ELECTRICAL
SAFETY
SOLUTIONS

Sécheron

CONTACTORS

Type **BMS18.01 & BMS36.01**

DC unidirectional contactors or AC contactors

ELECTRIC TRANSPORT VEHICLES / FIXED INSTALLATIONS

GENERAL INFORMATION

The **BMS18.01** and **BMS36.01**, with a thermal current of 100 A and rated voltage up to 1.8 kV or 3.6 kV respectively, have been designed to cover multiple applications on electric transport vehicles, but also in fixed installations.

For rail vehicles, this series of contactors, depending on the chosen configuration, Normally Open or Normally Closed, is used to precharge or discharge the input filter capacitors of traction and auxiliary power inverters, and as a line contactor for auxiliary power inverters. When used as precharging contactor, the BMS...01 series, with its narrow width and adjusted height, can be easily combined with our other BMS09.../ BMS18.../BMS36- range. Both, the precharging and line contactors can be supplied separately, or as an assembled module, with or without the precharging resistor, ready for horizontal or vertical installation.

For fixed installations (DC power supply in public transport and railway networks), the BMS...01 series is used as contactors for line testing prior to closing the line/feeder breakers.

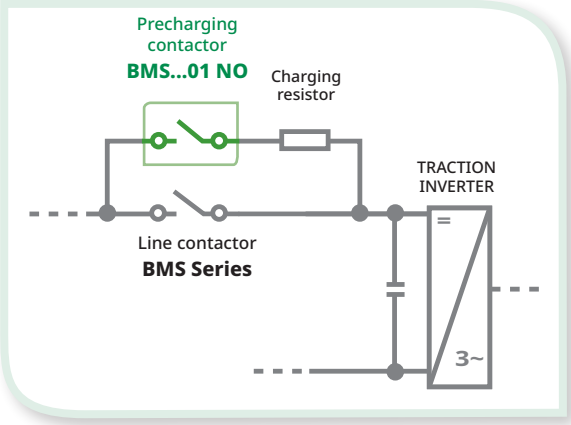
Designed and extensively tested to ensure high performance and reliability, this BMS...01 series requires a small volume for integration and offers an easy access for installation and wiring.

