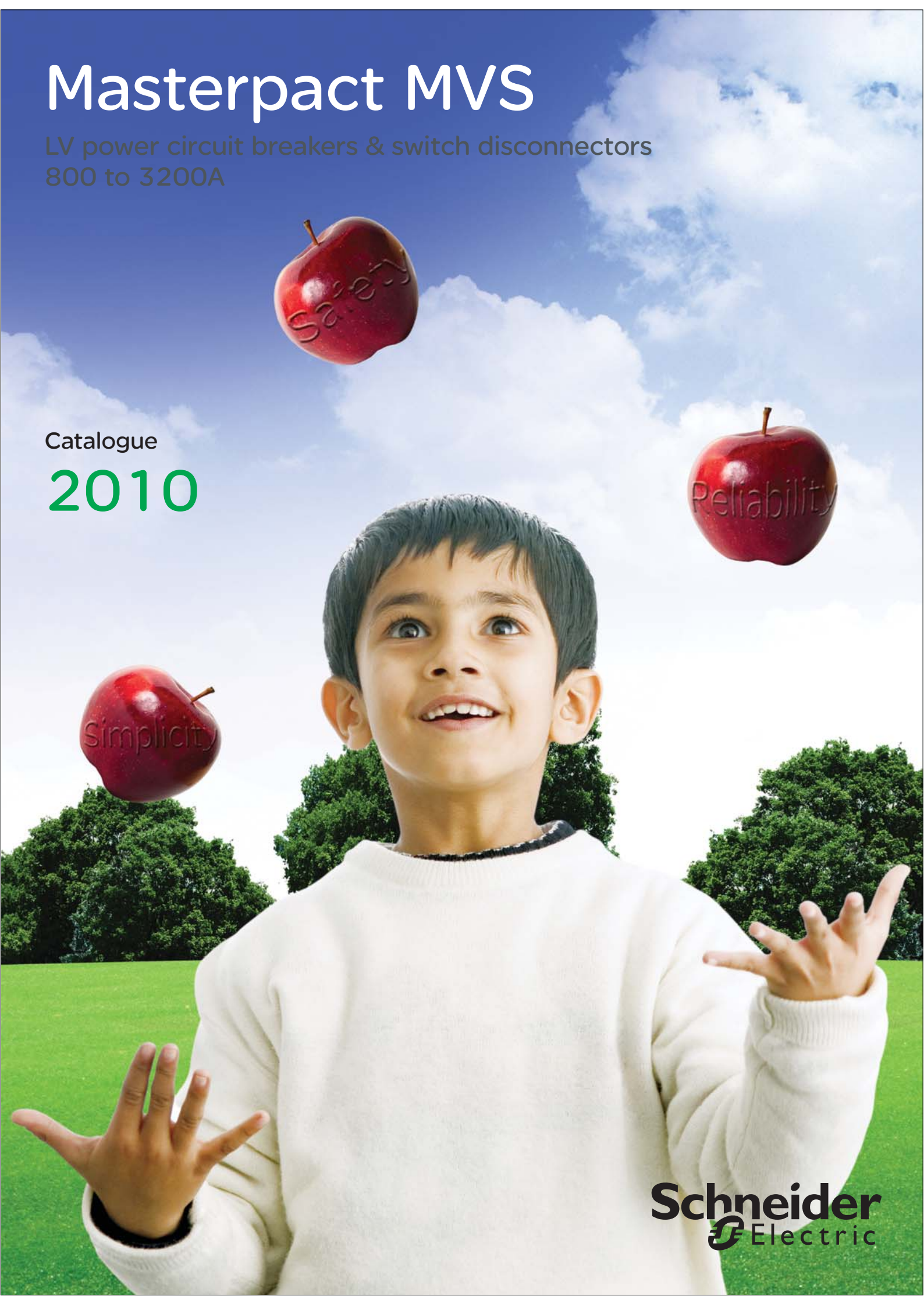
Masterpact MVS

LV power circuit breakers & switch disconnectors
800 to 3200A



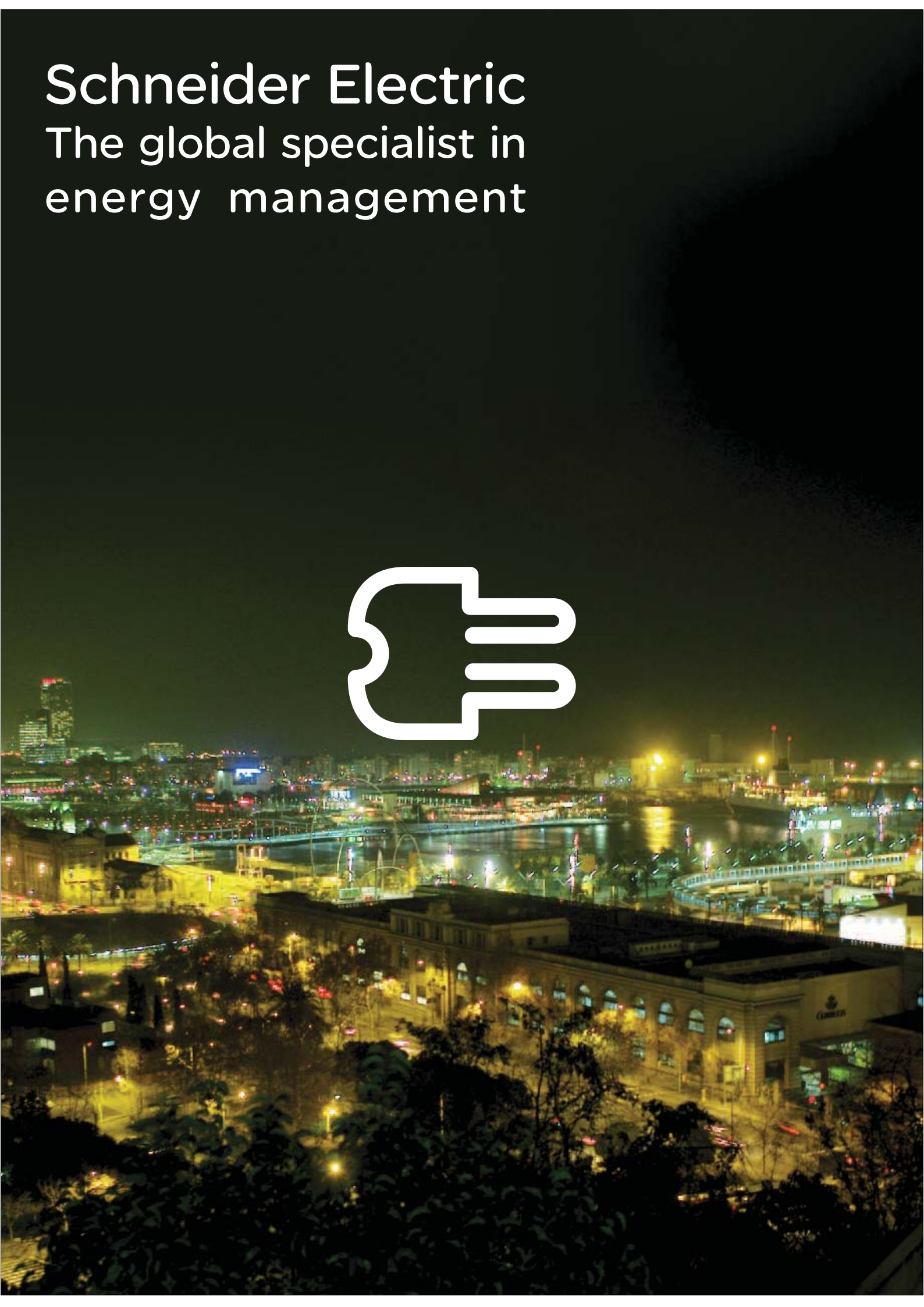
Catalogue

2010

Schneider Electric

Schneider Electric

The global specialist in energy management



Schneider Electric, the undisputed global leader in Power Circuit Breakers

Ever since the launch of first circuit breaker in 1923

- At forefront in developing products with cutting-edge technology
- Masterpact NT/NW Power Circuit Breakers with integrated metering, communication capabilities & high performance levels have set new standards around the world
- We also understand the optimum needs of our customers and we continue to innovate

Inheriting the key values of Masterpact Family–

“Safety, Reliability and Simplicity”, now we introduce

Masterpact MVS

from 800 to 3200A

Masterpact Value System

> Single frame size for complete range

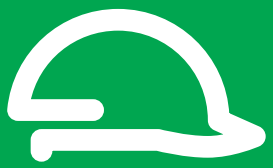
> Icu=Ics=Icw (1 sec)=50kA

> Microprocessor based ET trip system

Safety Reliability Simplicity

Masterpact MVS stands for...

