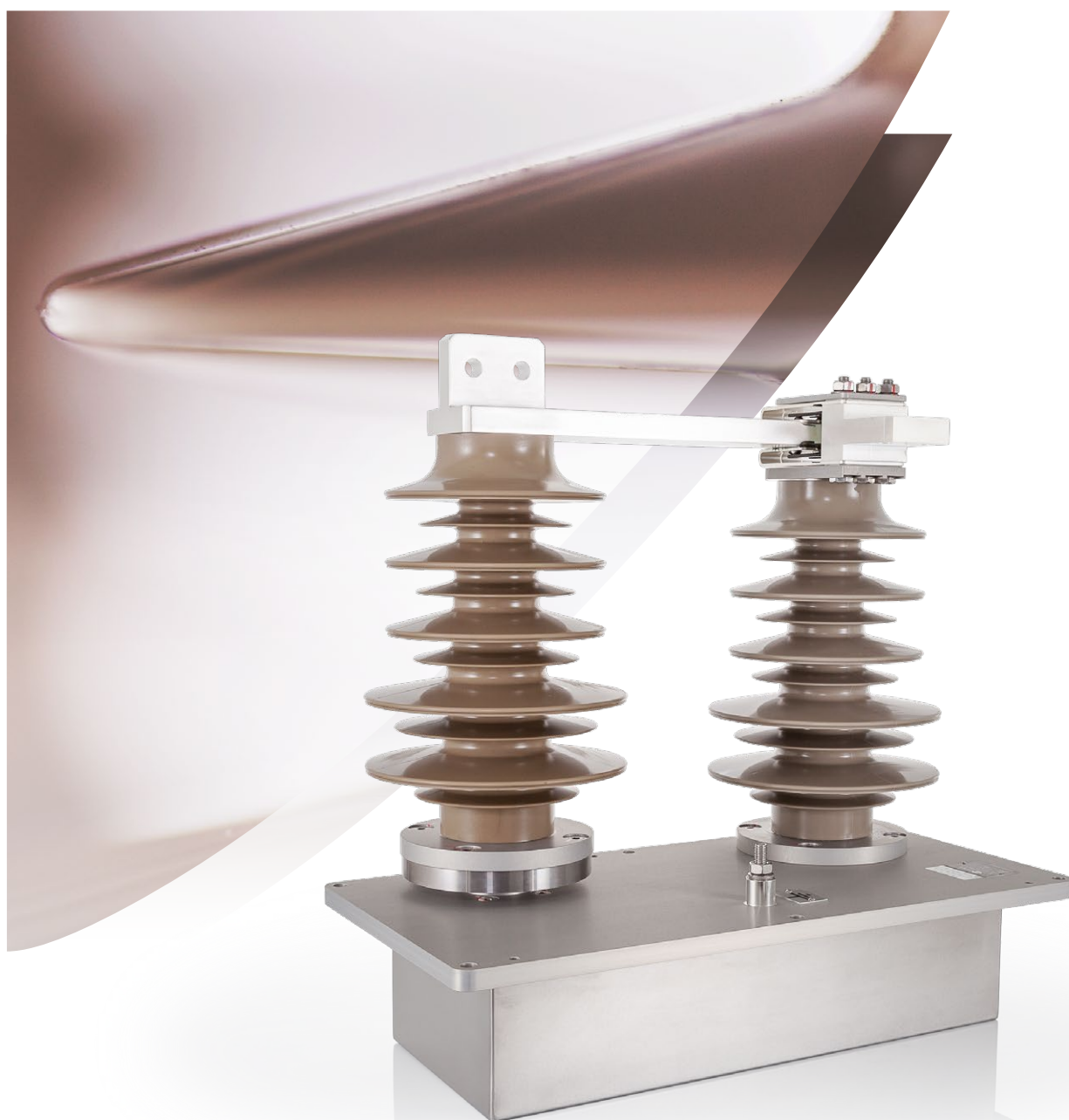


ELECTRICAL SAFETY SOLUTIONS /

ROOF SWITCH Type RS

RAIL VEHICLES



GENERAL INFORMATION

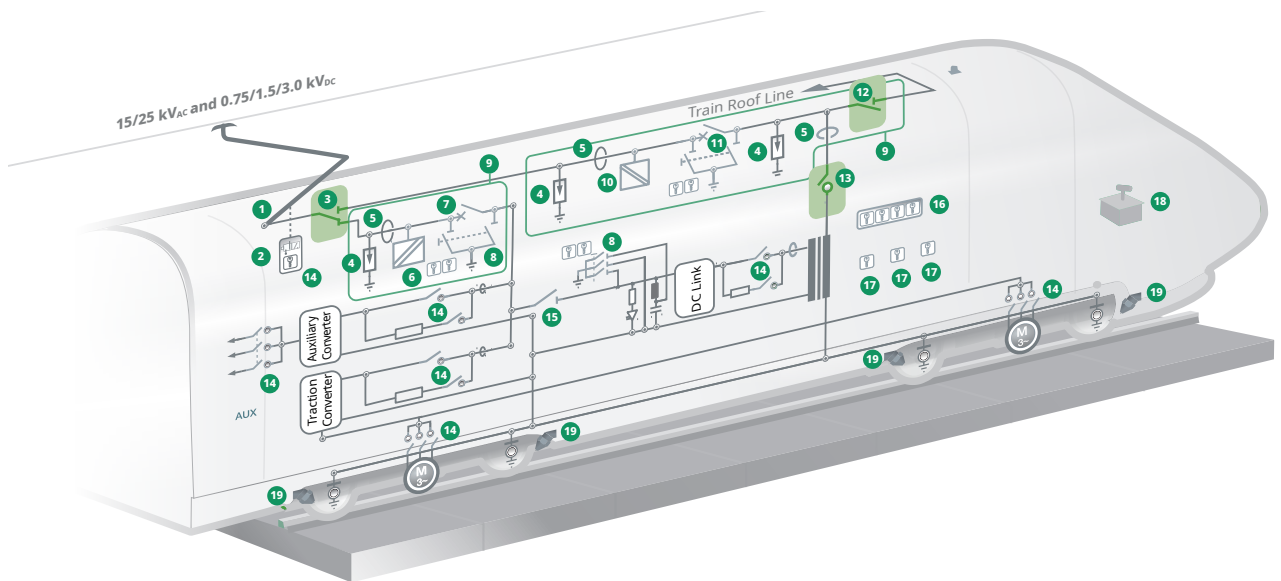
Sécheron RS-type roof-mounted disconnect switches are known by rail car builders, traction propulsion equipment manufacturers, and train operators for their performances, reliability, and low maintenance.

