

SUBSTATIONS

## **D.C. Switchgear Type SECUB**

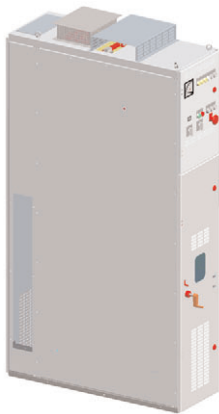


## Main features

The SECUB cubicle is a compact DC switchgear solution designed for DC traction substations powering light transportation systems such as tramways, light rail trains and trolleybuses. The SECUB completes the range of Sécheron DC switchgear that covers heavier duty transportation systems. The main features of the SECUB DC cubicle are:

- Rated service current 1000 A, 1500 A and 2600 A
- Rated voltage 750 Vdc
- Compartmented switchgear equipped with high-speed limiting current circuit-breaker
- Bi-directional current interruption
- Rated short-circuit current up to 41 kA (71 kA peak)
- Equipped with a high-performance Protection and Control Relay
- Light and compact cubicle
- Modular construction
- Limited and easy maintenance
- Designed according to EN 50123 & IEC 61992 standards

## Description



*SECUB cubicle*

The metal clad DC switchgear type SECUB is a modular concept cubicle which integrates three separate compartments for high and low voltage equipment:

- Protection and control compartment
- High speed circuit breaker compartment
- Busbar rear compartment

### Protection and control compartment

Accessible from the front of the cubicle, this low voltage compartment is composed of the SEPCOS protection and control relay, all the protection and control components and the low voltage equipment.

### High speed circuit breaker compartment

The high-speed circuit breaker (Sécheron's UR) is mounted on a withdrawal drawer which can be easily drawn in or out of the cubicle.

It is connected or disconnected from buses by means of power finger connectors and from auxiliary circuits by means of multiple connectors.

The measuring device (shunt) is directly mounted on the outgoing bus bar from the HSCB.

The withdrawable circuit breaker drawer has four different positions:

- Service position (interlockable, the front door is closed)
- Test position (interlockable, the front door is closed)
- Disconnected position
- Removed position

### Busbar rear compartment

The busbar rear compartment is composed of two main parts:

- Main incoming busbar
- Connection for outgoing cables. Copper bars are provided to connect the power cable to the third rail or the catenary.



*SECUB with UR6 HSCB*

## Main technical data

	Symbol	Unit	SECUB UR6	SECUB UR15	SECUB UR26
Cubicle type					
Rated service current	$I_{Ne}$	[A]	1000 A	1500 A	2600 A
Rated voltage	$U_{Ne}$	[VDC]	600/750	600/750	750
Power frequency withstand voltage	$U_a$	[kV]		5.5 kV, 50 Hz, 1min.	
Rated service current					
Main busbar		[kA]	upon application	upon application	upon application
Busbar rating: connexion		[A]	2500 A	4500 A	6000 A
Rated short-circuit current	$I_{Nss} / \hat{I}_{Nss}$	[kA]	12 / 18	12 / 18	45 / 71
Protection degree				IP20 / IP31* / IP32*	
Ambient temperature range		[VDC]		-5 °C ... +40 °C	
Typical weights		[kg]	300	330	350
Dimensions (WxDxH)		[mm]		450x1200x2300	

\* IP31/IP32: option

Other characteristics: refer to the data sheet for the individual circuit-breaker type.

Designed according to standard specifications EN 50123 and IEC 61992

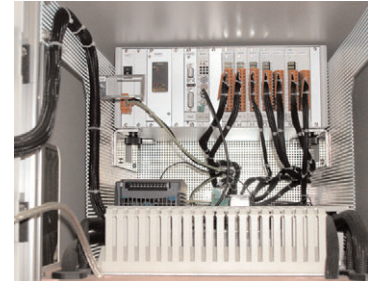
## Line protection

The SEPCOS relay is a modular configuration microprocessor based equipment.

Its purpose is the control of the High Speed Circuit Breaker (ON and OFF orders, line testing and auto-reclosing process) and protection against faults on the system for values lower than the HSCB setting.

