ELECTRICAL SAFETY SOLUTIONS



CONTACTORS

Type **BMS09.15 / BMS18.15 BMS09.18 / BMS18.18**

RAIL VEHICLES / FIXED INSTALLATION

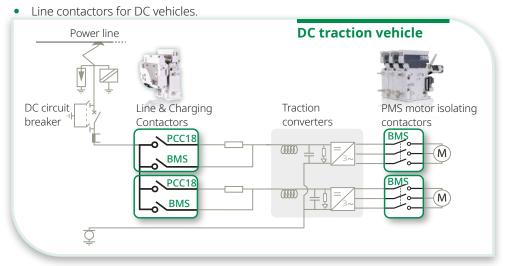




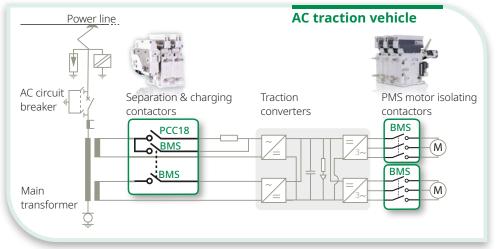
GENERAL INFORMATION

The **BMS** contactor, with more than one hundred and fifty thousands units in operation worldwide, 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 modernized the BMS to make a product platform particularly well adapted to actual requirements and standards. With its high modularity, the **BMS** offers variants and options that enable our customers to find the most appropriate version to fit their application either as a stand-alone contactor, or delivered coupled with a Sécheron dedicated charging contactor type **PCC18**. Power contactor modules, convenient to order and easy to install, are a frequent wish of our customers. Sécheron brings the best solution with "plug & play" units gathering line and charging contactors, but also current measurement and customised high voltage and low voltage interfaces.

APPLICATIONS, TYPICAL EXAMPLES



• Separation/line contactors for AC vehicles.



- Other applications for locomotives, trains, EMUs, tramways/light rail vehicles, including dual mode rail vehicles with battery.
- Contactors for DC traction power substations and other industrial fields.

MAIN FEATURES

- Normally open and bi-directional contactor.
- Rated operation voltage 900 V_{DC} or 1,800 V_{DC} / 2,000 V_{AC}.
- Conventional free air thermal current 1,500 A or 1,800 A.
- Available in 1or 2 poles.

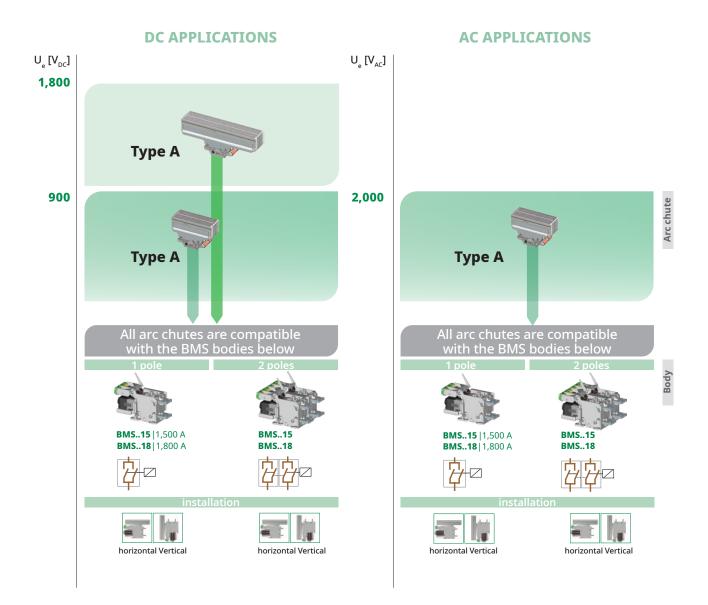
- Low voltage control coil protection against surges.
- Suitable for ambient temperature from -40°C to +70°C.
- Reference standards: EN/IEC 60077-1/-2, EN/IEC 61373, EN 45545, EN 50657.



MAIN BENEFITS

- Compact size and low weight.
- ✓ No critical current.
- High mechanical and electrical durability.
- Horizontal or vertical mounting to match vehicle's installation constraints.
- High modularity of the range.
- Possible integration of optional charging contactor type PCC18 directly on BMS separation/line contactor.
- Low maintenance requirements with easy access to the main contacts for replacement.
- Worldwide service proven.

