

Easy Series

# EasyPact™

# EVS

**Catalog 2020**

LV air circuit breakers  
from 800 to 4000A



<https://www.se.com>

Life Is On

**Schneider**  
Electric





## About Schneider Electric

Schneider Electric is a global specialist in energy management and automation, committed to providing clients with safe, reliable, efficient and green energy and process management. With over 142,000 employees in more than 100 countries, our sales hit 27.2 billion Euros in FY 2019. From simple switches to complex operating systems, our technology, software and services help customers manage and optimize operations. We also facilitate industrial optimization, improve urban environment, and enrich people's lives through interconnected technologies. Schneider Electric is committed to ensuring **Life Is ON.**

Life Is On

**Schneider**  
Electric

# > EasyPact EVS

Easy choice for majority performance



# > EasyPact EVS

## Benefits for every customer



### Panel builder/contractors

Single frame size from 800A to 4000A, with identical door cut-outs

- > Suitable for connection terminal with a single pole pitch of 115mm
- > Terminal orientation can be converted from horizontal to vertical and vice versa
- > Direct mounting Door frames without drilling any holes
- > Front fitted accessories like under-voltage release shunt release & closing coil for complete range
- > Conversion of manual operated breaker in to electrical operated, with single bolt fixing



### End User

Moulded case design ensures high endurance without maintenance

- > Intelligent Trip system range trip unit with thermal memory
- > Overload run alarm & individual LED indications enable fault identification
- >  $I_{cu}=I_{cs}=I_{cw}(1s)$  ensures complete selectivity
- > Inbuilt safety shutter & interlocks
- > Contact signal "Ready to close" indicating compliance and effectiveness of all safety parameters
- > No derating below 40 °C and stable operation in humidity under 95%
- > All 4 pole breakers are with fully rated neutral and protected with adjustable settings at OFF – 50%-100%

EasyPact EVS answers even to the most stringent application with most reliable distribution systems assuring continuity of service



### Designer

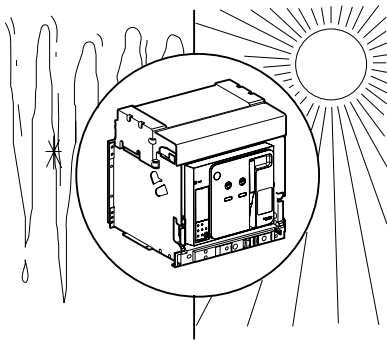
Conforms to IS/IEC60947-2 standards

- > Control module equipped with intelligent microprocessor, overload protection, short circuit protection and earth-fault protection and with thermal memory.
- > Full range:  $I_{cu}=I_{cs}=I_{cw}(1s)$
- > Typical opening release and closing release helps in simple interlocking schemes.
- > The contact "Ready to Close" ensures that all safety parameters comply with requirements and successful closing of the circuit breaker.
- > EasyPact EVS respects the environment throughout their life cycle

EasyPact EVS is designed to meet the needs of your customers with flexibility to achieve system efficiency during the design phase



# Reliable Operation



## Excellent environmental adaptability

The great environmental adaptability of EVS low voltage circuit breakers ensures the stable operation of power distribution system under severe environmental changes or harsh environmental conditions, such as cubicle-type substations commonly used in the construction industry, underground power distribution rooms without air conditioning, or space-constrained installation.

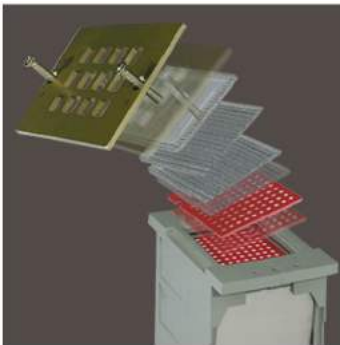
- In compliance with IEC68-2
  - Ambient temperature between -25°C and + 70°C
  - Suitable for various kinds of extreme atmospheric environmental conditions
- Suitable for IEC60664-1 pollution degree 3
  - Suitable for general or harsh industrial environment
- Stable in humidity of 95% and below

## Long-term stable operation

The EVS low voltage circuit breakers are designed for long-term operation. They are maintenance-free, which greatly reduces users' daily maintenance of the low-voltage power distribution system.

- Maintenance-free: integrated internal core components greatly reduce insulation and connection failures.
- EVS 'unique arc-type main contact avoids wear, further improving service life and operation stability.

# Greater Dependability



Filter-based breaking

## Filtered breaking

The patented new design of the arc chutes includes stainless-steel filters. The chutes absorb the energy released during breaking, thus limiting the stresses exerted on the installation. They filter and cool the gases produced, reducing effects perceptible from the outside.

## Electrical consistency

Each product complies with or enhances system performance at coordination level: breaking capacity, temperature rise, etc. The leading edge technologies ensure high performance levels in protection, inter-product Electro Magnetic Compatibility (EMC) is guaranteed.



The new arc chute

## Mechanical consistency

Each product adopts dimensional standards simplifying and optimizing its use within the system. It shares the same accessories and auxiliaries and complies with global ergonomic choices (utilization mode, operating mode, setting and configuration devices, tools, etc.) making its installation and operation within the system a simpler process.

# Easy Selection



## One family, one frame size and one type

- H type: suitable for residential, commercial building and medium-sized industrial power distribution systems.

	08	10	12	16	20	25	32	40
H 65kA	•	•	•	•	•	•	•	•

$I_{cu}=I_{cs}=I_{cw}(1s)$

## Easy of installation



Fixed breaker with horizontal and vertical rear connection

With optimized size, EVS ranges simplify the design of switchboards and standardize the installation of devices

- Power supply from the top or the bottom without reduction in performance
- No need for safe spacing
- Two types of connection are available
  - Horizontal or vertical rear connection
  - Mixed connection

### Flexibility

- Simply turn a horizontal rear connector 90° to make it a vertical connector.\*

\*: For the 4000 A circuit breaker, connection not changeable between horizontal and vertical



# Green Premium™

Endorsing eco-friendly products in the industry



**Green  
Premium™**  
Product

Green Premium is the only label that allows you to effectively develop and promote an environmental policy whilst preserving your business efficiency. This ecolabel guarantees compliance with up-to-date environmental regulations, but it does more than this.

Over 75% of  
Schneider Electric  
manufactured products  
have been awarded the  
Green Premium ecolabel



Discover what we  
mean by green ....

**Check your products!**

Schneider Electric's Green Premium ecolabel is committed to offering transparency, by disclosing extensive and reliable information related to the environmental impact of its products:

#### **RoHS**

Schneider Electric products are subject to RoHS requirements at a worldwide level, even for the many products that are not required to comply with the terms of the regulation. Compliance certificates are available for products that fulfil the criteria of this European initiative, which aims to eliminate hazardous substances.

#### **REACH**

Schneider Electric applies the strict REACH regulation on its products at a worldwide level, and discloses extensive information concerning the presence of SVHC (Substances of Very High Concern) in all of these products.

#### **PEP: Product Environmental Profile**

Schneider Electric publishes complete set of environmental data, including carbon footprint and energy consumption data for each of the lifecycle phases on all of its products, in compliance with the ISO 14025 PEP ecopassport program. PEP is especially useful for monitoring, controlling, saving energy, and/or reducing carbon emissions.

#### **EoLI: End of Life Instructions**

Available at the click of a button, these instructions provide:

- Recyclability rates for Schneider Electric products.
- Guidance to mitigate personnel hazards during the dismantling of products and before recycling operations.
- Parts identification for recycling or for selective treatment, to mitigate environmental hazards/ incompatibility with standard recycling processes.



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# Functions and characteristics



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This overview describes all the functions offered by EasyPact EVS devices.

CFB100000



CD8500000



Trip system 2.0

CD8500001



Trip system 5.0

CD8500002



Trip system 6.0

### Circuit breakers

page A-4

- Ratings:
  - EasyPact EVS 800 to 4000 A
- Circuit breakers type H
- 3 or 4 poles
- Fixed or draw-out versions

### Trip system

page A-8

- 2.0 basic protection
- 5.0 selective protection
- 6.0 selective + earth-fault protection
- Standard long-time rating plug:
  - Current setting (A) 0.4 to 1 x I<sub>n</sub>

### Trip system A with current measurement

page A-10

- 2.0 basic protection
- 5.0 selective protection
- 6.0 selective + earth-fault protection
- Standard long-time rating plug:
  - Current setting (A) 0.4 to 1 x I<sub>n</sub>
- External power-supply module

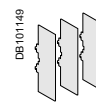
### Connections

page A-15

- Rear connection:
  - Horizontal
  - Vertical
- Optional accessories:
  - Interphase barriers
  - Safety shutters



Safety shutters

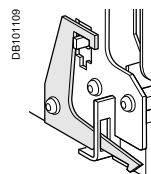


Interphase barriers

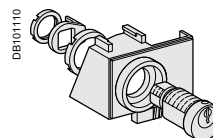
### Locking

page A-18

- Pushbutton locking by padlockable transparent cover
- OFF-position locking by keylock
- Chassis locking in disconnected position by keylock
- Chassis locking in connected, disconnected and test positions
- Door interlock (inhibits door opening with breaker in 'connected' or 'test' position)



Door interlock



Chassis key lock

PB10435-4A40



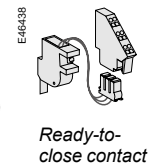
CPB100003



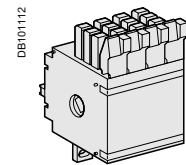
### Indication contacts

page A-20

- Standard:
  - ON/OFF indication (OF)
  - "Fault" trip indication (SDE)
- Optional:
  - Additional ON/OFF indication (OF)
  - Ready-to-close contact (PF)
  - Carriage switches for connected (CE) disconnected (CD) and test (CT) positions



Ready-to-close contact

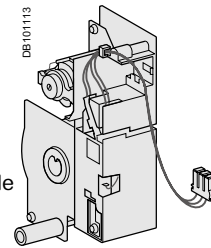


OF contact

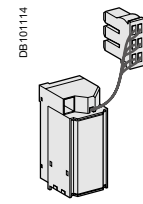
### Remote operation

page A-21

- Remote ON/OFF:
  - Gear motor
  - XF closing or MX opening voltage releases
- Remote tripping function:
  - MN voltage release
    - Standard
    - Adjustable or non-adjustable delay



Gear motor

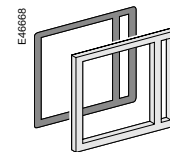


MX, XF and MN voltage releases

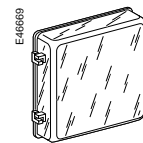
### Accessories

page A-25

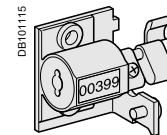
- Auxiliary terminal shield
- Operation counter
- Escutcheon (Door sealing frame)
- Transparent cover for escutcheon
- Escutcheon blanking plate



Escutcheon



Transparent cover

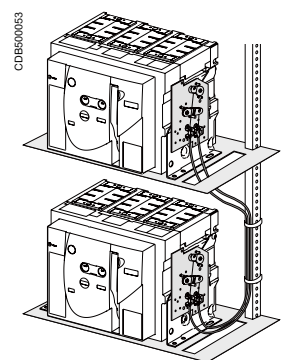


Mechanical operation counter

### Source-changeover systems

page A-24

- Mechanical interlocking using cables:
  - Interlocking between two devices
  - Interlocking between three devices



Interlocking of two devices

CPB100000



Circuit breaker.

### Common characteristics

Number of poles		3/4
Rated insulation voltage (V)	Ui	1000
Impulse withstand voltage (kV)	Uimp	12
Rated operational voltage (V AC 50/60 Hz)	Ue	690
Suitability for isolation	IEC 60947-2	Yes
Degree of pollution	IEC 60664-1	3

### Circuit-breaker as per IEC 60947-2

Rated current	In(A)	at 40°C <sup>(1)</sup>
Rating of 4th pole	(A)	
Sensor ratings	(A)	

### Type of circuit breaker

Ultimate breaking capacity	Icu(kA rms)	220...440V
V AC 50/60 Hz		690 V
Rated service breaking capacity	Ics(kA rms)	% Icu
Selectivity category		
Rated short-time withstand current	Icw(kA rms)	1s
V AC 50/60 Hz		3s
Rated making capacity	Icm(kA peak)	220...440 V
V AC 50/60 Hz		690 V
Integrated instantaneous protection(DIN KA instantaneous $\pm 10\%$ )		
Breaking time (ms) between tripping order and arc extinction		(ms)
Closing time (ms)		(ms)

### Maintenance/Connection/Installation

Service life C/O cyclesx1000	Mechanical	with maintenance	
		without maintenance	
	Electrical	without maintenance	440 V
			690 V
Connection	Horizontal		
	Vertical		
Dimensions H x W x D	Draw-out		3P
			4P
	Fixed		3P
			4P
Weight (kg)	Draw-out		3P/4P
	Fixed		3P/4P

<sup>(1)</sup> Refer page no. B-12 for details on temperature derating.



	EVS08	EVS10	EVS12	EVS16	EVS20	EVS25	EVS32	EVS40
	800	1000	1250	1600	2000	2500	3200	4000
	800	1000	1250	1600	2000	2500	3200	4000
	800	1000	1250	1600	2000	2500	3200	4000
	H	H	H	H	H	H	H	H
	65	65	65	65	65	65	65	65
	50	50	50	50	50	50	50	50
	100%	100%	100%	100%	100%	100%	100%	100%
	B	B	B	B	B	B	B	B
	65	65	65	65	65	65	65	65
	36	36	36	36	36	36	36	36
	143	143	143	143	143	143	143	143
	105	105	105	105	105	105	105	105
	105	105	105	105	105	105	105	105
	25	25	25	25	25	25	25	25
	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70
	20	20	20	20	20	20	20	20
	10	10	10	10	10	10	10	10
	5	5	5	5	5	5	5	5
	4	4	4	4	4	2.5	2.5	2.5
	Yes							
	Yes							
	439 x 441 x 395							
	439 x 556 x 395							
	352 x 422 x 297							
	352 x 537 x 297							
	70/85	70/85	70/85	70/85	70/85	90/120	90/120	90/120
	40/50	40/50	40/50	40/50	40/50	60/80	60/80	60/80

EasyPact EVS circuit breakers equipped with Trip system are designed to protect power circuit and connected loads.  
Measurement of current helps users to maintain continuity of service and optimize installation.

CPE100011



## Dependability

Integration of protection functions in an ASIC electronic component used in all trip units guarantees a high degree of reliability and immunity to conducted or radiated disturbances.

On Trip System range, measurement functions are managed by an independent microprocessor. Protection functions are independent of measurement functions, ensure system protection even at very low load currents.

## Accessories

Certain functions require the addition of trip unit accessories, described on [page A-14](#).

## Trip unit name codes

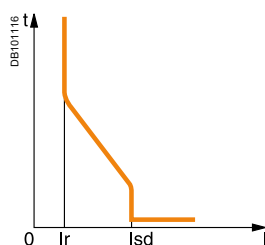
### Type of protection

- 2.0 for basic protection
- 5.0 for selective protection
- 6.0 for selective + earth-fault protection

### Type of measurement

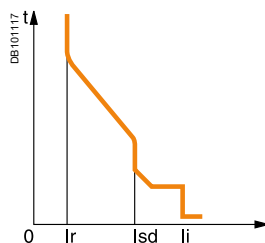
- Trip System for basic
- Trip System A for "Current"

## Trip System 2.0: basic protection



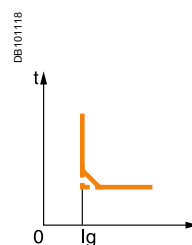
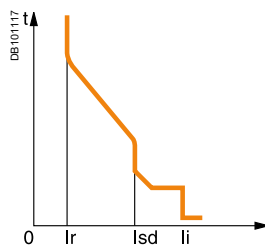
**Protection:**  
long time  
+ instantaneous

## Trip System 5.0: selective protection








**Protection:**  
long time  
+ short time  
+ instantaneous

## Trip System 6.0: selective + earth-fault protection

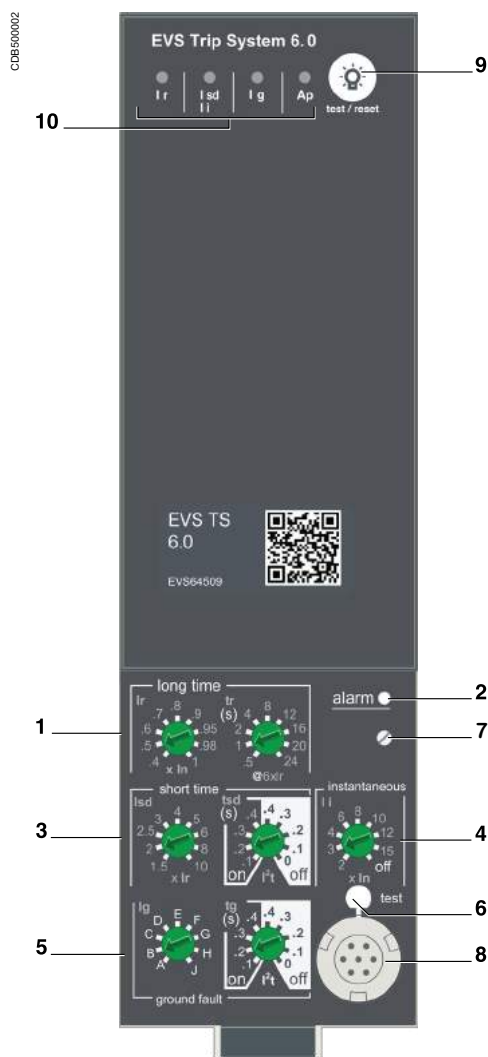


**Protection:**  
long time  
+ short time  
+ instantaneous  
+ earth fault

Protection and measurement functions			
Trip System		Trip System A	
<div><div></div><div>Fault indications</div><div>Settings in amperes and in seconds</div></div>		<div><div></div><div><math>I_1</math>, <math>I_2</math>, <math>I_3</math>, <math>I_N</math>, <math>I_{\text{earth-fault}}</math>, and maximeter for these measurements:</div><div>Fault indications</div><div>Settings in amperes and in seconds</div></div>	
2.0			
5.0		5.0A	<div><div></div><div>CD550002_EVS</div></div>
6.0		6.0A	<div><div></div><div>CD550004_EVS</div></div>



Trip System unit protect power circuits, under overload & short-circuit conditions. They are equipped with individual fault trip indication LEDs. Trip System 6.0 provides earth-fault protection.



- 1 Long-time threshold and tripping delay.
- 2 Overload alarm (LED) at 1, 125 Ir.
- 3 Short-time pick-up and tripping delay.
- 4 Instantaneous pick-up.
- 5 Earth-fault pick-up and tripping delay.
- 6 Earth-fault test button.
- 7 Long-time rating plug screw.
- 8 Test connector.
- 9 Lamp test, reset and battery test.
- 10 Indication of tripping cause.

(1) The thermal memory continuously accounts for the amount of heat in the cables, both before and after tripping, whatever the value of the current (presence of an overload or not). The thermal memory optimises the long-time protection function of the circuit breaker by taking into account the temperature rise in the cables. The thermal memory assumes a cable cooling time of approximately 20 minutes.

(2) Refer to page D-5 for more details on ZSI.

**Note:** Trip System come with a transparent leadseal cover as standard.

## Protection

Protection thresholds and delays are set using the adjustment dials.

### Overload protection

True rms long-time protection.

Protects cables (phase and neutral) against overloads

Thermal memory<sup>(1)</sup>: thermal image before and after tripping.

### Short-time protection

■ The short-time protection function protects the distribution system against impedant short-circuits

■ The short-time tripping delay can be used to ensure discrimination with downstream circuit breaker

■ The I<sup>2</sup>t ON and I<sup>2</sup>t OFF options enhance discrimination with a downstream protection devices

■ Use of I<sup>2</sup>t curves with short-time protection:

□ I<sup>2</sup>t OFF selected: the protection function implements a constant time curve

□ I<sup>2</sup>t ON selected: the protection function implements an I<sup>2</sup>t inverse-time curve up to 10 Ir. Above 10 Ir, the time curve is constant

### Earth-fault protection on Trip system 6.0

Residual earth fault protection.

Selection of I<sup>2</sup>t type (ON or OFF) for delay.

A ground fault in the protection conductors can provoke local temperature rise at the site of the fault or in the conductors. The purpose of the ground-fault protection function is to eliminate this type of fault.

Type	Description
Residual	<ul style="list-style-type: none"> <li>■ The function determines the zero-phase sequence current, i.e. the vectorial sum of the phase and neutral currents</li> <li>■ It detects faults downstream of the circuit breaker</li> </ul>

### Instantaneous protection

The Instantaneous-protection function protects the distribution system against solid short-circuits. Contrary to the short-time protection function, the tripping delay for instantaneous protection is not adjustable. The tripping order is sent to the circuit breaker as soon as current exceeds the set value, with a fixed time delay of 20 milliseconds.

### Neutral protection

On three-pole circuit breakers, neutral protection is not possible.

On four-pole circuit breakers, neutral protection may be set using a three-position switch: neutral unprotected (4P 3d), neutral protection at 0.5 Ir (4P 3d + N/2), neutral protection at Ir (4P 4d).

### Zone selective interlocking (ZSI)

A ZSI<sup>(2)</sup> terminal block may be used to interconnect a number of control units to provide total discrimination for short-time and earth-fault protection, without a delay before tripping.

### Overload alarm

A yellow alarm LED goes on when the current exceeds the long-time trip threshold.

