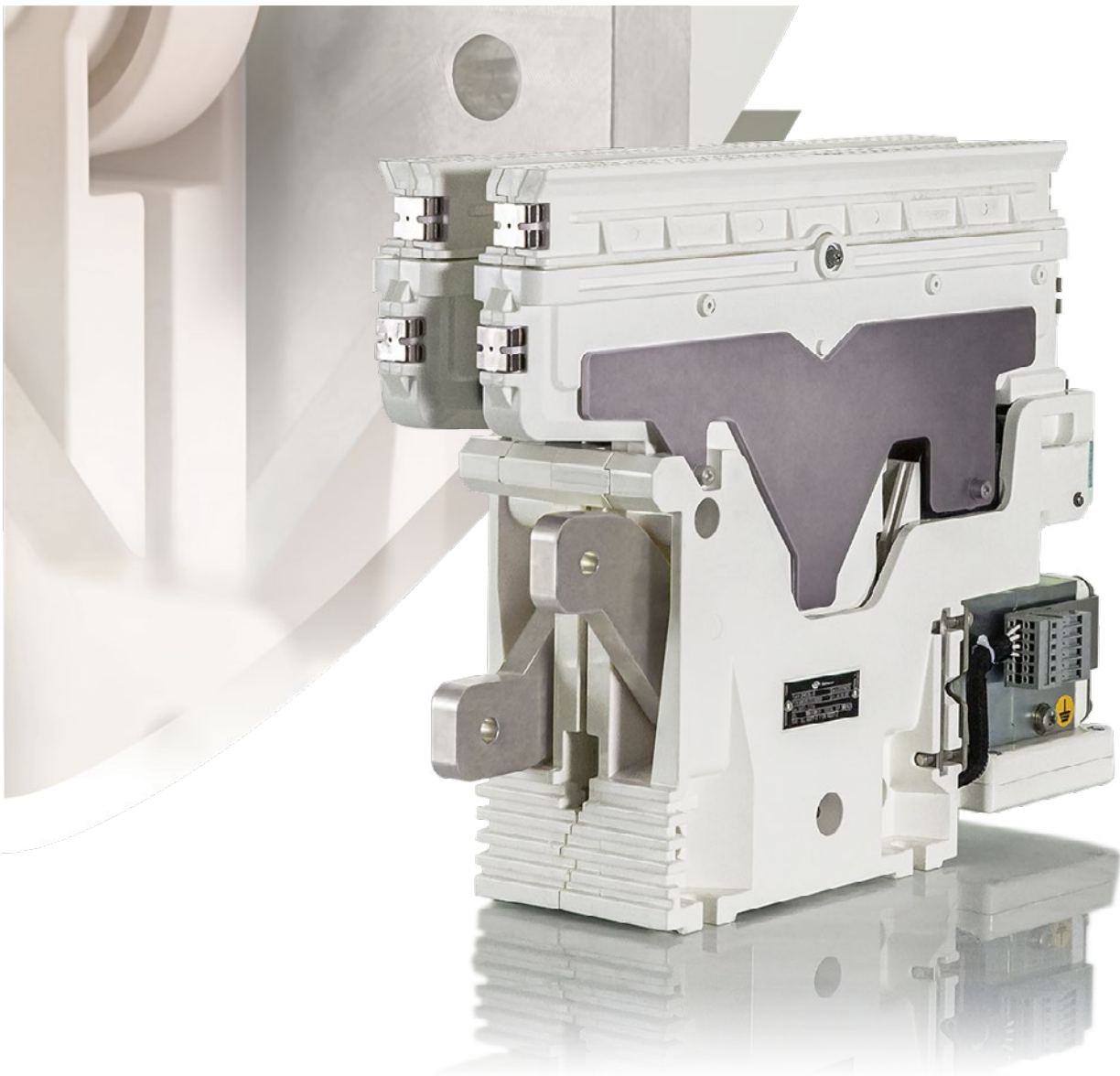


# CONTACTORS

Type **BMS36.10**

RAIL VEHICLES / FIXED INSTALLATION



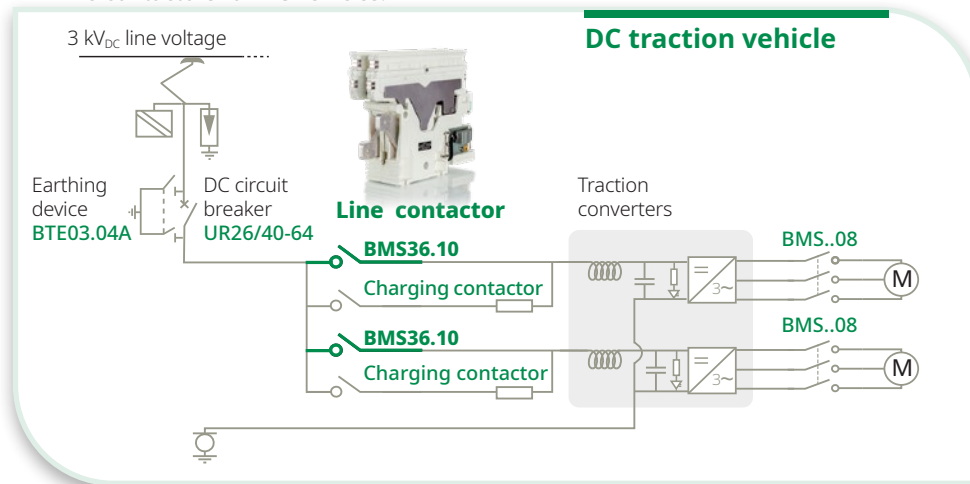
# GENERAL INFORMATION

The **BMS** contactor, with its outstanding track record, is a contactor valued by the car builders and operators of electric traction vehicles for its strong performance level and its extremely high reliability. Taking advantages of its recognized features and design, Sécheron has developed a new BMS36 range suitable for 3 kV<sub>DC</sub> rail vehicles as well as for the 25 kV<sub>AC</sub> rail vehicles with intermediate DC-bus voltage up to 4,000 V<sub>DC</sub>. With the first configuration BMS36.10 released to the market, Sécheron shows once again its strong competencies to master 3 kV switching devices, bringing multiple key benefits to car builders and operators using it.