Safety



Reliability

Simplicity

Masterpact MVS stands for ...**Safety**

Standard safety shutters with locking provision

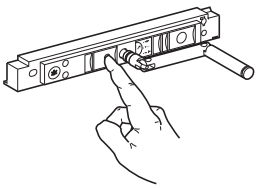
> the safety shutters automatically block access to contact clusters & no live parts are accessible. The shutter-locking system is made up of a moving block that can be padlocked.

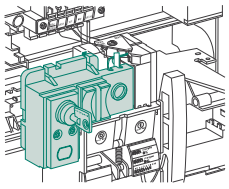
Ready to Close Contact

> 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 safety parameters are full-filled & valid.

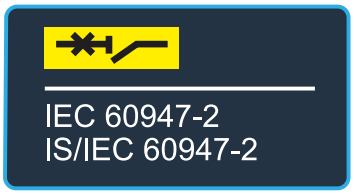
Locking Arrangements

> The positive locking of “connected”, “disconnected” and “test” positions is built in feature in draw-out breakers & the exact position is obtained when the racking handle blocks. A release button is used to free it.
> Door interlock inhibits the opening of cubicle door when breaker is in “connected” or “test” position.
> Push button locking, blocks access to ON/OFF pushbuttons and may be locked with padlocks, screws or lead seal.
> The circuit breaker is locked in OFF position using key locks by physically maintaining the opening pushbutton pressed down.





Masterpact MVS stands for...**Reliability**

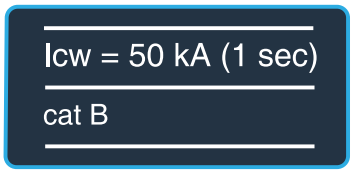


Conforms to IS/IEC 60947-2 for circuit breaker & 60947-3 for switch disconnector functions.

> Tested & certified at CPRI/ERDA

High electrical & mechanical life

> 10000 mechanical operations & 5000 electrical operations without maintenance up to 1600A



Complete range with Icw = 50kA (1sec) with no derating up to 50°C

Intelligent micro processor based ET trip system

> 2I - Overload, Short-circuit protections
> 5S - Overload, Short-circuit & Instantaneous protections
> 6G - Overload, Short-circuit ,Instantaneous & ground-fault protections

Suitability for Copper & Aluminium terminations

> Offers flexibility in busbar terminations for Indian environmental conditions

Fully rated neutral with protection

> All 4Pole breakers are with fully rated neutral & can be protected against overload & short-circuit with settings at 50%-100%-OFF


pizza

Masterpact MVS stands for... **Simplicity**

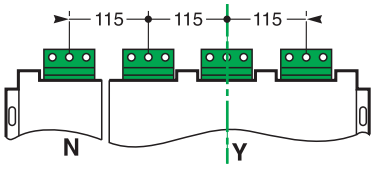
Single frame size

> Masterpact MVS offers single frame size for the complete range of circuit breakers & switch dis-connector versions up to 3200A which helps in faster design & delivery of distribution systems.

Common height, width & depth

> Draw out breaker
- 439 x 441 x 395mm for 3Pole
- 439 x 556 x 395mm for 4Pole

> Fixed breaker
- 352 x 422 x 297mm for 3Pole
- 352 x 537 x 297mm for 4Pole



Single pole pitch of 115mm

> Enables termination of aluminium/copper busbars or cables.

Flexibility in terminal orientation

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

Single bolt for motor mechanism

> Manual operated breaker can be converted in to Electrical breaker at installation with less down time.