### Fault indications

LEDs indicate the type of fault:

■ Overload (long-time protection Ir)

■ Short-circuit (short-time Isd or instantaneous Ii protection)

■ Earth fault (Ig)

■ Internal fault (Ap)

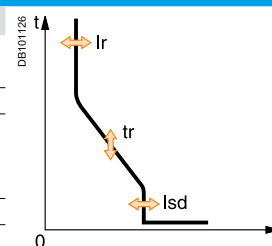
### Battery power

The fault indicating LEDs are powered by an in-built battery. The fault indication LEDs remain on until the test/reset button is pressed.

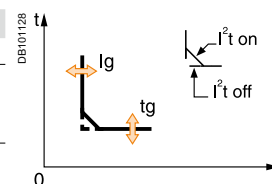
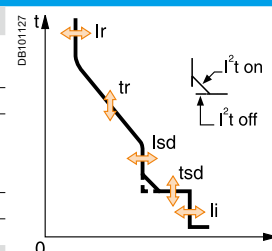
### Test

A hand-held test kit may be connected to the test connector on the front to check circuit-breaker operation. For Trip System 6.0 trip unit, the operation of earth-fault protection can be checked by pressing the test button located above the test connector.

Protection			Trip System 2.0									
Long time			Trip System 2.0									
Current setting (A)	$I_r = I_n \times \dots$		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1	
Tripping between 1.05 and 1.20 x $I_r$												
Time setting		$t_r$ (s)	0.5	1	2	4	8	12	16	20	24	
Time delay (s)	Accuracy: 0 to -30 %	1.5 x $I_r$	12.5	25	50	100	200	300	400	500	600	
	Accuracy: 0 to -20 %	6 x $I_r$	0.7 <sup>(1)</sup>	1	2	4	8	12	16	20	24	
	Accuracy: 0 to -20 %	7.2 x $I_r$	0.7 <sup>(2)</sup>	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6	
Thermal memory		20 minutes before and after tripping										
(1) 0 to -40 % - (2) 0 to -60 %												
Instantaneous												
Pick-up (A)	$I_{sd} = I_r \times \dots$		1.5	2	2.5	3	4	5	6	8	10	
Accuracy: $\pm 10\%$												
Time delay			Max resettable time: 20 ms Max break time: 80 ms									

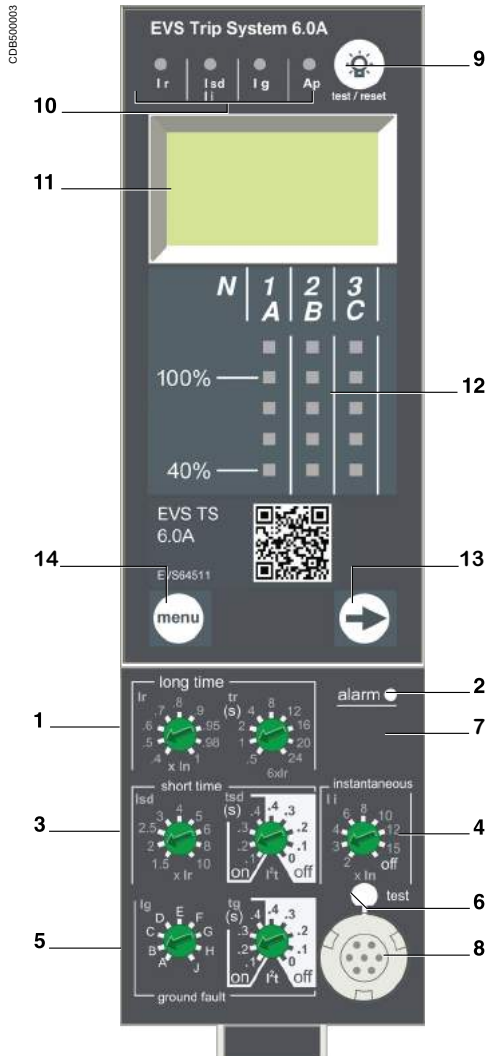


Protection			Trip System 5.0&6.0								
Long time			Trip System 5.0&6.0								
Current setting (A)	$I_r = I_n \times \dots$		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
Tripping between 1.05 and 1.20 x $I_r$											
Time setting	$t_r$ (s)		0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	$1.5 \times I_r$	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	$6 \times I_r$	0.7 <sup>(1)</sup>	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	$7.2 \times I_r$	0.7 <sup>(2)</sup>	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6
Thermal memory			20 minutes before and after tripping								
(1) 0 to -40 % - (2) 0 to -60 %											
Short time											
Pick-up (A)	$I_{sd} = I_r \times \dots$		1.5	2	2.5	3	4	5	6	8	10
Accuracy: $\pm 10$ %											
Time setting tsd (s)	Settings	$I^2t$ Off	0	0.1	0.2	0.3	0.4				
		$I^2t$ On	-	0.1	0.2	0.3	0.4				
Time delay (ms) at 10 x $I_r$ ( $I^2t$ Off or $I^2t$ On)	$t_{sd}$ (max resettable time)		20	80	140	230	350				
	$t_{sd}$ (max break time)		80	140	200	320	500				
Instantaneous											
Pick-up (A)	$I_i = I_n \times \dots$		2	3	4	6	8	10	12	15	off
Accuracy: $\pm 10$ %											
Time delay			Max resettable time: 20 ms Max break time: 50 ms								
Earth fault			Trip System 6.0A								
Pick-up (A)	$I_g = I_n \times \dots$		A	B	C	D	E	F	G	H	J
Accuracy: $\pm 10$ %	$I_n \leq 400$ A		0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	$400 \text{ A} < I_n \leq 1000$ A		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	$I_n \geq 1250$ A		500	640	720	800	880	960	1040	1120	1200
Time setting tg (s)	Settings	$I^2t$ Off	0	0.1	0.2	0.3	0.4				
		$I^2t$ On	-	0.1	0.2	0.3	0.4				
Time delay (ms) at $I_n$ or 1200 A ( $I^2t$ Off or $I^2t$ On)	$t_g$ (max resettable time)		20	80	140	230	350				
	$t_g$ (max break time)		80	140	200	320	500				



**Note:** All current-based protection functions require no auxiliary source.  
The test / reset button, clears the tripping indication and tests the battery.

Trip System A trip units include all functions offered by Trip System trip unit. In addition, they also offer measurements, display and current maximeters.



- 1 Long-time threshold and tripping delay.
- 2 Overload alarm (LED) at 1, 125 Ir.
- 3 Short-time pick-up and tripping delay.
- 4 Instantaneous pick-up.
- 5 Earth-fault pick-up and tripping delay.
- 6 Earth-fault test button.
- 7 Long-time rating plug screw.
- 8 Test connector.
- 9 Lamp test, reset and battery test.
- 10 Indication of tripping cause.
- 11 Digital display.
- 12 Three-phase bargraph and ammeter.
- 13 Navigation button to view menu contents.
- 14 Navigation button to change menu.

(1) The thermal memory continuously accounts for the amount of heat in the cables, both before and after tripping, whatever the value of the current (presence of an overload or not). The thermal memory optimises the long-time protection function of the circuit breaker by taking into account the temperature rise in the cables. The thermal memory assumes a cable cooling time of approximately 20 minutes.

(2) Refer to page D-5 for more details on ZSI.

**Note:** Trip System A come with a transparent leadseal cover as standard.

### “Ammeter” measurements

Trip System A measure the true (rms) value of currents.

They provide continuous current measurements from 0.2 to 1.2 In and are accurate to within 1.5 % (including the sensors).

A digital LCD screen continuously displays the most heavily loaded phase (Imax) or displays the I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>N</sub>, I<sub>g</sub>, stored-current (maximeter) and setting values by successively pressing the navigation button.

The optional external power supply makes it possible to display currents < 20 % In. Below 0.1 In, measurements are not significant. Between 0.1 and 0.2 In, accuracy changes linearly from 4 % to 1.5 %.

### Protection

Protection thresholds and delays are set using the adjustment dials.

#### Overload protection

True rms long-time protection.

Protects cables (phase and neutral) against overloads

Thermal memory<sup>(1)</sup>: thermal image before and after tripping.

#### Short-time protection

- The short-time protection function protects the distribution system against impedant short-circuits
- The short-time tripping delay can be used to ensure discrimination with downstream circuit breaker
- The I<sup>2</sup>t ON and I<sup>2</sup>t OFF options enhance discrimination with a downstream protection devices
- Use of I<sup>2</sup>t curves with short-time protection:
  - I<sup>2</sup>t OFF selected: the protection function implements a constant time curve
  - I<sup>2</sup>t ON selected: the protection function implements an I<sup>2</sup>t inverse-time curve up to 10 Ir. Above 10 Ir, the time curve is constant

#### Earth-fault protection on Trip System A trip system

Residual earth fault protection.

Selection of I<sup>2</sup>t type (ON or OFF) for delay.

A ground fault in the protection conductors can provoke local temperature rise at the site of the fault or in the conductors. The purpose of the ground-fault protection function is to eliminate this type of fault.

Type	Description
Residual	<ul style="list-style-type: none"> <li>■ The function determines the zero-phase sequence current, i.e. the vectorial sum of the phase and neutral currents</li> <li>■ It detects faults downstream of the circuit breaker</li> </ul>

#### Instantaneous protection

The Instantaneous-protection function protects the distribution system against solid short-circuits. Contrary to the short-time protection function, the tripping delay for instantaneous protection is not adjustable. The tripping order is sent to the circuit breaker as soon as current exceeds the set value, with a fixed time delay of 20 milliseconds.

#### Neutral protection

On three-pole circuit breakers, neutral protection is not possible.

On four-pole circuit breakers, neutral protection may be set using a three-position switch: neutral unprotected (4P 3d), neutral protection at 0.5 Ir (4P 3d + N/2), neutral protection at Ir (4P 4d).

#### Zone selective interlocking (ZSI)

A ZSI<sup>(2)</sup> terminal block may be used to interconnect a number of control units to provide total discrimination for short-time and earth-fault protection, without a delay before tripping.

#### Overload alarm

A yellow alarm LED goes on when the current exceeds the long-time trip threshold.

#### Fault indications

LEDs indicate the type of fault:

- Overload (long-time protection Ir)
- Short-circuit (short-time Isd or instantaneous Ii protection)
- Earth fault (Ig)
- Internal fault (Ap)

#### Battery power

The fault indicating LEDs are powered by an in-built battery. The fault indication LEDs remain on until the test/reset button is pressed.

#### Test

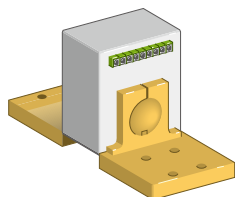
A hand-held test kit may be connected to the test connector on the front to check circuit-breaker operation. For Trip System 6.0A trip unit, the operation of earth-fault protection can be checked by pressing the test button located above the test connector.



Protection			Trip System 5.0A&6.0A										
Long time			Trip System 5.0A&6.0A										
Current setting (A)	$I_r = I_n \times \dots$		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1		
Tripping between 1.05 and 1.20 x $I_r$													
Time setting		$t_r$ (s)	0.5	1	2	4	8	12	16	20	24		
Time delay (s)	Accuracy: 0 to -30 %	1.5 x $I_r$	12.5	25	50	100	200	300	400	500	600		
	Accuracy: 0 to -20 %	6 x $I_r$	0.7 <sup>(1)</sup>	1	2	4	8	12	16	20	24		
	Accuracy: 0 to -20 %	7.2 x $I_r$	0.7 <sup>(2)</sup>	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6		
Thermal memory			20 minutes before and after tripping										
(1) 0 to -40 % - (2) 0 to -60 %													
Short time													
Pick-up (A)	$I_{sd} = I_r \times \dots$		1.5	2	2.5	3	4	5	6	8	10		
Accuracy: $\pm 10 \%$													
Time setting tsd (s)	Settings	$I^2t$ Off	0	0.1	0.2	0.3	0.4						
		$I^2t$ On	-	0.1	0.2	0.3	0.4						
Time delay (ms) at 10 x $I_r$ ( $I^2t$ Off or $I^2t$ On)	$t_{sd}$ (max resettable time)		20	80	140	230	350						
	$t_{sd}$ (max break time)		80	140	200	320	500						
Instantaneous													
Pick-up (A)	$I_i = I_n \times \dots$		2	3	4	6	8	10	12	15	off		
Accuracy: $\pm 10 \%$													
Time delay			Max resettable time: 20 ms Max break time: 50 ms										
Earth fault			Trip System 6.0A										
Pick-up (A)	$I_g = I_n \times \dots$		A	B	C	D	E	F	G	H	J		
Accuracy: $\pm 10 \%$	$I_n \leq 400$ A		0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1		
	400 A < $I_n \leq 1000$ A		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1		
	$I_n \geq 1250$ A		500	640	720	800	880	960	1040	1120	1200		
Time setting tg (s)	Settings	$I^2t$ Off	0	0.1	0.2	0.3	0.4						
		$I^2t$ On	-	0.1	0.2	0.3	0.4						
Time delay (ms) at $I_n$ or 1200 A ( $I^2t$ Off or $I^2t$ On)	$t_g$ (max resettable time)		20	80	140	230	350						
	$t_g$ (max break time)		80	140	200	320	500						
Ammeter			Trip System 5.0A&6.0A										
Type of measurements			Range				Accuracy						
Instantaneous currents	$I_1, I_2, I_3, I_n$		0.2 x $I_n$ to 1.2 x $I_n$				$\pm 1.5 \%$						
	$I_g$ (6.0A)		0.2 x $I_n$ to $I_n$				$\pm 10 \%$						
Current maximeters of	$I_1, I_2, I_3, I_n$		0.2 x $I_n$ to 1.2 x $I_n$				$\pm 1.5 \%$						

**Note:** All current-based protection functions require no auxiliary source.  
The test / reset button resets maximeters, clears the tripping indication and tests the battery.

DB101524



External sensor (CT).

### External sensors

#### External sensor for earth-fault protection

The sensors, used with the 3P circuit breakers, are installed on the neutral conductor for:

- Residual type earth-fault protection (with 6.0 trip units)

The rating of the sensor (CT) must be compatible with the rating of the circuit breaker:

- EVS08 to EVS20: TC 400/2000
- EVS25 to EVS40: TC 1000/4000

### External 24 V DC power-supply module

The external power-supply module makes it possible to use the display (Trip systems A) even if the circuit breaker is open or not supplied (for the exact conditions of use, see the “electrical diagrams” part of this catalogue).

#### Characteristics

- Power supply:
  - 200/240V AC
  - 24/30V DC
- Dielectric withstand : 3.5 kV rms between input/output, for 1 minute
- Conducted emissions power line: class B per EN 61000-6-3.

PB101026-32A



External 24 V DC power supply module.

### Spare parts

#### Lead-seal covers

A lead-seal cover controls access to the adjustment dials.

When the cover is closed:

- It is impossible to modify settings using the keypad unless the settings lockout pin on the cover is removed
- The test connector remains accessible
- The test button for the earth-fault protection function remains accessible

#### Characteristics

- Transparent cover for all trip units

#### Spare battery

A battery supplies power to the LEDs identifying the tripping causes. The healthiness of the battery to be checked periodically. A test button on the front of the control

unit is used to check the battery condition. The battery may be replaced on site when discharged.

PB100775-32



Lead-seal cover.

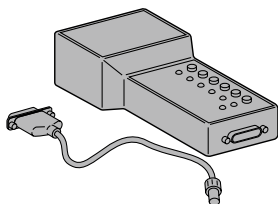
### Test equipment

#### Hand-held test kit

The hand-held mini test kit may be used to:

- Check operation of the control unit and the tripping and pole-opening system by sending a signal simulating a short-circuit
- Power source: standard LR6-AA battery

CDB500038



Hand-held test kit.

Available connection:

- Rear connections: horizontal, vertical and mixed
- The solutions presented are similar in principle for all EasyPact EVS fixed and draw-out devices.

## Rear connection

Horizontal



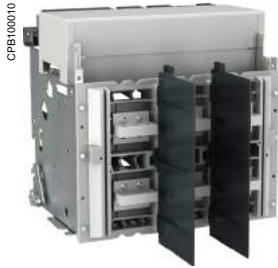
Vertical



Mixed



Simply turn a horizontal rear connector 90° to make it a vertical connector.



### Interphase barriers EIP

These barriers are flexible insulated partitions used to reinforce isolation of connection points in installations with busbars, whether insulated or not. For EasyPact EVS devices, they are installed vertically between rear connection terminals. They are not compatible with spreaders.



### Safety shutters VO

Mounted on the chassis, the safety shutters automatically block access to the disconnecting contact cluster when the device is in the disconnected or test positions (degree of protection IP 20). When the device is removed from its chassis, no live parts are accessible.

The shutter-locking system is made up of a moving block (optional device) that can be padlocked (padlock not supplied). The block:

- Prevents connection of the device
- Locks the shutters in the closed position

#### For EasyPact EVS08 to EVS40



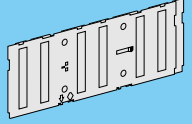
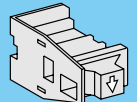
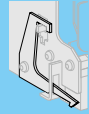
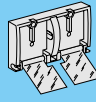
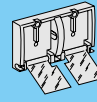
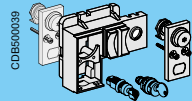
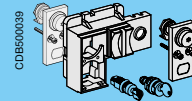
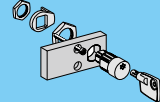
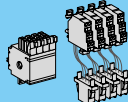
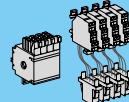
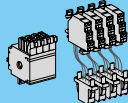
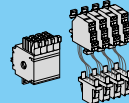
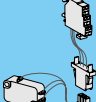
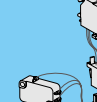
A support at the bottom of the chassis is used to store the blocks when they are not used:

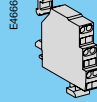
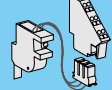
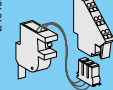
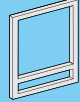
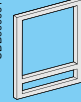
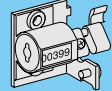
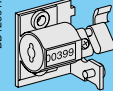
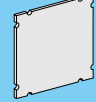
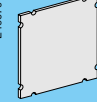


- 2 blocks for EVS08 to EVS40



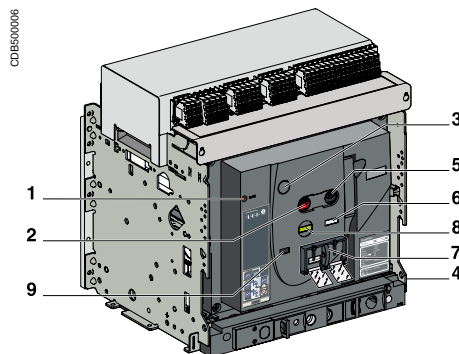
# Connections

## Accessories and auxiliaries

Type of accessory	EasyPact EVS08 to EVS40	
	Fixed breaker Rear connection	Draw-out breaker Rear connection
Interphase barriers	 Optional	 Optional
Safety shutters		 Standard
Safety shutters locking blocks		 Optional
Door interlock		 Optional
Pushbutton locking device	 Optional	 Optional
OFF position locking	 Optional	 Optional
"Disconnected" position locking		 Optional
ON/OFF indication contacts(OF)	 Standard	 Standard
Additional ON/OFF indication contacts(OF)	 Optional	 Optional
"Fault trip" indication contact(SDE)	 Standard	 Standard

Type of accessory	EasyPact EVS08 to EVS40	
	Fixed breaker Rear connection	Draw-out breaker Rear connection
"Connected, disconnected, test position" indication contact(CE,CD,CT)		 Optional
"Ready to close" contact(PF)	 Optional	 Optional
Escutcheon(CDP)	 Standard	 Standard
Mechanical operation counter(CDM)	 Optional	 Optional
Escutcheon blanking plate	 Optional	 Optional
Auxiliary terminal shield(CB)		 Optional
Transparent cover (IP54)		 Optional

- 1 Reset button for mechanical trip indication.
- 2 OFF pushbutton.
- 3 OFF position lock.
- 4 Door interlock.
- 5 ON pushbutton.
- 6 Spring charge indication.
- 7 Pushbutton locking.
- 8 Contact position indication.
- 9 Operation counter.



Access to pushbuttons protected by transparent cover.



Pushbutton locking using a padlock.



OFF position locking using a keylock.



Door interlock.

## Pushbutton locking VBP

The transparent cover blocks access to the pushbuttons used to open and close the device.

It is possible to independently lock the opening button and the closing button. The locking device is often combined with a remote operating mechanism.

The pushbuttons may be locked using either:

- Three padlocks (not supplied)
- Lead seal
- Two screws

## Device locking in the OFF position by keylocks VSPO

The circuit breaker is locked in the OFF position by physically maintaining the opening pushbutton pressed down:

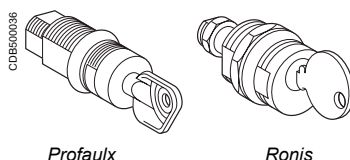
- Using keylocks (one or two keylocks, supplied)

Keys may be removed only when locking is effective (Profalux or Ronis type locks).

The keylocks are available in any of the following configurations:

- One keylock
- One keylock mounted on the device + one identical keylock supplied separately for interlocking with another device

A locking kit (without locks) is available for installation of one keylock (Ronis, Profalux).