APPLICATIONS, TYPICAL EXAMPLES

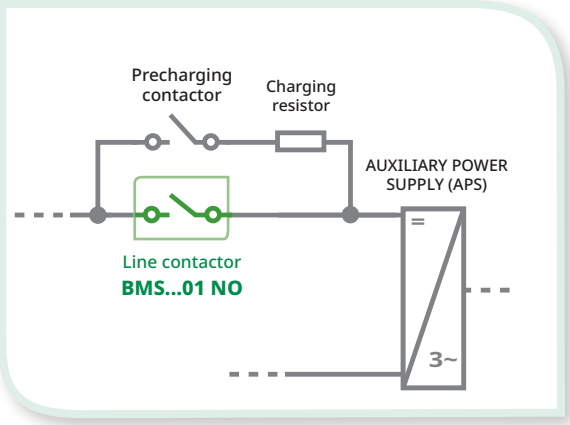
Transport vehicles

DC rail vehicles appplications

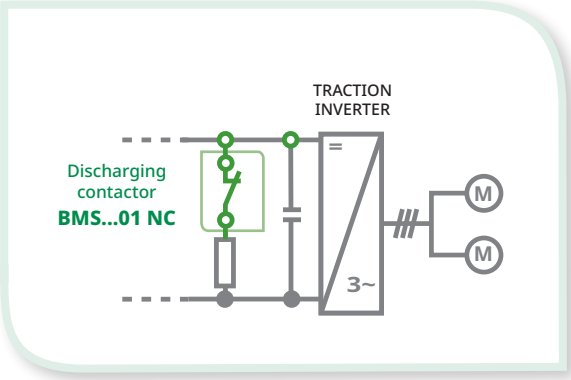
Precharging contactor - typical scheme



Line contactor - typical scheme



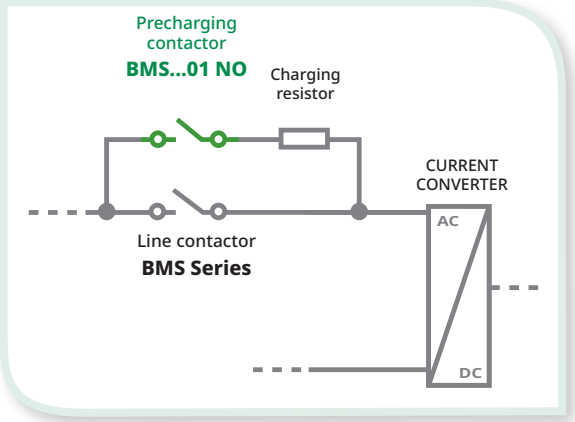
Discharging contactor - typical scheme



Transport vehicles

AC rail vehicles appplications

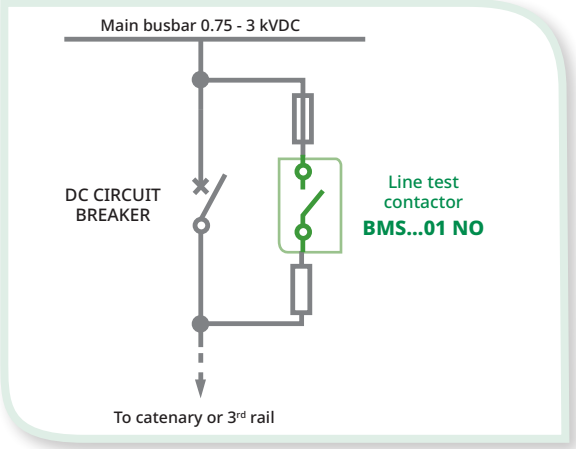
Precharging contactor - typical scheme



Fixed installation

DC rail vehicles appplications

Line test contactor - typical scheme



MAIN FEATURES

- Normally Open (NO) or Normally Close (NC) configuration.
- Unidirectional polarized for DC or AC.
- Rated voltage 1,800 V or 3,600 V.
- Conventional free air thermal current 100 A at 75°C.
- Available in 1 pole configuration.
- Low voltage control coil protection against surges.
- Suitable for ambient temperature from -40°C to +75°C.
- Reference standards: EN/IEC 60077-1/-2, EN/IEC 61373, EN 45545.

MAIN BENEFITS

- High insulation level and resistance against pollution OV3 / PD3A.
- Compact size for effective integration with BMS line contactors.
- No critical current.
- Reduced insulation clearances required for installation.
- High mechanical and electrical durability.
- Main circuit available in Normally Open or Normally Closed configuration.
- Designed for maintenance free operation.

DATA FOR PRODUCT SELECTION

	Symbol	Unit	BMS18.01		BMS36.01	
MAIN HIGH VOLTAGE CIRCUIT						
Pole quantity			1			
Component category			A2			
Type of main contacts			NO Normally Open	NC Normally Closed	NO Normally Open	NC Normally Closed
Polarity			Unidirectional			
Current interruption direction			Unidirectional DC (polarized)			
Rated operational voltage	U_r	[V]	1,800		3,600	
Rated insulation voltage	U_{Nm}	[V_{DC}]	2,300		4,800	
Overvoltage category			OV3			
Conventional free air thermal current	I_{th}	[A]	100 (T_{amb}=+70°C)			
Rated operational current/operational frequency	I_r	[A]				
- DC current, τ =1 ms			100/C1			
- AC current, pf = 0.8			N.A.		100/C1	
Short-circuit making and beaking capacity	I_{bc} / I_{mc}	[A]				
- DC current (1)			150		120	
- AC current (2)			N.A.		300	
Critical currents		[A]	No critical current			
Current interruption direction (DC)			Unidirectional DC (Polarized)			
Rated short-time withstand current	$I_{cw\,/\,t}$	[kA]/[ms]				
- DC current			3 / 100	1/100	3/ 100	1/100
- AC current			N.A.		1.4/ 100	
Power-frequency test voltage (50 Hz / 1min)	U_a	[kV]	6.9		11.5	
Rated impulse withstand voltage	U_{Ni}	[kV]	15		25	

(1) 100 A at T= 1 ms. (2) pf = 0.8.

LOW VOLTAGE CIRCUIT

Control circuit

Nominal supply voltage	U_n	[V_{DC}]	24; 32; 36; 48; 72; 84; 96 or 110 (3)			
Range of voltage			[0.7 - 1.25] U_n			
Typical mechanical closing time (4)	t_{cc}	[ms]	30	60	30	60
Typical mechanical opening time (4)	t_{co}	[ms]	100	60 (4)	100	60 (5)

(3) For other voltage, please contact sécheron. (4) At U_n and T_{amb} = +20°C. (5) For Normally Closed applications with horizontal installation, please contact Sécheron.

