germany.



##### Made for extreme conditions

With extreme operation temperature -40°C to +75°C plus, high breaking capacity up to 6kA AC and 10kA DC



##### Reliable operation

In nearly all environments with ringtongue connection.



#### Compliance to traction standards

- Fire and smoke (NFPA-130 & BSS-7239)
- Vibration and shock approved (IEC/EN 61373, IEC/EN 60077-1)
- Product standard UL1077 / CSA 22.2 No.235



#### Flexibility & easy replacement

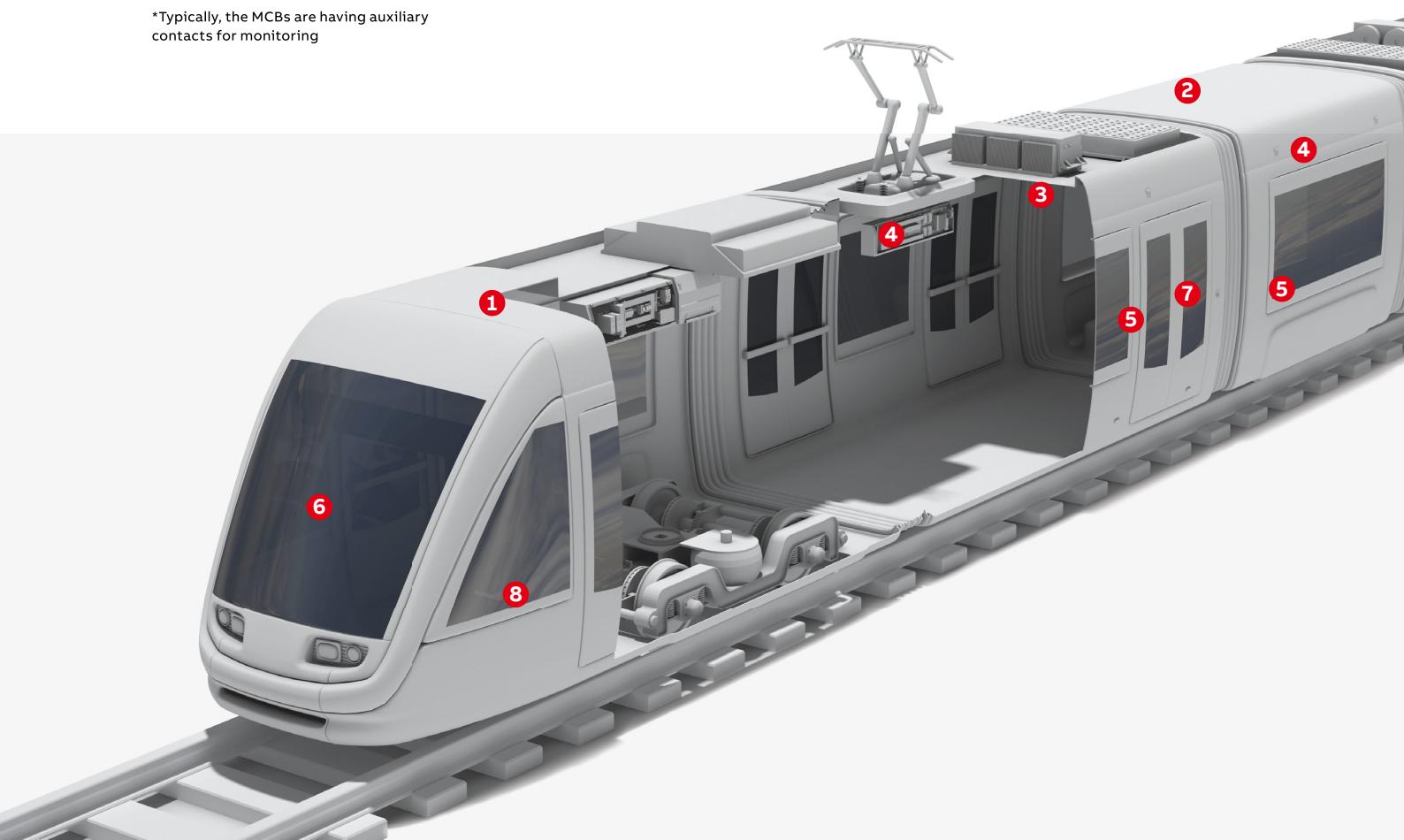
- Flexible range compatible with System pro M compact® standard and ring lugs accessories
- Fast and intuitive ordering thanks to self-speaking codes
- Typical MCB size, implying a fast and easy replacement in existing installations and retrofit business capabilities
- Flexible mounting position

## Applications of MCBs\*

- ① HVAC System - Heating/cooling
- ② HVAC System passengers
- ③ Auxiliary power Converters
- ④ Control Panels
- ⑤ Heathers i.e. windows
- ⑥ Master Controllers System
- ⑦ Door Control Unit
- ⑧ Brake System



\*Typically, the MCBs are having auxiliary contacts for monitoring



### Space & weight savings

- Compact dimensions: 100 x 69 x 17.5 mm
- Ensuring high protection with smaller cable section diameter
- Lighter cabling needs and low device weight



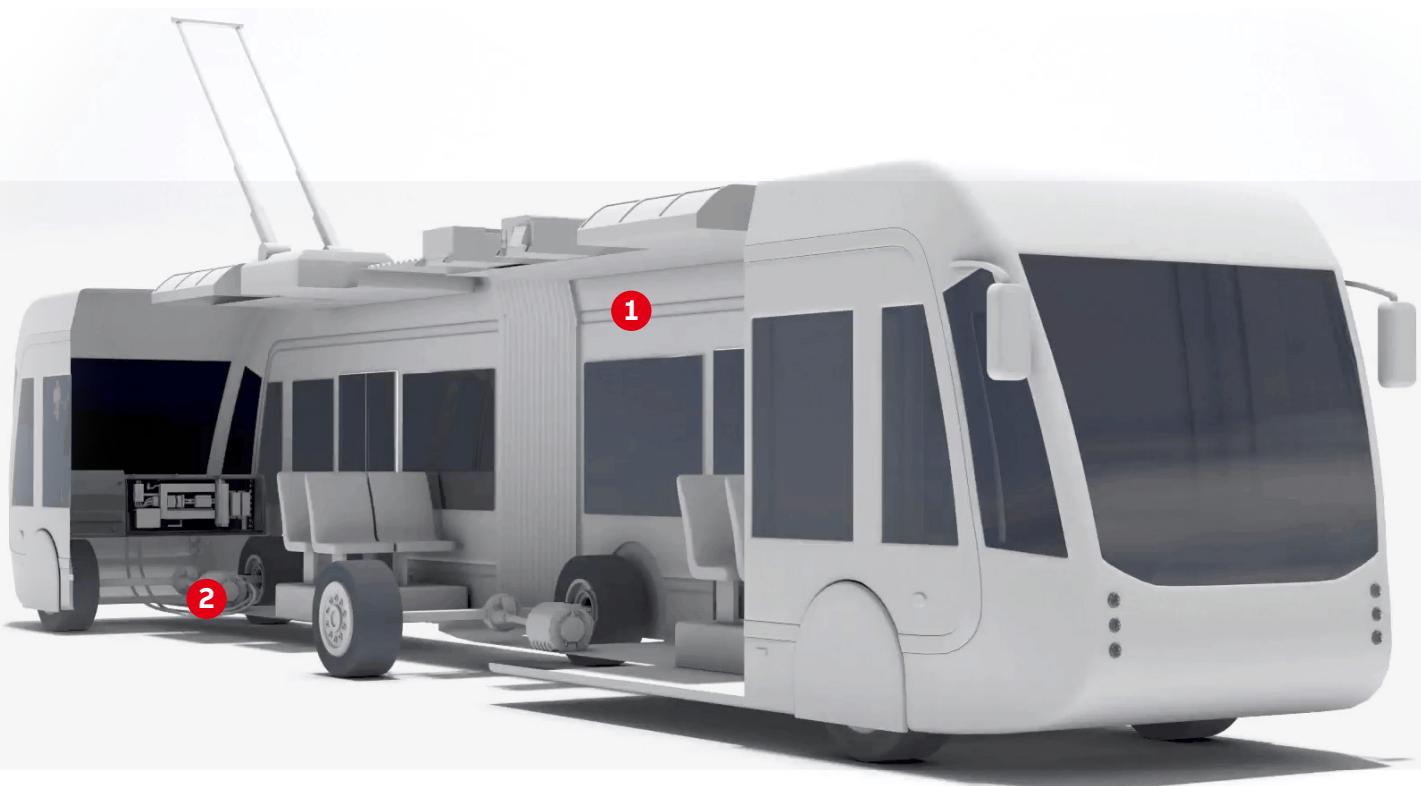
### Robustness under extreme conditions

- High short circuit capacity UL1077 / CSA 22.2 No.235 6kA AC and 10kA DC.
- Electrical endurance with 20.000 cycles up to 32 A
- Strong resistance to extreme humidity and dryness, confirmed by test according IEC/EN 60068-2-30

# ST200 MTR

Flexible useable in all situations

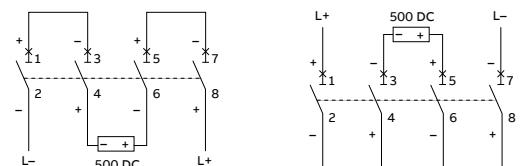
Our technologies help increase energy efficiency, reliability and reduce emissions across rail networks, as well as for electric buses and other heavy vehicles i.e. marine.



① HVAC System - Heating/cooling

② HVAC System passengers

In ungrounded networks the first failure is not switched off. If a second fault occurs the MCB switches off. Due to voltage shift with double failure the rated voltage is 500 VDC.