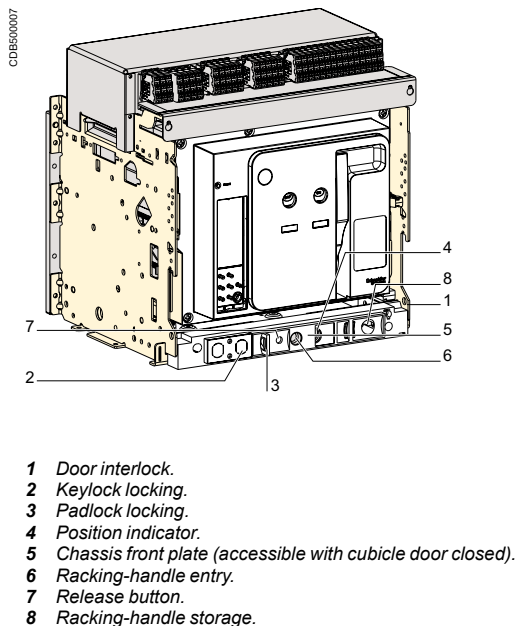


## Door interlock catch VPEC

Mounted on the right or left-hand side of the chassis, this device inhibits opening of the cubicle door when the circuit breaker is in "connected" or "test" position. If the breaker is put in the "connected" position with the door open, the door may be closed without having to disconnect the circuit breaker.

## Automatic spring discharge before breaker removal DAE

This option discharges the springs before the breaker is removed from the chassis.



### “Connected”, “disconnected” and “test” position racking interlock

The “connected”, “disconnected” and “test” positions are shown by an indicator and are mechanically indexed. The exact position is obtained when the racking handle blocks. A release button is used to free it.

### “Disconnected” position locking by padlocks or keylocks VSPD

Mounted on the chassis and accessible with the door closed, these devices lock the circuit breaker in the “disconnected” position in two manners:

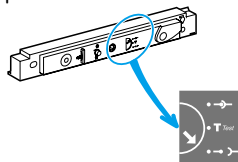
- Using padlocks (standard), up to three padlocks (not supplied)
- Using keylocks (optional), one or two different keylocks are available

Profalux and Ronis keylocks are available in different options:

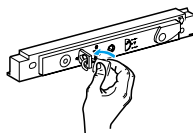
- One keylock
  - Two identical key locks - one keylock mounted on the device + one identical keylock supplied separately for interlocking with another device
- A locking kit (without locks) is available for installation of one or two keylocks (Ronis, Profalux).

#### Padlock

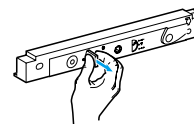
Circuit breaker in “disconnected” position.



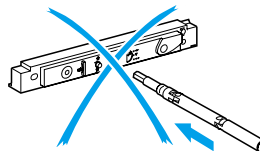
Insert the shackle (max. diameter 5 to 8 mm) of the padlock(s).



Pull out the tab.



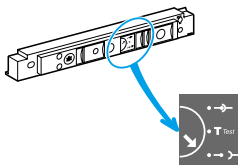
The crank cannot be inserted.



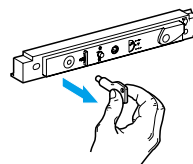
“Disconnected” position locking by padlock.

#### Keylock

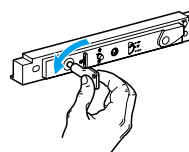
Circuit breaker in “disconnected” position.



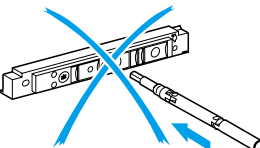
Remove the key(s)



Turn the key(s).

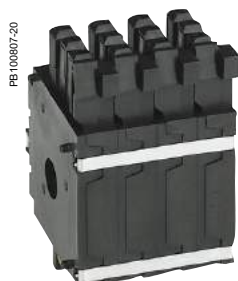


The crank cannot be inserted.



“Disconnected” position locking by keylock.

Indication contacts are available:  
■ in the standard version for relay applications



ON/OFF indication contacts  
(OF) (rotary type).



"Fault-trip" indication contact (SDE).



CE, CD and CT "connected/  
disconnected/test" position  
carriage switches.

## ON/OFF indication contacts OF

Indication contacts indicate the ON or OFF position of the circuit breaker:  
■ Rotary type changeover contacts directly driven by the mechanism for EasyPact EVS. These contacts trip when the minimum isolation distance between the main circuit-breaker contacts is reached

OF		EVS	
Supplied as standard		1 (4 C/O)	
Optional contact		1 (4 C/O)	
Breaking capacity (A)	Standard	Minimum load: 100 mA/24 V	
p.f.: 0.3	V AC	240/380	10/6 <sup>(1)</sup>
AC12/DC12		480	10/6 <sup>(1)</sup>
		690	6
	V DC	24/48	10/6 <sup>(1)</sup>
		125	10/6 <sup>(1)</sup>
		250	3

<sup>(1)</sup> Standard contacts: 10 A; optional contacts: 6 A.

## "Fault-trip" indication contacts SDE

Circuit-breaker tripping due to a fault is signalled by:

- A red mechanical fault indicator (reset)
- One changeover contact SDE

Following tripping, the mechanical indicator must be reset before the circuit breaker may be closed. One SDE is supplied as standard.

SDE		EVS	
Supplied as standard		1	
Breaking capacity (A)	Standard	Minimum load: 100 mA/24 V	
p.f.: 0.3	V AC	240/380	5
AC12/DC12		480	5
		690	3
	V DC	24/48	3
		125	0.3
		250	0.15

## "Connected", "disconnected" and "test" position carriage switches CE, CD & CT

Three series of optional auxiliary contacts are available for the chassis:

- Changeover contacts to indicate the "connected" position CE
- Changeover contacts to indicate the "disconnected" position CD. This position is indicated when the required clearance for isolation of the power and auxiliary circuits is reached
- Changeover contacts to indicate the "test" position CT. In this position, the power circuits are disconnected and the auxiliary circuits are connected

		EVS		
Contacts		CE/CD/CT		
Maximum number	Standard	3	3	3
Breaking capacity (A)	Standard	Minimum load: 100 mA/24 V		
p.f.: 0.3	V AC	240	8	
AC12/DC12		380	8	
		480	8	
		690	6	
	V DC	24/48	2.5	
		125	0.8	
		250	0.3	



A point-to-point solution for remote operation of EasyPact EVS



The remote ON / OFF function is used to remotely open and close the circuit breaker.

It is made up of:

- An electric motor MCH equipped with a “springs charged” limit switch contact CH
- Two voltage releases:
  - A closing release XF
  - An opening release MX

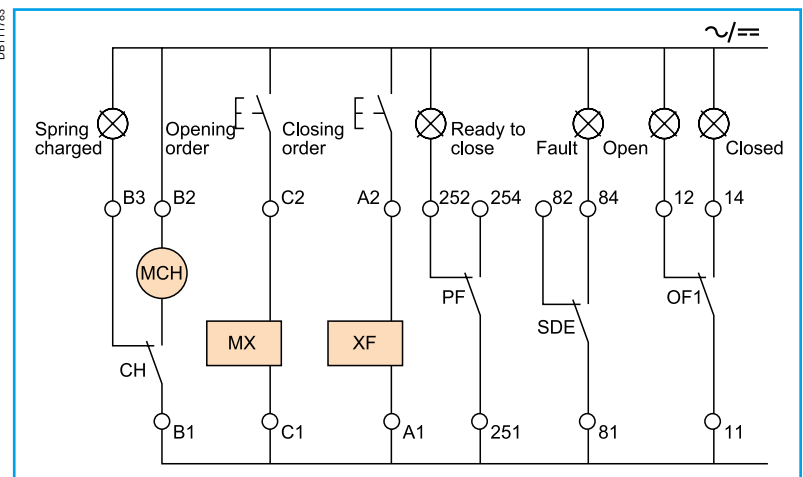
Optionally, other function may be added:

- A “ready to close” contact PF

A remote-operation function is generally combined with:

- Device ON / OFF indication OF
- “Fault-trip” indication SDE

Wiring diagram of a point-to-point remote ON / OFF function



**Note:** An opening order always takes priority over a closing order.  
If opening and closing orders occur simultaneously, the mechanism discharges without any movement of the main contacts. The circuit breaker remains in the open position (OFF).  
In the event of maintained opening and closing orders, the standard mechanism provides an anti-pumping function by blocking the main contacts in open position.  
Anti-pumping function. After fault tripping or intentional opening using the manual or electrical controls, the closing order must first be discontinued, then reactivated to close the circuit breaker.

PB100809-32



Electric motor MCH for EasyPact EVS.

### Electric motor MCH

The electric motor automatically charges and recharges the spring mechanism when the circuit breaker is closed. Instantaneous reclosing of the breaker is thus possible following opening. The spring-mechanism charging handle is used only as a backup if auxiliary power is absent. The electric motor MCH is equipped as standard with a limit switch contact CH that signals the “charged” position of the mechanism (springs charged).

#### Characteristics

Power supply	V AC 50/60 Hz	200/240 - 380/415
	V DC	24/30 - 100/125 - 200/250
Operating threshold	0.85 to 1.1 Un	
Consumption (VA or W)	180	
Motor overcurrent	2 to 3 In for 0.1 s	
Charging time	Maximum 4 s	
Operating frequency	Maximum 3 cycles per minute	
CH contact	10 A at 240 V	

### Voltage releases XF and MX

Their supply can be maintained or automatically disconnected.

#### Closing release XF

The XF release remotely closes the circuit breaker if the spring mechanism is charged.

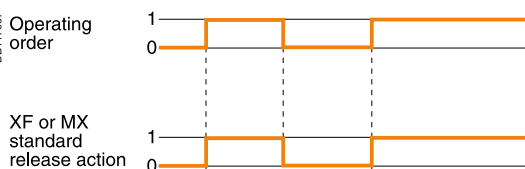
#### Opening release MX

The MX release instantaneously opens the circuit breaker when energised. It locks the circuit breaker in OFF position if the order is maintained.

#### Characteristics

	XF	MX
Power supply	V AC 50/60 Hz	200/250 - 380/480
	V DC	24/30 - 100/130
Operating threshold	0.85 to 1.1 Un	
Consumption (VA or W)	Hold: 4.5	Hold: 4.5
	Pick-up: 200 (200 ms)	Pick-up: 200 (200 ms)
Circuit-breaker response time at Un	70 ms ±10	50 ms ±10

DB117037



PB100809-16



MX voltage releases.



XF voltage release.

### “Ready to close” contact PF

The “ready to close” position of the circuit breaker is indicated by a mechanical indicator and a PF changeover contact. This signal indicates that all the following are valid:

- The circuit breaker is in the OFF position
- The spring mechanism is charged
- A maintained opening order is not present:
  - ☐ MX energised
  - ☐ Fault trip
  - ☐ Remote tripping MN
  - ☐ Device not completely racked in
  - ☐ Device locked in OFF position
  - ☐ Device interlocked with a second device

#### Characteristics

Maximum number	1	
Breaking capacity (A)	Standard	Minimum load: 100 mA/24 V
p.f.: 0.3	V AC	240/380
		480
		690
AC12/DC12	V DC	24/48
		125
		250

PB100815-16



“Ready to close” contacts PF.

DB100809-16



MN voltage release.

056422N



MN delay unit.

Instantaneous voltage releases MN

The MN release instantaneously opens the circuit breaker when its supply voltage drops to a value between 35 % and 70 % of its rated voltage. If there is no supply on the release, it is impossible to close the circuit breaker, either manually or electrically.

Any attempt to close the circuit breaker has no effect on the main contacts. Circuit breaker closing is enabled again when the supply voltage of the release returns to 85% of its rated value.

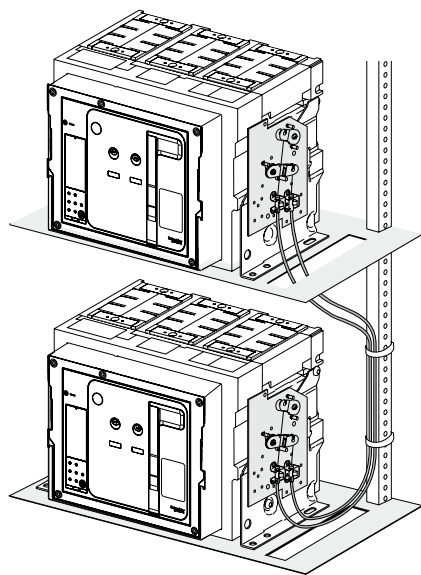
Characteristics			
Power supply	V AC 50/60 Hz	200/250 - 380/480	
	V DC	24/30 - 100/130	
Operating threshold	Opening	0.35 to 0.7 Un	
	Closing	0.85 Un	
Consumption (VA or W)		Pick-up: 200 (200 ms)	Hold: 4.5
MN consumption		Pick-up: 200 (200 ms)	Hold: 4.5
with delay unit (VA or W)			
Circuit-breaker response time at Un		90 ms ±5	

MN delay units

To eliminate circuit-breaker nuisance tripping during short voltage dips, operation of the MN release can be delayed. This function is achieved by adding an external delay unit in the MN voltage-release circuit. Two versions are available, adjustable and non-adjustable.

Characteristics			
Power supply	Non-adjustable	100/130 - 200/250	
	Adjustable	100/130 - 200/250 - 380/480	
Operating threshold	Opening	0.35 to 0.7 Un	
	Closing	0.85 Un	
Delay unit consumption		Pick-up: 200 (200 ms)	Hold: 4.5
Circuit-breaker response time at Un	Non-adjustable	0.25 s	
	Adjustable	0.5 s - 0.9 s - 1.5 s - 3 s	

CPB100009



Interlocking of two EasyPact circuit breakers using cable.

### Interlocking of two EasyPact EVS or up to three EasyPact EVS devices using cables

For cable interlocking, the circuit breakers may be mounted one above the other or side-by-side. The interlocked devices may be fixed or draw-out, three-pole or four-pole, and have different ratings.

#### Interlocking between two devices

This function requires:

- An adaptation fixture on the right side of each device
  - A set of cables with no-slip adjustments
  - The use of a mechanical operation counter CDM is compulsory
- The maximum distance between the fixing planes (vertical or horizontal) is 2000 mm.

#### Interlocking between three devices

This function requires:

- A specific adaptation fixture for each type of interlocking, installed on the right side of each device
  - Two or three sets of cables with no-slip adjustments
  - The use of a mechanical operation counter CDM is compulsory
- The maximum distance between the fixing planes (vertical or horizontal) is 1000 mm.

#### Installation

The adaptation fixtures, sets of cables and circuit breakers are supplied separately, ready for assembly by the customer.

Installation conditions for cable interlocking systems:

- Cable length: 2.5 m
- Radius of curvature: 100 mm
- Maximum number of curves: 3

Possible combinations of "Normal" and "Replacement" source circuit breakers

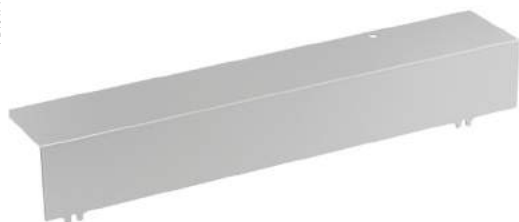
"Normal" N	"Replacement" R
EVS08 to EVS40	EVS08 to EVS40
Ratings 800...4000A	■

Possible combinations of three device

EVS08 to EVS40	EVS08 to EVS40
Ratings 800...4000A	■

All combinations of two or three EasyPact EVS devices are possible, whatever the rating of the devices.

PB104740



## Auxiliary terminal shield CB

Optional equipment mounted on the chassis, the shield prevents access to the terminal block of the electrical auxiliaries.

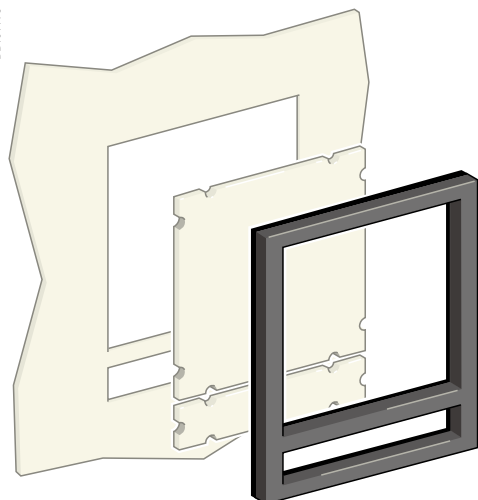
PE104382A32



## Operation counter CDM

The operation counter sums the number of operating cycles and is visible on the front panel. It is compatible with manual and electrical control functions. This option is compulsory for all the source-changeover systems.

DB101173



## Escutcheon CDP

Standard equipment mounted on the door of the cubicle, the escutcheon increases the degree of protection to IP 40 (circuit breaker installed free standing: IP30) . It is available in fixed and draw-out versions.

## Blanking plate for escutcheon OP

Used with the escutcheon, this option closes off the door cut-out of a cubicle not yet equipped with a device. It may be used with the escutcheon for both fixed and draw-out devices.

*Escutcheon CDP with blanking plate.*

PB100776-42



## Transparent cover for escutcheon CP

Optional equipment mounted on the escutcheon, the cover is hinged and secured by a screw. It increases the degree of protection to IP54, IK10. It adapts to draw-out devices.

*Transparent cover CP for escutcheon.*





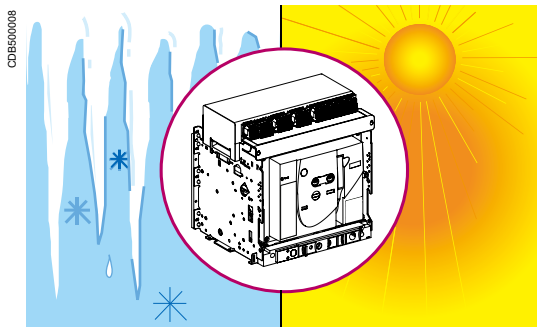
# Installation recommendations



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<i>Functions and characteristics</i>	<i>A-1</i>
<b>Operating conditions</b>	<b>B-2</b>
<b>Installation in switchboard</b>	<b>B-3</b>
<b>Door interlock catch</b>	<b>B-5</b>
<b>Control wiring</b>	<b>B-6</b>
<b>Power connection</b>	<b>B-7</b>
<b>Recommended busbars drilling</b>	<b>B-9</b>
<b>Busbar sizing</b>	<b>B-10</b>
<b>Temperature derating</b>	
<b>Power dissipation</b>	<b>B-12</b>
<i>Dimensions and connection</i>	<i>C-1</i>
<i>Electrical diagrams</i>	<i>D-1</i>
<i>Additional characteristics</i>	<i>E-1</i>
<i>Catalogue numbers and order form</i>	<i>F-1</i>

EasyPact EVS circuit breakers have been tested for operation in industrial atmospheres. It is recommended that the equipment be cooled or heated to the proper operating temperature and kept free of excessive vibration and dust.



## Ambient temperature

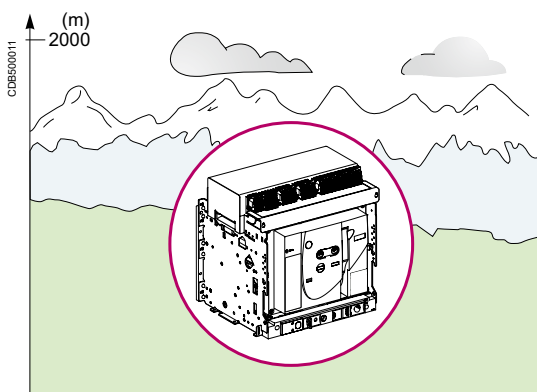
EasyPact EVS devices can operate under the following temperature conditions:

- The electrical and mechanical characteristics are stipulated for an ambient temperature of -5°C to +60°C

- Circuit-breaker closing is guaranteed down to -35°C

Storage conditions are as follows:

- -40 to +85°C for a EasyPact EVS device without its control unit
- -25°C to +85°C for the control unit

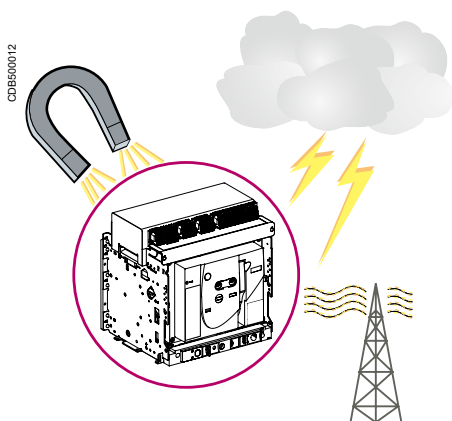


## Altitude

At altitudes higher than 2000 metres, the modifications in the ambient air (electrical resistance, cooling capacity) lower the following characteristics as follows:

Altitude (m)	2000	3000
Impulse withstand voltage uimp (kV)	12	11
Rated insulation voltage (Ui)	1000	900
Maximum rated operational voltage 50/60 Hz Ue (V)	690	590
Rated current 40°C	1 x In	0.99 x In

Intermediate values may be obtained by interpolation.