Our RS disconnector offers a wide range of configurations and options to meet the needs of most railway applications. Our product range includes pantograph disconnecter with or without earthing, AC/DC traction selector for multi-

system vehicles, and roof line disconnecter with or without making capacity to connect or isolate traction transformers from power supply.

Our disconnect switch can be delivered on a stand-alone basis, or integrated into a MACS AC circuit breaker. A specific indoor version can be delivered into Sécheron compact MODBOX® high-voltage integrated enclosure, with other high- and low-voltage functions.

APPLICATIONS, TYPICAL EXAMPLES



- | | | |
|----------------------------------------------|-----------------------------------------------------|----------------------------------------|
| ① Pantograph, SPL | ⑧ Earthing switch, BTE03.04 | ⑮ Disconnector, XMS |
| ② Pantograph interlocking switch, BSV | ⑨ High voltage integrated system, MODBOX® | ⑯ Key multiplier, KM |
| ③ Changeover switch, RS | ⑩ Voltage sensor AC, TMS | ⑰ Door lock, DL |
| ④ Surge arrester | ⑪ AC circuit breaker & earthing switch, MACS | ⑱ Master controller, MMC |
| ⑤ Current sensor | ⑫ Roof line disconnecter, RS | ⑲ Wheel flange lubricator, GB-G |
| ⑥ Voltage sensor DC | ⑬ Roof making switch, RS-M | |
| ⑦ DC circuit breaker, UR | ⑭ Contactors & modules, BMS, SEC, HS | |

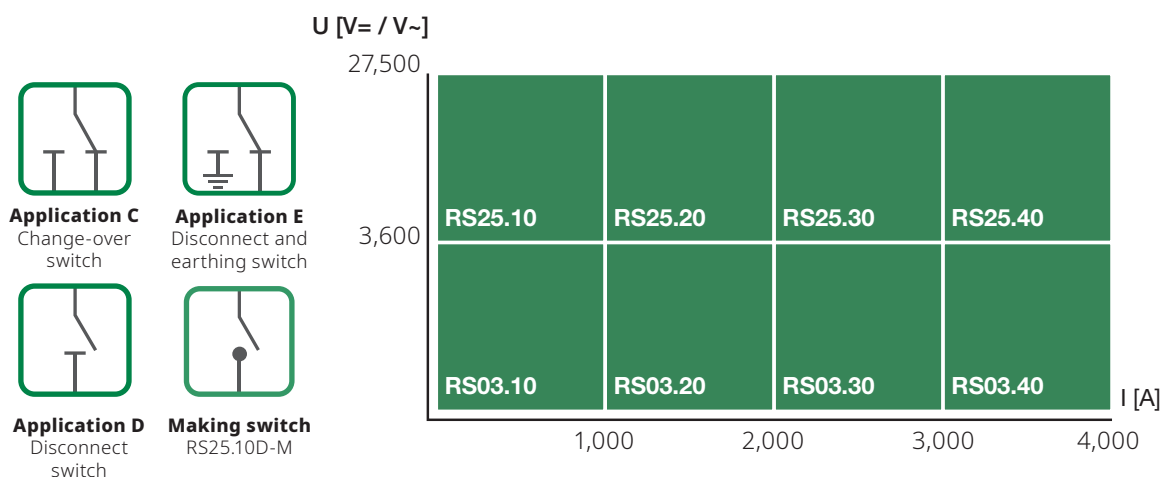
MAIN FEATURES

- Rated operational voltage up to 3.6 kV_{DC} or 27.5 kV_{AC}.
 - Rated free air thermal current from 1,000 A to 4,000 A.
 - Usable in various ranges of ambient temperature from -40°C to +70°C for electric version (-50°C to +70°C in option).
- Reference standards: EN/IEC60077-1/-2; EN/IEC61373; EN50124-1/IEC62497-1; EN 45545-2.

MAIN BENEFITS

- ✓ A comprehensive product lineup
- ✓ A wide range of configurations and options
- ✓ Standard and custom solutions
- ✓ High insulation level, OV3 and OV4 categories
- ✓ High rated short-time withstand current to ensure a safe protection's coordination with the vehicle's main circuit-breaker performances
- ✓ Suitable for vehicle speed up to 380 km/h (when installed outdoor).
- ✓ Specific execution to eliminate the need for roof cut-out
- ✓ Specific option for making on transformer inrush current
- ✓ Specific executions for harsh environmental conditions
- ✓ Extensive factory reliability testing
- ✓ Low maintenance & low Total Cost of Ownership