Common accessories

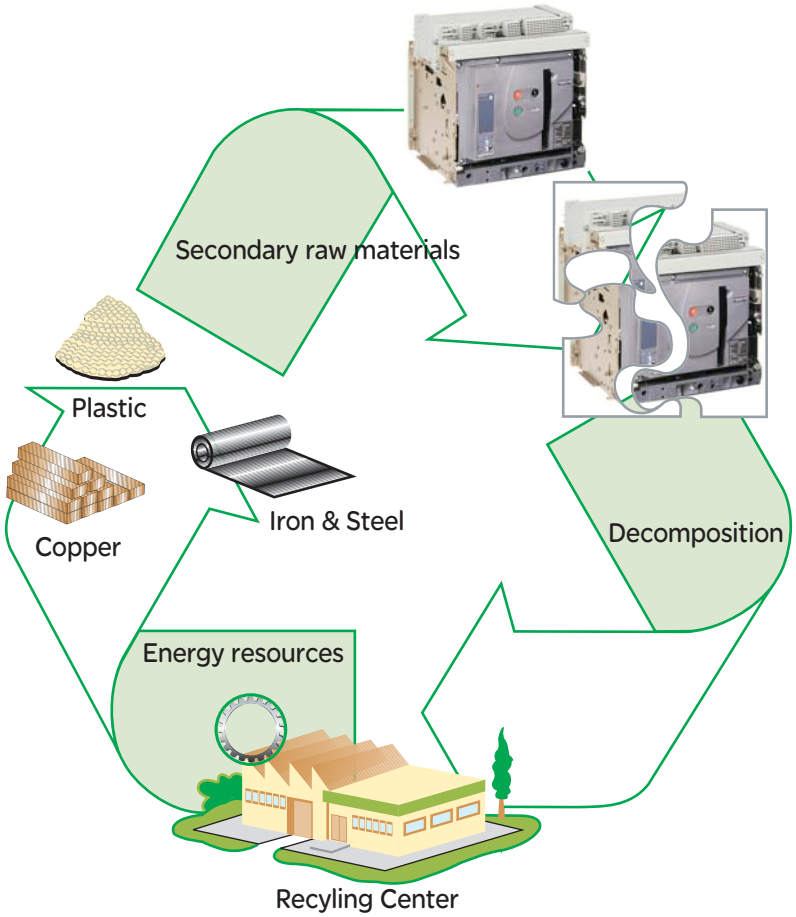
> Accessories & auxiliaries are common for the complete range of Masterpact family, thus reducing the inventory costs.

Environmentally responsible

> Masterpact MVS is part of Schneider Electric's energy efficiency approach. Designed for easy disassembly and recycling at end of life, Masterpact MVS complies with environmental directives RoHS* and WEEE**, and with ISO 14001 standards, thanks to non-polluting factories.

Schneider Electric fully takes into account environmental requirements, starting right from the design phase of every product through to the end of its service life:

- the materials used for Masterpact MVS are not potentially dangerous to the environment
- the production facilities are non-polluting in compliance with the ISO 14001 standard
- the energy dissipated per pole is low, making energy losses insignificant
- the materials are marked to facilitate sorting for recycling at the end of product service life.



Masterpactpact MVS power circuit breakers and accessories can be recycled and reused optimally.

* RoHS = Restriction of Hazardous Substances

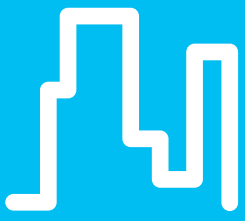
** WEEE = Waste Electrical and Electronic Equipment

Ideal for a variety of **Applications**

Energy & infrastructure

Industry

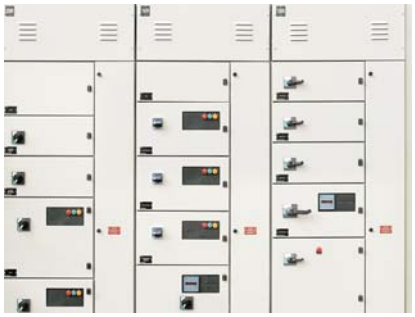
Buildings



Residential


AD
AD

Masterpact MVS
Benefits for every customer



Panel builders / Contractors

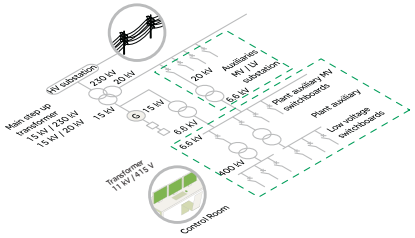
> Single frame size from 800A-3200A with identical door cut-outs
> Suitable for Copper & Aluminium termination with a single pole pitch of 115mm.
> Terminal orientation can be converted from horizontal to vertical and vice-versa at workshop
> Direct mounting Door frames (Escutcheon) without drilling 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

