Low voltage

EasyPact MVS

LV power circuit breakers and switch-disconnectors
800 to 4000A

Catalogue
2012

Schneider Electric

Exceptional reliability,flexibility and convenience

+

Quality and safety you can trust

=

Performance without compromise

Outstanding value for an optimized feature set

Buildings

Industry

Panelbuilders

EasyPact MVS range

The easy choice for reliable performance

- Performance without compromise
- Assured quality and safety you can trust
- Deliver exceptional reliability and flexibility in its class
- Outstanding value for an optimized feature set
- Precision engineered to meet your needs
- Unbeatable value throughout its lifecycle
- Simple to choose and easy to install

Choose the leader

- 800 to 4000A ratings
- Breaking capacity: 50 & 65kA
- Suitable for 690V applications
- Complete selectivity with Ics=Icu=Icw (1 s)
- Intelligent ET range of trip system with display
- Fully protected neutral on 4 pole breakers
- Common accessories for complete range
- Conforms to IEC 60947- 2 & 3

EasyPact MVS Benefits for every customer

EasyPact MVS08 to MVS40

Panel builders/ contractors

- Single frame size from 800 to 4000A with identical door cut-outs
- Suitable for copper & Aluminium termination with a single pole pitch of 115 mm
- Terminal orientation can be converted from horizontal to vertical and vice-versa at workshop
- Direct mounting Door frames (escutcheon) without drilling any holes
- Front fitted accessories like under-volt release, shunt release & closing coil for complete range
- Conversion of manual operated breaker in to electrical operated, with single bolt fixing

EasyPact MVS with single frame size,common accessories helps to increase the shop floor efficiency,enabling faster delivery of swith boards.

End Users

- Moulded case design ensures high endurance without maintenance
- Intelligent ET range of trip system with thermal memory and display for measurements.
- Overload run alarm & individual LED indications enable fault identification
- Icu=Ics=Icw(1sec)=50kA & 65kA ensures complete selectivity
- Inbuilt safety shutter & interlocks
- Designed to provide utmost user safety during installation, during use, and while under maintenance.
- All 4 pole breakers are with fully rated neutral and protected with adjustable settings at OFF – 50%-100%

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

Designers

- Conforms to IEC60947-2 for breakers & IEC60947-3 for disconnectors
- Designed and manufactured using advanced manufacturing methods to match your quality expectations and the needs of each project.
- Continuous rated coils helps in simple interlocking schemes
- Extensive choice of software tools & documentation to reduce design time.
- EasyPact MVS respects the environment throughout their life cycle

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

The Key values

90%

of applications are covered

The performance you need

EasyPact MVS provides the ideal level of capability for your installation from 800 to 4000 A.

Reduce stock by up to

30%

At a cost-effective investment

Pay for what you need: Get outstanding durability with the features you need, with the benefit of easy to order and stock.

100%

Commitment to quality

With the quality you demand

Designed and manufactured by Schenider Electric using advanced manufacturing methods and premium materials.


Gain peace of mind and optimised cost for every installation

General contents

Functions and characteristics

Functions and characteristics

General overview
Detailed contents

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

CPB100000

CDB500000

ET2I trip system.

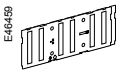
CDB500001

ET5S trip system.

CDB500002

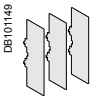
ET6G trip system.

E46459



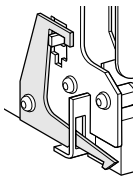
Safety shutters

DB101149



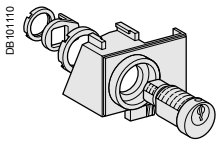
Interphase barriers

DB101109



Door interlock

DB101110



Chassis key lock

PB104354A40

CPB100003

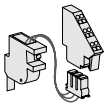
CPB100015

CPB100016

Indication contacts page A-20

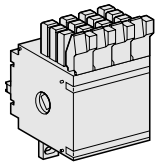
- ■ Standard:
- □ ON/OFF indication (OF)
- □ "Fault" trip indication (SDE)
- ■ Optional:
- □ Additional ON/OFF indication (OF)
- □ Ready-to-close contact (PF)
- □ Carriage switches for connected (CE) disconnected (CD) and test (CT) positions

E46438



Ready-to-close contact

DB101112

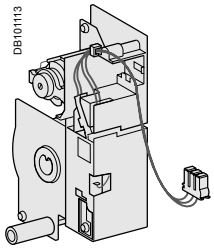


OF contact

Remote operation page A-21

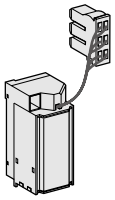
- ■ Remote ON/OFF:
- □ Gear motor
- □ XF closing or MX opening voltage releases
- ■ Remote tripping function:
- □ MN voltage release
- - Standard
- - Adjustable or non-adjustable delay

DB101113



Gear motor

DB101114

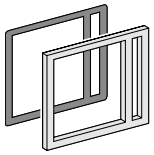


MX, XF and MN volage releases

Accessories page A-25

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

E46668

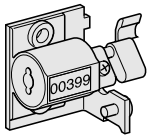


Escutcheon

E46669

Transparent cover

DB101115

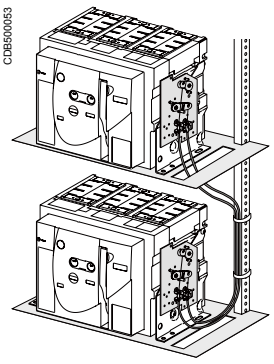


Mechanical operation counter

Source-changeover systems page A-24

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

CDB500053



Interlocking of two devices

Circuit breakers and switch-disconnectors
MVS08 to MVS40

CPB100000

Circuit breaker.

CPB100014

Switch disconnector.

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		4
Basic circuit-breaker			
Circuit-breaker as per IEC 60947-2			
Rated current (A)	In		at 40°C(1)
Rating of 4th pole (A)			
Sensor ratings (A)			
Type of circuit breaker			
Ultimate breaking capacity (kA rms)	Icu		220...440V
V AC 50/60 Hz			690 V
Rated service breaking capacity (kA rms)	Ics		% Icu
Utilisation category			
Rated short-time withstand current (kA rms)	Icw	1s	220...440 V
V AC 50/60 Hz			690V
		3s	440/690V
Rated making capacity (kA peak)	Icm		220...440 V
V AC 50/60 Hz			690 V
Breaking time (ms) between tripping order and arc extinction			
Closing time (ms)			
Switch-disconnector as per IEC60947-3 and Annex A			
Type of switch-disconnector			
Operational current AC23A			
Rated making capacity (kA peak)	Icm		
Rated short-time withstand current (kA rms)	Icw	1s	
		3s	

Maintenance/Connection/Installation			
Service life C/O cyclesx1000	Mechanical	with maintenance	
		without maintenance	
	Electrical	without maintenance	440 V
			690 V
Connection		Horizontal	
		Vertical	
Dimensions (mm) (H x W x D)		Drawout	3P
			4P
		Fixed	3P
			4P
Weight (kg) (approximate)		Drawout	3P/4P
		Fixed	3P/4P

(1) Refer page no. B-12 for details on temperature derating.

	MVS08		MVS10		MVS12		MVS16		MVS20		MVS25		MVS32		MVS40	
	800		1000		1250		1600		2000		2500		3200		4000	
	800		1000		1250		1600		2000		2500		3200		4000	
	800		1000		1250		1600		2000		2500		3200		4000	
	N	**H**	**N**	**H**	**N**	**H**	**N**	**H**	**N**	**H**	**N**	**H**	**N**	**H**	**N**	**H**
	50	65	50	65	50	65	50	65	50	65	50	65	50	65	55	65
	42	50	42	50	42	50	42	50	42	50	42	50	42	50	42	50
	100%		100%		100%		100%		100%		100%		100%		100%	
	B		B		B		B		B		B		B		B	
	50	65	50	65	50	65	50	65	50	65	50	65	50	65	55	65
	42	50	42	50	42	50	42	50	42	50	42	50	42	50	42	50
	25	36	25	36	25	36	25	36	25	36	25	36	25	36	30	36
	105	143	105	143	105	143	105	143	105	143	105	143	105	143	121	143
	88	105	88	105	88	105	88	105	88	105	88	105	88	105	88	105
	25		25		25		25		25		25		25		25	
	<70		<70		<70		<70		<70		<70		<70		<70	
	MVS08		**MVS10**		**MVS12**		**MVS16**		**MVS20**		**MVS25**		**MVS32**		**MVS40**	
	NA	**HA**	**NA**	**HA**	**NA**	**HA**	**NA**	**HA**	**NA**	**HA**	**NA**	**HA**	**NA**	**HA**	**NA**	**HA**
	800		1000		1250		1600		2000		2500		3200		4000	
	105	143	105	143	105	143	105	143	105	143	105	143	105	143	121	143
	50	65	50	65	50	65	50	65	50	65	50	65	50	65	55	65
	25	36	25	36	25	36	25	36	25	36	25	36	25	36	30	36
	20		20		20		20		20		20		20		20	
	10		10		10		10		10		10		10		10	
	6000		6000		6000		6000		6000		5000		5000		5000	
	4000		4000		4000		4000		4000		2500		2500		2500	
	Yes															
	Yes															
	439 x 441 x 395															
	439 x 556 x 395															
	352 x 422 x 297															
	352 x 537 x 297															
	70/85										90/120					
	40/50										60/80					

Identifying ET range of trip system

EasyPact MVS circuit breakers equipped with ET range of trip system are designed to protect power circuit and connected loads.
Measurement of current and voltage helps users to maintain continuity of service and optimize installation.

CPB100011

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 ET 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

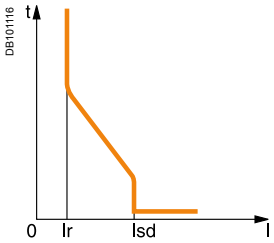
Certain functions require the addition of trip unit accessories, described on page A-14.

Trip unit name codes

Type of protection
- 2I for basic protection
- 5S for selective protection
- 6G for selective + earth-fault protection

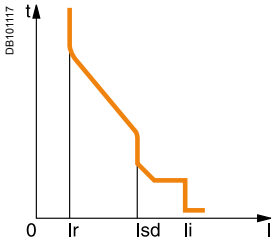
Type of measurement
- ET for basic
- ETA for “Current”
- ETV for “Current” and “Voltage”

ET2I: basic protection



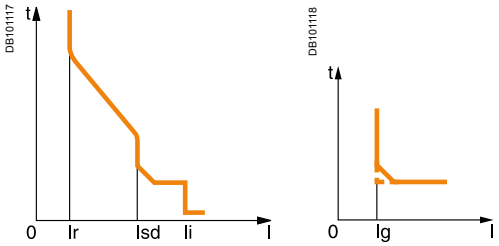
Protection:
long time
+ instantaneous

ET5S: selective protection



Protection:
long time
+ short time
+ instantaneous

ET6G: selective + earth-fault protection



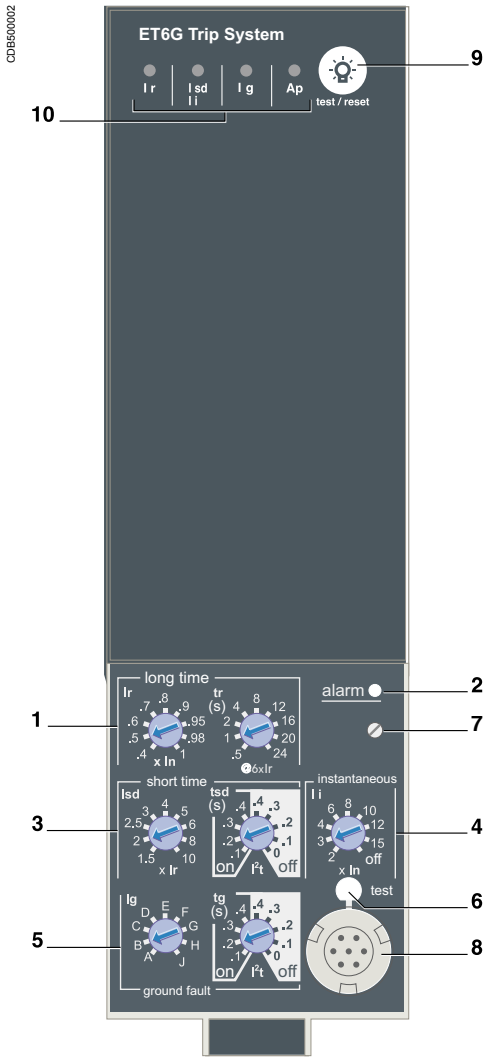
Protection:
long time
+ short time
+ instantaneous
+ earth fault

Protection and measurement functions

ET	ETA	ETV
■ Fault indications ■ Settings in amperes and in seconds	■ I_1, I_2, I_3, I_N, $I_{earth-fault}$, and maximeter for these measurements: □ Fault indications □ Settings in amperes and in seconds	■ Incorporates all the rms measurements of ETA trip unit, plus voltage readings: □ Calculates the current demand value □ "Quickview" function for the automatic cyclical display of the most useful values
2I  CDB500000	**2I**  CDB500028	**2I**  CDB500035
5S  CDB500001	**5S**  CDB500029	**5S**  CDB500030
6G  CDB500002	**6G**  CDB500003	**6G**  CDB500004

Overview of functions
ET trip system

ET trip unit protect power circuits, under overload & short-circuit conditions. They are equipped with individual fault trip indication LEDs. ET6G 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:** ET trip control units 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(1): 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^2t ON and I^2t OFF options enhance discrimination with a downstream protection devices
- Use of I^2t curves with short-time protection:
  - I^2t OFF selected: the protection function implements a constant time curve
  - I^2t ON selected: the protection function implements an I^2t inverse-time curve up to 10 Ir. Above 10 Ir, the time curve is constant

Earth-fault protection on ET6G trip system
Residual earth fault protection.
Selection of I^2t 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	■ The function determines the zero-phase sequence current, i.e. the vectorial sum of the phase and neutral currents ■ It detects faults downstream of the circuit breaker

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(2) 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.

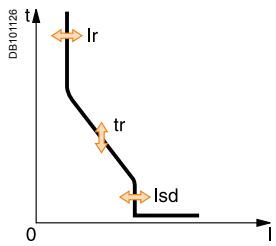
Fault indications
LEDs indicate the type of fault:
- Overload (long-time protection Ir)
- Short-circuit (short-time Isd or instantaneous Ii protection)
- Earth fault (Ig)
- Internal fault (Ap)

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 ET6G trip unit, the operation of earth-fault protection can be checked by pressing the test button located above the test connector.

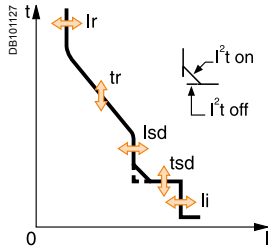
Protection — ET2I

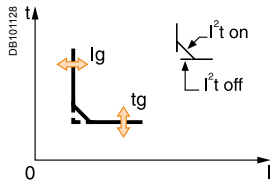
Long time			ET2I								
Current setting (A)	**Ir** = In x ...		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
Tripping between 1.05 and 1.20 x Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x Ir	0.7(1)	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x Ir	0.7(2)	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)	**Isd** = Ir x ...		1.5	2	2.5	3	4	5	6	8	10
Accuracy: ±10 %											
Time delay			Max resettable time: 20 ms Max break time: 80 ms								



Protection — ET5S/ET6G

Long time			ET5S/ET6G								
Current setting (A)	**Ir** = In x ...		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 Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x Ir	0.7(1)	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x Ir	0.7(2)	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)	**Isd** = Ir x ...		1.5	2	2.5	3	4	5	6	8	10
Accuracy: ±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 Ir	**tsd** (max resettable time)		20	80	140	230	350				
(I^2t Off or I^2t On)	**tsd** (max break time)		80	140	200	320	500				
Instantaneous											
Pick-up (A)	**Ii** = In x ...		2	3	4	6	8	10	12	15	off
Accuracy: ±10 %											
Time delay			Max resettable time: 20 ms Max break time: 50 ms								
Earth fault			**ET6G**								
Pick-up (A)	**Ig** = In x ...		A	B	C	D	E	F	G	H	J
Accuracy: ±10 %	In ⩽ 400 A		0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	400 A < In ⩽ 1000 A		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	In ⩾ 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)	**tg** (max resettable time)		20	80	140	230	350				
at In or 1200 A (I^2t Off or I^2t On)	**tg** (max break time)		80	140	200	320	500				

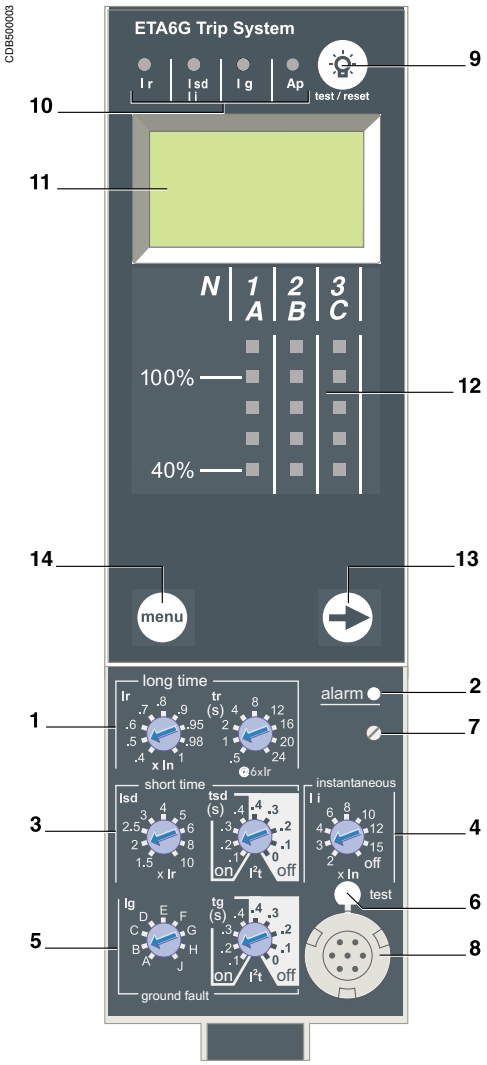




Note: *All current-based protection functions require no auxiliary source.*
The test / reset button, clears the tripping indication and tests the battery.

Overview of functions
ETA trip system

ETA trip units include all functions offered by ET 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:** ETA trip units come with a transparent leadseal cover as standard.*

"Ammeter" measurements

ETA trip units 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_1, I_2, I_3, I_N, I_g, 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(1): 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^2t ON and I^2t OFF options enhance discrimination with a downstream protection devices
- Use of I^2t curves with short-time protection:
  - I^2t OFF selected: the protection function implements a constant time curve
  - I^2t ON selected: the protection function implements an I^2t inverse-time curve up to 10 Ir. Above 10 Ir, the time curve is constant

Earth-fault protection on ETA6G trip system

Residual earth fault protection.
Selection of I^2t 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	■ The function determines the zero-phase sequence current, i.e. the vectorial sum of the phase and neutral currents ■ It detects faults downstream of the circuit breaker

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(2) 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

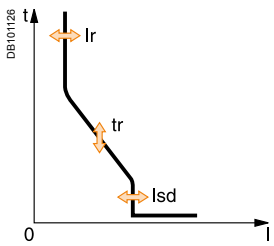
The fault indicating LEDs are powered by an in-built battery. The fault indication LEDs remain on until the test/reset button is pressed.

Test

A hand-held test kit may be connected to the test connector on the front to check circuit-breaker operation. For ETA6G trip unit, the operation of earth-fault protection can be checked by pressing the test button located above the test connector.