CONTACTOR CONFIGURATIONS





DATA FOR PRODUCT SELECTION

| Interformational current/operational frequency -OC Interformational current/operational frequency -DC Interformational current | | Symbol | Unit | BMS 09.15 | BMS 09.18 | BMS 18.15 | BMS 18.18 | PCC18 |
|--|---|----------------|-----------|---------------------|------------------------|---------------|--------------|-----------------|
| Component category > | MAIN HIGH VOLTAGE CIRCUIT | | | | | | | |
| Type of main contact: Normally Ogen Rated operational voltage U/U V/U 900 1.800 1.80 - or voltage (16.7, 25, 50%0,H2**) V/U 2,000 2.00 2.00 Rated insulation voltage U/U V/U 2,000 2.00 2.00 Conventional free air thermal current ** In In 1.500 1.800 1.500 1.800 NA Rated operational current/operational frequency -0 0.1,500 1.800 1.800 1.800 NA AC L/A [A] 3.200 2.300 200 200 AC L/A [A] 800 / C1 500 / C2 800 / C1 500 2.00 2 | Pole quantity | | | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1 |
| Rated operational voltage U/U V/U 900 1.800 1.800 1.800 1.800 1.800 1.800 2.300 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | | | |
| - c voltage U/ U V/U 900 1.800 1.800 1.800 Rated insulation voltage U/ U V/C 2.300 2.300 2.300 Conventional free air thermal current ™ In [A] 2.000 2.300 2.300 Conventional free air thermal current ™ In [A] 1.500 1,500 1,800 NA Rated operational current /operational frequency 1.500 1,800 1,800 1.500 3.800 1.500 3.800 1.500 1.800 | | | | | | Normally Oper | n | |
| - Ac origing (16.7, 25, 5060,H2") (V) (V)< | | | F) (7 | | | | | 4 000 |
| Rated insulation voltage U// U/e Q_230 Q_300 Q_300 Q_300 Conventional free air thermal current ¹⁰ in 6 h A | | Ue/Ur | | | | 1,8 | 800 | |
| [Wc] 2.00 | | | | | | 2 | - | |
| Conventional free air thermal current ™ In (A) In (A) | Rated insulation voltage | OIT ONM | | | | ۷,۰ | - | |
| - DC voltage & Ac voltage (16.7, 25, 50/60 Hz) 1,500 1,500 1,500 1,500 1,800 NA Rated operational durrent/operational frequency L/L [A] 800 / C1 / 500 / C2 800 / C1 / 500 / C2 100 00 -AC L/L [A] 1,500 / C3 1,800 / C1 / 500 / C2 800 / C1 / 500 / C2 100 -AC current, cos 0 = 0.8 (16.7, 25 & 50/60 Hz) hc [A] 4,200 - 200 -AC current, cos 0 = 0.8 (16.7, 25 & 50/60 Hz) hc [A] 10,000 10,000 100 00 -AC current, cos 0 = 0.8 (16.7, 25 & 50/60 Hz) hc [A] 7,000 - 200 Ac current, cos 0 = 0.8 (16.7, 25 & 50/60 Hz) hc [A] 7,000 1,500 3/ 10 Pack short-time withstand current La [A] 7,000 20 3/ 10 Rated power-frequency withstand voltage (50 Hz/1min) La 20 20 3/ 10 Pack short-time withstand current La [K/kc] 7, 5 3/ 10 Pack short-time withstand voltage (50 Hz/1min) La 24 to 110 0/ 0/ 10, 10 0/ 0/ 10, 10 Pack | Conventional free air thermal current (2) | Ith | | 2,0 | | | | 2,000 |
| Rated operational current/operational frequency I/L I/A 800 / C1 / 500 / C2 800 / C1 / 500 / C2 100 -AC I/L I/L I/A 1,500 / C3 1,800 / C2 - - 100 -AC I/L I/A 3,200 2,300 200 - 200 200 - 200 200 - 200 - 200 - 200 - 200 - 200 200 - 200 - 200 - 200 - 200 300 200 - 200 300 7 200 - 200 300 7 200 300 7 200 300 7 200 300 7 100 15 / 100 11 / 100 3 / 100 100 </td <td>- DC voltage & Ac voltage (16.7, 25, 50/60 Hz)</td> <td></td> <td></td> <td>1,500</td> <td>1,800</td> <td>1,500</td> <td>1,800</td> <td>N.A.</td> | - DC voltage & Ac voltage (16.7, 25, 50/60 Hz) | | | 1,500 | 1,800 | 1,500 | 1,800 | N.A. |
| | | псу | | | | | | |
| Maximum breaking capacity i.e. (A) 3.200 2.300 200 - ac current, cos Φ = 0.8 (16.7, 25 & 50/60 Hz) i.e. (A) 4,200 - 200 - ac current, cos Φ = 0.8 (16.7, 25 & 50/60 Hz) i.e. (A) 10,000 10,000 - 200 - ac current, cos Φ = 0.8 (16.7, 25 & 50/60 Hz) i.e. (A) 7,000 - 200 Rated short-time withstand current I.e. (A) 7,000 - 200 Rated short-time withstand current I.e. (KA) 7,5 3 3 Rated short-time withstand current I.e. (KA) 20 20 3 Rated short-time withstand current I.e. (KA) 7,5 - 4 3 - 5 - - - 5 - - - 5 - <td></td> <td>Ie/Ir</td> <td>[A]</td> <td>800 / C1</td> <td>/ 500 / C2</td> <td>800 / C1</td> <td>/ 500 / C2</td> <td>100</td> | | Ie/Ir | [A] | 800 / C1 | / 500 / C2 | 800 / C1 | / 500 / C2 | 100 |
| - oc current, t= 15 ms like (A) 3,200 2,300 200 Ac current, cos Φ = 0.8 (157, 25.8 50/60 Hz) like (A) 4,200 - 200 Maximum making capacity (A) 10,000 10,000 100 - a Current, tr 15 ms (A) 7,000 - 200 Rated short-time withstand current Isw (A) 7,000 - 200 Rated short-time withstand current Isw (KA) 20 20 3 Rated power/requency withstand voltage (50 Hz/ min) (KA) 20 20 3 Main circuit (Cosed) to carth Us/ (Va) 7,5 <td></td> <td>Ie/Ir</td> <td>[A]</td> <td>1,500 / C3</td> <td>1,800 / C2</td> <td>-</td> <td>-</td> <td>100</td> | | Ie/Ir | [A] | 1,500 / C3 | 1,800 / C2 | - | - | 100 |
| - Ac current, cos Φ = 0.8 (16.7, 25.8, 50/60 H2) Ive [A] 4,200 - 200 Maximum making capacity Ive [A] 10,000 10,000 - 200 Ac current, cos Φ = 0.8 (16.7, 25.8, 50/60 H2) Ive [A] 7,000 - 200 20 3 Rated short-time withstand current Ive [KA] 20 20 3 Rated power/frequency withstand voltage (50 H2/1min) Velocity [KA] 20 20 3 Between main contacts (opon) Uve (KAc) Society 9,5 - | | | | | | | | |