## Electromagnetic disturbances

EasyPact EVS devices are protected against:

- Overvoltages caused by devices that generate electromagnetic disturbances
- Overvoltages caused by atmospheric disturbances or by a distribution-system outage (e.g. failure of a lighting system)
- Devices emitting radio waves (radios, walkie-talkies, radar, etc.)
- Electrostatic discharges produced by users

EasyPact EVS devices have successfully passed the electromagnetic-compatibility tests (EMC) defined by the following international standards:

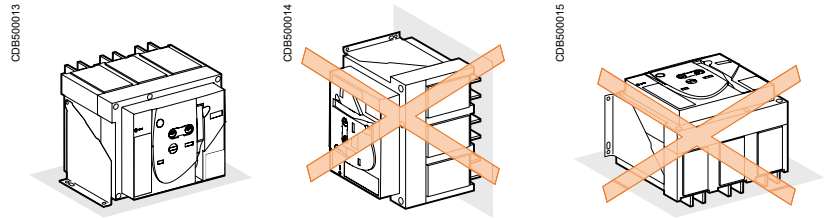
- IEC 60947-2, appendix F

The above tests guarantee that:

- No nuisance tripping occurs
- Tripping times are respected

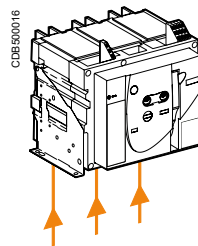
# Installation in switchboard

## Possible positions



## Power supply

EasyPact EVS devices can be supplied either from the top or from the bottom without reduction in performance, in order to facilitate connection when installed in a switchboard.

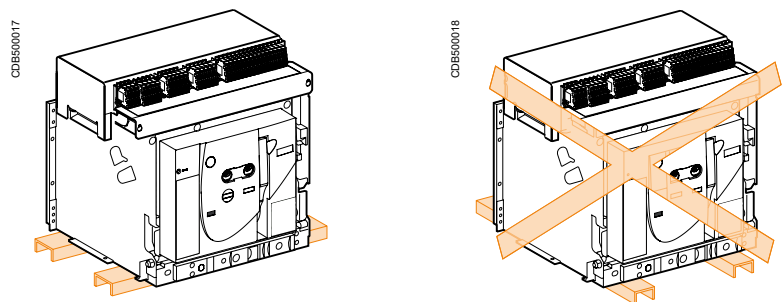


## Mounting the circuit-breaker

It is important to distribute the weight of the device uniformly over a rigid mounting surface such as rails or a base plate.

This mounting plane should be perfectly flat (tolerance on support flatness: 2 mm). This eliminates any risk of deformation which could interfere with correct operation of the circuit breaker.

EasyPact devices can also be mounted on a vertical plane using the special brackets.



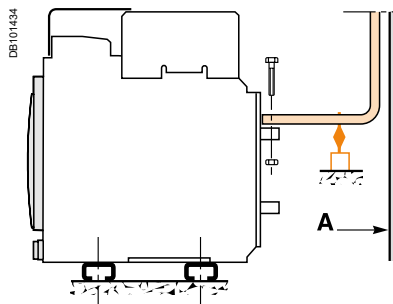
*Mounting on rails.*



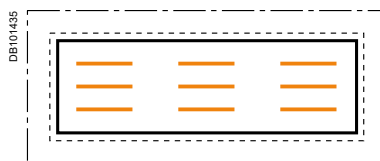
## Partitions

Sufficient openings must be provided in partitions to ensure good air circulation around the circuit breaker; Any partition between upstream and downstream connections of the device must be made of nonmagnetic material.

For high currents, of 2500 A and upwards, the metal supports or barriers in the immediate vicinity of a conductor must be made of non-magnetic material **A**. Metal barriers through which a conductor passes must not form a magnetic loop.

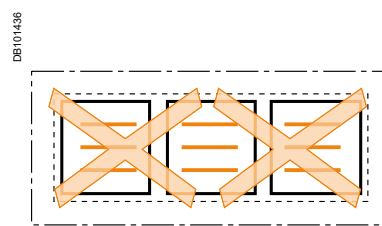
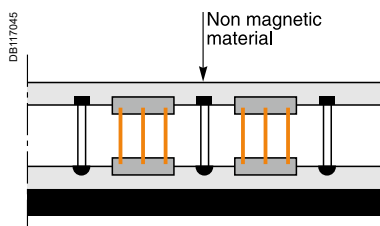


**A** : Non magnetic material.



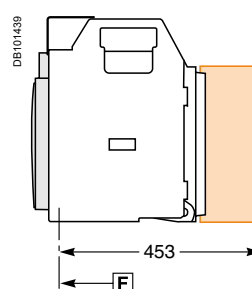
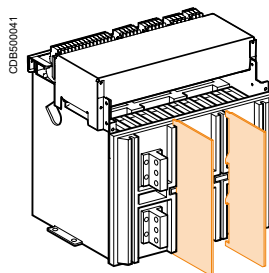
## Busbars

The mechanical connection must exclude the possibility of formation of a magnetic loop around a conductor.



## Interphase barrier

If the insulation distance between phases is not sufficient ( $\leq 14$  mm), it is advised to install phase barriers (taking into account the safety clearances).



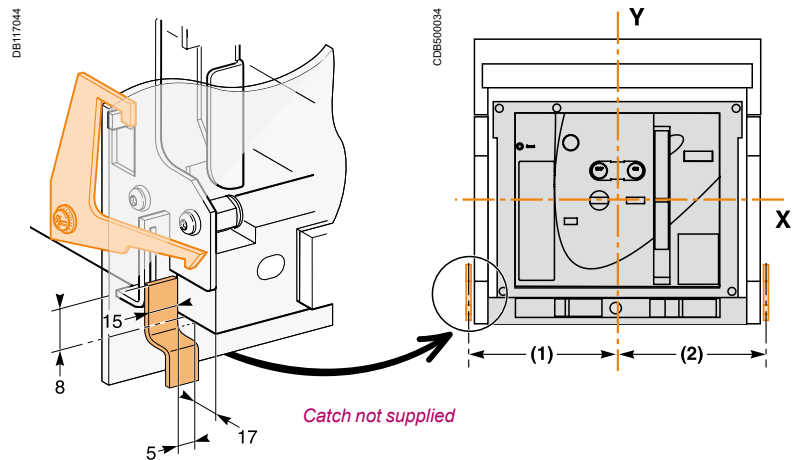
# Door interlock catch

## Door interlock VPEC

Mounted on the right or left-hand side of the chassis, this device inhibits opening of the cubicle door when the circuit breaker is in “connected” or “test” position. If the breaker is put in the “connected” position with the door open, the door may be closed without having to disconnect the circuit breaker.

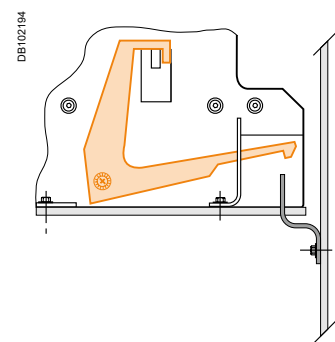
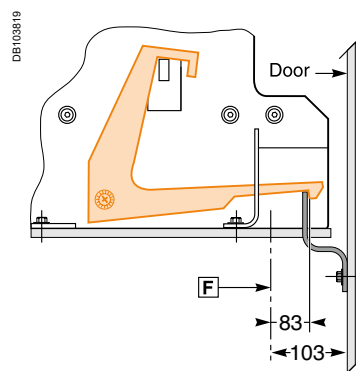
### Dimensions (mm)

Type	(1)	(2)
EVS08-40 (3P)	215	215
EVS08-40 (4P)	330	215



**Breaker in “connected”  
or “test” position**  
Door cannot be opened

**Breaker in “disconnected”  
position**  
Door can be opened



**Note:** Dimensions are in mm.

**Note:** The door interlock can either be mounted on the right side or the left side of the breaker.

**F** : Datum.

## Wiring of voltage releases

During pick-up, the power consumed is approximately 150 to 200 VA. For low control voltages (12, 24, 48 V), maximum cable lengths are imposed by the voltage and the cross-sectional area of cables.

### Recommended maximum cable lengths (meter).

		12 V		24 V		48 V	
		2,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>
MN	U source 100 %	—	—	58	35	280	165
	U source 85 %	—	—	16	10	75	45
MX-XF	U source 100 %	21	12	115	70	550	330
	U source 85 %	10	6	75	44	350	210

**Note:** The indicated length is that of each of the two wires.

## 24 V DC power-supply module

### External 24 V DC power-supply module (F1-, F2+)

- Do not connect the positive terminal (F2+) to earth
- The negative terminal (F1-) can be connected to earth
- A number of trip units can be connected to the same 24 V DC power supply (the consumption of a trip unit is approximately 100 mA)
- Do not connect any devices other than a trip unit
- The maximum length for each conductor is ten metres. For greater distances, it is advised to twist the supply wires together
- The 24 V DC supply wires must cross the power cables perpendicularly. If this is difficult, it is advised to twist the supply wires together
- The technical characteristics of the external 24 V DC power-supply module are indicated on [page A-14](#).

**Note:** Wiring of ZSI: it is recommended to use twisted shielded cable. The shield must be connected to earth at both ends.

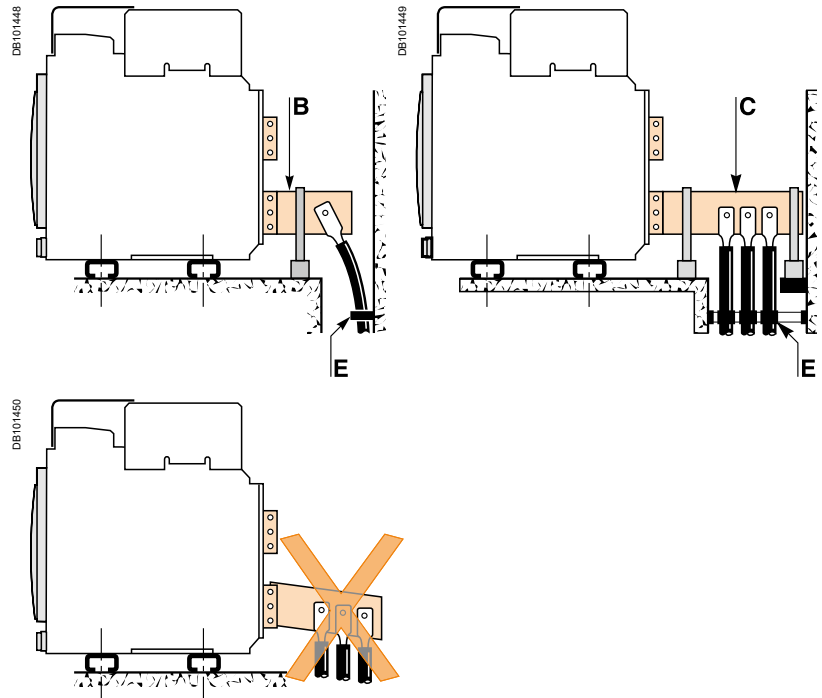
# Power connection

## Cables connections

If cables are used for the power connections, make sure that they do not apply excessive mechanical forces to the circuit breaker terminals.

For this, make the connections as follows:

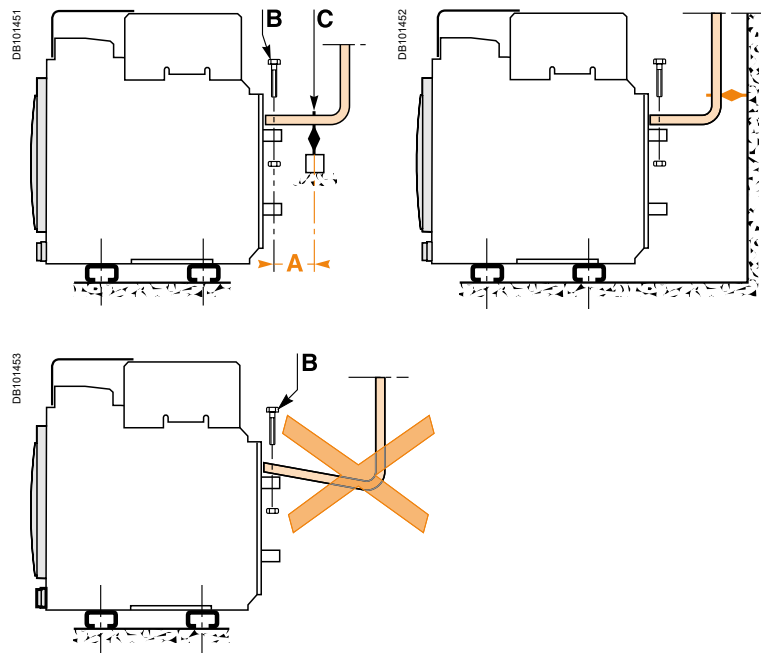
- Extend the circuit breaker terminals using short bars designed and installed according to the recommendations for bar-type power connections:
- For a single cable, use solution **B** opposite
- For multiple cables, use solution **C** opposite
- In all cases, follow the general rules for connections to busbars:
- Position the cable lugs before inserting the bolts
- The cables should firmly secured to the framework **E**



## Busbars connections

The busbars should be suitably adjusted to ensure that the connection points are positioned on the terminals before the bolts are inserted **B**.

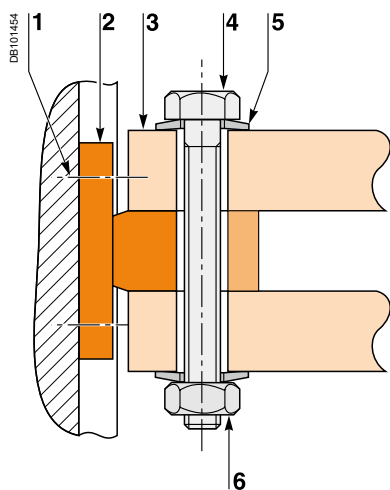
The connections are held by the support which is solidly fixed to the framework of the switchboard, such that the circuit breaker terminals do not have to support its weight **C**. (This support should be placed close to the terminals).



## Electrodynamic stresses

The first busbar support or spacer shall be situated within a maximum distance from the connection point of the breaker (see table below). This distance must be respected so that the connection can withstand the electrodynamic stresses between phases in the event of a short circuit.

Maximum distance A between busbar to circuit breaker connection and the first busbar support or spacer with respect to the value of the prospective short-circuit current.			
Isc (kA)	30	50	65
Distance A (mm)	350	300	250



- 1 Terminal screw factory-tightened to 16 Nm.
- 2 Breaker terminal.
- 3 Busbar.
- 4 Bolt.
- 5 Washer.
- 6 Nut.

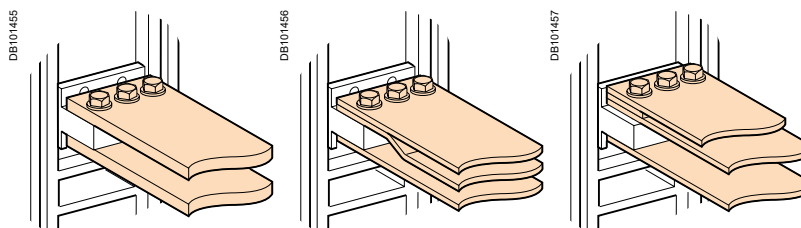
## Clamping

Correct clamping of busbars depends amongst other things, on the tightening torques used for the nuts and bolts. Over-tightening may have the same consequences as under-tightening.

For connecting busbars (Cu ETP-NFA51-100) to the circuit breaker, the tightening torques to be used are shown in the table below.

These values are for use with copper busbars and steel nuts and bolts, class 8.8. The same torques can be used with AGS-T52 quality aluminium bars (French standard NFA 02-104 or American National Standard H-35-1).

## Examples

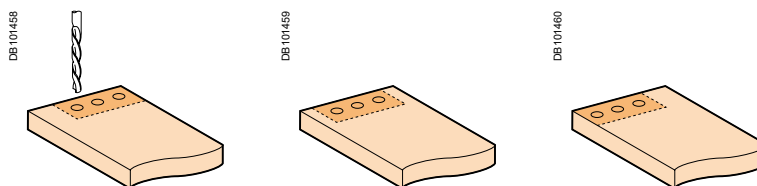


## Tightening torques

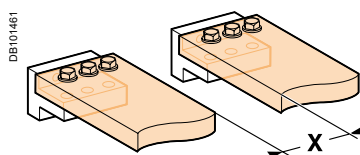
Ø (mm) Nominal	Ø (mm) Drilling	Tightening torques (Nm) with grower or flat washers	Tightening torques (Nm) with contact or corrugated washers
10	11	37.5	50

## Busbar drilling

### Examples



## Isolation distance

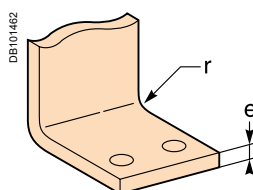


## Dimensions (mm)

Ui	X min
600 V	8 mm
1000 V	14 mm

## Busbar bending

When bending busbars maintain the radius indicated below (a smaller radius would cause cracks).



## Dimensions (mm)

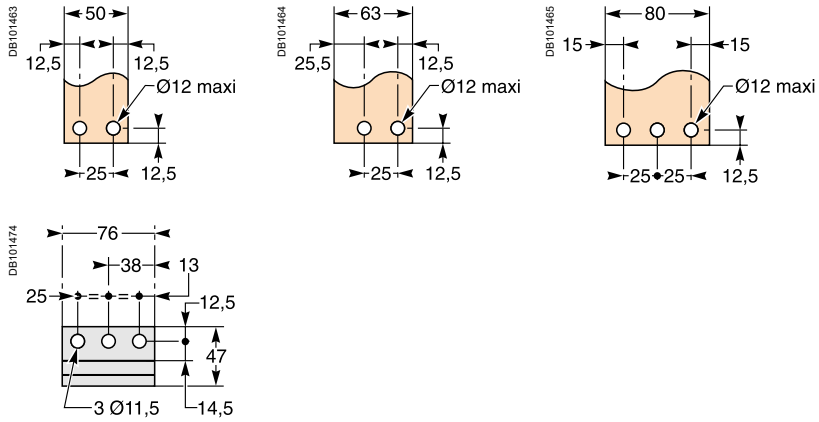
e	Radius of curvature r Min	Recommended
5	5	7.5
10	15	18 to 20



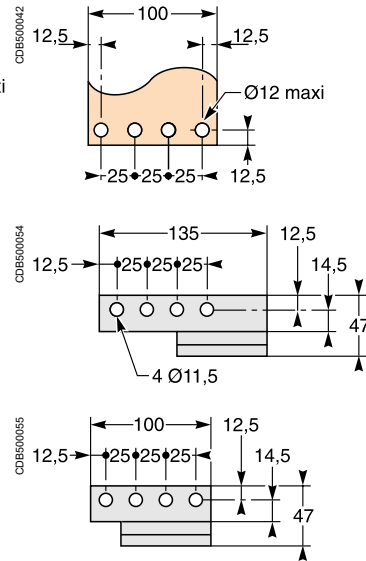
# Recommended busbars drilling

## EasyPact EVS08 to EVS40

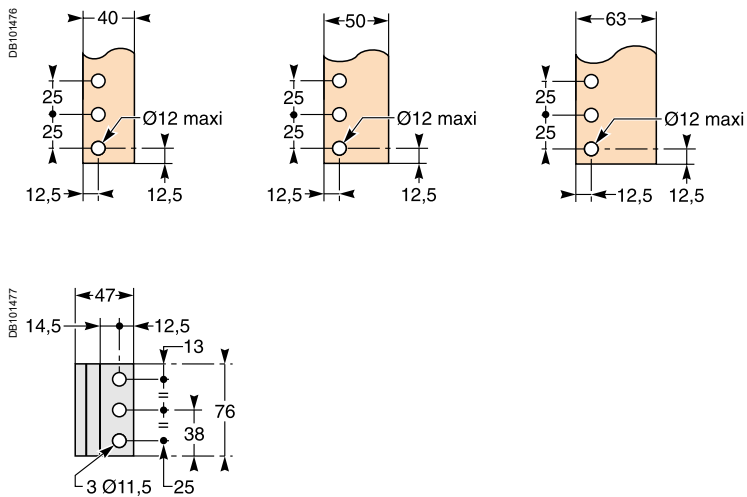
### Horizontal rear connection EVS08 to EVS32



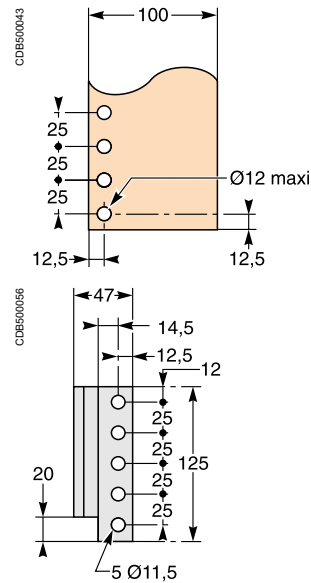
### EVS40



### Vertical rear connection EVS08 to EVS32



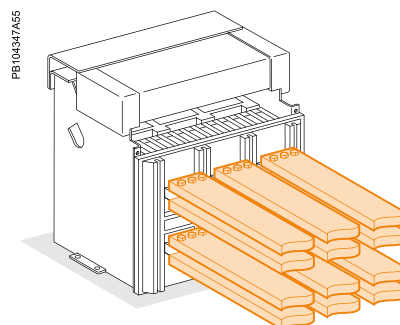
### EVS40



## Basis of tables:

- Maximum permissible busbars temperature: 100 °C
- $T_i$ : temperature around the circuit breaker and its connection
- Busbar material is unpainted Copper / Aluminium

## Rear horizontal connection



### Unpainted Copper (Rear horizontal connection)

EasyPact	Maximum service current	Ti : 40°C		Ti : 50°C	
		No. of 5 mm thick bars	No. of 10 mm thick bars	No. of 5 mm thick bars	No. of 10 mm thick bars
EVS08	800	2b.50 x 5	1b.50 x 10	2b.50 x 5	1b.50 x 10
EVS10	1000	3b.50 x 5	1b.63 x 10	3b.50 x 5	2b.50 x 10
EVS12	1250	3b.50 x 5	2b.40 x 10	3b.50 x 5	2b.50 x 10
		2b.80 x 5	2b.40 x 10	2b.80 x 5	
EVS16	1600	3b.80 x 5	2b.63 x 10	3b.80 x 5	2b.63 x 10
EVS20	2000	3b.100 x 5	2b.80 x 10	3b.100 x 5	2b.80 x 10
EVS25	2500	4b.100 x 5	2b.100 x 10	4b.100 x 5	2b.100 x 10
EVS32	3200	6b.100 x 5	3b.100 x 10	8b.100 x 5	3b.100 x 10
EVS40	4000		5b.100 x 10		5b.100 x 10

## Example

### Conditions:

- Drawout version
- Horizontal busbars
- $T_i$ : 50°C
- Service current: 1600A

### Solution:

For  $T_i = 50^\circ\text{C}$ , use an EVS16 which can be connected with 2 bars-63x10mm copper (or) 3 bars-80x10mm Aluminium.