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

End Users

> Moulded case design ensures high endurance without maintenance
> Intelligent Microprocessor based trip units with thermal memory
> Overload run alarm & individual LED indications enable fault identification
> Icu=Ics=Icw(1sec)=50kA ensures complete selectivity
> Inbuilt safety shutter & interlocks
> Ready-to-close contact signal indicates that all safety parameters are full-filled & valid.
> No derating up to 50°C
> All 4Pole breakers are with fully rated neutral with adjustable protections at OFF-50%-100%

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



Designers

> Conforms to IS/IEC 60947-2 for breakers & IS/IEC60947-3 for disconnectors
> Intelligent Microprocessor based trip units with overload, short circuit & earth fault protections with in-built thermal memory
> Icu=Ics=Icw(1sec) =50kA
> Typical design of shunt coil & closing coil helps in simple interlocking schemes
> Ready-to-close contacts ensures safety parameters are full-filled enabling closure of breaker.
> Masterpact MVS respects the environment throughout their life cycle

Masterpact MVS is the answer to the needs of your customers with flexibility to modify system design during the design phase

General overview
Detailed contents

Microprocessor based ET2I Trip System

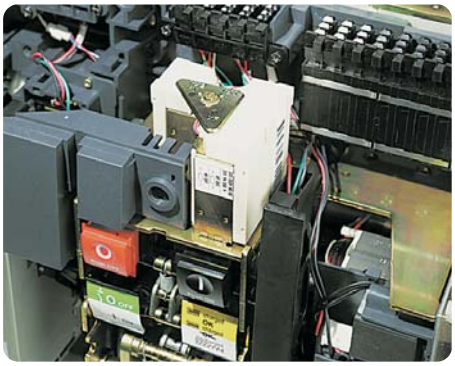
Microprocessor based ET5S Trip System

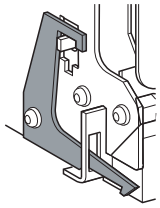
Microprocessor based ET6G Trip System

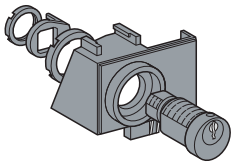
Horizontal

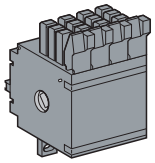
Vertical

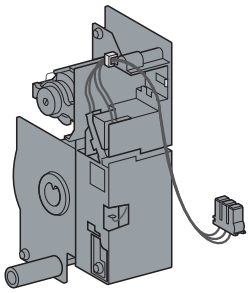
General overview
Detailed contents

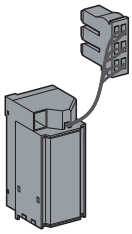


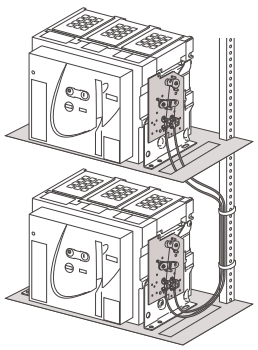












Circuit breakers and switch-disconnectors MVS08 to MVS32

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	4

Basic circuit-breaker
Circuit-breaker as per IEC 60947-2

Rated current (A) at 50 °C	In
Rating of 4th pole (A)	
Ultimate breaking capacity (kA rms) V AC 50/60 Hz	Icu
Rated service breaking capacity (kA rms)	Ics
Rated short-time withstand current (kA rms) V AC 50/60 Hz	Icw 1s 3s
Rated making capacity (kA peak) V AC 50/60 Hz	Icm
Utilisation category	
Closing time	(ms)
Opening time	(ms)