PRODUCT RANGE



DATA FOR PRODUCT SELECTION

| Symbol | Unit | RS 25.10 | RS 25.20 | RS 25.30 | RS 25.40 | RS 03.10 | RS 03.20 | RS 03.30 | RS 03.40 | |
|--------------------------------------------------------|------------------|----------------------|------------------------|----------|----------|----------|----------|----------|----------|-------|
| MAIN HIGH VOLTAGE CIRCUIT | | | | | | | | | | |
| Rated operational voltage | U _e | [kV _{AC}] | 27.5 | 27.5 | 27.5 | 27.5 | - | - | - | - |
| | | [kV _{DC}] | - | - | - | - | 3.6 | 3.6 | 3.6 | 3.6 |
| Rated frequency | f | [Hz] | 16.7 | 16.7 | 16.7 | 16.7 | - | - | - | - |
| | | | 50/60 | 50/60 | 50/60 | 50/60 | - | - | - | - |
| Rated insulation voltage | U _i | [V _{AC}] | 27.5 | 27.5 | 27.5 | 27.5 | - | - | - | - |
| | | [V _{DC}] | - | - | - | - | 4.8 | 4.8 | 4.8 | 4.8 |
| Conventional free air thermal current ⁽¹⁾ | I _{th} | [A] | 1,000 | 2,000 | 3,000 | 4,000 | 1,000 | 2,000 | 3,000 | 4,000 |
| Peak and rated short-time withstand current AC: | I _{cw} | [kA _{AC}] | 63 | 63 | 63 | 63 | - | - | - | - |
| | I _{cw} | [kA _{AC}] | 25 | 25 | 25 | 25 | - | - | - | - |
| | t | [S] | 1 | 1 | 1 | 1 | - | - | - | - |
| DC: | I _{cw} | [kA _{DC}] | 63 | 70 | 70 | 70 | 63 | 70 | 70 | 70 |
| | I _{cw} | [kA _{DC}] | 44 | 50 | 50 | 50 | 44 | 50 | 50 | 50 |
| | t | [S] | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Making capacity | | [A] | 0 ⁽²⁾ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Overvoltage category | | | OV3 or OV4 | | | | OV4 | | | |
| - Pole-Pole | | | OV4 | | | | OV4 | | | |
| - Pole-Earth | | | OV4 | | | | OV4 | | | |
| Rated power-frequency withstand voltage ⁽³⁾ | U ₅₀ | [kV _{rms}] | 80 | | | | 20 | | | |
| Rated impulse withstand voltage (1.2/50 μs) | U _{imp} | [kV] | 125 (OV3) or 170 (OV4) | | | | 40 | | | |

⁽¹⁾ At Tamb = +40°C and tested with high voltage connections according to standard IEC/EN 60943. • ⁽²⁾ Making capacity 1,000 A for RS25.10D-M. For this execution refer to page 11. • ⁽³⁾ At 50 Hz during 1 minute: Pole-Pole; main circuit-earth.

LOW VOLTAGE AUXILIARY CIRCUIT

Control circuit

| | | | | | | | | | | |
|-----------------------------------------|----------------|--------------------|-------------------------------|--|--|--|--|--|--|--|
| Type of operation | | | Electric or electro-pneumatic | | | | | | | |
| Nominal Supply voltage | U _n | [V _{DC}] | 24, 36, 48/50, 72, 110 | | | | | | | |
| Range of voltage | | | [0.7-1.25] U _n | | | | | | | |
| Electric version: | | | | | | | | | | |
| - Control power ⁽⁴⁾ | P | [W] | 125 | | | | | | | |
| Electro-pneumatic version: | | | | | | | | | | |
| - Control power ⁽⁴⁾ | P | [W] | 2.5 | | | | | | | |
| - Air flow (per operation) | | [l] | 0.4 | | | | | | | |
| - Operating air pressure ⁽⁴⁾ | P | [MPa] | 0.4 - 1 | | | | | | | |
| Commutation time ⁽⁴⁾ | | [s] | ≤ 3 (RS..10/RS..20) | | | | | | | |
| | | [s] | ≤ 6 (RS..30/RS..40) | | | | | | | |

⁽⁴⁾ At U_n and Tamb = +20°C

Auxiliary contacts

| | | | | | | | | | | |
|---------------------------------------------------------------|-----------------|--------------------|------------------------------------------------------|--|--|--|--|--|--|--|
| Type of contacts | | | Changeover (CO) | | | | | | | |
| Rated voltage | | [V _{DC}] | 24 to 110 | | | | | | | |
| Conventional thermal current | I _{th} | [A] | 10 | | | | | | | |
| Switching categories according to EN 60947 (silver contacts) | | | | | | | | | | |
| - AC-15 | | | <230 V _{AC} 1.0 A | | | | | | | |
| - DC-13 | | | 110 V _{DC} 0.5 A | | | | | | | |
| Minimum let-through current at 24 Vdc ⁽⁵⁾ | | [mA] | ≥ 10 (silver contacts) or 4 ≤ I < 10 (gold contacts) | | | | | | | |

⁽⁵⁾ For a dry and clean environment.

Low voltage interface

| | | | | | | | | | | |
|-----------------------------------|--|--|-------------------|--|--|--|--|--|--|--|
| Type of connection ⁽⁶⁾ | | | Harting HAN 24 DD | | | | | | | |
|-----------------------------------|--|--|-------------------|--|--|--|--|--|--|--|

⁽⁶⁾ Refer to page 7 for mobile connector informations.

Insulation

| | | | | | | | | | | |
|--------------------------------------------------------|-----------------|----------------------|-----|--|--|--|--|--|--|--|
| Rated power-frequency withstand voltage ⁽⁷⁾ | U ₅₀ | [kV _{rms}] | 1.5 | | | | | | | |
|--------------------------------------------------------|-----------------|----------------------|-----|--|--|--|--|--|--|--|

⁽⁷⁾ At 50 Hz during 1 minute.

OPERATING CONDITIONS

| | | | | | | | | | | |
|------------------------------------------------------------------------|------------------|--------|----------------------------------------|--|--|--|--|--|--|--|
| Installation | | | Outdoors | | | | | | | |
| Altitude | | [m] | < 2,000 ⁽⁸⁾ | | | | | | | |
| Working ambient temperature | | | | | | | | | | |
| - Electric operation | T _{amb} | [°C] | -40 to +70 (-50 to +70 in option) | | | | | | | |
| - Electro-pneumatic operation | T _{amb} | [°C] | -25 to +70 | | | | | | | |
| Humidity | | | According to EN/IEC 62498-1/EN 50125-1 | | | | | | | |
| Pollution degree | | | PD4 | | | | | | | |
| Minimum mechanical durability | N | Cycles | ≤ 250,000 | | | | | | | |
| Protection index: | | | | | | | | | | |
| - HV part | | | IP00 | | | | | | | |
| - LV part | | | IP4X | | | | | | | |
| - Tightness between upper and lower part when installed ⁽⁹⁾ | | | IP65 | | | | | | | |

⁽⁸⁾ For >2,000 m, please contact Sécheron. • ⁽⁹⁾ Delivered with an O-ring seal.