### Unpainted Aluminium

EasyPact	Maximum service current	Busbar orientation	Ti : 50°C No. of 10 mm thick bars
EVS08	800	Horizontal	2b.40 x 10
EVS10	1000	Horizontal	2b.50 x 10
EVS12	1250	Horizontal	2b.80 x 10
EVS16	1600	Horizontal	3b.80 x 10
EVS20	2000	Horizontal	3b.100 x 10

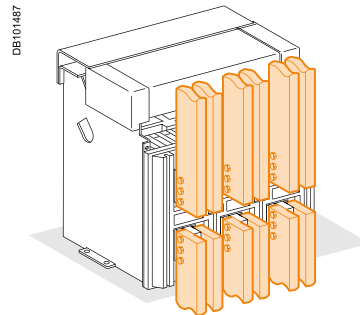
**Note:** The values indicated in these tables have been extrapolated from test data and theoretical calculations. These tables are only intended as a guide and cannot replace industrial experience or a temperature rise test.

# Busbar sizing

## Basis of tables:

- Maximum permissible busbars temperature: 100 °C
- $T_i$ : temperature around the circuit breaker and its connection
- Busbar material is unpainted Copper / Aluminium

## Rear vertical connection



### Unpainted Copper (Vertical connection)

EasyPact	Maximum service current	Ti : 40°C		Ti : 50°C	
		No. of 5 mm thick bars	No. of 10 mm thick bars	No. of 5 mm thick bars	No. of 10 mm thick bars
EVS08	800	2b.50 x 5	1b.50 x 10	2b.50 x 5	1b.50 x 10
EVS10	1000	2b.50 x 5	1b.50 x 10	2b.50 x 5	1b.50 x 10
EVS12	1250	2b.63 x 5	1b.63 x 10	3b.50 x 5	2b.40 x 10
EVS16	1600	3b.63 x 5	2b.50 x 10	3b.63 x 5	2b.50 x 10
EVS20	2000	3b.100 x 5	2b.63 x 10	3b.100 x 5	2b.63 x 10
EVS25	2500	4b.100 x 5	2b.80 x 10	4b.100 x 5	2b.80 x 10
EVS32	3200	6b.100 x 5	3b.100 x 10	6b.100 x 5	3b.100 x 10
EVS40	4000		4b.100 x 10		4b.100 x 10

### Unpainted Aluminium

EasyPact	Maximum service current	Busbar orientation	Ti : 50°C No. of 10 mm thick bars
EVS08	800	Vertical	2b.40 x 10
EVS10	1000	Vertical	2b.50 x 10
EVS12	1250	Vertical	2b.80 x 10
EVS16	1600	Vertical	3b.80 x 10
EVS20	2000	Vertical	4b.80 x 10
EVS25	2500	Vertical	4b.100 x 10
EVS32	3200	Vertical	4b.150 x 10
EVS40	4000	Vertical	5b.150 x 10

## Example

### Conditions:

- Drawout version
- Vertical connections
- $T_i$ : 40 °C
- Service current: 1100 A.

### Solution:

For  $T_i = 40$  °C use an EVS12 which can be connected with two 63 x 5 mm bars or with one 63 x 10 mm bar.

**Note:** The values indicated in these tables have been extrapolated from test data and theoretical calculations. These tables are only intended as a guide and cannot replace industrial experience or a temperature rise test.

# Temperature derating

## Power dissipation

### Temperature derating

The table below indicates the maximum current rating, for each connection type, as a function of  $T_i$  around the circuit breaker and the busbars.

For  $T_i$  greater than 60°C, consult us.

$T_i$ : temperature around the circuit breaker and its connection.

Version	Draw-out										Fixed									
Connection	Rear horizontal					Rear vertical					Rear horizontal					Rear vertical				
Temp. $T_i$	40 °C	45 °C	50 °C	55 °C	60 °C	40 °C	45 °C	50 °C	55 °C	60 °C	40 °C	45 °C	50 °C	55 °C	60 °C	40 °C	45 °C	50 °C	55 °C	60 °C
EVS (65kA)																				
EVS08H	800					800					800					800				
EVS10H	1000					1000					1000					1000				
EVS12H	1250					1250					1250					1250				
EVS16H	1600					1600					1600					1600				
EVS20H	2000				1900	2000				1900	2000				1920	2000				
EVS25H	2500	2450	2400	2300	2200	2500		2450	2400	2300	2500					2500				
EVS32H	3200			3100	3000	3200					3200					3200				
EVS40H	4000		3900	3750	3650	4000				3900	4000				3900	3800		4000		

### Power dissipation

Total power dissipation is the value measured at  $I_N$ , 50/60 Hz, for a 3 pole or 4 pole breaker (values above the power  $P = 3RI^2$ ). The resistance between input / output is the value measured per pole (cold state).

Type	Draw-out		Fixed	
65kA	Power loss (W)	Input/output resistance (μohm)	Power loss (W)	Input/output resistance (μohm)
EVS08H	100	30	42	13
EVS10H	150	30	70	13
EVS12H	230	30	100	13
EVS16H	390	30	170	13
EVS20H	470	30	250	13
EVS25H	600	19	260	8
EVS32H	670	13	420	8
EVS40H	900	11	650	8



# Dimensions and connection



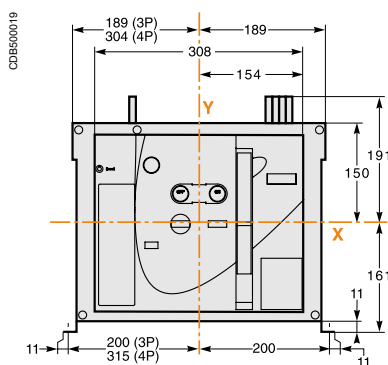
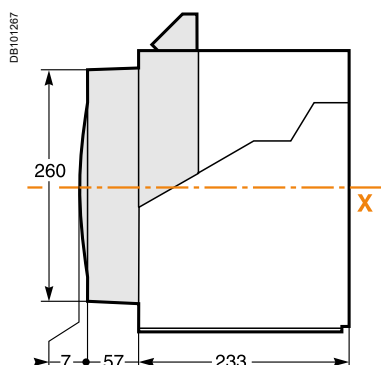


<i>Functions and characteristics</i>	<b>A-1</b>
<i>Installation recommendations</i>	<b>B-1</b>
<b>EVS08 to EVS32 circuit breakers</b>	<b>C-2</b>
Fixed 3/4-poles device	C-2
Draw-out 3/4-poles device	C-4
<b>EVS40 circuit breakers</b>	<b>C-6</b>
Fixed 3/4-poles device	C-6
Draw-out 3/4-poles device	C-8
<b>Accessories</b>	<b>C-10</b>
<b>External modules</b>	<b>C-11</b>
<i>Electrical diagrams</i>	<b>D-1</b>
<i>Additional characteristics</i>	<b>E-1</b>
<i>Catalogue numbers and order form</i>	<b>F-1</b>

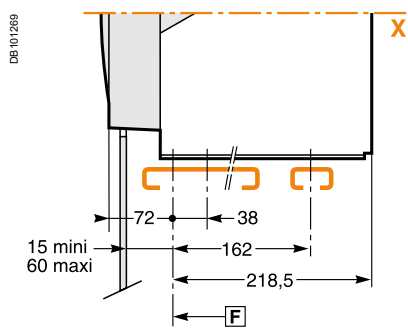
# EVS08 to EVS32 circuit breakers

Fixed 3/4-poles device

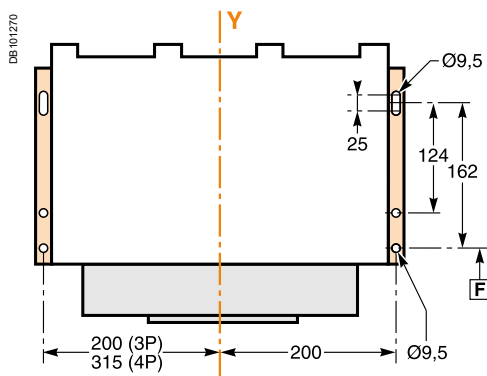
## Dimensions



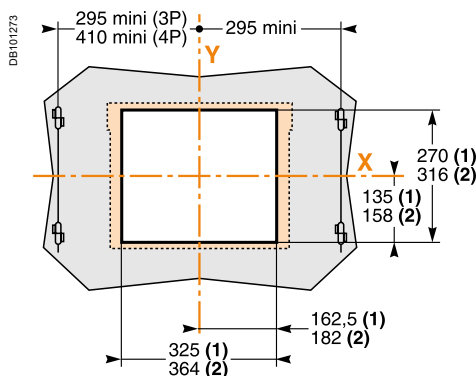
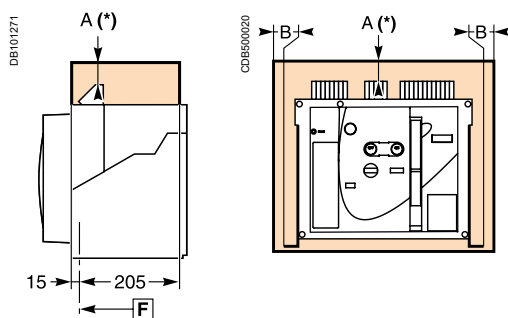
## Mounting on base plate or rails



## Mounting detail



## Safety clearances



	Insulated parts	Metal parts	Energised parts
A	0	0	100
B	0	0	60

**F**: Datum.

(1) Without escutcheon.

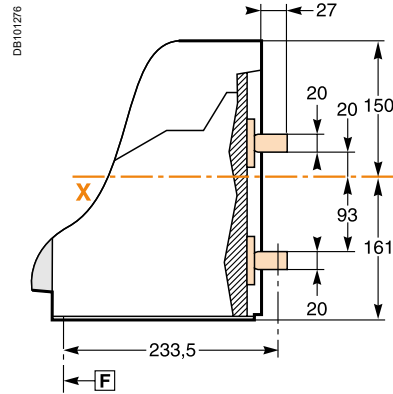
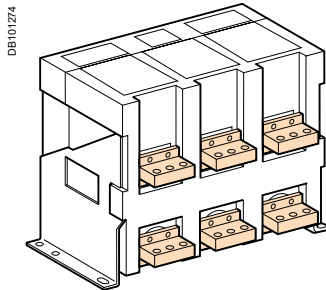
(2) With escutcheon.

**Note:** X and Y are the symmetry planes for a 3-pole device.

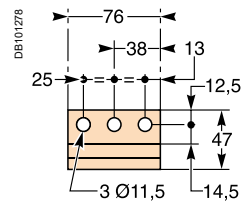
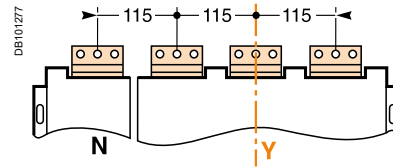
**A(\*)** An overhead clearance of 50 mm is required to remove the arc chutes. An overhead clearance of 20 mm is required to remove the terminal block.

## Connections

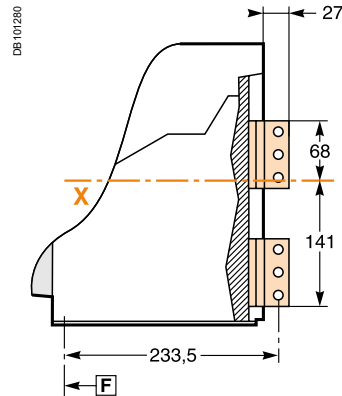
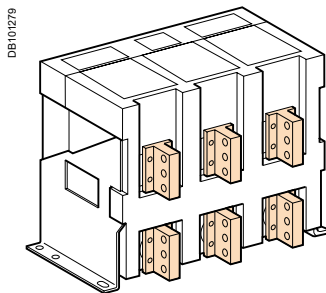
### Horizontal rear connection



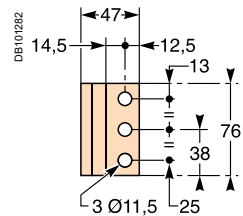
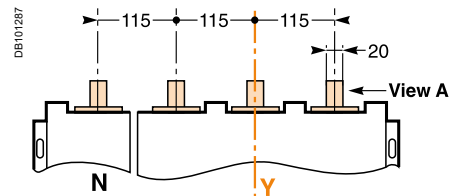
### Detail



### Vertical rear connection



### Detail



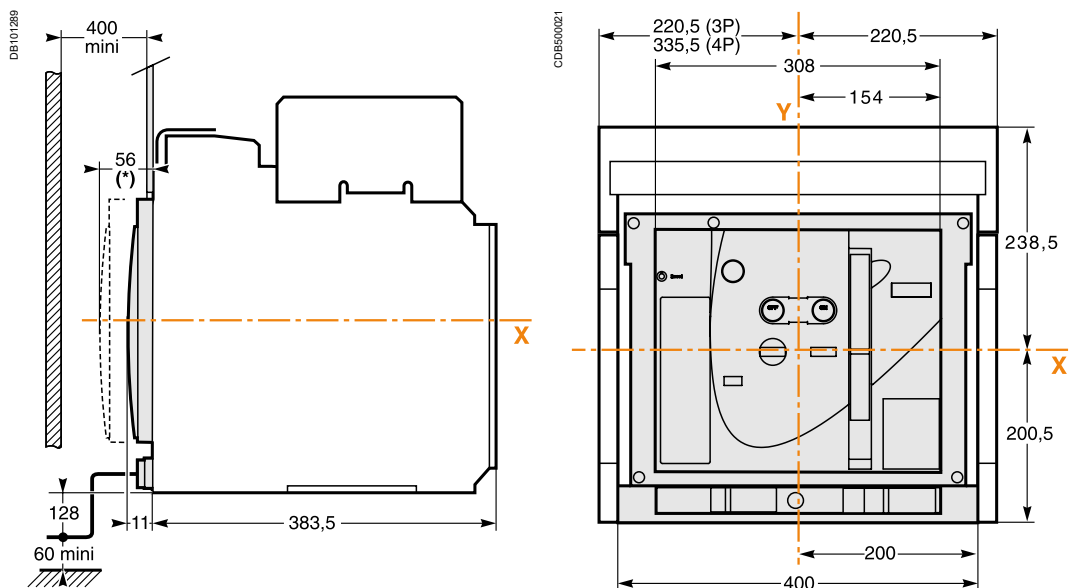
View A detail.

**Note:** Recommended connection screws: **M10** class 8.8.  
Tightening torque: **50 Nm** with contact washer.

# EVS08 to EVS32 circuit breakers

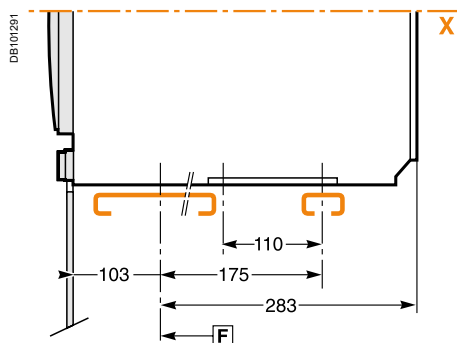
Draw-out 3/4-poles device

## Dimensions

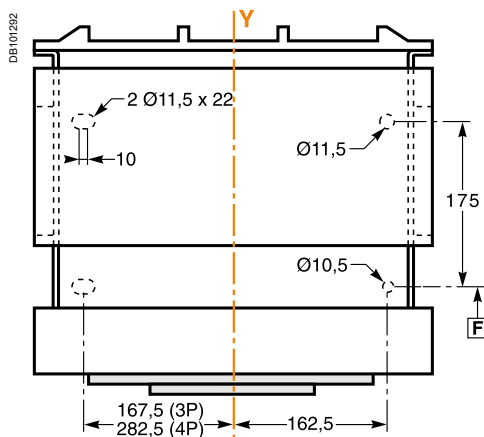


(\*) Disconnected position.

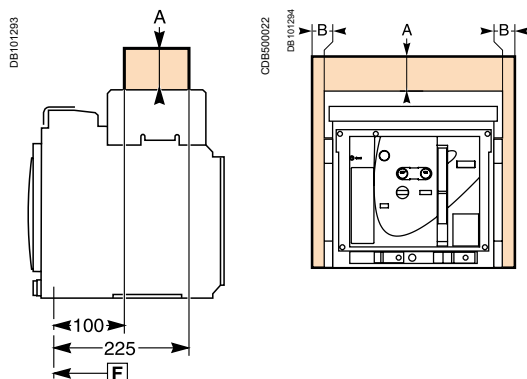
## Mounting on base plate or rails



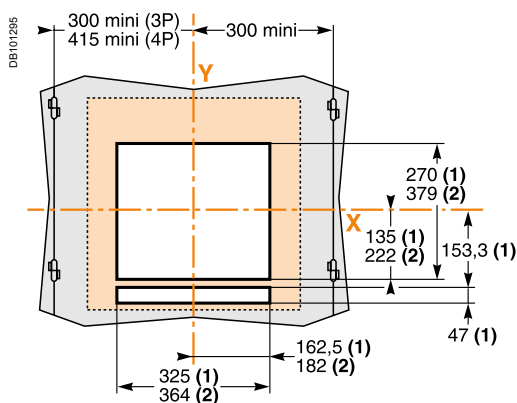
## Mounting detail



## Safety clearances



## Door cutout



	Insulated parts	Metal parts	Energised parts
A	0	0	60
B	0	0	60

F : Datum.

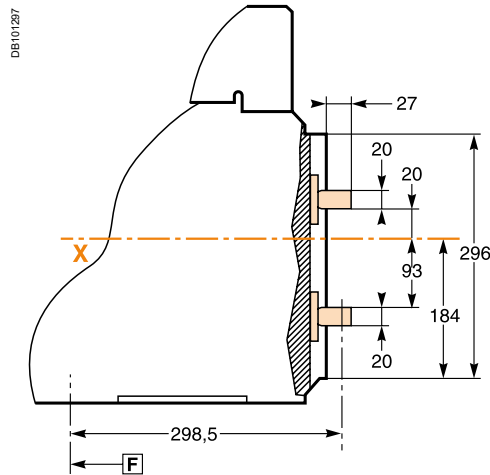
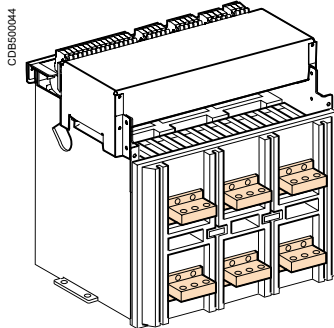
(1) Without escutcheon.

(2) With escutcheon.

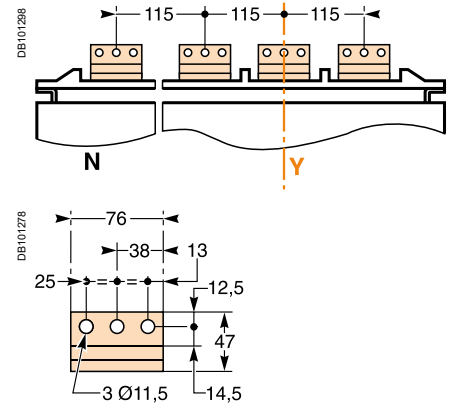
Note: X and Y are the symmetry planes for a 3-pole device.