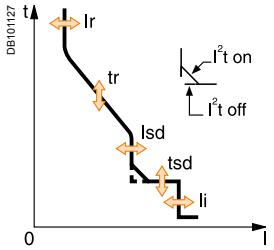
Protection — ETA2I

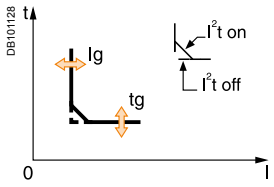
Long time			ETA2I								
Current setting (A)	**Ir** = In x ...		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
Tripping between 1.05 and 1.20 x Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x Ir	0.7(1)	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x Ir	0.7(2)	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)	**Isd** = Ir x ...		1.5	2	2.5	3	4	5	6	8	10
Accuracy: ±10 %											
Time delay			Max resettable time: 20 ms								
			Max break time: 80 ms								



Protection — ETA5S/ETA6G

Long time			ETA5S/ETA6G								
Current setting (A)	**Ir** = In x ...		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 Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x Ir	0.7(1)	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x Ir	0.7(2)	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)	**Isd** = Ir x ...		1.5	2	2.5	3	4	5	6	8	10
Accuracy: ±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 Ir	**tsd** (max resettable time)		20	80	140	230	350				
(I^2t Off or I^2t On)	**tsd** (max break time)		80	140	200	320	500				
Instantaneous											
Pick-up (A)	**Ii** = In x ...		2	3	4	6	8	10	12	15	off
Accuracy: ±10 %											
Time delay			Max resettable time: 20 ms								
			Max break time: 50 ms								
Earth fault			**ETA6G**								
Pick-up (A)	**Ig** = In x ...		A	B	C	D	E	F	G	H	J
Accuracy: ±10 %	In ⩽ 400 A		0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	400 A < In ⩽ 1000 A		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	In ⩾ 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)	**tg** (max resettable time)		20	80	140	230	350				
at In or 1200 A (I^2t Off or I^2t On)	**tg** (max break time)		80	140	200	320	500				





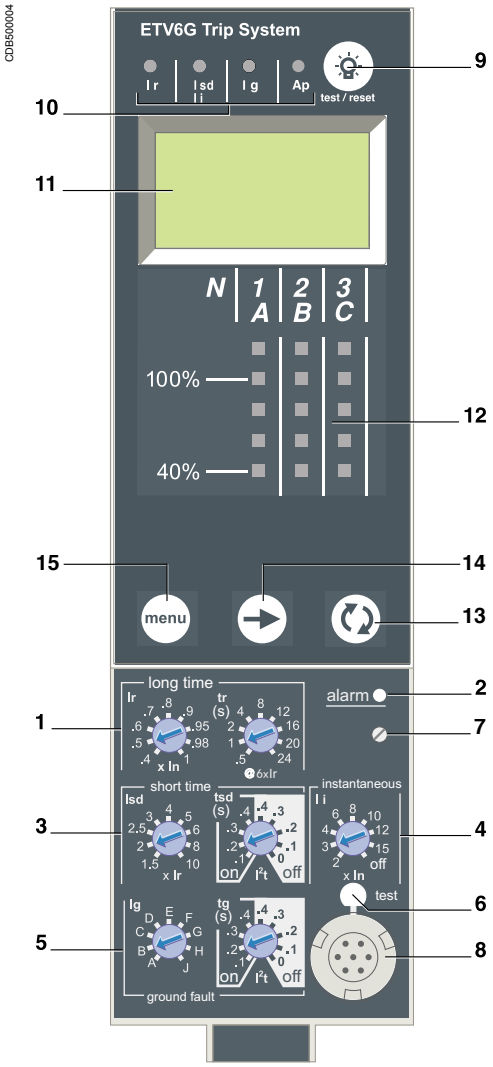
Ammeter — ETA2I/ETA5S/ETA6G

Type of measurements		Range	Accuracy
Instantaneous currents	I_1, I_2, I_3, In	0.2 x In to 1.2 x In	± 1.5 %
	Ig (ETA6G)	0.2 x In to In	± 10 %
Current maximeters of	I_1, I_2, I_3, In	0.2 x In to 1.2 x In	± 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.

Overview of functions
ETV trip system

ETV trip units include all the functions offered by ETA. In addition, they measure voltage values.
They also offer trip history & display tripping cause.



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 "quick View" (only with ETV).
14 Navigation button to view menu contents.
15 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:** ETV trip units come with a transparent leadseal cover as standard.*

"Voltage meter" measurements

In addition to the ammeter measurements of ETA
ETV trip units measure and display:
- Current demand
- Voltages: phase to phase, phase to neutral, average and unbalanced

The range of measurement is the same as current with ETA, depending of an external power supply module.

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(1): 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^2t ON and I^2t OFF options enhance discrimination with a downstream protection devices
- Use of I^2t curves with short-time protection:
  - I^2t OFF selected: the protection function implements a constant time curve
  - I^2t ON selected: the protection function implements an I^2t inverse-time curve up to 10 Ir. Above 10 Ir, the time curve is constant

Earth-fault protection on ETV6G trip system
Residual or source ground return earth fault protection.
Selection of I^2t 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	■ The function determines the zero-phase sequence current, i.e. the vectorial sum of the phase and neutral currents ■ It detects faults downstream of the circuit breaker

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(2) 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)

Trip history
The trip history displays the list of the last 10 trips. For each trip, the following indications are recorded and displayed:
- the tripping cause: Ir, Isd, Ii, Ig or Auto-protection (Ap) trips

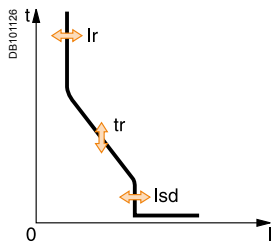
Battery power
The fault indicating LEDs are powered by an in-built battery. The fault indication LEDs remain on until the test/reset button is pressed.

Test

A hand-held test kit may be connected to the test connector on the front to check circuit-breaker operation. For ETV6G trip unit, the operation of earth-fault protection can be checked by pressing the test button located above the test connector.

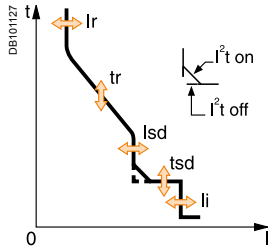
Protection — ETV2I

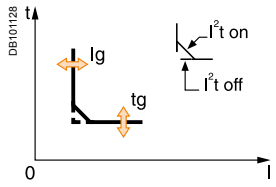
Long time			ETV2I								
Current setting (A)	**Ir** = In x ...		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
Tripping between 1.05 and 1.20 x Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x Ir	0.7(1)	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x Ir	0.7(2)	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)	**Isd** = Ir x ...		1.5	2	2.5	3	4	5	6	8	10
Accuracy: ±10 %											
Time delay			Max resettable time: 20 ms								
			Max break time: 80 ms								



Protection — ETV5S/ETV6G

Long time			ETV5S/ETV6G								
Current setting (A)	**Ir** = In x ...		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 Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x Ir	0.7(1)	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x Ir	0.7(2)	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)	**Isd** = Ir x ...		1.5	2	2.5	3	4	5	6	8	10
Accuracy: ±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 Ir	**tsd** (max resettable time)		20	80	140	230	350				
(I^2t Off or I^2t On)	**tsd** (max break time)		80	140	200	320	500				
Instantaneous											
Pick-up (A)	**Ii** = In x ...		2	3	4	6	8	10	12	15	off
Accuracy: ±10 %											
Time delay			Max resettable time: 20 ms								
			Max break time: 50 ms								
Earth fault			ETV6G								
Pick-up (A)	**Ig** = In x ...		A	B	C	D	E	F	G	H	J
Accuracy: ±10 %	In ⩽ 400 A		0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	400 A < In ⩽ 1000 A		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	In ⩾ 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)	**tg** (max resettable time)		20	80	140	230	350				
at In or 1200 A (I^2t Off or I^2t On)	**tg** (max break time)		80	140	200	320	500				





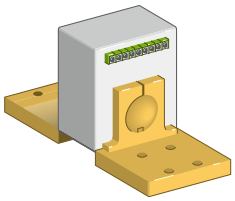
Energy — ETV2I/5S/6G

Type of measurements		Range	Accuracy
Instantaneous currents	I_1, I_2, I_3, In	0.2 x In to 1.2 x In	± 1.5 %
	Ig (ETV6G)	0.2 x In to In	± 10 %
Current maximeters of	I_1, I_2, I_3, In	0.2 x In to 1.2 x In	± 1.5 %
Demand currents of	I_1, I_2, I_3, Ig	0.2 x In to 1.2 x In	± 1.5 %
Voltages	V_{12}, V_{23}, V_{31}, V_{1N}, V_{2N}, V_{3N}	100 to 690 V	± 0.5 %

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

ET range of trip system
Accessories and test equipment

DB101524



External sensor (CT).

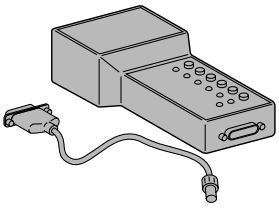
PB101026-32A

External 24 V DC power supply module.

PB100775-32

Lead-seal cover.

CDB500038



Hand-held test kit.

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 6G trip units)

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

- MVS08 to MVS20: TC 400/2000
- MVS25 to MVS40: TC 1000/4000

Voltage measurement inputs[(1)]

As standard, the control unit is supplied by internal voltage measurement inputs placed downstream of the pole for voltages between 220 and 690 V AC.

External 24 V DC power-supply module

The external power-supply module makes it possible to use the display (ETA and ETV trip systems) 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:
  - 110/130, 200/240, 380/415 V AC (+10 % -15 %)
  - 24/30, 48/60, 100/125 V DC (+20 % -20 %)
- Output voltage: 24 V DC ±5 %, 1 A
- Ripple < 1 %
- Dielectric withstand : 3.5 kV rms between input/output, for 1 minute
- Overvoltage category: as per IEC 60947-1 cat. 4

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.

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

(1) Refer to EasyPact MVS user manual on using 3 pole circuit breakers in 4 wire system with ETV trip system for voltage measurement.

Two types of connection are available:
- Horizontal rear connection
- Vertical rear connection

The solutions presented are similar in principle for all EasyPact MVS fixed and drawout 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 MVS devices, they are installed vertically between rear connection terminals. They are not compatible with spreaders.

Safety shutters VO

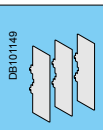
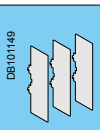
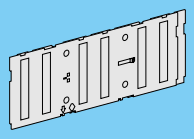
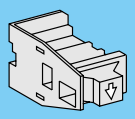
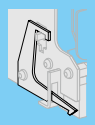
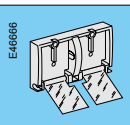
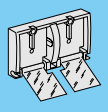
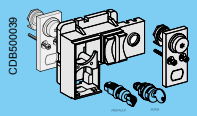
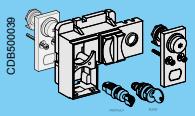
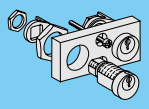
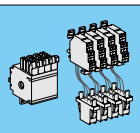
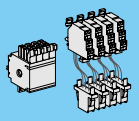
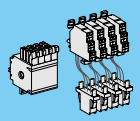
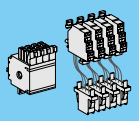
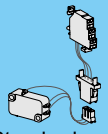
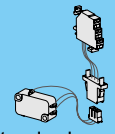
Mounted on the chassis, the safety shutters automatically block access to the disconnecting contact cluster when the device is in the disconnected or test positions (degree of protection IP 20) When the device is removed from its chassis, no live parts are accessible.
The shutter-locking system is made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

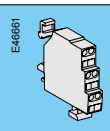
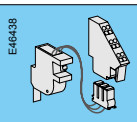
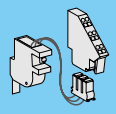
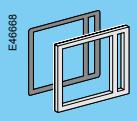
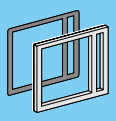
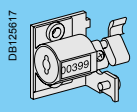
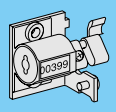
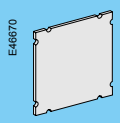
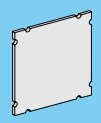
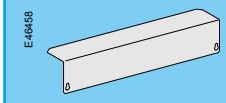
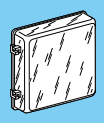
For EasyPact MVS08 to MVS40

A support at the bottom of the chassis is used to store the blocks when they are not used:
- 2 blocks for MVS08 to MVS40

Note: *EasyPact MVS circuit breakers can be connected indifferently with bare-copper, tinned-copper and tinned-aluminium conductors, requiring no particular treatment.*

Accessories and auxiliaries

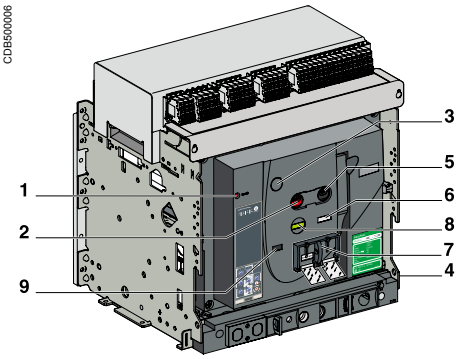
Type of accessory	EasyPact MVS08 to MVS40	
	Fixed breaker Rear connection	Drawout breaker Rear connection
Interphase barriers	 Optional	 Optional
Safety shutters		 Standard
Safety shutters locking blocks		 Optional
Door interlock		 Optional
Pushbutton locking device	 Optional	 Optional
OFF position locking	 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 MVS08 to MVS40	
	Fixed breaker Rear connection	Drawout 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

Locking
On the device

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.*

CDB500006



PB100811-32

Access to pushbuttons protected by transparent cover.

PB100810-32

Pushbutton locking using a padlock.

CPB100007

OFF position locking using a keylock.

CPB100008

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

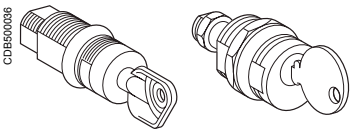
Device locking in the OFF position by keylocks VSPO

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 or two keylocks (Ronis, Profalux).

CDB500036



Profaulx *Ronis*

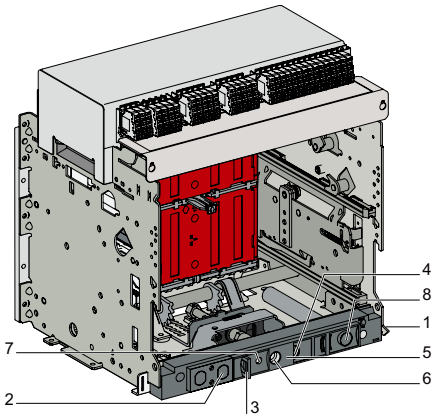
Door interlock catch VPEC

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. It 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.

CDB500007



1 *Door interlock.*
2 *Keylock locking.*
3 *Padlock locking.*
4 *Position indicator.*
5 *Chassis front plate (accessible with cubicle door closed).*
6 *Racking-handle entry.*
7 *Release button.*
8 *Racking-handle storage.*

CPB100006

"Disconnected" position locking by padlock.

CPB100017

"Disconnected" position locking by keylock.

"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

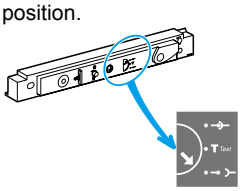
Profalux and Ronis keylocks are available in different options:

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

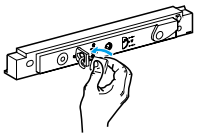
A locking kit (without locks) is available for installation of one or two keylocks (Ronis, Profalux).

Padlock

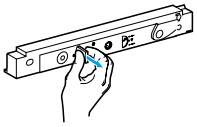
Circuit breaker in "disconnected" position.



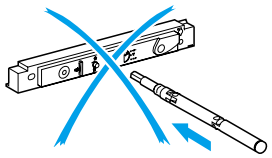
Insert the shackle (max. diameter 5 to 8 mm) of the padlock(s).



Pull out the tab.

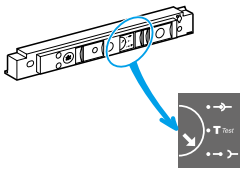


The crank connot be inserted.

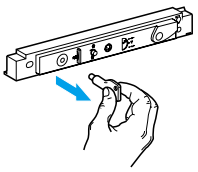


Keylock

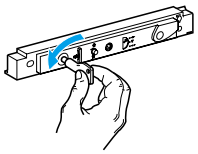
Circuit breaker in "disconnected" position.



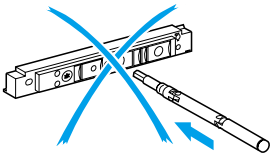
Remove the key(s)



Turn the key(s).



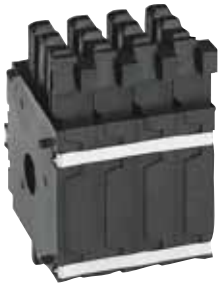
The crank cannot be inserted.



Indication contacts

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

PB100807-20



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

PB100818-16

"Fault-trip" indication contact (SDE).

PB100817-32

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 MVS. These contacts trip when the minimum isolation distance between the main circuit-breaker contacts is reached

OF				MVS
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 (1)
AC12/DC12			480	10/6 (1)
			690	6
		V DC	24/48	10/6 (1)
			125	10/6 (1)
			250	3

(1) 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				MVS
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

Additional actuators

A set of additional actuators may be installed on the chassis to change the functions of the carriage switches.

				MVS
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

Remote operation
Remote ON / OFF

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

PB104349A68

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.

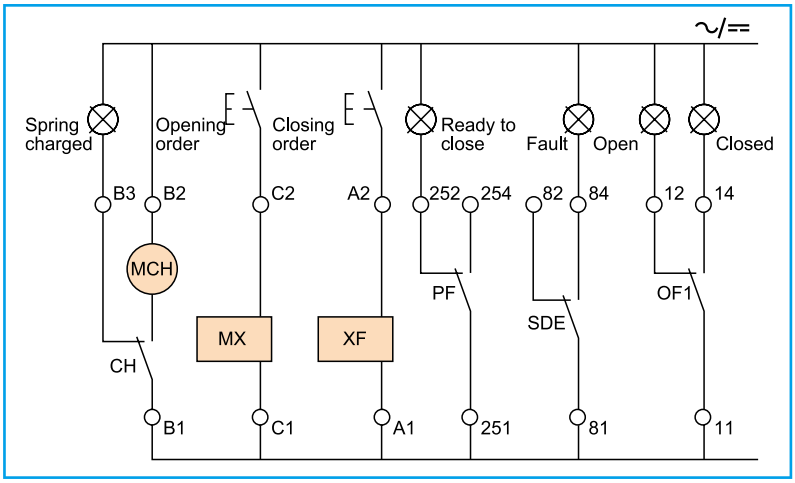
The remote ON / OFF function is used to remotely open and close the circuit breaker.
It is made up of:
- An electric motor MCH equipped with a “springs charged” limit switch contact CH
- Two voltage releases:
  - A closing release XF
  - An opening release MX

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

DB111783



Remote operation
Remote ON / OFF

PB100808-32

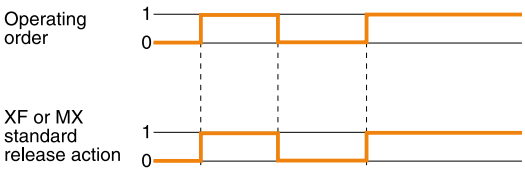
Electric motor MCH for EasyPact MVS.

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	100/130 - 200/240 - 380/415
	V DC	24/30 - 48/60 - 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

DB117037



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	24 - 48 - 100/130 - 200/250 - 277 - 380/480	
	V DC	12 - 24/30 - 48/60 - 100/130 - 200/250	
Operating threshold		0.85 to 1.1 Un	0.7 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

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	5
AC12/DC12			480	5
			690	3
		V DC	24/48	3
			125	0.3
			250	0.15

PB100818-16

“Ready to close” contacts PF.

DB100809-16

MN voltage release.

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	24 - 48 - 100/130 - 200/250 - 380/480	
	V DC	24/30 - 48/60 - 100/130 - 200/250	
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 with delay unit (VA or W)		Pick-up: 200 (200 ms)	Hold: 4.5
Circuit-breaker response time at Un		90 ms ±5	

056422N

MN delay unit.