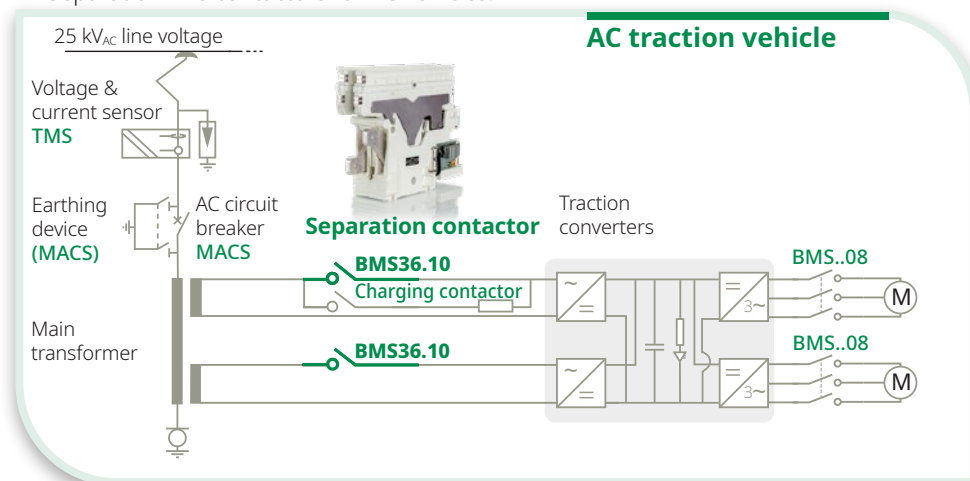
Combining a compact size with a light weight, it is particularly efficient to interrupting low currents while offering also the highest breaking capacity in its category. Particular care has been taken to make the integration of the contactor in the car builder's line breaker box or converter unit the friendliest. Designed with high insulation performances to match installation in the most severe indoor environmental conditions, the BMS36.10 offers also the most compact installation volume thanks to its unique arc chute. The BMS36.10 contactor is the ideal solution to be used with our high-speed DC circuit breakers type UR26-64 or our AC vacuum circuit breakers type MACS.