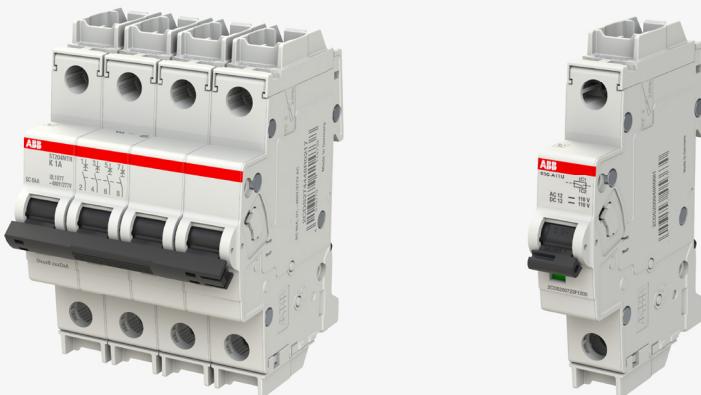


## DIVERSE FIELDS OF APPLICATION



- Branch circuits protection for equipment directly connected to batteries
- Use in HVAC systems
- Light rail vehicles or Metros (Electric) Busses
- Battery-Electric locomotives

**ST204MTR DC**



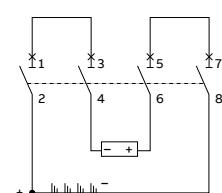
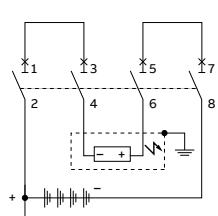
### Ringtongue Shunt Trip

12 VAC .... 110 VAC	S2C-A1TU
12 VDC .... 110 VDC	
110 VAC to 415 VAC	S2C-A2ATU
110 VDC to 250 VDC	

Use in high DC application up to 1000 VDC.  
The general functionality at 1000 VDC (short circuit and endurance) is given up to a short circuit capacity of 10kA for ST204 MTR DC Range based on internal test.

non -symetric grounded net  
4 pole  
ST204MTR DC

ungrounded net  
ST204MTR DC  
4 pole



For K and Z-Characteristic, 0.5 ....25 A, 4 poles in series.

# ST200 MTR

## MCBs Functionality Overview

The mechanism, release device and arc-extinguishing chamber are built into a self-carrying structure.

These miniature circuit breakers do not have specific mechanical constraints between the housing and internal mechanical components, which constitute three independent functional blocks. The circuit breaker is designed to remain functional, regardless of thermal shocks that may affect the housing.

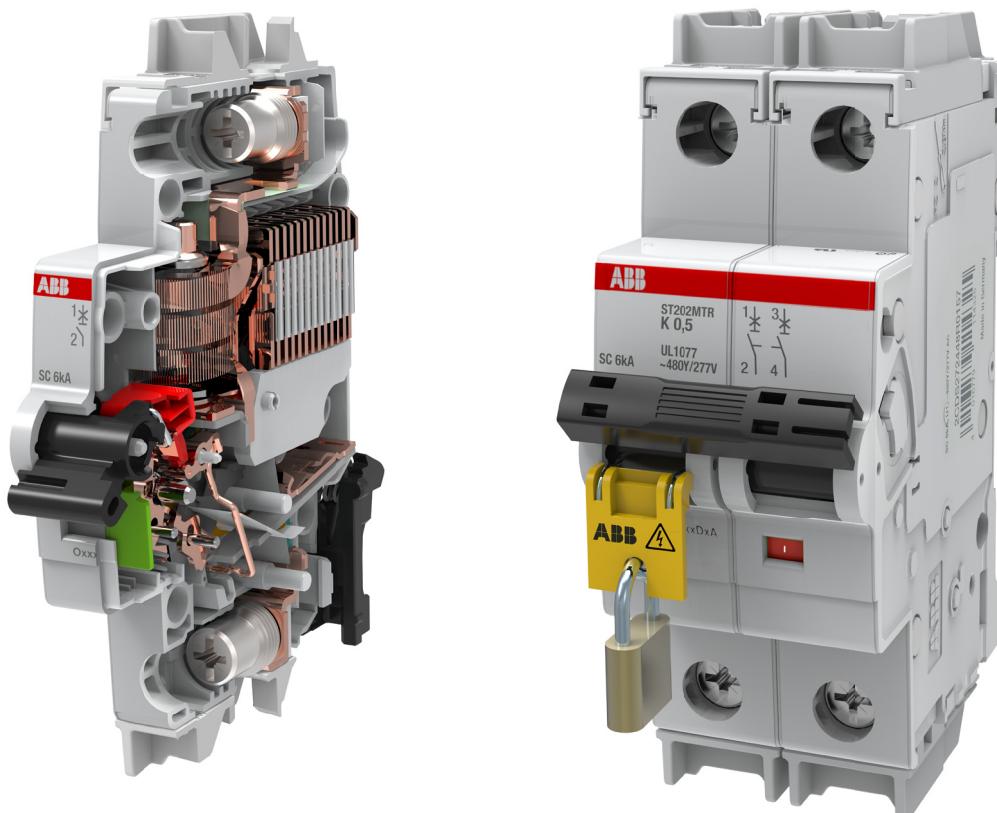
Opening due to thermal or magnetic tripping is also guaranteed by the control lever held in the closed position (trip-free switching mechanism).

The internal contact position sensor mounted on each pole of the miniature circuit breaker allows viewing of the actual status of the circuit

breaker regardless of the lever position: "green" open contacts, "red" closed contacts.

Materials used meet the requirements for electric and electronic materials and components set forth in EN 45545-2, NFPA-130 and BSS-7239.

The external plastic enclosures are made of thermosetting polyester resin. This material has a high self-extinguishing power (Class V0 according to UL 94) and will avoid dense and toxic smoke in case of fire. All of the metal parts of the mechanism are galvanically protected from oxidation and corrosion.

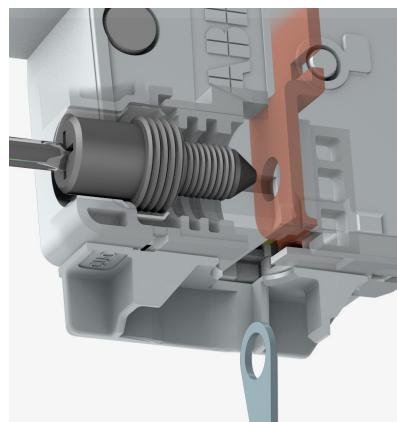


With ABB products worldwide availability, rolling stock vehicle maintenance is possible everywhere. The long-term portfolio and the wide range of accessories ensure efficiency, reliability and safety.



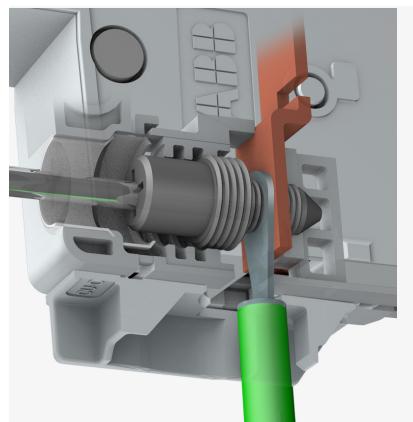
#### New screw design

Completely re-engineered, the ST200 MTR wiring connection screws are incorporated into the housing and will remain inside, ensuring a convenient and fast execution.



#### Ring tongue

Together with ring tongue terminal technology, the new screw design is a great companion for a reliable and long-lasting connection to counter shocks and vibrations.



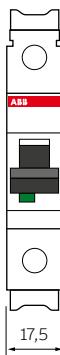
# ST200 MTR / ST200 MTR DC

## Technical Data

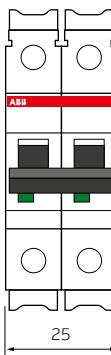


ST200 MTR / ST200 MTR DC	
Data acc. to UL1077 / CSA 22.2 No.235	Standards
Poles	1P, 2P, 3P, 4P for AC 1P, 2P and 4P for DC
Tripping characteristics	K, Z rated tripping current $1.6 \times I_n$ (see tripping curve)
Rated current $I_n$	$0.5 \leq I_n \leq 63\text{A}$
Rated frequency f	50/60 and DC (0 Hz)
Rated insulation voltage $U_i$	400 VDC (pollution degree 3) 500 VDC (pollution degree 2)
Overvoltage category	III
Rated voltage	480Y / 277 VAC 1P: 250 V DC and 2+4P: up to 500 VDC (pollution degree 2)
Rated interrupting capacity	6 kA AC 10 kA DC
Application	Suppl. prot. for general use. Application Codes: TC2, OL0, SC: U1
Reference temperature for tripping characteristics	25°C