INFORMATION FOR PRODUCT INTEGRATION

MAIN DIMENSIONS (STANDARD VERSIONS)

| | |
|--------------------------|------------|
| HV connections | M12 screws |
| Earth connections | M10 screws |

Dimensions without tolerance are indicative. All dimensions are in mm. The maximum allowed flatness deviation of the support frame is 1 mm.

/// APPLICATIONS D

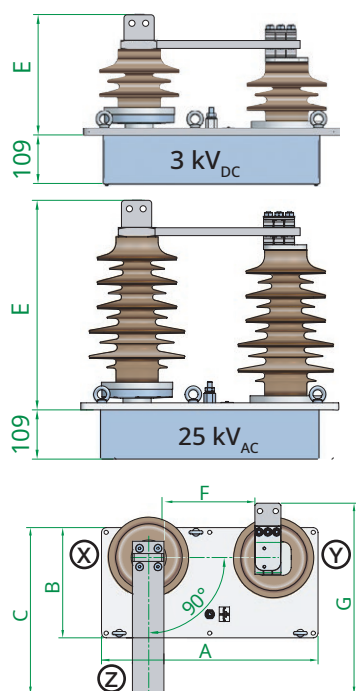
(RS..10, RS..20)

OV3: RS25../OV4: RS03..

| | RS..10 | RS..20 |
|-----------------|--------|--------|
| | D | D |
| A | 550 | 550 |
| B | 280 | 280 |
| C | 413 | 424 |
| E - RS25 | 425 | 444 |
| E - RS03 | 239 | 258 |
| F | 247 | 231 |
| G | 462 | 486 |

OV4: RS25..

| | RS..10 | RS..20 |
|----------|--------|--------|
| | D | D |
| A | 630 | 630 |
| B | 280 | 280 |
| C | 493 | 504 |
| E | 425 | 444 |
| F | 327 | 311 |
| G | 542 | 566 |



/// APPLICATIONS D/APPLICATIONS C AND E

(RS..30, RS..40)

(RS..10 to RS..40)

OV3: RS25../OV4: RS03..

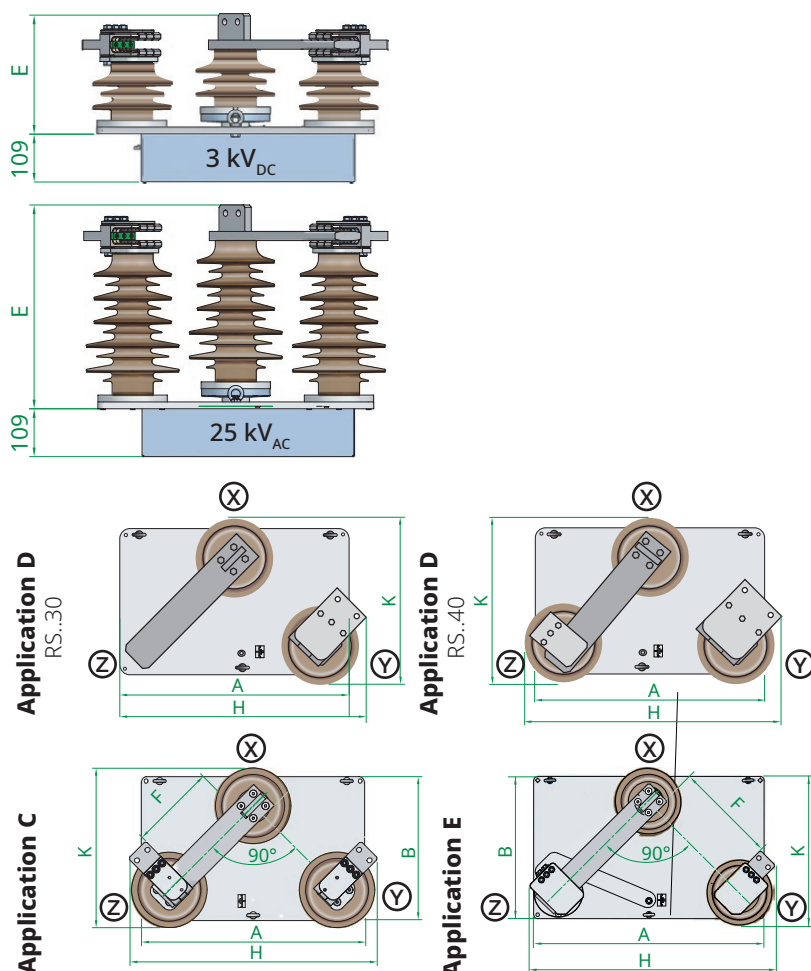
| | RS..30 | RS03.40 |
|-------------------|--------|---------|
| | D | D |
| A | 605 | 605 |
| B | 386 | 386 |
| E - RS25.. | 444 | 454 |
| E - RS03.. | 258 | 268 |
| F | 234 | 234 |
| H - RS25.. | 655 | 715 |
| H - RS03.. | 655 | 698 |
| K - RS25.. | 431 | 431 |
| K - RS03.. | 397 | 397 |

OV4: RS25..