| $ \begin{array}{ c c c c } Maximum making capacity & $ | | | | | | 2,3 | 300 | |
| $ \begin{array}{c c c c c } - \operatorname{cc current}, \operatorname{cc s} = 1 \mbox{ is } S & 50 \mbox{ 60 \ H2}, \mbox{ 61 \ H2}, 61$ | | Ibc | [A] | 4,2 | 200 | | - | 200 |
| - AC current, cos $\Phi = 0.8$ (16.7, 25 & 50/60 Hz) Is: [KA]/ T,000 - 200 Rated short-time withstand current Is: [KA]/ 15 / 100 15 / 100 3 / 10 Peak short-time withstand current Is: [KA]/ 20 20 30 Rated power-frequency withstand voltage (50 Hz/ 1min)/ - Between main contacts (open) Use/ Us. [KWc] 7.5 - Main circuit (closed) to earth Use/ Us. [KWc] 9.5 (* At Issue = 440°C for DC and AC voltage up to 60 Hz and tested with HV connections with current density 1.7A/mm². (* For higher values, please contact Secheron. LOW VOLTAGE CIRCUIT Control circuit Nominal supply voltage (* Use) [Voc] 24 to 110 24 to 24 to 24 to 24 to 24 to 20 20 20 Rate grower (* [Voc] 9.5 (* At Issue = 440°C for DC and AC voltage up to 60 Hz and tested with HV connections with current density 1.7A/mm². (* For higher values, please contact Secheron. LOW VOLTAGE CIRCUIT Control circuit Nominal supply voltage (* Use) [Voc] 24 to 110 24 to 26 (* 26 to 26 poles) 40 to 26 (* 26 to 26 poles) 40 to 26 (* 26 to 26 | | т | ГЛЛ | 10.0 | 000 | 10 | 000 | 100 |
| Rated short-time withstand currentIs/nit/Ims]15 / 10015 / 1003 / 10Peak short-time withstand currentIc/nit/Ims]Ic/nit/Ims]20203Rated power-frequency withstand voltage (50 Hz / Imin)U// U// K// K// U7.53- Main circuit (closed) to earthU// U// K// K// U9.5 Main circuit (closed) to earthU// U// K// K// U9.5 Main circuit (closed) to earthU// U// K// K// U9.5 Main circuit (closed) to earthU// U// K// K// U9.5 Main circuit (closed) to earthU// U// K// K// U9.5 Main circuit (closed) to earthU// U// K// U// K// U9.5 Main circuit (closed) to earthU// U// K// U// K// U// K// U// C9.5 Main circuit (closed) to earthU// U// K// U// K// U// C9.5 Nominal subply voltage (*)U// U// K// U// K// U// C9.5 Moninal control voltageU// U// K// U// C24 to 11024 to 7.0- Nominal closing gime (*)U// V// K// U// C2325 (1 pole), <650 (2 poles) | | | | | | 10, | ,000 | |
| Rate gover-frequency withstand currentInvIs / 100Is / 100 <t< td=""><td>, , , , , ,</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | , , , , , , | | | | | | | |
| Peak short-time withstand current Image (kA) 20 20 3 Rated power-frequency withstand voltage (50 Hz/1min) Use/Use (kAc) 7.5 | Rated short-time withstand current | Icw/t | | 15 / | 100 | 15 / | / 100 | 3 / 100 |
| Rated power-frequency withstand voltage (50 Hz/1min)I- Between main contacts (open)Uar / Uar (Vac)7.5- Main cincuit (closed) to earthUar / Uar (Vac)9.5- Main cincuit (closed) to earthUar / Uar (Vac)9.5- MethodBer higher values, please contact Scheron.24 to 10Control circuitNominal supply voltage (Mac)0[Vac]24 to 110Control circuitNominal control voltage (Mac)0[Vac]24 to 110Nominal control voltage (Mac)Umr[Vac]24 to 110[0.7 - 1.25] UarNominal control voltage (Mac)Umr[Vac]24 to 110[0.7 - 1.25] UarNominal closing power (Mac)Pe[W] ≤ 325 (1 pole), ≤ 550 (2 poles)40 fNominal closing power (Mac)Pe[W] ≤ 6 (1 pole), ≤ 12 (2 poles)-0Mechanical closing timetco< [ms] | Peak short-time withstand current | Îcw | | 2 | D | 2 | 20 | 3 |
| - Main circuit (closed) to earth Usr/Us [kMc] 9.5 ⁽⁹⁾ At Tame ≠ 40°C for DC and AC voltage up to 60 Hz and tested with HV connections with current density 1.7A/mm². ⁽⁹⁾ For higher values, please contact Scheron. LOW VOLTAGE CIRCUIT Control circuit Nominal supply voltage ⁽⁹⁾ Un [Voc] 24 to 110 24 to 0 Nominal control voltage ⁽⁹⁾ Usr [Voc] 0.7 1.25] Un [0.7 - 1.2] Nominal colosing power ⁽⁹⁾ Pr [VV] ≤ 25 (1 pole), s (50 (2 poles) 40 U Nominal holding power ⁽⁹⁾ Pr [VV] ≤ 6 (1 pole), s 12 (2 poles) 40 U Mechanical closing time (*) tre [ms] 60 10 ⁽⁹⁾ For detailed values based on BMS configuration, please refer to page 8 * ⁽⁴⁾ At Un and Tamb = +20°C. Control circuit Type of contacts Potential free (PF) Rated voltage [NC [Voc] 24 to 110 10 ⁽¹⁾ Conventional thermal current In [A] 10 Utilization category according to EN60947 - Ac.15 230 Vac 1.0 A DC-13 110 Voc 0.5 A Minimum let-through current at 24 Voc ⁽⁹⁾ [mA] ≥ 10 (silver contacts) or 4 < 1 × 10 (gold contacts) ⁽⁹⁾ For a dry and clean environment. Low voltage interface Control circuits Voltage (50 Hz / 1min) - UV circuit to earth Use [KV] 1.5 DERATING CONDITIONS Installation Installation Installation Installation Installation Installation Installation Installation Installation Installation Installation Installation Installation Installation Installation Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoor Indoo | Rated power-frequency withstand voltage (50 | Hz/1min) | | | | | | |
| In A Tumb = +40°C for DC and AC voltage up to 60 Hz and tested with HV connections with current density 1.7A/mm². In thigher values, please contact Sécheron. ID WOUTAGE CIRCUIT Control circuit ID (Voc) 24 to 110 24 to 20 Nominal control voltage (P) Unit (Voc) 24 to 110 (0.7 - 1.25) Unit (0.7 - 1 | - Between main contacts (open) | U50 / Ua | [kVac] | | | 7.5 | | |