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	
V AC 50-60 Hz /DC	Adjustable	48/60 - 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	

Source-changeover systems
Mechanical interlocking

CPB100009

Interlocking of two EasyPact circuit breakers using cable.

Interlocking of two EasyPact MVS or up to three EasyPact MVS 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 drawout, 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 or switch-disconnectors 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**
MVS08 to MVS40	MVS08 to MVS40
Ratings 800...4000A	■

Possible combinations of three device	
MVS08 to MVS40	MVS08 to MVS40
Ratings 800...4000A	■

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

Accessories

PB104740

Auxiliary terminal shield CB

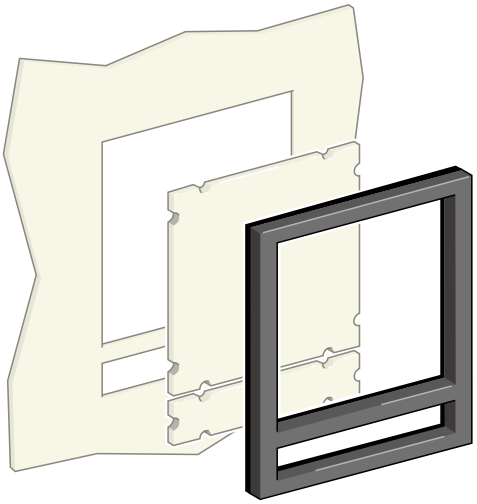
Optional equipment mounted on the chassis, the shield prevents access to the terminal block of the electrical auxiliaries.

PB104382A32

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 drawout 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 drawout 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 drawout devices.

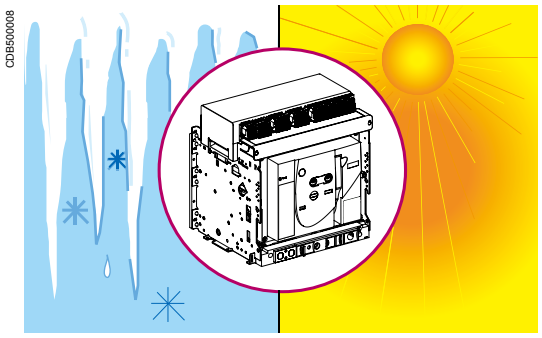
Transparent cover CP for escutcheon.

Installation recommendations

Installation recommendations

Operating conditions

EasyPact MVS 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.



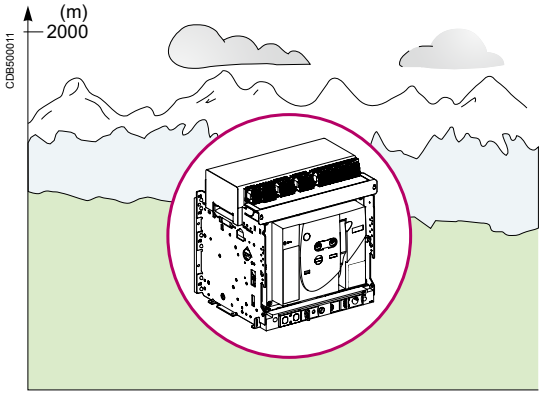
Ambient temperature

EasyPact MVS 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 MVS device without its control unit
- -25°C to +85°C for the control unit

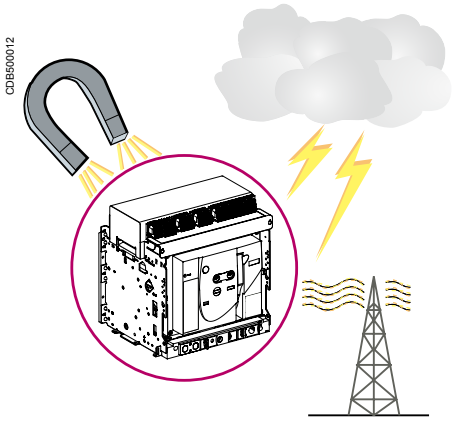


Altitude

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 operationnal voltage 50/60 Hz Ue (V)	690	590
	1000	890
Rated current 40°C	1 x In	0.99 x In

Intermediate values may be obtained by interpolation.



Electromagnetic disturbances

EasyPact MVS 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

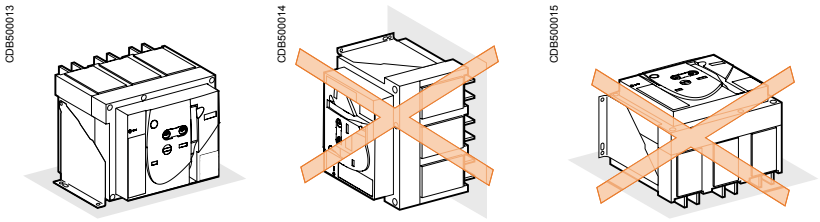
EasyPact MVS devices have successfully passed the electromagnetic-compatibility tests (EMC) defined by the following international standards:

- IEC 60947-2, appendix F

The above tests guarantee that:

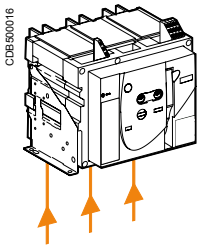
- No nuisance tripping occurs
- Tripping times are respected

Possible positions



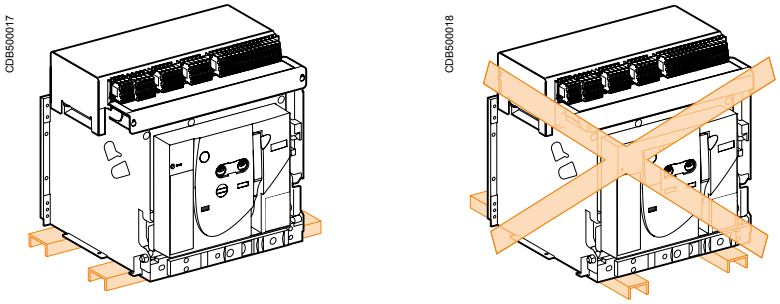
Power supply

EasyPact MVS 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 uniformily 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.

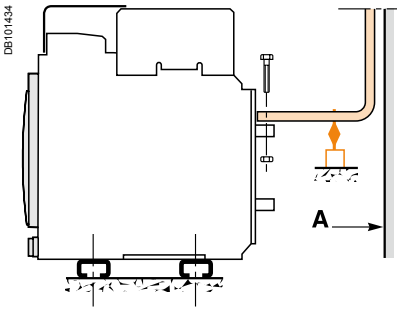


Mounting on rails.

Installation in switchboard

Partitions

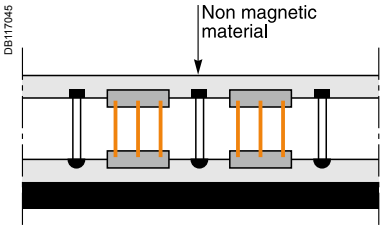
Sufficient openings must be provided in partitions to ensure good air circulation around the circuit breaker; Any partition between upstream and downstream connections of the device must be made of nonmagnetic material.
For high currents, of 2500 A and upwards, the metal supports or barriers in the immediate 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.

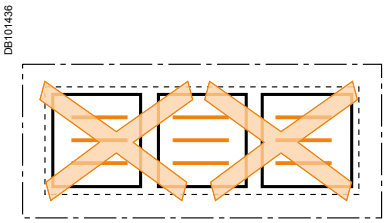


A : *Non magnetic material.*

Busbars

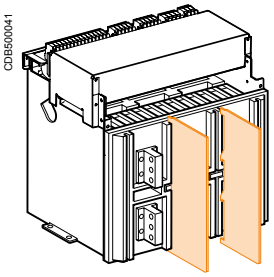
The mechanical connection must be exclude the possibility of formation of a magnetic loop around a conductor.

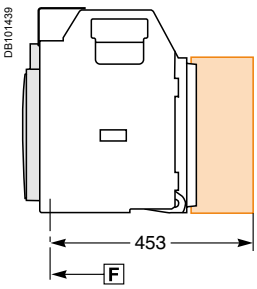




Interphase barrier

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





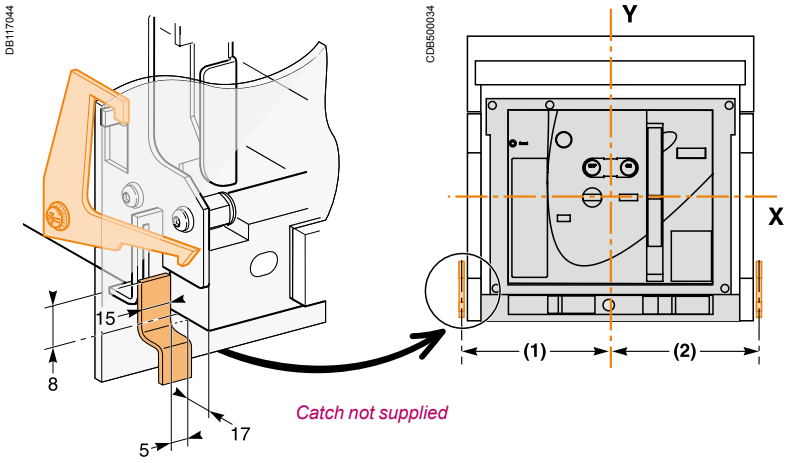
Door interlock catch

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. It the breaker is put in the “connected” position with the door open, the door may be closed without having to disconnect the circuit breaker.

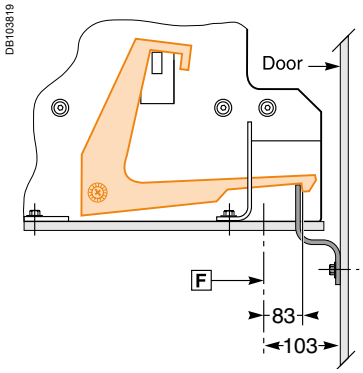
Dimensions (mm)

Type	(1)	(2)
MVS08-40 (3P)	215	215
MVS08-40 (4P)	330	215



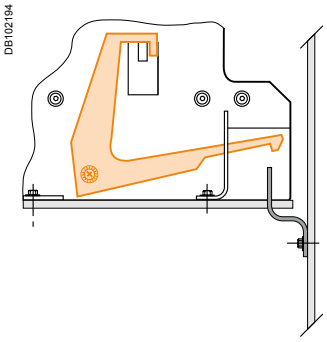
Breaker in “connected” or “test” position

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.*

Control wiring

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 mm²	1,5 mm²	2,5 mm²	1,5 mm²	2,5 mm²	1,5 mm²
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+)

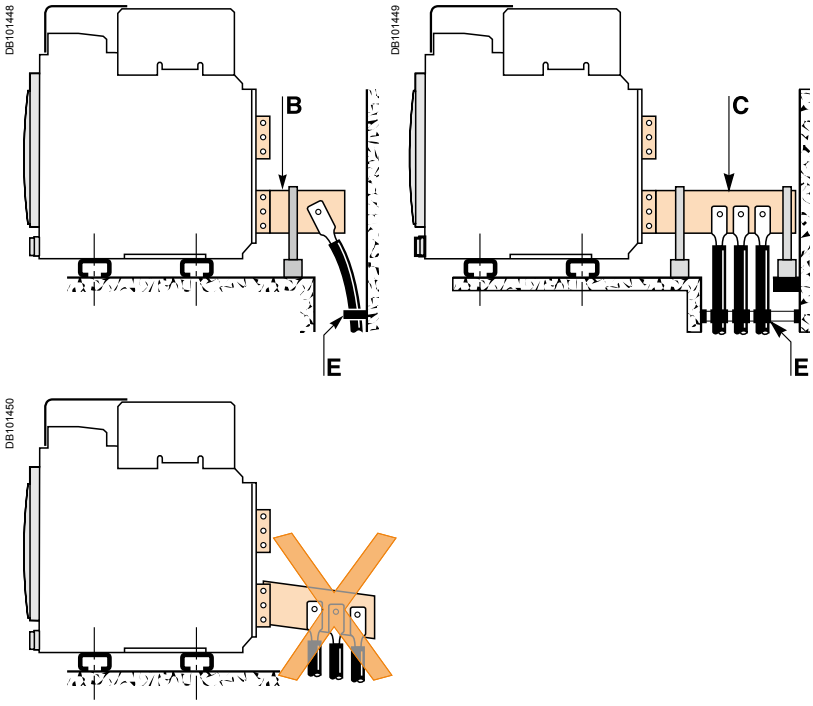
- Do not connect the positive terminal (F2+) to earth
- The negative terminal (F1-) can be connected to earth
- A number of trip units can be connected to the same 24 V DC power supply (the consumption of a trip unit is approximately 100 mA)
- Do not connect any devices other than a trip unit
- The maximum 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.*

Cables connections

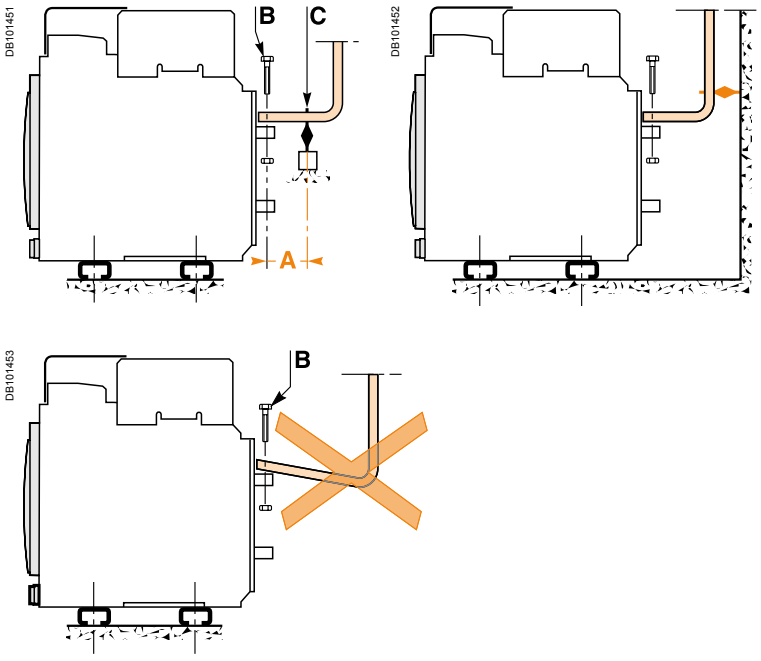
If cables are used for the power connections, make sure that they do not apply excessive mechanical forces to the circuit breaker terminals.
For this, make the connections as follows:

- ■ 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).

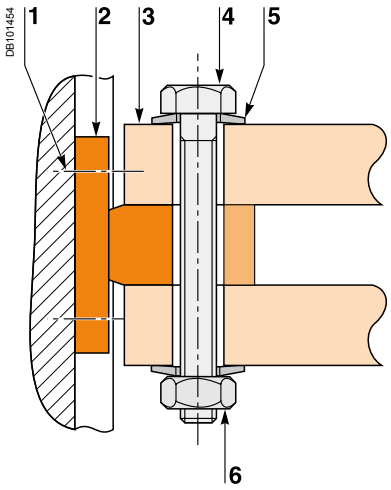


Electrodynamic stresses

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

Power connection

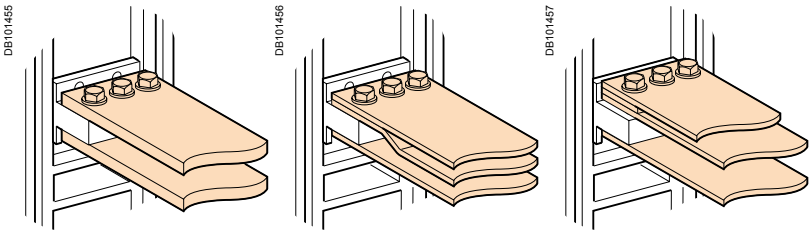


1 *Terminal screw factory-tightened to 16 Nm.*
2 *Breaker terminal.*
3 *Busbar.*
4 *Bolt.*
5 *Washer.*
6 *Nut.*

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).

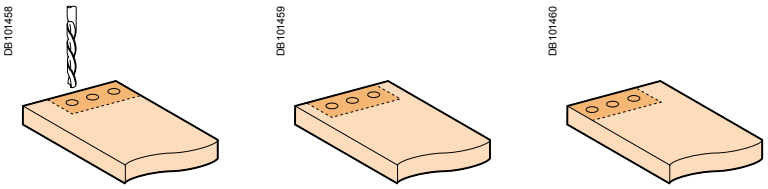
Examples



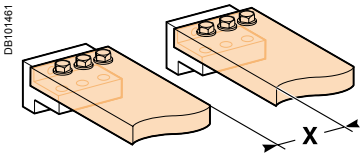
Tightening torques			
Ø (mm) Nominal	**Ø (mm) Drilling**	**Tightening torques (Nm) with grower or flat washers**	**Tightening torques (Nm) with contact or corrugatec washers**
10	11	37.5	50

Busbar drilling

Examples



Isolation distance

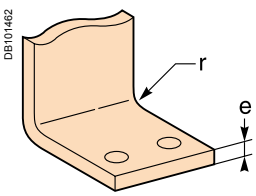


Dimensions (mm)

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).