Switch-disconnector according to IEC 60947-3

Rated making capacity (kA peak) AC23 category	V AC 50/60 Hz	Icm
Rated short-time withstand current (kA rms) AC23 category	V AC 50/60 Hz	Icw 1s

Installation/connection/maintenance

Service life C/O cycles x 1000	Mechanical	with maintenance	
		without maintenance	
	Electrical	without maintenance	
Connection		Horizontal	
		Vertical	
Dimension (mm) (H x W x D)		Drawout	3P
			4P
		Fixed	3P
			4P
Weight (kg)		Drawout	3P/4P
		Fixed	3P/4P

(1) 3200A: with vertical connections for drawout type circuit breaker

Circuit breakers and switch-disconnectors MVS08 to MVS32

	MVS08 N	MVS10 N	MVS12 N	MVS16 N	MVS20 N	MVS25 N	MVS32 N
	800	1000	1250	1600	2000	2500	3200[1]
	800	1000	1250	1600	2000	2500	3200
	50	50	50	50	50	50	50
	50	50	50	50	50	50	50
	50	50	50	50	50	50	50
	35	35	35	35	35	35	35
	105	105	105	105	105	105	105
	B						
	<70						
	<40						

	MVS08 NA	MVS10 NA	MVS12 NA	MVS16 NA	MVS20 NA	MVS25 NA	MVS32 NA
	105	105	105	105	105	105	105
	50	50	50	50	50	50	50

	20	16
	10	8
	5	3
	Yes	
	Yes	
	439 x 441 x 395 439 x 556 x 395	
	352 x 422 x 297 352 x 537 x 297	
	78/95	
	42/52	

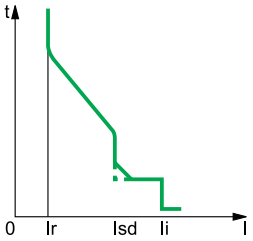
Identifying Microprocessor based ET Trip System Designations

All Masterpact MVS Air Circuit Breakers are equipped with an Microprocessor based ET Trip System.
Microprocessor based ET Trip Systems are designed to protect power circuits and connected loads

Microprocessor based ET2I Trip System: basic protection

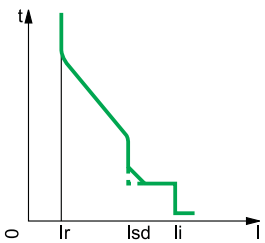
Long time + Instantaneous

Microprocessor based ET5S Trip System: selective protection

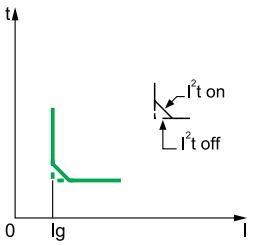


Long time + Short time + Instantaneous

Microprocessor based ET6G Trip System: selective + ground-fault protection



Long time + Short time + Instantaneous

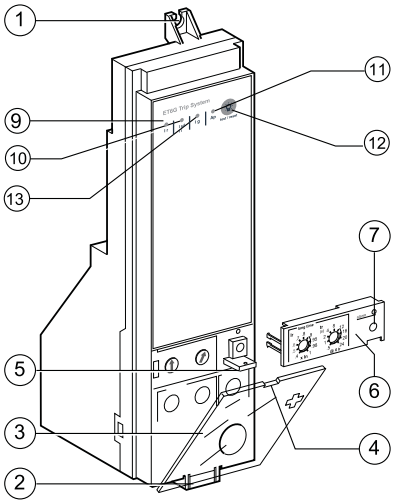


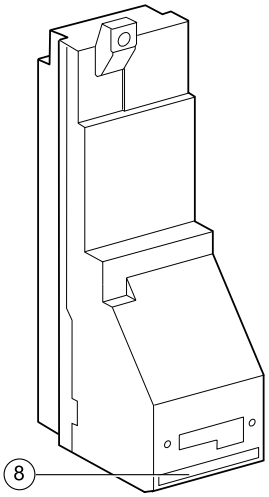
Ground-fault protection

Presentation

Microprocessor based
ET Trip System description

1. top fastener
2. bottom fastener
3. protective cover
4. cover opening point
5. lead-seal fixture for protective cover
6. long-time rating plug
7. screw for long-time rating plug
8. connection with circuit breaker
9. long-time trip indicator light
10. short-time or instantaneous trip indicator light
11. self-protection indicator light
12. reset button for battery status check and trip indicator LED
13. ground-fault trip indicator light