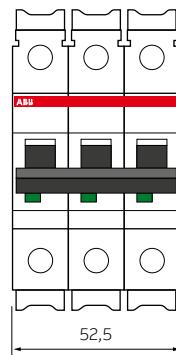
### Dimensional drawings



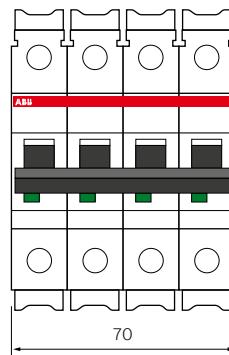
1 Pole



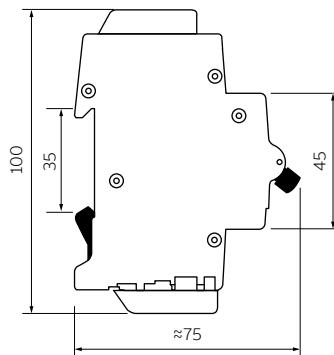
2 Poles



3 Poles



4 Poles



# ST200 MTR / ST200 MTR DC

## Mechanical Data

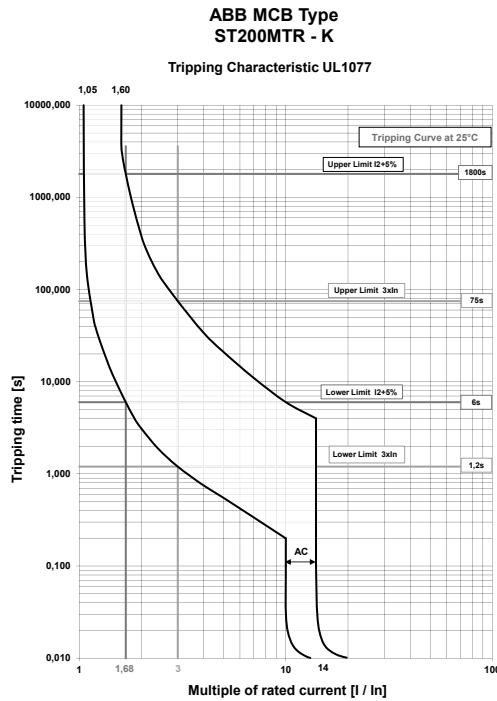


		ST200 MTR / ST200 MTR DC
Mechanical Data	Housing	Insulation Group I, RAL 7035 according EN45545-2 R22/HL3 and R26/HL 3 (V0 according UL94)
	Toggle	Insulation group II, black, sealable
	Contact position indication	Red/Green indication
	Protection degree acc. to EN 60529	IP20, IP40 in enclosure with cover
	Mechanical endurance	20,000 ops
	Electrical endurance (AC at Ue)	6,000 ops
	Shock resistance acc. to IEC/EN 60068-2-27	25 g - 2 shocks - 13 ms
	Shock resistance acc. to IEC/ EN 61373	Cat 1 / Class B
	Vibration resistance acc. to IEC/EN 60068-2-6	5g - 20 cycle at 5 ...150 ...5 Hz with load 0.8 In
	Vibration resistance acc. to IEC/ EN 61373	Cat 1 / Class B
	NFPA-130	Compliant with ASTME162 and ASTM E 662
	EN 50155	Electronic equipment used on rolling stock According IEC / EN 61373 plus temperature rise test
	Fire behaviour acc. To EN 45545-2	R26/HL3 - R22/HL3
	Fire behaviour acc. To UNI CEI 11170-3	With EN45545-2 replacement
	Fire behaviour acc. To UL 94	V0
	NF F 16-101 (1988) e NF F 16-102 (1992)	With EN45545-2 replacement
	IEC / EN 60077 – 1	Yes
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30	28 cycles with 55°C/90-96% and 25°C/95-100%
	Ambient temperature	- 40 ...+75 °C
	Storage temperature	- 40 up to 85 °C
Installation	Terminal	Ring Tongue Terminals
	Cross-section of conductors (top / bottom)	0.75 ....25 mm <sup>2</sup>
		18 - 4 AWG
	Type of cable	Rigid or flexible ring tongue
	Cross-section of busbars (top / bottom)	16 mm <sup>2</sup> fork or ringtongue busbar
	Tightening Torque	2.8 Nm 25 in-lbs.
	Screwdriver	No. 2 Pozidrive
	Mounting	On Din Rail 35 mm acc. EN 60715 by fast clip
	Mounting position	Any
	Supply	Optional / DC: Please note polarity of device
	Altitude	2,000 m height
Dimension and Weight	Mounting dimensions acc. to DIN 43880	2
	Pole dimensions (H x D x W)	100 x 69 x 17.5
	Pole weight	Approx. 125 g
Combination with aux. elements	Auxiliary contact	Yes S2C Range (except Micro) + existing ring tongue version
	Shunt trip	Yes S2C Range + existing ring tongue version
	Rotary Handle	Yes
	Locking	Yes
	Motor Operating Device	Yes
	Accessories resistance of IEC 61373	Yes

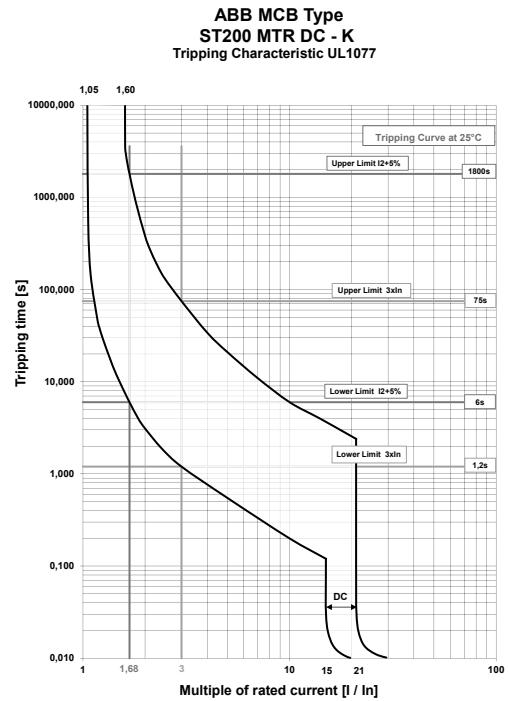
# ST200 MTR / ST200 MTR DC

## Tripping Characteristics

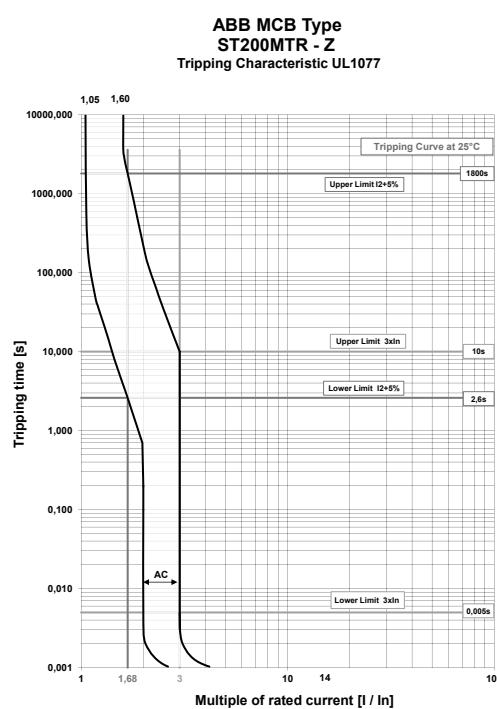
### Tripping Curve K



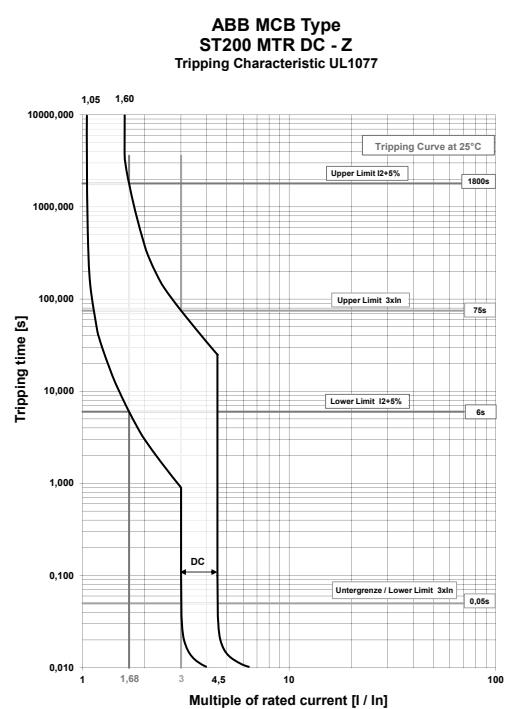
### Tripping Curve DC - K



### Tripping Curve Z



### Tripping Curve DC - Z



# ST200 MTR / ST200 MTR DC

## Derating

### Deviating ambient temperature

The rated value of the current of a miniature circuit breaker refers to 25 °C for circuit-breakers with characteristics K and Z.

The following table contains the derating of load capability of ST200 MTR MCBs from -40 °C to +75 °C for the curves K and Z.

**The circuit-breaker is mounted individually in free air according to standards.**

Tripping characteristic	Current Rating	Max. Operating currents depending on the ambient temperature T (°C)														
		In (A)	-40	-30	-20	-10	0	10	20	30	40	45	50	60	70	75
S200 MTR S200 MTR DC	0,5	0,7	0,6	0,6	0,6	0,6	0,6	0,6	0,5	0,5	0,5	0,5	0,5	0,5	0,4	0,3
	1	1,3	1,3	1,2	1,2	1,2	1,2	1,1	1,1	1,0	1,0	1,0	0,9	0,9	0,9	0,8
	1,6	2,1	2,1	2,0	1,9	1,9	1,8	1,7		1,7	1,6	1,6	1,5	1,5	1,4	1,3
	2	2,7	2,6	2,5	2,4	2,3	2,2	2,2		2,1	2,0	2,0	1,9	1,9	1,8	1,7
	3	4,0	3,9	3,7	3,6	3,5	3,3	3,2		3,1	3,0	3,0	2,9	2,8	2,7	2,5
	4	5,3	5,2	5,0	4,8	4,6	4,5	4,3		4,1	4,0	4,0	3,9	3,7	3,6	3,4
	6	8,0	7,7	7,5	7,2	6,9	6,7	6,5		6,2	6,0	6,0	5,8	5,6	5,4	5,2
	8	10,7	10,3	9,9	9,6	9,3	8,9	8,6		8,3	8,0	8,0	7,7	7,4	7,1	6,8
	10	13,4	12,9	12,4	12,0	11,6	11,2	10,8		10,4	10,0	10,0	9,6	9,3	8,9	8,6
	13	17,5	17,0	16,0	15,5	15,0	14,5	14,0		13,5	13,0	13,0	12,5	12,0	11,5	11,2
	16	21,5	20,5	20,0	19,0	18,5	18,0	17,0		16,5	16,0	16,0	15,5	15,0	14,5	13,7
	20	26,5	26,0	25,0	24,0	23,0	22,5	21,5		20,5	20,0	20,0	19,5	18,5	18,0	17,2
	25	33,5	32,0	31,0	30,0	29,0	28,0	27,0		26,0	25,0	25,0	24,0	23,0	22,5	21,5
	32	43,0	41,5	40,0	38,5	37,0	35,5	34,5		33,0	32,0	32,0	31,0	29,5	28,5	27,5
	40	53,5	51,5	49,5	48,0	46,5	44,5	43,0		41,5	40,0	40,0	38,5	37,0	35,5	34,3
	50	67,0	64,5	62,0	60,0	58,0	56,0	54,0		52,0	50,0	50,0	48,0	46,5	44,5	43,3
	63	84,5	81,0	78,5	75,5	73,0	70,5	67,5		65,5	63,0	63,0	60,5	58,5	56,5	54,5