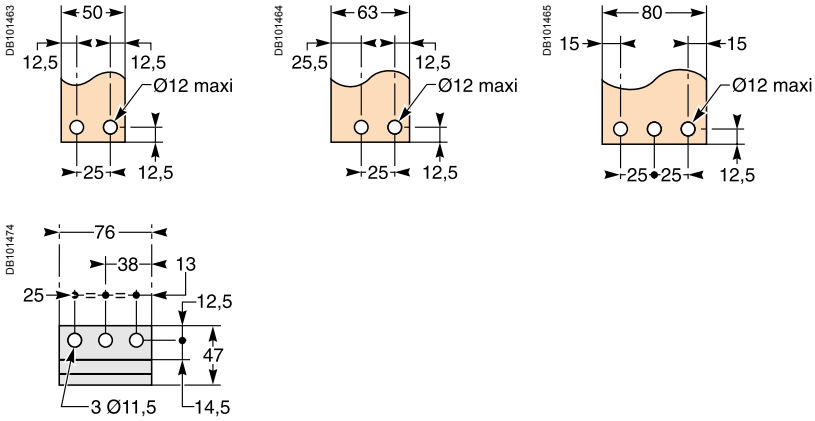


Dimensions (mm)

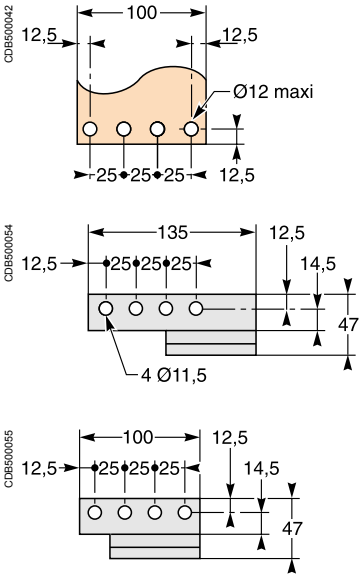
e	Radius of curvature r	
	Min	**Recommended**
5	5	7.5
10	15	18 to 20

Recommended busbars drilling
EasyPact MVS08 to MVS40

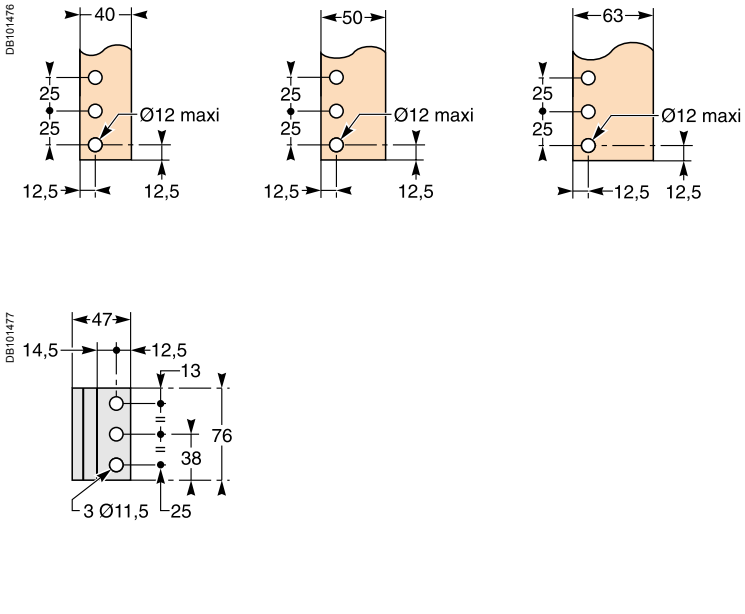
Horizontal rear connection MVS08 to MVS32



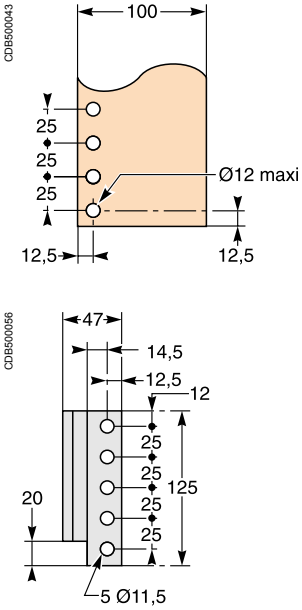
MVS40



Vertical rear connection MVS08 to MVS32



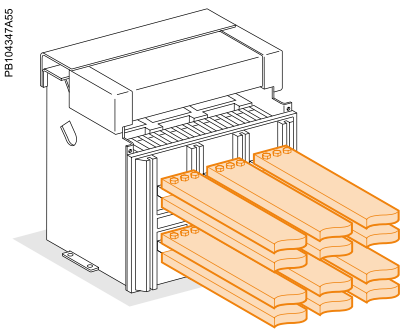
MVS40

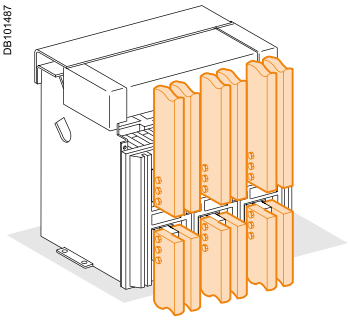


Busbar sizing

Basis of tables:
- Maximum permissible busbars temperature: 100°C
- Ti: temperature around the circuit breaker and its connection
- Busbar material is unpainted Copper/ Aluminium

Rear horizontal/vertical connection





Unpainted Copper (Horizontal connection)

EasyPact	Maximum service current	Ti : 40°C No. of 5 mm thick bars	Ti : 40°C No. of 10 mm thick bars	Ti : 50°C No. of 5 mm thick bars	Ti : 50°C No. of 10 mm thick bars
MVS08	800	2b.50 x 5	1b.50 x 10	2b.50 x 5	1b.50 x 10
MVS10	1000	3b.50 x 5	1b.63 x 10	3b.50 x 5	2b.50 x 10
MVS12	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	
MVS16	1600	3b.80 x 5	2b.63 x 10	3b.80 x 5	2b.63 x 10
MVS20	2000	3b.100 x 5	2b.80 x 10	3b.100 x 5	2b.80 x 10
MVS25	2500	4b.100 x 5	2b.100 x 10	4b.100 x 5	2b.100 x 10
MVS32	3200	6b.100 x 5	3b.100 x 10	8b.100 x 5	3b.100 x 10
MVS40	4000		5b.100 x 10		5b.100 x 10

Unpainted Copper (Vertical connection)

EasyPact	Maximum service current	Ti : 40°C No. of 5 mm thick bars	Ti : 40°C No. of 10 mm thick bars	Ti : 50°C No. of 5 mm thick bars	Ti : 50°C No. of 10 mm thick bars
MVS08	800	2b.50 x 5	1b.50 x 10	2b.50 x 5	1b.50 x 10
MVS10	1000	2b.50 x 5	1b.50 x 10	2b.50 x 5	1b.50 x 10
MVS12	1250	2b.63 x 5	1b.63 x 10	3b.50 x 5	2b.40 x 10
MVS16	1600	3b.63 x 5	2b.50 x 10	3b.63 x 5	2b.50 x 10
MVS20	2000	3b.100 x 5	2b.63 x 10	3b.100 x 5	2b.63 x 10
MVS25	2500	4b.100 x 5	2b.80 x 10	4b.100 x 5	2b.80 x 10
MVS32	3200	6b.100 x 5	3b.100 x 10	6b.100 x 5	3b.100 x 10
MVS40	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
MVS08	800	Horizontal/vertical	2b.40 x 10
MVS10	1000	Horizontal/vertical	2b.50 x 10
MVS12	1250	Horizontal/vertical	2b.80 x 10
MVS16	1600	Horizontal/vertical	3b.80 x 10
MVS20	2000	Vertical	4b.80 x 10
MVS25	2500	Vertical	4b.100 x 10
MVS32	3200	Vertical	4b.150 x 10
MVS40	4000	Vertical	5b.150 x 10

Example

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

Solution:
For T_i = 50°C, use an MVS16 which can be connected with 2 bars-63x10mm Copper (or) 3 bars-80x10mm Aluminium

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 Ti around the circuit breaker and the busbars.
For Ti greater than 60°C, consult us.
Ti: temperature around the circuit breaker and its connection.

Version	Drawout										Fixed									
Connection	Rear horizontal					Rear vertical					Rear horizontal					Rear vertical				
Temp. Ti	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
MVS (50kA)																				
MVS08N	800					800					800					800				
MVS10N	1000					1000					1000					1000				
MVS12N	1250					1250					1250					1250				
MVS16N	1600					1600					1600					1600				
MVS20N	2000			1900	1800	2000				1900	2000				1920	2000				
MVS25N	2500				2450	2500					2500					2500				
MVS32N	3200		3100	3000	2900	3200					3200					3200				
MVS40N	4000		3900	3750	3650	4000				3900	4000			3900	3800	4000				
MVS (65kA)																				
MVS08N	800					800					800					800				
MVS10N	1000					1000					1000					1000				
MVS12N	1250					1250					1250					1250				
MVS16N	1600					1600					1600					1600				
MVS20N	2000			1900	1800	2000				1900	2000				1920	2000				
MVS25N	2500	2450	2400	2300	2200	2500		2450	2400	2300	2500					2500				
MVS32N	3200		3100	3000	2900	3200					3200					3200				
MVS40N	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 breaker.

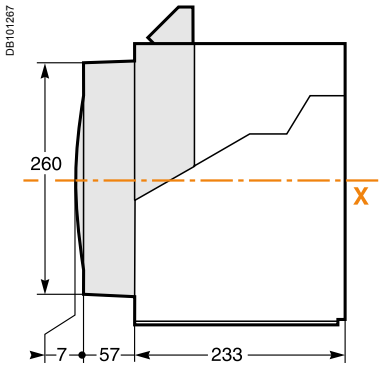
Type	Draw-out	Fixed
50kA	Power loss (W)	Power loss (W)
MVS08N	120	60
MVS10N	180	100
MVS12N	280	140
MVS16N	460	200
MVS20N	470	250
MVS25N	600	260
MVS32N	670	420
MVS40N	900	650
65kA		
MVS08H	100	42
MVS10N	150	70
MVS12N	230	100
MVS16N	390	170
MVS20N	470	250
MVS25N	600	260
MVS32N	670	420
MVS40N	900	650

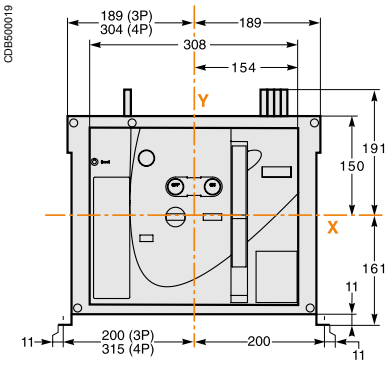
Dimensions and connection

Dimensions and connection

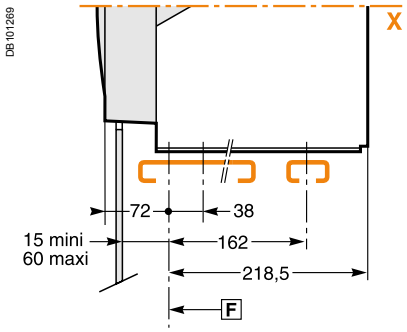
MVS08 to MVS32 circuit breakers
Fixed 3/4-poles device

Dimensions

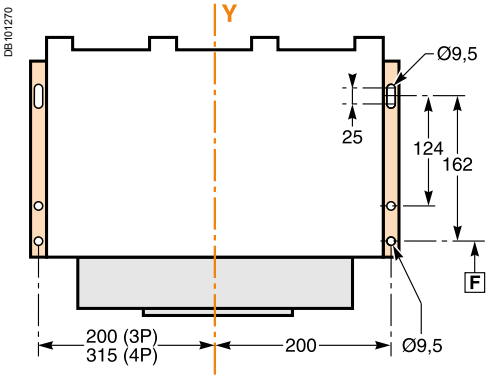




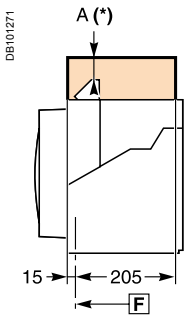
Mounting on base plate or rails

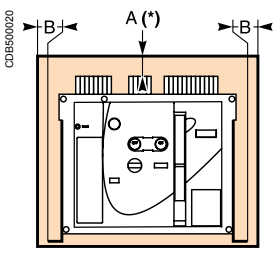


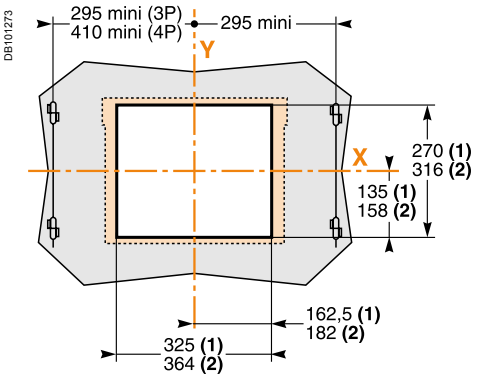
Mounting detail



Safety clearances







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

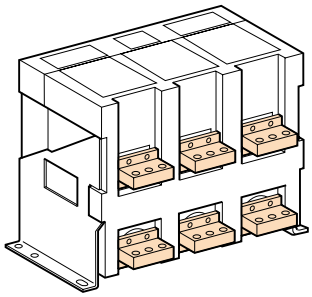
F : Datum.

(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.

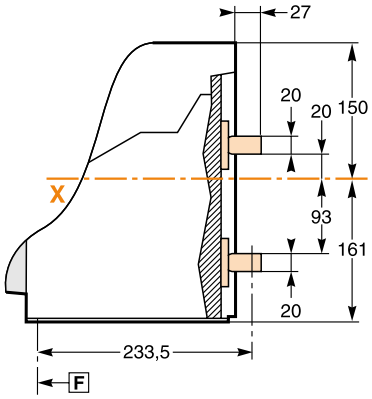
Connections

Horizontal rear connection

DB101274

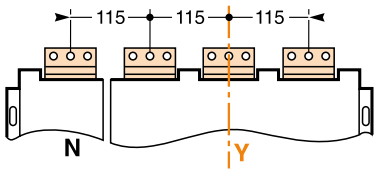


DB101276

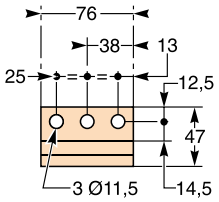


Detail

DB101277

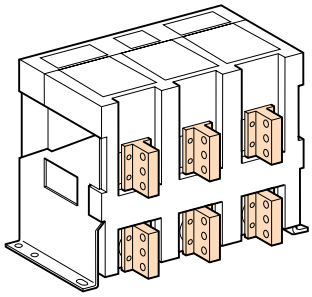


DB101278



Vertical rear connection

DB101279



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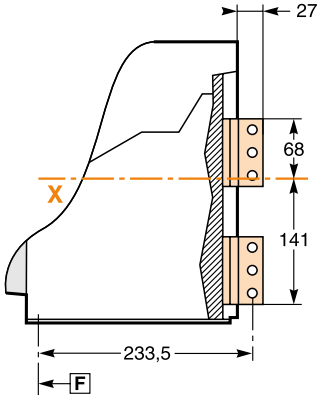
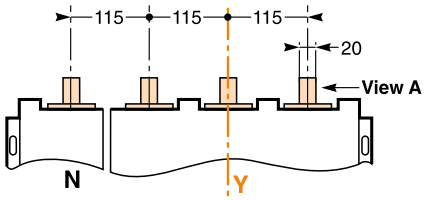
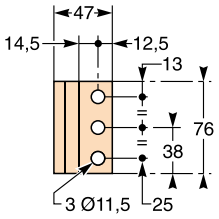


Detail

DB101287



DB101282

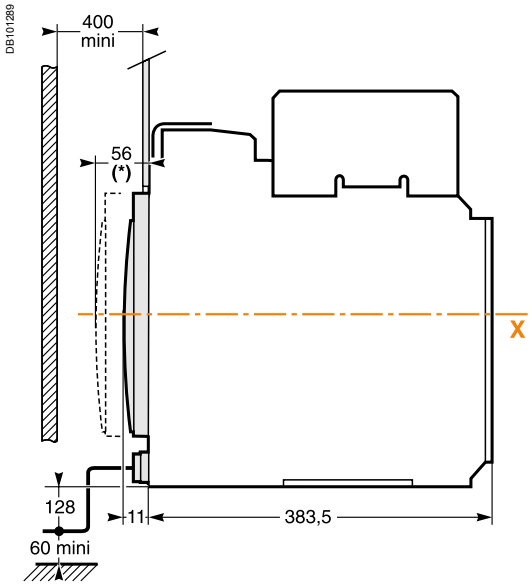


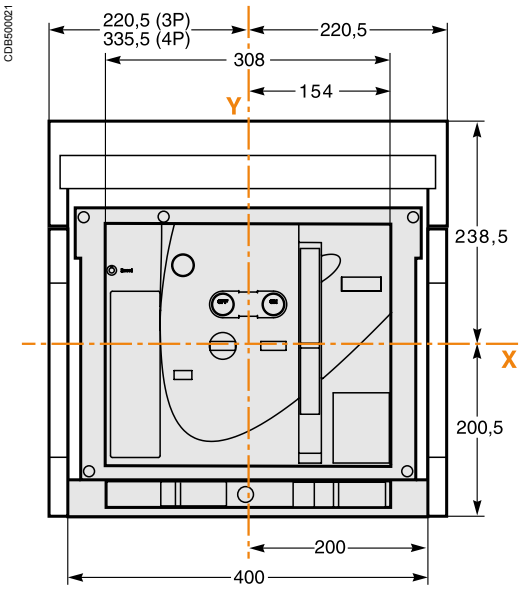
View A detail.

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

MVS08 to MVS32 circuit breakers
Drawout 3/4-poles device

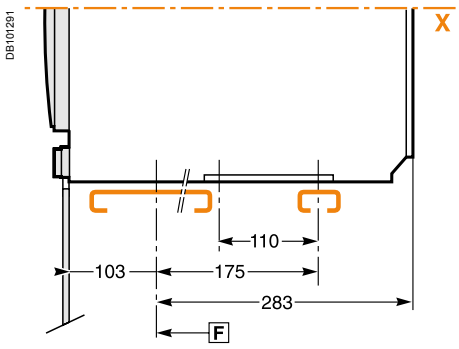
Dimensions



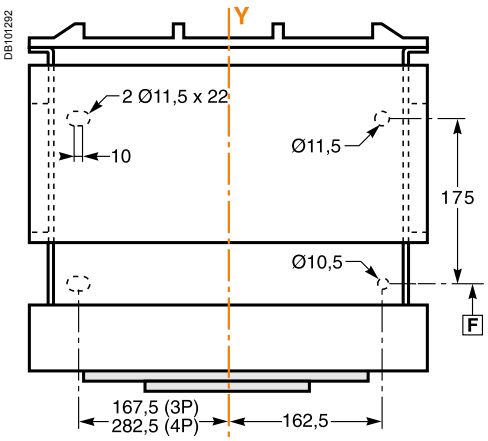


(*) Disconnected position.

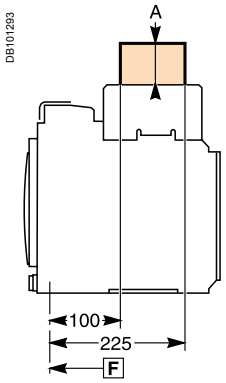
Mounting on base plate or rails

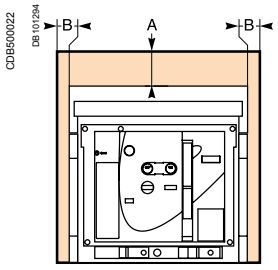


Mounting detail



Safety clearances

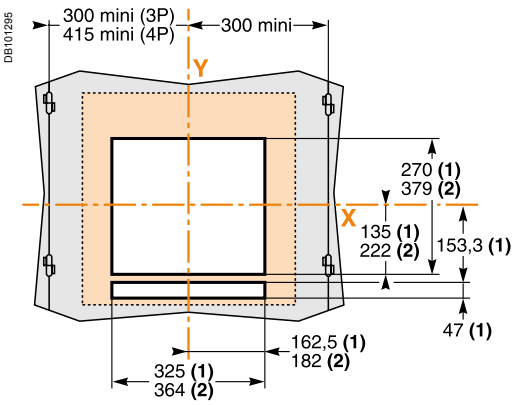




	Insulated parts	Metal parts	Energised parts
A	0	0	0
B	0	0	60

F : Datum.