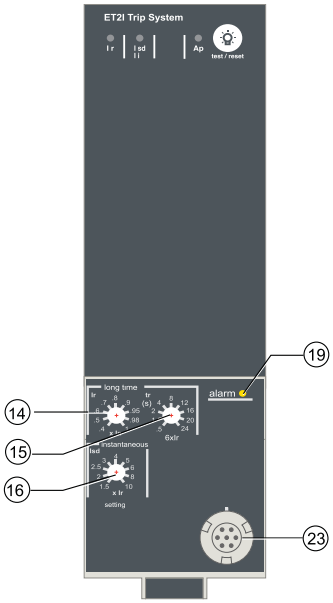


Adjustment dials

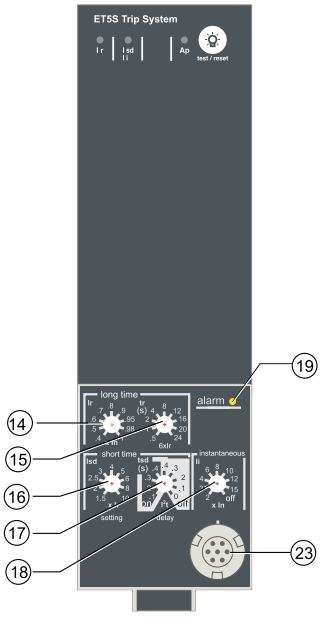
14. long-time current setting Ir
15. long-time tripping delay tr
16. short-time pickup Isd
17. short-time tripping delay tsd
18. instantaneous pick-up Ii
19. LED indicating an overload-alarm
20. ground-fault pick-up Ig
21. ground-fault tripping delay tg

Test

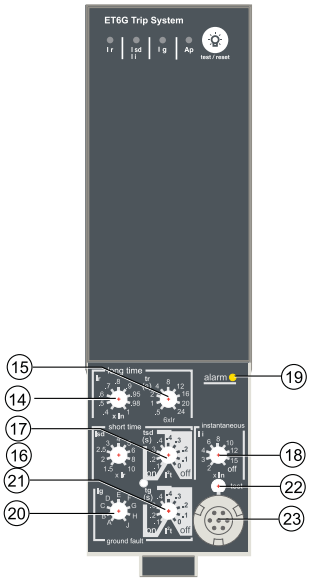
22. test button for ground-fault
23. test connector



Microprocessor based
ET2I Trip System



Microprocessor based
ET5S Trip System



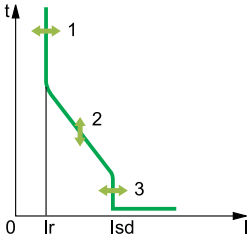
Microprocessor based
ET6G Trip System

Overview of functions
Current protection

Protection settings

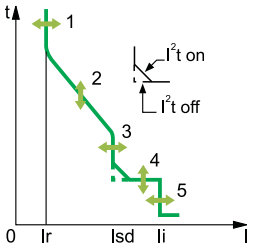
Depending on the type of installation, it is possible to set the tripping curve of your control unit using the parameters presented below.

Microprocessor based ET2I Trip System



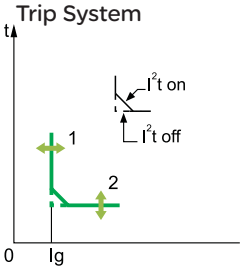
1. current setting Ir (long time)
2. tripping delay tr (long time) for 6 x Ir
3. pick-up Isd (instantaneous)

Microprocessor based ET5S/6G Trip System



1. current setting Ir (long time)
2. tripping delay tr (long time) for 6 x Ir
3. pick-up Isd (short time)
4. tripping delay tsd (short time)
5. pick-up Ii (instantaneous)

Microprocessor based ET6G Trip System



1. pick-up Ig (ground fault)
2. tripping delay tg (ground fault)

Long-time protection

The long-time protection function protects cables (phases and neutral) against overloads. This function is based on true rms measurements.