| (P) For higher values, please contact Sécheron. LOW VOLTAGE CIRCUIT Control circuit Nominal supply voltage (P) Un (Voc) 24 to 110 24 to 0 Nominal supply voltage (P) Ur (Voc) 24 to 110 0 Range of voltage (P) Ur (Voc) 24 to 110 (D,7 - 1.25) Un (D,7 - 1.25) | - Main circuit (closed) to earth | U50 / Ua | [kVac] | | | 9.5 | | |
| LOW VOLTAGE CIRCUIT Control circuit Nominal supply voltage (**) Us [Voc] 24 to 110 Range of voltage [0.7 - 1.25] Us [0.7 - 1.25] Us [0.7 - 1.25] Us Nominal closing power (**) P.c [W] \leq 325 (1 pole), \leq 650 (2 poles) 40 G Nominal holding power (**) P.c [W] \leq 325 (1 pole), \leq 12 (2 poles) 40 G Nominal closing pime t.c [ms] 100 50 Mechanical opening time (**) t.o [ms] 60 10 (**) For detailed values based on BMS configuration, please refer to page 8 * (**) At Us and Tame = +20°C. Control circuit Type of contacts Potential free (PF) Rated voltage [Voc] 24 to 110 Conventional thermal current In [A] 10 Utilization category according to EN60947 - AC-15 230 Vxc 0.5 A Ontrol circuits Mago terminal 0.5 A 0.5 A Minimum let-through current at 24 Vbc (**) [mA] > 10 (silver contacts) or 4 \le I < 10 (gold contacts) | ⁽¹⁾ At T_{amb} = +40°C for DC and AC voltage up to 60 Hz a | and tested w | ith HV co | onnections with o | current density 1 | .7A/mm². | | |
| Control circuitNominal supply voltage (*)Un[Vic]24 to 11024 to 10Nominal control voltage (*)Unr[Vic]24 to 110(7 1.2)Nominal cosing power (*)P.[W] ≤ 325 (1 pole), ≤ 50 (2 poles)40 0Nominal holding power (*)P.[W] ≤ 325 (1 pole), ≤ 50 (2 poles)40 0Nominal holding power (*)P.[W] ≤ 325 (1 pole), ≤ 50 (2 poles)40 0Nechanical cosing time (*)E.[M] ≤ 100 50Mechanical opening time (*)E.[M]10050Mechanical opening time (*)E.[M]10050Mechanical opening time (*)E.[M]10050Mechanical opening time (*)E.[M]24 to 11050Ortrol circuitImage (Vic)24 to 1105050Openators[Vic]24 to 1105050Conventional thermal currentImage [A]1010- AC-15230 Vac1.0 A50- Auxillary switches <td>⁽²⁾ For higher values, please contact Sécheron.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | ⁽²⁾ For higher values, please contact Sécheron. | | | | | | | |
| Nominal supply voltage (P)Us[Vsc]24 to 11024 to 10Nominal control voltage (P)[Vsc]24 to 1107.1.25]U.h.10.7 - 1.25]U.h.10.7 - 1.5]U.h.10.7 - 1.5]U. | LOW VOLTAGE CIRCUIT | | | | | | | |
| Nominal control voltage (n) Uer [Voc] 24 to 110 [0.7 - 1.25] Un | Control circuit | | | | | | | |
| Range of voltage $[0,7 - 1.25] U_n$ $[0,7 $ | Nominal supply voltage ⁽³⁾ | Un | [Vdc] | | 24 to | o 110 | | 24 to 110 |
| Nominal closing power (a) (a) Nominal holding power (a) Mechanical closing timePc Ph[W] S < 212 (2 poles)40 (a) S | | Uef | [Vdc] | | | | | |
| Nominal holding power (*)Ph[W]≤ 6 (1 pole), ≤ 12 (2 poles)Mechanical closing timetcc[ms]10050Mechanical opening time (*)tco[ms]6010(*) For detailed values based on BMS configuration, please refer to page 8 · (*) At Un and Tamb = +20°C.6010Control circuit[Voc]24 to 1101010Type of contactsPotential free (PF)24 to 11010Conventional thermal currentIn[A]1010Utilization category according to EN609471.0 A0.5 A10.0 A- AC-15230 Vac1.0 A0.5 A10- AC-13110 Voc0.5 A101010Utilization category according to EN60947[mA]≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts) | | | | | - | - | | [0.7 - 1.25] Un |
| Mechanical closing timet.c.(ms)10050Mechanical opening time (*)t.c.(ms)6010(*) For detailed values based on BMS configuration, please refer to page 8 · (*) At Un and Tamb = +20°C.6010(*) For detailed values based on BMS configuration, please refer to page 8 · (*) At Un and Tamb = +20°C.Control circuit70Type of contactsPotential free (PF)747474Rated voltage[Voc]24 to 110707474Conventional thermal currentIn[A]101074Utilization category according to EN60947-1.0 A707474- AC-15230 Vac0.5 A1.0 A7674< | | | | | | | | 40 (3) |
| Mechanical opening time (a)to[ms]6010(b) For detailed values based on BMS configuration, please refer to page 8 + (a) At Un and Tamb = +20°C.000 <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> | 51 | | | | | | - | |
| To detailed values based on BMS configuration, please refer to page 8 · ⁽⁴⁾ At Un and Tamb = +20°C.Control circuitType of contactsPotential free (PF)Rated voltage[Voc]24 to 110Conventional thermal currentIm[A]Utilization category according to EN60947Im[A]- AC-15230 VAc1.0 A- DC-13110 Voc0.5 AMinimum let-through current at 24 Voc ⁽⁸⁾ [mA]≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts)(⁹ For a dry and clean environment.Low voltage interfaceControl circuitsAuxiliary switchesDirect on switches (M3 screws)InsulationActed power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earthIndoor- LV circuit to earthU ₅₀ [kV]1.5OFERATING CONDITIONSInstallationIndoorAltitude[m]< 2.000Working ambient temperatureTamb<[°C]Pollution degree[°C]-40 to +70Pollution degreePD3 | | | | | | | | |