## APPLICATIONS, TYPICAL EXAMPLES

- Line contactors for DC vehicles.



- Separation/line contactors for AC vehicles.



- Contactors for DC traction power substations and other industrial fields.

## MAIN FEATURES

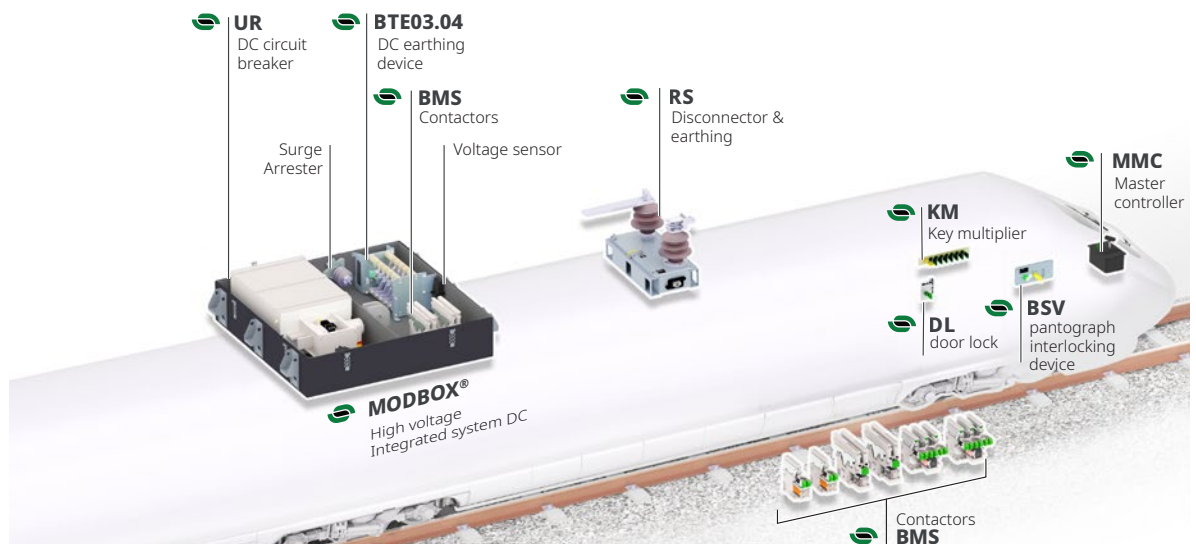
- Normally open and bidirectional contactor.
- Rated voltage 3,600 V<sub>DC/AC</sub>.
- Conventional free air thermal current 1,000 A.
- Available in 1 pole configuration.
- Low voltage control coil protection against surges.
- Suitable for ambient temperature from -40°C to +70°C.
- Reference standards: EN/IEC 60077-1/-2, EN/IEC 61373, EN 45545, EN 50657.

