EcoStruxure™
Innovation At Every Level

Easy Series

EasyPact™ MVS

Catalog 2021
LV air circuit breakers
from 630 to 4000A

https://www.se.com

Green Premium™

An industry leading portfolio of offers delivering sustainable value

Green Premium™

More than 75% of our product sales offer superior transparency on the material content, regulatory information and environmental impact of our products:

- RoHS compliance
- REACh substance information
- Industry leading # of PEP's*
- Circularity instructions

The Green Premium program stands for our commitment to deliver customer valued sustainable performance. It has been upgraded with recognized environmental claims and extended to cover all offers including Products, Services and Solutions.

CO_2 and P&L impact through… Resource Performance

Green Premium brings improved resource efficiency throughout an asset's lifecycle. This includes efficient use of energy and natural resources, along with the minimization of CO_2 emissions.

Cost of ownership optimization through… Circular Performance

We're helping our customers optimize the total cost of ownership of their assets. To do this, we provide IoT-enabled solutions, as well as upgrade, repair, retrofit, and remanufacture services.

Peace of mind through… Well-being Performance

Green Premium products are RoHS and REACh compliant. We're going beyond regulatory compliance with step-by-step substitution of certain materials and substances from our products.

Improved sales through… Differentiation

Green Premium delivers strong value propositions through third-party labels and services. By collaborating with third-party organizations we can support our customers in meeting their sustainability goals such as green building certifications.

Discover what we mean by green
Check your products!

*PEP: Product Environmental Profile (i.e. Environmental Product Declaration)

EasyPact MVS range

The easy choice for reliable performance

One family and two frame sizes

> 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

2 sizes:

MVS Frame 1: 630 to 1600A

MVS Frame 2: 800 to 4000A

Choose the leader

> 630 to 4000A ratings
> Breaking capacity: 50 & 65kA
> Suitable for 690V applications
> Complete selectivity with Ics=Icu
> Intelligent ET range of trip system with display
> Fully protected neutral on 4 pole breakers
> Full accessories with modular design
> Conforms to IEC 60947- 2 & 3

Performance Level

- Ratings:
  - Frame 1: 630 to 1600A
  - Frame 2: 800 to 4000A.
- Breaking capacity: 50 & 65kA
- Suitable for 690V applications
- Complete selectivity with Ics=100%Icu
- Circuit breakers type C,N,H
- Switch-disconnectors type CA,NA,HA
- 3 or 4 poles.
- Fixed or drawout versions.
- Conforms to IEC 60947- 2 & 3

ET range of trip system

Type of measurement
- ET for basice protection
- ETA for “current”
- ETV for “Energy”

Type of protection
- 2.0 for basice protection
- 5.0 for seletive protection
- 6.0 for selective + earth-fault protection

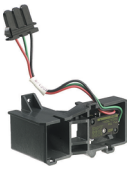
Communication

Eco COM
- EasyPact in a communication network.
- BCM-ULP COM option inside breaker
- IFM: Modbus interface module.
- I/O application module.

Transmission signal
- Breaker signal:OF, SDE, PF and CH.
- Cradel signal:CD, CT, CE
- Measurements ways:Instantaneous,maximum/minimum,demand
- Measurements value: current, voltage,power, power factor,energy
- Protection settings
- Trip causes

EasyCom Communication
- Independent Modbus interface module
- Digital Input: 3 sets of OF, SDE, PF
- Digital output: 3 sets of MX & XF
- Analog Input: 1 set of 4-20mA

M2C programmable contacts
- Two programmable contacts
- Signal events:Ir, Isd, Alarm Ir, Alarm Ig, Igv



EasyPact MVS Benefits for every customer

EasyPact MVS06 to MVS40

Panel builders/ contractors

> Suitable for copper & Aluminium termination with the pole pitch of 70 or 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 wwith modular design 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.
> Overload run alarm & individual LED indications enable fault identification
> Icu=Ics=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 630 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

Exceptional
reliability,flexibility
and convenience

Quality and safety
you can trust

Performance
without compromise

Outstanding value for
an optimized feature set

Buildings

Industry

Panelbuilders

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Functions and characteristics

Functions and characteristics

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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.

Circuit breakers and switch-disconnectors page A-4
- Ratings:
  - EasyPact MVS 630 to 4000 A
- Circuit breakers type C, N, H
- Switch-disconnectors type CA, NA, HA
- 3 or 4 poles
- Fixed or draw-out versions

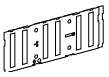
ET trip system page A-8
- 2I basic protection
- 5S selective protection
- 6G selective + earth-fault protection
- Standard long-time rating plug:
  - Current setting (A) 0.4 to 1 x In

ETA trip system with current measurement page A-10
- 2I basic protection
- 5S selective protection
- 6G selective + earth-fault protection
- Standard long-time rating plug:
  - Current setting (A) 0.4 to 1 x In
- External power-supply module

ETV trip system with energy measurement page A-12
- 2I basic protection
- 5S selective protection
- 6G selective + earth-fault protection
- Standard long-time rating plug:
  - Current setting (A) 0.4 to 1 x In
- External power-supply module

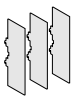
Connections page A-15
- Rear connection:
  - Horizontal
  - Vertical
- Optional accessories:
  - Interphase barriers
  - Safety shutters and shutter locking blocks

E46459



Safety shutters

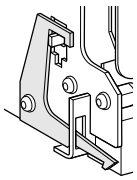
DB101149



Interphase barriers

Locking page A-18
- Pushbutton locking by padlockable transparent cover
- OFF-position locking by keylock
- Chassis locking in disconnected position by keylock
- Chassis locking in connected, disconnected and test positions
- Door interlock (inhibits door opening with breaker in ‘connected’ or ‘test’ position

DB101109



Door interlock

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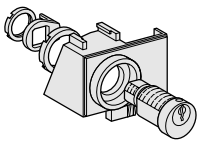
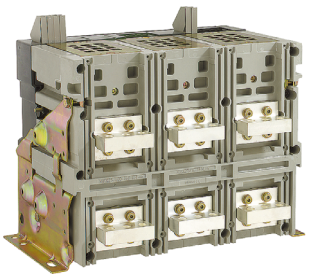


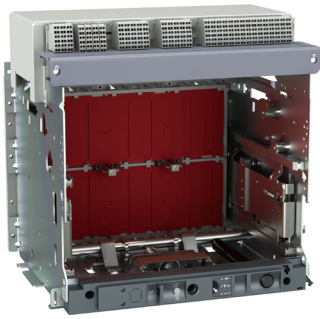
Chassis key lock

General overview
Detailed contents

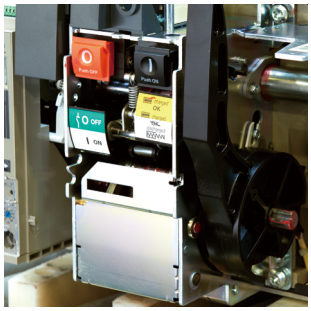
PB104354A40



CPB100003



CPB100015

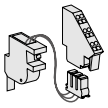


CPB100016

Indication contacts page A-20

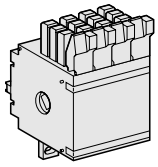
- ■ Standard:
- □ ON/OFF indication (OF)
- □ "Fault" trip indication (SDE)
- ■ Optional:
- □ Additional ON/OFF indication (OF)
- □ Ready-to-close contact (PF)
- □ Carriage switches for connected (CE) disconnected (CD) and test (CT) positions

E46438



Ready-to-close contact

DB101112

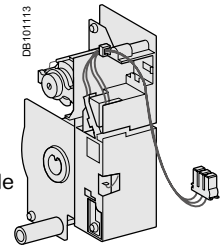


OF contact

Remote operation page A-21

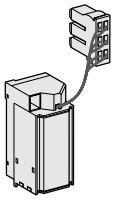
- ■ Remote ON/OFF:
- □ Gear motor
- □ XF closing or MX opening voltage releases
- ■ Remote tripping function:
- □ MN voltage release
- - Standard
- - Adjustable or non-adjustable delay

DB101113



Gear motor

DB101114

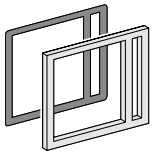


MX, XF and MN volage releases

Accessories page A-25

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

E46668

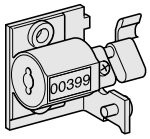


Escutcheon

E46669

Transparent cover

DB101115

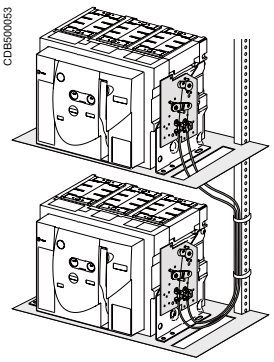


Mechanical operation counter

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
MVS06 to MVS16(Frame 1)

CPB100000

Circuit breaker.

Common characteristics			
Number of poles			3/4
Rated insulation voltage (V)	Ui		1000
Impulse withstand voltage (kV)	Uimp		12
Rated operational voltage (V AC 50/60 Hz)	Ue		440
Suitability for isolation	IEC 60947-2		Yes
Degree of pollution	IEC 60664-1		3
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
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		3s	440V
Rated making capacity (kA peak)	Icm		220...440 V
Integrated instantaneous protection(DIN KA instantaneous ±10%)			
Breaking time (ms) between tripping order and arc extinction(ms)			
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
Connection		Horizontal	
		Vertical	
Dimensions (mm) (H x W x D)		Draw-out	3P
			4P
		Fixed	3P
			4P
Weight (kg) (approximate)		Draw-out	3P/4P
		Fixed	3P/4P

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

	MVS06	MVS08	MVS10	MVS12	MVS16
	630 630	800 800	1000 1000	1250 1250	1600 1600
	630	800	1000	1250	1600
	C	**C**	**C**	**C**	**C**
	50	50	50	50	50
	100%	100%	100%	100%	100%
	B	B	B	B	B
	35 20	35 20	35 20	35 20	35 20
	105 105	105 105	105 105	105 105	105 105
	25	25	25	25	25
	<50	<50	<50	<50	<50
	MVS06	**MVS08**	**MVS10**	**MVS12**	**MVS16**
	CA	**CA**	**CA**	**CA**	**CA**
	630	800	1000	1250	1600
	75	75	75	75	75
	35	35	35	35	35
	20	20	20	20	20
	20	20	20	20	20
	10	10	10	10	10
	5	5	5	5	5
	Yes				
	Yes				
	322x288x277				
	322x358x277				
	301x276x196				
	301x346x196				
	30/39				
	14/18				

Circuit breakers and switch-disconnectors

MVS08 to MVS40(Frame 2)

CPB100003_QR

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)		Draw-out	3P
			4P
		Fixed	3P
			4P
Weight (kg) (approximate)		Draw-out	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 Energy 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

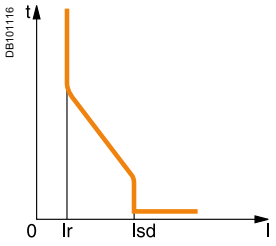
Certain functions require the addition of trip unit accessories, described on page A-14.

Trip unit name codes

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

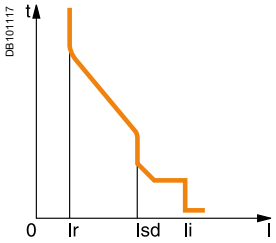
Type of measurement
- ET for basic
- ETA for “Current”
- ETV for “Current” and “Energy”

ET2I: basic protection



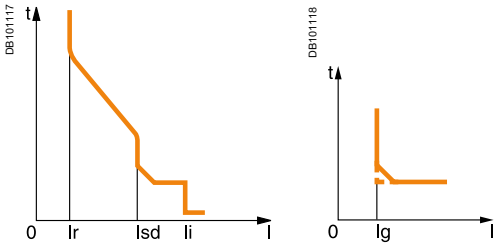
Protection:
long time
+ instantaneous

ET5S: selective protection



Protection:
long time
+ short time
+ instantaneous

ET6G: selective + earth-fault protection



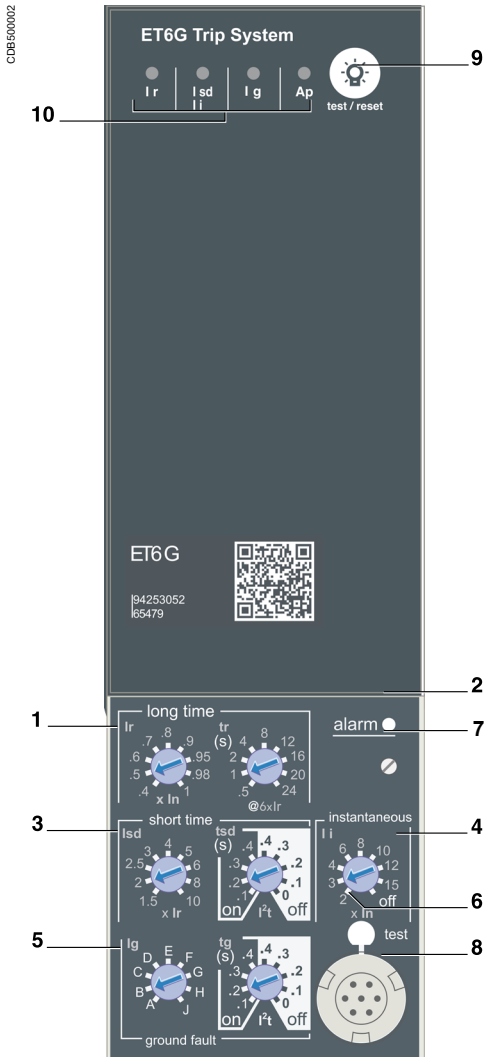
Protection:
long time
+ short time
+ instantaneous
+ earth fault

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,power factor, power and energy metering measurements: □ 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.

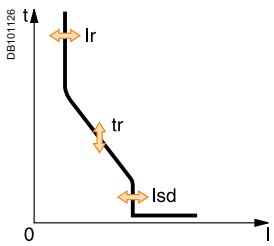
Fault indications
LEDs indicate the type of fault:
- Overload (long-time protection Ir)
- Short-circuit (short-time Isd or instantaneous Ii protection)
- Earth fault (Ig)
- Internal fault (Ap)

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.

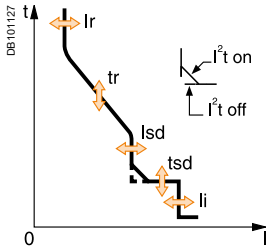
Protection — ET2I

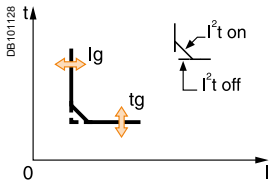
Long time			ET2I								
Current setting (A)	**Ir** = In x ...		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
Tripping between 1.05 and 1.20 x Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x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

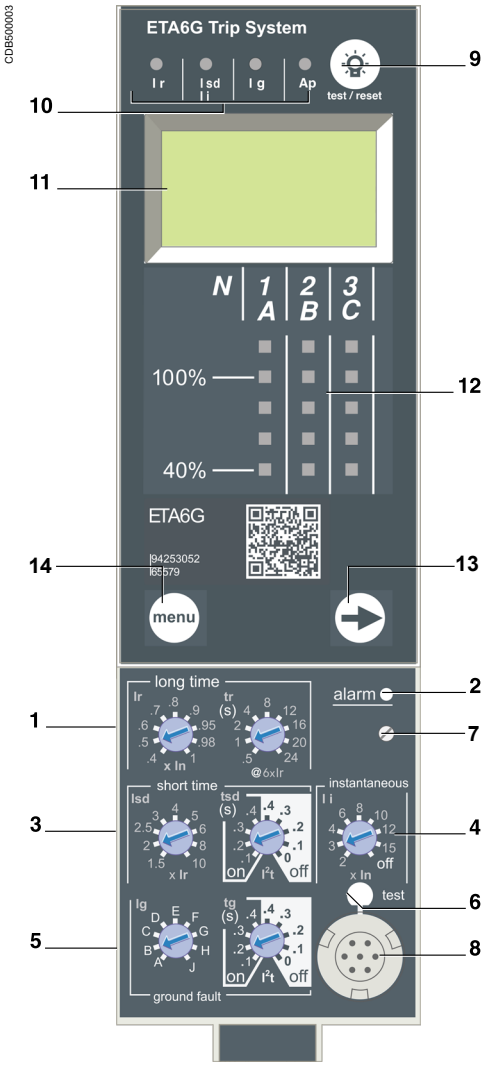




Note: *All current-based protection functions require no auxiliary source.*
The test / reset button, clears the tripping indication and tests the battery.

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.

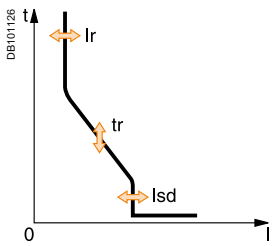
Fault indications
LEDs indicate the type of fault:
- Overload (long-time protection Ir)
- Short-circuit (short-time Isd or instantaneous Ii protection)
- Earth fault (Ig)
- Internal fault (Ap)

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.

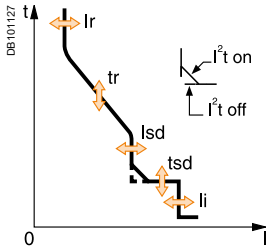
Protection — ETA2I

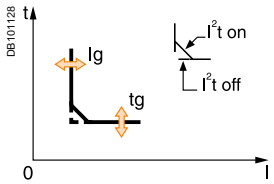
Long time			ETA2I								
Current setting (A)	**Ir** = In x ...		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
Tripping between 1.05 and 1.20 x Ir											
Time setting		**tr (s)**	0.5	1	2	4	8	12	16	20	24
Time delay (s)	Accuracy: 0 to -30 %	1.5 x Ir	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6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





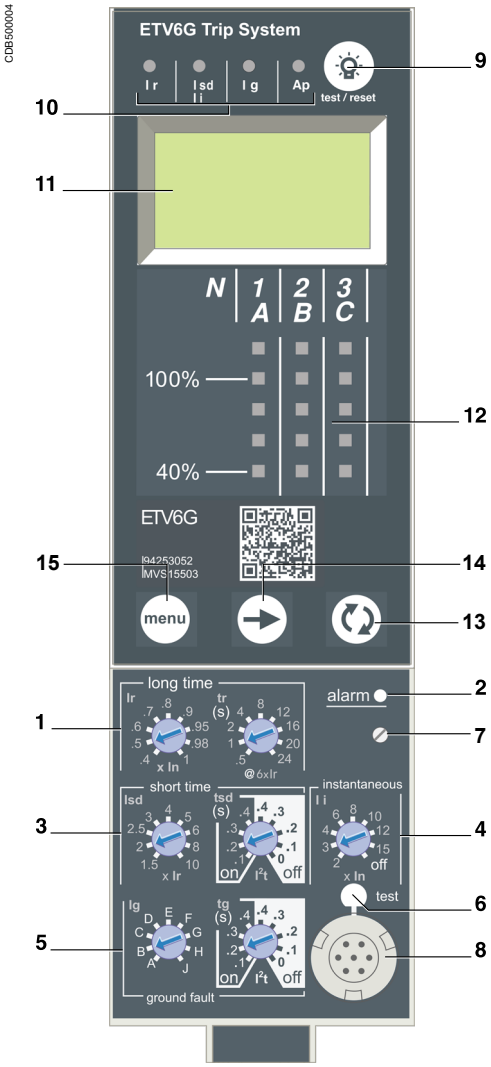
Ammeter — ETA 2I/ETA5S/ETA6G

Type of measurements		Range	Accuracy
Instantaneous currents	I1, I2, I3, IN	0.2 x In to 1.2 x In	±1.5 %
	Ig (ETA6G)	0.2 x In to In	±10 %
Current maximeters of	I1, I2, I3, 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 Energy 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.

***Note:** ETV trip units come with a transparent leadseal cover as standard.*

"Energy meter" measurements

In addition to the ammeter measurements of ETA
ETV control units measure and display:
- current demand
- voltages: phase to phase, phase to neutral, average (1) and unbalanced (1)
- instantaneous power: P, Q, S
- power factor: PF
- power demand: P demand
- energy: Ep, Eq (1), Es (1).

Accuracy of active energy Ep is 2 % (including the sensors). The range of measurement is the same as current with ETA, depending of an external power supply module (24 V DC).

Communication option

In conjunction with the COM communication option, the control unit transmits the following:
- settings
- all "ammeter" and "energy" measurements
- tripping causes
- maximeter / minimeter readings.

Protection

Protection thresholds and delays are set using the adjustment dials.

Overload protection
True rms long-time protection.
Thermal memory: thermal image before and after tripping.
Setting accuracy may be enhanced by limiting the setting range using a different long-time rating plug.

Short-circuit protection
Short-time (rms) and instantaneous protection.
Selection of I^2t type (ON or OFF) for short-time delay.

Earth-fault protection
Residual or source ground return earth fault protection.
Selection of I^2t type (ON or OFF) for delay

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 terminal block may be used to interconnect a number of control units to provide total selectivity 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.

M2C programmable contacts

The M2C (two contacts) programmable contacts may be used to signal envents (Ir, Isd, Alarm Ir, Alarm Ig, Ig). They can be programmed using the keypad on the ETV control unit or remotely using the COM option (BCM ULP).

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
- the date and time of the trip (requires communication option).

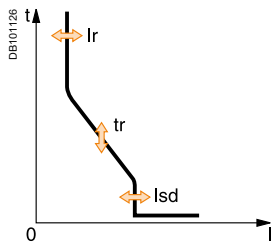
Battery power
The fault indication LEDs remain on until the test/reset button is pressed. Under normal operating conditions, the battery supplying the LEDs has a service life of approximately 10 years.

Test

A mini test kit or a portable test kit may be connected to the test connector on the front to check circuit breaker operation. For ETV6G control units, the operation of earth-fault or earth-leakage protection can be checked by pressing the test button located above the test connector.

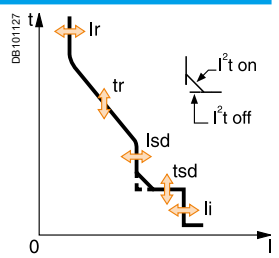
Protection — ETV2I

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								

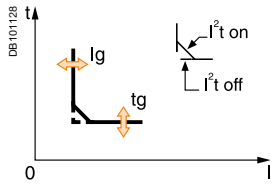


Protection — ETV5S/ETV6G

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				



Ammeter — ETV2I/ETV5S/ETV6G

Type of measurements		Range	Accuracy
Instantaneous currents	I1, I2, I3, IN	0.2 x In to 1.2 x In	±1.5 %
	Ig (ETV6G)	0.05 x In to In	±10 %
Current maximeters of	I1, I2, I3, IN	0.2 x In to 1.2 x In	±1.5 %
Demand currents of I1, I2, I3, Ig		0.2 x In to 1.2 x In	±1.5 %
Voltages	V12, V23, V31, V1N, V2N, V3N	100 to 690 V	±0.5 %
Active power	P	30 to 2000 kW	±2 %
Power factor	PF	0 to 1	±2 %
Demand power	P demand	30 to 2000 kW	±2 %
Active energy	Ep	-10^{10} GWh to 10^{10} GWh	±2 %

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

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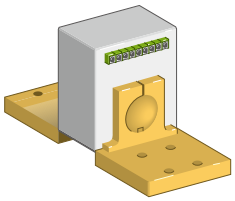
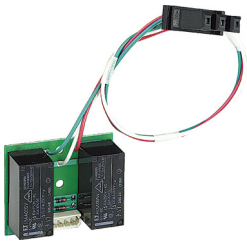


External sensor (CT).

PB101026-32A

External 24 V DC power supply module.



M2C.

PB100775-32

Lead-seal cover.

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

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:

- MVS 06 to MVS16(frame 1): TC 400/1600
- MVS 08 to MVS 20(frame 2): 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 (AD)

The external power-supply module makes it possible:

- to use the display even if the circuit breaker is open or not supplied (for the exact conditions of use, see the “electrical diagrams” part of this catalogue)
- to display fault currents after tripping
- to modify settings when the circuit breaker is open (OFF position)

An external 24 V DC power supply is required for installation with communication, whatever the type of trip unit.

This module is not designed to power on 24 V DC voltage releases and electric motor mechanism.

This module powers both the control unit and the M2C programmable contacts.

We recommended using the AD power supply due to its low stray primary secondary capacitance. Good operation of the Micrologic control unit in noisy environment is not guaranteed with other power supplies.

If the COM option is used, a second dedicated power supply shall be used.

This module powers both the control unit and the M2C programmable contacts.

Characteristics

- Power supply AC-to-DC or DC-to-DC
- Output voltage: 24 V DC ±5 %.
- Output current: 1 A.
- DIN rail or platine Fixing with Acti9 form factor
- Conducted emissions power line: class B per EN 61000-6-3.

M2C programmable contacts

These contacts are optional equipment for the ETV control units.

They are described with the indication contacts for the circuit breakers.

Micrologic			Type ETV
Characteristics			M2C
Minimum load			100 mA/24 V
Breaking capacity (A) p.f.: 0.7	V AC	240	5
		380	3
	V DC	24	1.8
		48	1.5
		125	0.4
		250	0.15

M2C: 24 V DC power supplied by control unit (consumption 100 mA).

Spare parts

Lead-seal covers

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

When the cover is closed:

- 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.

Eco COM Communication

Eco COM transmits metering data and status. It is not used to communicate controls.

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BCM ULP.

PB119234.eps

I/O application module.

For fixed and Drawout devices, the common communication option is made up of:

■ a BCM ULP module, installed behind the Trip System and supplied with its set of sensors (OF, SDE, PF and CH micro switches) and its COM terminal block (inputs E1 to E6). This module is independent of the control unit. It receives and transmits information on the communication network. An infra-red link transmits data between the control unit and the communication module.
Consumption: 30 mA, 24 V.

■ IFM, this module required for connection to the network, contains the Modbus address (1 to 99) declared by the user via the two dials in front. It automatically adapts (baud rate, parity) to the Modbus network in which it is installed.

For drawout device the Cradle Management option must be added:

I/O (Input/Output) application module for LV breaker, the I/O application module is delivered with withdrawable devices ordered with the COM option, for cradle management. It must be installed on a DIN rail near the device. It must be connected to the ULP system and to the position contacts (CD, CT, CE) that transmit the position of the device in the cradle.

IFM Modbus communication interface

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IFM Modbus communication interface.
Ref.: LV434000.

Function

A IFM - Modbus communication interface - is required for connection of a Masterpact or Easypact to a Modbus network as long as this circuit breaker is provided with
a ULP (Universal Logic Plug) port. The port is available on respectively a BCM ULP.

The IFM is defined as an IMU (Intelligent Modular Unit) in the ULP connection System documentation.

Once connected, the circuit breaker is considered as a slave by the Modbus master. Its electrical values, alarm status, open/close signals car be monitored or controlled by a Programmable Logic Controller or any other system.

Characteristics

ULP port

2 RJ45 sockets, internal parallel wiring.
■ Connection of a single circuit breaker (eventually via its I/O application module).
■ A ULP line terminator must be connected to the second RJ45 ULP socket.
The RJ45 sockets deliver a 24 VDC supply fed from the Modbus socket.
Built-in test function, for checking the correct connection to the circuit breaker.

Modbus slave port

■ Top socket for screw-clamp connector, providing terminals for:
□ 24 VDC input supply (0 V, +24 V)
□ Modbus line (D1, D2, Gnd).
■ Lateral socket, for Din-rail stackable connector.
Both top and lateral sockets are internally parallel wired.
■ Multiple IFM can be stacked, thus sharing a common power supply and Modbus line without individual wiring.
■ On the front face:
□ Modbus address setting (1 to 99): 2 coded rotary switches
□ Modbus locking pad: enables or disable the circuit breaker remote control and modification of IFM parameters.
■ Self adjusting communication format (Baud rate, parity).