Auxiliary contacts

Type of contacts			Dual break type (DB) or Changeover type (CO)			
Conventional thermal current	I_{th}	[A]	6 or 10 depending from the version			
Utilization category according to EN60947 for Dual break type (DB)						
- DC-13 110 V_{DC}			0.5 A		0.5 A	
for Changeover type (CO)						
- DC-13 60 V_{DC}			0.5 A		0.5 A	
- DC-13 24 V_{DC}			2.0 A		2.0 A	
Minimum let-through current at 24 V_{DC} (6)		[mA]	≥ 10 (silver contacts)			

(6) For a dry and clean environment.

Low voltage interface

Control circuits			Wago 294 terminal (standard) / Cage clamp 10-pole connector (option)			
Auxiliary switches			Direct connection (standard) Cage clamp 10-pole connector (option)			

Insulation

Power-frequency test voltage (50 Hz / 1min)	U_a	[kV]	1.5			

OPERATING CONDITIONS

Installation			Indoor			
Altitude		[m]	≤ 2,000			
Working ambient temperature	T_{amb}	[°C]	-40 to +75			
Humidity			95% at + 40°C			
Pollution degree			PD3A			
Minimum mechanical durability	N	Operations	≥ 2 millions			

PRODUCT INTEGRATION

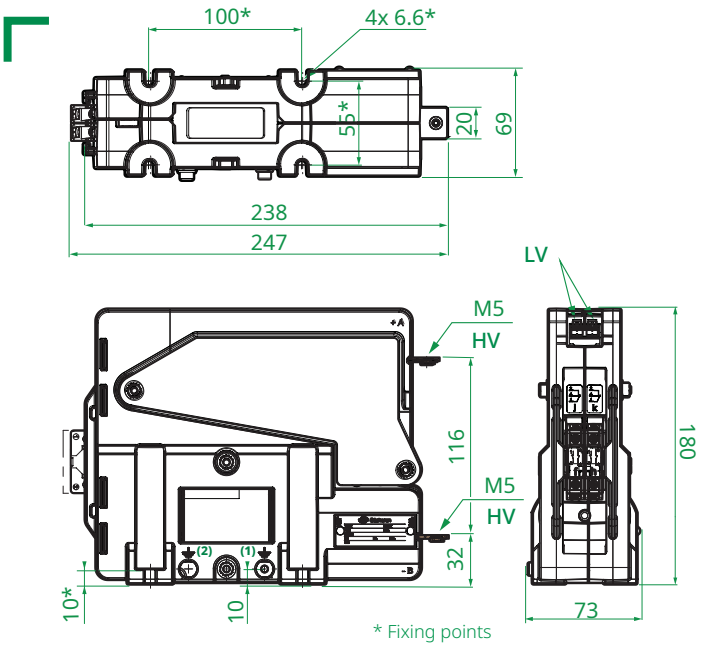
MAIN DIMENSIONS

HV connections	M5 screws
Earth connections	M5 screw
LV Connections (standard)	BMS control: WAGO 294-5002 Cage Clamp connector (1) BMS auxiliary switches: M3 screws
Fixing points	M6 screws

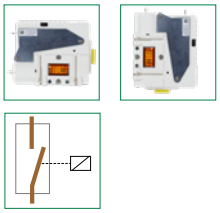
Dimensions without tolerances are indicative. All dimensions are in mm. The maximum allowed flatness deviation of the support frame is 0.5 mm.