| Control circuitType of contactsPotential free (PF)Rated voltage[Voc]24 to 110Conventional thermal currentInb[A]Utilization category according to EN60947 AC-15230 Vxc.1.0 A- DC-13110 Voc DC-13110 Voc* For a dry and clean environmentLow voltage interfaceControl circuitsAuxiliary switchesInsulationAtted power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earth LV circuit to earthInstallationAltitudeMoring ambient temperatureYorking ambient temperaturePollution degreePollution degree | | Lco | [IIIS] | | C | 0 | | 10 |
| Type of contactsPotential free (PF)Rated voltage[Voc]24 to 110Conventional thermal currentIm[A]10Utilization category according to EN60947 AC-15230 VAc.1.0 A- DC-13110 Voc.0.5 AMinimum let-through current at 24 Vbc ^(S) [mA]≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts) | | olease refer t | o page 8 | • (4) At Un and Tar | _{nb} = +20°C. | | | |
| Rated voltage[Voc]24 to 110Conventional thermal currentIn[A]10Utilization category according to EN60947AC-15230 VAc1.0 A-DC-13110 Voc0.5 AMinimum let-through current at 24 Vbc ^(s) [mA] \geq 10 (silver contacts) or 4 \leq I < 10 (gold contacts) | | | | | _ | | | |
| Conventional thermal currentIm[A]10Utilization category according to EN60947 AC-15230 VAc.1.0 A- DC-13110 Voc.0.5 AMinimum let-through current at 24 Voc (s)[mA]> 10 (silver contacts) or $4 \le I < 10$ (gold contacts)(s) For a dry and clean environment.Low voltage interfaceControl circuitsWago terminalAuxiliary switchesDirect on switches (M3 screws)InsulationRated power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earthUso(kV)1.5OPERATING CONDITIONSInstallationIndoorAltitude[m] $\leq 2,000$ Vorking ambient temperatureTamb(°C)- 40 to + 70Humidity95% at + 40°CPollution degreePD3 | 31 | | F) / -] | | F | | PF) | |
| Utilization category according to EN60947 1.0 A - AC-15 230 VAc 1.0 A - DC-13 110 Vbc 0.5 A Minimum let-through current at 24 Vbc ⁽⁵⁾ [mA] ≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts) | 5 | T. | | | | | | |
| - AC-15230 Vac1.0 A- DC-13110 Vbc0.5 AMinimum let-through current at 24 Vbc (5)[mA]≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts) | | Ith | [A] | | | 10 | | |
| - DC-13110 VDc0.5 AMinimum let-through current at 24 VDC (*)[mA]≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts) | | | | | | 1.0 A | | |
| Minimum let-through current at 24 VDC (5) [mA] \geq 10 (silver contacts) or 4 \leq I < 10 (gold contacts) | | | | | | | | |
| (5) For a dry and clean environment. Low voltage interface Control circuits Wago terminal Auxiliary switches Direct on switches (M3 screws) Insulation Rated power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earth Uso 0 [kV] 0 1.5 OPERATING CONDITIONS Installation Indoor Altitude [m] < 2,000 | | | [mA] | | | | | |
| Low voltage interfaceControl circuitsWago terminalAuxiliary switchesDirect on switches (M3 screws)InsulationInsulation (KV)Rated power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earth1.5OPERATING CONDITIONSInstallationInstallationIndoorAltitude[m] $\leq 2,000$ Working ambient temperatureTambTamb°CPollution degreePD3 | | | | | | , | .5 | |
| Control circuitsWago terminalAuxiliary switchesDirect on switches (M3 screws)InsulationInsulation (KV)Rated power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earthImage: Screws (KV)- LV circuit to earthUso0[KV]InstallationInstallationIndoorAltitude[m] $\leq 2,000$ Working ambient temperatureTambTamb[°C]Pollution degreePD3 | | | | | | | | |
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| InsulationRated power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earth- LV circuit to earthUso[kV]1.5OPERATING CONDITIONSInstallationAltitude[m] $\leq 2,000$ Working ambient temperatureTamb[°C]- 40 to + 70HumidityPollution degreePD3 | | | | | Directo | - | | |
| Rated power-frequency withstand voltage (50 Hz / 1min) - LV circuit to earthIso- LV circuit to earthUso[kV] OPERATING CONDITIONS InstallationIndoorAltitude[m] $\leq 2,000$ Working ambient temperatureTamb[°C]Humidity95% at + 40°CPollution degreePD3 | _ · | | | | 2 | | | |
| - LV circuit to earth U₅o [kV] 1.5 OPERATING CONDITIONS Installation Indoor Altitude [m] ≤ 2,000 Working ambient temperature Tamb [°C] -40 to + 70 Humidity 95% at + 40°C Pollution degree PD3 | | Hz / 1min) | | | | | | |
| OPERATING CONDITIONSInstallationIndoorAltitude[m] $\leq 2,000$ Working ambient temperatureTamb[°C] -40 to + 70Humidity95% at + 40°C95% at + 40°CPollution degreePD3PD3 | | | [kV] | | | 1.5 | | |
| InstallationIndoorAltitude[m] $\leq 2,000$ Working ambient temperature T_{amb} [°C] -40 to $+70$ Humidity95% at $+40$ °C95% at $+40$ °CPollution degreePD3PD3 | OPERATING CONDITIONS | | | | | | | |
| Altitude[m] \leq 2,000Working ambient temperatureTamb[°C]- 40 to + 70Humidity95% at + 40°C95% at + 40°CPollution degreePD3PD3 | | | | | | Indoor | | |
| Working ambient temperatureTamb[°C]- 40 to + 70Humidity95% at + 40°CPollution degreePD3 | | | [m] | | | | | |
| Humidity95% at + 40°CPollution degreePD3 | | Tamb | | | | | | |
| | Humidity | | | | | | C | |
| | Pollution degree | | | | | | | |
| INITIAL INITIAL INITIAL INITIAL INITIALIA | Minimum mechanical durability | Ν | Cycles | 2 millions | 1 million | 2 millions | 1 million | 2 millions |