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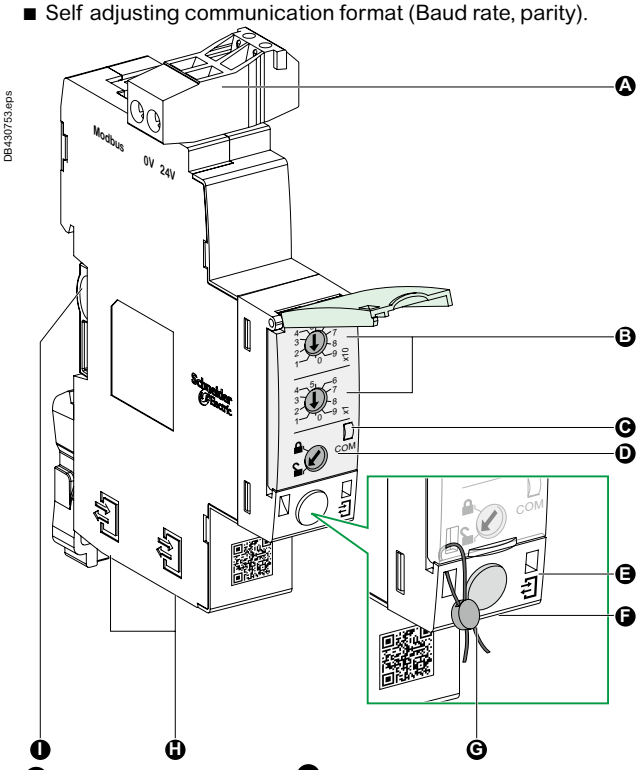

- **A** *Modbus screw clamp connector.*
- **B** *Modbus address switches.*
- **C** *Modbus traffic LED.*
- **D** *Modbus locking pad.*
- **E** *ULP activity LED.*
- **F** *Test button.*
- **G** *Mechanical lock.*
- **H** *ULP RJ45 connectors.*
- **I** *Stacking accessory connection.*

Technical characteristics

IFM Modbus communication interface

Dimensions		18 x 72 x 96 mm
Maximum number of stacked IFM		12
Degree of protection of the installed module	Part projecting beyond the escutcheon	IP4x
	Other module parts	IP3x
	Connectors	IP2x
Operating temperature		-25...+70 °C
Power supply voltage		24 V DC -20 %/+10 % (19.2...26.4 V DC)
Consumption	Typical	21 mA/24 V DC at 20 °C
	Maximum	30 mA/19.2 V DC at 60 °C
Certification		
CE		IEC/EN 60947-1
UL		UL 508 - Industrial Control Equipment
CSA		No. 142-M1987 - Process Control Equipment ■ CAN/CSA C22.2 No. 0-M91 - General requirements - Canadian Electrical Code Part ■ CAN/CSA C22.2 No. 14-05 - Industrial Control Equipment

Simplified IFM installation

Staking IFM

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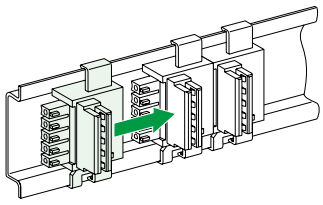

Stacking accessories

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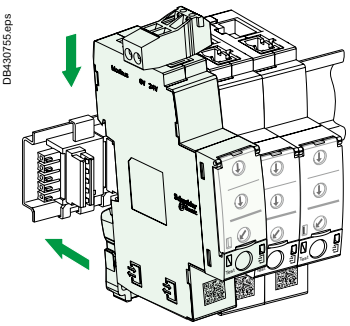
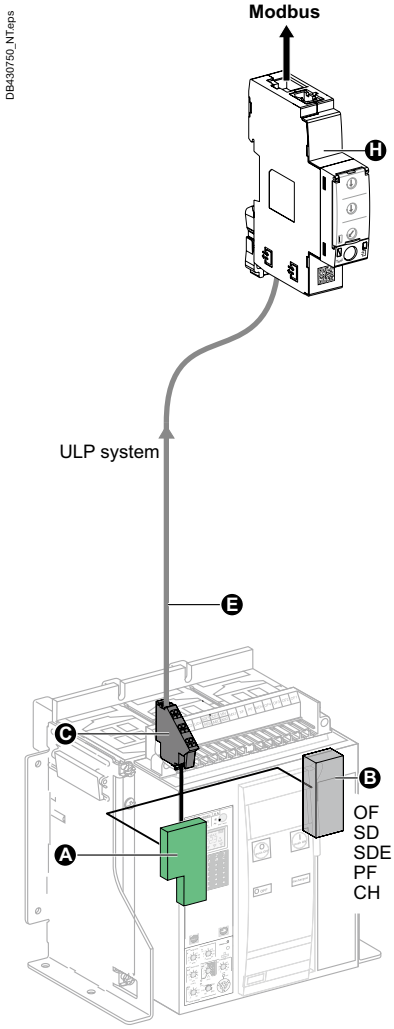


Up to 12 stacked IFM

Communication architecture

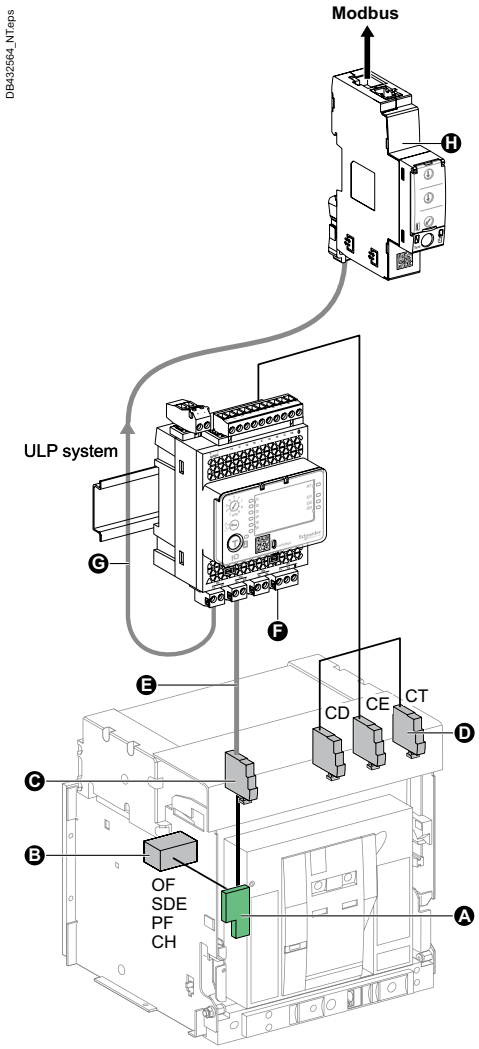
Electrical operated

Fixed device



A BCM ULP
B OF, SDE ... microswitches
C COM terminal block (E1 to E6)
D CE, CD and CT contacts

Drawout device



E Breaker ULP cord
F I/O application module
G ULP cable
H IFM module

I/O application module

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Description

The I/O input/output application module for LV breaker is part of an ULP system with built-in functionalities and applications to enhance the application needs.
The ULP system architecture can be built without any restrictions using the wide range of circuit breakers.
The I/O application is compliant with the ULP system specifications.
Two I/O application module can be connected in the same ULP network.

The ranges of LV circuit breakers enhanced by the I/O are:
- Masterpact NT/NW
- EasyPact MVS
- Compact NS1600b-3200
- Compact NS630b-1600
- Compact NSX100-630 A.

I/O input/output interface for LV breaker resources

The I/O application module ressources are:
- 6 digital inputs that are self powered for either NO and NC dry contact or pulse counter
- 3 digital outputs that are bistable relay (5 A maximum)
- 1 analog input for Pt100 temperature sensor.

Pre-defined applications

Pre-defined application adds new functions to the IMU in a simple way:
- selection by the application rotary switch on the I/O, defining the application with pre-defined input/output assignment and wiring diagram.
- no additional setting with the customer engineering tool required.

The resources not assigned to the pre-defined application are free for additional user-defined applications:
- cradle management
- breaker operation
- light and load control
- custom.

User-defined applications

User-defined applications are processed by the I/O in addition to the pre-defined application selected.
The user-defined applications are available depending on:
- the pre-defined application selected
- the I/O resources (inputs and outputs) not used by the application.

The resources required by user-defined applications are assigned using the customer engineering tool:
- protection
- control
- energy management
- monitoring.

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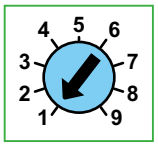

Mounting

The I/O is a DIN rail mounting device.

Application rotary switch

The application rotary switch enables the selection of the pre-defined application.
It has 9 positions and each position is assigned to a pre-defined application.
The factory set position of the switch is pre-defined application 1.

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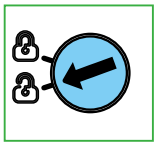

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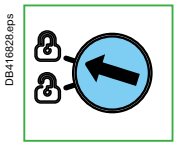

Setting locking pad

The setting locking pad on the front panel of the I/O enables the setting of the I/O by the customer engineering tool.

I/O application module

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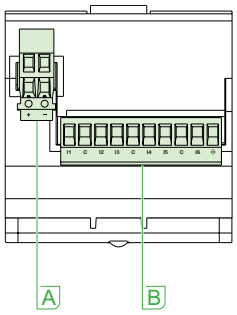

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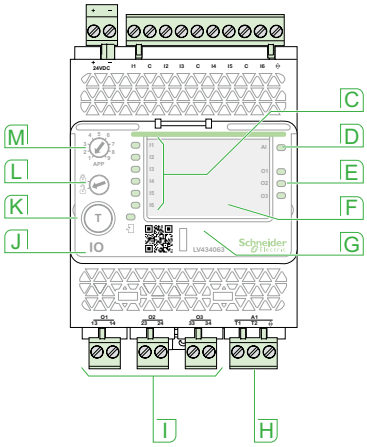

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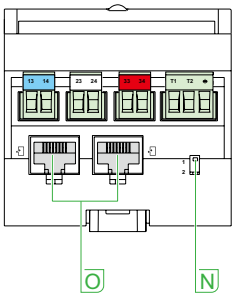


- A 24 Vdc power supply terminal block.
- B Digital input terminal block: 6 inputs, 3 commons and 1 shield.
- C 6 input status LEDs.
- D Analog input status LED.
- E 3 output status LEDs.
- F I/O application module identification labels.
- G Sealable transparent cover.
- H Analog input terminal block.
- I Digital output terminal blocks.
- J ULP status LED.
- K Test/reset button (accessible with cover closed).
- L Setting locking pad.
- M Application rotary switch: 1 to 9.
- N Switch for I/O addressing (I/O 1 or I/O 2).
- O ULP connectors.

General characteristics

Environmental characteristics	
Conforming to standards	UL 508, UL 60950, IED 60950, 60947-6-2
Certification	cUIUs, GOST, FCC, CE
Ambient temperature	-20 to +70 °C (-4 to +158 °F)
Relative humidity	5–85 %
Level of pollution	Level 3
Flame resistance	ULV0
Mechanical characteristics	
Shock resistance	1000 m/s2
Resistance to sinusoidal vibrations	5 Hz < f < 8.4 Hz
Electrical characteristics	
Resistance to electromagnetic discharge	Conforming to IEC/EN 61000-4-3
Immunity to radiated fields	10 V/m
Immunity to surges	Conforming to IEC/EN 61000-4-5
Consumption	165 mA
Physical characteristics	
Dimensions	71.7 x 116 x 70.6 mm (2.83 x 4.56 x 2.78 in.)
Mounting	DIN rail
Weight	229.5 g (0.51 lb)
Degree of protection of the installed I/O application module	■ On the front panel (wall mounted enclosure): IP4x ■ IO parts: IP3x ■ Connectors: IP2x
Connections	Screw type terminal blocks
Technical characteristics - 24 V DC power supply	
Power supply type	Regulated switch type
Rated power	72 W
Input voltage	100–120 V AC for single phase 200–500 V AC phase-to-phase
PFC filter	With IEC 61000-3-2
Output voltage	24 V DC
Power supply out current	3 A

Note: *it is recommended to use an UL listed/UL listed recognized limited voltage/Limited current or a class 2 power supply with a 24 V DC, 3 A maximum.*

Digital inputs	
Digital input type	Self powered digital input with current limitations as per IEC 61131-2 type 2 standards (7 mA)
Input limit values at state 1 (close)	19.8–25.2 V DC, 6.1–8.8 mA
Input limit values at state 0 (open)	0–19.8 V DC, 0 mA
Maximum cable length	10 m (33 ft)

Note: *for a length greater than 10 m (33 ft) and up to 300 m (1,000 ft), it is mandatory to use a shielded twisted cable. The shield cable is connected to the I/O functional ground of the I/O application module.*

Digital outputs	
Digital output type	Bistable relay
Rated load	5 A at 250 V AC
Rated carry current	5 A
Maximum switching voltage	380 V AC, 125 V DC
Maximum switch current	5 A
Maximum switching power	1250 VA, 150 W
Minimum permissible load	10 mA at 5 V DC
Contact resistance	30 mΩ
Maximum operating frequency	■ 18000 operations/hr (Mechanical) ■ 1800 operations/hr (Electrical)
Digital output relay protection by an external fuse	External fuse of 5 A or less
Maximum cable length	10 m (33 ft)

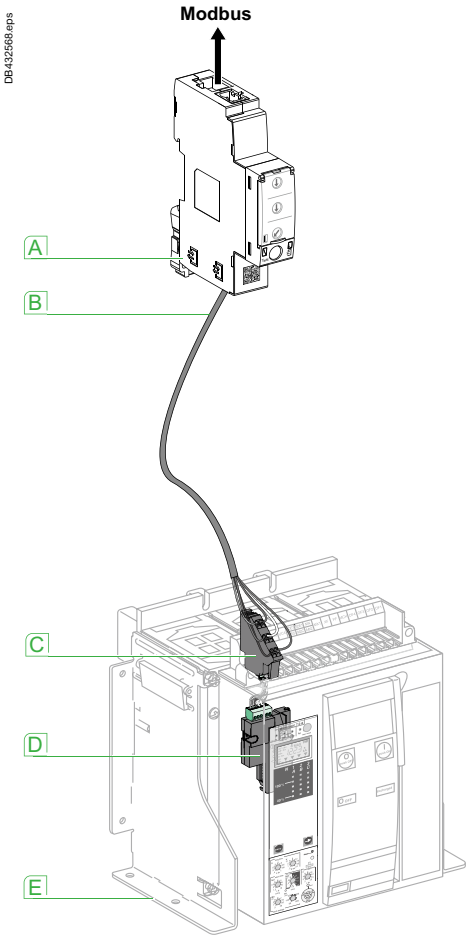
Analog inputs

The I/O application module analog input can be connected to a Pt100 temperature sensor

Range	-30 to 200 °C	-22 to 392 °F
Accuracy	±2 °C from -30 to 20 °C ±1 °C from 20 to 140 °C ±2 °C from 140 to 200 °C	±3.6 °F from -22 to 68 °F ±1.8 °F from 68 to 284 °F ±3.6 °F from 284 to 392 °F
Refresh interval	5 s	5 s

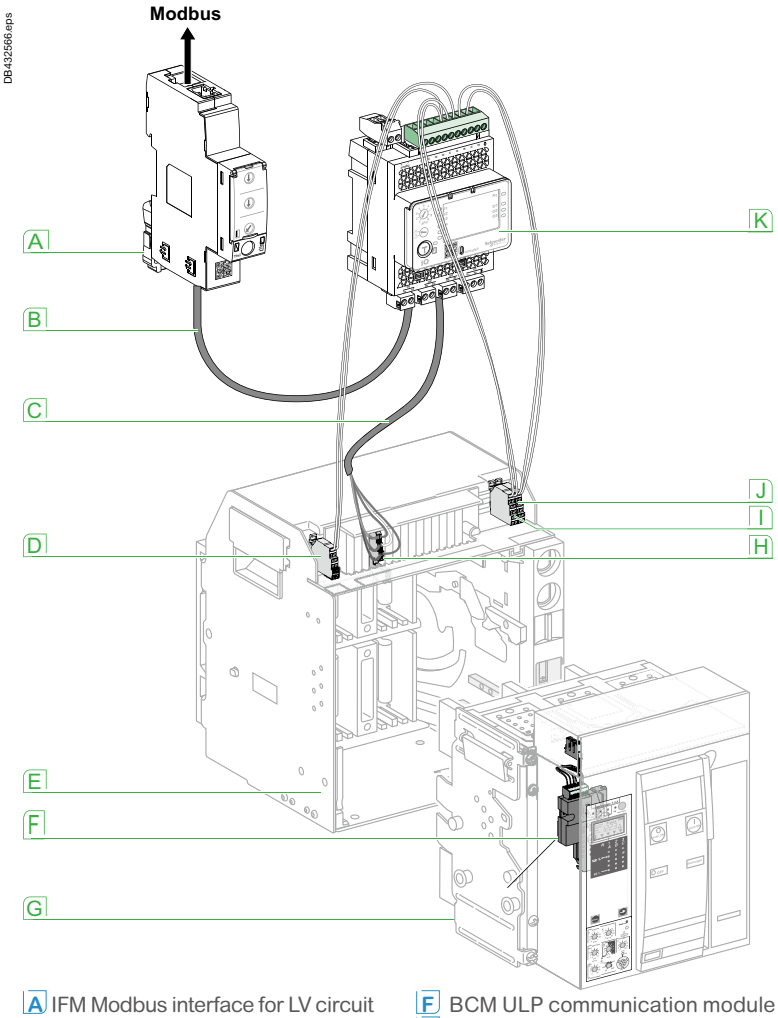
Connection of the IFM & I/O module to a fixed or drawout Easypact MVS

Connect the IFM to a fixed electrically operated EasyPact MVS or circuit breaker using the breaker ULP cord



A IFM Modbus interface for LV circuit breaker
B Breaker ULP cord
C Fixed terminal block
D BCM ULP communication module
E Fixed electrically operated circuit breaker

Connect the IFM to a drawout EasyPact MVS or circuit breaker using the breaker ULP cord



A IFM Modbus interface for LV circuit breaker
B ULP cable
C Breaker ULP cord
D Circuit breaker disconnected position contact (CD)
E Circuit breaker cradle
F BCM ULP communication module
G Drawout circuit breaker
H Drawout terminal block
I Circuit breaker connected position contact (CE)
J Circuit breaker test position contact (CT)
K I/O (Input/Output) application module for LV circuit breaker

EasyCom Communication interface

EasyCom Communication

Overview

EasyCom Communication module allows you to connect and control the air circuit breakers over Modbus communication architecture.

Resources(Inputs/Outputs)

The Communication module resources are:

- Nine digital inputs
- Six digital outputs
- One analog inout

Key Features

The main features of the communication module are:

- **Ensures to make communication architechture affordable and easily maintainable**
- **Connects,controls, and manages up to three circuit breakers.**
  - connect:Breaker ON/OFF status(OF),Breaker Trip status(SDE), Ready Tc Close status(PF)
  - Control: Remote Oper/Close of EasyPact air circuit breakers
  - Manage: One Analog Input for temperature measurement(4...20mA)

Safety Operation

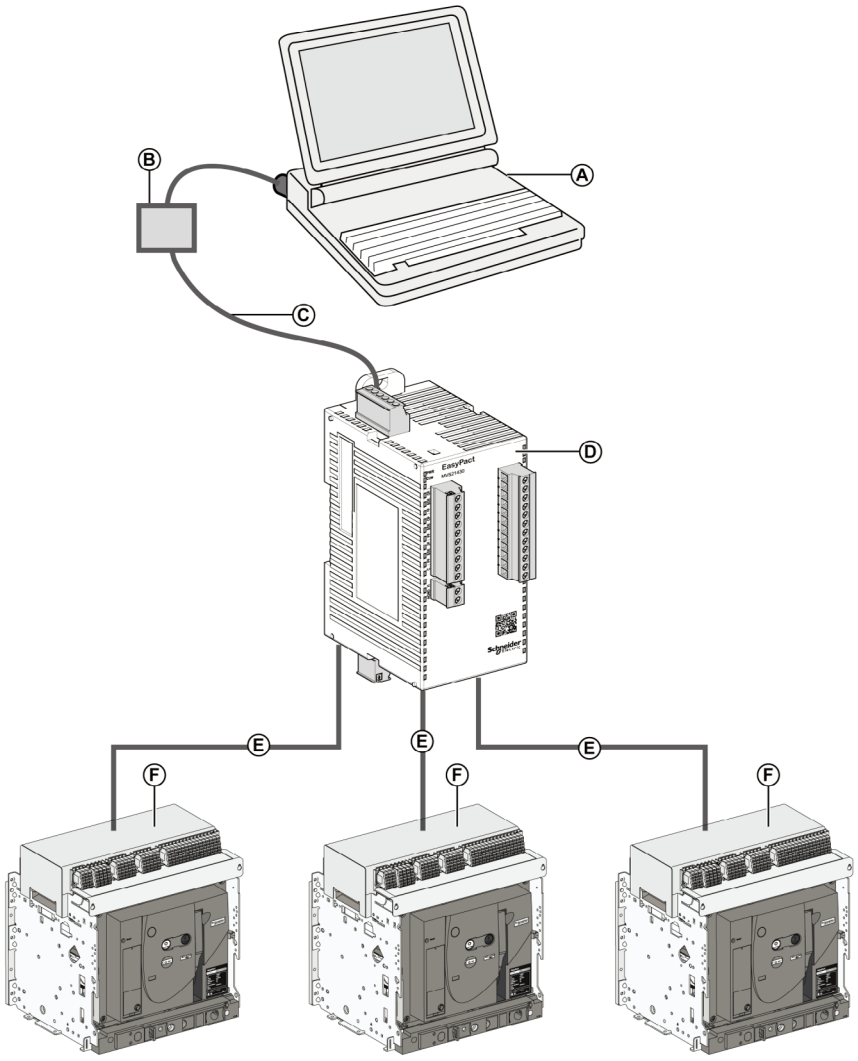
The communication module keeps safety as its top priority while you control the communication architecture.

- During maintenance, the local operator can switch off the remote operation module locally. The remote operator can see the status of the air circuit breaker from remot, but cannot give the ON/OFF command.
- The communication module provides ‘ready-to-close’ indication on the communication network,keeping the safety of the operator and installation on priority.
- The operator must check the following status of the air breaker before the ON command is given to the circuit breaker through the communication architecture.
  - The circuit breaker is in the OFF position.
  - The Spring mechanism is charged.
  - A maintained opening order is not present.
  - The tripping command is not present through shunt, under voltage.
  - The air circuit breaker is completely rack in or not.
  - The air circuit breaker is locked in the Off position or is mechanically interlock with any other air circuit breaker.

The EasyPact air circuit breaker is equipped witha ‘ready-to-cloase’ accessory that helps to check these conditions from remote on the communication architecture. Once it is fulfilled, the ON command is given to the circuit breaker.

EasyCom Communication interface

Commnuication Architecture

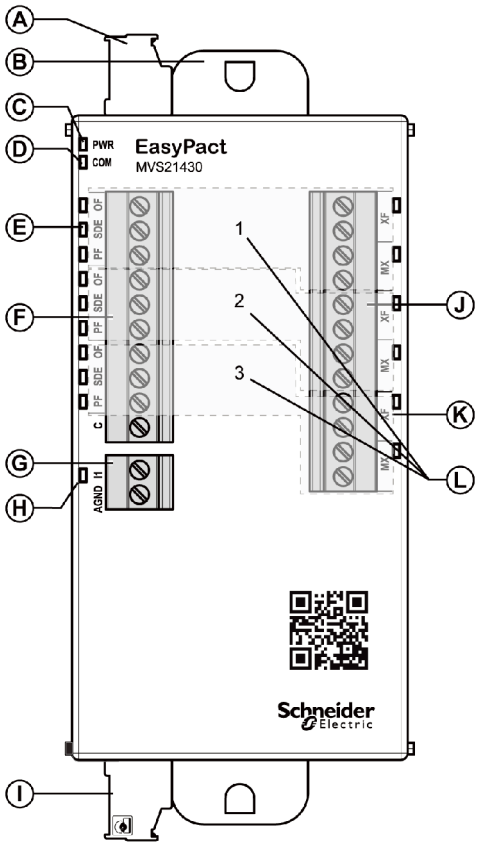


A **Customer Scope Modbus** Master/SCADA Supervisor
B **Customer Scope** Modubus communication cable (**RS 485 cable**)
C **Custmer Scope Modbus to USB/convertor**
D EasyCom Communication module
E Digital input/Digital Output wires
F EasyPact MVS

EasyCom Communication interface

Hardware Description

Description



A Modbus Connector
B DIN Clip
C Module Power LED
D Module Communication Status LED
E Digital Inputs Status LED
F Digital Inputs Connector
G Analog Inputs Connector
H Analog Input LED
I 24V Power Supply Connector
J Digital Outputs Connector
K Digital Outputs Status LED
L Circuit breaker 1,2 and 3

Mounting

EasyCom Communication module mounts on a DIN rail(Reference: Top hat rail EN50022/TS35).
Pull the sliders provided with the unit towards the outward direction. Rest the unit on the DIN rail plate. Pull down the slider again so that the unit gets fixed on the DIN rail plate

24 Vdc Power Supply

It is recoomended to use UL listed/UL recognized limited voltage/limited cuuert or a Class 2 Power supply with a 24 Vdc, 3A maxmum and with the shield pin connection.

Module Power LED

Markeing on the product	LED Indication	Status Description
PWR	ON	Module is powered
	OFF	Module is not powered

EasyCom Communication interface

Module Communication Status L

Markeing on the product	LED Indication	Status Description
COM	ON	Commnuncation established
	Blink	Commnuncation established
	OFF	No Commnuncation

Digital Input status LED

Markeing on the product	LED Indication	Status Description
3X(OF,SDE,PF)	ON	Input is high
	OFF	Input is low

Digital Output status LED

Markeing on the product	LED Indication	Status Description
3X(OF,SDE,PF)	ON	Relay output is CLOSE
	OFF	Relay output is OPEN

Analog Input status LED

Markeing on the product	LED Indication	Status Description
AI	ON	4...20 mA range Input
	OFF	No sensor
	1s ON, 1s OFF	Out of range input

Connections
Overview of solutions and accessories

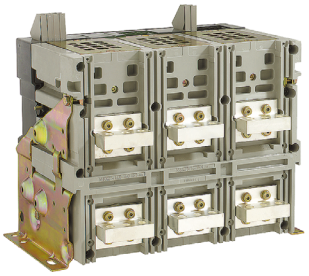
Available connection:
- Rear connections: horizontal, vertical and mixed

The solutions presented are similar in principle for all EasyPact MVS fixed and draw-out devices.

Rear connection

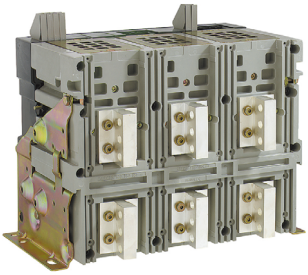
Horizontal

PB104354A40



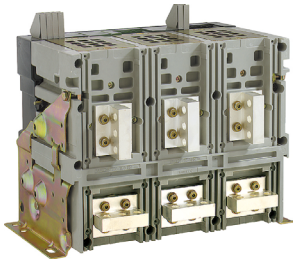
Vertical

PB104355A40



Mixed

PB104359A40



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

Connections
Overview of solutions and accessories

CPB100010

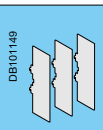
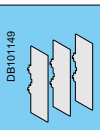
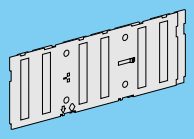
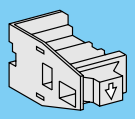
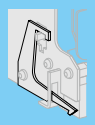
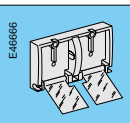
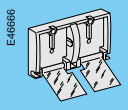
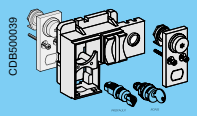
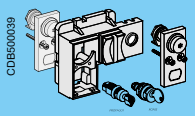
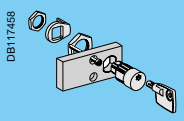
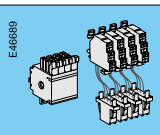
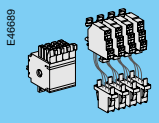
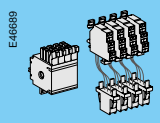
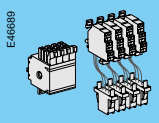
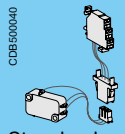
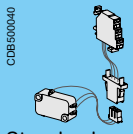
Interphase barriers EIP
These barriers are flexible insulated partitions used to reinforce isolation of connection points in installations with busbars, whether insulated or not.
For EasyPact MVS devices, they are installed vertically between rear connection terminals. They are not compatible with spreaders.