(1) Integrated 10-pole connector available as option

BMS18.01 NO / BMS18.01 NC



BMS18.01 NO / NC
1-POLE
Horizontal/vertical installation

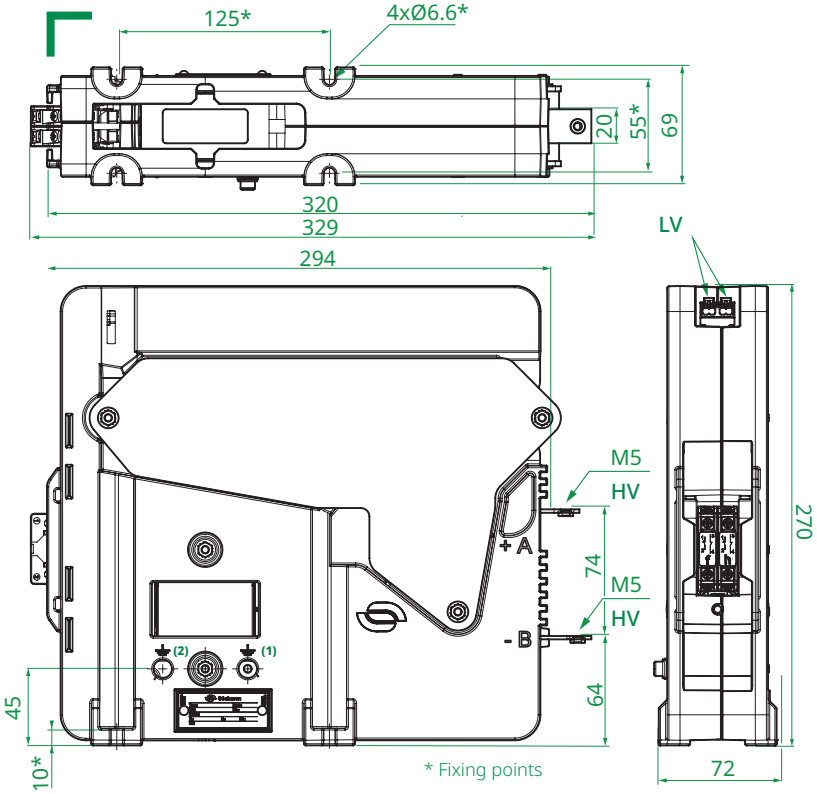


Weight: 4 ±1 kg

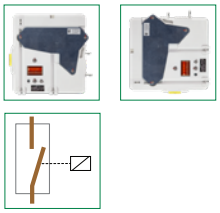
(1) Ground terminal for Normally Open configuration

(2) Ground terminal for Normally Closed configuration

BMS36.01 NO / BMS36.01 NC



BMS36.01 NO / NC
1-POLE
Horizontal/vertical installation



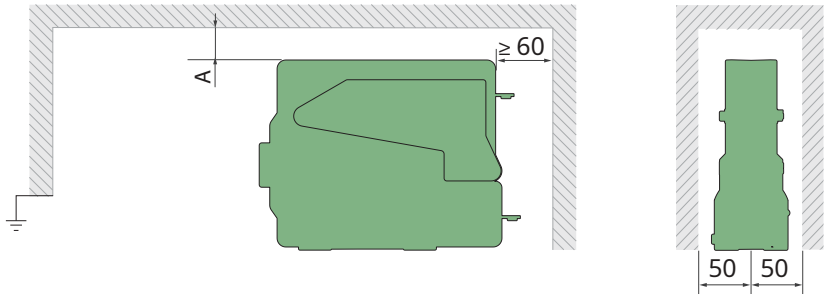
Weight: 6 ±1 kg

(1) Ground terminal for Normally Open configuration

(2) Ground terminal for Normally Closed configuration

INSULATION DISTANCES

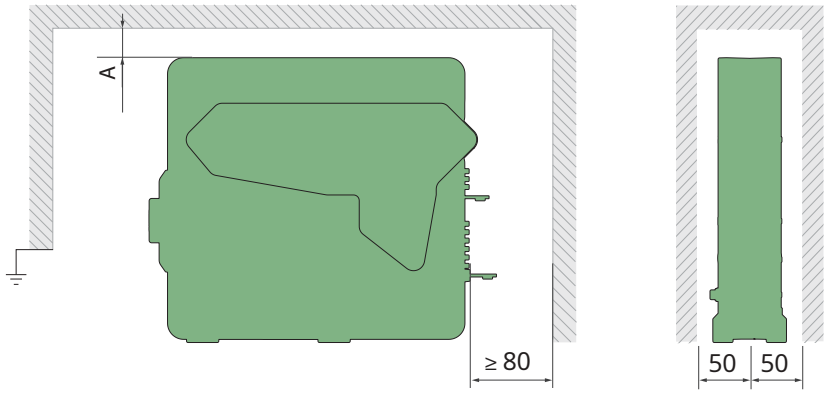
BMS18.01 NO / BMS18.01 NC



Value given for the maximum breaking capacity (150 A). For lower breaking current distance can be reduce d. Please contact Sécheron.