## MAIN BENEFITS

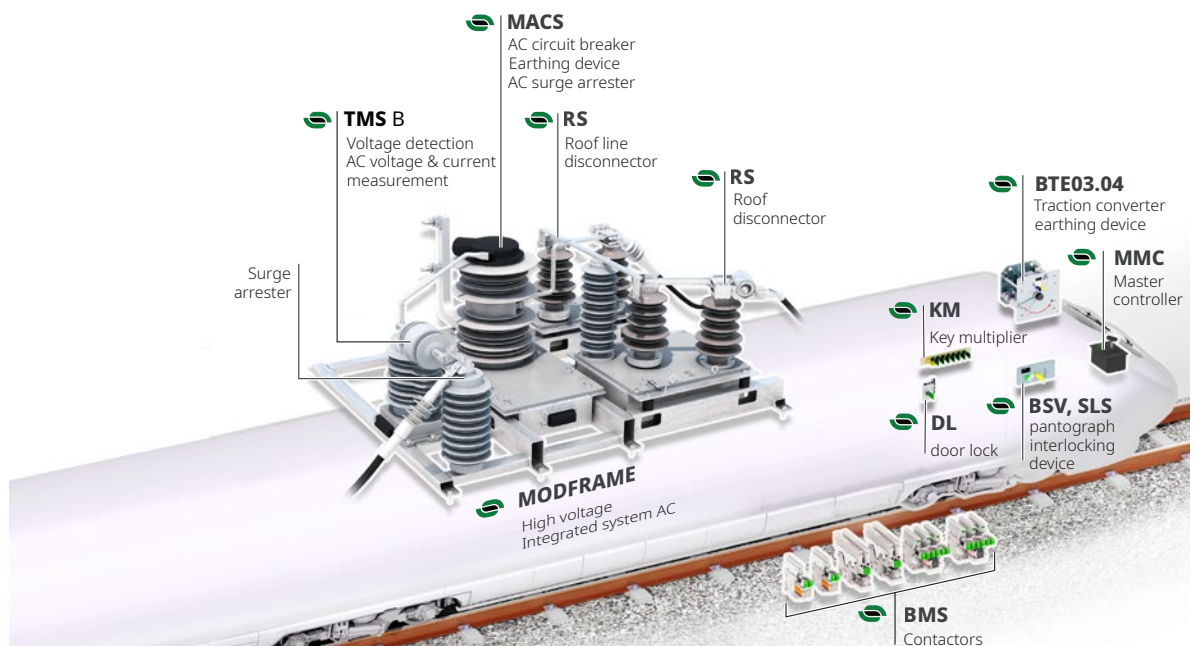
- ✓ No critical current.
- ✓ Very compact and low weight.
- ✓ Highest insulation level for indoor installation.
- ✓ Designed for optimal integration in line breaker and converter boxes.
- ✓ Reduced insulation distances for installation.
- ✓ High mechanical and electrical durability.
- ✓ Convenient and safe interfacing with HV connections (rear side) & LV circuits (front side).
- ✓ Horizontal or vertical mounting to match vehicle's installation constraints.
- ✓ Low maintenance requirements with easy access to the main contacts for replacement.
- ✓ Worldwide proven design.

## APPLICATIONS

### DC typical application



### AC typical application



# DATA FOR PRODUCT SELECTION

Symbol	Unit	BMS 36.10
<b>MAIN HIGH VOLTAGE CIRCUIT</b>		
Pole quantity		1
Component category		A2
Type of main contact		Normally Open
Rated operational voltage	[V]	
- DC voltage	$U_r$ [V]	3,600
- AC voltage (16.7, 25, 50/60)	$U_r$ [V]	3,600
Rated insulation voltage	$U_{Nm}$ [V <sub>DC</sub> ]	4,800
	[V <sub>AC</sub> ]	4,800
Conventional free air thermal current <sup>(2)</sup>	$I_{th}$ [A]	
- DC voltage & AC voltage (16.7, 25, 50/60 Hz)		1,000
Rated operational current/operational frequency		
- DC voltage	$I_r$ [A]	400 (C3), 500 (C2); 800 (C1)
- AC voltage	$I_r$ [A]	1,000 / C2
Maximum breaking capacity		
- DC current, $\tau = 15$ ms	$I_{bc}$ [A]	3,000
- AC current, $\cos \Phi = 0.8$ (16.7, 25 & 50/60 Hz)	$I_{bc}$ [A]	3,000
Maximum making capacity		
- DC current, $\tau = 15$ ms	$I_{mc}$ [A]	3,000
- AC current, $\cos \Phi = 0.8$ (16.7, 25 & 50/60 Hz)	$I_{bc}$ [A]	3,000
Rated short-time withstand current	$I_{cw/t}$ [kA]/[ms]	10 / 100
Peak short-time withstand current	$\hat{I}_{cw}$ [kA]	10
Rated power-frequency withstand voltage (50 Hz/1min)	$U_a$ [kV <sub>AC</sub> ]	11.5
Rated impulse withstand voltage	$U_{Ni}$ [kV]	25
<sup>(1)</sup> At $T_{amb} = +40^\circ\text{C}$ and tested with HV connections with current density 1.7 A/mm <sup>2</sup> .		
<b>LOW VOLTAGE CIRCUIT</b>		
<b>Control circuit</b>		
Nominal supply voltage <sup>(4)</sup>	$U_n$ [V <sub>DC</sub> ]	24 to 110
Nominal control voltage <sup>(4)</sup>	$U_{EF}$ [V <sub>DC</sub> ]	24 to 110
Range of voltage		[0.7 - 1.25] $U_n$
Nominal closing power <sup>(4)(5)</sup>	$P_c$ [W]	$\leq 60$
Nominal holding power <sup>(4)(5)</sup>	$P_h$ [W]	$\leq 4$
Typical mechanical closing time <sup>(5)</sup>	$t_{cc}$ [ms]	110 to 130
Typical mechanical opening time <sup>(5)</sup>	$t_{co}$ [ms]	50 to 60
<sup>(4)</sup> For detailed values based on BMS configuration, please refer to page 9 • <sup>(5)</sup> At $U_n$ and $T_{amb} = +20^\circ\text{C}$ .		
<b>Auxiliary contacts</b>		
Type of contacts		Potential free (PF)
Rated voltage	[V <sub>DC</sub> ]	24 to 110
Conventional thermal current	$I_{th}$ [A]	10
Utilization category according to EN60947		
- AC-15 230 V <sub>AC</sub>		1.0 A
- DC-13 110 V <sub>DC</sub>		0.5 A
Minimum let-through current at 24 V <sub>DC</sub> <sup>(6)</sup>	[mA]	$\geq 10$ (silver contacts) or $4 \leq I < 10$ (gold contacts)
<sup>(6)</sup> For a dry and clean environment.		
<b>Low voltage interface</b>		
Control circuits		Wago terminal
Auxiliary switches		Direct on switches
<b>Insulation</b>		
Rated power-frequency withstand voltage (50 Hz / 1min)		
- LV circuit to earth	$U_a$ [kV]	1.5
<b>OPERATING CONDITIONS</b>		
Installation		Indoor
Altitude	[m]	$\leq 2,000$
Working ambient temperature	$T_{amb}$ [°C]	- 40 to + 70
Humidity		95% at + 40°C
Pollution degree		PD3A
Minimum mechanical durability	N Cycles	2 millions