PB104364A50

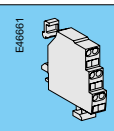
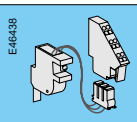
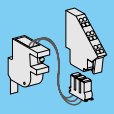
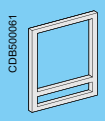
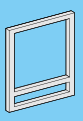
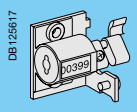
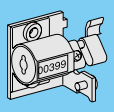
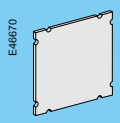
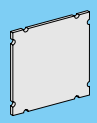
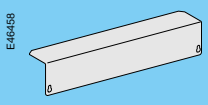
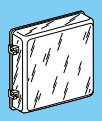
Safety shutters VO
Mounted on the chassis, the safety shutters automatically block access to the disconnecting contact cluster when the device is in the disconnected or test positions
(degree of protection IP 20) When the device is removed from its chassis, no live parts are accessible.
The shutter-locking 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 MVS06 to MVS40
A support at the bottom of the chassis is used to store the blocks when they are not used:
- 2 blocks for MVS06 to MVS40

Accessories and auxiliaries

Type of accessory	EasyPact MVS06 to MVS40	
	Fixed breaker Rear connection	Draw-out breaker Rear connection
Interphase barriers	 Optional	 Optional
Safety shutters		 Standard
Safety shutters locking blocks		 Optional
Door interlock		 Optional
Pushbutton locking device	 Optional	 Optional
OFF position locking	 Optional	 Optional
"Disconnected" position locking		 Optional
ON/OFF indication contacts(OF)	 Standard	 Standard
Additional ON/OFF indication contacts(OF) not incl MVS frame 1	 Optional	 Optional
"Fault trip" indication contact(SDE)	 Standard	 Standard

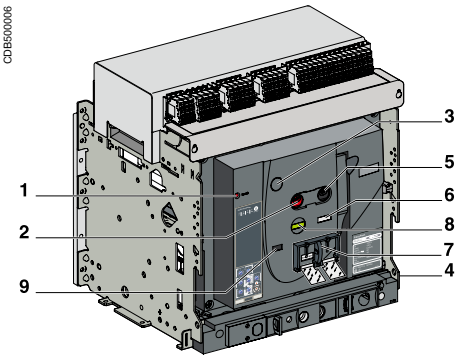
Accessories and auxiliaries

Type of accessory	EasyPact MVS06 to MVS40	
	Fixed breaker Rear connection	Draw-out breaker Rear connection
"Connected, disconnected, test position" indication contact(CE,CD,CT)		 Optional
"Ready to close" contact(PF)	 Optional	 Optional
Escutcheon(CDP)	 Standard	 Standard
Mechanical operation counter(CDM) not incl MVS frame 1	 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

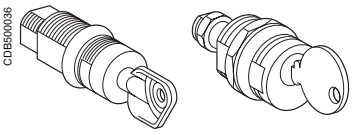
Device locking in the OFF position by keylocks VSPO

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

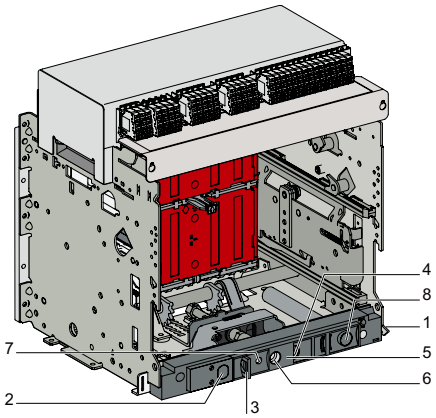
Mounted on the right or left-hand side of the chassis, this device inhibits opening of
the cubicle door when the circuit breaker is in “connected” or “test” position. It the breaker is put in the “connected” position with the door open, the door may be closed
without having to disconnect the circuit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

Automatic spring discharge before breaker removal DAE

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

Locking
On 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

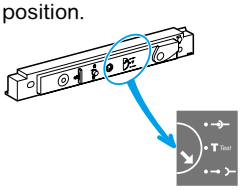
Mounted on the chassis and accessible with the door closed, these devices lock the circuit breaker in the "disconnected" position in two manners:
- Using padlocks (standard), up to three padlocks (not supplied)
- Using keylocks (optional), one or two different keylocks are available

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

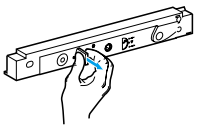
A locking kit (without locks) is available for installation of one or two keylocks (Ronis, Profalux).

Padlock

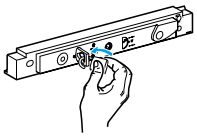
Circuit breaker in "disconnected" position.



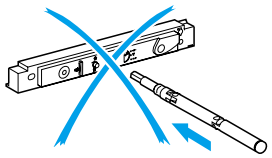
Pull out the tab.



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

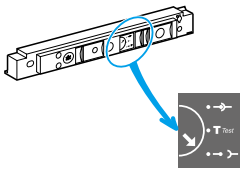


The crank connot be inserted.

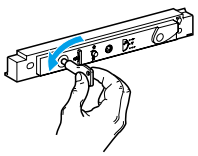


Keylock

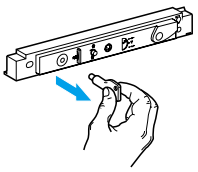
Circuit breaker in "disconnected" position.



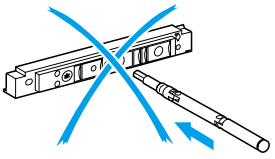
Turn the key(s).



Remove the key(s)

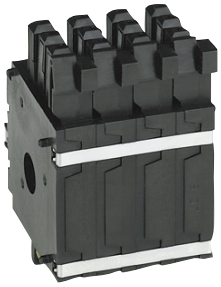


The crank cannot be inserted.

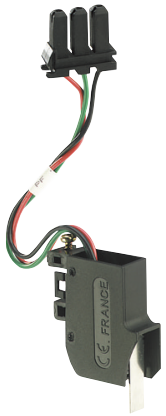


Indication contacts

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



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



"Fault-trip" indication contact (SDE).

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				Frame 1	Frame 2
Supplied as standard				4	4
Maximum number				4	12
Breaking capacity (A) p.f.: 0.3 AC12/DC12	Standard			Minimum load: 100 mA/24 V	
		V AC	240/380	6	10/6 (1)
			480	6	10/6 (1)
			690	6	6
		V DC	24/48	2.5	10/6 (1)
			125	0.5	10/6 (1)
			250	0.3	3
	Low-level			Minimum load: 2 mA/15 V	
		V AC	24/48	5	6
			240	5	6
			380	5	3
		V DC	24/48	5/2.5	6
			125	0.5	6
			250	0.3	3

(1) Standard contacts: 10 A; optional contacts: 6 A.

"Fault-trip" indication contacts SDE

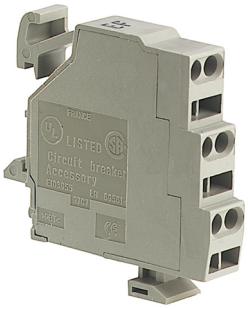
Circuit-breaker tripping due to a fault is signalled by:
- A red mechanical fault indicator (reset)
- One changeover contact SDE

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) p.f.: 0.3 AC12/DC12	Standard			Minimum load: 100 mA/24 V
		V AC	240/380	6
			480	2
		V DC	24/48	3
			125	0.3
			250	0.15
	Low-level			Minimum load: 2 mA/15 V
		V AC	24/48	3
			240	3
			380	3
		V DC	24/48	3
			125	0.3
			250	0.15

Indication contacts

PB100817-32.eps



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

"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

				MVS frame 1	MVS Frame 2
Contacts				**CE/CD/CT**	**CE/CD/CT**
Maximum number	Standard			3 2 1	3 3 3
	with additional actuators				9 0 0
					6 3 0
					6 0 3
					3 6 0
Breaking capacity (A)	Standard			Minimum load: 100 mA/24 V	
p.f.: 0.3		V AC	240	8	8
AC12/DC12			380	8	8
			480	8	8
			690	6	6
		V DC	24/48	2.5	2.5
			125	0.8	0.8
			250	0.3	0.3
	Low-level			Minimum load: 2 mA/15 V	
		V AC	24/48	5	5
			240	5	5
			380	5	5
		V DC	24/48	2.5	2.5
			125	0.8	0.8
			250	0.3	0.3

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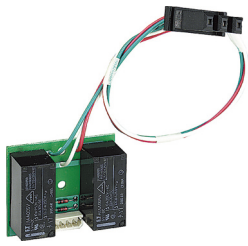

M2C programmable contacts: circuit breaker internal relay with two contacts.

M2C programmable contacts

These contacts, used with the ETV control units, may be programmed via the control unit keypad or via a supervisory station with the COM communication option. They require an external power supply module.

The M2C (two contacts) auxiliary contacts may be used to signal threshold overruns or status changes. They can be programmed using the COM option (BCM ULP).

Micrologic			**Type ETV**
Characteristics			**M2C**
Minimum load			100 mA/24 V
Breaking capacity (A)	V AC	240	5
p.f.: 0.7		380	3
	V DC	24	1.8
		48	1.5
		125	0.4
		250	0.15

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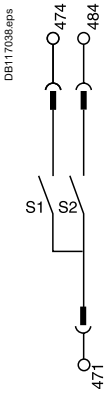
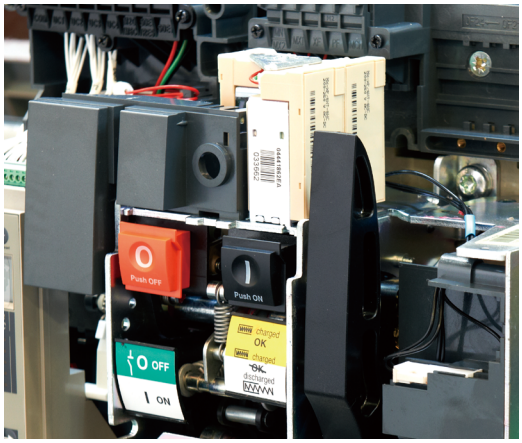


M2C: 24 V DC power supplied by control unit (consumption 100 mA).

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.

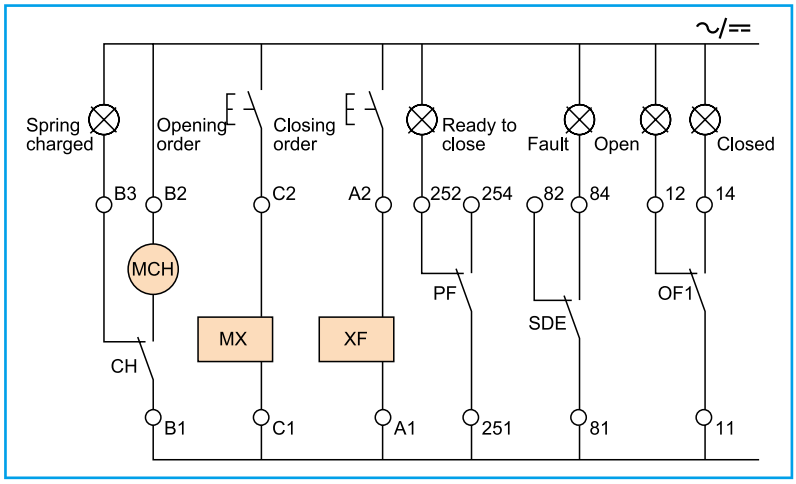
The remote ON / OFF function is used to remotely open and close the circuit breaker.
It is made up of:
- An electric motor MCH equipped with a “springs charged” limit switch contact CH
- Two voltage releases:
  - A closing release XF
  - An opening release MX

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

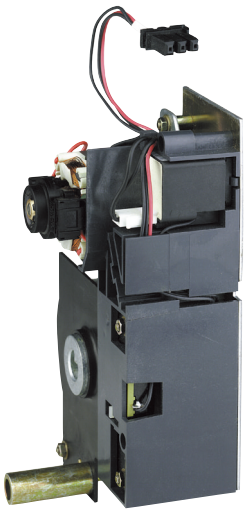
Wiring diagram of a point-to-point remote ON / OFF function

DB111783



Remote operation
Remote ON / OFF

PB100808-32



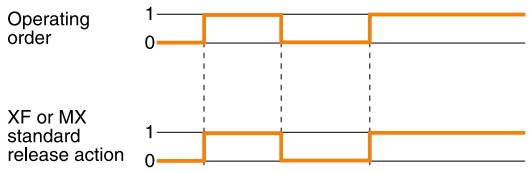
Electric motor MCH for EasyPact MVS.

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



PB100809-16

MX voltage releases.

XF voltage release.

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 - 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 Pick-up: 200 (200 ms)	Hold: 4.5 Pick-up: 200 (200 ms)
Circuit-breaker response time at Un		70 ms ±10	50 ms ±10

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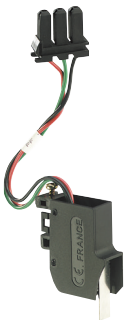


“Ready to close” contacts PF.

“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

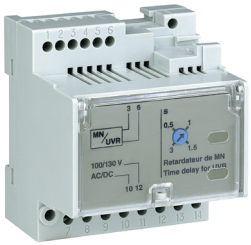
Characteristics				
Maximum number				1
Breaking capacity (A)	Standard			Minimum load: 100 mA/24 V
p.f.: 0.3		V AC	240/380	5
AC12/DC12			480	5
			690	3
		V DC	24/48	3
			125	0.3
			250	0.15

Remote operation
Remote tripping

DB100809-16

MN voltage release.

056422N



MN delay unit.

Instantaneous voltage releases MN

The MN release instantaneously opens the circuit breaker when its supply voltage drops to a value between 35 % and 70 % of its rated voltage. If there is no supply on
the release, it is impossible to close the circuit breaker, either manually or electrically.
Any attempt to close the circuit breaker has no effect on the main contacts. Circuit breaker closing is enabled again when the supply voltage of the release returns to 85% of its rated value.

Characteristics			
Power supply	V AC 50/60 Hz	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	

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	

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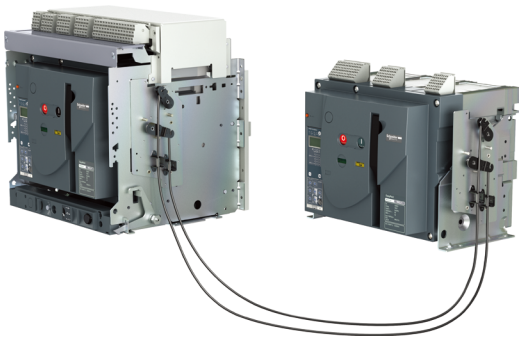

Interlocking of two EasyPact circuit breakers using cable.

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 draw-out, three-pole or four-pole, and have different ratings.

Interlocking between two MVS frame 1 or two MVS frame 2

This function requires:
- An adaptation fixture on the right side of each device
- A set of cables with no-slip adjustments

The maximum distance between the fixing planes (vertical or horizontal) is 2000 mm.

Interlocking between three MVS frame 2

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**
MVS06 to MVS40	MVS Frame 1 or Frame 2
Ratings 630...4000A	■

Possible combinations of three device	
MVS08 to MVS40	MVS Frame 2
Ratings 800...4000A	■

Electrical interlocking
IVE unit

Electrical interlocking is used with a mechanical interlocking system.

Morover, the relays controlling the closing order to the “S1” and “S2” circuit breakers must be mechanically and/or electrically interlocked to prevent them from giving simultaneous closing commands.

Electrical interlocking is carried out by an electrical control device.
For EasyPact & Masterpact, this function can be implemented in one of two ways:
■ using the IVE unit
■ by an electrician based on the diagrams in accordance with the chapter “Electric diagrams” of this catalogue.

Characteristics of the IVE unit
■ External connection terminal block:
□ inputs: circuit breaker control signals
□ outputs: status of the SDE contacts on the “S1” and “S2” source circuit breakers.
■ 2 connectors for the two “S1” and “S2” source circuit breakers:
□ inputs:
- status of the OF contacts on each circuit breaker (ON or OFF)
- status of the SDE contacts on the “S1” and “S2” source circuit breakers
□ outputs: power supply for operating mechanisms.
■ Control voltage:
□ 24 to 250 V DC
□ 48 to 415 V 50/60 Hz - 440 V 60 Hz.
The IVE unit control voltage must be same as that of the circuit breaker operating mechanisms.

PB119174.eps

IVE unit.

Necessary equipment
For MVS, each circuit breaker must be equipped with:
■ a remote-operation system made up of:
□ MCH gear motor
□ MX or MN opening release
□ XF closing release
□ PF “ready to close” contact
□ CDM mechanical operation counter
■ an available OF contact
■ one to three CE connected-position contacts (carriage switches) on drawout circuit breakers (depending on the installation).

Controller selection

By combining a remote-operated source-changeover system with an integrated BA or UA automatic controller, it is possible to automatically control source transfer according to user-selected sequences.
These controllers can be used on source-changeover systems comprising 2 circuit breakers. For source-changeover systems comprising 3 circuit breakers, the automatic control diagram must be prepared by the installer as a complement to to diagrams provided in the “electrical diagrams” section of this catalogue.

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BA controller.

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UA controller.

Controller		BA	UA
Compatible circuit breakers		All Masterpact & EasyPact circuit breakers	
4-position switch			
Automatic operation		■	■
Forced operation on “Normal” source		■	■
Forced operation on “Replacement” source		■	■
Stop (both “Normal” and “Replacement” sources off)		■	■
Automatic operation			
Monitoring of the “Normal” source and automatic transfer		■	■
Generator set startup control			■
Delayed shutdown (adjustable) of generator set			■
Load shedding and reconnection of non-priority circuits			■
Transfer to the “Replacement” source if one of the phases of the “Normal” phase is absent			■
Test			
By opening the P25M circuit breaker supplying the controller		■	
By pressing the test button on the front of the controller			■
Indications			
Circuit breaker status indication on the front of the controller: on, off, fault trip		■	■
Automatic mode indicating contact		■	■
Other functions			
Selection of type of “Normal” source (single-phase or three-phase) (1)			■
Voluntary transfer to “Replacement” source (e.g. energy management commands)		■	■
During peak-tariff periods (energy management commands) forced operation on “Normal” source if “Replacement” source not operational			■
Additional contact (not part of controller). Transfer to “Replacement” source only if contact is closed. (e.g. used to test the frequency of UR).		■	■
Setting of maximum startup time for the replacement source			■
Options			
Communication option			
Power supply			
Control voltages (2)	110 V	■	■
	220 to 240 V 50/60 Hz	■	■
	380 to 415 V 50/60 Hz and 440 V 60 Hz	■	■
Operating thresholds			
Undervoltage	0.35 Un ⩽ voltage ⩽ 0.7 Un	■	■
Phase failure	0.5 Un ⩽ voltage ⩽ 0.7 Un		■
Voltage presence	voltage ⩾ 0.85 Un	■	■
IP degree of protection (EN 60529) and IK degree of protection against external mechanical impacts (EN 50102)			
Front	IP40	■	■
Side	IP30	■	■
Connectors	IP20	■	■
Front	IK07	■	■
Characteristics of output contacts (dry, volt-free contacts)			
Rated thermal current (A)	8		
Minimum load	10 mA at 12 V		
Output contacts:			
Position of the Auto/Stop switch		■	■
Load shedding and reconnection order			■
Generator set start order			■

		AC				DC	
Utilisation category (IEC 947-5-1)		AC12	AC13	AC14	AC15	DC12	DC13
Operational current (A)	24 V	8	7	5	5	8	2
	48 V	8	7	5	5	2	-
	110 V	8	6	4	4	0.6	-
	220/240 V	8	6	4	3	-	-
	250 V	-	-	-	-	0.4	-
	380/415 V	5	-	-	-	-	-
	440 V	4	-	-	-	-	-
	660/690 V	-	-	-	-	-	-

(1) For example, 220 V single-phase or 220 V three-phase.
(2) The controller is powered by the ACP control plate. The same voltage must be used for the ACP plate, the IVE unit and the circuit-breaker operating mechanisms. If this voltage is the same as the source voltage, then the “Normal” and “Replacement” sources can be used directly for the power supply. If not, an isolation transformer must be used.

Accessories

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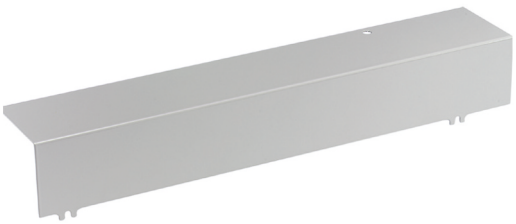

Auxiliary terminal shield CB

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

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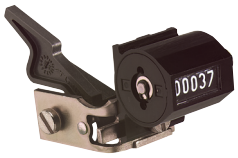

Operation counter CDM

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.

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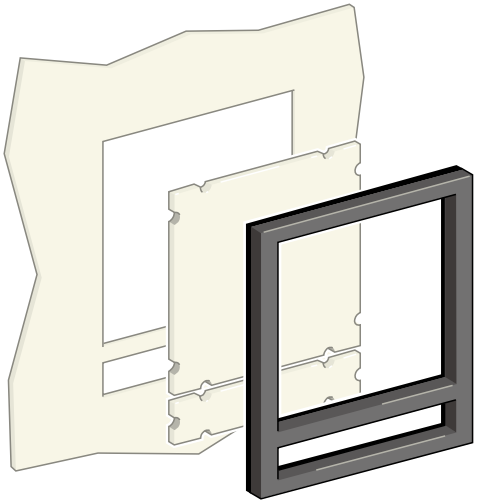

Escutcheon CDP with blanking plate.

Escutcheon CDP

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

Blanking plate for escutcheon OP

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

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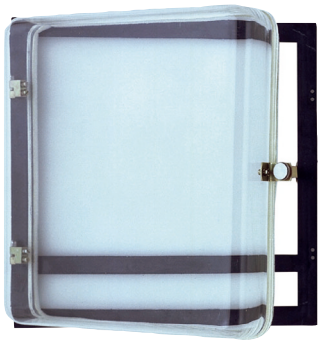

Transparent cover CP for escutcheon.

Transparent cover for escutcheon CP

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

Installation recommendations

Installation recommendations

Functions and characteristics *A-1*

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Electrical diagrams *D-1*
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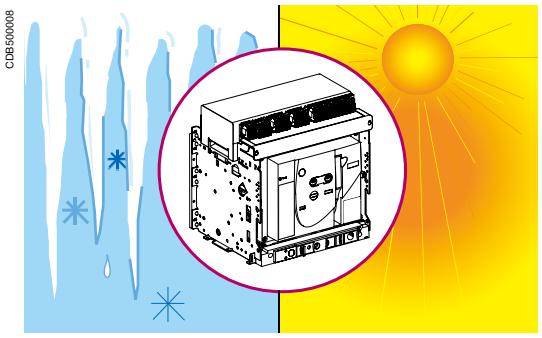
Catalogue numbers and order form *F-1*

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.



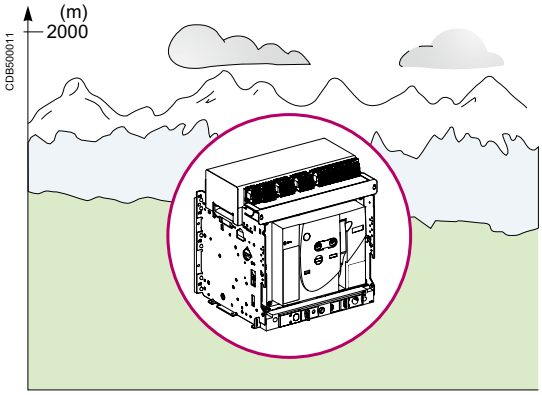
Ambient temperature

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

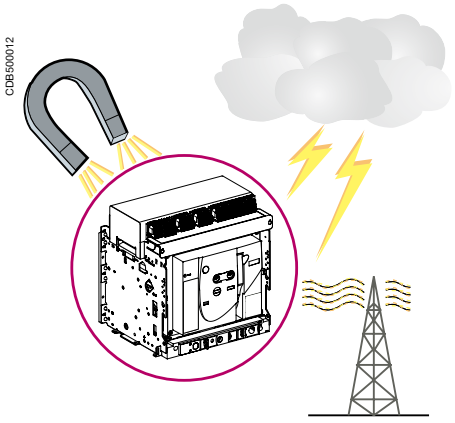


Altitude

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	690	590
voltage 50/60 Hz Ue (V)	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

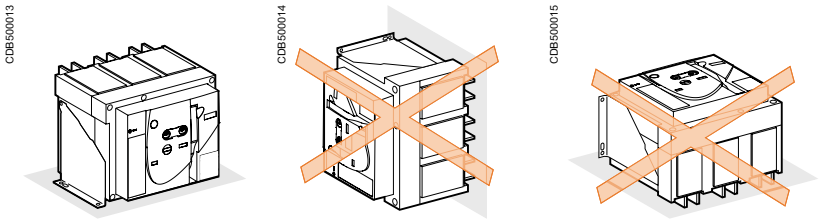
EasyPact MVS devices have successfully passed the electromagnetic-compatibility
tests (EMC) defined by the following international standards:

- IEC 60947-2, appendix F

The above tests guarantee that:

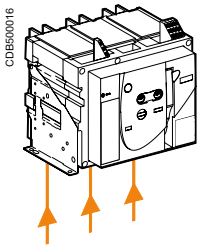
- No nuisance tripping occurs
- Tripping times are respected

Possible positions



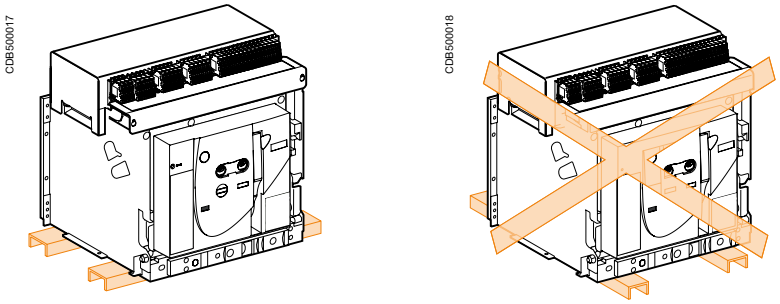
Power supply

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.

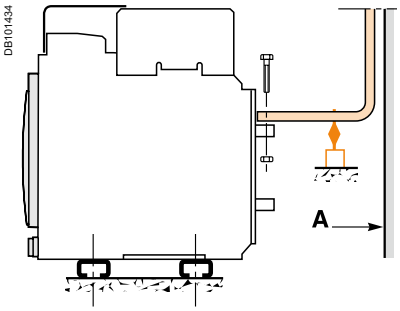


Mounting on rails.

Installation in switchboard

Partitions

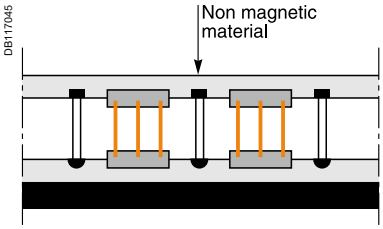
Sufficient openings must be provided in partitions to ensure good air circulation around the circuit breaker;
Any partition between upstream and downstream connections of the device must be made of nonmagnetic material.
For high currents, of 2500 A and upwards, the metal supports or barriers in the immediate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

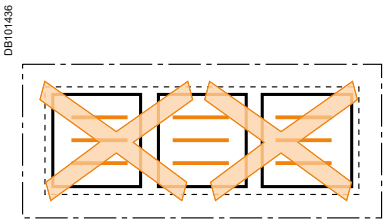


A : *Non magnetic material.*

Busbars

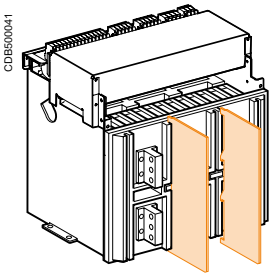
The mechanical connection must be exclude the possibility of formation of a magnetic loop around a conductor.