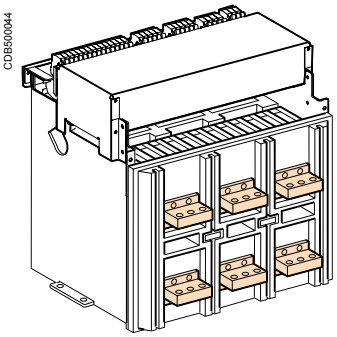
Door cutout

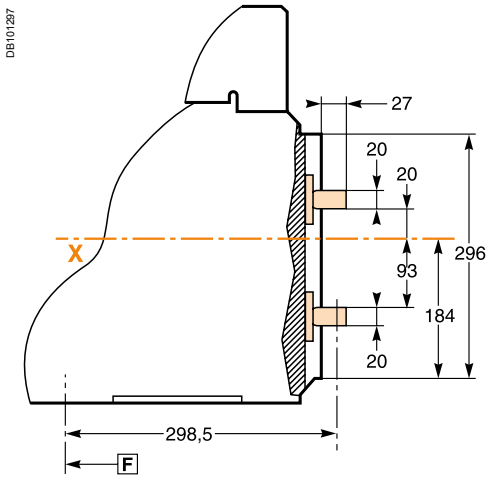


(1) Without escutcheon.
(2) With escutcheon.
***Note:** X and Y are the symmetry planes for a 3-pole device.*

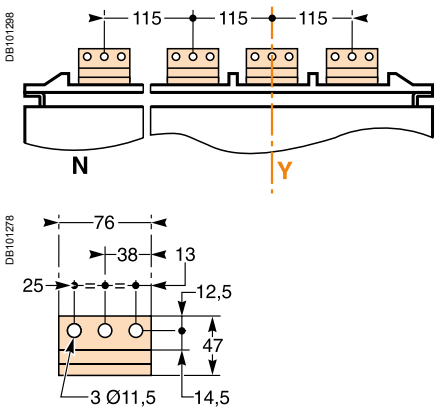
Connections

Horizontal rear connection

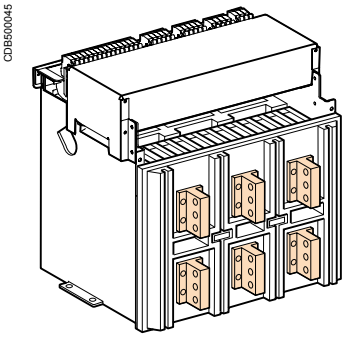


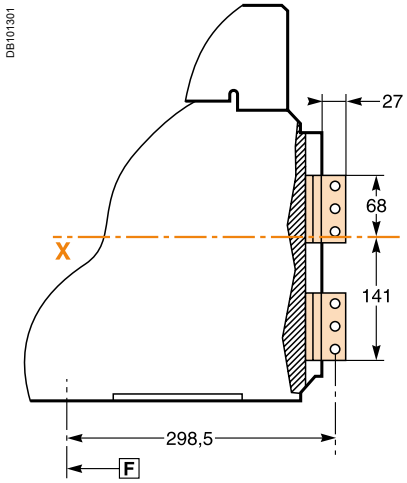


Detail

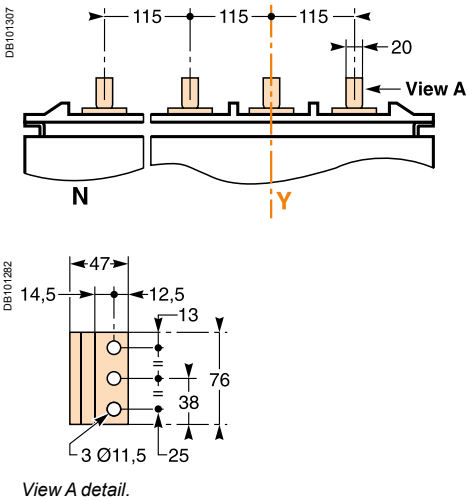


Vertical rear connection





Detail

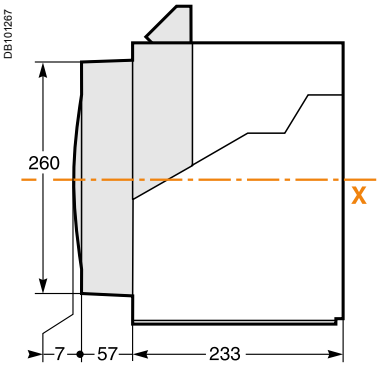


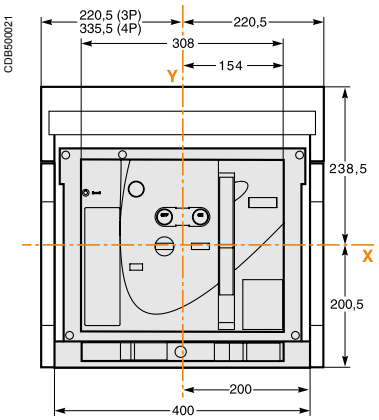
View A detail.

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

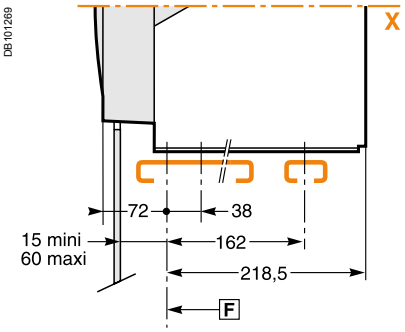
MVS40 circuit breakers
Fixed 3/4-poles device

Dimensions

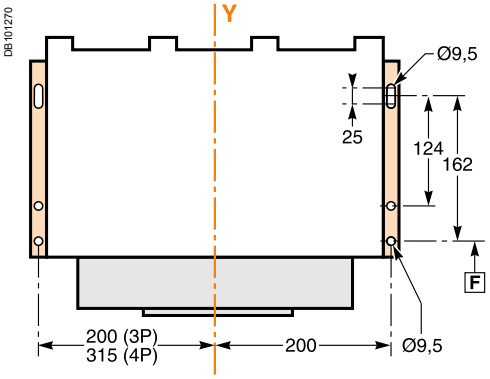




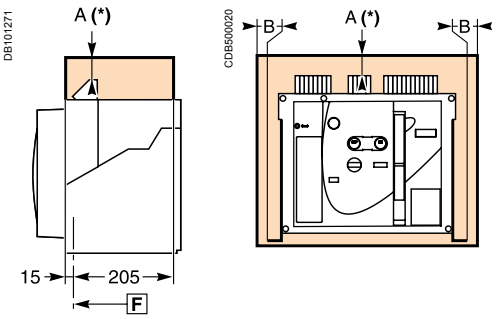
Mounting on base plate or rails



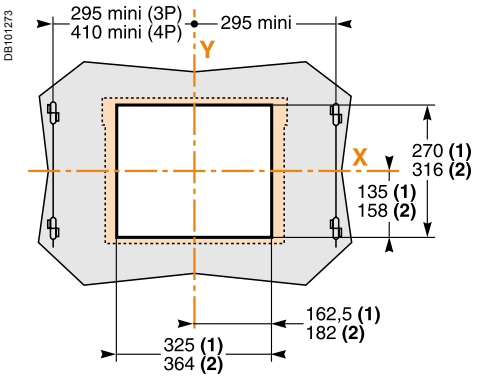
Mounting detail



Safety clearances



Door cutout



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

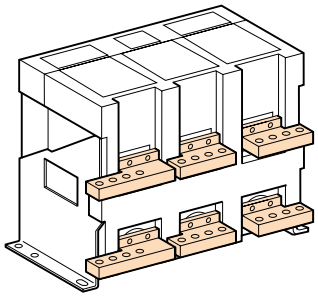
F : Datum.

(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.

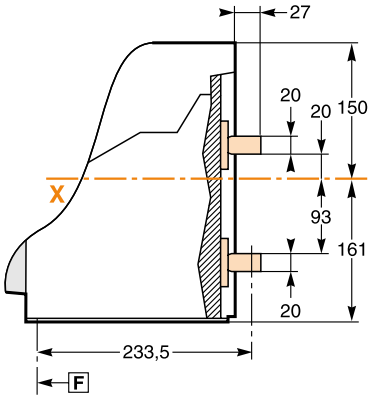
Connections

Horizontal rear connection

DB101309

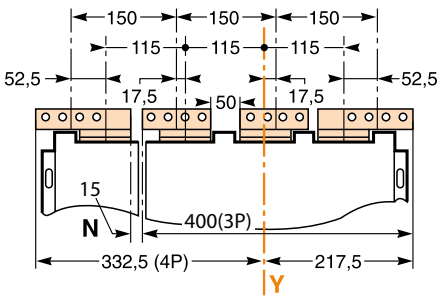


DB101276

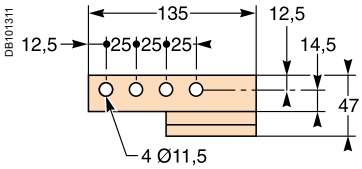


Detail

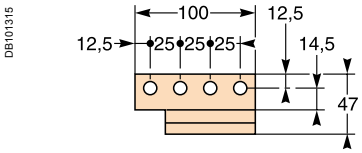
CDB500049



DB101311

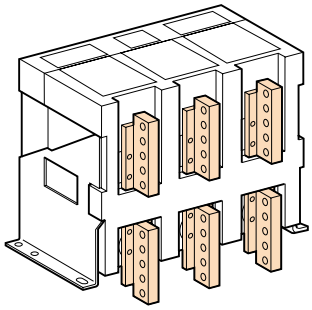


DB101315

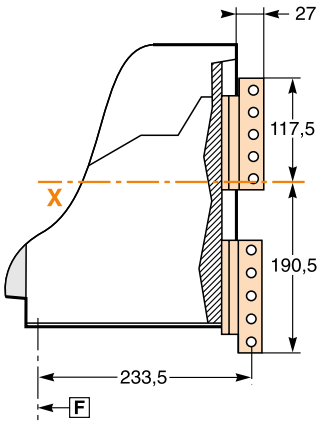


Vertical rear connection

DB101312

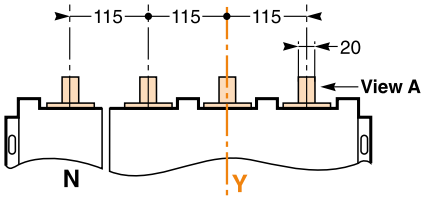


DB101313

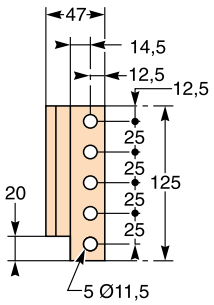


Detail

DB101287



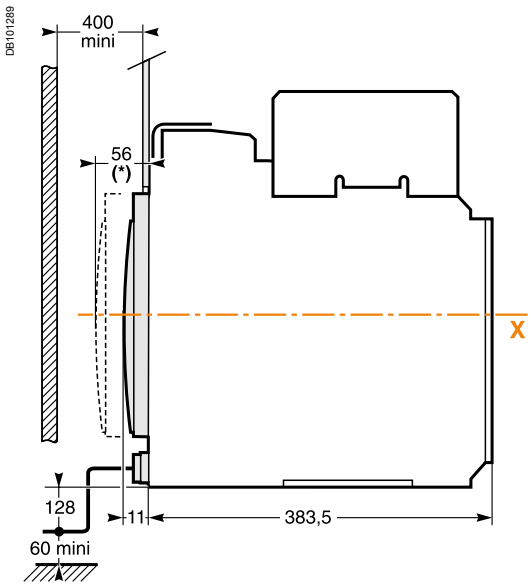
DB101314

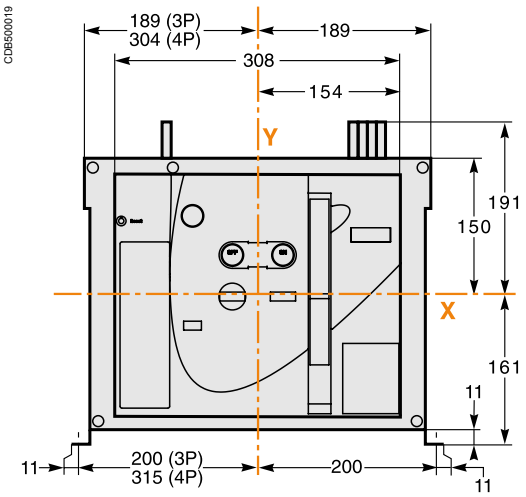


Note: *Recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

MVS40 circuit breakers
Drawout 3/4-poles device

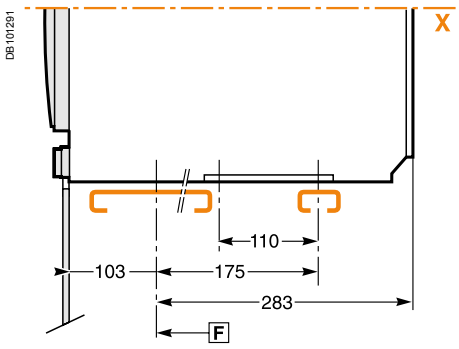
Dimensions



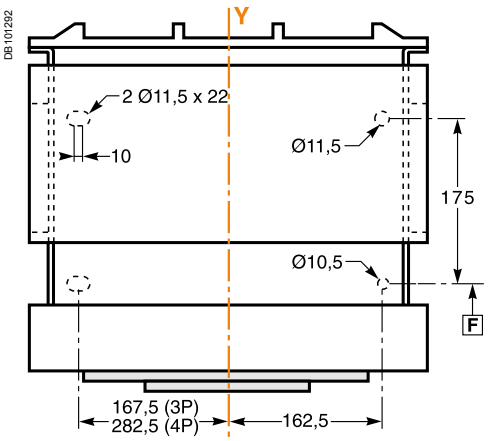


(*) Disconnected position.

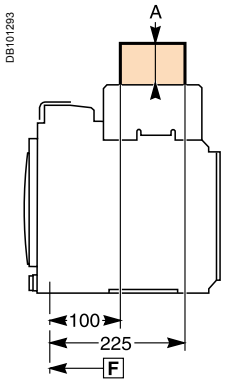
Mounting on base plate or rails

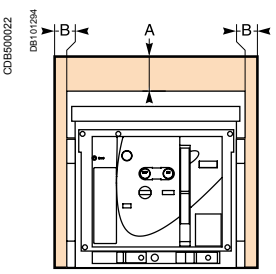


Mounting detail



Safety clearances

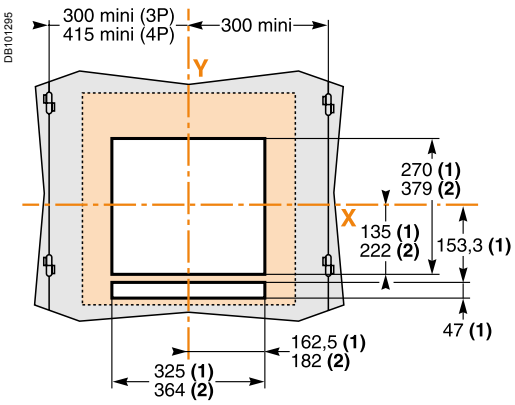




	Insulated parts	Metal parts	Energised parts
A	0	0	0
B	0	0	60

F : *Datum.*

Door cutout

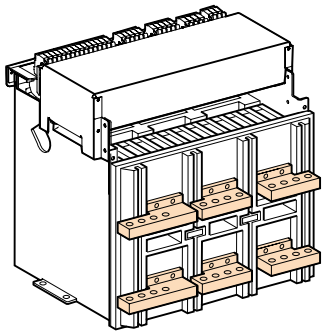


(1) Without escutcheon.
(2) With escutcheon.
***Note:** X and Y are the symmetry planes for a 3-pole device.*
The safety clearances take into account the space required to remove the arc chutes.

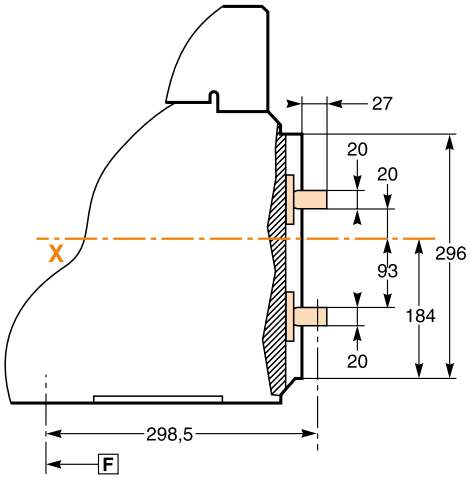
Connections

Horizontal rear connection

CDB500046

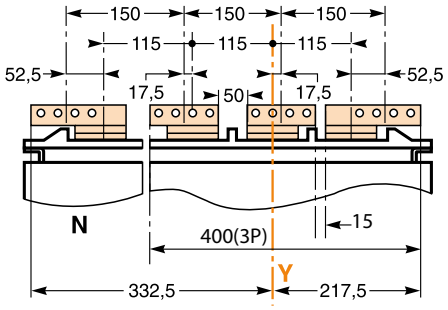


DB101297

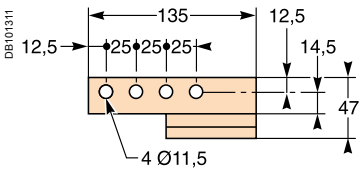


Detail

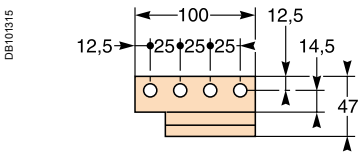
CDB500050



DB101311

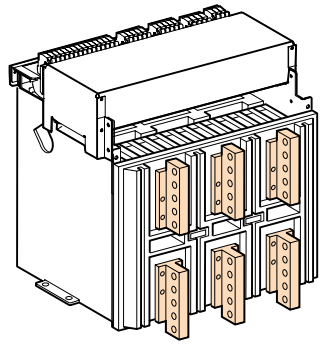


DB101315

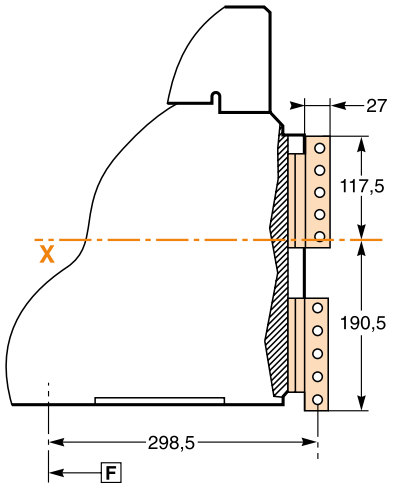


Vertical rear connection

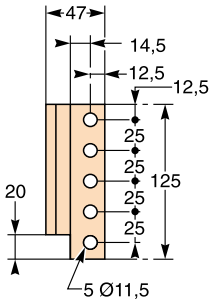
CDB500047



DB101319



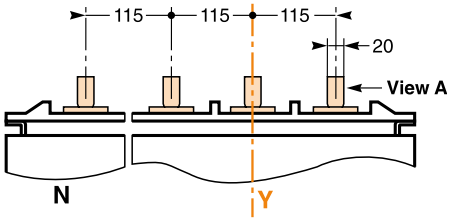
DB101314



View A detail.

Detail

DB101307



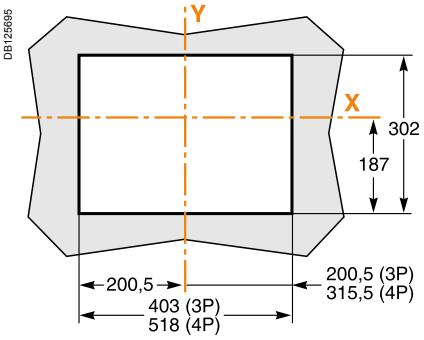
Note: *Recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

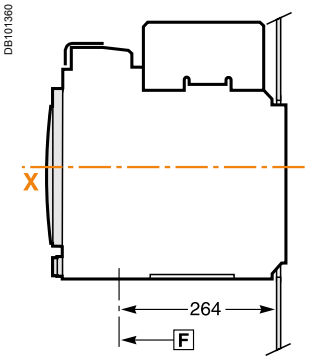
Accessories

Rear panel cutout (drawout devices)

MVS08 to MVS40

Rear view

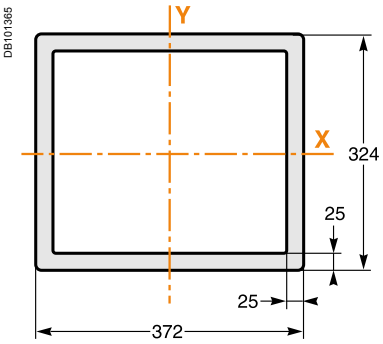




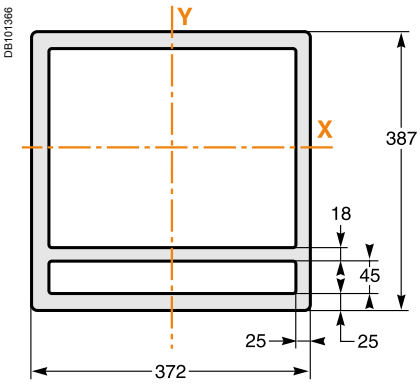
Escutcheon

EasyPact MVS

Fixed device

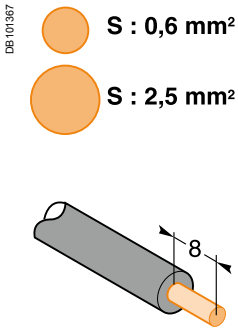


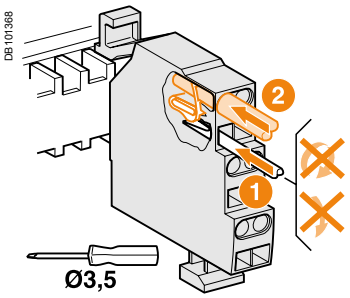
Drawout device



F : *Datum.*

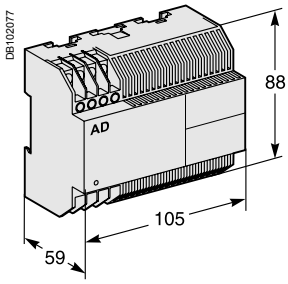
Connection of auxilary wiring to terminal block

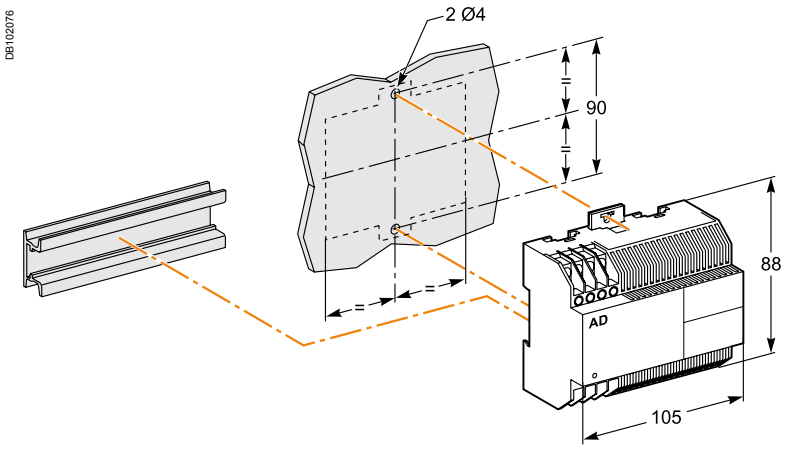




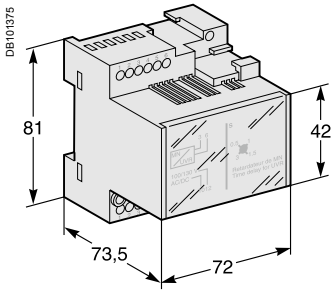
One conductor only per connection point.