## Connections

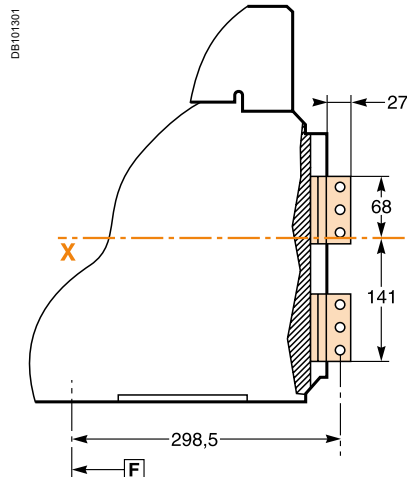
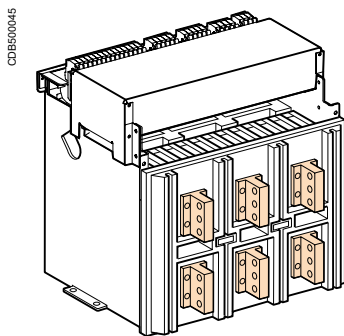
### Horizontal rear connection



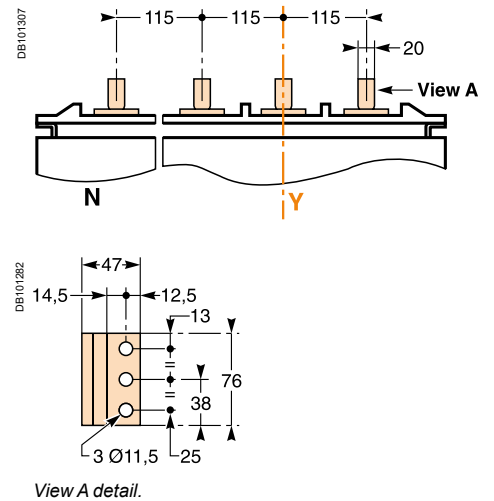
### Detail



### Vertical rear connection

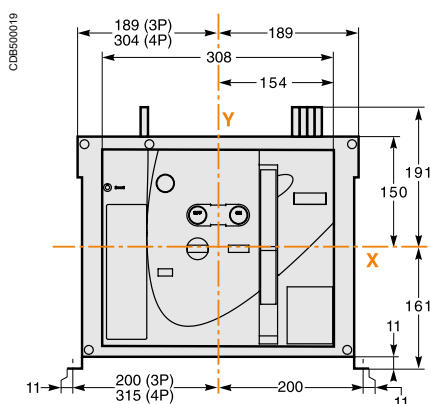
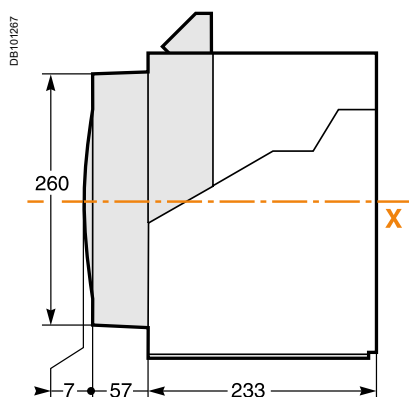


### Detail

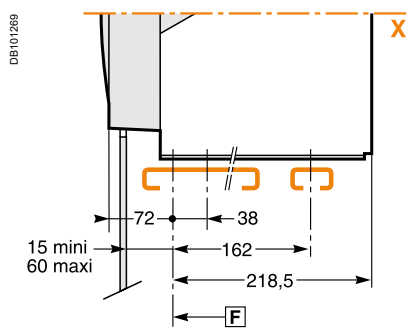


**Note:** Recommended connection screws: **M10** class 8.8.  
Tightening torque: **50 Nm** with contact washer.

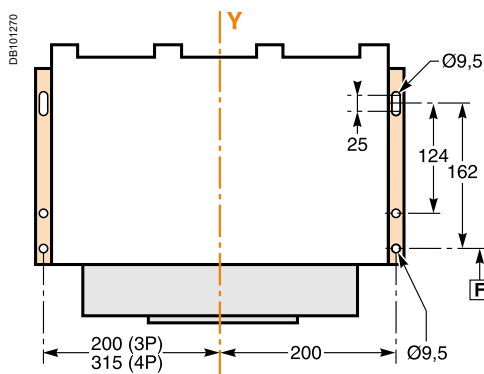
### Dimensions



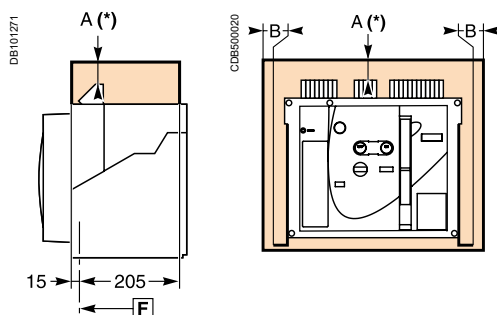
### Mounting on base plate or rails



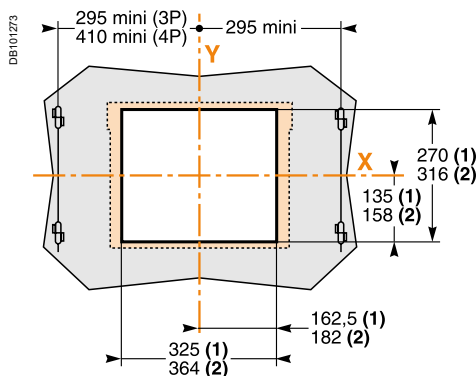
### Mounting detail



### Safety clearances



### Door cutout



	Insulated parts	Metal parts	Energised parts
A	0	0	100
B	0	0	60

**F** : Datum.

(1) Without escutcheon.

(2) With escutcheon.

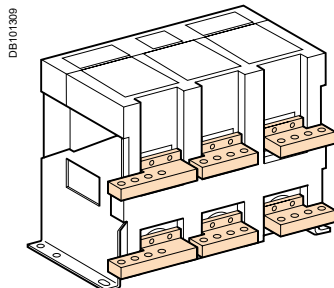
**Note:** X and Y are the symmetry planes for a 3-pole device.

A(\*) An overhead clearance of 110 mm is required to remove the arc chutes.  
An overhead clearance of 20 mm is required to remove the terminal block.

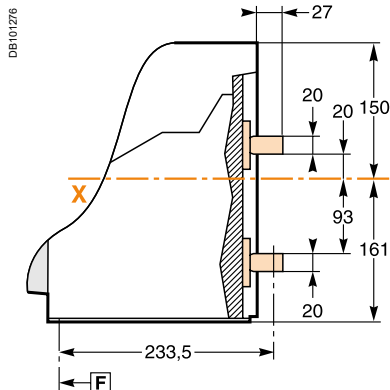


## Connections

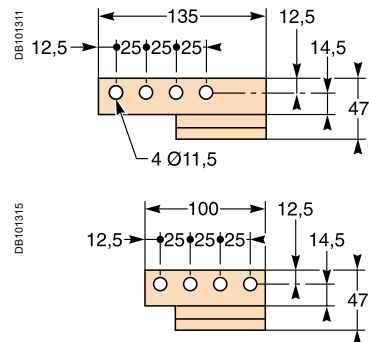
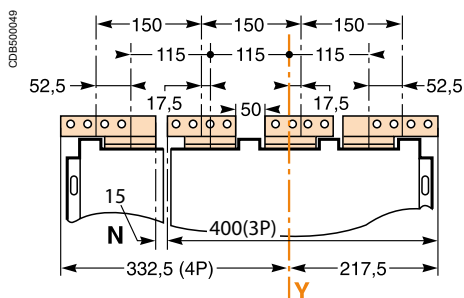
### Horizontal rear connection



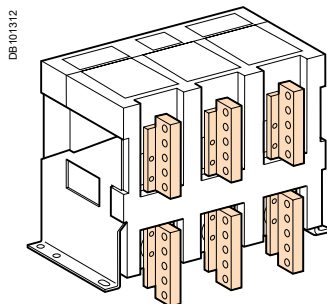
DB101309



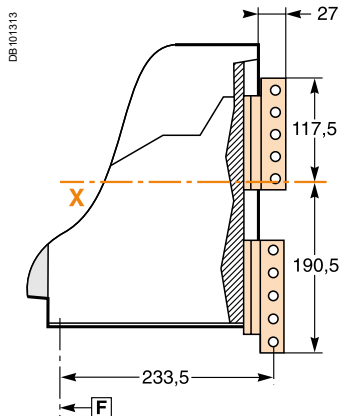
#### Detail



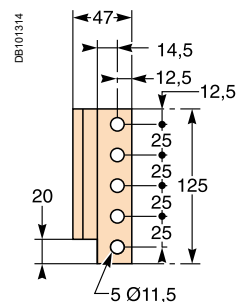
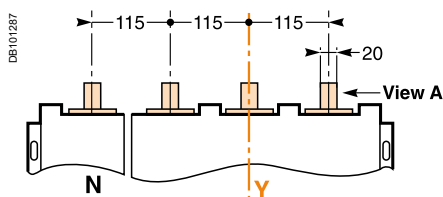
### Vertical rear connection



DB101312



#### Detail



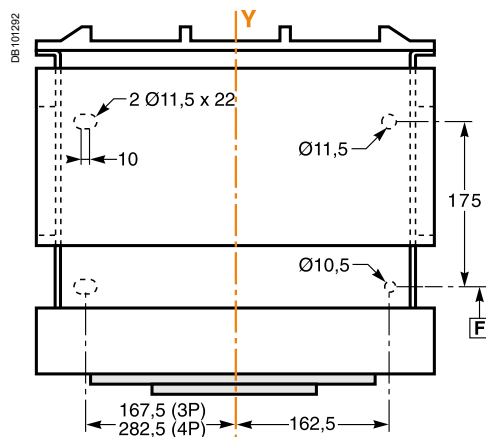
**Note:** Recommended connection screws: **M10** class 8.8.  
Tightening torque: **50 Nm** with contact washer.

Technical drawing of the front view of the CDB500021 control panel. The drawing shows a rectangular panel with a central display area. Dimensions are provided in millimeters: overall width is 400mm, overall height is 238.5mm. The central display area has a width of 200mm and a height of 200.5mm. The top section has a width of 220.5mm (3P) and 335.5mm (4P). The bottom section has a width of 200mm. The drawing also shows internal components like buttons and a small display screen.

Technical drawing of the front view of the cabinet. The drawing shows a white cabinet with a dark-colored top panel. The dimensions are as follows:

- Overall width: 283
- Distance from the left edge to the center of the handle: 103
- Distance from the center of the handle to the right edge: 175
- Distance from the center of the handle to the right edge of the top panel: 110

The drawing also shows a handle (F) and a top panel (X).



DB101230

100

225

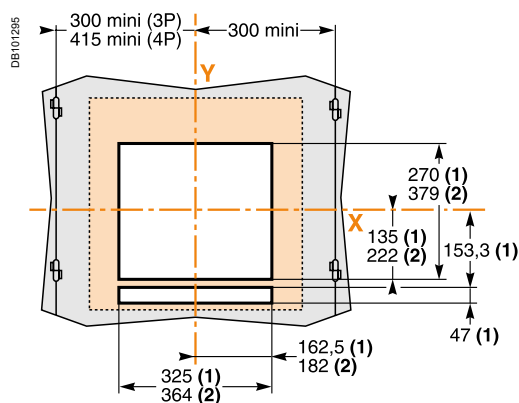
F

DB101234

CD8500022

A

B

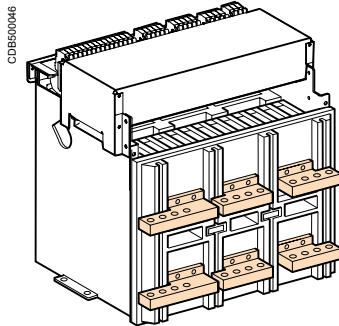


	Insulated parts	Metal parts	Energised parts
A	0	0	60
B	0	0	60

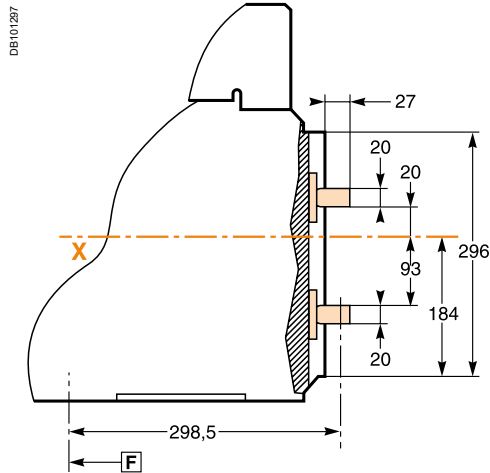
*The safety clearances take into account the space required to remove the arc chutes.*

## Connections

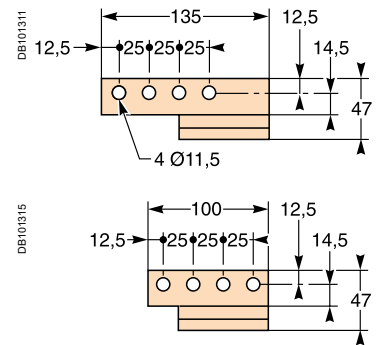
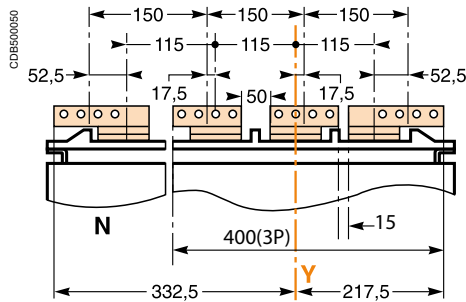
### Horizontal rear connection



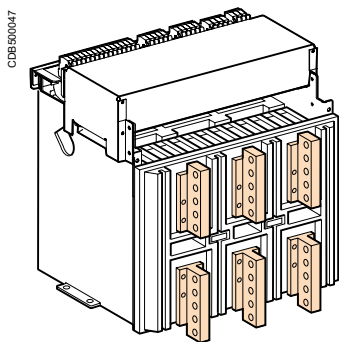
CDB500046



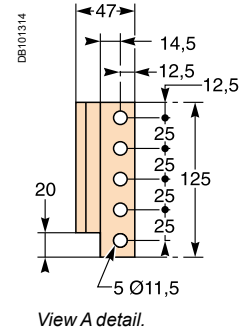
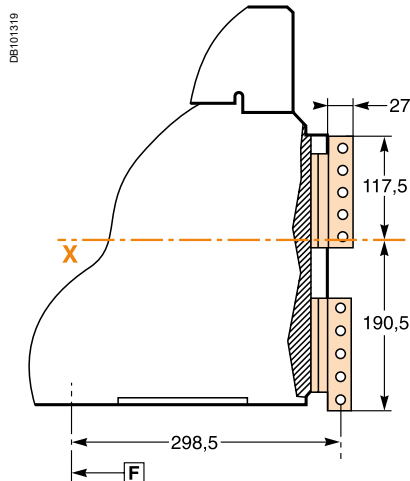
#### Detail



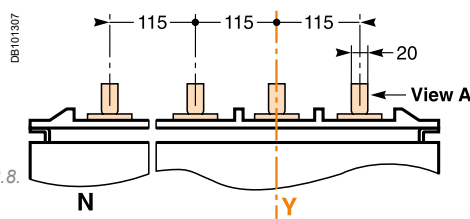
### Vertical rear connection



CDB500047



#### Detail

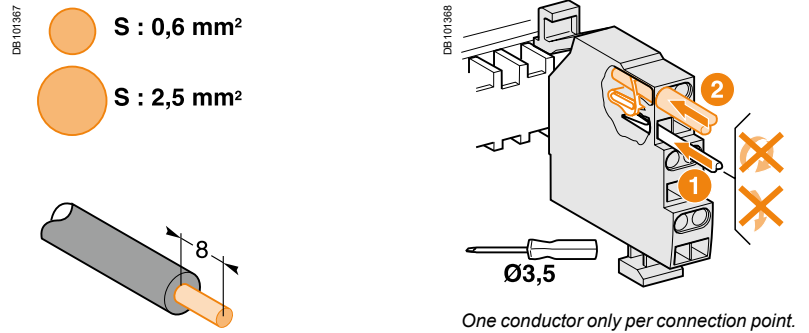


**Note:** Recommended connection screws: **M10** class 8.8.  
Tightening torque: **50 Nm** with contact washer.

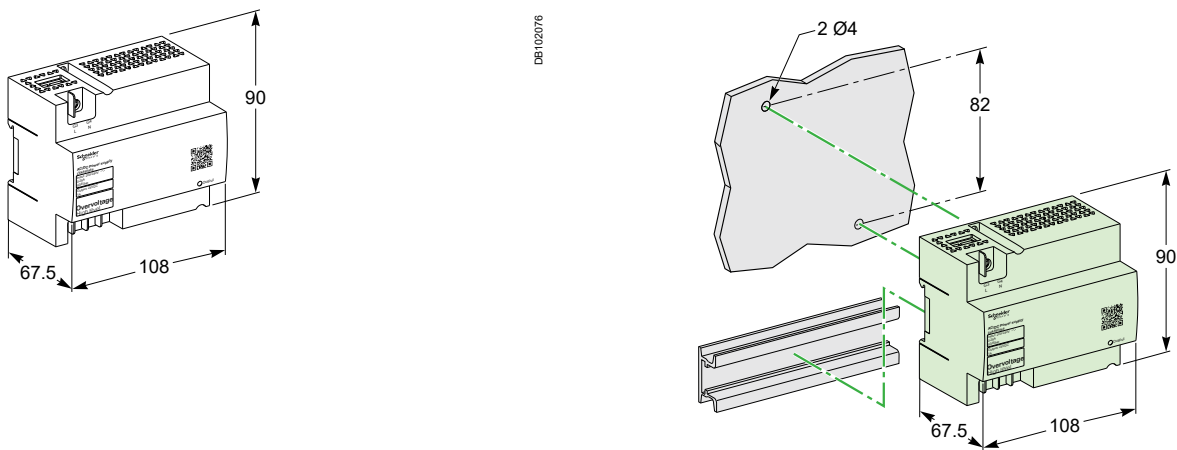


# External modules

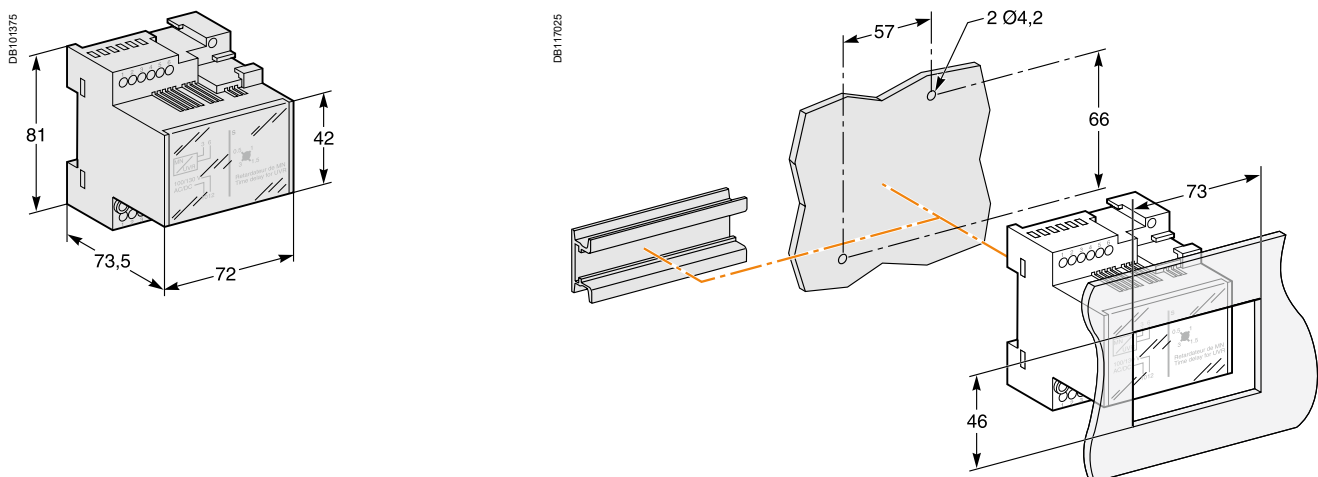
## Connection of auxiliary wiring to terminal block



## External power supply module (AD)



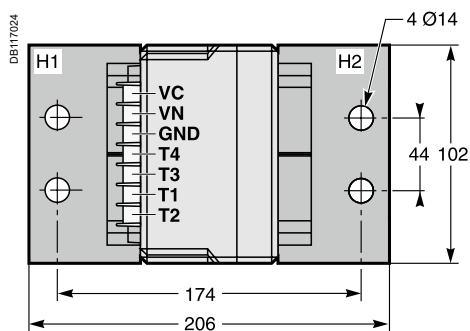
## Delay unit for MN release



## External sensor for external neutral

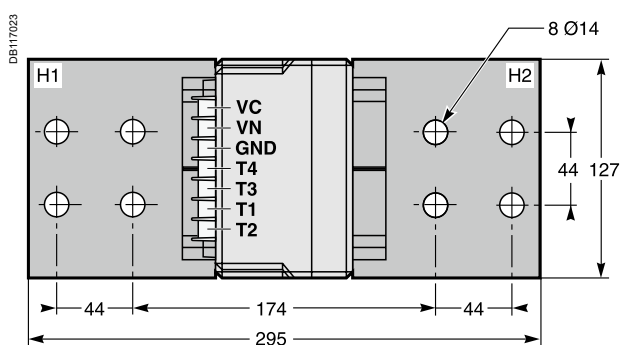
### Dimensions

#### 400/2000 A (EVS08 to EVS20)



High: 162 mm.

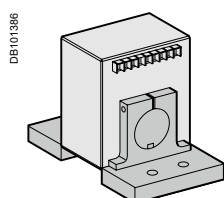
#### 1000/4000 A (EVS25 to EVS40)



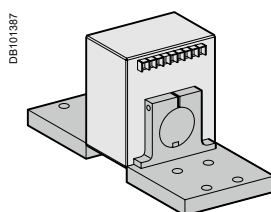
High: 162 mm.