| | RS..30 | RS03.40 |
|----------|--------|---------|
| | D | D |
| A | 713 | 713 |
| B | 440 | 410 |
| E | 444 | 454 |
| F | 310 | 310 |
| H | 763 | 823 |
| K | 485 | 485 |

| RS..10 | RS..20 | RS..30 | RS03.40 |
|---------|---------|---------|---------|
| C/E | C/E | C/E | C/E |
| 605 | 605 | 605 | 605 |
| 386 | 386 | 386 | 386 |
| 425 | 444 | 444 | 454 |
| 239 | 258 | 258 | 268 |
| 247 | 234 | 234 | 234 |
| 657/631 | 669/631 | 706/675 | 773/736 |
| 645/625 | 669/637 | 706/675 | 773/736 |
| 431 | 431 | 431 | 431 |
| 397 | 397 | 397 | 397 |

| RS..10 | RS..20 | RS..30 | RS03.40 |
|---------|---------|---------|---------|
| C/E | C/E | C/E | C/E |
| 713 | 713 | 713 | 713 |
| 440 | 440 | 440 | 440 |
| 425 | 444 | 444 | 454 |
| 323 | 310 | 310 | 310 |
| 765/739 | 777/745 | 814/783 | 881/844 |
| 485 | 485 | 485 | 485 |



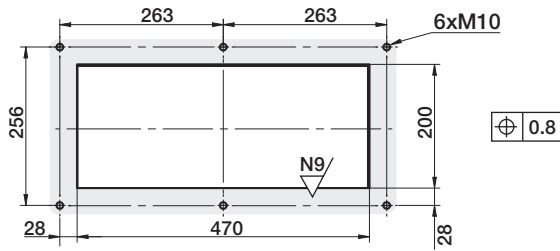
/// VEHICLE ROOF CUT-OUT REQUIREMENT

For version without roof cut-out refer to page 10.

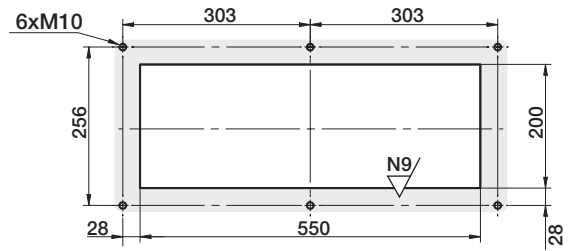
APPLICATION D

RS..10, RS..20

dimensions



For dimensions A x B = 550 x 280 mm



For dimensions A x B = 630 x 280 mm

APPLICATIONS

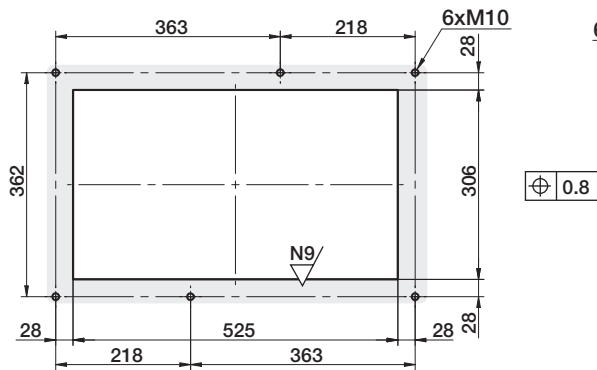
C and E

RS..10 to RS..40

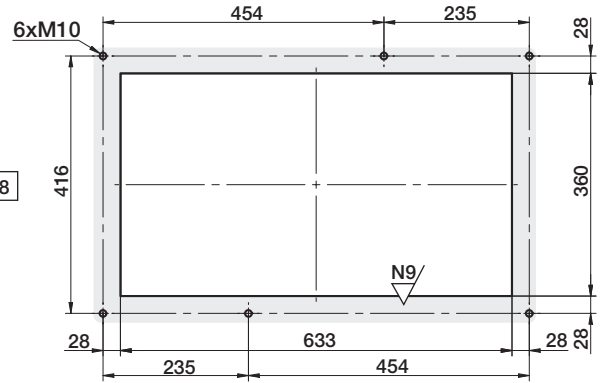
APPLICATION D

RS..30, RS..40

dimensions



For dimensions A x B = 605 x 386 mm



For dimensions A x B = 713 x 440 mm

/// WEIGHT IN KG (± 3 KG)

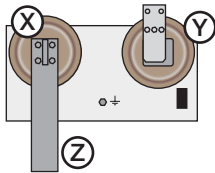
| | | RS25.10 | | RS25.20 | | RS25.30 | | RS25.40 |
|-------------|---|---------|-----|---------|-----|---------|-----|---------|
| | | OV3 | OV4 | OV3 | OV4 | OV3 | OV4 | OV4 |
| APPLICATION | C | 48 | 51 | 54 | 57 | 56 | 59 | 67 |
| | D | 37 | 39 | 39 | 42 | 45 | 48 | 66 |
| | E | 44 | 47 | 49 | 53 | 51 | 55 | 63 |

| RS03.10 | RS03.20 | RS03.30 | RS03.40 |
|---------|---------|---------|---------|
| OV4 | OV4 | OV4 | OV4 |
| 37 | 43 | 45 | 53 |
| 29 | 34 | 39 | 52 |
| 34 | 41 | 43 | 51 |

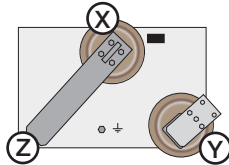
POLES CONFIGURATION

/// STANDARD

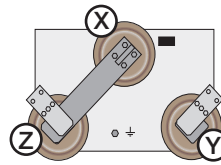
Application D
(RS..10, RS..20)



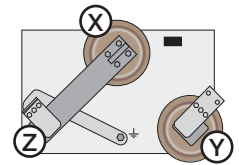
Application D
(RS..30)



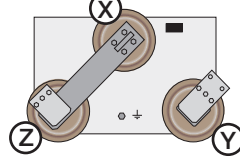
Application C
(RS..10 to RS..40)



Application E
RS..10 to RS..40)



Application D
(RS..40)



LOW VOLTAGE WIRING INTERFACE

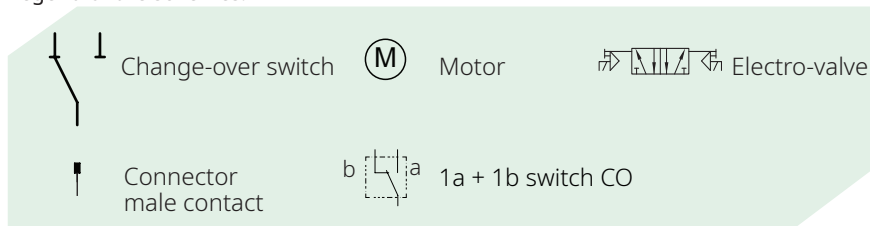


**Harting type
HAN 24DD**

Note: Low voltage connectors are delivered with all pins mounted.