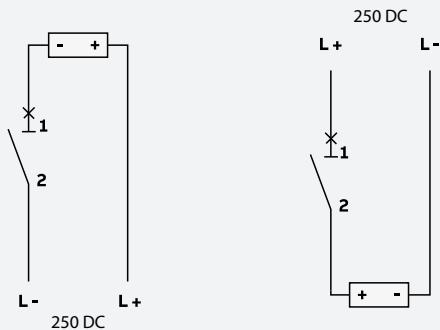
Reference temperature

Influence of adjacent devices Correction factor FM										
No. of adjacent devices	1	2	3	4	5	6	7	8	9	>9
FM	1	0.95	0.9	0.86	0.82	0.8	0.78	0.77	0.76	0.76

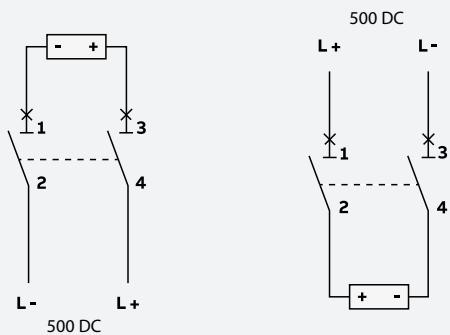
# ST200 MTR / ST200 MTR DC

## Wiring Details

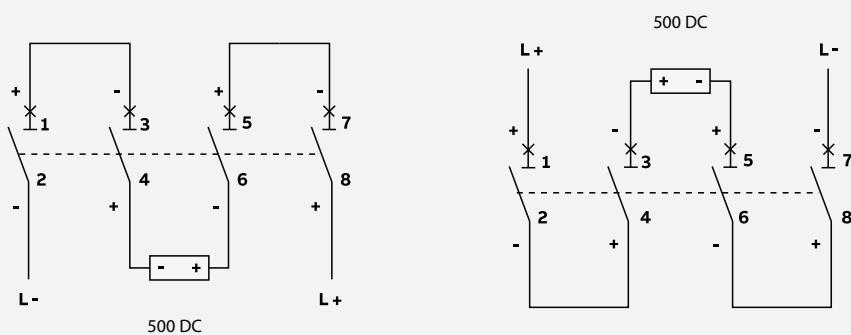
**ST201 MTR DC (1-pole)**  
250V DC



**ST202 MTR DC (2-pole)**  
500V DC



**ST204 MTR DC (4-pole)**  
500V DC



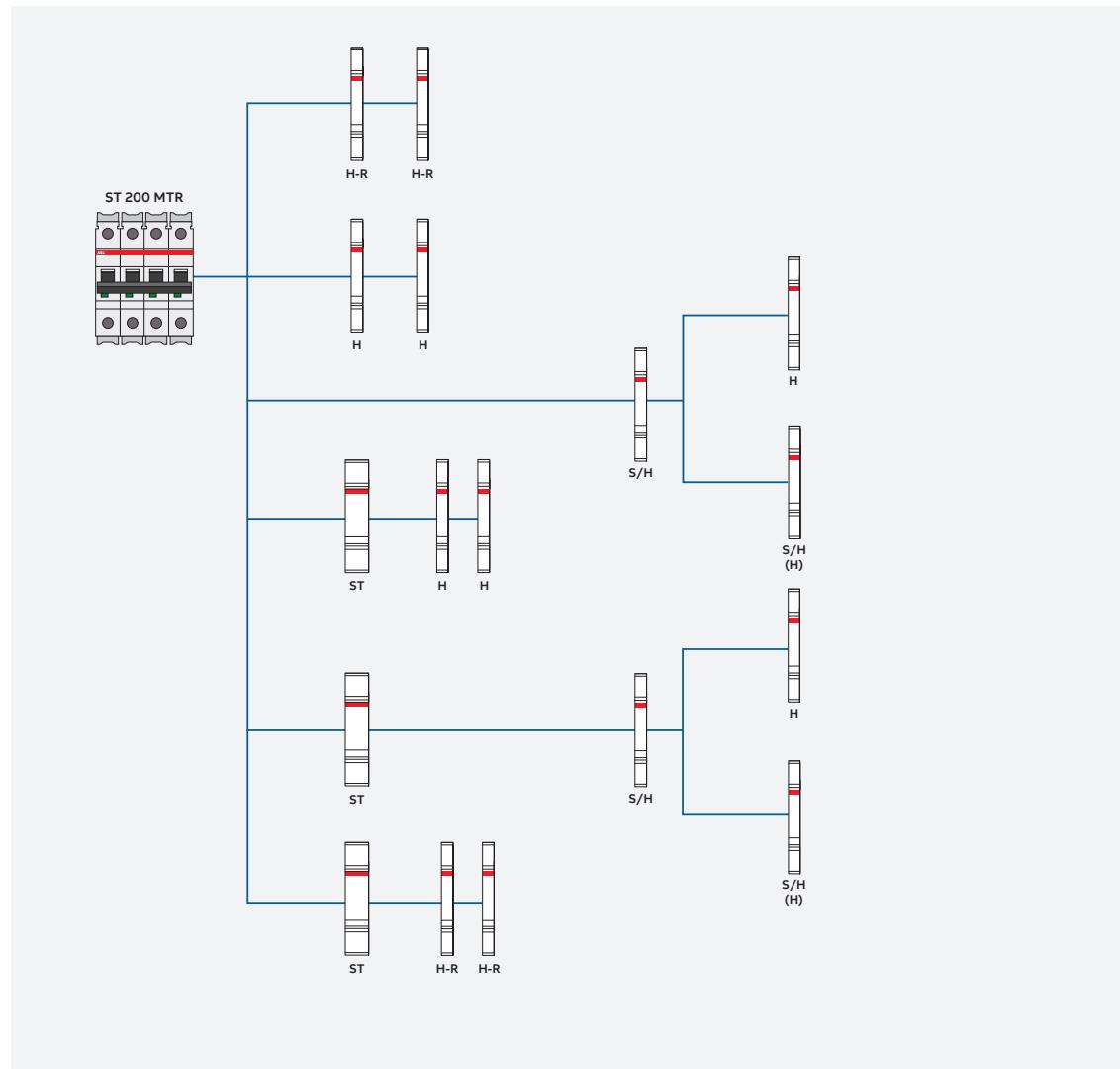
# Auxiliary Components

## Specifications

Circuit breakers are supported by a complete family of auxiliary products, which allow many functions and configurations.

From auxiliary contacts, that report circuit breaker "open" or "closed" position, to shunt trip opening coils, allow remote circuit breaker opening, from padlocks to mounting and identification accessories.

**Accessories Scheme**



<b>H</b>	Auxiliary contact S2C-H6R
<b>H-R</b>	Auxiliary contact S2C-H6-...R
<b>S/H</b>	Signal/Auxiliary contact S2C-S/H6R
<b>S/H(H)</b>	Signal/Auxiliary contact S2C-S/H6R used as auxiliary contact
<b>ST</b>	Shunt trip S2C-A...TUI

## MCBs technical details

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

#### Limitation of specific let-through energy

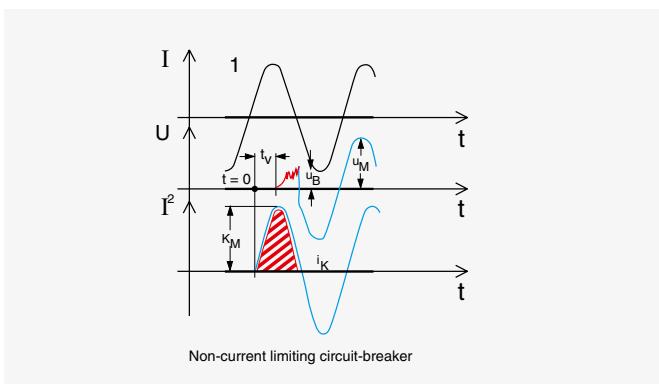
Tripping of an installation circuit by circuit-breaker, when there is a short-circuit, requires a certain amount of time depending on the characteristics of the circuit-breaker and the entity of the short-circuit current. During this period, some or all of the short-circuit current flows into the installation; the parameter  $I^2t$  defines the "specific let-through energy", ie. the specific efficiency that the breaker allows through when there is a short-circuit current ( $I_{cc}$ ) during the tripping time ( $t$ ). In this way, we can determine the capacity of a circuit-breaker to limit, ie. break high currents up to the rated breaking power of the device, by reducing the peak value of the above-mentioned currents to a value which is considerably lower than the estimated current.

This can be achieved using mechanisms which open promptly and have the following advantages:

- They limit the thermal and dynamic effects both on the circuit-breaker and on the protected circuit;
- They reduce the dimensions of the current-limiting circuit-breaker without reducing breaking capacity;
- They considerably reduce ionized gases and sparklers emitted during the short-circuit and avoid the danger of ignition and fires.