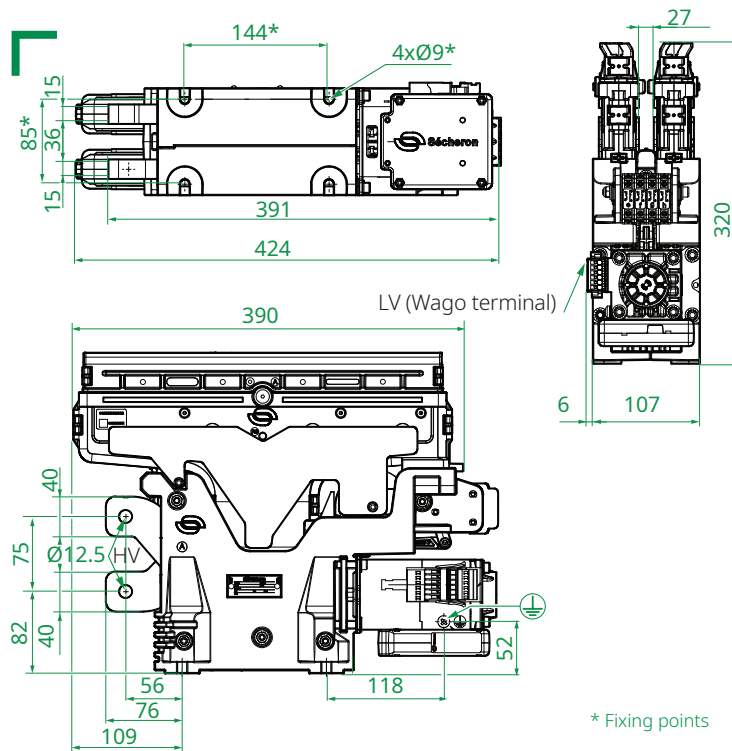
# PRODUCT INTEGRATION

## MAIN DIMENSIONS

<b>HV connections</b>	M10 screws
<b>Earth connections</b>	M6 screws, thread length 8 mm
<b>LV Connections</b>	BMS control: Wago terminal BMS auxiliary switches: M3 screws
<b>Fixing points</b>	M8 screws

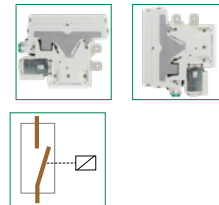
Dimensions without tolerances are indicative. All dimensions are in mm. The maximum allowed flatness deviation of the support frame is 0.5 mm.