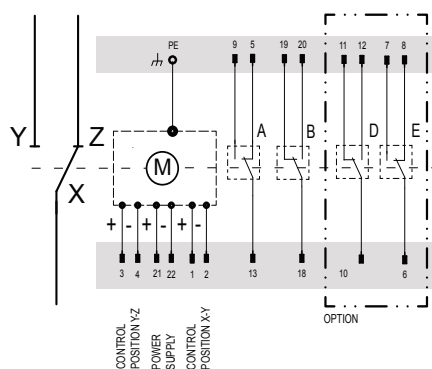
LOW VOLTAGE WIRING DIAGRAMS FOR ELECTRIC AND ELECTRO-PNEUMATIC VERSION

Legend of the schemes:

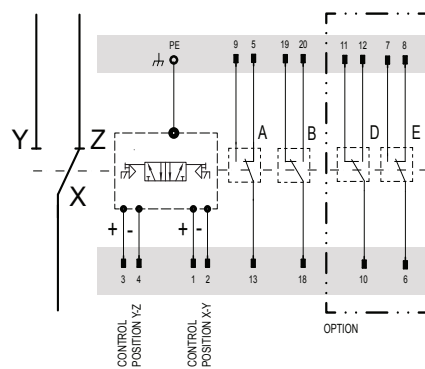


The following wiring schemes represent the low voltage connector pins assignment for standard electric version and optional electro-pneumatic version of the change-over with standard pole configuration. For other configurations, please contact Sécheron.

Electric version



Electro-pneumatic version (option)



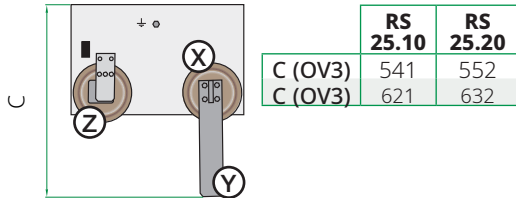
Harting connector

OPTIONS (SUBJECT TO ADDITIONAL COSTS)

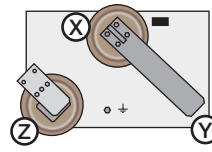
POLES CONFIGURATION

/// ATERNATIVE

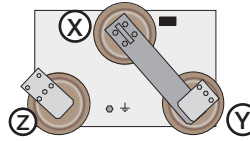
Application D (RS..10, RS..20)



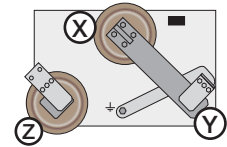
Application D (RS..30) ⁽¹⁾



Application D (RS..40) ⁽¹⁾



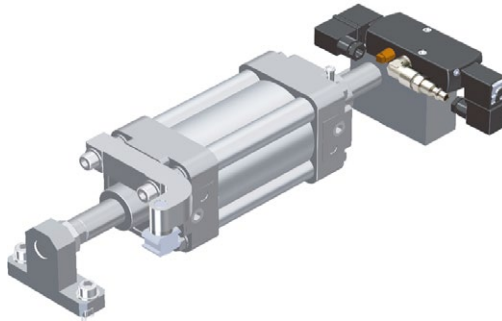
Application E (RS..10 to RS..40) ⁽¹⁾



⁽¹⁾ Overall dimensions are identical to standard version.

ELECTRO-PNEUMATIC OPERATION

(RS..10, RS..20, RS..30)



The electro-pneumatic drive fits in the same volume as the electric drive. The customer's air circuit is connected directly into the G1/4" L-connection of the cylinder valve, by means of a quick release air connection (to be ordered separately - refer to page 7).






HIGH VOLTAGE CONTACT - ICE PROTECTION

(RS..10, RS..20, RS..30 and RS..40)



Assembled on the top of the fixed contacts, this protection limits the impact of icing conditions on the RS functionality.

LV MOBILE CONNECTOR (DESIGNATION CODE FOR SEPARATELY ORDERED ITEMS)

| Auxilliary Switches | | Fixed connector type | Mobile connectors | | | | | |
|----------------------------------------------------------|---------------------|----------------------|---------------------|--------------------------|--------------------------|-------------|---------------------------------------------------------------------------------------|-------------------|
| Number | Type ⁽²⁾ | | Type | Number of pin | | Cable gland | Cable entry | Secheron's number |
| | | | | Size 2.5 mm ² | Size 1.5 mm ² | | | |
| Electric version configuration without optional roof box | | | | | | | | |
| 2a + 2b | CO | Harting HAN 24 DD | Harting HAN 24 DD | 7 | 7 | PG21 |  | SP1850005R00003 |
| 4a + 4b | CO | Harting HAN 24 DD | Harting HAN 24 DD | 7 | 13 | PG21 |  | SP1850005R00004 |
| Electric version configuration with optional roof box | | | | | | | | |
| 2a + 2b | CO | Harting HAN 6HPR 24 | Harting HAN 6HPR 24 | 7 | 7 | PG21 |  | SP1850085R00021 |
| 4a + 4b | CO | Harting HAN 6HPR 24 | Harting HAN 6HPR 24 | 7 | 13 | PG21 |  | SP1850085R00022 |
| Electro-pneumatic version | | | | | | | | |
| 2a + 2b | CO | Harting HAN 24 DD | Harting HAN 24 DD | 0 | 13 | PG21 |  | SP1850005R00001 |
| 4a + 4b | CO | Harting HAN 24 DD | Harting HAN 24 DD | 0 | 19 | PG21 |  | SP1850005R00002 |

The above references are given considering that all the auxiliary contacts are wired, and with an external wire diameter of 3.7 mm (for 2.5 mm² section) and 2.9 mm (for 1.5 mm² section). For conditions different from this one, the above references may change. In such case please inform Sécheron accordingly.