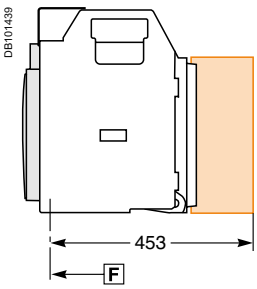




Interphase barrier

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





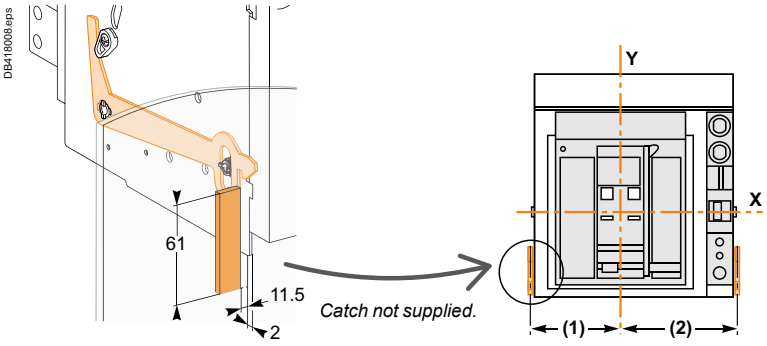
Door interlock catch

Door interlock VPEC

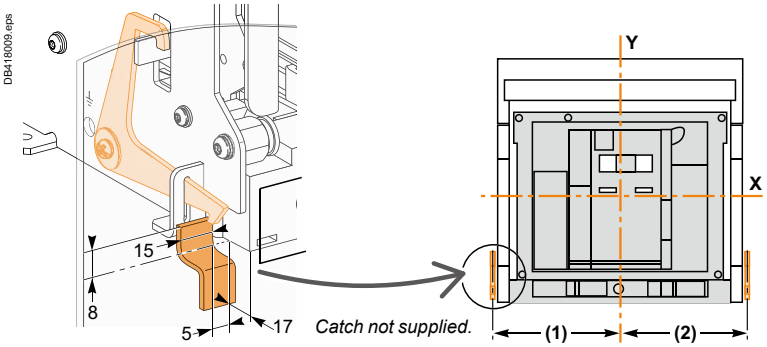
Mounted on the right or left-hand side of the chassis, this device inhibits opening of the cubicle door when the circuit breaker is in “connected” or “test” position.
It the breaker is put in the “connected” position with the door open, the door may be closed without having to disconnect the circuit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

Dimensions (mm)

Type	(1)	(2)
MVS frame 1 (3P)	135	168
MVS frame 1 (4P)	205	168
MVS frame 2 (3P)	215	215
MVS frame 2 (4P)	330	215



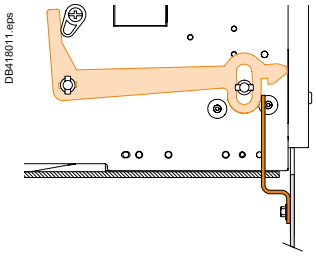
MVS frame 1



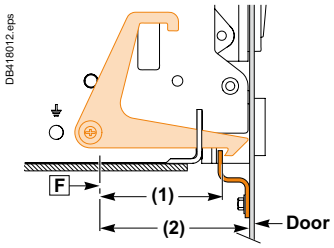
MVS frame 2

Breaker in “connected” or “test” position

Door cannot be opened



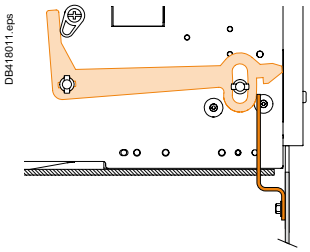
MVS frame 1



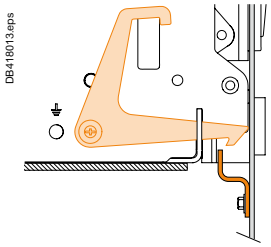
MVS frame 2.

Breaker in “disconnected” position

Door can be opened



MVS frame 1.



MVS frame 2.

Dimensions (mm)

Type	(1)	(2)
MVS frame 1	5	23
MVS frame 2	87	103

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.

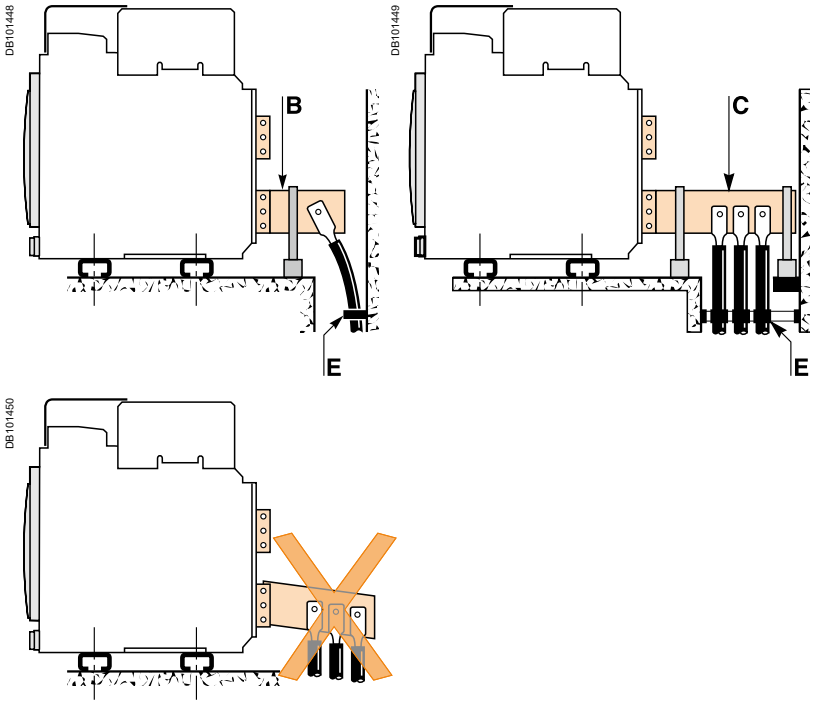
Note: *Wiring of ZSI: it is recommended to use twisted shielded cable. The shield must be connected to earth at both ends.*

Power connection

Cables connections

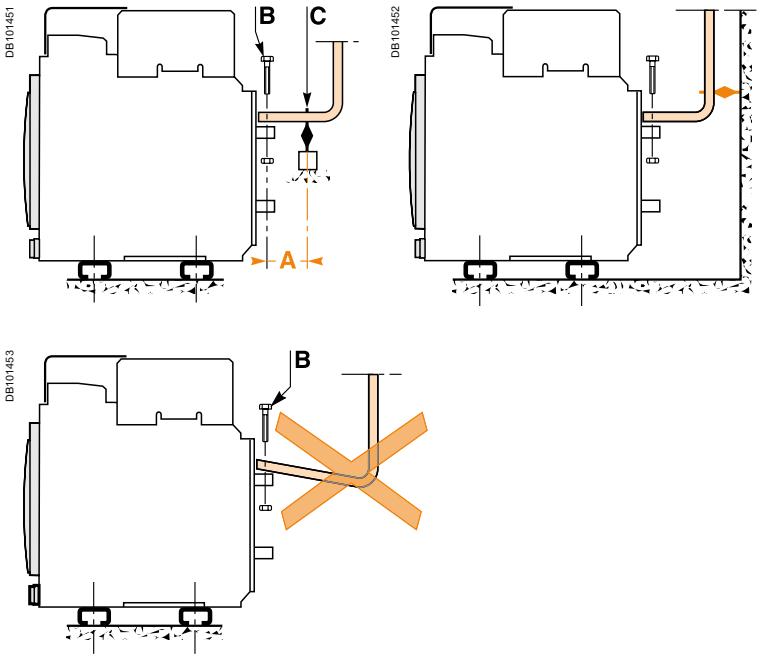
If cables are used for the power connections, make sure that they do not apply excessive mechanical forces to the circuit breaker terminals.
For this, make the connections as follows:

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



Busbars connections

The busbars should be suitably adjusted to ensure that
the connection points are positioned on the terminals before the bolts are inserted **B**
The connections are held by the support which is solidly fixed to the framework of the switchboard, such that the circuit breaker terminals do not have to support its weight **C**. (This support should be placed close to the terminals).

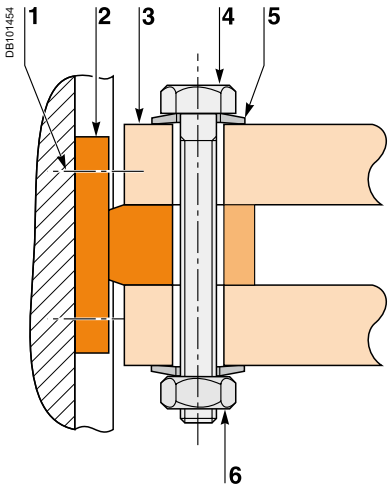


Electrodynamic stresses

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

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

Power connection

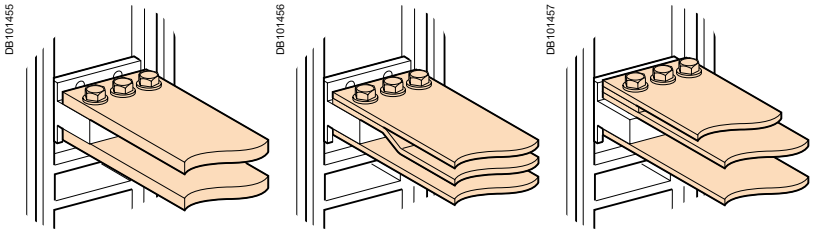


1 *Terminal screw factory-tightened to 16 Nm.*
2 *Breaker terminal.*
3 *Busbar.*
4 *Bolt.*
5 *Washer.*
6 *Nut.*

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).

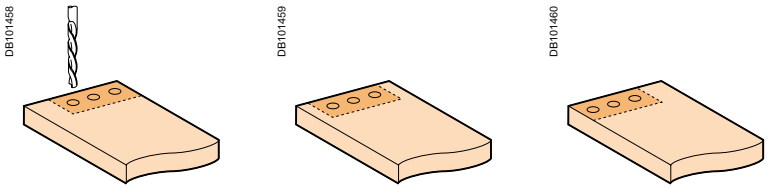
Examples



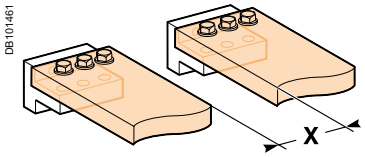
Tightening torques			
Ø (mm) Nominal	**Ø (mm) Drilling**	**Tightening torques (Nm) with grower or flat washers**	**Tightening torques (Nm) with contact or corrugatec washers**
10	11	37.5	50

Busbar drilling

Examples



Isolation distance

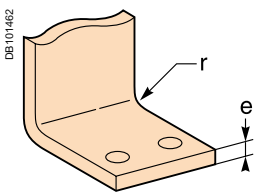


Dimensions (mm)

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).



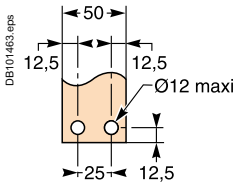
Dimensions (mm)

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

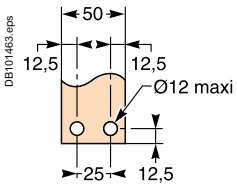
Recommended busbars drilling

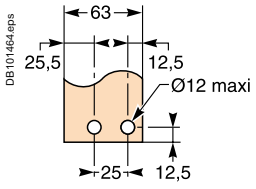
Easypact MVS Frame 1: 630-1600A

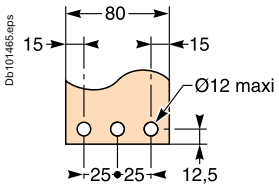
Rear connection

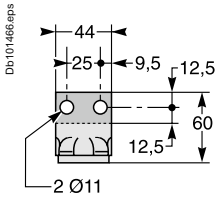


Rear connection with spreaders

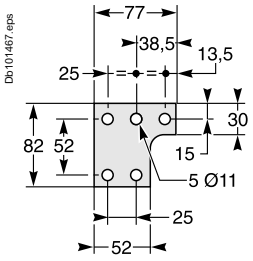




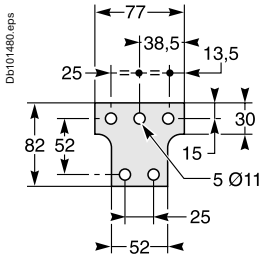




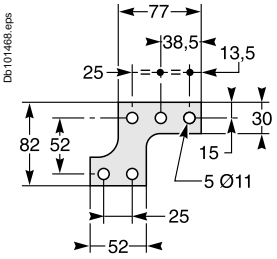
Middle left or middle right spreader for 4P



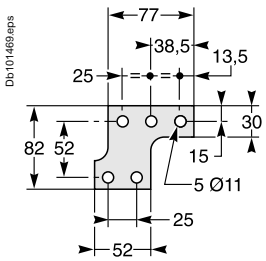
Middle spreader for 3P



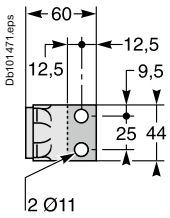
Left or right spreader for 4P



Left or right spreader for 3P



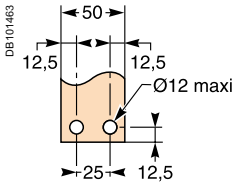
Vertical rear connection

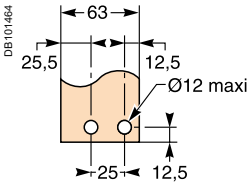


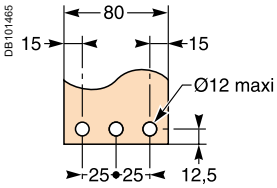
Recommended busbars drilling

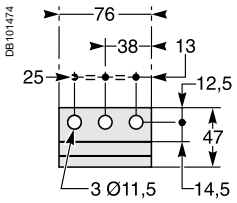
EasyPact MVS Frame 2: 800-4000A

Horizontal rear connection MVS08 to MVS32

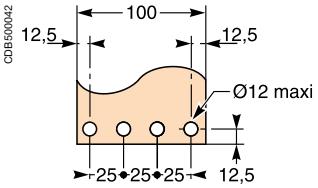


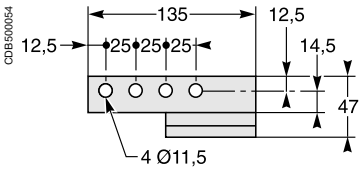


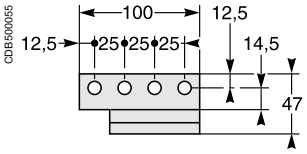




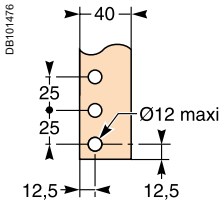
MVS40

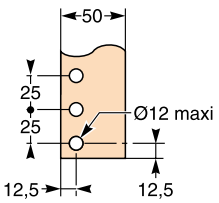


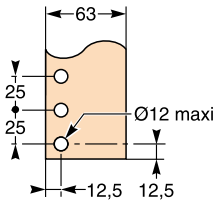


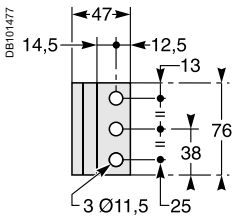


Vertical rear connection MVS08 to MVS32

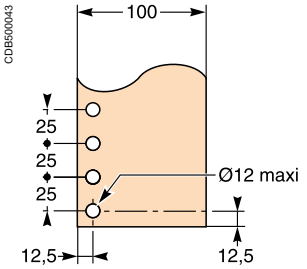


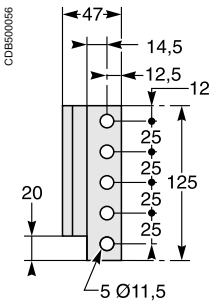






MVS40

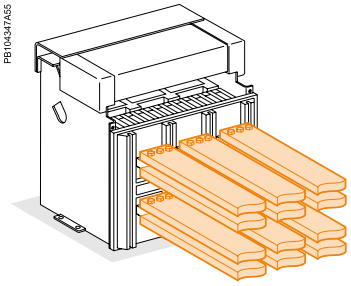




Busbar sizing

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

Rear horizontal connection



Unpainted Copper(Rear Horizontal connection)

EasyPact	Maximum service current (A)	Ti: 40°C		Ti: 50°C	
		No. of 5mm thick bars	No. of 10mm thick bars	No. of 5mm thick bars	No. of 10mm thick bars
MVS06	630	2b.40x5	1b. 40x10	2b.40x5	1b. 40x10
MVS08	800	2b.50x5	1b. 50x10	2b.50x5	1b. 50x10
MVS10	1000	3b.50x5	1b. 63x10	3b.50x5	2b. 50x10
MVS12	1250	3b.50x5 2b.80x5	2b. 40x10	3b.50x5 2b 80 x5	2b. 50x10
MVS16	1600	3b.80x5	2b. 63x10	3b.80x5	2b. 63x10
MVS20	2000	3b.100x5	2b. 63x10	3b.100x5	2b. 80x10
MVS25	2500	4b.100x5	2b. 80x10	4b.100x5	2b. 100x10
MVS32	3200	6b.100x5	3b. 100x10	8b.100x5	3b. 100x10
MVS40	4000	-	5b. 100x10	-	5b. 100x10

Unpainted Aluminum

EasyPact	Maximum service current (A)	Busbar Orientation	Ti: 50°C No. of 10mm thick bars
MVS06	630	Horizontal	2b. 40 X10
MVS08	800	Horizontal	2b. 40 X10
MVS10	1000	Horizontal	2b. 50 X10
MVS12	1250	Horizontal	2b. 80 X10
MVS16	1600	Horizontal	3b. 80 X10

Example

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

Solution:

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

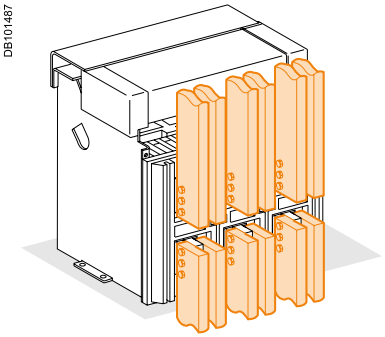
Note: *The values indicated in these tables have been extrapolated from test data and theoretical calculations. These tables are only intended as a guide and cannot replace industrial experience or a temperature rise test.*

Busbar sizing

Basis of tables:

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

Rear vertical connection



Unpainted Copper(vertical connection)

EasyPact	Maximum service current (A)	Ti: 40°C		Ti: 50°C	
		No. of 5mm thick bars	No. of 10mm thick bars	No. of 5mm thick bars	No. of 10mm thick bars
MVS06	630	2b.40x5	1b. 40x10	2b.40x5	1b. 40x10
MVS08	800	2b.50x5	1b. 50x10	2b.50x5	1b. 50x10
MVS10	1000	2b.50x5	1b. 50x10	2b.50x5	1b. 50x10
MVS12	1250	2b.63x5	2b. 40x10	3b.50x5	2b. 40x10
MVS16	1600	3b.63x5	2b. 50x10	3b.63x5	2b. 50x10
MVS20	2000	3b.100x5	2b. 63x10	3b.100x5	2b. 63x10
MVS25	2500	4b.100x5	2b. 80x10	4b.100x5	2b. 80x10
MVS32	3200	6b.100x5	3b. 100x10	6b.100x5	3b. 100x10
MVS40	4000	-	4b. 100x10	-	4b. 100x10

Example

Conditions:

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

Solution:

For T_i = 40 °C use an MVS12 which can be connected with two 63 x 5 mm bars or with one 63 x 10 mm bar.

Unpainted Aluminum

EasyPact	Maximum service current (A)	Busbar Orientation	Ti: 50°C No. of 10mm thick bars
MVS06	630	Vertical	2b. 40 X10
MVS08	800	Vertical	2b. 40 X10
MVS10	1000	Vertical	2b. 50 X10
MVS12	1250	Vertical	2b. 80 X10
MVS16	1600	Vertical	3b. 80 X10
MVS20	2000	Vertical	4b. 80 X10
MVS25	2500	Vertical	4b. 100 X10
MVS32	3200	Vertical	4b. 150 X10
MVS40	4000	Vertical	5b. 150 X10

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	Draw-out										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)																				
MVS06C	630					630					630					630				
MVS08C	800					800					800					800				
MVS10C	1000					1000					1000					1000				
MVS12C	1250					1250					1250					1250				
MVS16C	1600	1560	1520	1480	1440	1600			1560	1520	1600				1560	1600				
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)																				
MVS08H	800					800					800					800				
MVS10H	1000					1000					1000					1000				
MVS12H	1250					1250					1250					1250				
MVS16H	1600					1600					1600					1600				
MVS20H	2000			1900	1800	2000				1900	2000				1920	2000				
MVS25H	2500	2450	2400	2300	2200	2500		2450	2400	2300	2500					2500				
MVS32H	3200		3100	3000	2900	3200					3200					3200				
MVS40H	4000		3900	3750	3650	4000				3900	4000			3900	3800	4000				

Power dissipation

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

Type	Draw-out		Fixed	
Frame 1-50kA	Power loss (W)	Input/output resistance (µohm)	Power loss (W)	Input/output resistance (µohm)
MVS06C	55	38	30	26
MVS08C	90	38	50	26
MVS10C	150	38	80	26
MVS12C	250	36	130	26
MVS16C	460	36	220	26
Frame 2-50kA	**Power loss (W)**	**Input/output resistance (µohm)**	**Power loss (W)**	**Input/output resistance (µohm)**
MVS08N	120	36	60	19
MVS10N	180	36	100	19
MVS12N	280	36	140	19
MVS16N	460	36	200	19
MVS20N	470	30	250	13
MVS25N	600	19	260	13
MVS32N	670	13	420	8
MVS40N	900	11	650	8
Frame 2-65kA				
MVS08H	100	30	42	13
MVS10H	150	30	70	13
MVS12H	230	30	100	13
MVS16H	390	30	170	13
MVS20H	470	30	250	13
MVS25H	600	19	260	8
MVS32H	670	13	420	8
MVS40H	900	11	650	8

Dimensions and connection

Dimensions and connection

Functions and characteristics *A-1*
Installation recommendations *B-1*

MVS frame 1(630 to 1600A)circuit breakers **C-2**
Fixed 3/4-poles device C-2
Draw-out 3/4 poles device C-4

MVS Frame 2(800 to 3000A) circuit breakers **C-6**
Fixed 3/4-poles device C-6
Draw-out 3/4-poles device C-8

MVS Frame 2(4000A) circuit breakers **C-10**
Fixed 3/4-poles device C-10
Draw-out 3/4-poles device C-12

Accessories **C-14**

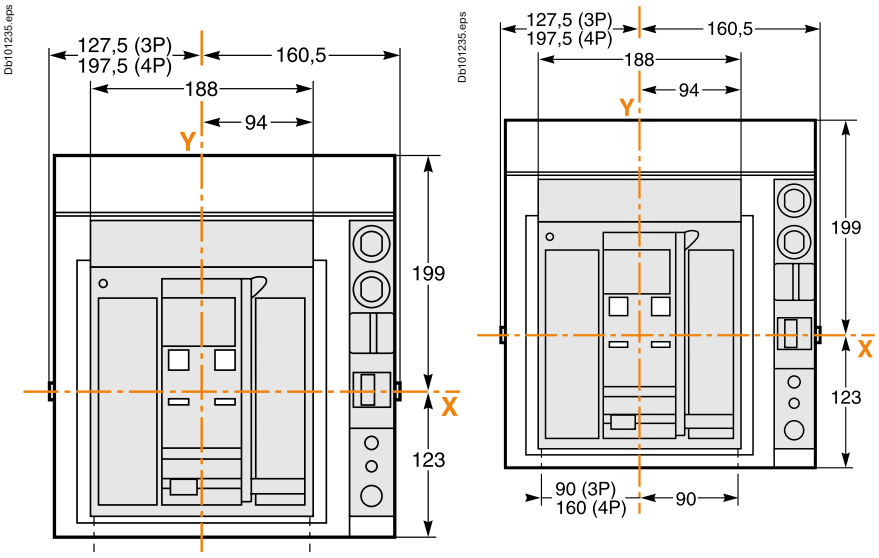
External modules **C-15**

Electrical diagrams *D-1*
Additional characteristics *E-1*
Catalogue numbers and order form *F-1*

MVS Frame 1(630 to 1600A) circuit breakers

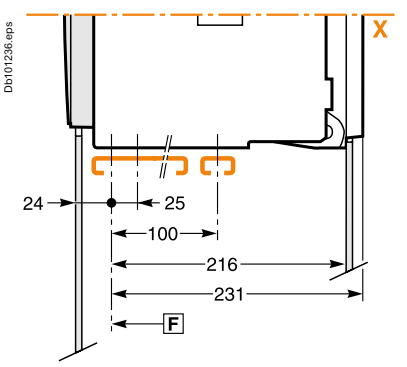
Fixed 3/4-poles device

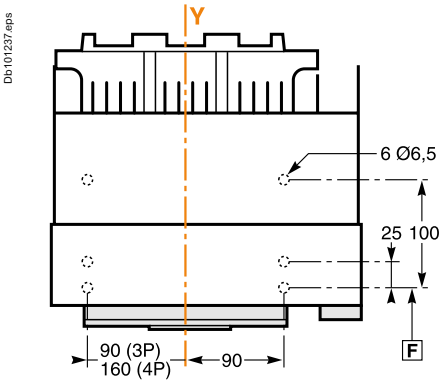
Dimensions



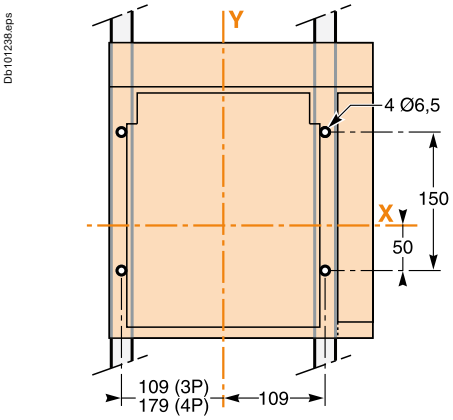
(*) Disconnected position.

Bottom mounting (on base plate or rails)

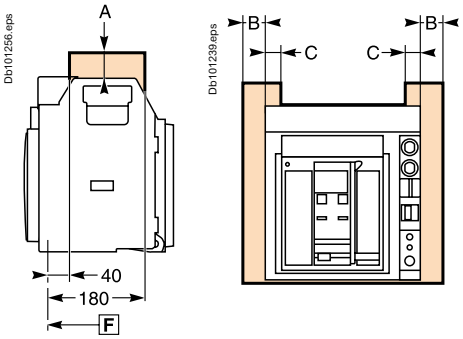




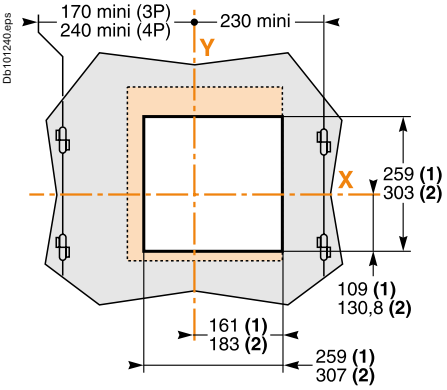
Rear mounting detail (on upright or backplate)



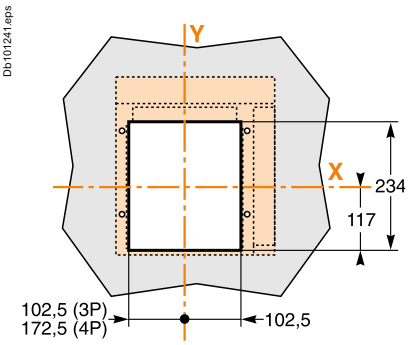
Safety clearances



Door cutout



Rear panel cutout



For voltages ≤ 690 V

	Parts		
	Insulated	Metal	Energised
A	0	0	30
B	10	10	60
C	0	0	30

F : datum.