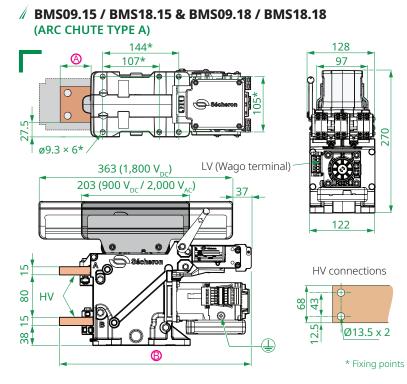
PRODUCT INTEGRATION

MAIN DIMENSIONS

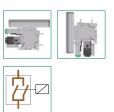
| HV connections | M12 screws |
|-------------------|-----------------------------------|
| Earth connections | M6 screws, thread length 8mm |
| LV Connections | Wago terminal |
| | BMS auxiliary: switches M3 screws |
| Fixing points | M8 screws |

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

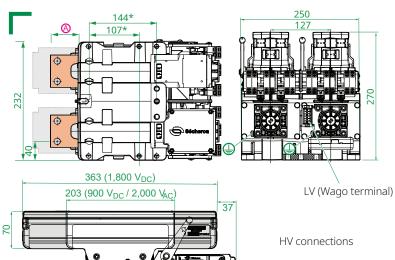
* Based on product configuration







| Dimensions [mm] | BMS15 | BMS18 |
|--------------------|-------|-------|
| A | 58 | 98 |
| B | 360 | 400 |

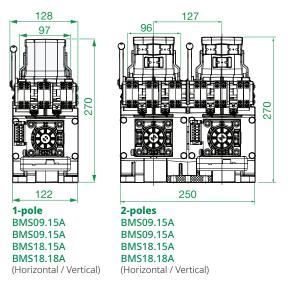


8xØ9

15 80 15

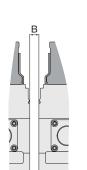
| HV connections | | | |
|-------------------|--------------------|-------|-------|
| 41 08 | Dimensions [mm] | BMS15 | BMS18 |
| Ø13.5 x 2 | A | 58 | 98 |
| 2 <u>13.5 x</u> 2 | B | 360 | 400 |
| * Fixing points | | | |





// OVERVIEW OF THE BMS..15 / BMS..18 RANGE

INSULATION DISTANCES AND WEIGHTS



| BMS contactors have been homologated |
|---|
| according to IEC60077-2 with the following |
| insulation distances. |
| |

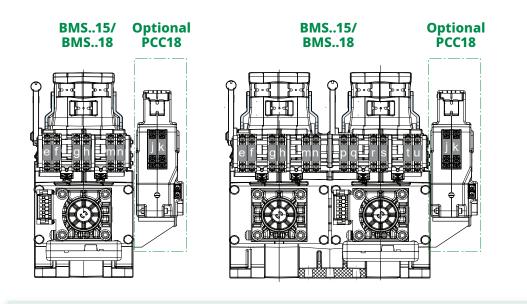
| BMS type | Weight: ± 1 kg [kg] pole | | | | | | | |
|----------|--------------------------------|----|------------------|----|--|--|--|--|
| ымз суре | 1 15 | 18 | 2 1518 | | | | | |
| BMS09 A | 14 | 15 | 28 | 30 | | | | |
| BMS18 A | 15 | 16 | 29 | 31 | | | | |

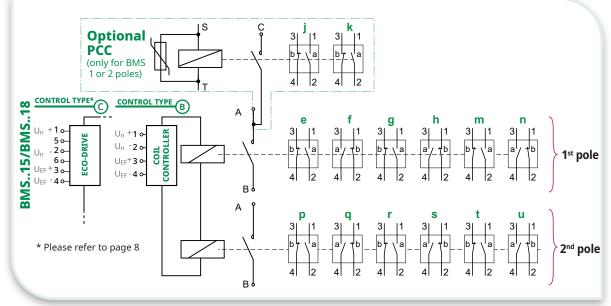
| contactor | ntactor Breaking Arc chute | | Insulating distance [mm] To earthed wall To insulating wall | | | | | | 11 | Arc chute removal distance [mm] | | | |
|-----------|-------------------------------|------|---|------------|------------------|------------|-----|----|----|------------------------------------|----|----|----|
| type | current | type | A | В | С | D | Α | В | С | D | Е | F | G |
| BMS09 | ≤ 800 A | Α | 125 | 10 | 75 | 75 | 75 | 10 | 40 | 40 | 70 | 30 | 35 |
| | > 800 A | | (1) | (1) | (1) | (1) | 125 | 10 | 75 | 75 | | | |
| BMS18 | \leq 800 A | Α | 125 | 10 | 75 | 75 | 75 | 10 | 40 | 40 | 90 | 20 | 40 |
| | > 800 A | | O ⁽¹⁾ | (1) | O ⁽¹⁾ | (1) | 125 | 10 | 75 | 75 | | | |