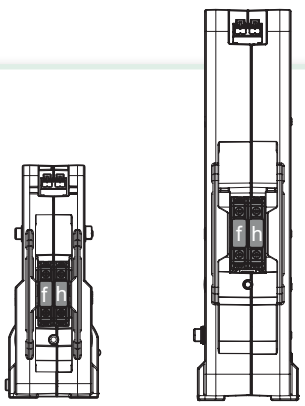
Breaking current	Arc chute removal distance [mm]
	A
≤ 100 A	70
< 40 A	35
< 20 A	20

BMS36.01 NO / BMS36.01 NC

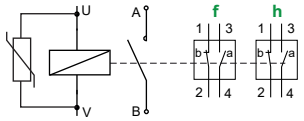


Breaking current	Arc chute removal distance [mm]
	A
≤ 100 A	30
< 70 A	20

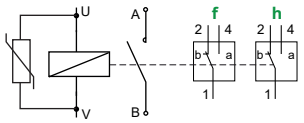
AUXILIARY CONTACTS CONFIGURATION



BMS18.01 BMS36.01



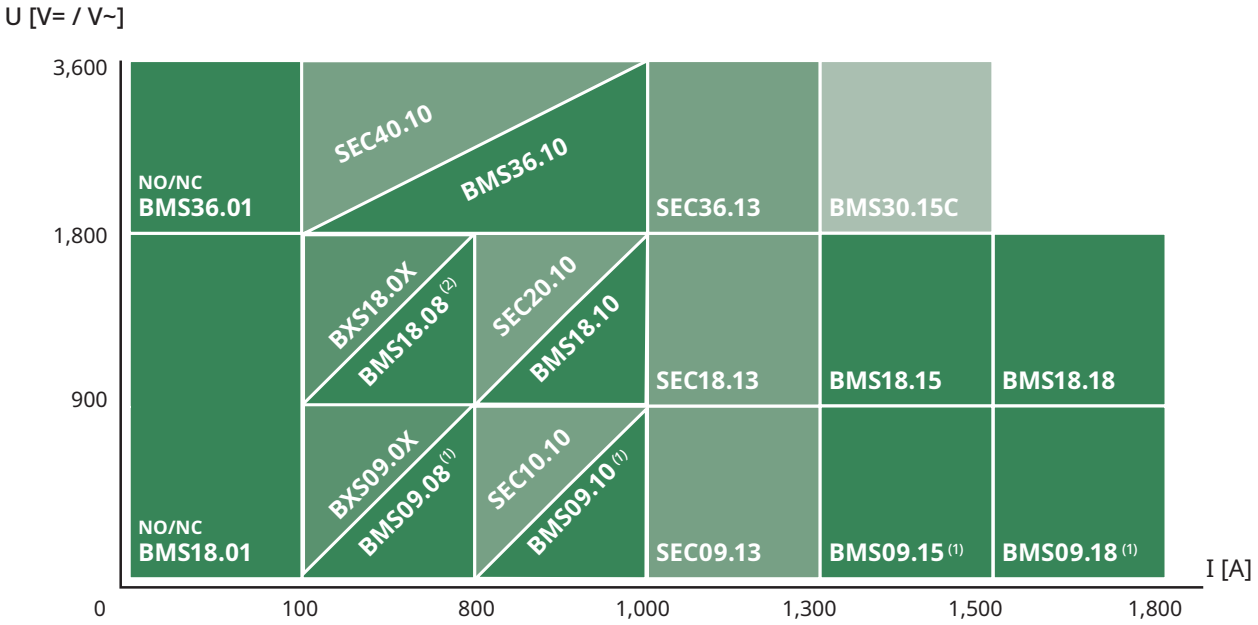
Configuration - Dual breaker (DB) (1)



Configuration - Changeover (CO) (1)