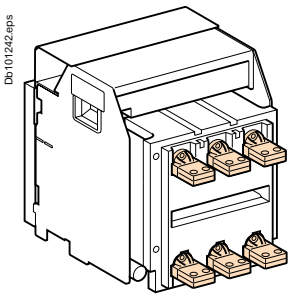
(1) Without escutcheon.
(2) With escutcheon.
***Note: X** and **Y** are the symmetry planes for a 3-pole device.*

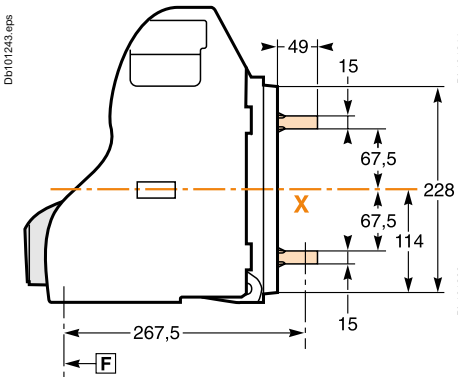
MVS Frame 1(630 to1600A) circuit breakers

Fixed 3/4-poles device

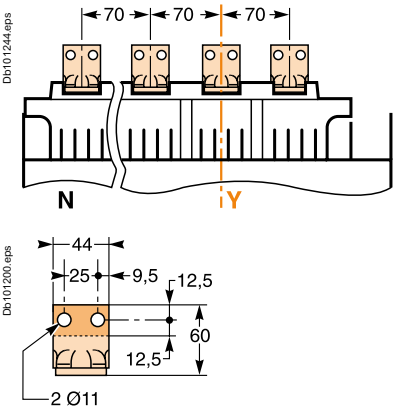
Connections

Horizontal rear connection

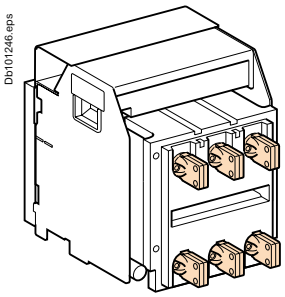


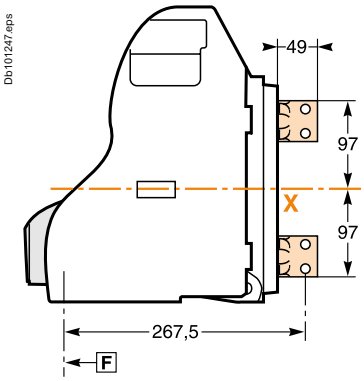


Detail

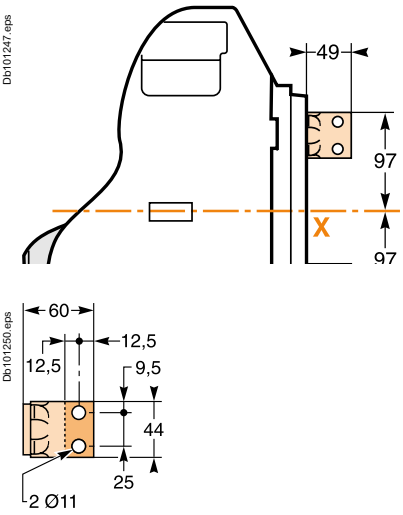


Vertical rear connection





Detail



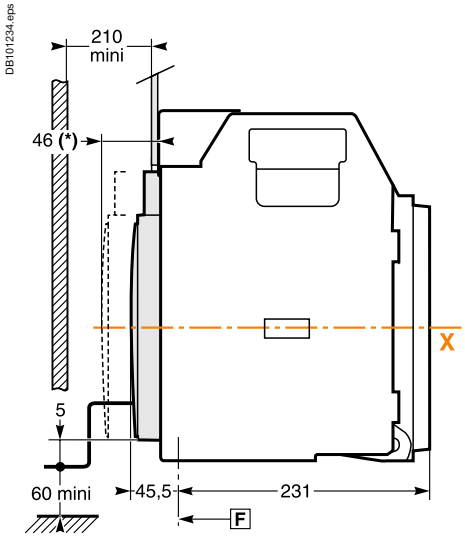
View A detail.

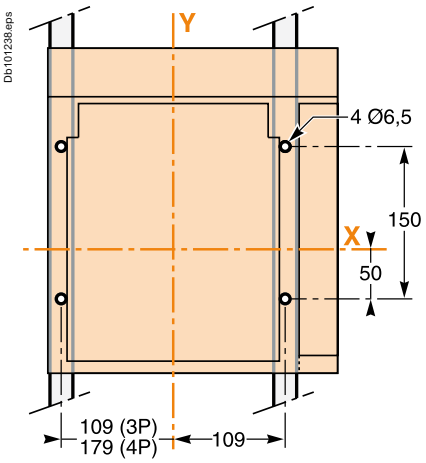
Note: *recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

MVS Frame 1(630 to 1600A) circuit breakers

Draw-out 3/4-poles device

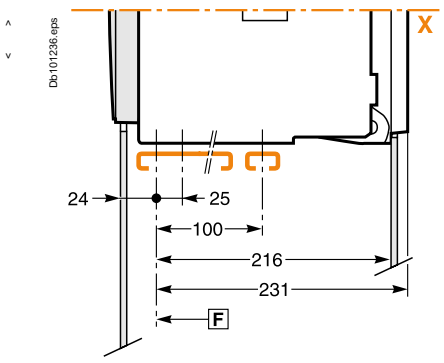
Dimensions



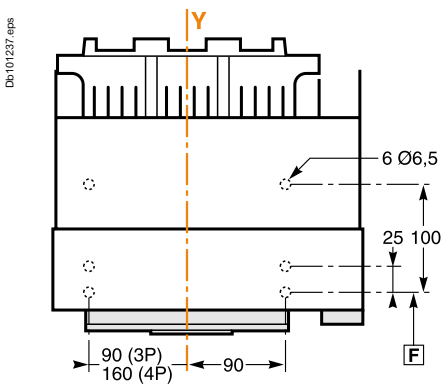


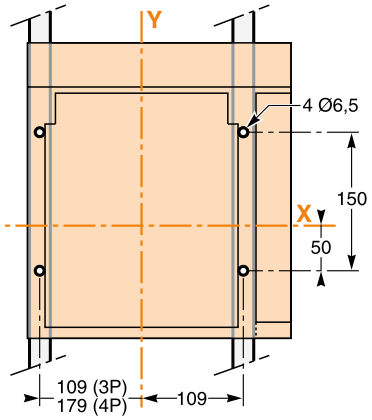
(*) Disconnected position.

Bottom mounting (on base plate or rails)

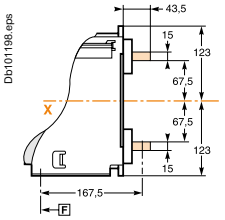


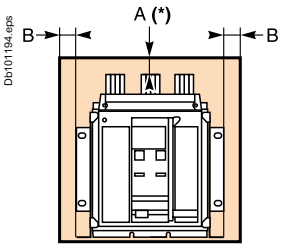
Rear mounting detail (on upright or backplate)



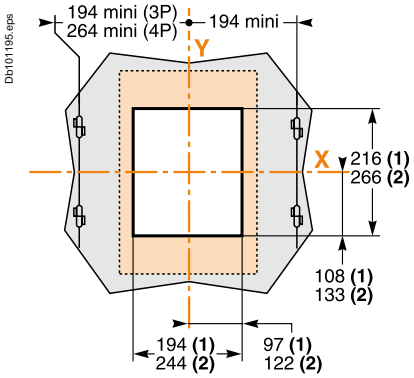


Safety clearances

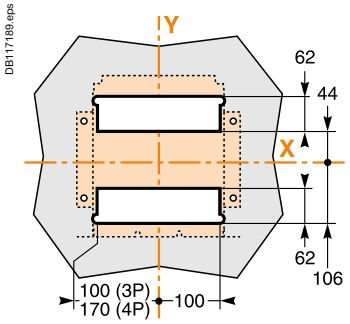




Door cutout



Rear panel cutout



For voltages < 690 V

	Parts		
	Insulated	Metal	Energised
A	0	0	100
B	0	0	60
C	0	0	30

F : *datum.*

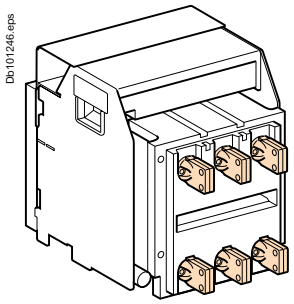
(1) Without escutcheon.
(2) With escutcheon.
***Note:** X and Y are the symmetry planes for a 3-pole device.*
A(*) An overhead clearance of 50 mm is required to remove the arc chutes.
An overhead clearance of 20 mm is required to remove the terminal block.

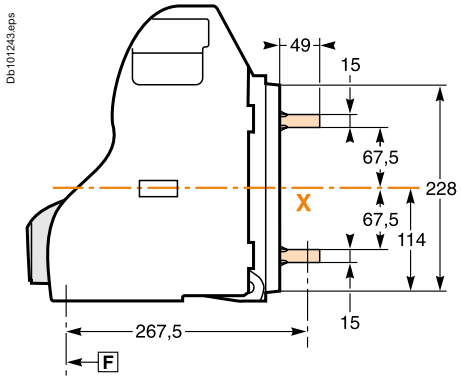
MVS Frame 1(630 to1600A) circuit breakers

Draw-out 3/4-poles device

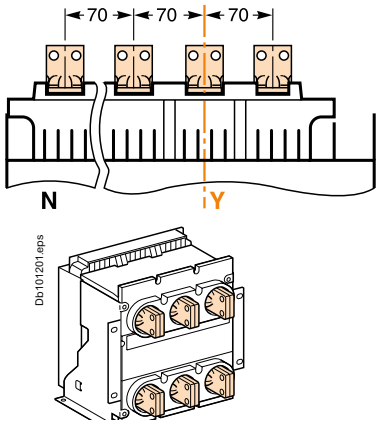
Connections

Horizontal rear connection

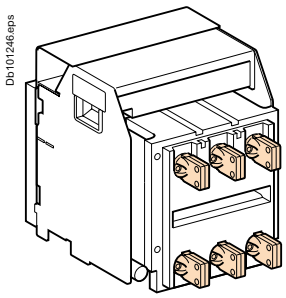


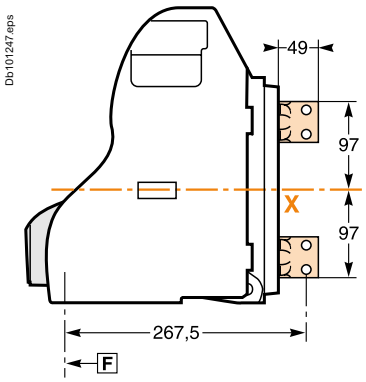


Detail

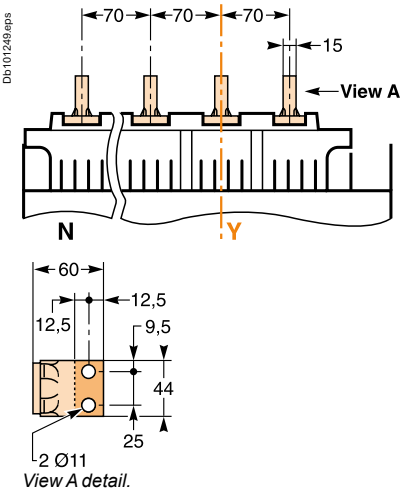


Vertical rear connection





Detail



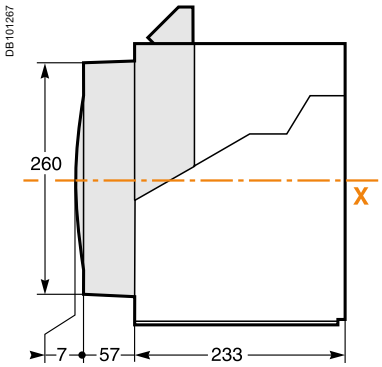
View A detail.

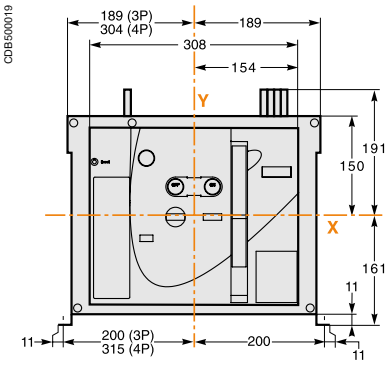
*Note: recommended connection screws: **M10** class 8.8.*
*Tightening torque: **50 Nm** with contact washer.*

MVS Frame 2(800 to 3200A) Circuit Breakers

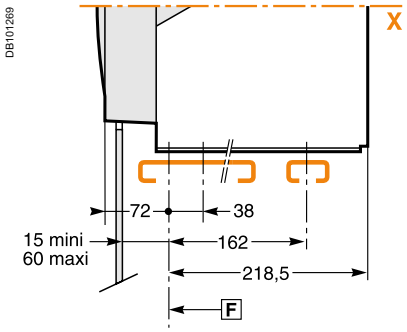
Fixed 3/4-poles device

Dimensions

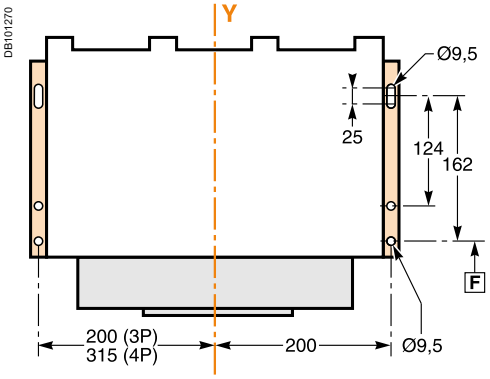




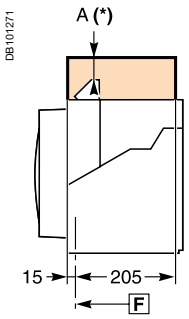
Mounting on base plate or rails

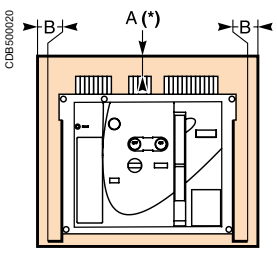


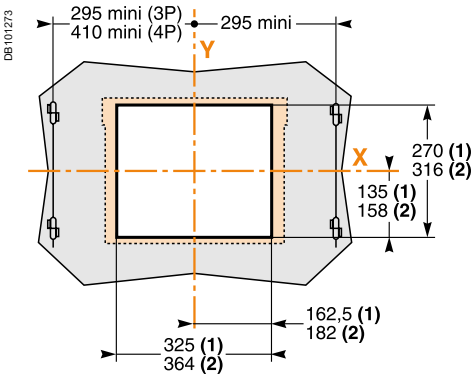
Mounting detail



Safety clearances







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

F : Datum.

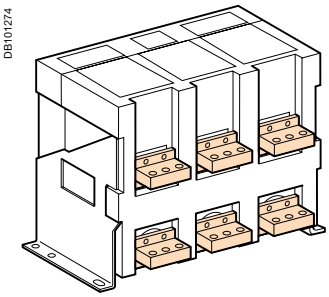
(1) Without escutcheon.
(2) With escutcheon.
Note: X and Y are the symmetry planes for a 3-pole device.
A(*) An overhead clearance of 50 mm is required to remove the arc chutes.
An overhead clearance of 20 mm is required to remove the terminal block.

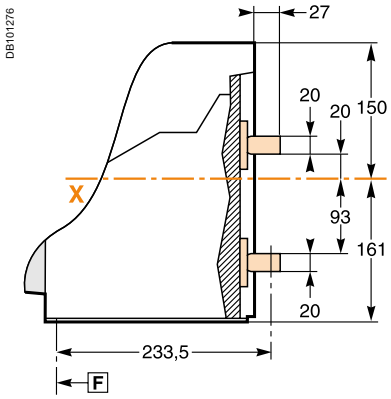
MVS Frame 2(800 to 3200A) Circuit Breakers

Fixed 3/4-poles device

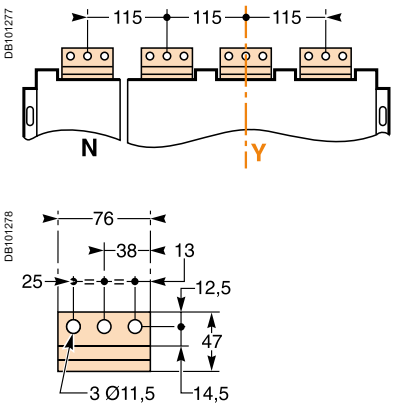
Connections

Horizontal rear connection

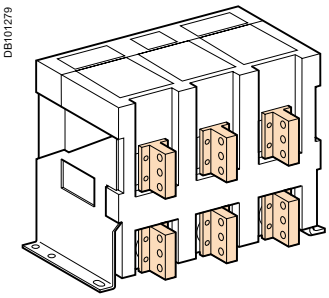


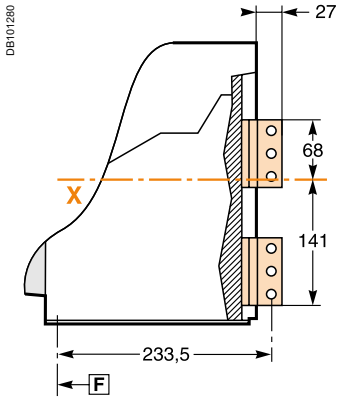


Detail

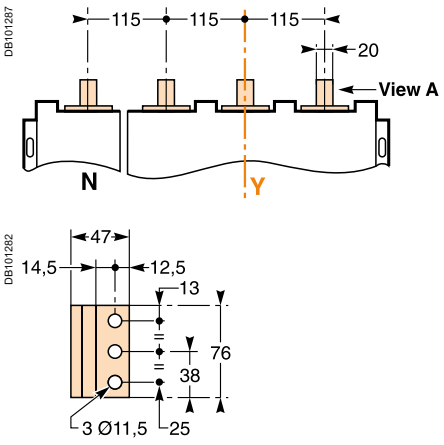


Vertical rear connection





Detail



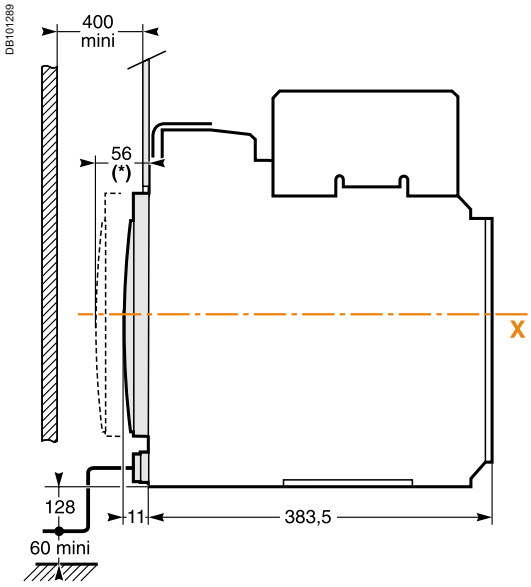
View A detail.

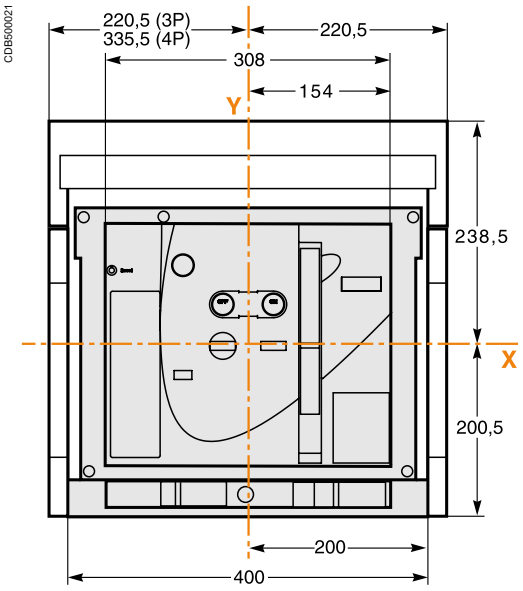
Note: *Recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

MVS Frame 2(800 to 3200A) circuit breakers

Draw-out 3/4-poles device

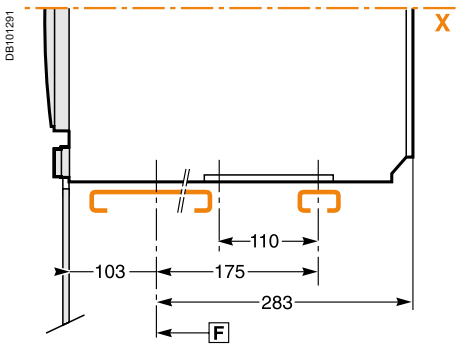
Dimensions



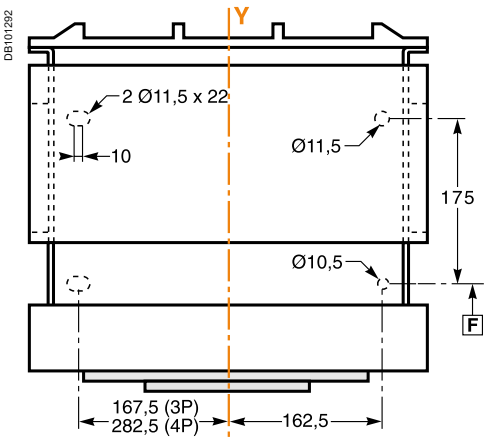


(*) Disconnected position.

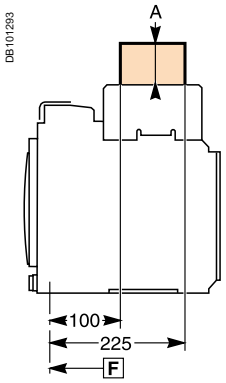
Mounting on base plate or rails

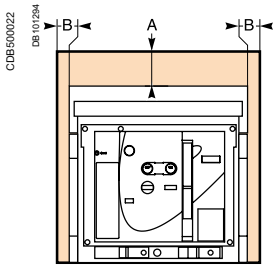


Mounting detail



Safety clearances

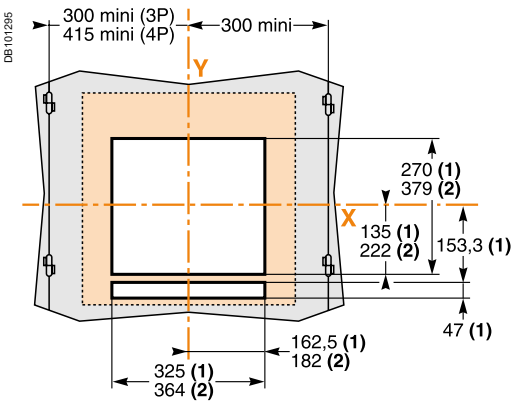




	Insulated parts	Metal parts	Energised parts
A	0	0	60
B	0	0	60

F : *Datum.*

Door cutout



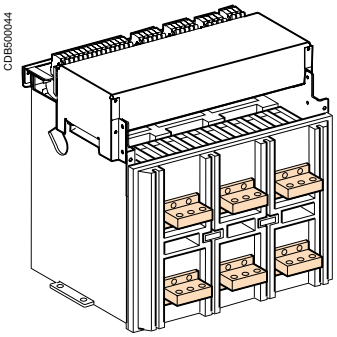
(1) Without escutcheon.
(2) With escutcheon.
***Note: X** and **Y** are the symmetry planes for a 3-pole device.*

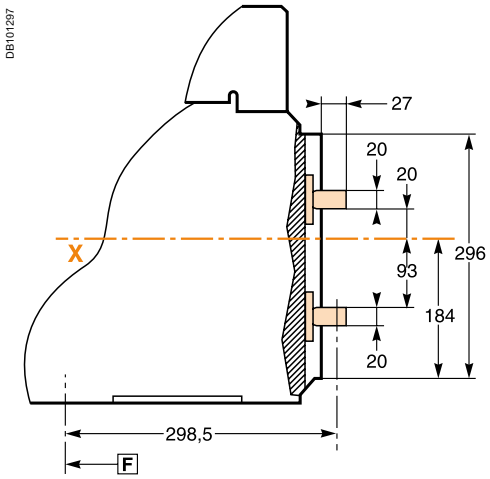
MVS Frame 2(800 to 3200A) circuit breakers

Draw-out 3/4-poles device

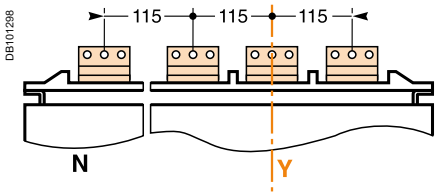
Connections

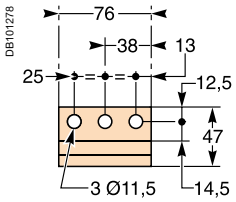
Horizontal rear connection



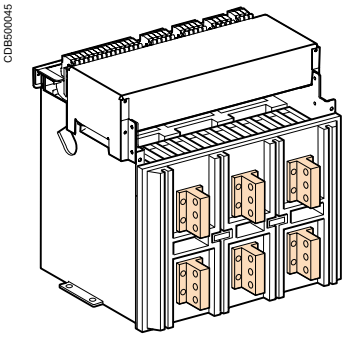


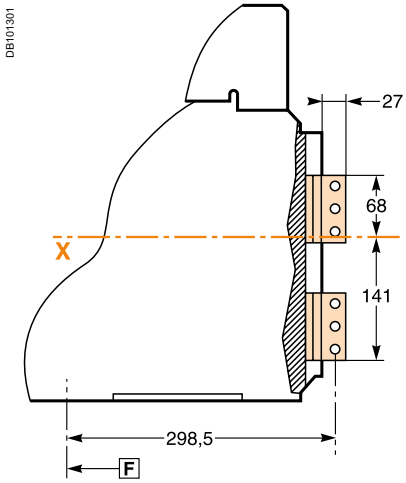
Detail



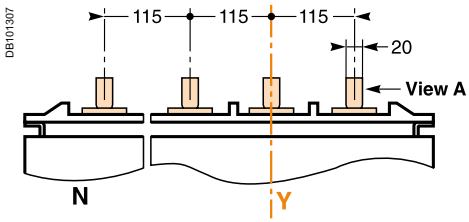


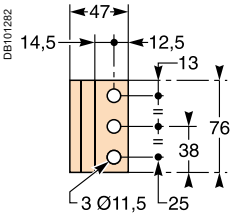
Vertical rear connection





Detail





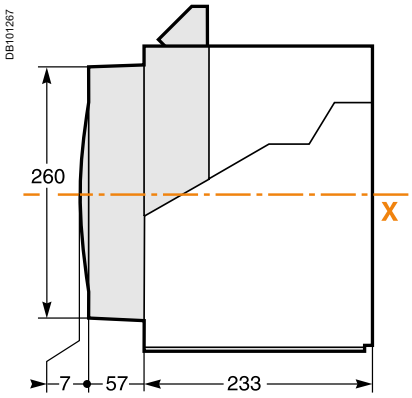
View A detail.

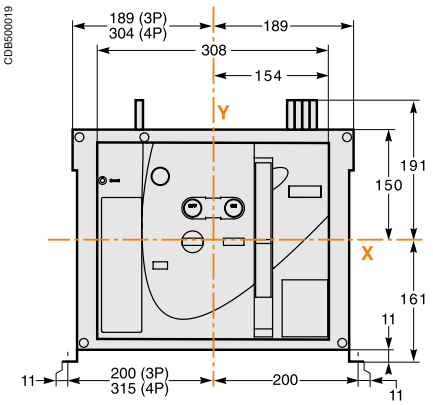
Note: *Recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

MVS Frame 2(4000A) circuit breakers

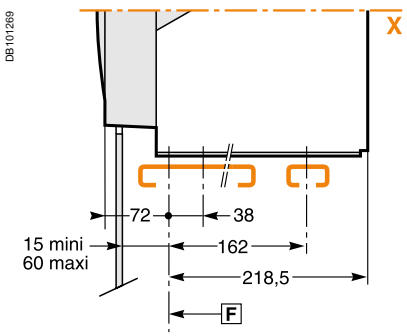
Fixed 3/4-poles device

Dimensions

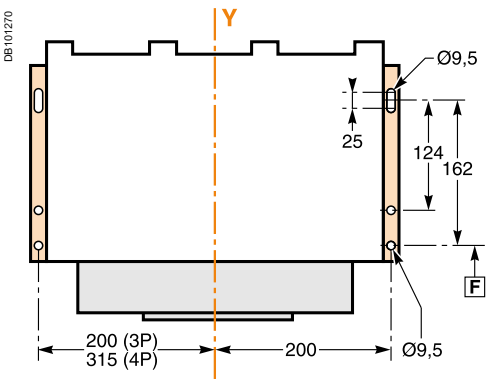




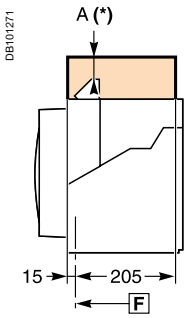
Mounting on base plate or rails

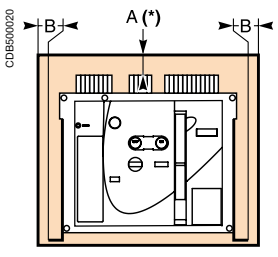


Mounting detail

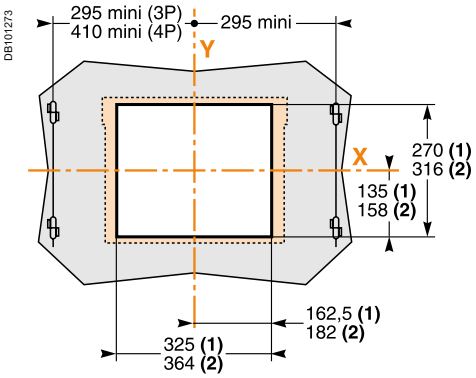


Safety clearances





Door cutout



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

F : *Datum.*

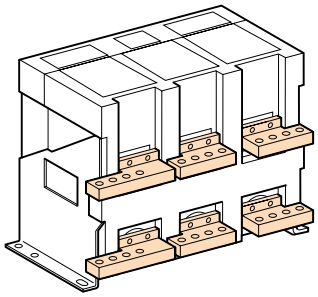
(1) Without escutcheon.
(2) With escutcheon.
Note: X and Y are the symmetry planes for a 3-pole device.
A(*) An overhead clearance of 110 mm is required to remove the arc chutes.
An overhead clearance of 20 mm is required to remove the terminal block.