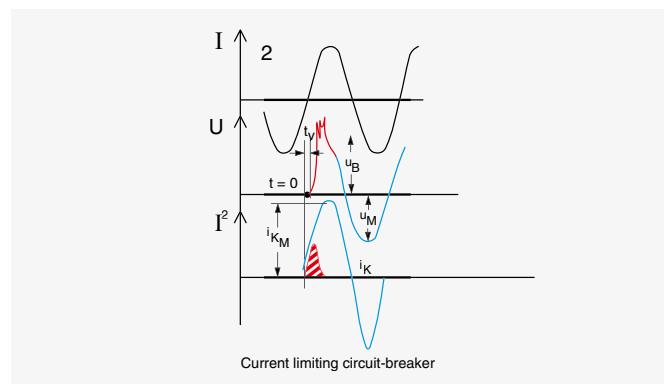


$I_{rms}$  = perspective symmetrical short-circuit current



Oscillogram of short-circuit breaks on two circuit-breakers:

- 1 = traditional non-current limiting circuit-breaker
- 2 = current limiting circuit-breaker
- $u_B$  = arc voltage (red)
- $u_M$  = rest voltage (blue)

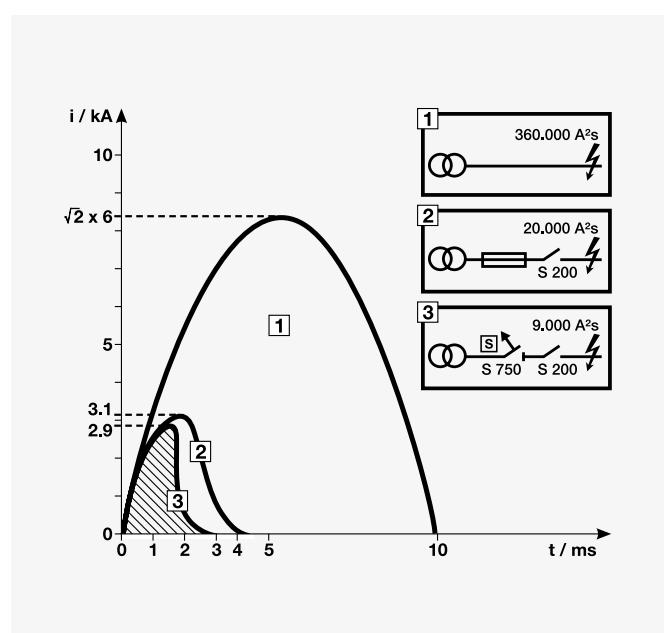


Short-circuit current

- red = effective short-circuit current squared
- blue = estimated short-circuit current squared (shunted circuit-breaker)
- $iK_M$  = maximum values of symmetrical component of short-circuit current squared shaded in
- red = specific let-through energy in two cases

### Limiting of let-through energy

Main selective circuit breakers (SMCB) like S 750 DR support downstream MCBs in clearing short-circuit currents. They additionally reduce let-through energies without tripping. This increases the operational availability of the electrical supply and reduces drawbacks to the feeding grid and the installed equipment.

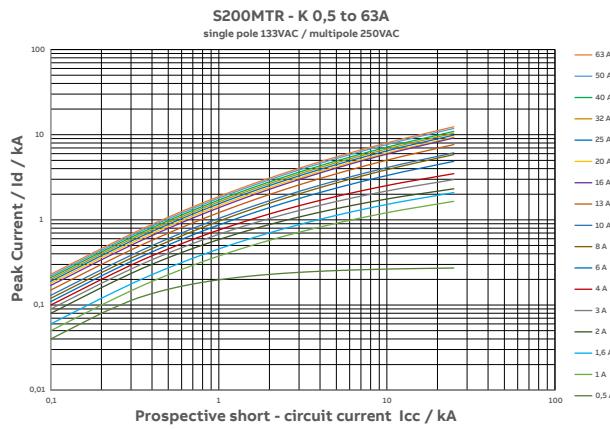


## ST200 MTR

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

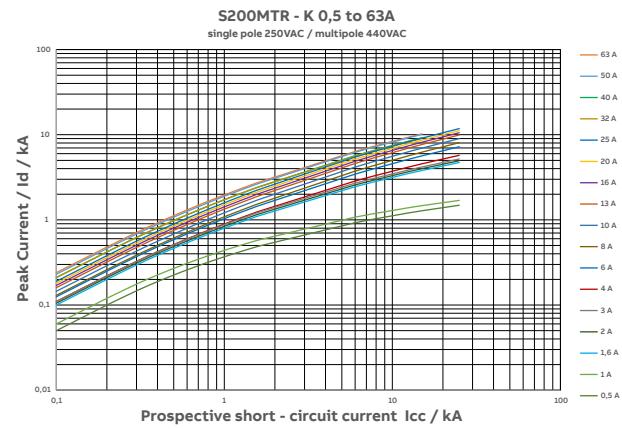
### Characteristic K

133/250 V let-through energy



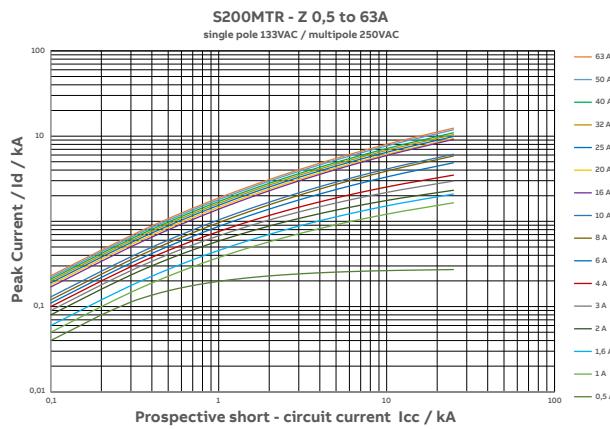
### Characteristic K

250/440 V let-through energy



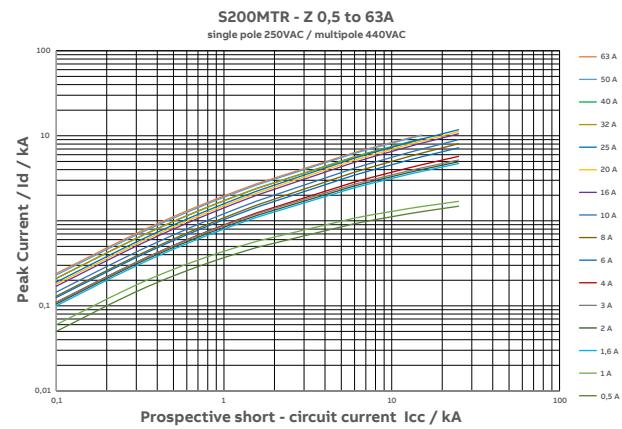
### Characteristic Z

133/250 V let-through energy



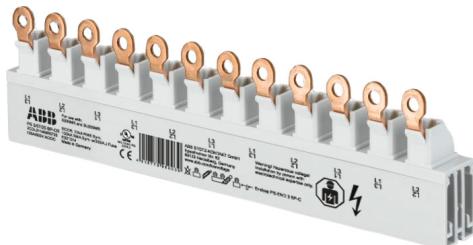
### Characteristic Z

250/440 V let-through energy



# Accessories S2C - UL 508 busbar

## Order Codes

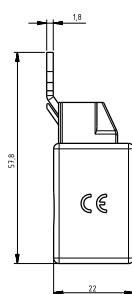
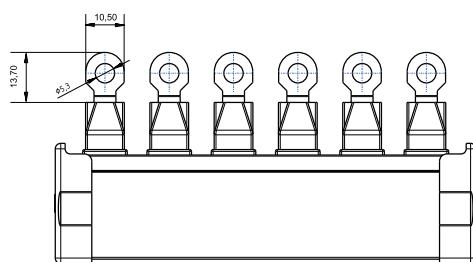


Busbar type PS...BP-CR are used for fast and easy line side wiring of miniature circuit breakers type ST200 MTR and ST200MTR DC with ring tongue terminals. The entire product line, including the accessories, is approved according to UL 508 (cULus) and can be used for applications in branch circuits as well as supplementary protection in the US and Canada.

<b>Electrical data</b>		<b>Busbars PS...BP-CR</b>	
Standards		UL508 EN 60947-1 / IEC 60947-1:2004	
Rated voltage U <sub>e</sub>	V	600 V AC	
Rated frequency	Hz	50 Hz (IEC) / 60 Hz (UL)	
Rated impuls withstand voltage U <sub>imp.</sub>	kV	≥ 10 kV	
Rated current / phase			
	End fed <sup>1)</sup>	A	100 A
	Center fed <sup>1)</sup>	A	200 A
Short circuit current rating	kA	10 kA 3 cycles @ 600 V / 140 kA Fuse Class J 200 A	
Mechanical data			
Housing		grey, RAL 7035	
Resistance to climatic conditions		acc. to DIN EN 60068	
Isolation coordination			
	Overvoltage category	III	
	Pollution degree	2	
<b>Installation</b>			
Cross section	mm <sup>2</sup>	25 mm <sup>2</sup>	
Mounting position		Optional	
Supply		Feedin via cable with ring tongue	
<b>Accessories</b>			
Shock protection caps		BSK BP-CR	
Endcaps		PS-END 3 BP-C	
<b>Approvals</b>			
		conform to CE and RoHS	
		UL 508: cULus Listed	

1) Independently from the current rating of the feeder terminal or busbar, the current-carrying capacity/current rating of the MCB terminal must not be exceeded