The SEPCOS protection and control relay has the following features:

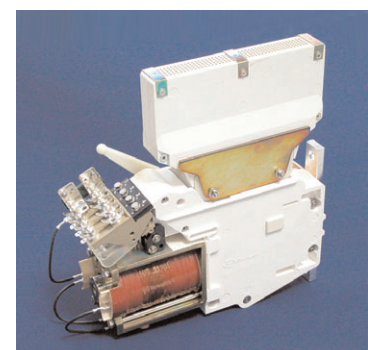
- Self check procedure with alarm message in case of failure
- Simulation status and statistic operation
- Memorisation of events (mechanical operations, operations under load, operations under short-circuits ) and diagnostic of the circuit breaker
- Visualisation and configuration of all parameters; memorised data through serial link



*Low voltage compartment*

## Optional contactor

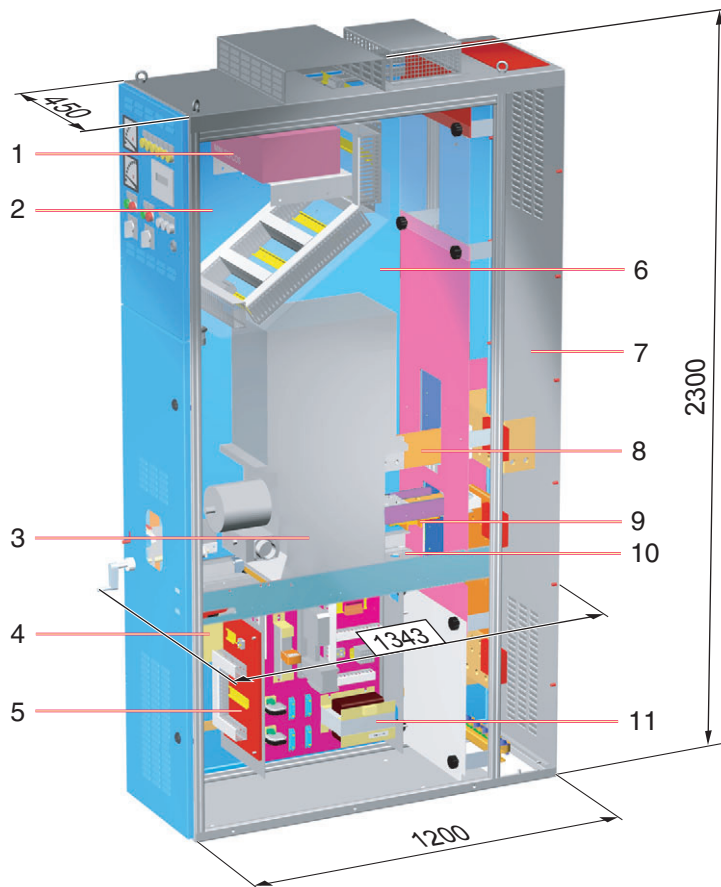
When the cubicle is equipped with a UR6 or a UR15 circuit breaker, a contactor type BMS 08-10 can be added on a drawer located above the high speed circuit breaker, in order to isolate the negative for trolleybus applications.



*BMS contactor example*

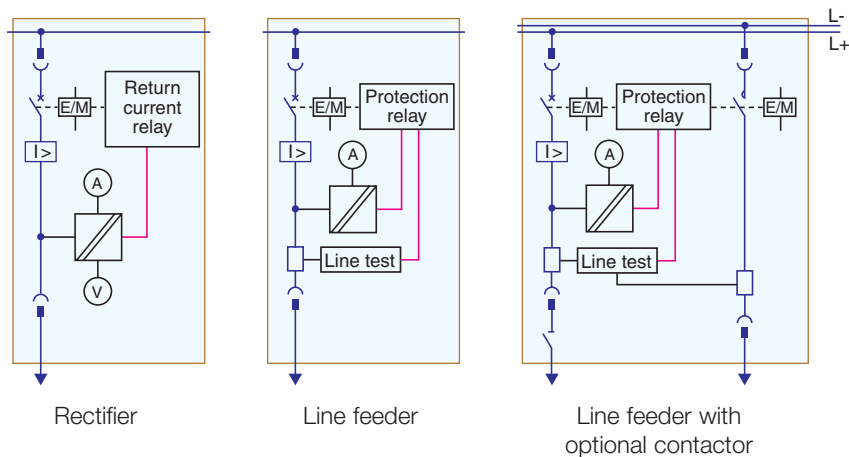
## Main dimensions (standard version)

- 1 Protection and control relay
- 2 Low-voltage compartment (protection and control circuits)
- 3 Circuit-breaker
- 4 Voltage measure device (MIU)
- 5 Circuit breaker control plate
- 6 Cubicle
- 7 High voltage compartment
- 8 Disconnectable connections (power circuit)
- 9 Shunt
- 10 Disconnectable breaker drawer
- 11 Line test device (EDL)



## Applications

Typical substation configuration: rectifier and line feeder circuit breakers cubicles



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