### Installation

#### 400/2000 A (EVS08 to EVS20)



#### 1000/4000 A (EVS25 to EVS40)







# Electrical diagrams



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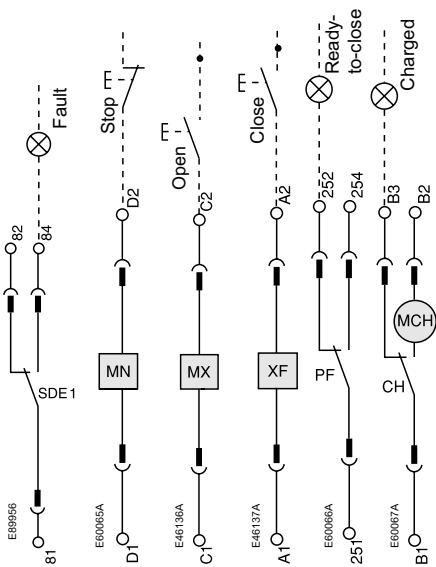
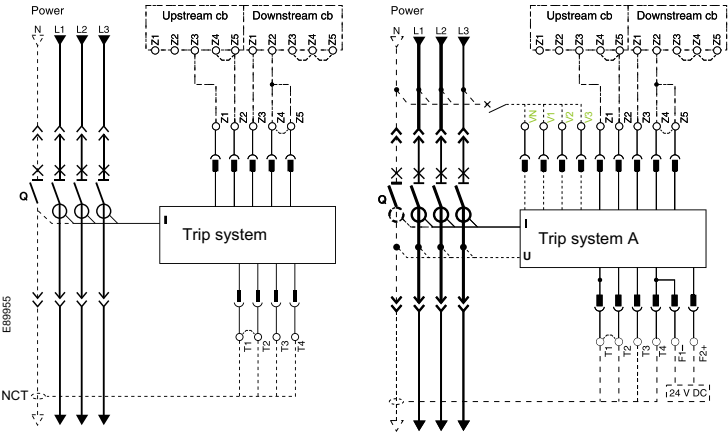
<i>Functions and characteristics</i>	<b>A-1</b>
<i>Installation recommendations</i>	<b>B-1</b>
<i>Dimensions and connection</i>	<b>C-1</b>
 <b>EasyPact EVS08 to 40</b>	 <b>D-2</b>
Fixed and draw-out devices	D-2
 <b>EasyPact EVS</b>	 <b>D-4</b>
Earth-fault protection/Neutral protection	D-4
Zone selective interlocking	D-5
24 V DC external power supply AD module	D-6
 <i>Additional characteristics</i>	 <b>E-1</b>
<i>Catalogue numbers and order form</i>	<b>F-1</b>

The diagram is shown with circuits  
de-energised, all devices open, connected  
and charged and relays in normal position.

Power

Trip system A

Remote operation



Trip system			
UC1		UC2	
Z5			
Z3	Z4	T3	T4
Z1	Z2	T1	T2

Trip system A					
UC1		UC2		UC3	
Z5				F2+	
Z3	Z4	T3	T4	VN	
Z1	Z2	T1	T2	F1-	

Remote operation					
SDE	MN	MX	XF	PF	MCH
84	D2	C2	A2	254	B2
82				252	B3
81	D1	C1	A1	251	B1

Trip system

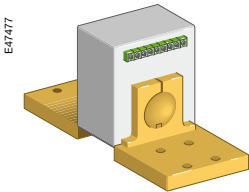
Remote operation

**UC1 :**  
Z1-Z5 zone selective interlocking  
Z1=ZSI OUT SOURCE  
Z2=ZSI OUT ; Z3 = ZSI IN SOURCE  
Z4 =ZSI IN ST (short time)  
Z5 =ZSI IN GF (earth fault)

**UC2 :**  
T1, T2, T3, T4=external neutral

**UC3 :**  
F2+, F1-: external 24 V DC power supply

**SDE:** Fault-trip indication contact (supplied as standard)  
**MN:** Undervoltage release  
**MX:** Shunt release (standard for Electrical breaker)  
**XF:** Closing release (standard for Electrical breaker)  
**PF:** "Ready to close" contact  
**MCH:** Gear motor (standard for Electrical breaker)



External sensor (CT).

External sensors ( Neutral CT)

External sensor for earth-fault protection

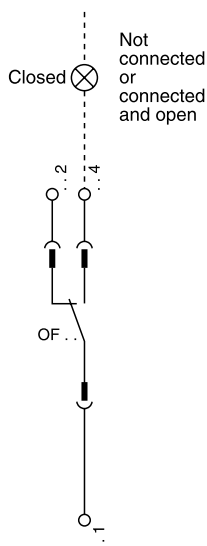
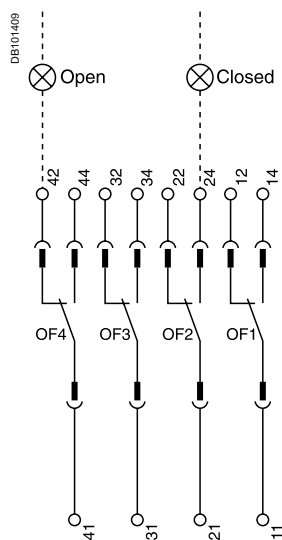
The sensors, used with the 3P circuit breakers, are installed on the neutral conductor for:

1. Residual type earth-fault protection(6.0/6.0A trip system)

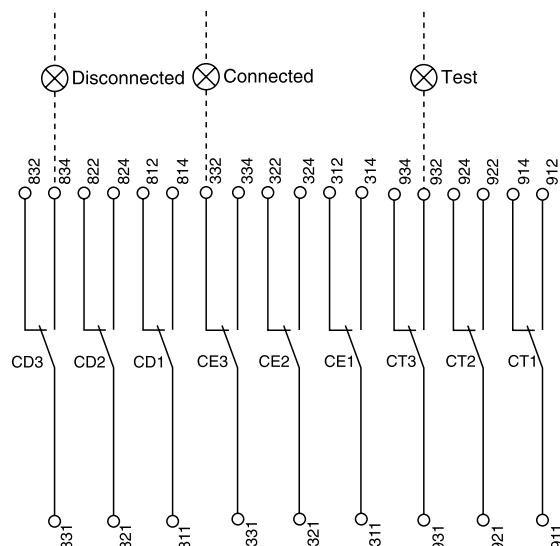
The rating of the sensor (CT) must be compatible with the rating of the circuit breaker:

1. EVS08 to EVS20: CT 400/2000;
2. EVS25 to EVS40: CT 1000/4000;

### Indication contacts



### Chassis contacts



### Indication contacts

OF4	OF3	OF2	OF1	OF14	OF13	OF12	OF11
44	34	24	14	144	134	124	114
42	32	22	12	142	132	122	112
41	31	21	11	141	131	121	111

Standard

Optional

### Chassis contacts

CD3	CD2	CD1	CE3	CE2	CE1	CT3	CT2	CT1
834	824	814	334	324	314	934	924	914
832	822	812	332	322	312	932	922	912
831	821	811	331	321	311	931	921	911

Optional

### Indication contacts

OF 4	Standard
OF 3	ON/OFF
OF 2	Indication contacts
OF 1	

OF 14	Optional
OF 13	ON/OFF
OF 12	Indication contacts
OF 11	

### Chassis contacts

CD3 Disconnected	CE3 Connected	CT3 Test
CD2 Position	CE2 Position	CT2 Position
CD1 Contacts	CE1 Contacts	CT1 Contacts

Key:

Draw-out device only

SDE1, OF1, OF2, OF3, OF4 supplied as standard

 Interconnected connections  
(only one wire per connection point)

### External sensor (CT) for residual earth-fault protection

#### Connection of current-transformer secondary circuit for external neutral

EasyPact EVS equipped with a 6.0/6.0A:

- Shielded cable with 2 twisted pairs
  - T1 twisted with T2
  - Maximum length 4 meters
  - Cable cross-sectional area 0.4 to 1.5 mm<sup>2</sup>
  - Recommended cable: Belden 9552 or equivalent
- For proper wiring of neutral CT, refer to instruction Bulletin 48041-082-03 shipped with it.

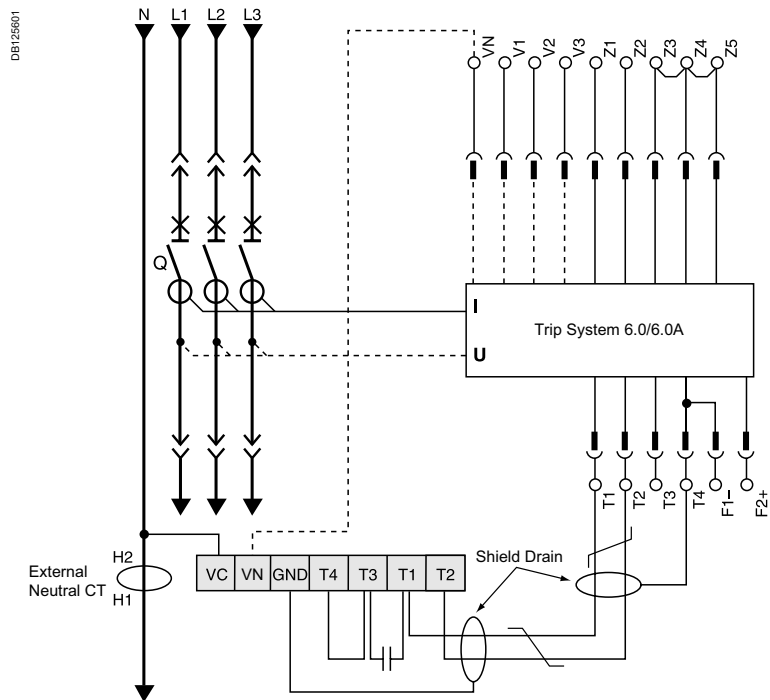
Do not remove factory-installed jumper between T1 and T2 unless neutral CT is connected.

If supply is via the top, follow the schematics.

If supply is via the bottom, control wiring is identical; for

the power wiring, H1 is connected to the source side, H2 to the load side.

For four-pole versions, for residual earth-fault protection, the current transformer for the external neutral is not necessary.



### Neutral protection

- Three pole circuit breaker:
  - Neutral protection is impossible
- Four pole circuit breaker:
  - The current transformer for external neutral is not necessary

### Zone selective interlocking

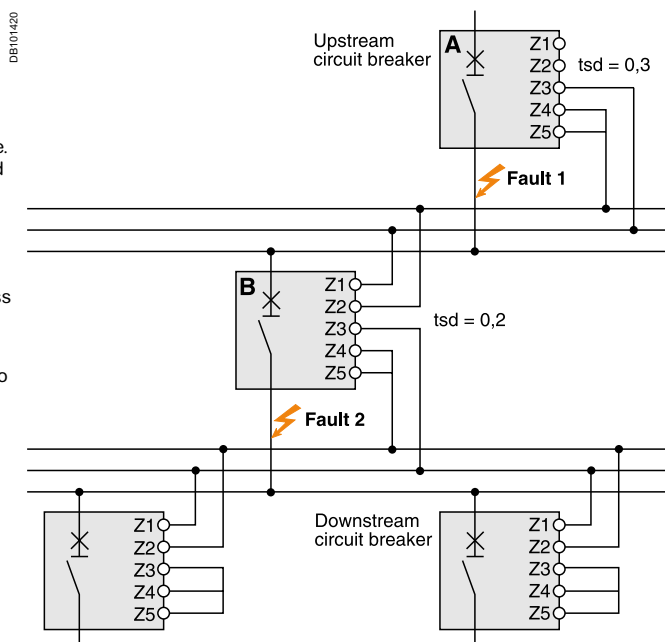
Zone-selective interlocking is used to reduce the electrodynamic forces exerted on the installation by shortening the time required to clear faults, while maintaining time discrimination between the various devices. A pilot wire interconnects a number of circuit breakers equipped with Trip system, as illustrated in the diagram above. The control unit detecting a fault sends a signal upstream and checks for a signal arriving from downstream. If there is a signal from downstream, the circuit breaker remains closed for the full duration of its tripping delay. If there is no signal from downstream, the circuit breaker opens immediately, regardless of the tripping-delay setting.

**Fault 1.**  
Only circuit breaker A detects the fault. Because it receives no signal from downstream, it opens immediately, regardless of its tripping delay set to 0.3.

**Fault 2.**  
Circuit breakers A and B detect the fault. Circuit breaker A receives a signal from B and remains closed for the full duration of its tripping delay set to 0.3. Circuit breaker B does not receive a signal from downstream and opens immediately, in spite of its tripping delay set to 0.2.

#### Wiring

- Maximum impedance: 2.7 W / 300 m
- Capacity of connectors: 0.4 to 2.5 mm<sup>2</sup>
- Wires: single or multicore
- Maximum length: 3000 m
- Limits to device interconnection:
  - The common ZSI - OUT (Z1) and the output ZSI - OUT (Z2) can be connected to a maximum of 10 upstream device
  - A maximum of 100 downstream devices may be connected to the common ZSI - IN (Z3) and to an input ZSI - IN CR (Z4) or GF (Z5)

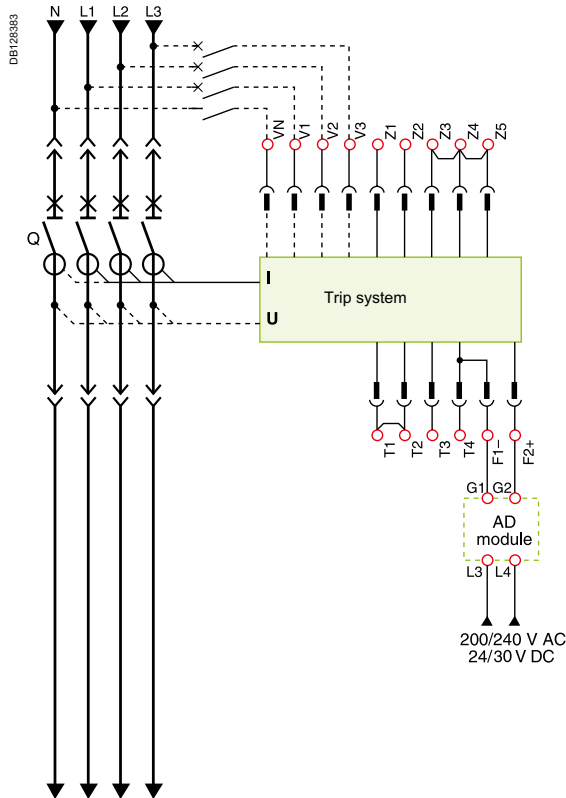




# EasyPact EVS

## 24 V DC external power supply

### AD module



- The 24 V DC external power-supply (AD module) for the Trip system (F1- F2+) is not required for basic protections LSIG
- With Trip System A, it is recommended to connect 24 V DC external power-supply (AD module) to the Trip System (F1- F2+) in order to keep available the display and the ammeter metering, even if Current < 20 % I<sub>n</sub>

**Note:** In case of using the 24 V DC external power supply (AD module), maximum cable length between 24 V DC (G1, G2) and the control unit (F1-, F2+) must not exceed 10 meters.

The internal voltage taps are connected to the bottom side of the circuit breaker.

### Connection

The maximum length for each conductor supplying power to the trip unit is 10 m.

#### Do not ground F2+, F1-, or power supply output:

- The positive terminal (F2+) on the trip unit must not be connected to earth ground
- The negative terminal (F1-) on the trip unit must not be connected to earth ground
- The output terminals (- and +) of the 24 V DC power supply must not be grounded

#### Reduce electromagnetic interference:

- The input and output wires of the 24 V DC power supply must be physically separated as much as possible
- If the 24 V DC power supply wires cross power cables, they must cross perpendicularly. If this is not physically possible, the power supply conductors must be twisted together
- Power supply conductors must be cut to length. Do not loop excess conductor



Additional  
characteristics

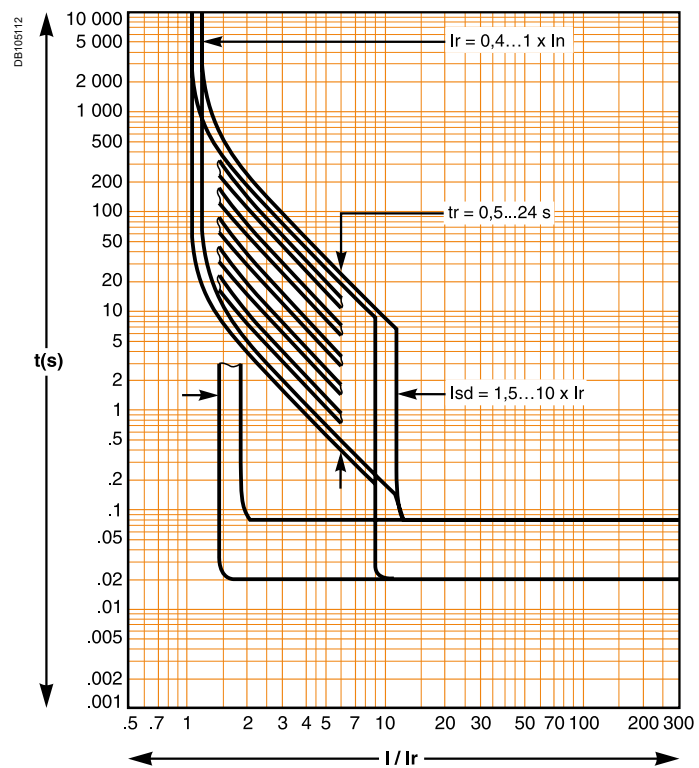


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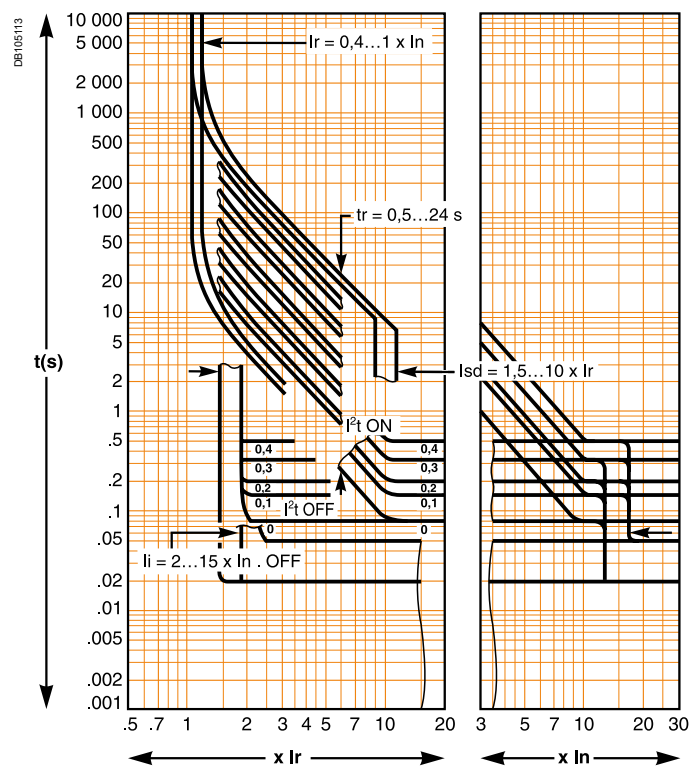
<i>Functions and characteristics</i>	<b>A-1</b>
<i>Installation recommendations</i>	<b>B-1</b>
<i>Dimensions and connection</i>	<b>C-1</b>
<i>Electrical diagrams</i>	<b>D-1</b>
<b>Tripping curves</b>	<b>E-2</b>
<i>Catalogue numbers and order form</i>	<b>F-1</b>

# Tripping curves

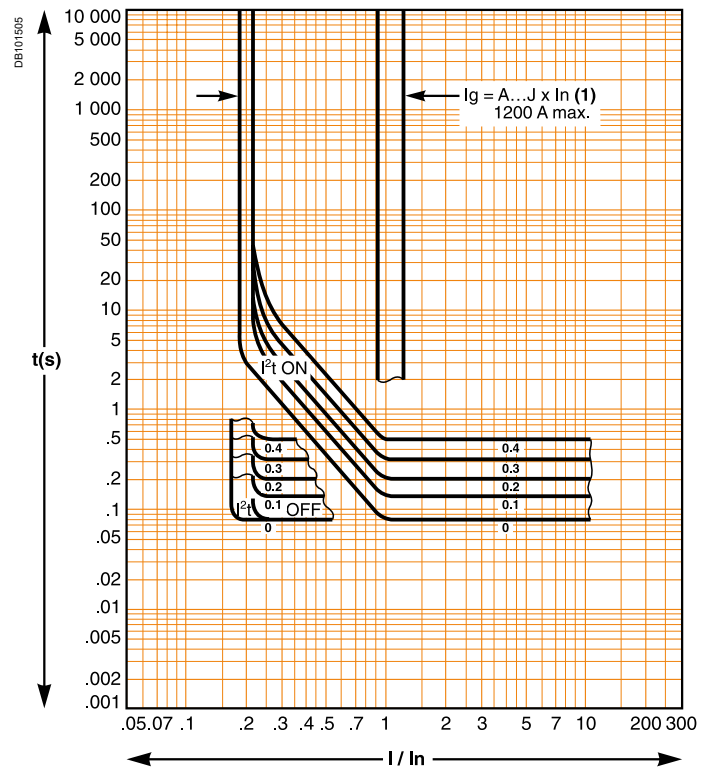
## Trip system - 2.0



## Trip system - 5.0/5.0A/6.0/6.0A



### Trip system - 6.0/6.0A



(1)

$I_g = I_n \times \dots$	A	B	C	D	E	F	G	H	I
$I_n \leq 400 \text{ A}$	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$400 \text{ A} < I_n \leq 1000 \text{ A}$	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$I_n \geq 1250 \text{ A}$	500	640	720	800	880	960	1040	1120	1200

# Catalogue numbers and order form



# Catalogue numbers and order form

<i>Functions and characteristics</i>	<b>A-1</b>
<i>Installation recommendations</i>	<b>B-1</b>
<i>Dimensions and connection</i>	<b>C-1</b>
<i>Electrical diagrams</i>	<b>D-1</b>
<i>Tripping curves</i>	<b>E-2</b>
<b>Nomenclature</b>	<b>F-2</b>
<b>EasyPact EVS</b>	<b>F-5</b>
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Trip System & accessories	F-6
Remote operation	F-7
Chassis locking and accessories	F-9
Circuit breaker locking and accessories	F-10
Mechanical interlocking for source changeover	F-11
Indication contacts	F-12
Instructions	F-13
<b>Order form</b>	<b>F-14</b>