PNEUMATIC CONNECTION



Quick release air connection for the pneumatic operation.

Type PARKER PB 52 with pipe 8x1
Sécheron's number:
SP1850009R00001.

The air connection must be ordered separately.

ROOF BOX FOR VEHICLE WITHOUT ROOF CUT-OUT

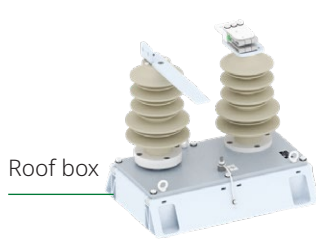
In most cases, installation of the RS on a vehicle requires to cut-out the roof so that the RS low-voltage part can be protected under the vehicle roof, while the high-voltage is above the roof.

To avoid such roof cut-out, the RS switch can be delivered together with

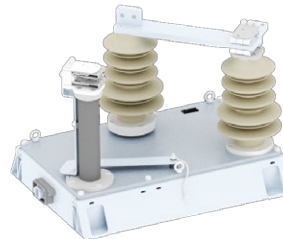
a roof box to protect the low-voltage part when installed above the roof.

RS roof box structure is validated according to EN 12663 and features a protection index IP65. The complete set RS and roof box is validated for vibrations and shocks according to EN/IEC 61373.

The RS roof box execution is only available for electric operation.

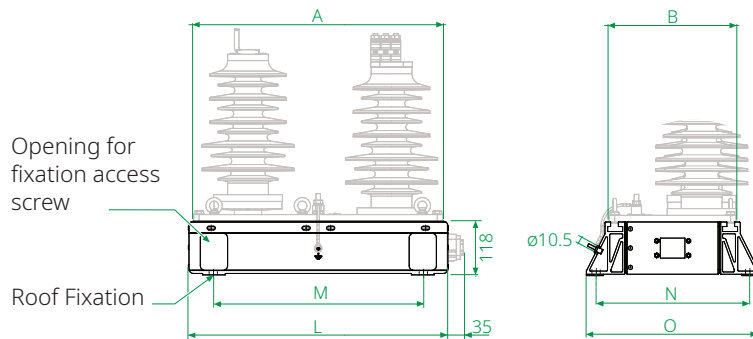


Application D



Application D, C & E

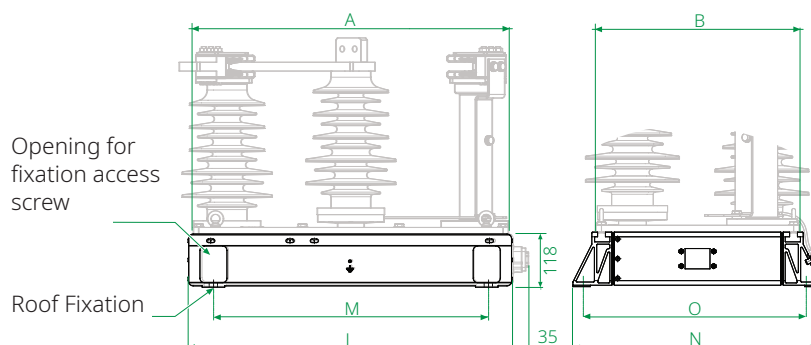
/// MAIN DIMENSION



APPLICATION D

| | | Application D RS..10, ..20 | |
|------------|--------|-------------------------------|-----|
| | | OV3 | OV4 |
| Base plate | A (mm) | 550 | 630 |
| | B (mm) | 280 | 280 |
| Roof box | L (mm) | 570 | 650 |
| | M (mm) | 460 | 540 |
| | N (mm) | 380 | 380 |
| | O (mm) | 340 | 340 |

APPLICATIONS D, C & E



| | | Application D RS..30, ..40 | |
|------------|--------|---------------------------------------|-----|
| | | Application C & E RS..10 to RS..40 | |
| | | OV3 | OV4 |
| Base plate | A (mm) | 605 | 713 |
| | B (mm) | 386 | 440 |
| Roof box | L (mm) | 625 | 733 |
| | M (mm) | 508 | 616 |
| | N (mm) | 486 | 540 |
| | O (mm) | 446 | 500 |

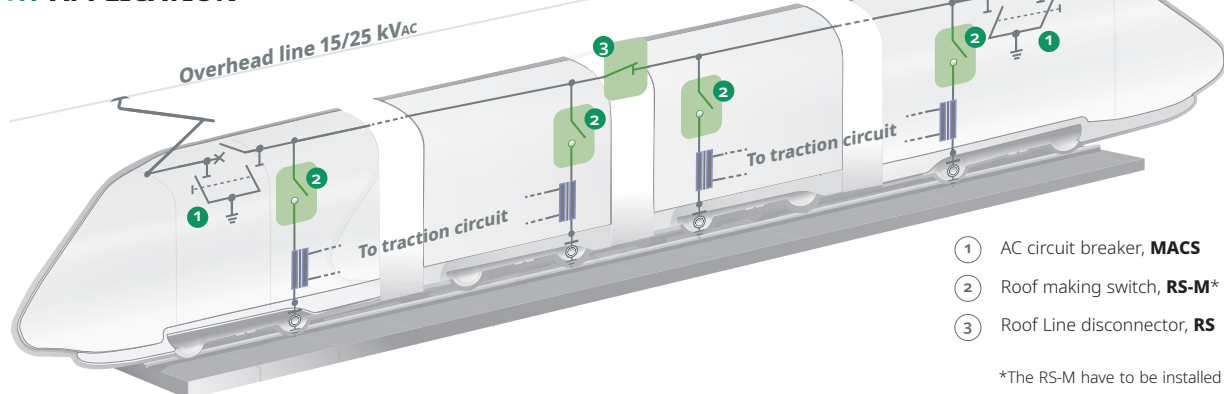
RS25.10D-M ROOF MAKING SWITCH

On AC rail vehicles with traction circuit configurations including several traction transformers, closing the main AC circuit breaker to supply all transformers simultaneously may be an issue depending on transformer impedance. During this operation the cumulative value of the transformer inrush currents

may exceed the traction protection relay threshold value set to protect the traction circuits against overloads and short-circuits. Powering the transformers sequentially, one after the other with a **RS25.10D-M** making switch, will prevent unnecessary tripping of the AC circuit breaker on transformer inrush currents.