MVS Frame 2(4000A) circuit breakers
Fixed 3/4-poles device

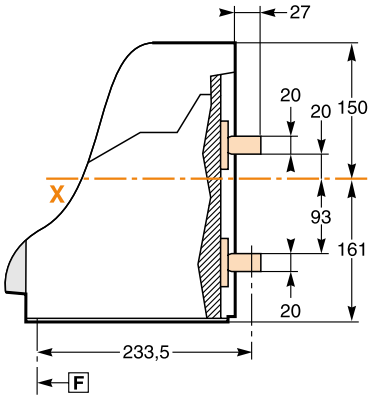
Connections

Horizontal rear connection

DB101309

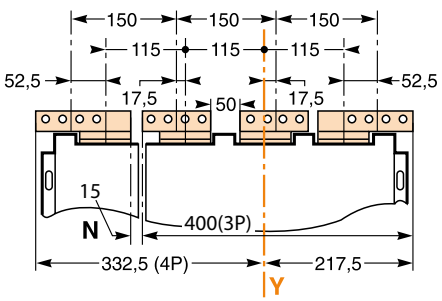


DB101276

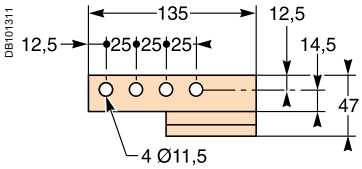


Detail

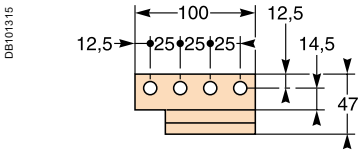
CDB500049



DB101311

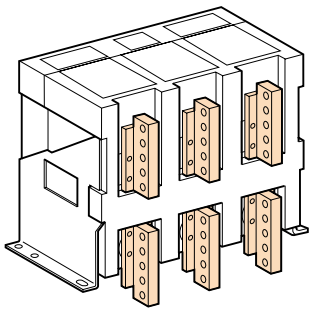


DB101315

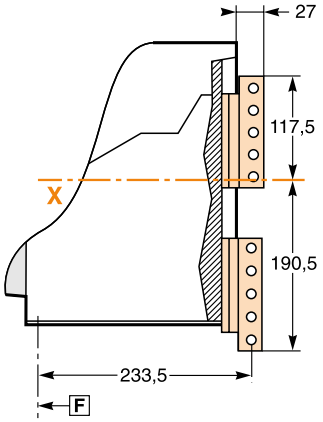


Vertical rear connection

DB101312

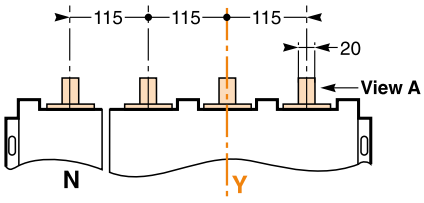


DB101313

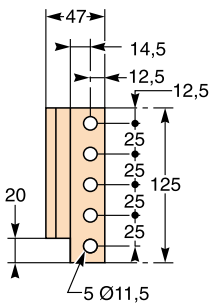


Detail

DB101287



DB101314

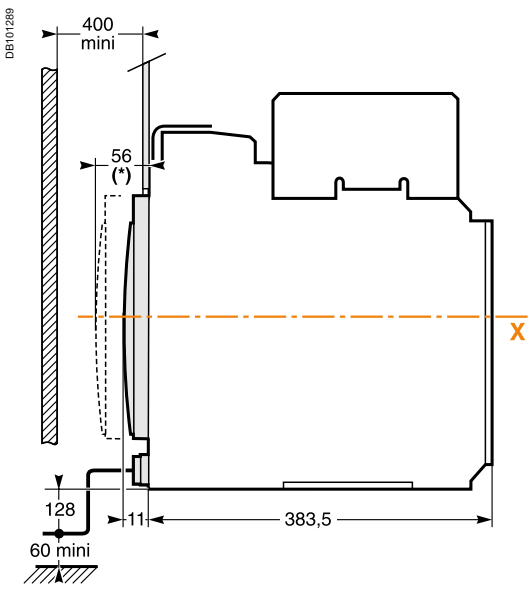


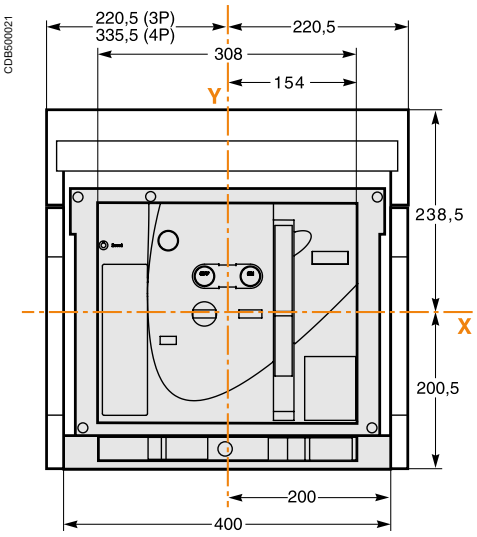
Note: *Recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

MVS Frame 2(4000A) circuit breakers

Draw-out 3/4-poles device

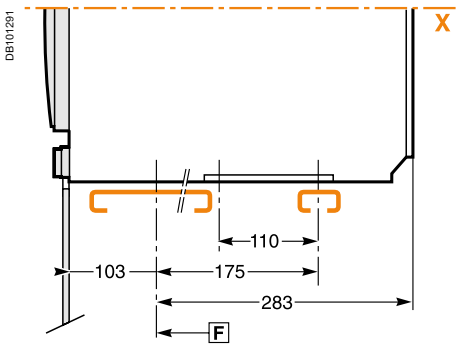
Dimensions



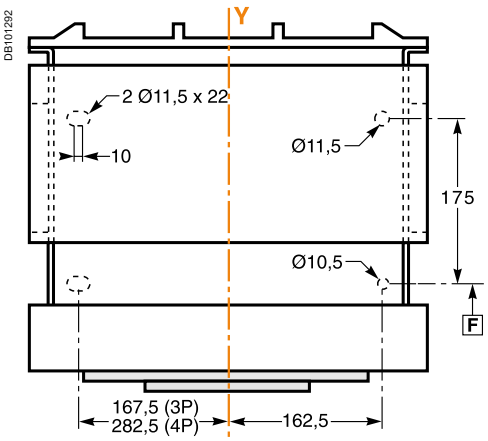


(*) Disconnected position.

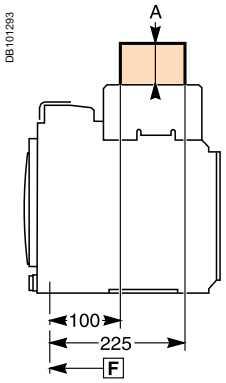
Mounting on base plate or rails

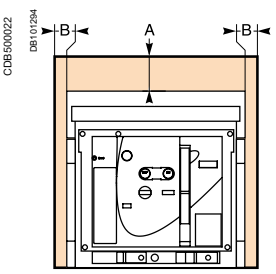


Mounting detail



Safety clearances

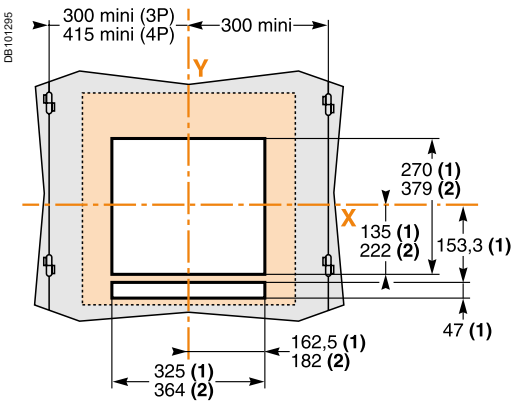




	Insulated parts	Metal parts	Energised parts
A	0	0	60
B	0	0	60

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.

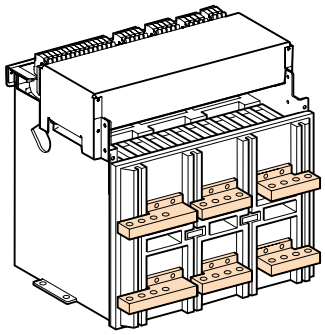
MVS Frame 2(4000A) circuit breakers

Draw-out 3/4-poles device

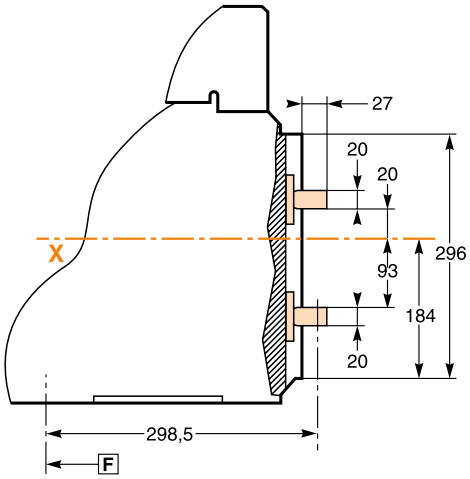
Connections

Horizontal rear connection

CDB500046

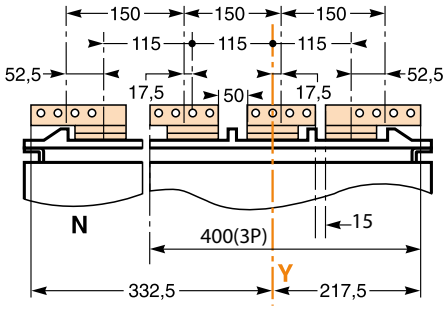


DB101297

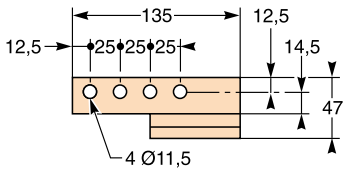


Detail

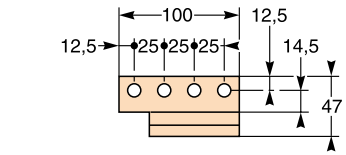
CDB500050



DB101311

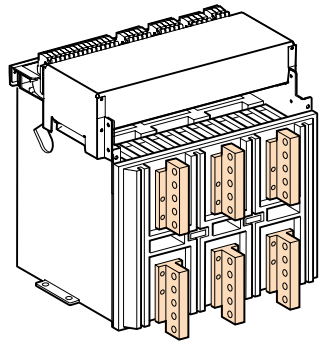


DB101315

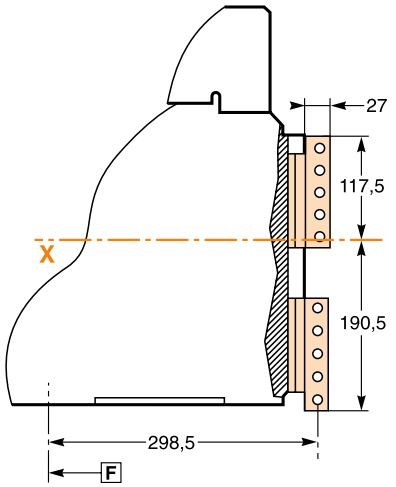


Vertical rear connection

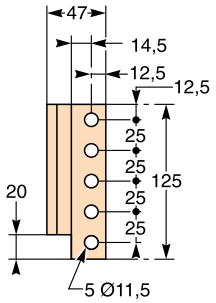
CDB500047



DB101319



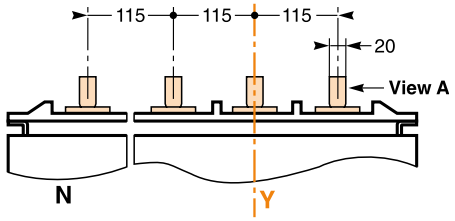
DB101314



View A detail.

Detail

DB101307

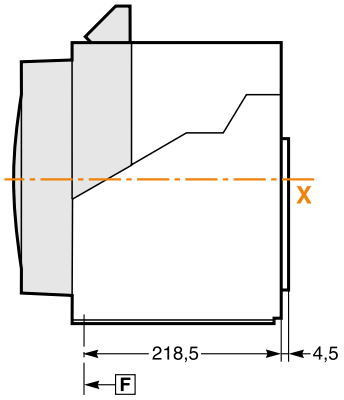


Note: *Recommended connection screws:* ***M10*** *class 8.8.*
Tightening torque: ***50 Nm*** *with contact washer.*

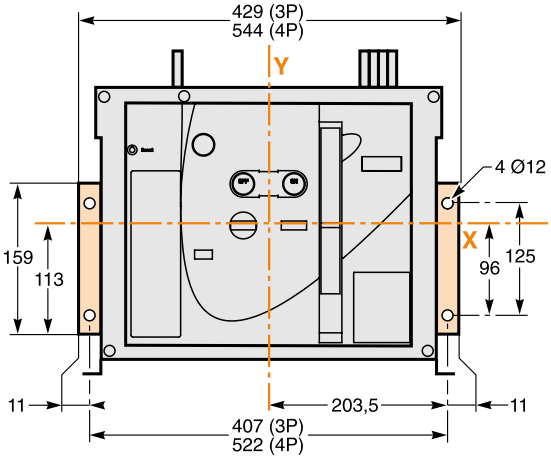
Accessories

Mounting on backplate with special brackets (EasyPact MVS08 to 32 fixed)

DB101350

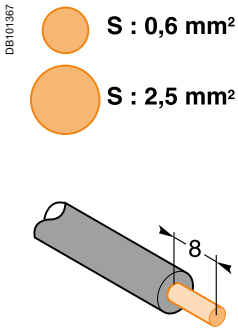


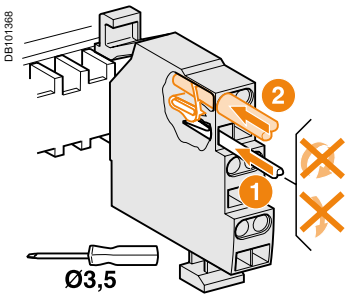
DB101351



External modules

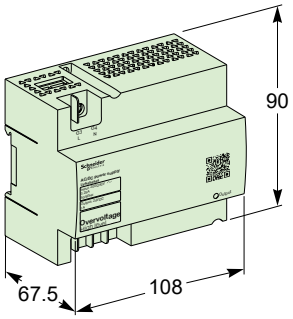
Connection of auxilary wiring to terminal block

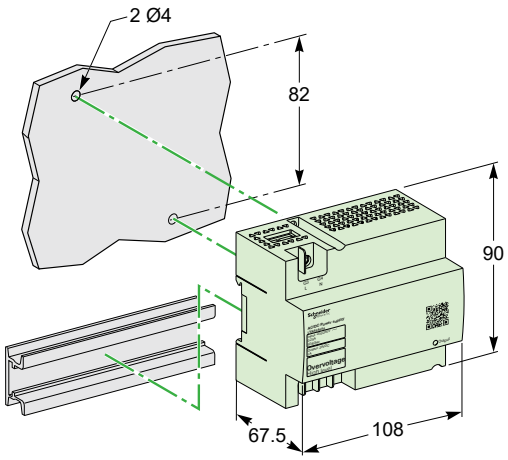




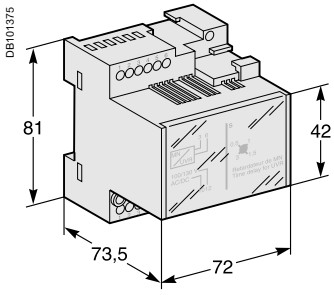
One conductor only per connection point.

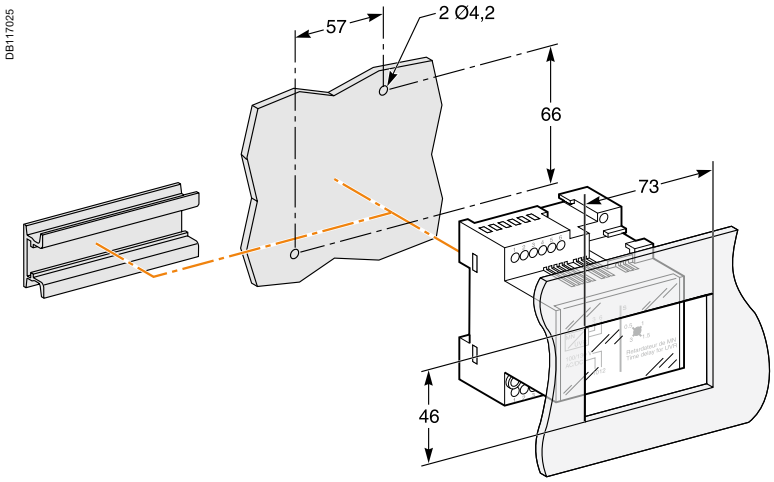
External power supply module (AD)





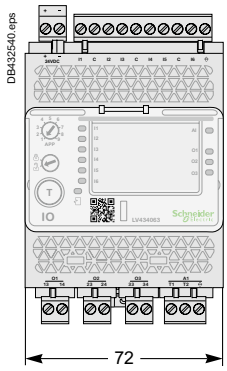
Delay unit for MN release

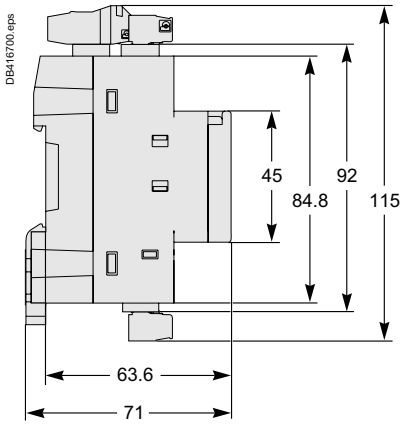




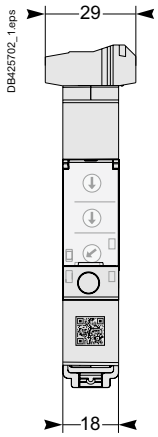
External modules

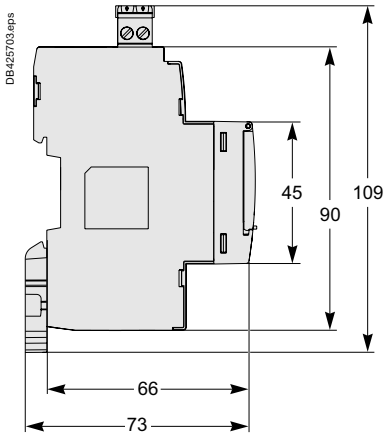
I/O (Input/Output) application module



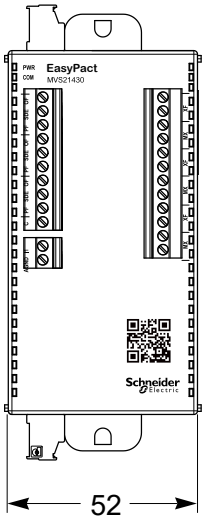


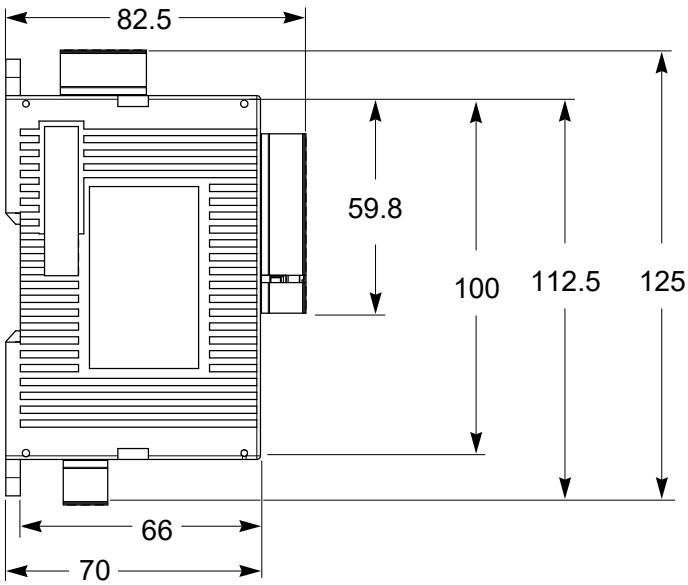
IFM - Modbus-SL interface





EasyCom-Modbus -Interface



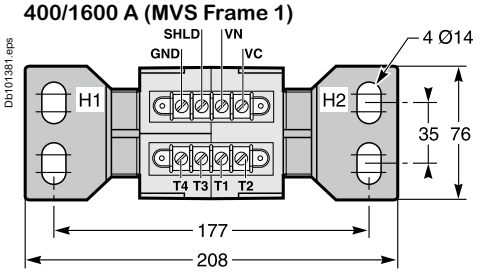


External modules

External sensor for external neutral

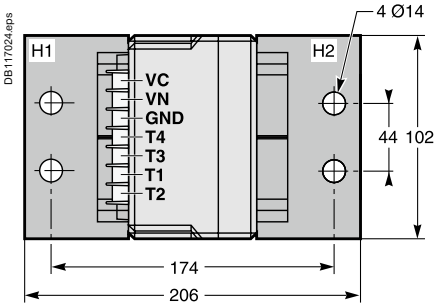
Dimensions

400/1600 A (MVS Frame 1)



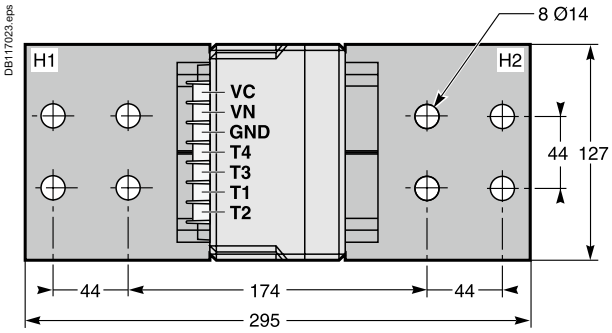
High: 137 mm.

400/2000 A (MVS Frame 2)



High: 162 mm.

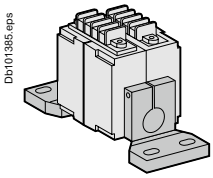
1000/4000 A (MVS Frame 2)



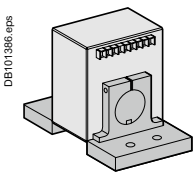
High: 162 mm.

Installation

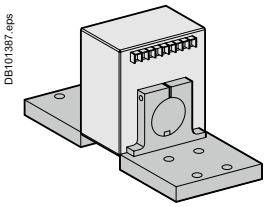
400/1600 A (MVS Frame 1)



400/2000 A (MVS Frame 2)



1000/4000 A (MVS Frame 2)



Electrical diagrams

Electrical diagrams

Functions and characteristics *A-1*
Installation recommendations *B-1*
Dimensions and connection *C-1*

EasyPact MVS 06 to 40 **D-2**
Fixed and draw-out devices D-2

EasyPact MVS Frame 1 **D-3**
Fixed and draw-out devices D-3

EasyPact MVS Frame 2 **D-4**
Fixed and draw-out devices D-4

EasyPact MVS **D-5**
Earth-fault protection/Neutral protection D-5
Zone selective interlocking D-6
24 V DC external power supply AD module D-7

Fixed EasyPact MVS **D-8**
connection to the communication interface module D-8

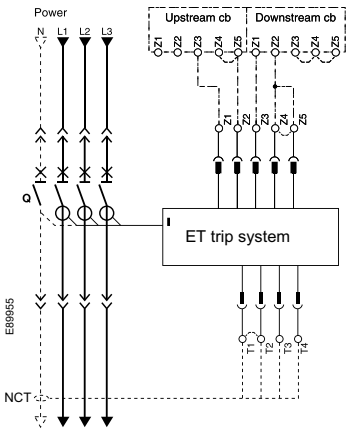
Withdrawable EasyPact MVS **D-9**
connection to the I/O and communication interface module D-9

Additional characteristics *E-1*
Catalogue numbers and order form *F-1*

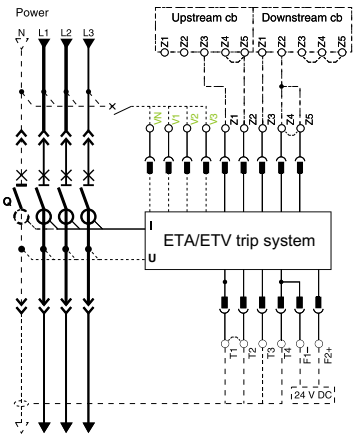
EasyPact MVS Frame 1&2
Fixed and draw-out devices

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

Power

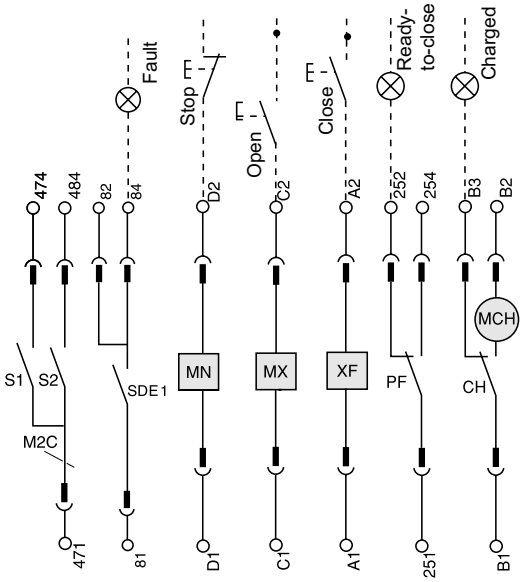


ET/ETA/ETV trip system



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

EA/ETV trip system

Com		UC1		UC2		UC3	M2C
E5	E6	Z5	M1	M2	M3	F2+	484
E3	E4	Z3	Z4	T3	T4	VN	474
E1	E2	Z1	Z2	T1	T2	F1 –	471

Remote operation

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

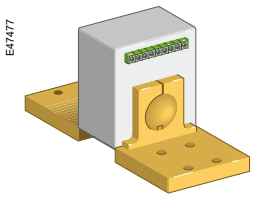
ET/ETA/ETV trip system

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)
COM :E1-E6
communication

UC2 :
T1, T2, T3, T4=external neutral
MC2 : 2 programmable contacts (external relay)
ext. 24 V DC power supply required.
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).

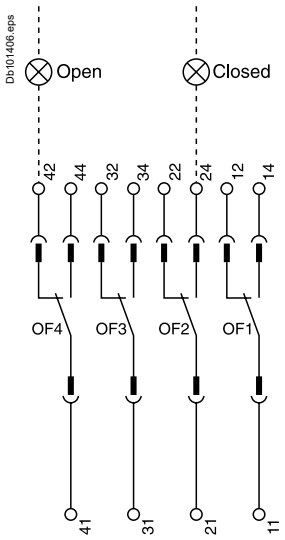
External sensors (Neutral CT)

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)

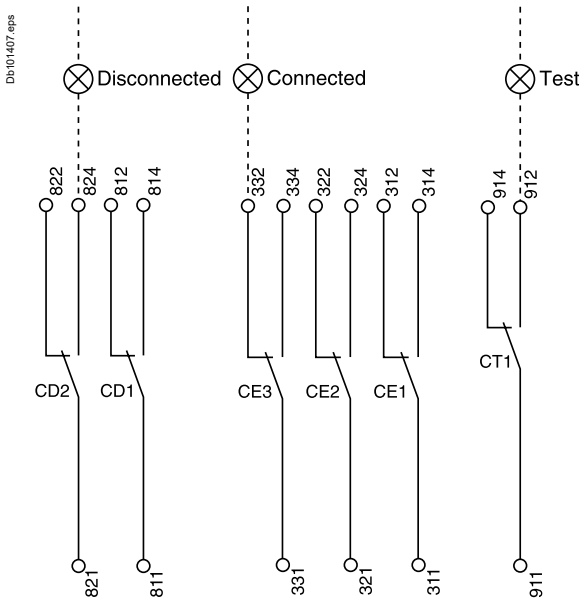
The rating of the sensor (CT) must be compatible with the rating of the circuit breaker:
1. MVS frame 1: CT 400/1600;
2. MVS frame 2: CT 400/2000;
3. MVS frame 2: CT 1000/4000;

EasyPact MVS Frame 1
Fixed and draw-out devices

Indication contacts



Chassis contacts



Indication contacts

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

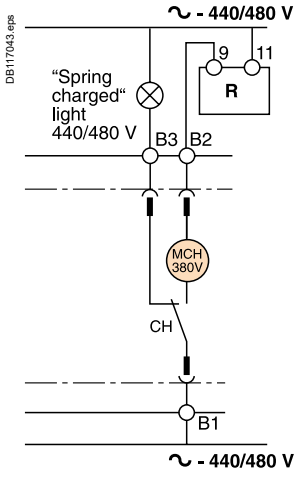
Chassis contacts

CD2	CD1	CE3	CE2	CE1	CT1
824	814	334	324	314	914
822	812	332	322	312	912
821	811	331	321	311	911

Indication contacts

OF4 / OF3 / OF2 / OF1 : ON/OFF indication contacts.