### Dimension (mm)



Get more details on  
busbars and busbars'  
accessories for ST200 MRT



# ST200 MTR

## K Characteristic



Number of Poles	Rated Current [A]	Bbn 4016779 EAN	Type Code	Order Code	Weight 1 piece Kg	Pack unit pc.
1	0,5	115681	ST201MTR-K0,5	2CDS271448R0157	0.125	10
	1	115728	ST201MTR-K1	2CDS271448R0217	0.125	10
	1,6	115766	ST201MTR-K1,6	2CDS271448R0257	0.125	10
	2	119627	ST201MTR-K2	2CDS271448R0277	0.125	10
	3	119665	ST201MTR-K3	2CDS271448R0317	0.125	10
	4	115803	ST201MTR-K4	2CDS271448R0337	0.125	10
	5	115841	ST201MTR-K5	2CDS271448R0357	0.125	10
	6	115889	ST201MTR-K6	2CDS271448R0377	0.125	10
	8	115926	ST201MTR-K8	2CDS271448R0407	0.125	10
	10	115964	ST201MTR-K10	2CDS271448R0427	0.125	10
	13	116008	ST201MTR-K13	2CDS271448R0447	0.125	10
	15	116022	ST201MTR-K15	2CDS271448R0457	0.125	10
	16	116060	ST201MTR-K16	2CDS271448R0467	0.125	10
	20	116107	ST201MTR-K20	2CDS271448R0487	0.125	10
	25	116145	ST201MTR-K25	2CDS271448R0517	0.125	10
	30	116183	ST201MTR-K30	2CDS271448R0527	0.125	10
	32	116220	ST201MTR-K32	2CDS271448R0537	0.125	10
	35	116268	ST201MTR-K35	2CDS271448R0547	0.125	10
	40	116305	ST201MTR-K40	2CDS271448R0557	0.125	10
2	50	116343	ST201MTR-K50	2CDS271448R0577	0.125	10
	60	116381	ST201MTR-K60	2CDS271448R0587	0.125	10
	63	116428	ST201MTR-K63	2CDS271448R0607	0.125	10
	0,5	116466	ST202MTR-K0,5	2CDS272448R0157	0.25	5
	1	116503	ST202MTR-K1	2CDS272448R0217	0.25	5
	1,6	116541	ST202MTR-K1,6	2CDS272448R0257	0.25	5
	2	120029	ST202MTR-K2	2CDS272448R0277	0.25	5
	3	120067	ST202MTR-K3	2CDS272448R0317	0.25	5
	4	116589	ST202MTR-K4	2CDS272448R0337	0.25	5
	5	116626	ST202MTR-K5	2CDS272448R0357	0.25	5
	6	116664	ST202MTR-K6	2CDS272448R0377	0.25	5
	8	116701	ST202MTR-K8	2CDS272448R0407	0.25	5
	10	116749	ST202MTR-K10	2CDS272448R0427	0.25	5
	13	116787	ST202MTR-K13	2CDS272448R0447	0.25	5
	15	116800	ST202MTR-K15	2CDS272448R0457	0.25	5
	16	116848	ST202MTR-K16	2CDS272448R0467	0.25	5
	20	116886	ST202MTR-K20	2CDS272448R0487	0.25	5
	25	116923	ST202MTR-K25	2CDS272448R0517	0.25	5
	30	116961	ST202MTR-K30	2CDS272448R0527	0.25	5
	32	117005	ST202MTR-K32	2CDS272448R0537	0.25	5
	35	117043	ST202MTR-K35	2CDS272448R0547	0.25	5
	40	117081	ST202MTR-K40	2CDS272448R0557	0.25	5
	50	117128	ST202MTR-K50	2CDS272448R0577	0.25	5
	60	117166	ST202MTR-K60	2CDS272448R0587	0.25	5
	63	117203	ST202MTR-K63	2CDS272448R0607	0.25	5



Number of Poles	Rated Current [A]	Bbn 4016779 EAN	Type Code	Order Code	Weight 1 piece Kg	Pack unit pc.
3	0,5	117241	ST203MTR-K0,5	2CDS273448R0157	0.375	1
	1	117289	ST203MTR-K1	2CDS273448R0217	0.375	1
	1,6	117326	ST203MTR-K1,6	2CDS273448R0257	0.375	1
	2	120425	ST203MTR-K2	2CDS273448R0277	0.375	1
	3	120463	ST203MTR-K3	2CDS273448R0317	0.375	1
	4	117364	ST203MTR-K4	2CDS273448R0337	0.375	1
	5	117401	ST203MTR-K5	2CDS273448R0357	0.375	1
	6	117449	ST203MTR-K6	2CDS273448R0377	0.375	1
	8	117487	ST203MTR-K8	2CDS273448R0407	0.375	1
	10	117524	ST203MTR-K10	2CDS273448R0427	0.375	1
	13	117562	ST203MTR-K13	2CDS273448R0447	0.375	2
	15	117586	ST203MTR-K15	2CDS273448R0457	0.375	1
	16	117623	ST203MTR-K16	2CDS273448R0467	0.375	1
	20	117661	ST203MTR-K20	2CDS273448R0487	0.375	1
	25	117708	ST203MTR-K25	2CDS273448R0517	0.375	1
	30	117746	ST203MTR-K30	2CDS273448R0527	0.375	1
	32	117784	ST203MTR-K32	2CDS273448R0537	0.375	1
	35	117821	ST203MTR-K35	2CDS273448R0547	0.375	1
	40	117869	ST203MTR-K40	2CDS273448R0557	0.375	1
	50	117906	ST203MTR-K50	2CDS273448R0577	0.375	1
	60	117944	ST203MTR-K60	2CDS273448R0587	0.375	1
	63	117982	ST203MTR-K63	2CDS273448R0607	0.375	1
4	0,5	118026	ST204MTR-K0,5	2CDS274448R0157	0.5	1
	1	118064	ST204MTR-K1	2CDS274448R0217	0.5	1
	1,6	118101	ST204MTR-K1,6	2CDS274448R0257	0.5	1
	2	120623	ST204MTR-K2	2CDS274448R0277	0.5	1
	3	120661	ST204MTR-K3	2CDS274448R0317	0.5	1
	4	118149	ST204MTR-K4	2CDS274448R0337	0.5	1
	5	118187	ST204MTR-K5	2CDS274448R0357	0.5	1
	6	118224	ST204MTR-K6	2CDS274448R0377	0.5	1
	8	118262	ST204MTR-K8	2CDS274448R0407	0.5	1
	10	118309	ST204MTR-K10	2CDS274448R0427	0.5	1
	13	118347	ST204MTR-K13	2CDS274448R0447	0.5	1
	15	118361	ST204MTR-K15	2CDS274448R0457	0.5	1
	16	118408	ST204MTR-K16	2CDS274448R0467	0.5	1
	20	118446	ST204MTR-K20	2CDS274448R0487	0.5	1
	25	118484	ST204MTR-K25	2CDS274448R0517	0.5	1
	30	118521	ST204MTR-K30	2CDS274448R0527	0.5	1
	32	118569	ST204MTR-K32	2CDS274448R0537	0.5	1
	40	118606	ST204MTR-K35	2CDS274448R0547	0.5	1
	50	118644	ST204MTR-K40	2CDS274448R0557	0.5	1
	60	118682	ST204MTR-K50	2CDS274448R0577	0.5	1
	63	118729	ST204MTR-K60	2CDS274448R0587	0.5	1

# ST200 MTR

## K Characteristic - DC



Number of Poles	Rated Current [A]	Bbn 4016779 EAN	Type Code	Order Code	Weight 1 piece Kg	Pack unit pc.
1	0,5	111782	ST201MTR-K0,5 DC	2CDS271566R0157	0.125	10
	1	111829	ST201MTR-K1 DC	2CDS271566R0217	0.125	10
	1,6	111867	ST201MTR-K1,6 DC	2CDS271566R0257	0.125	10
	2	119825	ST201MTR-K2 DC	2CDS271566R0277	0.125	10
	3	119863	ST201MTR-K3 DC	2CDS271566R0317	0.125	10
	4	111904	ST201MTR-K4 DC	2CDS271566R0337	0.125	10
	5	111942	ST201MTR-K5 DC	2CDS271566R0357	0.125	10
	6	111980	ST201MTR-K6 DC	2CDS271566R0377	0.125	10
	8	112024	ST201MTR-K8 DC	2CDS271566R0407	0.125	10
	10	112062	ST201MTR-K10 DC	2CDS271566R0427	0.125	10
	13	112109	ST201MTR-K13 DC	2CDS271566R0447	0.125	10
	15	112123	ST201MTR-K15 DC	2CDS271566R0457	0.125	10
	16	112161	ST201MTR-K16 DC	2CDS271566R0467	0.125	10
	20	112208	ST201MTR-K20 DC	2CDS271566R0487	0.125	10
	25	112246	ST201MTR-K25 DC	2CDS271566R0517	0.125	10
	30	112284	ST201MTR-K30 DC	2CDS271566R0527	0.125	10
	32	112321	ST201MTR-K32 DC	2CDS271566R0537	0.125	10
	35	112369	ST201MTR-K35 DC	2CDS271566R0547	0.125	10
	40	112406	ST201MTR-K40 DC	2CDS271566R0557	0.125	10
	50	112444	ST201MTR-K50 DC	2CDS271566R0577	0.125	10
	60	112482	ST201MTR-K60 DC	2CDS271566R0587	0.125	10
	63	112529	ST201MTR-K63 DC	2CDS271566R0607	0.125	10
2	0,5	112567	ST202MTR-K0,5 DC	2CDS272566R0157	0.25	5
	1	112604	ST202MTR-K1 DC	2CDS272566R0217	0.25	5
	1,6	112642	ST202MTR-K1,6 DC	2CDS272566R0257	0.25	5
	2	120227	ST202MTR-K2 DC	2CDS272566R0277	0.25	5
	3	120265	ST202MTR-K3 DC	2CDS272566R0317	0.25	5
	4	112680	ST202MTR-K4 DC	2CDS272566R0337	0.25	5
	5	112727	ST202MTR-K5 DC	2CDS272566R0357	0.25	5
	6	112765	ST202MTR-K6 DC	2CDS272566R0377	0.25	5
	8	112802	ST202MTR-K8 DC	2CDS272566R0407	0.25	5
	10	112840	ST202MTR-K10 DC	2CDS272566R0427	0.25	5
	13	112888	ST202MTR-K13 DC	2CDS272566R0447	0.25	5
	15	112901	ST202MTR-K15 DC	2CDS272566R0457	0.25	5
	16	112949	ST202MTR-K16 DC	2CDS272566R0467	0.25	5
	20	112987	ST202MTR-K20 DC	2CDS272566R0487	0.25	5
	25	113021	ST202MTR-K25 DC	2CDS272566R0517	0.25	5
	30	113069	ST202MTR-K30 DC	2CDS272566R0527	0.25	5
	32	113106	ST202MTR-K32 DC	2CDS272566R0537	0.25	5
	35	113144	ST202MTR-K35 DC	2CDS272566R0547	0.25	5
	40	113182	ST202MTR-K40 DC	2CDS272566R0557	0.25	5
	50	113229	ST202MTR-K50 DC	2CDS272566R0577	0.25	5
	60	113267	ST202MTR-K60 DC	2CDS272566R0587	0.25	5
	63	113304	ST202MTR-K63 DC	2CDS272566R0607	0.25	5