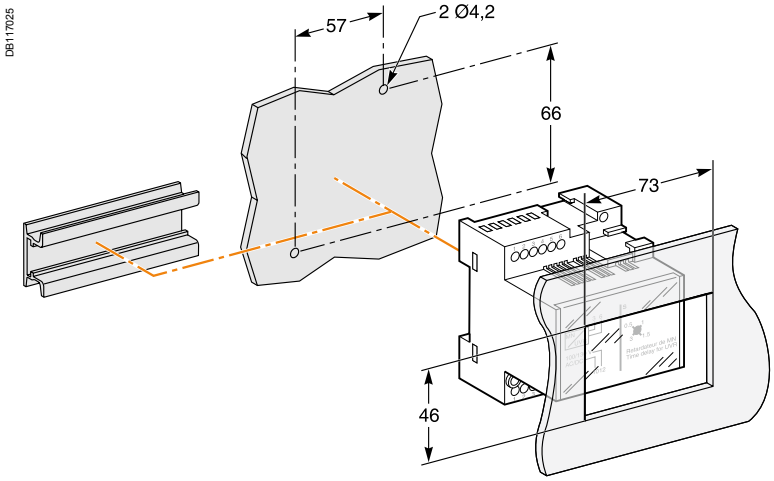
External power supply module (AD)





Delay unit for MN release



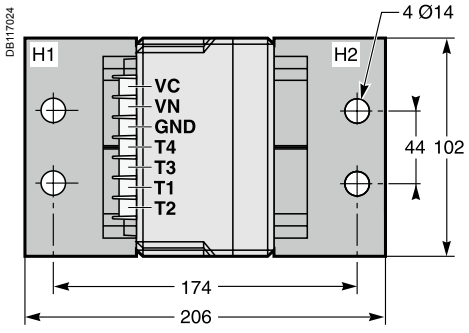


External modules

External sensor for external neutral

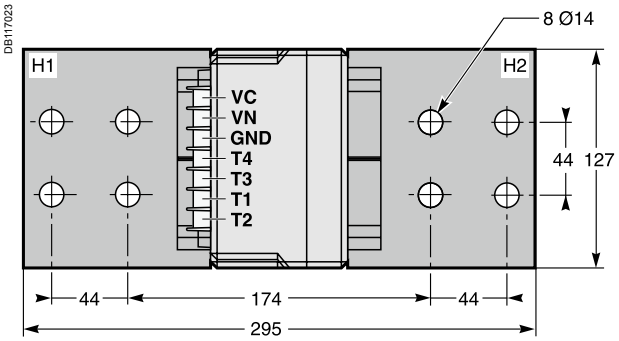
Dimensions

400/2000 A (MVS08 to MVS20)



High: 162 mm.

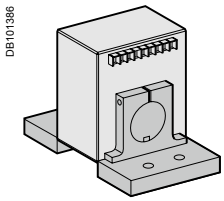
1000/4000 A (MVS25 to MVS40)



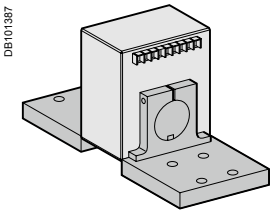
High: 162 mm.

Installation

400/2000 A (MVS08 to MVS20)



1000/4000 A (MVS25 to MVS40)



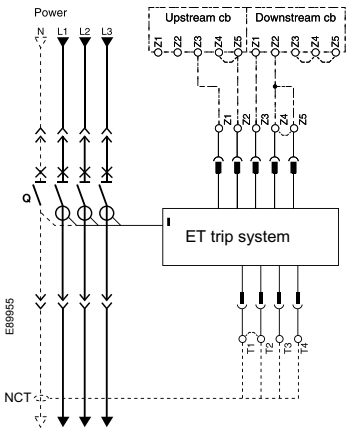
Electrical diagrams

Electrical diagrams

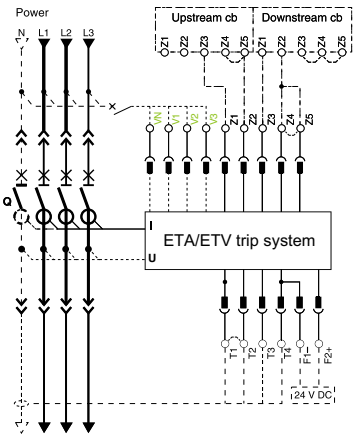
Masterpact MVS08 to MVS40
Fixed and drawout devices

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

Power

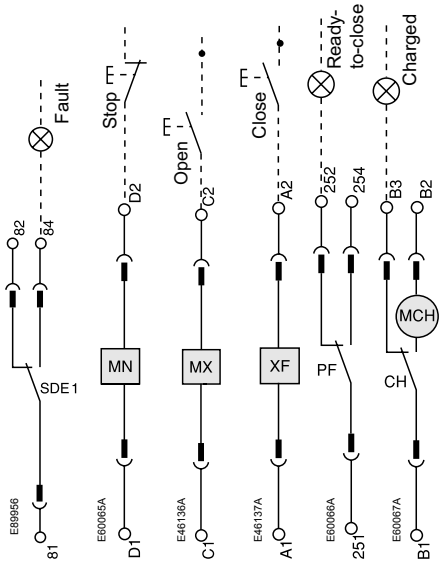


ET/ETA/ETV trip system



Note: V1...VN Voltage connections are available in ETV trip system.

Remote operation



ET trip system

UC1		UC2	
Z5			
Z3	Z4	T3	T4
Z1	Z2	T1	T2

ETA/ETV trip system

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		C3	A3	252	B3
81	D1	C1	A1	251	B1

ET/ETA/ETV trip system

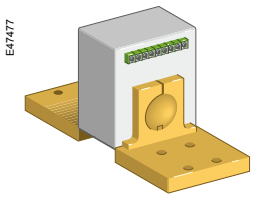
UC1 :
Z1-Z5 zone selective interlocking
Z1=ZSI OUT SOURCE
Z2=ZSI OUT ; Z3 = ZSI IN SOURCE
Z4 =ZSI IN ST (short time)
Z5 =ZSI IN GF (earth fault)

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

UC3 :
F2+, F1-: external 24 V DC power supply
VN: external voltage connector (must be connected to the neutral CT with a 3P circuit breaker equipped with ETV trip system)

Remote operation

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)



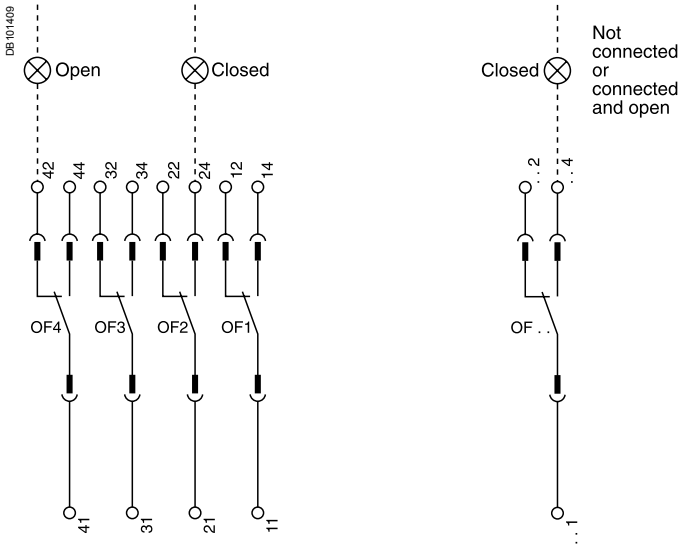
External sensor (CT).

External sensors (Neutral CT)

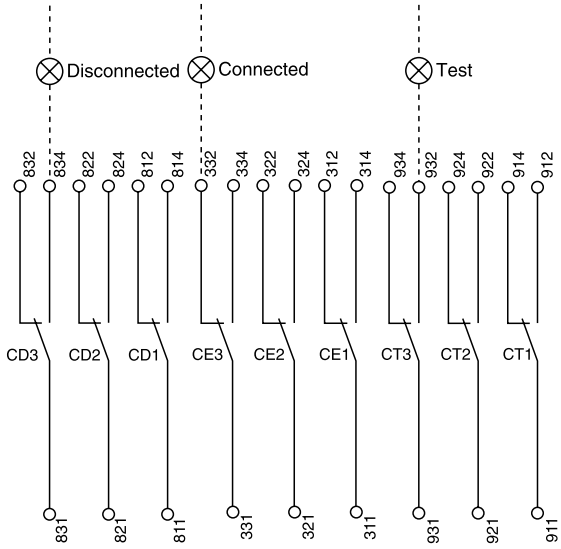
External sensor for earth-fault protection
The sensors, used with the 3P circuit breakers, are installed on the neutral conductor for:
1. Residual type earth-fault protection(ET/ETA/ETV 6G trip system)

The rating of the sensor (CT) must be compatible with the rating of the circuit breaker:
1. MVS08 to MVS20: CT 400/2000;
2. MVS25 to MVS40: CT 1000/4000;

Indication contacts



Chassis contacts



Indication contacts

OF4	OF3	OF2	OF1
44	34	24	14
42	32	22	12
41	31	21	11

Standard

OF14	OF13	OF12	OF11
144	134	124	114
142	132	122	112
141	131	121	111

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

OF4	Standard
OF3	ON/OFF
OF2	Indication contacts
OF1	

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:

Drawout device only

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

Interconnected connections (only one wire per connection point)

EasyPact MVS
Earth-fault protection
Neutral Protection

External sensor (CT) for residual earth-fault protection

Connection of current-transformer secondary circuit for external neutral

EasyPact MVS equipped with a ET/ETA/ETV 6G:

- Shielded cable with 2 twisted pairs
- T1 twisted with T2
- Maximum length 4 meters
- Cable cross-sectional area 0.4 to 1.5 mm^2
- Recommended cable: Belden 9552 or equivalent

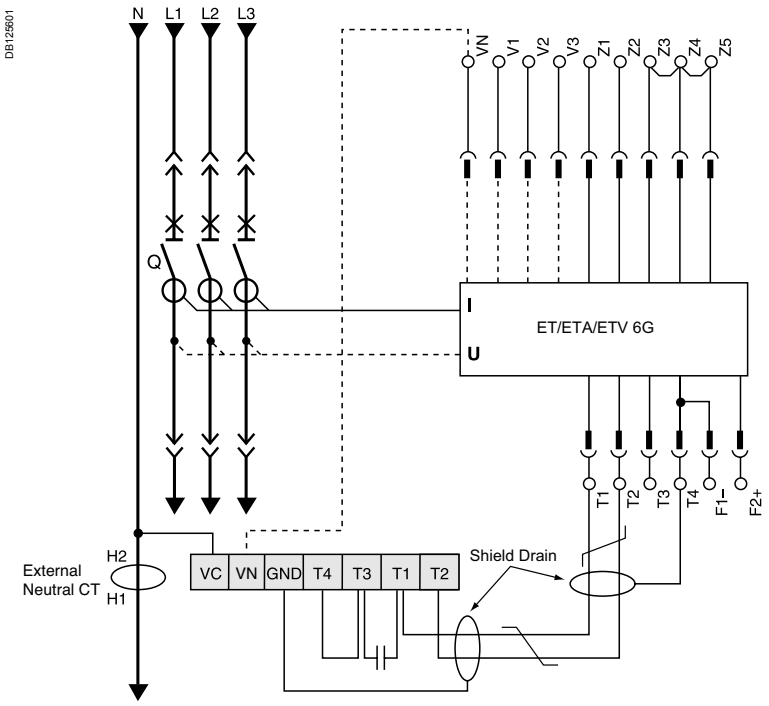
For proper wiring of neutral CT, refer to instruction Bulletin 48041-082-03 shipped with it.

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

If supply is via the top, follow the shematics.

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

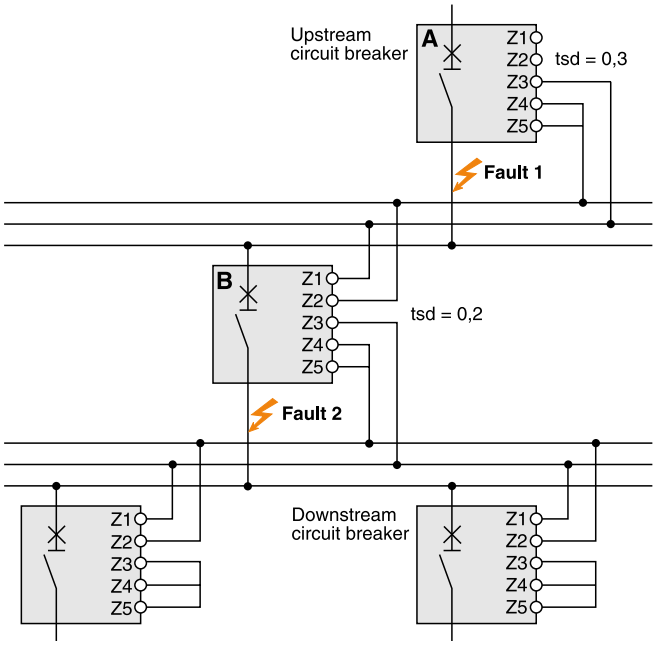
Zone selective interlocking

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 ET range of 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.

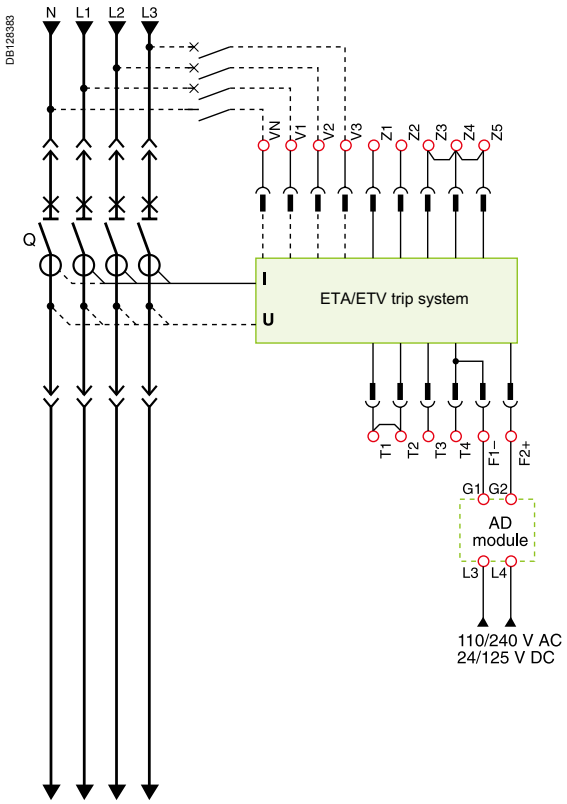
DB101420



Wiring

- Maximum impedance: 2.7 Ω / 300 m
- Capacity of connectors: 0.4 to 2.5 mm^2
- Wires: single or multicore
- Maximum lenght: 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 MVS
24 V DC external power supply
AD module



- The 24 V DC external power-supply (AD module) for the ET Trip system (F1- F2+) is not required for basic protections LSIG
- With ETA/ETV, it is recommended to connect 24 V DC external power-supply (AD module) to the Micrologic control unit (F1- F2+) in order to keep available the display and the energy metering, even if Current < 20 % In

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:

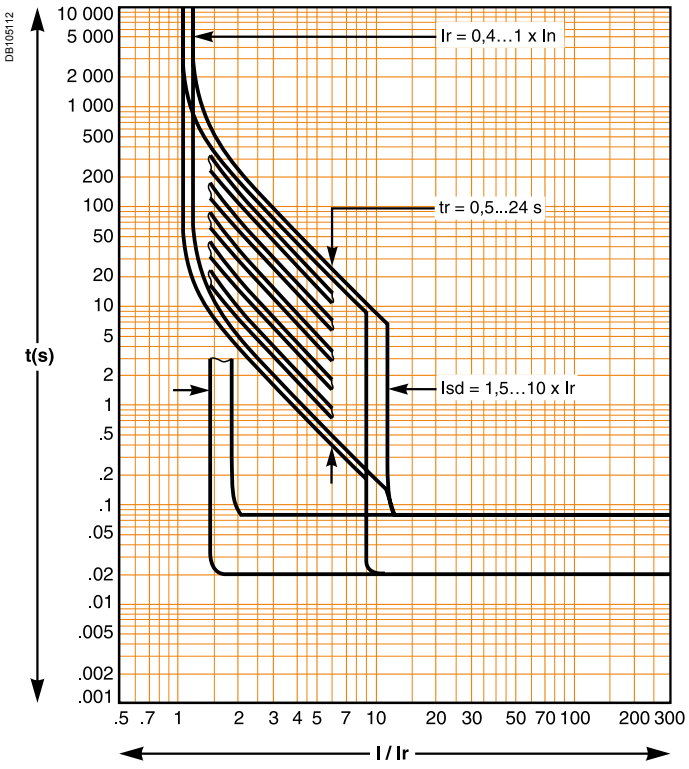
- The input and output wires of the 24 V DC power supply must be physically separated as much as possible
- If the 24 V DC power supply wires cross power cables, they must cross perpendicularly. If this is not physically possible, the power supply conductors must be twisted together
- Power supply conductors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