(1) Distances on request according to your application



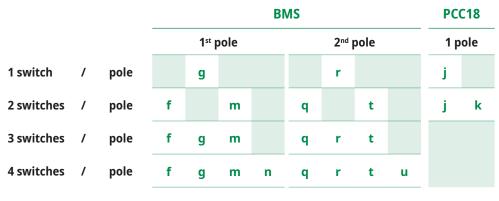
AUXILIARY CONTACTS CONFIGURATION





AUXILIARY SWITCH SWITCH POSITION PER POLES

Function of the selected quantity of poles and of auxiliary switches per BMS's pole, the location of the switches will be as follows:



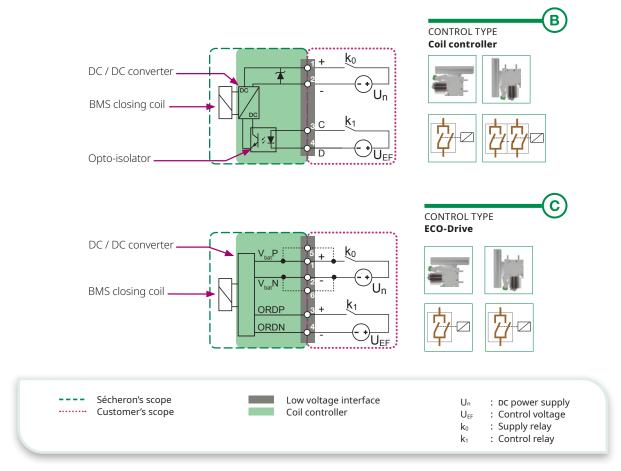
For more poles, please contact Sécheron



LOW VOLTAGE CONTROL DIAGRAM

| BMS CONFIGURATION (1) | MS CONFIGURATION (1) | | Nominal control voltage ⁽²⁾ UEF [VDC] | Closing power (Pc) / Holding power (Ph) [W] / [W] | Control type | Optional PCC18 ⁽³⁾ Supply voltage Un [VDC] |
|--|----------------------|----------|--|---|-----------------|---|
| BMS15, BMS18 horizontal / vertical installation | 1 pole | [24-36] | [24-110] | ≤ 325 / ≤ 6 | © | |
| BMS15, BMS18 horizontal / vertical installation | 1 pole | [48-110] | [24-110] | ≤ 325 / ≤ 6 | B | 24, 48, 72, 84, 110 ⁽⁴⁾ |
| | 2 poles | [110] | [24-110] | \leq 650 / \leq 12 | B | - |

⁽¹⁾ For details refer to pages 5 & 6. • ⁽²⁾ Control voltage U_{EF} and supply voltage U_n can be different. • ⁽³⁾ Horizontal installation. • ⁽⁴⁾ Other voltages on demand.





OPTIONS

(SUBJECT TO ADDITIONAL COSTS)

INTEGRATED CHARGING CONTACTOR (PCC18)

Line contactors and charging contactors are usually operated sequentially and mounted side by side in dedicated line breaker boxes,

or directly in traction converters. Therefore, delivering an integrated unit combining both functions, line contactor type BMS and charging

contactor type **PCC18**, brings an added value to car builders, as it reduces their engineering, logistic and assembly efforts.

1

MAIN BENEFITS

- Optimized for the dedicated charging function.
- One single unit with integration of line and charging contactors.
- Integration on all BMS contactors installed horizontally.
- Very compact solution.
- Reduced overall project costs for car builders.

MAIN DIMENSIONS

| HV connections (PCC18) | M6 screw. |
|------------------------|-------------------------------------|
| Earth connections | through BMS |
| LV Connections | PCC18 coil: M3 screws. |
| | PCC18 auxiliary switches: M3 screws |

Dimensions without tolerances are indicative. All dimensions are in mm.

The views shown here represent the PCC18 when mounted on any horizontal BMS..08 and BMS..10 versions. The other dimensions of the BMS..08 and BMS..10 indicated on page 5 and 6 remain valid.

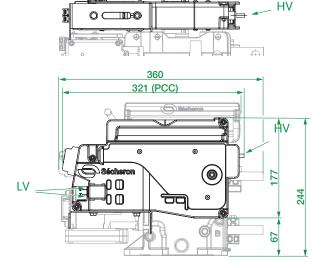
Z S

Additional weight

BMS + PCC

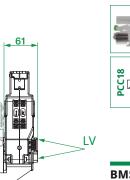
+ 3 kg

1-POLE Horizontal installation

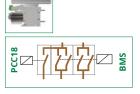


CONTROL DIAGRAM

For the control diagram, please contact Sécheron.



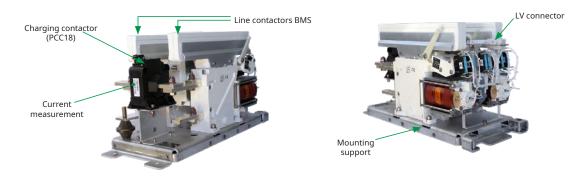




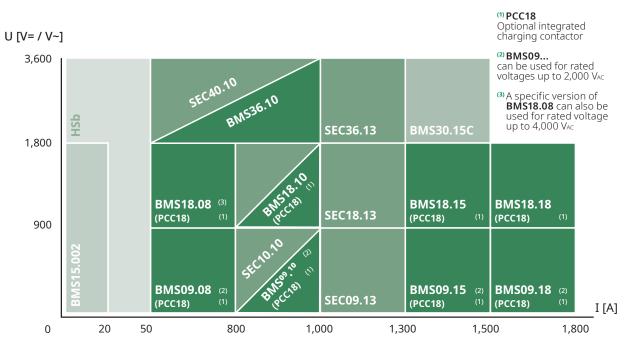


POWER CONTACTOR MODULE

On project base, Secheron designs and delivers complete **Power Contactor Modules** integrating BMS and PCC contactors, but also current measurement and other components necessary to fulfill the application. All the components are delivered mounted on a support, with implemented high voltage connections between components, and a single low voltage interface. The Power Contactor Module is available in horizontal mounting only. This module offers the car builder simple and easy interfaces, but also simplifies its life in terms of development, logistic and installation.