Please consider polarity as note above the codes.



<b>Number of Poles</b>	<b>Rated Current [A]</b>	<b>Bbn 4016779 EAN</b>	<b>Type Code</b>	<b>Order Code</b>	<b>Weight 1 piece Kg</b>	<b>Pack unit pc.</b>
4	0,5	113342	ST204MTR-K0,5 DC	2CDS274566R0157	0.5	1
	1	113380	ST204MTR-K1 DC	2CDS274566R0217	0.5	1
	1,6	113427	ST204MTR-K1,6 DC	2CDS274566R0257	0.5	1
	2	120821	ST204MTR-K2 DC	2CDS274566R0277	0.5	1
	3	120869	ST204MTR-K3 DC	2CDS274566R0317	0.5	1
	4	113465	ST204MTR-K4 DC	2CDS274566R0337	0.5	1
	5	113502	ST204MTR-K5 DC	2CDS274566R0357	0.5	1
	6	113540	ST204MTR-K6 DC	2CDS274566R0377	0.5	1
	8	113588	ST204MTR-K8 DC	2CDS274566R0407	0.5	1
	10	113625	ST204MTR-K10 DC	2CDS274566R0427	0.5	1
	13	113663	ST204MTR-K13 DC	2CDS274566R0447	0.5	1
	15	113687	ST204MTR-K15 DC	2CDS274566R0457	0.5	1
	16	113724	ST204MTR-K16 DC	2CDS274566R0467	0.5	1
	20	113762	ST204MTR-K20 DC	2CDS274566R0487	0.5	1
	25	113809	ST204MTR-K25 DC	2CDS274566R0517	0.5	1
	30	113847	ST204MTR-K30 DC	2CDS274566R0527	0.5	1
	32	113885	ST204MTR-K32 DC	2CDS274566R0537	0.5	1
	35	113922	ST204MTR-K35 DC	2CDS274566R0547	0.5	1
	40	113960	ST204MTR-K40 DC	2CDS274566R0557	0.5	1
	50	114004	ST204MTR-K50 DC	2CDS274566R0577	0.5	1
	60	114042	ST204MTR-K60 DC	2CDS274566R0587	0.5	1
	63	114080	ST204MTR-K63 DC	2CDS274566R0607	0.5	1

Please consider polarity as note above the codes.

# ST200 MTR

## Z Characteristic



Number of Poles	Rated Current [A]	Bbn 4016779 EAN	Type Code	Order Code	Weight 1 piece Kg	Pack unit pc.
1	0,5	115704	ST201MTR-Z0,5	2CDS271448R0158	0.125	10
	1	115742	ST201MTR-Z1	2CDS271448R0218	0.125	10
	1,6	115780	ST201MTR-Z1,6	2CDS271448R0258	0.125	10
	2	119641	ST201MTR-Z2	2CDS271448R0278	0.125	10
	3	119689	ST201MTR-Z3	2CDS271448R0318	0.125	10
	4	115827	ST201MTR-Z4	2CDS271448R0338	0.125	10
	5	115865	ST201MTR-Z5	2CDS271448R0358	0.125	10
	6	115902	ST201MTR-Z6	2CDS271448R0378	0.125	10
	8	115940	ST201MTR-Z8	2CDS271448R0408	0.125	10
	10	115988	ST201MTR-Z10	2CDS271448R0428	0.125	10
2	15	116046	ST201MTR-Z15	2CDS271448R0458	0.125	10
	16	116084	ST201MTR-Z16	2CDS271448R0468	0.125	10
	20	116121	ST201MTR-Z20	2CDS271448R0488	0.125	10
	25	116169	ST201MTR-Z25	2CDS271448R0518	0.125	10
	30	116206	ST201MTR-Z30	2CDS271448R0528	0.125	10
	32	116244	ST201MTR-Z32	2CDS271448R0538	0.125	10
	35	116282	ST201MTR-Z35	2CDS271448R0548	0.125	10
	40	116329	ST201MTR-Z40	2CDS271448R0558	0.125	10
	50	116367	ST201MTR-Z50	2CDS271448R0578	0.125	10
	60	116404	ST201MTR-Z60	2CDS271448R0588	0.125	10
	63	116442	ST201MTR-Z63	2CDS271448R0608	0.125	10
	0,5	116480	ST202MTR-Z0,5	2CDS272448R0158	0.25	5
	1	116527	ST202MTR-Z1	2CDS272448R0218	0.25	5
	1,6	116565	ST202MTR-Z1,6	2CDS272448R0258	0.25	5
	2	120043	ST202MTR-Z2	2CDS272448R0278	0.25	5
	3	120081	ST202MTR-Z3	2CDS272448R0318	0.25	5
	4	116602	ST202MTR-Z4	2CDS272448R0338	0.25	5
	5	116640	ST202MTR-Z5	2CDS272448R0358	0.25	5
	6	116688	ST202MTR-Z6	2CDS272448R0378	0.25	5
	8	116725	ST202MTR-Z8	2CDS272448R0408	0.25	5
	10	116763	ST202MTR-Z10	2CDS272448R0428	0.25	5
	15	116824	ST202MTR-Z15	2CDS272448R0458	0.25	5
	16	116862	ST202MTR-Z16	2CDS272448R0468	0.25	5
	20	116909	ST202MTR-Z20	2CDS272448R0488	0.25	5
	25	116947	ST202MTR-Z25	2CDS272448R0518	0.25	5
	30	116985	ST202MTR-Z30	2CDS272448R0528	0.25	5
	32	117029	ST202MTR-Z32	2CDS272448R0538	0.25	5
	35	117067	ST202MTR-Z35	2CDS272448R0548	0.25	5
	40	117104	ST202MTR-Z40	2CDS272448R0558	0.25	5
	50	117142	ST202MTR-Z50	2CDS272448R0578	0.25	5
	60	117180	ST202MTR-Z60	2CDS272448R0588	0.25	5
	63	117227	ST202MTR-Z63	2CDS272448R0608	0.25	5



Number of Poles	Rated Current [A]	Bbn 4016779 EAN	Type Code	Order Code	Weight 1 piece Kg	Pack unit pc.
3	0,5	117265	ST203MTR-Z0,5	2CDS273448R0158	0.375	1
	1	117302	ST203MTR-Z1	2CDS273448R0218	0.375	1
	1,6	117340	ST203MTR-Z1,6	2CDS273448R0258	0.375	1
	2	120449	ST203MTR-Z2	2CDS273448R0278	0.375	1
	3	120487	ST203MTR-Z3	2CDS273448R0318	0.375	1
	4	117388	ST203MTR-Z4	2CDS273448R0338	0.375	1
	5	117425	ST203MTR-Z5	2CDS273448R0358	0.375	1
	6	117463	ST203MTR-Z6	2CDS273448R0378	0.375	1
	8	117500	ST203MTR-Z8	2CDS273448R0408	0.375	1
	10	117548	ST203MTR-Z10	2CDS273448R0428	0.375	1
	15	117609	ST203MTR-Z15	2CDS273448R0458	0.375	1
	16	117647	ST203MTR-Z16	2CDS273448R0468	0.375	1
	20	117685	ST203MTR-Z20	2CDS273448R0488	0.375	1
	25	117722	ST203MTR-Z25	2CDS273448R0518	0.375	1
4	30	117760	ST203MTR-Z30	2CDS273448R0528	0.375	1
	32	117807	ST203MTR-Z32	2CDS273448R0538	0.375	1
	35	117845	ST203MTR-Z35	2CDS273448R0548	0.375	1
	40	117883	ST203MTR-Z40	2CDS273448R0558	0.375	1
	50	117920	ST203MTR-Z50	2CDS273448R0578	0.375	1
	60	117968	ST203MTR-Z60	2CDS273448R0588	0.375	1
	63	118002	ST203MTR-Z63	2CDS273448R0608	0.375	1
	0,5	118040	ST204MTR-Z0,5	2CDS274448R0158	0.5	1
	1	118088	ST204MTR-Z1	2CDS274448R0218	0.5	1
	1,6	118125	ST204MTR-Z1,6	2CDS274448R0258	0.5	1
	2	120647	ST204MTR-Z2	2CDS274448R0278	0.5	1
	3	120685	ST204MTR-Z3	2CDS274448R0318	0.5	1
	4	118163	ST204MTR-Z4	2CDS274448R0338	0.5	1
	5	118200	ST204MTR-Z5	2CDS274448R0358	0.5	1
	6	118248	ST204MTR-Z6	2CDS274448R0378	0.5	1
	8	118286	ST204MTR-Z8	2CDS274448R0408	0.5	1
	10	118323	ST204MTR-Z10	2CDS274448R0428	0.5	1
	15	118385	ST204MTR-Z15	2CDS274448R0458	0.5	1
	16	118422	ST204MTR-Z16	2CDS274448R0468	0.5	1
	20	118460	ST204MTR-Z20	2CDS274448R0488	0.5	1
	25	118507	ST204MTR-Z25	2CDS274448R0518	0.5	1
	30	118545	ST204MTR-Z30	2CDS274448R0528	0.5	1
	32	118583	ST204MTR-Z32	2CDS274448R0538	0.5	1
	35	118620	ST204MTR-Z35	2CDS274448R0548	0.5	1
	40	118668	ST204MTR-Z40	2CDS274448R0558	0.5	1
	50	118705	ST204MTR-Z50	2CDS274448R0578	0.5	1
	60	118743	ST204MTR-Z60	2CDS274448R0588	0.5	1
	63	118781	ST204MTR-Z63	2CDS274448R0608	0.5	1