Additional characteristics

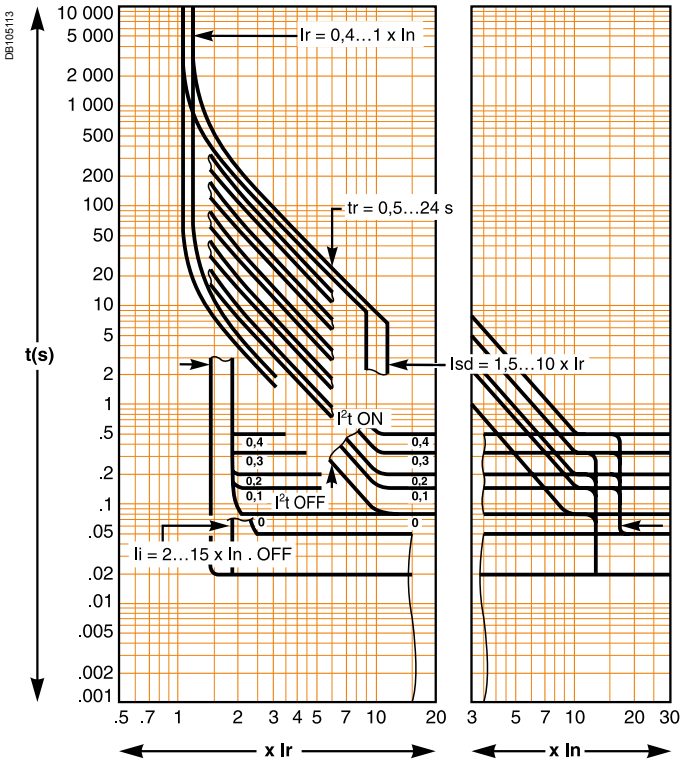
Additional characteristics

Tripping curves

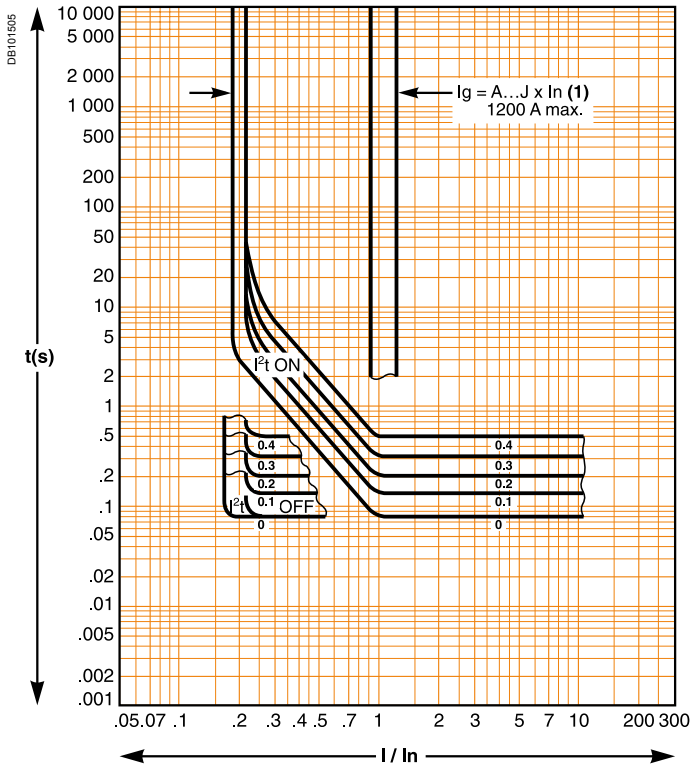
ET range of trip system - 2I



ET range of trip system - 5S, 6G



Earth fault protection (ET range of trip system - 6G)



(1)

Ig = In x...	A	B	C	D	E	F	G	H	I
In ≤ 400 A	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
400 A < In ≤ 1000 A	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
In ≥ 1250A	500	640	720	800	880	960	1040	1120	1200

Catalogue numbers and order form

Catalogue numbers and order form

Nomenclature

Range	Current rating	Type	Pole	Operating mechanism	Installation	Protection No.	Type	
EasyPact MVS (from 800 to 4000A) Icu=Ics=Icw (1 sec)=50kA & 65kA								
MVS	08	N	3	M	F	2	L	
	10	H	4	N	W	5	A	
	12			O		6	V	
	16			P		0	D	
	20			Q				
	25			R				
	32			S				
	40			T				
3	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**11 digits**
							Type	
							L	Basic protection
							A	Protection+current metering
							V	Protection+voltage metering
							D	Switch disconnector
							Protections No.	
						2	LI protection	
						5	LSI protection	
						6	LSIG protection	
						0	No protection for switch disconnector	
						Type of installation		
					F	Fixed		
					W	Withdrawable/drawout		
					Operating mechanism			
				M	Manually operated ACB/SD			
				N	Electrical 200/240 VAC	MCH + XF + MX		
				O	Electrical 110/130 VAC	MCH + XF + MX		
				P	Electrical 380/415 VAC	MCH + XF + MX		
				Q	Electrical 200/250 VDC	MCH + XF + MX		
				R	Electrical 100/125 VDC	MCH + XF + MX		
				S	Electrical 48/60V DC	MCH + XF + MX		
				T	Electrical 24/30V DC	MCH + XF + MX		
				Number of poles				
			3P	3 Poles				
			4P	4 Poles				
			Type based on breaking capacity					
		N	Circuit breaker/ switch disconnector Icu=Ics=Icw(1sec)=50kA					
		H	Circuit breaker/ switch disconnector Icu=Ics=Icw(1sec)=65kA					
		Current rating						
	08	800A						
	10	1000A						
	12	1250A						
	16	1600A						
	20	2000A						
	25	2500A						
	32	3200A						
	40	4000A						

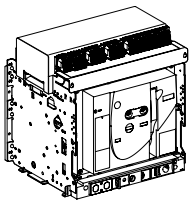
Example 1 MVS32N4NW6L

MVS	32	N	4	N	W	6	L
EasyPact MVS	3200A	50kA	4 Pole	Electrical operated 240V AC	Withdrawable type	LSIG protection	Basic trip unit with LED indications

Example 2 MVS16H3MF0D

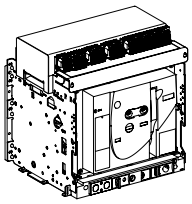
MVS	16	H	3	M	F	0	D
EasyPact MVS	1600A	65kA	3 Pole	Manual operated	Fixed	No protection	Switch disconnector

EasyPact MVS fixed type 50kA with ET trip unit


CDB500048

		3P			4P		
		ET2I	ET5S	ET6G	ET2I	ET5S	ET6G
Manual	800A	MVS08N3MF2L	MVS08N3MF5L	MVS08N3MF6L	*	*	*
	1000A	MVS10N3MF2L	MVS10N3MF5L	MVS10N3MF6L	*	*	*
	1250A	MVS12N3MF2L	MVS12N3MF5L	MVS12N3MF6L	*	*	*
	1600A	MVS16N3MF2L	MVS16N3MF5L	MVS16N3MF6L	*	*	*
	2000A	MVS20N3MF2L	MVS20N3MF5L	MVS20N3MF6L	*	*	*
	2500A	MVS25N3MF2L	MVS25N3MF5L	MVS25N3MF6L	*	*	*
	3200A	MVS32N3MF2L	MVS32N3MF5L	MVS32N3MF6L	*	*	*
	4000A	MVS40N3MF2L	MVS40N3MF5L	MVS40N3MF6L	*	*	*
Electrical 240V AC[(1)]	800A	MVS08N3NF2L	MVS08N3NF5L	MVS08N3NF6L	*	*	*
	1000A	MVS10N3NF2L	MVS10N3NF5L	MVS10N3NF6L	*	*	*
	1250A	MVS12N3NF2L	MVS12N3NF5L	MVS12N3NF6L	*	*	*
	1600A	MVS16N3NF2L	MVS16N3NF5L	MVS16N3NF6L	*	*	*
	2000A	MVS20N3NF2L	MVS20N3NF5L	MVS20N3NF6L	*	*	*
	2500A	MVS25N3NF2L	MVS25N3NF5L	MVS25N3NF6L	*	*	*
	3200A	MVS32N3NF2L	MVS32N3NF5L	MVS32N3NF6L	*	*	*
	4000A	MVS40N3NF2L	MVS40N3NF5L	MVS40N3NF6L	*	*	*

EasyPact MVS fixed type 50kA Switch Disconnector


CDB500048

		3P	4P
Manual	800A	MVS08N3MF0D	*
	1000A	MVS10N3MF0D	*
	1250A	MVS12N3MF0D	*
	1600A	MVS16N3MF0D	*
	2000A	MVS20N3MF0D	*
	2500A	MVS25N3MF0D	*
	3200A	MVS32N3MF0D	*
	4000A	MVS40N3MF0D	*
Electrical 240V AC[(1)]	800A	MVS08N3NF0D	*
	1000A	MVS10N3NF0D	*
	1250A	MVS12N3NF0D	*
	1600A	MVS16N3NF0D	*
	2000A	MVS20N3NF0D	*
	2500A	MVS25N3NF0D	*
	3200A	MVS32N3NF0D	*
	4000A	MVS40N3NF0D	*

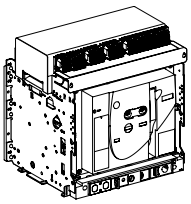
(1) Supplied with spring charge motor(MCH), opening release(MX) and closing release(XF) with 240V AC control voltage rating.

** Non-standard configured products.*
Use customer order form in page F-9 to order non-standard products

EasyPact MVS 800 to 4000A
EasyPact MVS fixed 65kA

EasyPact MVS fixed type 65kA with ET trip unit

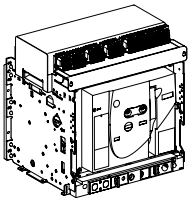
CDB500048



		3P			4P		
		ET2I	ET5S	ET6G	ET2I	ET5S	ET6G
Manual	800A	MVS08H3MF2L	MVS08H3MF5L	MVS08H3MF6L	*	*	*
	1000A	MVS10H3MF2L	MVS10H3MF5L	MVS10H3MF6L	*	*	*
	1250A	MVS12H3MF2L	MVS12H3MF5L	MVS12H3MF6L	*	*	*
	1600A	MVS16H3MF2L	MVS16H3MF5L	MVS16H3MF6L	*	*	*
	2000A	MVS20H3MF2L	MVS20H3MF5L	MVS20H3MF6L	*	*	*
	2500A	MVS25H3MF2L	MVS25H3MF5L	MVS25H3MF6L	*	*	*
	3200A	MVS32H3MF2L	MVS32H3MF5L	MVS32H3MF6L	*	*	*
	4000A	MVS40H3MF2L	MVS40H3MF5L	MVS40H3MF6L	*	*	*
Electrical 240V AC(1)	800A	MVS08H3NF2L	MVS08H3NF5L	MVS08H3NF6L	*	*	*
	1000A	MVS10H3NF2L	MVS10H3NF5L	MVS10H3NF6L	*	*	*
	1250A	MVS12H3NF2L	MVS12H3NF5L	MVS12H3NF6L	*	*	*
	1600A	MVS16H3NF2L	MVS16H3NF5L	MVS16H3NF6L	*	*	*
	2000A	MVS20H3NF2L	MVS20H3NF5L	MVS20H3NF6L	*	*	*
	2500A	MVS25H3NF2L	MVS25H3NF5L	MVS25H3NF6L	*	*	*
	3200A	MVS32H3NF2L	MVS32H3NF5L	MVS32H3NF6L	*	*	*
	4000A	MVS40H3NF2L	MVS40H3NF5L	MVS40H3NF6L	*	*	*

EasyPact MVS fixed type 65kA switch disconnector

CDB500048



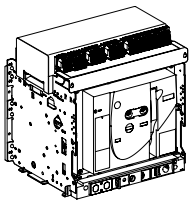
		3P	4P
Manual	800A	MVS08H3MF0D	*
	1000A	MVS10H3MF0D	*
	1250A	MVS12H3MF0D	*
	1600A	MVS16H3MF0D	*
	2000A	MVS20H3MF0D	*
	2500A	MVS25H3MF0D	*
	3200A	MVS32H3MF0D	*
	4000A	MVS40H3MF0D	*
Electrical 240V AC(1)	800A	MVS08H3NF0D	*
	1000A	MVS10H3NF0D	*
	1250A	MVS12H3NF0D	*
	1600A	MVS16H3NF0D	*
	2000A	MVS20H3NF0D	*
	2500A	MVS25H3NF0D	*
	3200A	MVS32H3NF0D	*
	4000A	MVS40H3NF0D	*

(1) Supplied with spring charge motor(MCH), opening release(MX) and closing release(XF) with 240V AC control voltage rating.

** Non-standard configured products.*
Use customer order form in page F-9 to order non-standard products

EasyPact MVS withdrawable type 50kA with ET trip unit

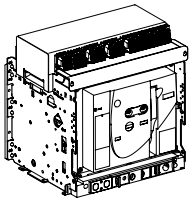
CDB500048



		3P			4P		
		ET2I	ET5S	ET6G	ET2I	ET5S	ET6G
Manual	800A	MVS08N3MW2L	MVS08N3MW5L	MVS08N3MW6L	*	*	*
	1000A	MVS10N3MW2L	MVS10N3MW5L	MVS10N3MW6L	*	*	*
	1250A	MVS12N3MW2L	MVS12N3MW5L	MVS12N3MW6L	*	*	*
	1600A	MVS16N3MW2L	MVS16N3MW5L	MVS16N3MW6L	*	*	*
	2000A	MVS20N3MW2L	MVS20N3MW5L	MVS20N3MW6L	*	*	*
	2500A	MVS25N3MW2L	MVS25N3MW5L	MVS25N3MW6L	*	*	*
	3200A	MVS32N3MW2L	MVS32N3MW5L	MVS32N3MW6L	*	*	*
	4000A	MVS40N3MW2L	MVS40N3MW5L	MVS40N3MW6L	*	*	*
Electrical 240V AC[(1)]	800A	MVS08N3NW2L	MVS08N3NW5L	MVS08N3NW6L	*	*	*
	1000A	MVS10N3NW2L	MVS10N3NW5L	MVS10N3NW6L	*	*	*
	1250A	MVS12N3NW2L	MVS12N3NW5L	MVS12N3NW6L	*	*	*
	1600A	MVS16N3NW2L	MVS16N3NW5L	MVS16N3NW6L	*	*	*
	2000A	MVS20N3NW2L	MVS20N3NW5L	MVS20N3NW6L	*	*	*
	2500A	MVS25N3NW2L	MVS25N3NW5L	MVS25N3NW6L	*	*	*
	3200A	MVS32N3NW2L	MVS32N3NW5L	MVS32N3NW6L	*	*	*
	4000A	MVS40N3NW2L	MVS40N3NW5L	MVS40N3NW6L	*	*	*

EasyPact MVS withdrawable type 50kA with ETA trip unit

CDB500048



		3P			4P		
		ETA2I	ETA5S	ETA6G	ETA2I	ETA5S	ETA6G
Manual	800A	MVS08N3MW2A	MVS08N3MW5A	MVS08N3MW6A	MVS08N4MW2A	MVS08N4MW5A	MVS08N4MW6A
	1000A	MVS10N3MW2A	MVS10N3MW5A	MVS10N3MW6A	MVS10N4MW2A	MVS10N4MW5A	MVS10N4MW6A
	1250A	MVS12N3MW2A	MVS12N3MW5A	MVS12N3MW6A	MVS12N4MW2A	MVS12N4MW5A	MVS12N4MW6A
	1600A	MVS16N3MW2A	MVS16N3MW5A	MVS16N3MW6A	MVS16N4MW2A	MVS16N4MW5A	MVS16N4MW6A
	2000A	MVS20N3MW2A	MVS20N3MW5A	MVS20N3MW6A	MVS20N4MW2A	MVS20N4MW5A	MVS20N4MW6A
	2500A	MVS25N3MW2A	MVS25N3MW5A	MVS25N3MW6A	MVS25N4MW2A	MVS25N4MW5A	MVS25N4MW6A
	3200A	MVS32N3MW2A	MVS32N3MW5A	MVS32N3MW6A	MVS32N4MW2A	MVS32N4MW5A	MVS32N4MW6A
	4000A	MVS40N3MW2A	MVS40N3MW5A	MVS40N3MW6A	MVS40N4MW2A	MVS40N4MW5A	MVS40N4MW6A
Electrical 240V AC[(1)]	800A	MVS08N3NW2A	MVS08N3NW5A	MVS08N3NW6A	MVS08N4NW2A	MVS08N4NW5A	MVS08N4NW6A
	1000A	MVS10N3NW2A	MVS10N3NW5A	MVS10N3NW6A	MVS10N4NW2A	MVS10N4NW5A	MVS10N4NW6A
	1250A	MVS12N3NW2A	MVS12N3NW5A	MVS12N3NW6A	MVS12N4NW2A	MVS12N4NW5A	MVS12N4NW6A
	1600A	MVS16N3NW2A	MVS16N3NW5A	MVS16N3NW6A	MVS16N4NW2A	MVS16N4NW5A	MVS16N4NW6A
	2000A	MVS20N3NW2A	MVS20N3NW5A	MVS20N3NW6A	MVS20N4NW2A	MVS20N4NW5A	MVS20N4NW6A
	2500A	MVS25N3NW2A	MVS25N3NW5A	MVS25N3NW6A	MVS25N4NW2A	MVS25N4NW5A	MVS25N4NW6A
	3200A	MVS32N3NW2A	MVS32N3NW5A	MVS32N3NW6A	MVS32N4NW2A	MVS32N4NW5A	MVS32N4NW6A
	4000A	MVS40N3NW2A	MVS40N3NW5A	MVS40N3NW6A	MVS40N4NW2A	MVS40N4NW5A	MVS40N4NW6A

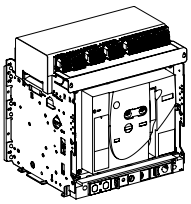
(1) Supplied with spring charge motor(MCH), opening release(MX) and closing release(XF) with 240V AC control voltage rating.

** Non-standard configured products.*
Use customer order form in page F-9 to order non-standard products

EasyPact MVS 800 to 4000A
EasyPact MVS withdrawable 50kA

EasyPact MVS withdrawable type 50kA with ETV trip unit

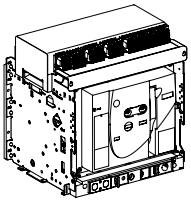
CDB500048



		3P			4P		
		ETV2I	ETV5S	ETV6G	ETV2I	ETV5S	ETV6G
Manual	800A	MVS08N3MW2V	MVS08N3MW5V	MVS08N3MW6V	MVS08N4MW2V	MVS08N4MW5V	MVS08N4MW6V
	1000A	MVS10N3MW2V	MVS10N3MW5V	MVS10N3MW6V	MVS10N4MW2V	MVS10N4MW5V	MVS10N4MW6V
	1250A	MVS12N3MW2V	MVS12N3MW5V	MVS12N3MW6V	MVS12N4MW2V	MVS12N4MW5V	MVS12N4MW6V
	1600A	MVS16N3MW2V	MVS16N3MW5V	MVS16N3MW6V	MVS16N4MW2V	MVS16N4MW5V	MVS16N4MW6V
	2000A	MVS20N3MW2V	MVS20N3MW5V	MVS20N3MW6V	MVS20N4MW2V	MVS20N4MW5V	MVS20N4MW6V
	2500A	MVS25N3MW2V	MVS25N3MW5V	MVS25N3MW6V	MVS25N4MW2V	MVS25N4MW5V	MVS25N4MW6V
	3200A	MVS32N3MW2V	MVS32N3MW5V	MVS32N3MW6V	MVS32N4MW2V	MVS32N4MW5V	MVS32N4MW6V
	4000A	MVS40N3MW2V	MVS40N3MW5V	MVS40N3MW6V	MVS40N4MW2V	MVS40N4MW5V	MVS40N4MW6V
Electrical 240V AC[1]	800A	MVS08N3NW2V	MVS08N3NW5V	MVS08N3NW6V	MVS08N4NW2V	MVS08N4NW5V	MVS08N4NW6V
	1000A	MVS10N3NW2V	MVS10N3NW5V	MVS10N3NW6V	MVS10N4NW2V	MVS10N4NW5V	MVS10N4NW6V
	1250A	MVS12N3NW2V	MVS12N3NW5V	MVS12N3NW6V	MVS12N4NW2V	MVS12N4NW5V	MVS12N4NW6V
	1600A	MVS16N3NW2V	MVS16N3NW5V	MVS16N3NW6V	MVS16N4NW2V	MVS16N4NW5V	MVS16N4NW6V
	2000A	MVS20N3NW2V	MVS20N3NW5V	MVS20N3NW6V	MVS20N4NW2V	MVS20N4NW5V	MVS20N4NW6V
	2500A	MVS25N3NW2V	MVS25N3NW5V	MVS25N3NW6V	MVS25N4NW2V	MVS25N4NW5V	MVS25N4NW6V
	3200A	MVS32N3NW2V	MVS32N3NW5V	MVS32N3NW6V	MVS32N4NW2V	MVS32N4NW5V	MVS32N4NW6V
	4000A	MVS40N3NW2V	MVS40N3NW5V	MVS40N3NW6V	MVS40N4NW2V	MVS40N4NW5V	MVS40N4NW6V

EasyPact MVS withdrawable type 50kA switch disconnector

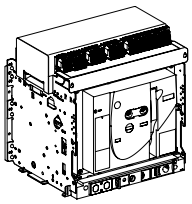
CDB500048



		3P	4P
Manual	800A	MVS08N3MW0D	MVS08N4MW0D
	1000A	MVS10N3MW0D	MVS10N4MW0D
	1250A	MVS12N3MW0D	MVS12N4MW0D
	1600A	MVS16N3MW0D	MVS16N4MW0D
	2000A	MVS20N3MW0D	MVS20N4MW0D
	2500A	MVS25N3MW0D	MVS25N4MW0D
	3200A	MVS32N3MW0D	MVS42N4MW0D
	4000A	MVS40N3MW0D	MVS40N4MW0D
Electrical 240V AC[1]	800A	MVS08N3NW0D	MVS08N4NW0D
	1000A	MVS10N3NW0D	MVS10N4NW0D
	1250A	MVS12N3NW0D	MVS12N4NW0D
	1600A	MVS16N3NW0D	MVS16N4NW0D
	2000A	MVS20N3NW0D	MVS20N4NW0D
	2500A	MVS25N3NW0D	MVS25N4NW0D
	3200A	MVS32N3NW0D	MVS42N4NW0D
	4000A	MVS40N3NW0D	MVS40N4NW0D

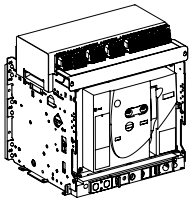
(1) Supplied with spring charge motor(MCH), opening release(MX) and closing release(XF) with 240V AC control voltage rating.