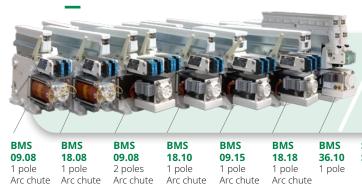


SECHERON CONTACTORS RANGE





AT A GLANCE





SEC10.10/ SEC20.10/ SEC40.10/ SEC09.13 SEC18.13 SEC36.13

BMS15.002 HSB

BROCHURE REFERENCE FOR OTHER SÉCHERON'S CONTACTORS

Arc chute

Type A

Arc chute

Type A

Type A



Arc chute

Type A

Arc chute

Type A

Type A

BMS..08/BMS..10 Type

ROLLING STOCK (Line/separation contactors, ...).

FIXED INSTALLATION (depot feeder contactor...).



BMS..15/BMS..18 Type

ROLLING STOCK (Line/separation contactors, ...).

FIXED INSTALLATION (depot feeder contactor...).



SEC Type

ROLLING STOCK (Line/separation contactors, PM motor,...).

FIXED INSTALLATION (depot feeder contactor, ...).



HS Type

ROLLING STOCK (Charging, Heating, HVAC, ...).

FIXED INSTALLATION (Line testing, ...).



BMS..083-pole Type

ROLLING STOCK (Line/separation contactors, ...).

FIXED INSTALLATION (depot feeder contactor, ...).





ROLLING STOCK (Line/separation contactors, ...).

FIXED INSTALLATION (depot feeder contactor...).

BMS30.15C Type

ROLLING STOCK (Line/separation contactors, ...).

FIXED INSTALLATION (depot feeder contactor, ...).



BMS15.002 Type

ROLLING STOCK (Charging, Heating, HVAC, ...).

FIXED INSTALLATION (Line testing, ...).

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 17 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 | 18 | А | 1 | Ζ | Ø | E | А | 1 | н | D | А |
|-------------------------------|-----|----|----------|----|----|----|----|----|----|----|----|----|----|
| Line: | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| | | | <u> </u> | | | | | | | | | | |

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

DESIGNATION CODE

| Line | Description | I | Designation | Standard | Options | Customer's choice |
|------|---|-----------------------|------------------------------|----------|---------|----------------------|
| 10 | Product type | | BMS | BMS | | BMS |
| 11 | Rated operational voltage | 900 V | dc or 2,000 Vac | 09 | | |
| | | | 1,800 VDC | 18 | | |
| 2 | Rated conventional free air thermal current (1) | | 1,500 A | 15 | | |
| | | | 1, 800 A | 18 | | |
| 3 | Arc chute type | | Туре А | А | | |
| 4 | Number of poles | | 1 pole | 1 | | |
| | | | 2 poles | 2 | | |
| 5 | Poles mechanical synchronization | (1 pole) l | lot applicable | Z | | |
| | | (2 poles) | Synchronized | S | | |
| 6 | Integrated of charging contactor type PCC18 | | No | Z | | |
| | | | Yes | | С | |
| 7 | Nominal supply voltage ⁽²⁾ | | 24 V _{DC} | А | | |
| | | | 36 VDC | В | | |
| | | | 48 V _{DC} | С | | |
| | | | 72 Vdc | D | | |
| | | | 84 V _{DC} | | Н | |
| | | | 96 V DC | | 4 | |
| | | | 110 Vdc | E | | |
| 8 | Auxiliary contacts BMS - per pole | 1a + 1b - (switch PF) | - silver type | А | | |
| | | 1a + 1b - (switch PF) | - gold type | | С | |
| | | 2a + 2b - (switch PF) | - silver type | | E | |
| | | 2a + 2b - (switch PF) | - gold type | | Н | |
| | | 3a + 3b - (switch PF) | - silver type | | К | |
| | | 3a + 3b - (switch PF) | - gold type | | М | |
| | | 4a + 4b - (switch PF) | - silver type | | 0 | |
| | | 4a + 4b - (switch PF) | - gold type | | Р | |
| | | 6a + 6b - (switch PF) | - silver type | | U | |
| | | 6a + 6b - (switch PF) | - gold type | | Х | |
| 9 | PCC18 | (No PCC18) | Not applicable | Z | | |
| | | 1a + 1b - (switch PF) | - silver type | | 1 | |
| | | 1a + 1b - (switch PF) | - gold type | | 2 | |
| | | 2a + 2b - (switch PF) | - silver type | | 3 | |
| | | 2a + 2b - (switch PF) | - gold type | | 4 | |
| 20 | Installation configuration | Horizont | al & Vertical ⁽³⁾ | V | | V |
| 1 | Application type | | t Current) DC | D | | |
| | | (Alternatir | g Current) AC | | А | |
| 2 | Opening BMS arc chute | | rc chute lever | А | | А |

⁽¹⁾ For DC and AC voltage up to 60 Hz frequency. For higher frequency, please contact Sécheron \cdot

(2) For the available control voltage in function of the BMS configuration, refer to table page 8. Please note that BMS is delivered with low voltage surge protection • (3) PCC18 is valid for horizontal mounting only. •



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Vame:

Place and date:

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