### BMS36.10



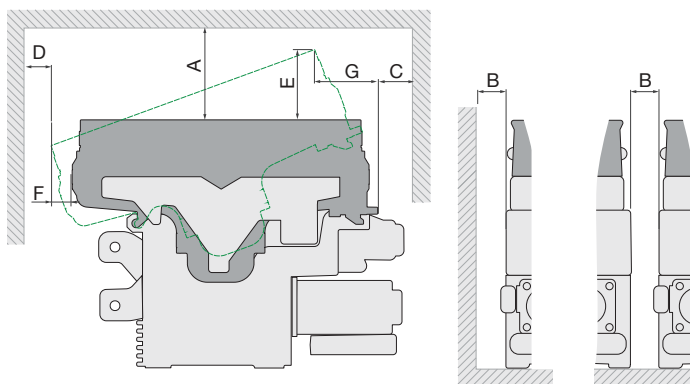
### BMS36.10

1-POLE  
Horizontal/vertical  
installation



\* Fixing points

## INSULATION DISTANCES AND WEIGHTS



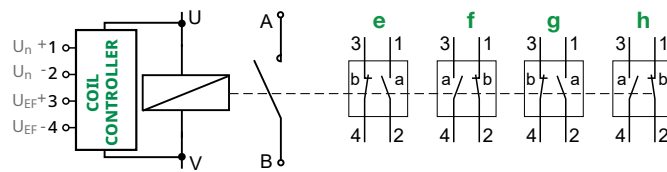
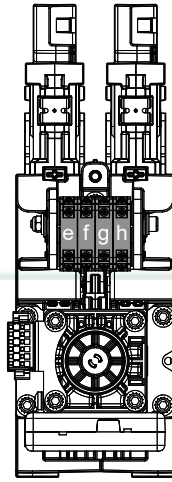
BMS contactors have been homologated according to IEC 60077-2 with the following insulation distances.

(1) Distances on request according to your application

contactor type	Breaking current	Arc chute type	Insulating distance [mm]								Arc chute removal distance [mm]			Weight: ± 1 kg [kg]
			To earthed wall				To insulating wall				E	F	G	
			A	B	C	D	A	B	C	D				
BMS36.10	≤ 800	A	75	10	75	75	40	10	40	40	90	20	40	1 Pole 16
	> 800		○(1)	○(1)	○(1)	○(1)	75	10	75	75				

## AUXILIARY CONTACTS CONFIGURATION

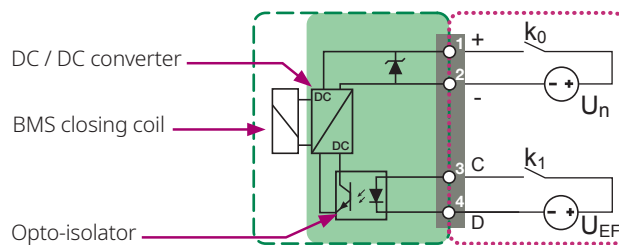
### BMS36.10



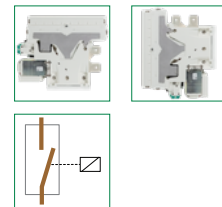
## LOW VOLTAGE CONTROL DIAGRAM

BMS CONFIGURATION	Nominal supply voltage <sup>(1)</sup> $U_n$ [V <sub>DC</sub> ]	Nominal control voltage <sup>(1)</sup> $U_{EF}$ [V <sub>DC</sub> ]	Closing power ( $P_c$ ) / Holding power ( $P_h$ ) [W] / [W]
<b>BMS36.10</b> horizontal / vertical installation	<b>1 pole</b> [24-36], [48-110]	[24-110]	$\leq 60$ / $\leq 4$

<sup>(1)</sup> Control voltage  $U_{EF}$  and supply voltage  $U_n$  can be different.