/// APPLICATION



MAIN BENEFITS

- ✓ Proven roof switch platform
- ✓ Rated making capacity: 1,000 A at 25 kV_{AC}
- ✓ Specific version for installation without roof cut-out
- ✓ Electrical operation with integrated interlocked control relays
- ✓ EN/IEC 60077-2 Certified
- ✓ RS platform, Loc&Pas TSI certified

/// MAIN TECHNICAL DATA

| | Symbol | Unit | RS25.10D-M |
|---------------------------------------------|----------|----------------------|------------|
| MAIN HIGH VOLTAGE CIRCUIT | | | |
| Rated operational voltage | U_e | [kV _{AC}] | 27.5 |
| Rated frequency | f_r | [Hz] | 50 |
| Thermal current | I_{th} | [A] | 1,000 |
| Rated making capacity | | [A] | 1,000 |
| Breaking capacity | | [A] | 0 |
| Overvoltage category | | | |
| - Pole-Pole | | | OV3 |
| - Pole-Earth | | | OV4 |
| Rated power-frequency withstand voltage | U_a | [kV _{rms}] | 80 |
| Rated impulse withstand voltage (1.2/50 μs) | | | |
| - Pole-Pole | U_{Ni} | [kV] | 125 |
| - Pole-Earth | U_{Ni} | [kV] | 170 |

For more information about this specific execution, please contact Sécheron.

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 alphanumeric designation code with 19 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.
- The bold characters of the designation code define the device type

| | | | | | | | | | | | | | | | |
|--------------------------------------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Example of customer's choice: | RS | 25 | 20 | C | S | 4 | C | E | 3 | A | 1 | 1 | S | 0 | 1 |
| Line: | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |

- Roof making switch type RS25.10D-M as referred to page 11 cannot be coded in the below tcodification. For this execution, please contact Sécheron.

DESIGNATION CODE

| Line | Description | Designation | Standard | Options | Customer's choice |
|------|---------------------------------------------|-----------------------------------------------|-----------|----------|-------------------|
| 10 | Product type | RS | RS | | RS |
| 11 | Rated operational voltage | up to 3.6 kV _{DC} | 03 | | |
| | | up to 27.5 kV _{AC} | 25 | | |
| 12 | Rated conventional free air thermal current | 1,000 A | 10 | | |
| | | 2,000 A | 20 | | |
| | | 3,000 A | 30 | | |
| | | 4,000 A | 40 | | |
| 13 | Application | Change-over switch | C | | |
| | | Disconnecter switch | D | | |
| | | Disconnecter and Earthing switch | E | | |
| 14 | Pole configurations | standard | S | | |
| | | (only for application D and E) Alternative | | A | |
| 15 | Overvoltage category between poles | (RS25.. and RS03..) OV4 | 4 | | |
| | | (RS25.. only) OV3 | 3 | | |
| 16 | Operation | Electric | E | | |
| | | Electro-pneumatic ⁽¹⁾ | | P | |
| 17 | Nominal supply voltage | 24 V _{DC} | A | | |
| | | 36 V _{DC} | B | | |
| | | 48/50 V _{DC} | C | | |
| | | 72 V _{DC} | D | | |
| | | 110 V _{DC} | E | | |
| 18 | Auxiliary contacts | 2a + 2b - (switch CO) - silver type | 1 | | |
| | | 2a + 2b - (switch CO) - gold type | | 2 | |
| | | 4a + 4b - (switch CO) - silver type | | 3 | |
| | | 4a + 4b - (switch CO) - gold type | | 4 | |
| 19 | Low voltage connector | Harting connector type HAN 24 DD | A | | A |
| | | (for roof box execution) Harting HAN 6HPR 24 | | B | |
| 20 | Low voltage protecting cover | For version with roof box | | Ø | |
| | | For version without roof box | 1 | | |
| 21 | Control equipment | (Electro-pneumatic version) Not applicable | Z | | |
| | | (Electric version) Integrated | 1 | | |
| 22 | Roof execution | Roof opening | S | | |
| | | No roof opening (roof box) ⁽²⁾ | | R | |
| 23 | HV contacts protection | No | Ø | | |
| | | Ice protection | | 1 | |
| 24 | Ambient temperature range | (Electric version) -40°C to +70°C | 1 | | |
| | | (Electric version) extended to -50°C to +70°C | | 2 | |
| | | (Electro-pneumatic version) -25°C to +70°C | | 3 | |

⁽¹⁾ Only valid for RS..10, RS..20, RS..30 • ⁽²⁾ Only for electric operation

The low voltage mobile connector and air connection must be ordered separately (refer to page 9).

Electric version without roof box: SP1850005R00003 SP1850005R00004

Electric version with roof box: SP1850085R00021 SP1850085R00021

Electro-pneumatic version: SP1850005R00001 SP1850005R00002 Air connection: SP1850009R00001



Sécheron SA
Rue du Pré-Bouvier 25
1242 Satigny - Geneva
CH-Switzerland

Tel: +41 22 739 41 11
Fax: +41 22 739 48 11
info@secheron.com
www.secheron.com

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