	Range	Current rating	Type	Pole	Operating mechanism	Installation	Protection No.	Type	
EasyPact EVS (from 800 to 4000A) Icu=Ics=65kA									
No. of digits	EVS	08 10 12 16 20 25 32 40	H	3 4	M N P R T	F W	2 5 6	0 A	11 digits
	3	2	1	1	1	1	1	1	
								0 A	
								Type Basic protection Protection+current metering	
								2 5 6	
								Protections No. LI protection LSI protection LSIG protection	
								Type of installation Fixed Draw-out	
								Operating mechanism Manually operated Electrical 200/240 VAC Electrical 380/415 VAC Electrical 100/125 VDC Electrical 24/30V DC	
								MCH + XF + MX MCH + XF + MX MCH + XF + MX MCH + XF + MX	
								Number of poles 3P 3 Poles 4P 4 Poles	
			Type based on breaking capacity Circuit breaker Icu=Ics=Icw=65kA 800 to 4000A						
			Current rating 08 800A 10 1000A 12 1250A 16 1600A 20 2000A 25 2500A 32 3200A 40 4000A						

#### Example 1

EVS08H4NW5A

EVS	08	H	4	N	W	5	A
EasyPact EVS	800A	65kA	4 Pole	Electrical operated 200/240 VAC	Withdrawable type	LSI protection	Protection+current metering

#### Example 2

EVS16H3MF60

EVS	16	H	3	M	F	6	0
EasyPact EVS	1600A	65kA	3 Pole	Manual operated	Fixed	LSIG protection	Basic trip unit with LED indications

### EasyPact EVS drawout type 65KA with Trip System

		3P			4P		
		Trip System 2.0	Trip System 5.0	Trip System 6.0	Trip System 2.0	Trip System 5.0	Trip System 6.0
Manual	800A	EVS08H3MW20	EVS08H3MW50	EVS08H3MW60	*	*	*
	1000A	EVS10H3MW20	EVS10H3MW50	EVS10H3MW60	*	*	*
	1250A	EVS12H3MW20	EVS12H3MW50	EVS12H3MW60	*	*	*
	1600A	EVS16H3MW20	EVS16H3MW50	EVS16H3MW60	*	*	*
	2000A	EVS20H3MW20	EVS20H3MW50	EVS20H3MW60	*	*	*
	2500A	EVS25H3MW20	EVS25H3MW50	EVS25H3MW60	*	*	*
	3200A	EVS32H3MW20	EVS32H3MW50	EVS32H3MW60	*	*	*
	4000A	EVS40H3MW20	EVS40H3MW50	EVS40H3MW60	*	*	*
Electrical	800A	EVS08H3NW20	EVS08H3NW50	EVS08H3NW60	*	*	*
	1000A	EVS10H3NW20	EVS10H3NW50	EVS10H3NW60	*	*	*
	1250A	EVS12H3NW20	EVS12H3NW50	EVS12H3NW60	*	*	*
	1600A	EVS16H3NW20	EVS16H3NW50	EVS16H3NW60	*	*	*
	2000A	EVS20H3NW20	EVS20H3NW50	EVS20H3NW60	*	*	*
	2500A	EVS25H3NW20	EVS25H3NW50	EVS25H3NW60	*	*	*
	3200A	EVS32H3NW20	EVS32H3NW50	EVS32H3NW60	*	*	*
	4000A	EVS40H3NW20	EVS40H3NW50	EVS40H3NW60	*	*	*

### EasyPact EVS drawout type 65KA with Trip System A

		3P			4P		
			Trip System 5.0A	Trip System 6.0A		Trip System 5.0A	Trip System 6.0A
Manual	800A	*	EVS08H3MW5A	EVS08H3MW6A	*	EVS08H4MW5A	EVS08H4MW6A
	1000A	*	EVS10H3MW5A	EVS10H3MW6A	*	EVS10H4MW5A	EVS10H4MW6A
	1250A	*	EVS12H3MW5A	EVS12H3MW6A	*	EVS12H4MW5A	EVS12H4MW6A
	1600A	*	EVS16H3MW5A	EVS16H3MW6A	*	EVS16H4MW5A	EVS16H4MW6A
	2000A	*	EVS20H3MW5A	EVS20H3MW6A	*	EVS20H4MW5A	EVS20H4MW6A
	2500A	*	EVS25H3MW5A	EVS25H3MW6A	*	EVS25H4MW5A	EVS25H4MW6A
	3200A	*	EVS32H3MW5A	EVS32H3MW6A	*	EVS32H4MW5A	EVS32H4MW6A
	4000A	*	EVS40H3MW5A	EVS40H3MW6A	*	EVS40H4MW5A	EVS40H4MW6A
Electrical	800A	*	EVS08H3NW5A	EVS08H3NW6A	*	EVS08H4NW5A	EVS08H4NW6A
	1000A	*	EVS10H3NW5A	EVS10H3NW6A	*	EVS10H4NW5A	EVS10H4NW6A
	1250A	*	EVS12H3NW5A	EVS12H3NW6A	*	EVS12H4NW5A	EVS12H4NW6A
	1600A	*	EVS16H3NW5A	EVS16H3NW6A	*	EVS16H4NW5A	EVS16H4NW6A
	2000A	*	EVS20H3NW5A	EVS20H3NW6A	*	EVS20H4NW5A	EVS20H4NW6A
	2500A	*	EVS25H3NW5A	EVS25H3NW6A	*	EVS25H4NW5A	EVS25H4NW6A
	3200A	*	EVS32H3NW5A	EVS32H3NW6A	*	EVS32H4NW5A	EVS32H4NW6A
	4000A	*	EVS40H3NW5A	EVS40H3NW6A	*	EVS40H4NW5A	EVS40H4NW6A

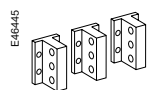
### EasyPact EVS fixed type 65KA with Trip System

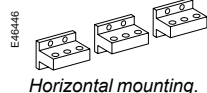
		3P			4P		
		Trip System 2.0	Trip System 5.0	Trip System 6.0	Trip System 2.0	Trip System 5.0	Trip System 6.0
Manual	800A	EVS08H3MF20	EVS08H3MF50	EVS08H3MF60	*	*	*
	1000A	EVS10H3MF20	EVS10H3MF50	EVS10H3MF60	*	*	*
	1250A	EVS12H3MF20	EVS12H3MF50	EVS12H3MF60	*	*	*
	1600A	EVS16H3MF20	EVS16H3MF50	EVS16H3MF60	*	*	*
	2000A	EVS20H3MF20	EVS20H3MF50	EVS20H3MF60	*	*	*
	2500A	EVS25H3MF20	EVS25H3MF50	EVS25H3MF60	*	*	*
	3200A	EVS32H3MF20	EVS32H3MF50	EVS32H3MF60	*	*	*
	4000A	EVS40H3MF20	EVS40H3MF50	EVS40H3MF60	*	*	*
Electrical	800A	EVS08H3NF20	EVS08H3NF50	EVS08H3NF60	*	*	*
	1000A	EVS10H3NF20	EVS10H3NF50	EVS10H3NF60	*	*	*
	1250A	EVS12H3NF20	EVS12H3NF50	EVS12H3NF60	*	*	*
	1600A	EVS16H3NF20	EVS16H3NF50	EVS16H3NF60	*	*	*
	2000A	EVS20H3NF20	EVS20H3NF50	EVS20H3NF60	*	*	*
	2500A	EVS25H3NF20	EVS25H3NF50	EVS25H3NF60	*	*	*
	3200A	EVS32H3NF20	EVS32H3NF50	EVS32H3NF60	*	*	*
	4000A	EVS40H3NF20	EVS40H3NF50	EVS40H3NF60	*	*	*

### Connection

#### Fixed circuit breakers

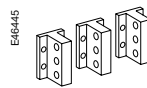
##### Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)

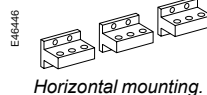
			3P	4P
 Vertical mounting.	800-2000 A	Vertical	47964	47965
		Horizontal	47964	47965
	2500/3200 A	Vertical	47966	47967
		Horizontal	47966	47967
	4000 A	Vertical	47968	47969
		Horizontal	47970	47971



#### Draw-out circuit breakers

##### Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)

			3P	4P
 Vertical mounting.	800-2000 A	Vertical	47964	47965
		Horizontal	47964	47965
	2500/3200 A	Vertical	47966	47967
		Horizontal	47966	47967
	4000 A	Vertical	47968	47969
		Horizontal	47970	47971

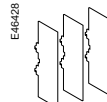


Installation manual

EV521735

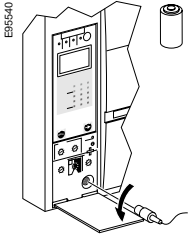
### Connection accessories

#### Interphase barriers / Replacement kit (3 parts)

		3P	4P
 E46428	For fixed rear-connected circuit breaker	48599	48599
	For draw-out rear-connected circuit breaker	48600	48600

**Trip units & accessories**

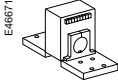
**Battery + cover**



Battery (1 part)	33593
Cover (1 part)	33592

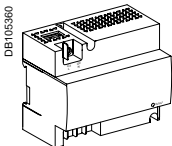
**External sensors**

**External sensor for earth-fault protection (TCE) / 1 part**



Sensor rating	400/2000 A	34035
	1000/4000 A	34036

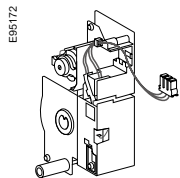
**External power supply module (AD) / 1 part**



24-30 V DC	LV54440
200-240 V AC	LV54444

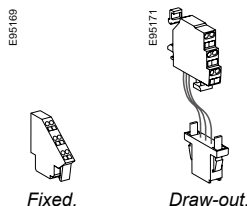
### Remote operation

#### Gear motor

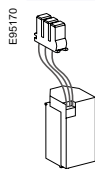


##### MCH (1 part)

AC 50/60 Hz	200/240 V	47894
	380/415 V	47896
DC	24/30 V	47888
	100/125 V	47890
Terminal block (1 part)	For fixed circuit breaker	47074
	For draw-out circuit breaker	47849

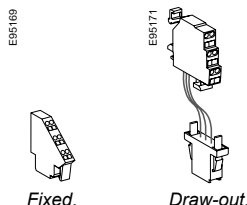


#### Closing release (XF)

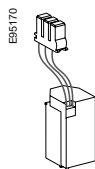


##### Standard coil (1 part)

AC 50/60 Hz	24/30 V DC, 24 V AC	33659
	100/130 V AC/DC	MVS15511
	200/250 V AC/DC	MVS15512
	380/480 V AC	MVS15513
DC	100/130 V AC/DC	MVS15511
	200/250 V AC/DC	MVS15512
Terminal block (1 part)	For fixed circuit breaker	47074
	For draw-out circuit breaker	47849

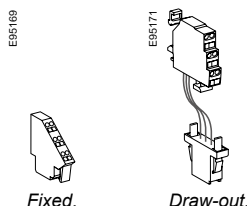


#### Opening release (MX)



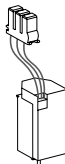
##### Standard coil (1 part)


AC 50/60 Hz	24/30 V DC, 24 V AC	33659
	100/130 V AC/DC	33661
	200/250 V AC/DC	33662
	380/480 V AC	33664
DC	100/130 V AC/DC	33661
	200/250 V AC/DC	33662
Terminal block (1 part)	For fixed circuit breaker	47074
	For draw-out circuit breaker	47849

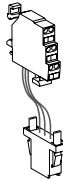


Remote operation

Undervoltage release MN

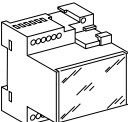
  
E85170

  
*Fixed.*

  
E85171  
*Draw-out.*

Undervoltage release (1 part)		
AC 50/60 Hz DC	24/30 V DC, 24 V AC	33668
	100/130 V AC/DC	33670
	200/250 V AC/DC	33671
	380/480 V AC	33673
Terminal block (1 part)	For fixed circuit breaker	47074
	For draw-out circuit breaker	47849

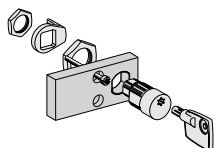
MN delay unit

 E4694	MN delay unit (1 part)		
		R (non-adjustable)	Rr (adjustable)
	100/130 V AC/DC	33684	33681
	200/250 V AC/DC	33685	33682
	380/480 V AC/DC		33683

### Chassis locking

#### "Disconnected" position locking / 1 part

DB117458



##### By padlocks

VCPO

Standard

##### By Profalux keylocks

Profalux 1 lock+ 1 key (without adaptation kit)

42888

Profalux 2 locks + 1 key (without adaptation kit)

42878

Adaptation kit (without key locks)

48564

##### By Ronis keylocks

Ronis 1 lock+ 1 key (without adaptation kit)

41940

Ronis 2 locks + 1 key (without adaptation kit)

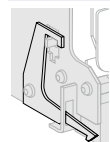
41950

Adaptation kit (without key locks)

48564

#### Door interlock / 1 part

E46452



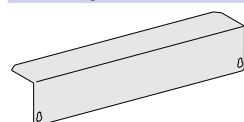
Right and left-hand side of chassis (VPECD or VPECG)

47914

### Chassis accessories

#### Auxiliary terminal shield (CB) / 1 part

E46458



800/4000 A

3P

48595

4P

48596

#### Shutter locking block (for replacement) / 1 part

E46460

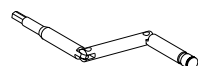


2 parts for 800/4000 A

48591

#### Racking handle

E95561



Racking handle

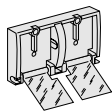
47944



## Circuit breaker locking

### Pushbutton locking device / 1 part

E4666

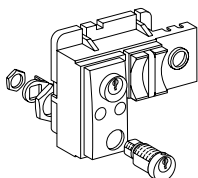


By padlocks

48536

### OFF position locking / 1 part

E46735



By Profalux keylocks

Profalux 1 lock+ 1 key (without adaptation kit)

42888

Adaptation kit (without key locks)

64925

By Ronis keylocks

Ronis 1 lock+ 1 key (without adaptation kit)

41940

Adaptation kit (without key locks)

64925

### Mechanical operation counter / 1 part

DB125617

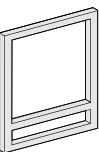


Operation counter CDM

48535

### Escutcheon and accessories / 1 part

CD8500061



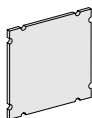
Escutcheon

E46669



Cover

E46670



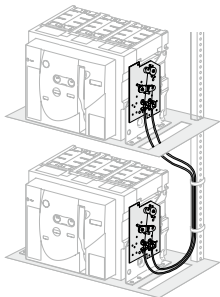
Blanking plate

	Fixed	Draw-out
Escutcheon	48601	48603
Transparent cover (IP 54)	-	48604
Escutcheon blanking plate	48605	48605

### Mechanical interlocking for source changeover

#### Interlocking of 2 devices using cables <sup>(1)</sup>

CDB500053



Choose 2 adaptation sets (1 for each device + 1 set of cables)

1 adaptation fixture for EasyPact EVS fixed devices	47926
---	-------

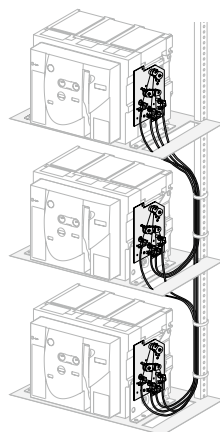
1 adaptation fixture for EasyPact EVS draw-out devices	47926
--	-------

1 set of 2 cables	33209
-------------------	-------

*(1) Can be used with any combination of EasyPact EVS, fixed or draw-out devices.*

#### Interlocking of 3 devices using cables

CDB500060



Choose 3 adaptation (including 3 adaptation fixtures + cables)

3 sources, only 1 device closed, fixed or draw-out devices	48610
--	-------

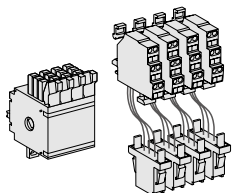
2 sources + 1 coupling, fixed or draw-out devices	48609
---	-------

2 normal + 1 replacement source, fixed or draw-out devices	48608
--	-------

### Indication contacts

#### ON/OFF indication contacts (OF) / 12 parts

E46889



1 additional block of 4 contacts

47887

Wiring

For fixed circuit breaker

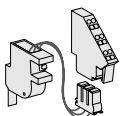
47074

For draw-out circuit breaker

47849

#### "Ready to close" contact (1 max.) / 1 part

E46438



1 changeover contact (5 A - 240 V)

47080

Wiring

For fixed circuit breaker

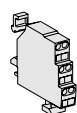
47074

For draw-out circuit breaker

47849

#### "Connected, disconnected, test position" indication contact (carriage switches) / 1 part

E46661



Changeover contacts

6 A - 240 V

33170

#### Auxiliary terminals for chassis alone

3 wire terminal (1 part)

47849

6 wire terminal (1 part)

47850

Jumpers (10 parts)

47900

Instructions		
	EasyPact EVS User Manual (English)	EVS21734
	EasyPact EVS Installation Manual(English)	EVS21735
	EasyPact EVS breaker accessories Installation Manual(English)	EVS21737
	EasyPact EVS cradel accessories Installation Manual(English)	EVS21738

Order ref no:

Date:

Product ref no:

OA No.   
(to be filled by Order booking team)

## EasyPact EVS

### Circuit breaker Customer Order form

To indicate your choices, check the applicable square boxes ☐

And enter the appropriate information in the rectangles

#### Circuit breaker Quantity

Rating **A**

Circuit breaker **H**

Number of poles **3 or 4**

Optional Neutral on Right hand side **yes**

Type of equipment Fixed

Draw out with chassis

Draw out without chassis (moving part only)

Chassis alone

Operating Mechanism **Manual Operated**

☒ **Electrical Operated**

☐ **MX+XF+MCH** Voltage

Voltage Option: 200/240 VAC;380/415 VAC;24/30 VDC;100/125VDC

**Trip System**

0- Without display 2.0  5.0  6.0

A - Current Metering 5.0  6.0

LR - Long-time rating plug **Standard** 0.4 to 1 Ir

#### Connection

Horizontal Top  Bottom

Vertical Top  Bottom

Trip System functions:

2.0 : Basic protection (long time + inst.)

5.0 : Selective protection (long time + short time + inst.)

6.0 : Selective + earth-fault protection  
(long time + short time + inst. + earth-fault)

#### Indication contacts

##### OF - ON/OFF indication contacts

Standard 1 block of 4 OF 10 A-240/380V AC

Additional 1 block of 4 OF 6 A-240/380V AC

##### SDE - "fault-trip" indication contact

Standard 1 SDE 5A -240/380V AC

#### Optional

Carriage switches 8 A-240/380V AC

CE - "Connected" position Max. 3 qty

CT - "Test" position Max. 3 qty

CD - "Disconnected" position Max. 3 qty

Remote tripping **MN** - Under voltage release **V**

**R** - Delay unit (fixed time delay) 0.25s

**Rr** - Adjustable delay unit 0.5s.....3s

**AD** - External power-supply module **V**

**TCE** - External sensor (NCT) for neutral of 3 Phase-4 Wire systems 400/2000A

**TCE** - External sensor (NCT) for neutral of 3 Phase-4 Wire systems 1000/4000A

**PF** - "Ready to close" contact 5A-240/380V AC

#### Locks

**VBP** - ON/OFF pushbutton locking (by transparent cover using padlock)

**VSPO** - Device locking in OFF position by key lock (Only one key lock per ACB possible)

Key lock kit (w/o key lock) Profalux  Ronis

1 key lock Profalux  Ronis

#### Chassis locking in "Disconnected" position:

**VSPD** - by key locks Key lock kit (w/o key lock) Profalux  Ronis

1 key lock Profalux  Ronis

2 identical key locks, 1 key Profalux  Ronis

**Door Interlock - VPEC** On left-hand side of chassis (LH)

On right-hand side of chassis (RH)

#### Mechanical Interlocking of ACBs with Cable

1 Normal source & 1 replacement source (2 devices)

2 normal + 1 replacement source, fixed or draw-out devices

2 sources with coupler on busbars (3 devices)

3 sources, only 1 device closed, fixed or draw-out devices

#### Accessories

**VO** - Safety shutters on chassis **Standard**

**CDP** - Escutcheon **Standard**

Safety Shutter locking blocks

**CP** - Transparent cover for escutcheon

**OP** - Blanking plate for escutcheon

**CDM** - Mechanical operation counter for EVS

**CB** - Auxiliary terminal shield fitted on chassis

**EIP** - Interphase barriers

#### Notes:

Customer can provide only the reference no. of the product for the listed references. Kindly refer to product catalogue for list of references.

Customer to fill this order form for non-listed references.

All breakers will be provided with 1 OF (4 c/o contacts), 1 SDE (trip contact), Escutcheon (Panel sealing frame) as standard.

All draw-out breakers will be supplied with Chassis & safety shutter.

For Electrical operated breakers, indicate the voltage ratings of MCH, XF & MX

Refer to product catalogue for available voltage ratings of MCH/XF/MX/MN & AD Module

The orientation of customer connecting terminals can be changed at site from Horizontal to vertical or vice-versa.

V1.1

EasyPact EVS H order form



Life Is On



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