(1) For other available possibilities, please contact sécheron

SECHERON CONTACTORS RANGE

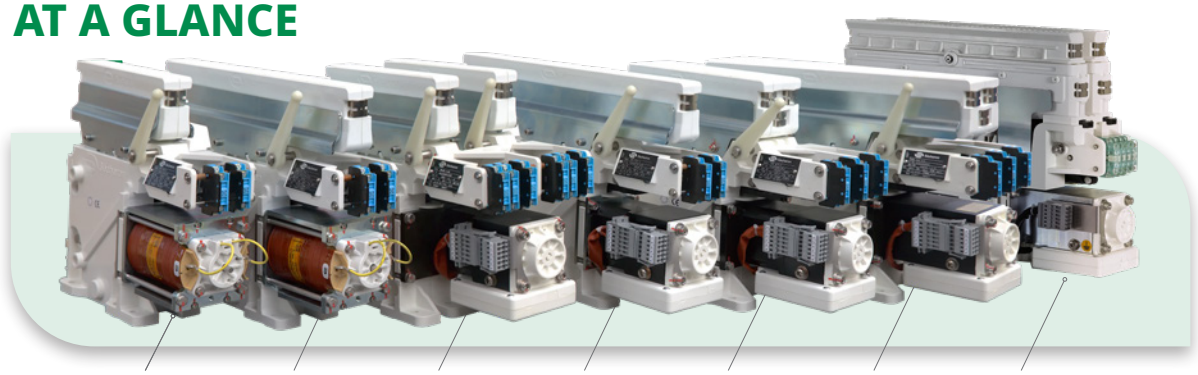


BMS15.002 and **HS** contactors are still available on request for delivery for repeat order or as spares.

(1) **BMS09...** can be used for rated voltages up to 2,000 VAC

(2) A specific version of **BMS18.08** can also be used for rated voltage up to 4,000 VAC

AT A GLANCE



BMS 09.08 1 pole Arc chute Type A

BMS 18.08 1 pole Arc chute Type A

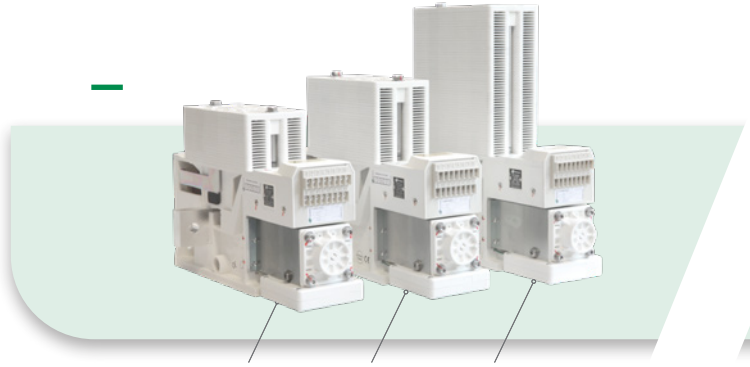
BMS 09.08 2 poles Arc chute Type A

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

BMS18.01

BMS36.01

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.
- 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.

Example of customer's choice:	**BMS**	**18**	**01**	O	1	A	A1	A	A	B	Z
Line:	10	11	12	13	14	15	16	17	18	19	20

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

DESIGNATION CODE

Line	Description			Designation		Customer's
				Standard	**Options**	**choice**
10	Product type		**BMS**	**BMS**		**BMS**
11	Rated operational voltage		1,800 V	18		
			3,600 V	36		
12	Rated conventional free air thermal current		100 A	01		01
13	Main contact configuration		Normally Open	O		
			Normally Closed	C		
14	Number of poles		1 pole	1		1
15	Control voltage		24 V_{DC}	A		
			32 V_{DC}		F	
			36 V_{DC}	B		
			48 V_{DC}	C		
			72 V_{DC}	D		
			84 V_{DC}		H	
			96 V_{DC}		4	
			110 V_{DC}	E		
			(on demand, please contact Sécheron) 220 V_{DC}		-	
16	Auxiliary contacts BMS[1]		1 switch CO - silver type		A1	
			2 switch CO - silver type		E1	
			1 switch PF - silver type	A4		
			2 switch PF - silver type		E4	
			1 switch PF - Gold type		C4	
			2 switch PF - Gold type		H4	
		(Alternative brand)	1 switch PF - silver type		A2	
		(Alternative brand)	2 switch PF - silver type		E2	
		(Alternative brand)	1 switch PF - Gold type		C2	
		(Alternative brand)	2 switch PF - Gold type		H2	
17	Application type		(Polarized Direct Current) DC	A		
			BMS36.01 only - (alternating current AC)		C	
18	Low voltage interface		Standard	A		
			Cage clamp 10-pole connector		B	
19	Arc chute type		Removable	B		
20	Spare digit			Z		

[1] Please refer to application schemes pages 3 and 4.

Signature:

Name:

Place and date:

Sécheron

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