EasyPact MVS withdrawable type 65kA with ET trip unit


CDB500048

		3P			4P		
		ET2I	ET5S	ET6G	ET2I	ET5S	ET6G
Manual	800A	MVS08H3MW2L	MVS08H3MW5L	MVS08H3MW6L	*	*	*
	1000A	MVS10H3MW2L	MVS10H3MW5L	MVS10H3MW6L	*	*	*
	1250A	MVS12H3MW2L	MVS12H3MW5L	MVS12H3MW6L	*	*	*
	1600A	MVS16H3MW2L	MVS16H3MW5L	MVS16H3MW6L	*	*	*
	2000A	MVS20H3MW2L	MVS20H3MW5L	MVS20H3MW6L	*	*	*
	2500A	MVS25H3MW2L	MVS25H3MW5L	MVS25H3MW6L	*	*	*
	3200A	MVS32H3MW2L	MVS32H3MW5L	MVS32H3MW6L	*	*	*
	4000A	MVS40H3MW2L	MVS40H3MW5L	MVS40H3MW6L	*	*	*
Electrical 240V AC[(1)]	800A	MVS08H3NW2L	MVS08H3NW5L	MVS08H3NW6L	*	*	*
	1000A	MVS10H3NW2L	MVS10H3NW5L	MVS10H3NW6L	*	*	*
	1250A	MVS12H3NW2L	MVS12H3NW5L	MVS12H3NW6L	*	*	*
	1600A	MVS16H3NW2L	MVS16H3NW5L	MVS16H3NW6L	*	*	*
	2000A	MVS20H3NW2L	MVS20H3NW5L	MVS20H3NW6L	*	*	*
	2500A	MVS25H3NW2L	MVS25H3NW5L	MVS25H3NW6L	*	*	*
	3200A	MVS32H3NW2L	MVS32H3NW5L	MVS32H3NW6L	*	*	*
	4000A	MVS40H3NW2L	MVS40H3NW5L	MVS40H3NW6L	*	*	*

EasyPact MVS withdrawable type 65kA switch disconnector


CDB500048

		3P	4P
Manual	800A	MVS08H3MW0D	*
	1000A	MVS10H3MW0D	*
	1250A	MVS12H3MW0D	*
	1600A	MVS16H3MW0D	*
	2000A	MVS20H3MW0D	*
	2500A	MVS25H3MW0D	*
	3200A	MVS32H3MW0D	*
	4000A	MVS40H3MW0D	*
Electrical 240V AC[(1)]	800A	MVS08H3NW0D	*
	1000A	MVS10H3NW0D	*
	1250A	MVS12H3NW0D	*
	1600A	MVS16H3NW0D	*
	2000A	MVS20H3NW0D	*
	2500A	MVS25H3NW0D	*
	3200A	MVS32H3NW0D	*
	4000A	MVS40H3NW0D	*

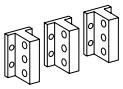
(1) Supplied with spring charge motor(MCH), opening release(MX) and closing release(XF) with 240V AC control voltage rating.

** Non-standard configured products.*
Use customer order form in page F-9 to order non-standard products

Connection

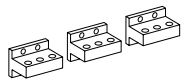
		3P	4P
Fixed circuit breakers			
Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)			
800-2000 A	Vertical	47964	47965
	Horizontal	47964	47965
2500/3200 A	Vertical	47966	47967
	Horizontal	47966	47967
4000 A	Vertical	47968	47969
	Horizontal	47970	47971
Installation manual		MVS21735	

E46445



Vertical mounting.

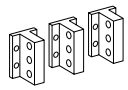
E46446



Horizontal mounting.

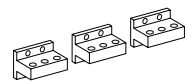
		3P	4P
Drawout circuit breakers			
Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)			
800-2000 A	Vertical	47964	47965
	Horizontal	47964	47965
2500/3200 A	Vertical	47966	47967
	Horizontal	47966	47967
4000 A	Vertical	47968	47969
	Horizontal	47970	47971
Installation manual		MVS21735	

E46445



Vertical mounting.

E46446

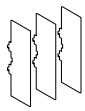


Horizontal mounting.

Connection accessories

	3P	4P
Interphase barriers / Replacement kit (3 parts)		
For fixed rear-connected circuit breaker	48599	48599
For drawout rear-connected circuit breaker	48600	48600
Installation manual	MVS21735	

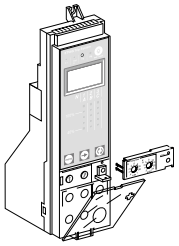
E46428



ET trip units & accessories

Trip units

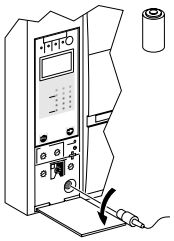
CDB500057



ET2I protection relay for MVS	65477
ET5S protection relay for MVS	65478
ET6G protection relay for MVS	67479
ETA2I protection relay for MVS	65577
ETA5S protection relay for MVS	65578
ETA6G protection relay for MVS	65579
ETV2I protection relay for MVS	MVS15501
ETV5S protection relay for MVS	MVS15502
ETV6G protection relay for MVS	MVS15503

Battery + cover

E95540

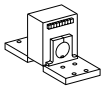


Battery (1 part)	33593
Cover (1 part)	33592

External sensors

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

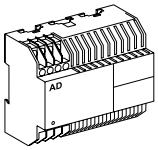
E46671



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

External power supply module (AD) / 1 part

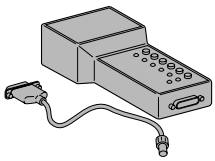
DB105360



24-30 V DC	54440
48-60 V DC	54441
100-125 V DC	54442
110-130 V AC	54443
200-240 V AC	54444
380-415 V AC	54445

Test equipments / 1 Part

CDB500038

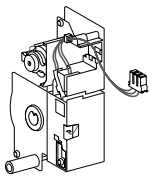


Hand held test kit (HHTK)	33594

Remote operation

Gear motor

E95172

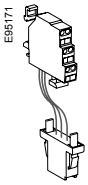


MCH (1 part)		
AC 50/60 Hz	100/130 V	47893
	200/240 V	47894
	380/415 V	47896
DC	24/30 V	47888
	48/60 V	47889
	100/125 V	47890
	200/250 V	47891
Terminal block (1 part)	For fixed circuit breaker	47074
	For drawout circuit breaker	47849

E95169

Fixed.

E95171

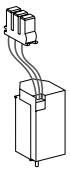


Drawout.

Installation manual		MVS21736

Closing release (XF)

E95170

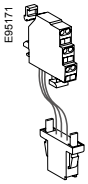


Standard coil (1 part)		
AC 50/60 Hz DC	24/30 V DC, 24 V AC	33659
	48/60 V DC, 48 V AC	33660
	100/130 V AC/DC	MVS15511
	200/250 V AC/DC	MVS15512
	380/480 V AC	MVS15513
Terminal block (1 part)	For fixed circuit breaker	47074
	For drawout circuit breaker	47849

E95169

Fixed.

E95171

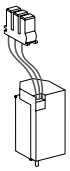


Drawout.

Installation manual		MVS21736

Opening release (MX)

E95170

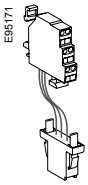


Standard coil (1 part)		
AC 50/60 Hz DC	24/30 V DC, 24 V AC	33659
	48/60 V DC, 48 V AC	33660
	100/130 V AC/DC	33661
	200/250 V AC/DC	33662
	380/480 V AC	33664
Terminal block (1 part)	For fixed circuit breaker	47074
	For drawout circuit breaker	47849
Installation manual		MVS21736

E95169

Fixed.

E95171

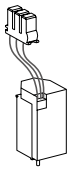


Drawout.

Remote operation

Undervoltage release MN

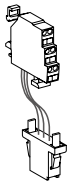
E95170



E95169

Fixed.

E95171

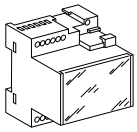


Drawout.

Undervoltage release (1 part)		
AC 50/60 Hz DC	24/30 V DC, 24 V AC	33668
	48/60 V DC, 48 V AC	33669
	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 drawout circuit breaker	47849
Installation manual		MVS21736

MN delay unit

E46694



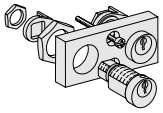
MN delay unit (1 part)			
		R (non-adjustable)	**R**r (adjustable)
AC 50/60 Hz DC	48/60 V AC/DC		33680
	100/130 V AC/DC	33684	33681
	200/250 V AC/DC	33685	33682
	380/480 V AC/DC		33683
Installation manual			MVS21736

EasyPact MVS
Chassis locking and accessories

Chassis locking

"Disconnected" position locking / 1 part

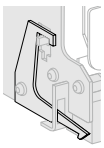
E46451



By padlocks		
	VCPO	Standard
By Profalux keylocks		
Profalux	1 lock with 1 key + adaptation kit	64934
	2 locks 1 key + adaptation kit	64935
	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 with 1 key + adaptation kit	64937
	2 locks 1 key + adaptation kit	64938
	Ronis 1 lock+ 1 key (without adaptation kit)	41940
	Ronis 2 locks + 1 key (without adaptation kit)	41950
	Adaptation kit (without key locks)	48564
Installation manual		MVS21737

Door interlock / 1 part

E46452

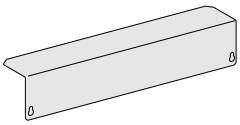


Right and left-hand side of chassis (VPECD or VPECG)		47914
Installation manual		MVS21737

Chassis accessories

Auxiliary terminal shield (CB) / 1 part

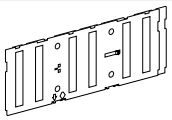
E46458



800/4000 A	3P	64942
	4P	48596
Installation manual		MVS21737

Safety shutters + locking block / 1 part

E46459



800/4000 A	3P	48721
	4P	48723
Installation manual		MVS21737

Shutter locking block (for replacement) / 1 part

E46460

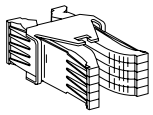
2 parts for 800/4000 A		48591
Installation manual		MVS21737

Earthing kit for chassis

	3P	4P
Types for N/H/NA/HA		
	48433	48434

Clusters

E95538



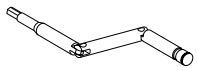
1 disconnecting contact cluster for chassis (see table below) (part 1)	33166

Table : number of clusters required for the different chassis models

Chassis rating (A)	EasyPact MVS(3P)				EasyPact MVS(4P)			
	N	H	NA	HA	N	H	NA	HA
800	12	12	12	12	16	16	16	16
1000	12	12	12	12	16	16	16	16
1250	12	12	12	12	16	16	16	16
1600	12	12	12	12	16	16	16	16
2000	12	12	12	12	16	16	16	16
2500	24	12	24	12	32	16	32	16
3200	36	36	36	36	48	48	48	48
4000	42	42	42	42	56	56	56	56

Racking handle

E95561



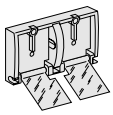
Racking handle	47944

EasyPact MVS
Circuit breaker locking and accessories

Circuit breaker locking

Pushbutton locking device / 1 part

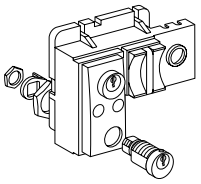
E46666



By padlocks		48536
Installation manual		MVS21736

OFF position locking / 1 part

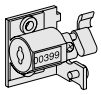
E46735



By Profalux keylocks		
Profalux	1 lock with 1 key + adaptation kit	64928
	2 locks 1 keys + adaptation kit	64929
	Profalux 1 lock+ 1 key (without adaptation kit)	42888
	Profalux 2 locks + 1 key (without adaptation kit)	42878
	Adaptation kit (without key locks)	64925
By Ronis keylocks		
Ronis	1 lock with 1 key + adaptation kit	64931
	2 locks 1 keys + adaptation kit	64932
	Ronis 1 lock+ 1 key (without adaptation kit)	41940
	Ronis 2 locks + 1 key (without adaptation kit)	41950
	Adaptation kit (without key locks)	64925
Installation manual		MVS21736

Mechanical operation counter / 1 part

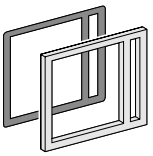
DB125617



Operation counter CDM		48535
Installation manual		MVS21736

Escutcheon and accessories / 1 part

E46668

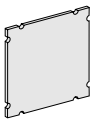


Escutcheon

E46669

Cover

E46670

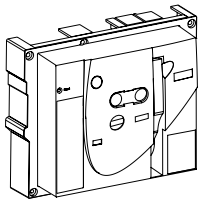


Blanking plate

	Fixed	Drawout
Escutcheon	48601	48603
Transparent cover (IP 54)	-	48604
Escutcheon blanking plate	48605	48605
Installation manual		MVS21736

Front cover (3P / 4P) / 1 part

CDB500058



MVS Front cover	MVS21808
Installation manual	MVS21736

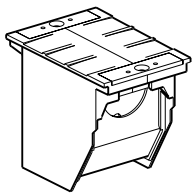
Spring charging handle / 1 part

E95536

Spring charging handle	47940
Installation manual	MVS21736

Arc chute for Masterpact NW / 1 part

CDB500059

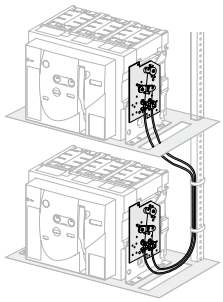


	3P	4P
Type N/NA	3 x MVS21807	4 x MVS21807
Type H/HA	3 x MVS21807	4 x MVS21807
Installation manual		MVS21736

Mechanical interlocking for source changeover

Interlocking of 2 devices using cables [1]

CDB500053



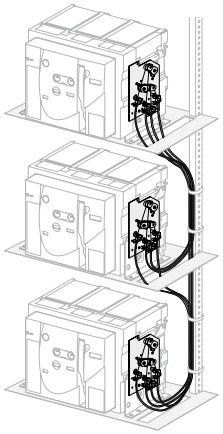
Choose 2 adaptation sets (1 for each device + 1 set of cables)	
1 adaptation fixture for EasyPact MVS fixed devices	47926
1 adaptation fixture for EasyPact MVS drawout devices	47926
1 set of 2 cables	33209

(1) Can be used with any combination of EasyPact MVS, fixed or drawout devices.

Installation manual	MVS21738

Interlocking of 3 devices using cables

CDB500060

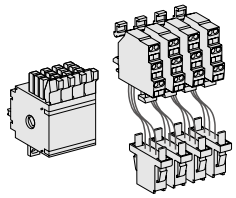


Choose 3 adaptation (including 3 adaptation fixtures + cables)	
3 sources, only 1 device closed, fixed or drawout devices	48610
2 sources + 1 coupling, fixed or drawout devices	48609
2 normal + 1 replacement source, fixed or drawout devices	48608
Installation manual	MVS21738

Indication contacts

ON/OFF indication contacts (OF) / 12 parts

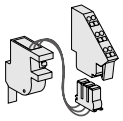
E46689



1 additional block of 4 contacts		47887
Wiring	For fixed circuit breaker	47074
	For drawout circuit breaker	47849
Installation manual		MVS21736

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

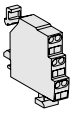
E46438



1 changeover contact (5 A - 240 V)		47080
Wiring	For fixed circuit breaker	47074
	For drawout circuit breaker	47849
Installation manual		MVS21736

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

E46661



Changeover contacts	6 A - 240 V	33170
Installation manual		MVS21736

Auxiliary terminals for chassis alone

3 wire terminal (1 part)	47849
6 wire terminal (1 part)	47850
Jumpers (10 parts)	47900

Instructions

EasyPact MVS User Manual (English)	MVS21734
Fixed & drawout circuit breaker	MVS21735
Circuit breaker accessories	MVS21736
Chassis accessories	MVS21737
Interlocking of EasyPact MVS devices	MVS21738

Order ref no:	
Date:	
Product ref no:	

EasyPact MVS

Circuit breaker and Switch-disconnectors Customer Order form

To indicate your choices, check the applicable square boxes ☐

And enter the appropriate information in the rectangles ☐

Circuit breaker or switch-disconnector		**Quantity**
Rating	**A**	
Circuit breaker	**N/ H**	
Switch Disconnector	**NA/HA**	
Number of poles	**3 or 4**	
Type of equipment	Fixed	
	Draw out with chassis	
Operating Mechanism	**Manual Operated**	
	Electrical Operated	
MCH - Gear motor	**V**	
XF - Closing coil	**V**	
MX - Shunt/Opening voltage release	**V**	

ET Range of Trip System						
ET- Without display	**2I**	☐	**5S**	☐	**6G**	☐
ETA - Current Metering	**2I**	☐	**5S**	☐	**6G**	☐
ETV - Voltage Metering	**2I**	☐	**5S**	☐	**6G**	☐
LR - Long-time rating plug	**Standard**		**0.4 to 1 Ir**			

Connection				
Horizontal	Top	☐	Bottom	☐
Vertical	Top	☐	Bottom	☐

Trip System functions:
2I : Basic protection (long time + inst.)
5S : Selective protection (long time + short time + inst.)
6G : 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	☐
	2 identical key locks, 1 key	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 drawout devices	☐
2 sources with coupler on busbars (3 devices)	☐
3 sources, only 1 device closed, fixed or drawout 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 MVS		☐
CB - Auxiliary terminal shield fitted on chassis		☐
EIP - Interphase barriers		☐
HHTK - Hand held test kit		☐

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 type devices will be supplied with Chassis & safety shutter.
For Electrical operated devices, 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.

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