# ST200 MTR

## Z Characteristic - DC



Number of Poles	Rated Current [A]	Bbn 4016779 EAN	Type Code	Order Code	Weight 1 piece Kg	Pack unit pc.
	0,5	111805	ST201MTR-Z0,5 DC	2CDS271566R0158	0.125	10
	1	111843	ST201MTR-Z1 DC	2CDS271566R0218	0.125	10
	1,6	111881	ST201MTR-Z1,6 DC	2CDS271566R0258	0.125	10
	2	119849	ST201MTR-Z2 DC	2CDS271566R0278	0.125	10
	3	119887	ST201MTR-Z3 DC	2CDS271566R0318	0.125	10
	4	111928	ST201MTR-Z4 DC	2CDS271566R0338	0.125	10
	5	111966	ST201MTR-Z5 DC	2CDS271566R0358	0.125	10
	6	112000	ST201MTR-Z6 DC	2CDS271566R0378	0.125	10
	8	112048	ST201MTR-Z8 DC	2CDS271566R0408	0.125	10
	10	112086	ST201MTR-Z10 DC	2CDS271566R0428	0.125	10
1	15	112147	ST201MTR-Z15 DC	2CDS271566R0458	0.125	10
	16	112185	ST201MTR-Z16 DC	2CDS271566R0468	0.125	10
	20	112222	ST201MTR-Z20 DC	2CDS271566R0488	0.125	10
	25	112260	ST201MTR-Z25 DC	2CDS271566R0518	0.125	10
	30	112307	ST201MTR-Z30 DC	2CDS271566R0528	0.125	10
	32	112345	ST201MTR-Z32 DC	2CDS271566R0538	0.125	10
	35	112383	ST201MTR-Z35 DC	2CDS271566R0548	0.125	10
	40	112420	ST201MTR-Z40 DC	2CDS271566R0558	0.125	10
	50	112468	ST201MTR-Z50 DC	2CDS271566R0578	0.125	10
	60	112505	ST201MTR-Z60 DC	2CDS271566R0588	0.125	10
	63	112543	ST201MTR-Z63 DC	2CDS271566R0608	0.125	10
	0,5	112581	ST202MTR-Z0,5 DC	2CDS272566R0158	0.25	5
	1	112628	ST202MTR-Z1 DC	2CDS272566R0218	0.25	5
	1,6	112666	ST202MTR-Z1,6 DC	2CDS272566R0258	0.25	5
2	2	120241	ST202MTR-Z2 DC	2CDS272566R0278	0.25	5
	3	120289	ST202MTR-Z3 DC	2CDS272566R0318	0.25	5
	4	112703	ST202MTR-Z4 DC	2CDS272566R0338	0.25	5
	5	112741	ST202MTR-Z5 DC	2CDS272566R0358	0.25	5
	6	112789	ST202MTR-Z6 DC	2CDS272566R0378	0.25	5
	8	112826	ST202MTR-Z8 DC	2CDS272566R0408	0.25	5
	10	112864	ST202MTR-Z10 DC	2CDS272566R0428	0.25	5
	15	112925	ST202MTR-Z15 DC	2CDS272566R0458	0.25	5
	16	112963	ST202MTR-Z16 DC	2CDS272566R0468	0.25	5
	20	113007	ST202MTR-Z20 DC	2CDS272566R0488	0.25	5
	25	113045	ST202MTR-Z25 DC	2CDS272566R0518	0.25	5
	30	113083	ST202MTR-Z30 DC	2CDS272566R0528	0.25	5
	32	113120	ST202MTR-Z32 DC	2CDS272566R0538	0.25	5
	35	113168	ST202MTR-Z35 DC	2CDS272566R0548	0.25	5
	40	113205	ST202MTR-Z40 DC	2CDS272566R0558	0.25	5
	50	113243	ST202MTR-Z50 DC	2CDS272566R0578	0.25	5
	60	113281	ST202MTR-Z60 DC	2CDS272566R0588	0.25	5
	63	113328	ST202MTR-Z63 DC	2CDS272566R0608	0.25	5

Please consider polarity as note above the codes.



<b>Number of Poles</b>	<b>Rated Current [A]</b>	<b>Bbn 4016779 EAN</b>	<b>Type Code</b>	<b>Order Code</b>	<b>Weight 1 piece Kg</b>	<b>Pack unit pc.</b>
4	0,5	113366	ST204MTR-Z0,5 DC	2CDS274566R0158	0.5	1
	1	113403	ST204MTR-Z1 DC	2CDS274566R0218	0.5	1
	1,6	113441	ST204MTR-Z1,6 DC	2CDS274566R0258	0.5	1
	2	120845	ST204MTR-Z2 DC	2CDS274566R0278	0.5	1
	3	120883	ST204MTR-Z3 DC	2CDS274566R0318	0.5	1
	4	113489	ST204MTR-Z4 DC	2CDS274566R0338	0.5	1
	5	113526	ST204MTR-Z5 DC	2CDS274566R0358	0.5	1
	6	113564	ST204MTR-Z6 DC	2CDS274566R0378	0.5	1
	8	113601	ST204MTR-Z8 DC	2CDS274566R0408	0.5	1
	10	113649	ST204MTR-Z10 DC	2CDS274566R0428	0.5	1
	15	113700	ST204MTR-Z15 DC	2CDS274566R0458	0.5	1
	16	113748	ST204MTR-Z16 DC	2CDS274566R0468	0.5	1
	20	113786	ST204MTR-Z20 DC	2CDS274566R0488	0.5	1
	25	113823	ST204MTR-Z25 DC	2CDS274566R0518	0.5	1
	30	113861	ST204MTR-Z30 DC	2CDS274566R0528	0.5	1
	32	113908	ST204MTR-Z32 DC	2CDS274566R0538	0.5	1
	35	113946	ST204MTR-Z35 DC	2CDS274566R0548	0.5	1
	40	113984	ST204MTR-Z40 DC	2CDS274566R0558	0.5	1
	50	114028	ST204MTR-Z50 DC	2CDS274566R0578	0.5	1
	60	114066	ST204MTR-Z60 DC	2CDS274566R0588	0.5	1
	63	114103	ST204MTR-Z63 DC	2CDS274566R0608	0.5	1

Please consider polarity as note above the codes.

## Accessories - Ring Tongue Range (UL 1077)

### Order Codes



#### Shunt trip Ring Tongue

Description	Order details		Weight 1 piece Kg	Pack unit pc.
	Type	Order Code		
To be mounted on the right side	12 VAC .... 110 VAC	S2C-A1TU	2CDS200948R0001	0,15
	12 VDC .... 110 VDC			1
	110 VAC to 415 VAC	S2C-A2ATU	2CDS200948R0002	0,15
	110 VDC to 250 VDC			1

#### Auxiliary contacts

Function: remote reporting of the open or closed state of the switch to which they are coupled in case of voltage application. Applications: rolling stock.



#### Signal/Auxiliary contact (universal)

Description	Order details		Weight 1 piece Kg	Pack unit pc.
	Type	Order Code		
Signal contact or auxiliary contact (selectable)	1 changeover contact	S 2C-S/H6R	2CDS200922R0001	0,04
				1

#### Auxiliary contact



Description	Order details		Weight 1 piece Kg	Pack unit pc.
	Type	Order Code		
To be mounted on the right side	1 changeover contact	S 2C-H6R	2CDS200922R0001	0,04
	1 NO contact + 1 NC contact	S 2C-H6-11R	2CDS200946R0001	0,04
	2 NO contacts	S 2C-H6-20R	2CDS200946R0002	0,04
	2 NC contacts	S 2C-H6-02R	2CDS200946R0003	0,04

# Accessories S2C - Standard Range (UL 489)

## Order Codes



**Signal/Auxiliary contact (universal)**

Description	Order details		Weight 1 piece Kg	Pack unit pc.
	Type	Order Code		
Signal contact (S2C-S6RU) or auxiliary contact (S2C-H6RU) To be mounted on the right side	S 2C-S6RU S 2C-H6RU	2CDS200924R0001 2CDS200914R0001	0.035 0.035	1 1
1 changeover contact				

**Shunt Trip (UL 489)**



Description	Order details		Weight 1 piece Kg	Pack unit pc.
	Type	Order Code		
2 types for different voltage levels To be mounted on the right side	12 ... 60 V AC 12 ... 60 V DC 110 ... 415 V AC 110 ... 250 V DC	S 2C-A1 U S 2C-A2 U	0.133 0.133	1 1



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