### CONTROL TYPE Coil controller



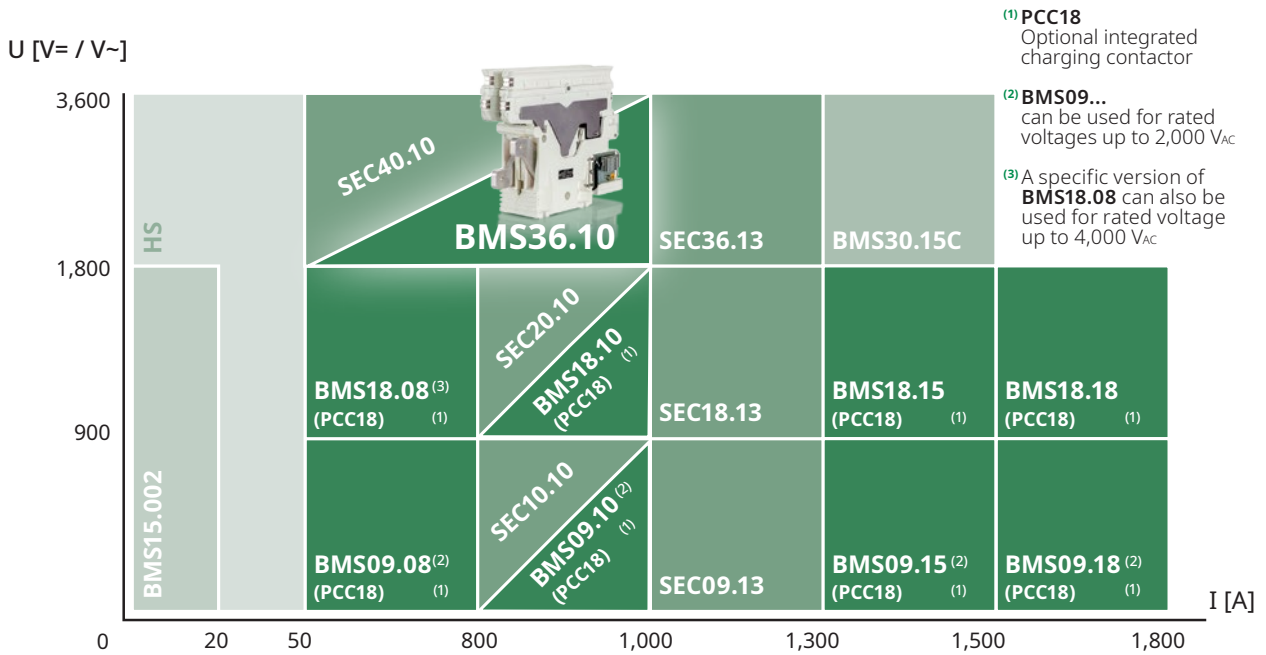
--- Sécheron's scope  
..... Customer's scope

Low voltage interface  
Coil controller

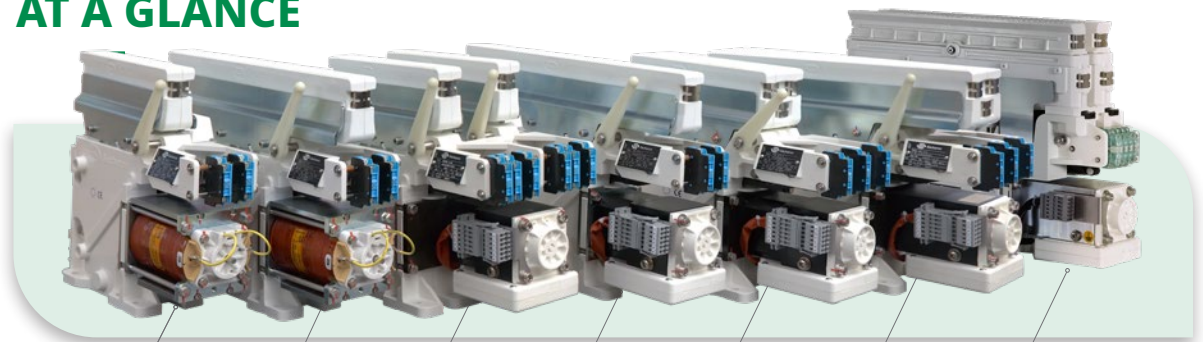
$U_n$  : DC power supply  
 $U_{EF}$  : Control voltage  
 $k_0$  : Supply relay  
 $k_1$  : Control relay