(*) Spring charging motor 440/480 V AC
(380 V motor + additional resistor).



Chassis contacts

CD2 : disconnected position contacts
CD1

CE3 : connected position contacts
CE2
CE1

CT1 : test position contacts

Key:

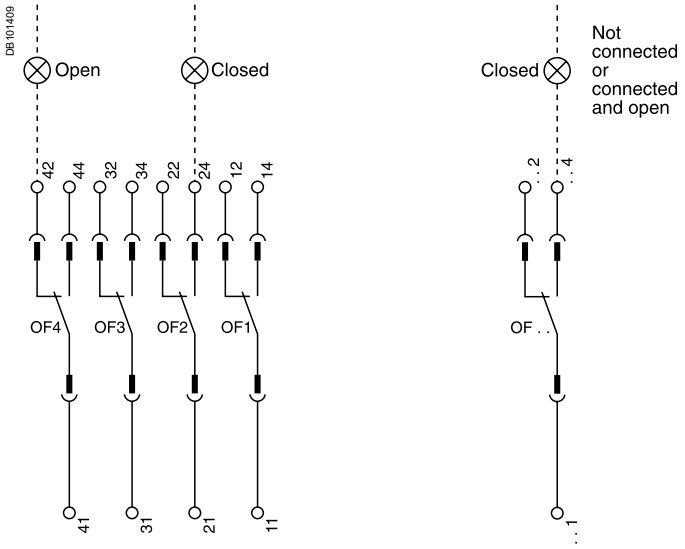
drawout device only.

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

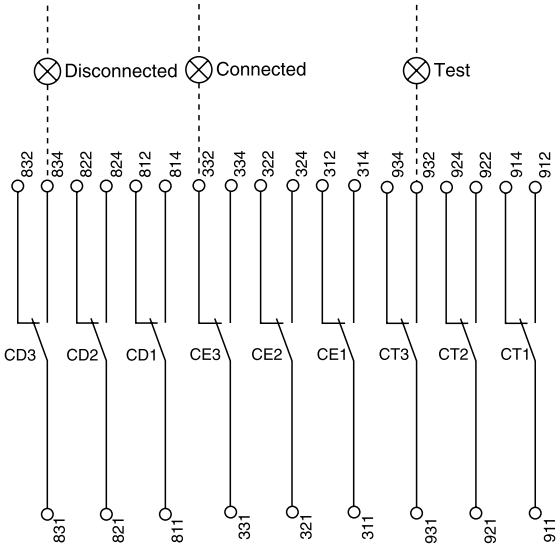
interconnected connections (only one wire per connection point).

EasyPact MVS Frame 2
Fixed and draw-out devices

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

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

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

Chassis contacts

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

Key:

Draw-out device only

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

Interconnected connections (only one wire per connection point)

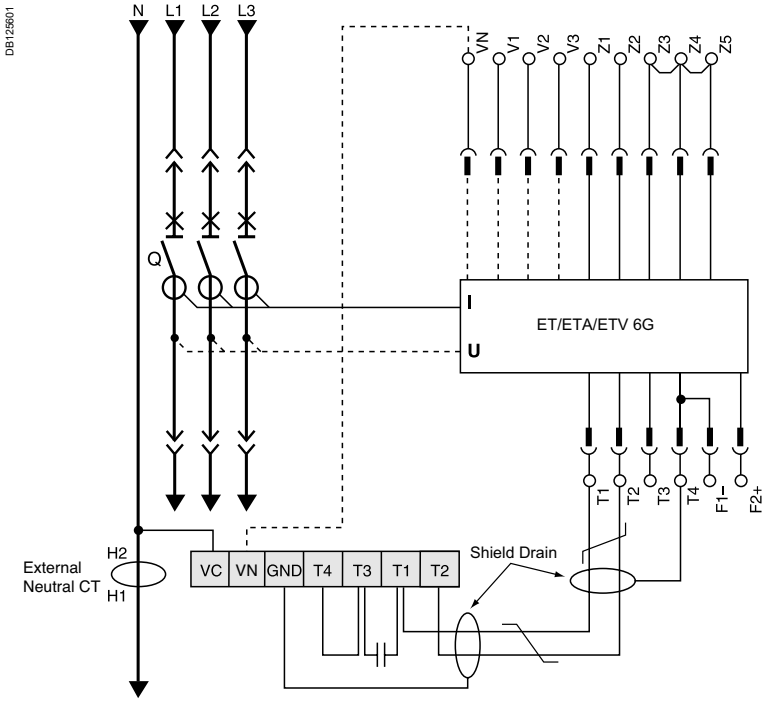
EasyPact MVS
Earth-fault protection
Neutral Protection

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

EasyPact MVS
Zone Selective Interlocking

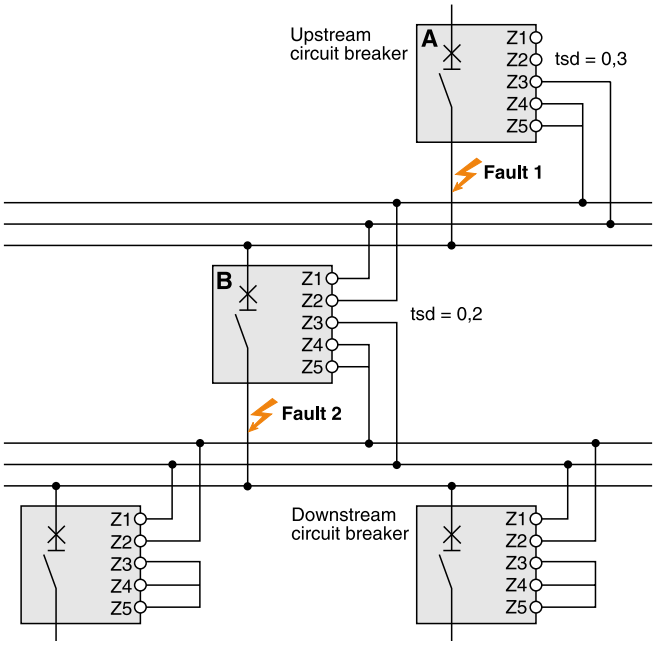
Zone selective interlocking

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.

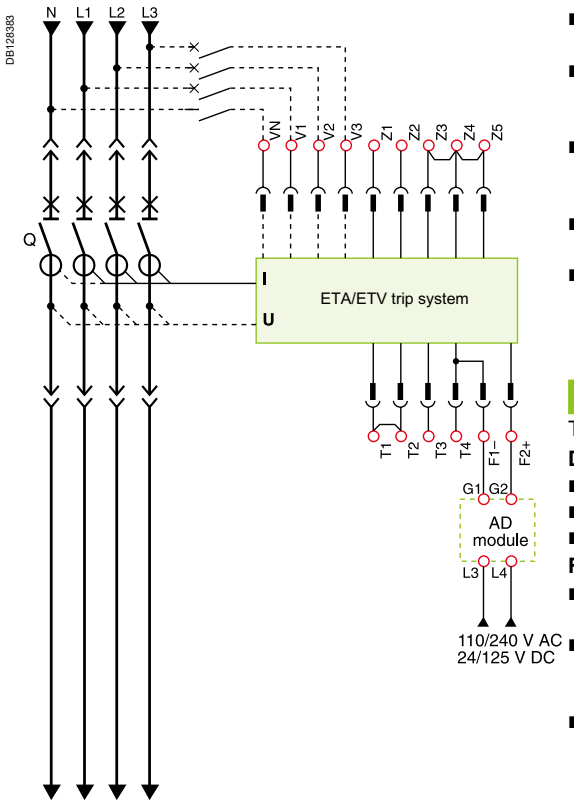
DB101420



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
- The 24 V DC external power-supply for the BCM ULP communication module(E1-E2) is required. The same 24 V DC external power supply can be used for the communication devices (IFM, I/O, EasyCom)).
- If the 24 V DC external power supply (AD module) is used to supply ET trip system, this power supply shall be used only for supplying ET trip system and M2C.
- The dedicated AD power supplies shall be used only for the ET trip system. If the COM option is used, a second dedicated 24 V DC external power supply shall be used.

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

Functions and characteristics *A-1*
Installation recommendations *B-1*
Dimensions and connection *C-1*
Electrical diagrams *D-1*

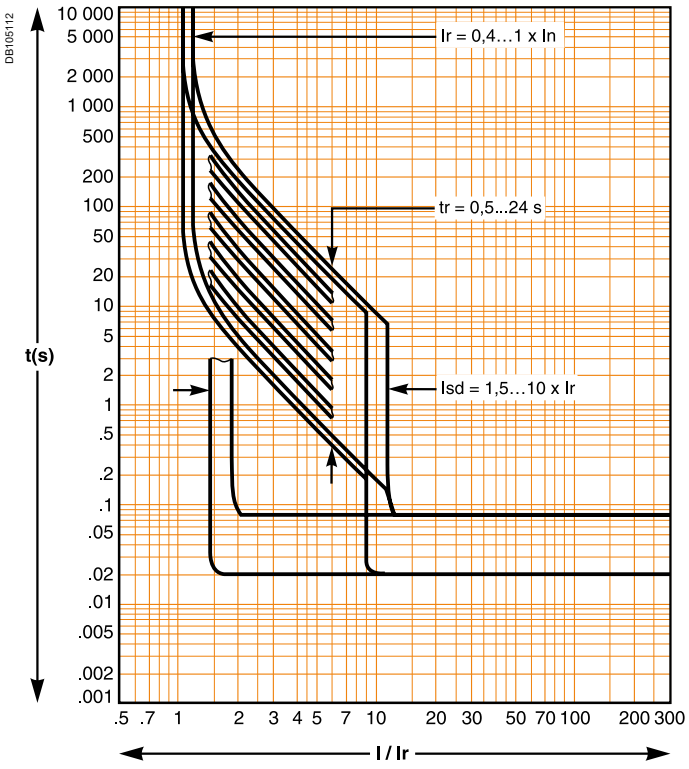
Tripping curves **E-2**

Selectivity table **E-4**

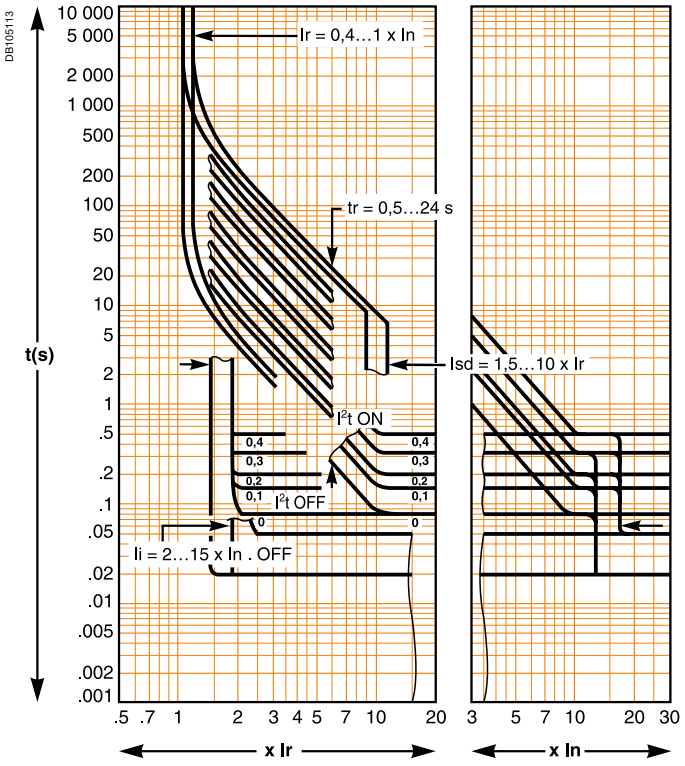
Catalogue numbers and order form *F-1*

Tripping curves

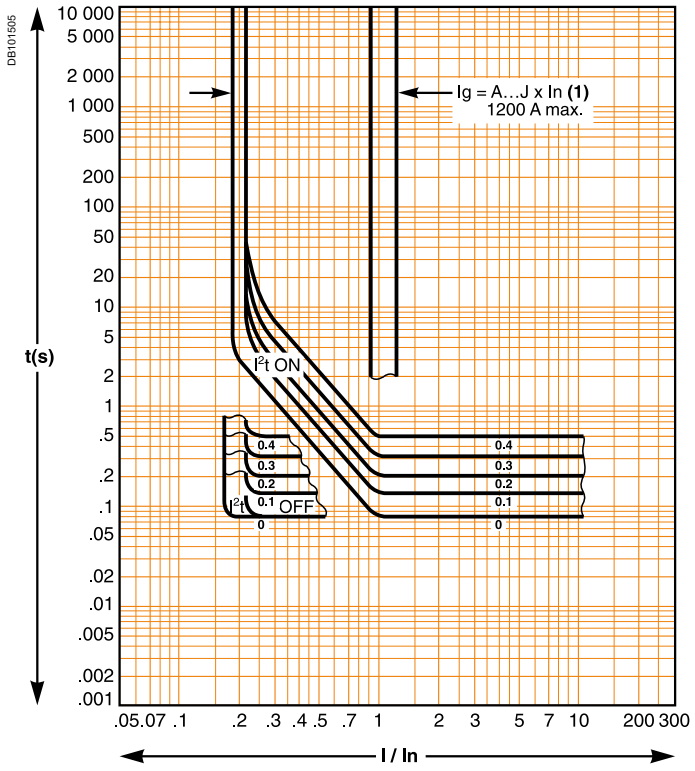
ET range of trip system - 2I



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

Selectivity table

Upstream: **Easy**Pact MVS

Downstream: **Easy**Pact CVS

Ue ≤ 415 Vac

Upstream Trip Unit		EasyPact MVS C 06-16 ET 2,5,6					EasyPact MVS 08 - 40N ET 2, 5, 6				
	Rating	630	800	1000	1250	1600	800	1000	1250	1600	2000
Downstream	Setting ir	630	800	1000	1250	1600	800	1000	1250	1600	2000
Selectivity Limit (kA)											
CVS100 BS TM•D	16	T	T	T	T	T	T	T	T	T	T
	20	T	T	T	T	T	T	T	T	T	T
	25	T	T	T	T	T	T	T	T	T	T
	32	T	T	T	T	T	T	T	T	T	T
	40	T	T	T	T	T	T	T	T	T	T
	50	T	T	T	T	T	T	T	T	T	T
	63	T	T	T	T	T	T	T	T	T	T
	80	T	T	T	T	T	T	T	T	T	T
	100	T	T	T	T	T	T	T	T	T	T
CVS 100 B/F/N TM•D	16	T	T	T	T	T	T	T	T	T	T
	25	T	T	T	T	T	T	T	T	T	T
	32	T	T	T	T	T	T	T	T	T	T
	40	T	T	T	T	T	T	T	T	T	T
	50	T	T	T	T	T	T	T	T	T	T
	63	T	T	T	T	T	T	T	T	T	T
	80	T	T	T	T	T	T	T	T	T	T
	100	T	T	T	T	T	T	T	T	T	T
CVS 160 B/F/N TM•D	100	T	T	T	T	T	T	T	T	T	T
	125	T	T	T	T	T	T	T	T	T	T
	160	T	T	T	T	T	T	T	T	T	T
CVS 250 B/F/N TM•D	160	T	T	T	T	T	T	T	T	T	T
	200	T	T	T	T	T	T	T	T	T	T
	250	T	T	T	T	T	T	T	T	T	T
CVS 400 F/N TM•D	320	T	T	T	T	T	T	T	T	T	T
	400		T	T	T	T	T	T	T	T	T
CVS 600 F/N TM•D	500		T	T	T	T	T	T	T	T	T
	600			T	T	T		T	T	T	T
CVS 400F/N ETU	320	T	T	T	T	T	T	T	T	T	T
	400	T	T	T	T	T	T	T	T	T	T
CVS 630F/N ETU	500		T	T	T	T	T	T	T	T	T
	630			T	T	T		T	T	T	T

Upstream Trip Unit		EasyPact MVS C 06-16 ET 2,5,6					EasyPact MVS 08 - 40N ET 2, 5, 6				
	Rating	630	800	1000	1250	1600	800	1000	1250	1600	2000
Downstream	Setting ir	630	800	1000	1250	1600	800	1000	1250	1600	2000
Motor protection											
CVS 100 B/F MA + O/L R	2.5	T	T	T	T	T	T	T	T	T	T
	6.3	T	T	T	T	T	T	T	T	T	T
	12.5	T	T	T	T	T	T	T	T	T	T
	25	T	T	T	T	T	T	T	T	T	T
	50	T	T	T	T	T	T	T	T	T	T
	100	T	T	T	T	T	T	T	T	T	T
CVS 160 B/F MA + O/L R	100	T	T	T	T	T	T	T	T	T	T
	150	T	T	T	T	T	T	T	T	T	T
CVS 250 B/F MA + O/L R	220	T	T	T	T	T	T	T	T	T	T
	250										
CVS 400 F/N MA +0/L R	320			T	T	T		T	T	T	T
	400										
CVS 600 F/N MA +0/L R	500					T				T	T
	630										

4	Selectvity limit = 4kA
T	Total selectivity, up to the breaking capacity of the downstream circuit breaker.
	No Selectivity

Nota: respect the basic rules of selectivity for overload and short-circuit. See Introduction

Selectivity table
Upstream: **Easy**Pact MVS
Downstream: **Easy**Pact CVS

Ue ≤ 415 Vac

	EasyPact MVS 08 - 40H ET 2, 5, 6										
	2500	3200	4000	800	1000	1250	1600	2000	2500	3200	4000
	2500	3200	4000	800	1000	1250	1600	2000	2500	3200	4000
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
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	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T

	EasyPact MVS 08 - 40H ET 2, 5, 6										
	2500	3200	4000	800	1000	1250	1600	2000	2500	3200	4000
	2500	3200	4000	800	1000	1250	1600	2000	2500	3200	4000
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
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	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T
	T	T	T	T	T	T	T	T	T	T	T

Selectivity table

Upstream: EasyPact MVS 06-16

Downstream: EasyPact CVS 06-16

Ue ≤ 415 Vac

Upstream		EasyPact MVS C 06-16														
Trip Unit		ET 2.0 Im=10Ir					ET5.0 - 6.0 Im=15In					ET5.0 - 6.0 Inst OFF				
	Rating	630	800	1000	1250	1600	630	800	1000	1250	1600	630	800	1000	1250	1600
Downstream	Setting Ir	630	800	1000	1250	1600	630	800	1000	1250	1600	630	800	1000	1250	1600
Selectivity limit (kA)																
MVS C 06 ET	250	6.3	8	10	12.5	16	12	12	15	18.75	24	42	42	42	42	42
	320	6.3	8	10	12.5	16	12	12	15	18.75	24	42	42	42	42	42
	400	6.3	8	10	12.5	16	12	12	15	18.75	24	42	42	42	42	42
	500		8	10	12.5	16		12	15	18.75	24		42	42	42	42
	630			10	12.5	16			15	18.75	24			42	42	42
MVS C 08 ET	320	6.3	8	10	12.5	16	12	12	15	18.75	24	42	42	42	42	42
	400	6.3	8	10	12.5	16	12	12	15	18.75	24	42	42	42	42	42
	500		8	10	12.5	16		12	15	18.75	24		42	42	42	42
	630			10	12.5	16			15	18.75	24			42	42	42
	800				12.5	16				18.75	24				42	42
MVS C 10 ET	400	6.3	8	10	12.5	16	12	12	15	18.75	24	42	42	42	42	42
	500		8	10	12.5	16		12	15	18.75	24		42	42	42	42
	630			10	12.5	16			15	18.75	24			42	42	42
	800				12.5	16				18.75	24				42	42
	1000					16					24					42
MVS C 12 ET	500		8	10	12.5	16		12	15	18.75	24		42	42	42	42
	630			10	12.5	16			15	18.75	24			42	42	42
	800				12.5	16				18.75	24				42	42
	1000					16					24					42
	1250															
MVS C 16 ET	630			10	12.5	16			15	18.75	24			42	42	42
	800				12.5	16				18.75	24				42	42
	960					16					24					42
	1250															
	1600															

4	Selectvity limit = 4kA
T	Total selectivity, up to the breaking capacity of the downstream circuit breaker.
	No Selectivity

Nota: respect the basic rules of selectivity for overload and short-circuit. See Introduction

Selectivity table

Upstream: EasyPact MVS 08-20
Downstream: EasyPact MVS C 06-16, MVS 08-40 N/H

Ue ≤ 415 Vac

Upstream		EasyPact MVS 08-20 N/H																	
Trip Unit		ET 2.0 Im=10Ir						ET5.0 - 6.0 Im=15In						ET5.0 - 6.0 Inst OFF					
Down stream	Rating	800		1000	1250	1600	2000	800		1000	1250	1600	2000	800		1000	1250	1600	2000
	Setting Ir	630	800	1000	1250	1600	2000	630	800	1000	1250	1600	2000	630	800	1000	1250	1600	2000
Selectivity limit (kA)																			
MVS C 06 ET	400	6.3	8	10	12.5	16	20	12	12	15	18.75	24	30	T	T	T	T	T	T
	500		8	10	12.5	16	20		12	15	18.75	24	30		T	T	T	T	T
	630			10	12.5	16	20			15	18.75	24	30			T	T	T	T
MVS08 N/H MVS C 08 ET	320	6.3	8	10	12.5	16	20	12	12	15	18.75	24	30	T	T	T	T	T	T
	400	6.3	8	10	12.5	16	20	12	12	15	18.75	24	30	T	T	T	T	T	T
	500		8	10	12.5	16	20		12	15	18.75	24	30		T	T	T	T	T
	630			10	12.5	16	20			15	18.75	24	30			T	T	T	T
	800				12.5	16	20				18.75	24	30				T	T	T
MVS10 N/H MVS C 10 ET	400	6.3	8	10	12.5	16	20	12	12	15	18.75	24	30	T	T	T	T	T	T
	500		8	10	12.5	16	20		12	15	18.75	24	30		T	T	T	T	T
	630			10	12.5	16	20			15	18.75	24	30			T	T	T	T
	800				12.5	16	20				18.75	24	30				T	T	T
	1000					16	20					24	30					T	T
MVS12 N/H MVS C 12 ET	500		8	10	12.5	16	20		12	15	18.75	24	30		T	T	T	T	T
	630			10	12.5	16	20			15	18.75	24	30			T	T	T	T
	800				12.5	16	20				18.75	24	30				T	T	T
	1000					16	20					24	30					T	T
	1250						20						30						T
MVS16 N/H MVS C 16 ET	630			10	12.5	16	20			15	18.75	24	30			T	T	T	T
	800				12.5	16	20				18.75	24	30				T	T	T
	960					16	20					24	30					T	T
	1250						20						30						T
	1600																		
MVS20 N/H ET	800				12.5	16	20				18.75	24	30				T	T	T
	1000					16	20					24	30					T	T
	1250						20						30						T
	1600																		

4	Selectvity limit = 4kA
T	Total selectivity, up to the breaking capacity of the downstream circuit breaker.
	No Selectivity

Nota: respect the basic rules of selectivity for overload and short-circuit. See Introduction

Selectivity table

Upstream: **Easy**Pact MVS 25-40 N/H

Downstream: **Easy**Pact CVS C 06-16
MVS 08-32 N/H

Ue ≤ 415 Vac

Upstream		EasyPact MVS 08-20 N/H								
Trip Unit		ET 2.0 Im=10Ir			ET5.0 - 6.0 Im=15In			ET5.0 - 6.0 Inst OFF		
	Rating	2500	3200	4000	2500	3200	4000	2500	3200	4000
Downstream	Setting Ir	2500	3200	4000	2500	3200	4000	2500	3200	4000
Selectivity limit (kA)										
MVS C 06 ET	<=630	25	32	40	37.5	T	T	T	T	T
MVS C 08 ET	<=800	25	32	40	37.5	T	T	T	T	T
MVS C 10 ET	<=1000	25	32	40	37.5	T	T	T	T	T
MVS C 12 ET	<=1250	25	32	40	37.5	T	T	T	T	T
MVS C 16 ET	<=1600	25	32	40	37.5	T	T	T	T	T
MVS 08 N ET	<=800	25	32	40	37.5	48	T	T	T	T
MVS 10 N ET	<=1000	25	32	40	37.5	48	T	T	T	T
MVS 12 N ET	<=1250	25	32	40	37.5	48	T	T	T	T
MVS 16 N ET	<=1600	25	32	40	37.5	48	T	T	T	T
MVS 16 N ET	<=1600	25	32	40	37.5	48	T	T	T	T
MVS 20 N ET	<=2000	25	32	40	37.5	48	T	T	T	T
MVS 25 N ET	<=2500		32	40		48	T		T	T
MVS 32 N ET	<=3200			40			T			T
MVS 08 H ET	<=800	25	32	40	37.5	48	60	T	T	T
MVS 10 H ET	<=1000	25	32	40	37.5	48	60	T	T	T
MVS 12 H ET	<=1250	25	32	40	37.5	48	60	T	T	T
MVS 16 H ET	<=1600	25	32	40	37.5	48	60	T	T	T
MVS 16 H ET	<=1600	25	32	40	37.5	48	60	T	T	T
MVS 20 H ET	<=2000	25	32	40	37.5	48	60	T	T	T
MVS 25 H ET	<=2500		32	40		48	60		T	T
MVS 32 H ET	<=3200			40			60			T

4	Selectvity limit = 4kA
T	Total selectivity, up to the breaking capacity of the downstream circuit breaker.
	No Selectivity

Nota: respect the basic rules of selectivity for overload and short-circuit. See Introduction

Catalogue numbers and order form

Catalogue numbers and order form

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EasyPact MVS 630-4000A **F-3**

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EasyPact MVS Frame 2 **F-18**
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Nomenclature

	Range	Current rating	Type	Pole	Operating mechanism	Installation	Protection No.	Type	
	EasyPact MVS (from 630 to 4000A)								
	MVS	06	C	3	M	F	2	L	
		08	CA	4	N	W	5	A	
		10	N		O		6	V	
		12	NA		P		0	D	
		16	H		Q				
		20	HA		R				
		25							
		32							
		40							
No. of digits	**3**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**11**

Type

L	Basic protection
A	Protection+Current metering
V	Protection+Energy 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

C	Circuit Breake Icu=Ics=50kA Icw 1s=35KA(Frame 1: 630-1600A)
CA	switch disconnector Icw 1s=35KA(Frame 1: 630-1600A)
N	Circuit Breake/switch disconnector Icu=Ics=Icw 1s=50KA(Frame 2: 800-4000A)
H	Circuit Breake/switch disconnector Icu=Ics=Icw 1s=65KA(Frame 2: 800-4000A)

Current rating

06	630A
08	800A
10	1000A
12	1250A
16	1600A
20	2000A
25	2500A
32	3200A
40	4000A

Example 1 MVS08C3NW6L

MVS EasyPact MVS	8 800A	C 50kA	3 3 Pole	N Electrical operated 200/240 VAC	W Withdrawable type	6 LSIG protection	L Basic trip unit with LED indications

Example 2 MVS16CA3MW0D

MVS EasyPact MVS	16 1600A	CA 65kA	3 3 Pole	M Manual operated	W Withdrawable type	0 No Protection for Switch Disconnector	D Switch Disconnector