# SECHERON CONTACTORS RANGE



## AT A GLANCE



**BMS 09.08**

1 pole  
Arc chute  
Type A

**BMS 18.08**

1 pole  
Arc chute  
Type A

**BMS 09.08**

2 poles  
Arc chute  
Type A

**BMS 18.10**

1 pole  
Arc chute  
Type A

**BMS 09.15**

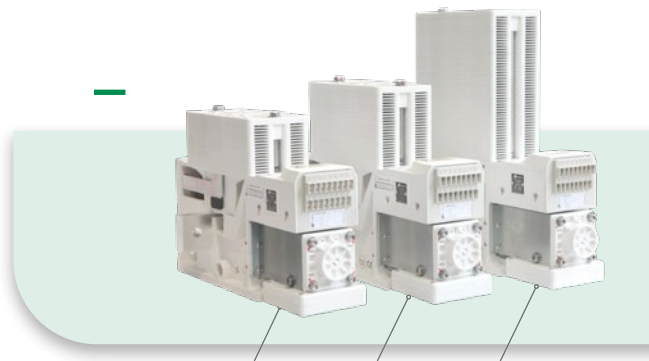
1 pole  
Arc chute  
Type A

**BMS 18.18**

1 pole  
Arc chute  
Type A

**BMS 36.10**

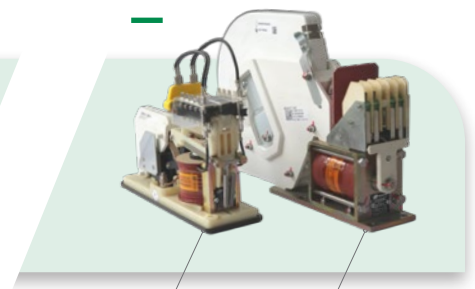
1 pole



**SEC10.10/  
SEC09.13**

**SEC20.10/  
SEC18.13**

**SEC40.10/  
SEC36.13**



**BMS15.002**

**HSB**

# DESIGNATION CODE FOR ORDERING

- Be sure to establish the designation code from the latest version of our brochure by downloading it from the website: [www.secheron.com](http://www.secheron.com).
- Be careful to write down the complete alphanumerical designation code with 16 characters when placing your order.
- For technical reasons some variants and options indicated in the designation code might not be combined, therefore validate your configuration with Sécheron before ordering.
- For other configurations not described in the brochure, please contact Sécheron.

<b>Example of customer's choice:</b>	<b>BMS</b>	<b>36</b>	<b>10</b>	Z	1	Z	Z	E	A	Z	V	D
Line:	10	11	12	13	14	15	16	17	18	19	20	21

The bold characters of the designation code define the device type.

**Note:** some combinations may not be possible, therefore validate your configuration with Sécheron before ordering

## DESIGNATION CODE

Line	Description	Designation		Customer's
		Standard	Options	choice
10	Product type BMS	<b>BMS</b>	<b>BMS</b>	<b>BMS</b>
11	Rated operational voltage	3,600 V	36	36
12	Rated conventional free air thermal current	1,000 A	10	10
13	Spare digit		Z	
14	Number of poles	1 pole	1	
15	Spare digit		Z	
16	Spare digit		Z	
17	Nominal supply voltage	24 V <sub>DC</sub> 36 V <sub>DC</sub> 48 V <sub>DC</sub> 72 V <sub>DC</sub> 110 V <sub>DC</sub>	A B C D E	
18	Auxiliary contacts BMS	1a + 1b - (switch PF) - silver type 1a + 1b - (switch PF) - gold type 2a + 2b - (switch PF) - silver type 2a + 2b - (switch PF) - gold type 3a + 3b - (switch PF) - silver type 3a + 3b - (switch PF) - gold type 4a + 4b - (switch PF) - silver type 4a + 4b - (switch PF) - gold type	A	C E H K M O P
19	Spare digit		Z	
20	Installation configuration	Horizontal & Vertical	V	
21	Application type	(Direct Current) DC (Alternating Current) AC	D	A

Signature:

Name:

Place and date:



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