EasyPact MVS C drawout type 50KA with ET trip unit

		3P			4P		
		ET 2I	ET5S	ET 6G	ET 2I	ET5S	ET 6G
Manual	630A	MVS06C3MW2L	MVS06C3MW5L	MVS06C3MW6L	*	*	*
	800A	MVS08C3MW2L	MVS08C3MW5L	MVS08C3MW6L	*	*	*
	1000A	MVS10C3MW2L	MVS10C3MW5L	MVS10C3MW6L	*	*	*
	1250A	MVS12C3MW2L	MVS12C3MW5L	MVS12C3MW6L	*	*	*
	1600A	MVS16C3MW2L	MVS16C3MW5L	MVS16C3MW6L	*	*	*
Electrical 240V AC	630A	MVS06C3NW2L	MVS06C3NW5L	MVS06C3NW6L	*	*	*
	800A	MVS08C3NW2L	MVS08C3NW5L	MVS08C3NW6L	*	*	*
	1000A	MVS10C3NW2L	MVS10C3NW5L	MVS10C3NW6L	*	*	*
	1250A	MVS12C3NW2L	MVS12C3NW5L	MVS12C3NW6L	*	*	*
	1600A	MVS16C3NW2L	MVS16C3NW5L	MVS16C3NW6L	*	*	*

EasyPact MVS C drawout type 50KA with ETA trip unit

		3P			4P		
		ETA 2I	ETA 5S	ETA 6G	ETA 2I	ETA 5S	ETA 6G
Manual	630A	MVS06C3MW2A	MVS06C3MW5A	MVS06C3MW6A	*	MVS06C4MW5A	MVS06C4MW6A
	800A	MVS08C3MW2A	MVS08C3MW5A	MVS08C3MW6A	*	MVS08C4MW5A	MVS08C4MW6A
	1000A	MVS10C3MW2A	MVS10C3MW5A	MVS10C3MW6A	*	MVS10C4MW5A	MVS10C4MW6A
	1250A	MVS12C3MW2A	MVS12C3MW5A	MVS12C3MW6A	*	MVS12C4MW5A	MVS12C4MW6A
	1600A	MVS16C3MW2A	MVS16C3MW5A	MVS16C3MW6A	*	MVS16C4MW5A	MVS16C4MW6A
Electrical 240V AC	630A	MVS06C3NW2A	MVS06C3NW5A	MVS06C3NW6A	*	MVS06C4NW5A	MVS06C4NW6A
	800A	MVS08C3NW2A	MVS08C3NW5A	MVS08C3NW6A	*	MVS08C4NW5A	MVS08C4NW6A
	1000A	MVS10C3NW2A	MVS10C3NW5A	MVS10C3NW6A	*	MVS10C4NW5A	MVS10C4NW6A
	1250A	MVS12C3NW2A	MVS12C3NW5A	MVS12C3NW6A	*	MVS12C4NW5A	MVS12C4NW6A
	1600A	MVS16C3NW2A	MVS16C3NW5A	MVS16C3NW6A	*	MVS16C4NW5A	MVS16C4NW6A

EasyPact MVS CA drawout type 50KA switch disconnector

		3P			4P		
Manual	630A	MVS06CA3MW0D			*		
	800A	MVS08CA3MW0D			*		
	1000A	MVS10CA3MW0D			*		
	1250A	MVS12CA3MW0D			*		
	1600A	MVS16CA3MW0D			*		
Electrical 240V AC	630A	*			*		
	800A	*			*		
	1000A	*			*		
	1250A	*			*		
	1600A	*			*		

EasyPact MVS C fixed type 50KA with ET trip unit

		3P			4P		
		ET 2I	ET 5S	ET 6G	ET 2I	ET 5S	ET 6G
Manual	630A	MVS06C3MF2L	MVS06C3MF5L	MVS06C3MF6L	*	*	*
	800A	MVS08C3MF2L	MVS08C3MF5L	MVS08C3MF6L	*	*	*
	1000A	MVS10C3MF2L	MVS10C3MF5L	MVS10C3MF6L	*	*	*
	1250A	MVS12C3MF2L	MVS12C3MF5L	MVS12C3MF6L	*	*	*
	1600A	MVS16C3MF2L	MVS16C3MF5L	MVS16C3MF6L	*	*	*
Electrical 240V AC	630A	MVS06C3NF2L	MVS06C3NF5L	MVS06C3NF6L	*	*	*
	800A	MVS08C3NF2L	MVS08C3NF5L	MVS08C3NF6L	*	*	*
	1000A	MVS10C3NF2L	MVS10C3NF5L	MVS10C3NF6L	*	*	*
	1250A	MVS12C3NF2L	MVS12C3NF5L	MVS12C3NF6L	*	*	*
	1600A	MVS16C3NF2L	MVS16C3NF5L	MVS16C3NF6L	*	*	*

EasyPact MVS C fixed type 50KA with ETA trip unit

		3P			4P		
		ETA 2I	ETA 5S	ETA 6G	ETA 2I	ETA 5S	ETA 6G
Manual	630A	MVS06C3MF2A	MVS06C3MF5A	MVS06C3MF6A	*	*	*
	800A	MVS08C3MF2A	MVS08C3MF5A	MVS08C3MF6A	*	*	*
	1000A	MVS10C3MF2A	MVS10C3MF5A	MVS10C3MF6A	*	*	*
	1250A	MVS12C3MF2A	MVS12C3MF5A	MVS12C3MF6A	*	*	*
	1600A	MVS16C3MF2A	MVS16C3MF5A	MVS16C3MF6A	*	*	*
Electrical 240V AC	630A	MVS06C3NF2A	MVS06C3NF5A	MVS06C3NF6A	*	*	*
	800A	MVS08C3NF2A	MVS08C3NF5A	MVS08C3NF6A	*	*	*
	1000A	MVS10C3NF2A	MVS10C3NF5A	MVS10C3NF6A	*	*	*
	1250A	MVS12C3NF2A	MVS12C3NF5A	MVS12C3NF6A	*	*	*
	1600A	MVS16C3NF2A	MVS16C3NF5A	MVS16C3NF6A	*	*	*

EasyPact MVS CA fixed type 50kA switch disconnector

		3P			4P		
Manual	630A	MVS06CA3MF0D			*		
	800A	MVS08CA3MF0D			*		
	1000A	MVS10CA3MF0D			*		
	1250A	MVS12CA3MF0D			*		
	1600A	MVS16CA3MF0D			*		
Electrical 240V AC	630A	*			*		
	800A	*			*		
	1000A	*			*		
	1250A	*			*		
	1600A	*			*		

EasyPact MVS N drawout type 50KA with ET trip unit

		3P			4P		
		Trip System 2.0	Trip System 5.0	Trip System 6.0	Trip System 2.0	Trip System 5.0	Trip System 6.0
Manual	800A	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	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 N drawout type 50KA with ETA trip unit

		3P			4P		
		ETA 2I	ETA 5S	ETA 6G	ETA 2I	ETA 5S	ETA 6G
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	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

EasyPact MVS N drawout type 50KA with ETV trip unit

		3P			4P		
		ETV 2I	ETV 5S	ETV 6G	ETV 2I	ETV 5S	ETV 6G
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	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 NA Drawout type 50kA switch disconnector

		3P			4P		
Manual	800A	MVS08N3MW0D			MVS08N4MW0D		
	1000A	MVS10N3MW0D			MVS10N4MW0D		
	1250A	MVS12N3MW0D			MVS12N4MW0D		
	1600A	MVS16N3MW0D			MVS16N4MW0D		
	2000A	MVS20N3MW0D			MVS20N4MW0D		
	2500A	MVS25N3MW0D			MVS25N4MW0D		
	3200A	MVS32N3MW0D			MVS32N4MW0D		
	4000A	MVS40N3MW0D			MVS40N4MW0D		
Electrical 240V AC	800A	MVS08N3NW0D			MVS08N4NW0D		
	1000A	MVS10N3NW0D			MVS10N4NW0D		
	1250A	MVS12N3NW0D			MVS12N4NW0D		
	1600A	MVS16N3NW0D			MVS16N4NW0D		
	2000A	MVS20N3NW0D			MVS20N4NW0D		
	2500A	MVS25N3NW0D			MVS25N4NW0D		
	3200A	MVS32N3NW0D			MVS32N4NW0D		
	4000A	MVS40N3NW0D			MVS40N4NW0D		

EasyPact MVS H drawout type 65KA with ET trip unit

		3P			4P		
		Trip System 2.0	Trip System 5.0	Trip System 6.0	Trip System 2.0	Trip System 5.0	Trip System 6.0
Manual	800A	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	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 HA Drawout type 65kA switch disconnector

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

EasyPact MVS N fixedtype 50KA with ET trip unit

		3P			4P		
		Trip System 2.0	Trip System 5.0	Trip System 6.0	Trip System 2.0	Trip System 5.0	Trip System 6.0
Manual	800A	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	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 NA fixedtype 50kA switch disconnector

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

EasyPact MVS H fixedtype 65KA with ET trip unit

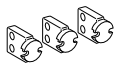
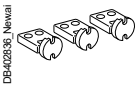
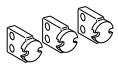
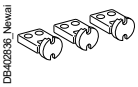
		3P			4P		
		Trip System 2.0	Trip System 5.0	Trip System 6.0	Trip System 2.0	Trip System 5.0	Trip System 6.0
Manual	800A	MVS08H3MF2L	MVS08H3MF5L	MVS08H3MF6L	*	*	*
	1000A	MVS10H3MF2L	MVS10H3MF5L	MVS10H3MF6L	*	*	*
	1250A	MVS12H3MF2L	MVS12H3MF5L	MVS12H3MF6L	*	*	*
	1600A	MVS16H3MF2L	MVS16H3MF5L	MVS16H3MF6L	*	*	*
	2000A	MVS20H3MF2L	MVS20H3MF5L	MVS20H3MF6L	*	*	*
	2500A	MVS25H3MF2L	MVS25H3MF5L	MVS25H3MF6L	*	*	*
	3200A	MVS32H3MF2L	MVS32H3MF5L	MVS32H3MF6L	*	*	*
	4000A	MVS40H3MF2L	MVS40H3MF5L	MVS40H3MF6L	*	*	*
Electrical 240V AC	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 HA fixedtype 65kA switch disconnector

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

EasyPact MVS Frame 1
Connection

Connection -MVS Frame 1

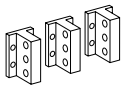
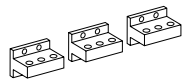
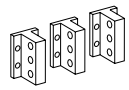
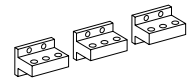
		3P	4P
Fixed circuit breakers			
Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)			
 	250/630-1600 A	**33584**	**33585**
Vert. mounting. *Horiz. mounting.*	Installation manual	**MVS21735**	
Drawout circuit breakers			
Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)			
 	250/630-1600 A	**33586**	**33587**
Vert. mounting. *Horiz. mounting.*	Installation manual	**MVS21735**	

Connection accessories -MVS Frame 1

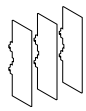
Interphase barriers / Replacement kit (3 parts)			
	For fixed front and rear-connected circuit breakers (take 2 kits : 1 for the top, 1 for the buttom connections)	**33648**	**33648**
	For drawout rear-connected circuit breakers (the same kit covers the top and the bottom connections on the same time)	**33768**	**33768**
	Installation manual	**47102**	

EasyPact MVS Frame 2
Connection

Connection MVS Frame 2

			3P	4P
Fixed circuit breakers				
Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)				
 E46445 *Vertical mounting.*	800-2000 A	Vertical	47964	47965
		Horizontal	47964	47965
	2500/3200 A	Vertical	47966	47967
		Horizontal	47966	47967
	4000 A	Vertical	47968	47969
		Horizontal	47970	47971
 E46446 *Horizontal mounting.*				
	Installation manual		MVS21735	
Draw-out circuit breakers				
Rear connection (vertical or horizontal mounting) / Replacement kit (3 or 4 parts)				
 E46445 *Vertical mounting.*	800-2000 A	Vertical	47964	47965
		Horizontal	47964	47965
	2500/3200 A	Vertical	47966	47967
		Horizontal	47966	47967
	4000 A	Vertical	47968	47969
		Horizontal	47970	47971
 E46446 *Horizontal mounting.*				
	Installation manual		MVS21735	

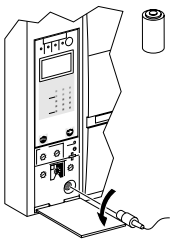
Connection accessories-MVS Frame 2

Interphase barriers / Replacement kit (3 parts)			
 E46428	For fixed rear-connected circuit breaker	48599	48599
	For draw-out rear-connected circuit breaker	48600	48600
	Installation manual	MVS21735	

ET trip units & accessories

Battery + cover

E95540

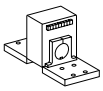


Battery (1 part)	33593
Cover (1 part)	33592

External sensors

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

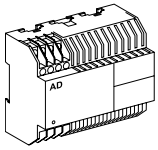
E46671



Sensor rating	400/1600 A	33576
	400/2000A	34035
	1000/4000 A	34036

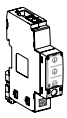
External power supply module (AD) / 1 part

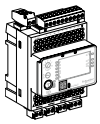
DB105360



24-30 V DC	LV454440
48-60 V DC	LV454441
200-240 V AC	Lv454444

Communication option





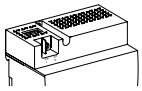
IFM Modbus-SL interface module	**LV434000**
I/O application module	**LV434063**
6 wires terminals drawout (1 part)	**47850**
6 wires terminals fixed (1 part)	**47075**
User guide I/O application module	**DOCA0055EN-00**

Monitoring and control

ULP wiring accessories

Breaker ULP cord L = 0.35 m	**LV434195**
Breaker ULP cord L = 1.3 m	**LV434196**
Breaker ULP cord L = 3 m	**LV434197**

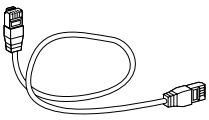
10 stacking connectors for communication interface modules	**TRV00217**



2 Modbus line terminators	**VW3A8306DRC** (2)

5 RJ45 connectors female/female	**TRV00870**

10 ULP line terminators	**TRV00880**

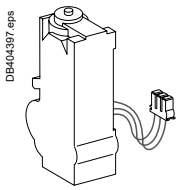


10 RJ45/RJ45 male cord L = 0.3 m	**TRV00803**
10 RJ45/RJ45 male cord L = 0.6 m	**TRV00806**
5 RJ45/RJ45 male cord L = 1 m	**TRV00810**
5 RJ45/RJ45 male cord L = 2 m	**TRV00820**
5 RJ45/RJ45 male cord L = 3 m	**TRV00830**
1 RJ45/RJ45 male cord L = 5 m	**TRV00850**

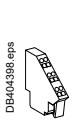
EasyPact MVS Frame 1
Remote operation

Remote operation

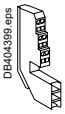
Gear motor



MCH (1 part)		
AC 50/60 Hz	100/130 V	**33176**
	200/240 V	**33177**
	277/415 V	**33179**
DC	24/30 V	**33185**
	48/60 V	**33186**
	100/125 V	**33187**
	200/250 V	**33188**
Terminal block (1 part)	For fixed circuit breaker	**47074**
	For drawout circuit breaker	**33098**



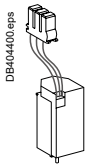
Fixed.



Drawout.

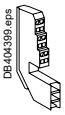
Installation manual		**MVS21736**

Closing and opening release (XF or MX)



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**
	277 V AC	**33663**
	380/480 V AC	**33664**
Terminal block (1 part)	For fixed circuit breaker	**47074**
	For drawout circuit breaker	**33098**

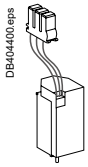
Fixed.



Drawout.

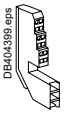
Installation manual		**MVS21736**

Undervoltage release MN



Undervoltage release (1 part)		
AC 50/60 Hz	24/30 V DC, 24 V AC	**33668**
DC	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	**33098**

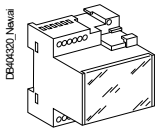
Fixed.



Drawout.

Installation manual		**47103**

MN delay unit

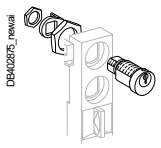


MN delay unit (1 part)			
		R (non-adjustable)	**Rr** (adjustable)
AC 50/60 Hz	48/60 V AC/DC		**33680**
DC	100/130 V AC/DC	**33684**	**33681**
	200/250 V AC/DC	**33685**	**33682**
	380/480 V AC/DC		**33683**
Installation manual			**MVS21736**

EasyPact MVS Frame 1
Chassis locking and accessories

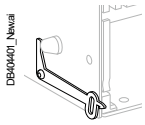
Chassis locking

"Disconnected" position locking / 1 part



By padlocks			
		VCPO	Standard
By Profalux keylocks			
Profalux		1 lock with 1 key + adaptation kit	**64909**
		2 locks 1 key + adaptation kit	**64910**
1 keylock Profalux (without adaptation kit):		identical key not identified combination	**33173**
By Ronis keylocks			
Ronis		1 lock with 1 key + adaptation kit	**64912**
		2 locks 1 key + adaptation kit	**64913**
		2 locks 2 different keys + adaptation kit	**64914**
1 keylock Ronis (without adaptation kit):		identical key not identified combination	**33189**
Adaptation kit (without keylock):		adaptation kit Profalux	**33769**
		adaptation kit Ronis	**33770**
Installation manual			**MVS21737**

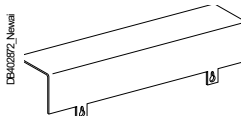
Door interlock / 1 part



Right and left-hand side of chassis (VPECD or VPECG)			**33172**
Installation manual			**MVS21737**

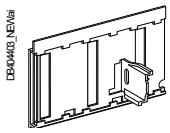
Chassis accessories

Auxiliary terminal shield (CB) / 1 part



Terminal shield		3P	**33763**
		4P	**33764**
Installation manual			**MVS21737**

Safety shutters + locking / 1 part

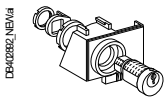


Safety shutters (VO)		3P	**33765**
		4P	**33766**
Installation manual			**MVS21737**
Note: *the locking of safety shutters is integrated.*			

EasyPact MVS Frame 1
Circuit breaker locking and accessories

Circuit breaker locking

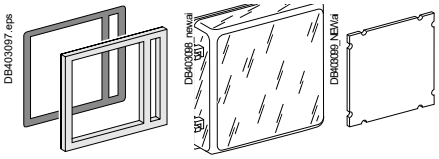
OFF position locking / 1 part



By Profalux keylocks		
Profalux	adaptation kit	**47515M**
1 keylock Profalux (without adaptation kit):	Profalux 1 lock+ 1 key (without adaptation kit)	**42888**
Installation manual		**MVS21737**

Other circuit breaker accessories

Escutcheon and accessories / 1 part



Escutcheon *Cover* *Blanking plate*

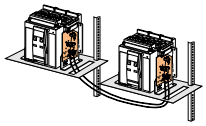
	Fixed	Drawout
Escutcheon	**33718**	**33857**
Transparent cover (IP54)		**33859**
Escutcheon blanking plate		**33858**
Installation manual		**MVS21737**

EasyPact MVS Frame 1
Mechanical interlocking for source changeover

Mechanical interlocking for source changeover

Interlocking using cables (1)

DB416840.eps



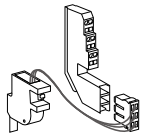
Choose 2 adaptation fixtures (1 for each breaker) + 1 set of cables	
1 adaptation fixture for MVS Frame 1 fixed devices	**33200**
1 adaptation fixture for MVS Frame 1 drawout devices	**33201**
1 set of 2 cables	**33209**

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

Indication contacts

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

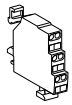
DB402876_newai



		PF
1 changeover contact (6 A - 240 V)		**47080**
Wiring	For fixed circuit breaker	**47074**
	For drawout circuit breaker	**33098**
Installation manual		**MVS 21736**

Carriage switches (connected / disconnected / test position) / 1 part

DB402916_Newai



Changeover contacts (6 A - 240 V)	
1 connected position contact (3 max.)	**33170**
1 test position contact (1 max.)	**33170**
1 disconnected position contact (2 max.)	**33170**

Auxiliary terminals for chassis alone

DB404399.eps

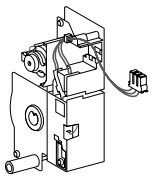
3 wire terminal (1 part), terminal block (1 part)	**33098**
6 wires terminals drawout (1 part)	**33099**
Installation manual	**MVS 21736**

EasyPact MVS Frame 2
Remote operation

Remote operation

Gear motor

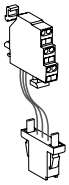
E95172



E95169

Fixed.

E95171

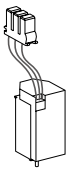


Draw-out.

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 draw-out circuit breaker	47849
Installation manual		MVS21736

Closing release (XF)

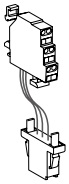
E95170



E95169

Fixed.

E95171

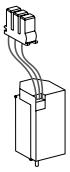


Draw-out.

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 draw-out circuit breaker	47849
Installation manual		MVS21736

Opening release (MX)

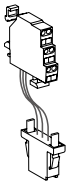
E95170



E95169

Fixed.

E95171



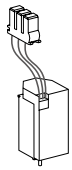
Draw-out.

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 draw-out circuit breaker	47849
Installation manual		MVS21736

EasyPact MVS Frame 2
Remote operation

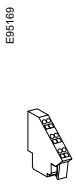
Remote operation

Undervoltage release MN

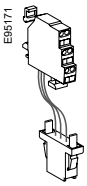

E95170

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 draw-out circuit breaker	47849


E95169

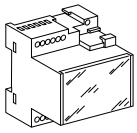
Fixed.


E95171

Draw-out.

Installation manual	MVS21736

MN delay unit


E46694

MN delay unit (1 part)

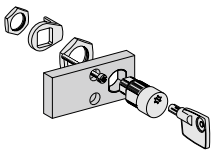
		R (non-adjustable)	**R**r (adjustable)
AC 50/60 Hz DC	48/60 V AC/DC		33680
	100/130 V AC/DC	33684	33681
	200/250 V AC/DC	33685	33682
	380/480 V AC/DC		33683
Installation manual			MVS21736

EasyPact MVS Frame 2
Chassis locking and accessories

Chassis locking

"Disconnected" position locking / 1 part

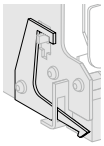
DB117458



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

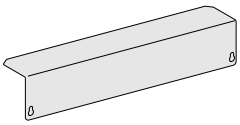


Right and left-hand side of chassis (VPECD or VPECG)		47914
Installation manual		MVS21737

Chassis accessories

Auxiliary terminal shield (CB) / 1 part

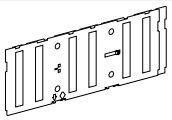
E46458



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

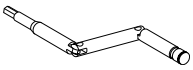
Shutter locking block (for replacement) / 1 part

E46460

2 parts for 800/4000 A		48591
Installation manual		MVS21737

Racking handle

E95561



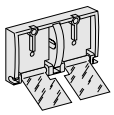
Racking handle		47944

EasyPact MVS Frame 2
Circuit breaker locking and accessories

Circuit breaker locking

Pushbutton locking device / 1 part

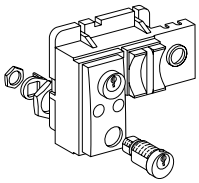
E46666



By padlocks		48536
Installation manual		MVS21736

OFF position locking / 1 part

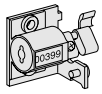
E46735



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

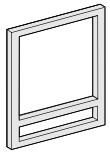
DB125617



Operation counter CDM		48535
Installation manual		MVS21736

Escutcheon and accessories / 1 part

CDB300061

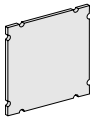


Escutcheon

E46669

Cover

E46670



Blanking plate

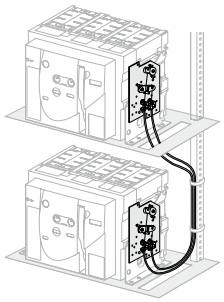
	Fixed	Draw-out
Escutcheon	48601	48603
Transparent cover (IP 54)	-	48604
Escutcheon blanking plate	48605	48605
Installation manual		MVS21736

EasyPact MVS Frame 2
Mechanical interlocking for source changeover

Mechanical interlocking for source changeover

Interlocking of 2 devices using cables [1]

CDB500053



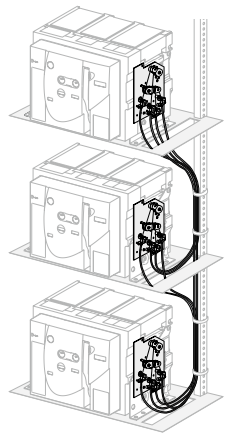
Choose 2 adaptation sets (1 for each device + 1 set of cables)	
1 adaptation fixture for EasyPact MVS fixed devices	47926
1 adaptation fixture for EasyPact MVS draw-out devices	47926
1 set of 2 cables	33209

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

Installation manual	MVS21738

Interlocking of 3 devices using cables

CDB500060



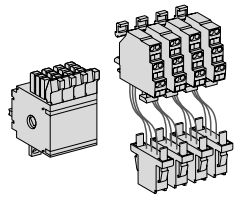
Choose 3 adaptation (including 3 adaptation fixtures + cables)	
3 sources, only 1 device closed, fixed or draw-out devices	48610
2 sources + 1 coupling, fixed or draw-out devices	48609
2 normal + 1 replacement source, fixed or draw-out devices	48608
Installation manual	MVS21738

EasyPact MVS Frame 2
Indication contacts

Indication contacts

ON/OFF indication contacts (OF) / 12 parts

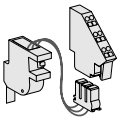
E46689



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

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

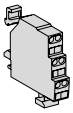
E46438



1 changeover contact (5 A - 240 V)		47080
Wiring	For fixed circuit breaker	47074
	For draw-out 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 & draw-out circuit breaker	MVS21735
Circuit breaker accessories	MVS21736
Chassis accessories	MVS21737
Interlocking of EasyPact MVS devices	MVS21738
MVS Communication user manual	MVS21835

Order ref no:	
Date:	
Product ref no:	
OA No. (to be filled by Order booking team)	

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	**C/N/ H**	
Switch Disconnector	**CA/NA/HA**	
Number of poles	**3 or 4**	
Optional Neutral on Right hand side		**YES**
Type of equipment	Fixed	☐
	Draw out with chassis	☐
	Draw out without chassis (moving part only)	☐
	Chassis alone	☐
Operating Mechanism	**Manual Operated**	☐
	Electrical Operated	☐
MCH - Gear motor	**V**	
XF - Closing coil	**V**	
MX - Shunt/Opening voltage release	**V**	

ET Trip System

0- Without display	**2I**	☐	**5S**	☐	**6G**	☐
A - Current Metering	**2I**	☐	**5S**	☐	**6G**	☐
V - Energy Metering	**2I**	☐	**5S**	☐	**6G**	☐
LR - Long-time rating plug	**Standard**		**0.4 to 1 Ir**			

Communication

Eco Com Module(only ETV Trip System)

Device(BCM ULP) ☐ — **Cradle management with** ☐

Modbus Interface(IFM) ☐ — **I/O application module (Chassis)**

Breaker ULP Cord — L=0.35m ☐ L=1.3m ☐ L=3m ☐

Easy Communication Module

EasyCom Communication Module

Programmable contacts

2 M2C contacts(only with ETV Trip System) ☐

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(not incl MVS C/CA)	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 - MVS C- External sensor (NCT) for neutral of 3 Phase-4 Wire systems		400/1600A	☐
TCE - MVS N/H- External sensor (NCT) for neutral of 3 Phase-4 Wire systems		400/2000A	☐
TCE - MVS N/H- 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(non include MVS C/CA)	Profalux	☐	Ronis	☐

Chassis locking in "Disconnected" position:

VSPD - by key locks	Key lock kit (w/o key lock)	Profalux	☐	Ronis	☐
	1 key lock	Profalux	☐	Ronis	☐
	2 identical key locks, 1 key	Profalux	☐	Ronis	☐

Door Interlock - VPEC	On left-hand side of chassis (LH)	☐
	On right-hand side of chassis (RH)	☐

Mechanical Interlocking of ACBs with Cable

1 Normal source & 1 replacement source (2 devices)	☐
2 normal + 1 replacement source, fixed or draw-out devices	☐
2 sources with coupler on busbars (3 devices)	☐
3 sources, only 1 device closed, fixed or draw-out devices	☐

Accessories

VO - Safety shutters on chassis	**Standard**
CDP - Escutcheon	**Standard**
Safety Shutter locking blocks	☐
CP - Transparent cover for escutcheon	☐
OP - Blanking plate for escutcheon	☐
CDM - Mechanical operation counter for MVSI(not incl MVS C/CA)	☐
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 breakers/switches will be supplied with Chassis & safety shutter.
For Electrical operated breakers/ switches, 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.

Life Is On | Schneider Electric

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