Thermal memory

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 15 minutes.

Long-time current setting Ir and standard tripping delay tr

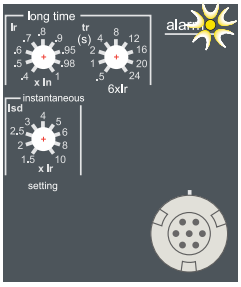
ET Trip System	Accuracy		2I, 5S and 6G								
Current setting (A) tripping between 1.05 and 1.20 Ir	Ir = In (*) x ...		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
time setting (s)			0.5	1	2	4	8	12	16	20	24
time delay (s)	tr at 1.5 x Ir	0 to -30%	12.5	25	50	100	200	300	400	500	600
	tr at 6 x Ir	0 to -20%	0.7 (1)	1	2	4	8	12	16	20	24
	tr at 7.2 x Ir	0 to -20%	0.7 (2)	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6

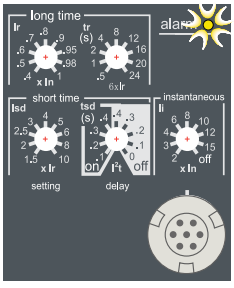
(*) In: circuit breaker rating

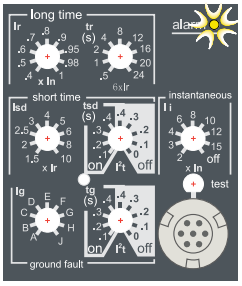
(1) 0 to -40%

(2) 0 to -60%

Overload LED







This LED signals that the long-time current setting Ir has been overrun.

Overview of functions
Current protection

Short-time protection

1. the short-time protection function protects the distribution system against impedant short-circuits.
2. the short-time tripping delay can be used to ensure discrimination with a downstream circuit breaker.
3. the I^2t ON and I^2t OFF options enhance discrimination with downstream protection devices.
4. use of I^2t curves with short-time protection:
   a. I^2t OFF selected: the protection function implements a constant time curve
   b. 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.

Short-time pick-up Isd and tripping delay tsd

Microprocessor based ET Trip System		5S and 6G								
pick-up (A)	Isd = Ir x ... accuracy ± 10%	1.5	2	2.5	3	4	5	6	8	10
time setting tsd (s)	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 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 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.

Instantaneous pick-up Isd

Microprocessor based ET Trip System		2I								
pick-up (A)	Isd = Ir x ... accuracy ± 10%	1.5	2	2.5	3	4	5	6	8	10
time delay (ms)	(max resettable time)	20								
	(max break time)	80								

Instantaneous pick-up Ii

Microprocessor based ET Trip System		5S and 6G								
pick-up (A)	Ii = In (*) x... accuracy ± 10%	2	3	4	6	8	10	12	15	off
time delay (ms)	(max resettable time)	20								
	(max break time)	50								

** In: circuit-breaker rating*

Protection of the fourth pole on four-pole circuit breakers

Type of neutral	Description.
Neutral protection at In	The cross-sectional area of the neutral conductor is equal to that of the phase conductors. 1. the long-time current setting Ir for the neutral is equal to the setting value 2. the short-time pick-up Isd for the neutral is equal to the setting value 3. the instantaneous pick-up Isd and Ii for the neutral are equal to the setting value.

Neutral protection for three-pole devices

Neutral protection is not available on three-pole devices.

Ground-fault protection on ET6G Trip System

an 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	1. the function determines the zero-phase sequence current, i.e. the vectorial sum of the phase and neutral currents 2. it detects faults downstream of the circuit breaker.

Microprocessor based ET Trip System Accessories and test equipment

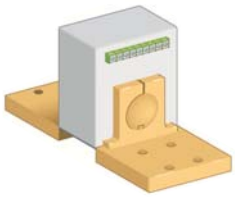
Ground-fault pick-up Ig and tripping delay tg
The pick-up and tripping-delay values
can be set independently.

1. ground-fault and neutral protection are independent and can therefore be combined.
2. ground-fault protection in 3P+N system is activated by installing a external sensor(CT) in the neutral conductor and connecting to Microprocessor based ET Trip System.

Microprocessor based ET Trip System		**6G**								
pick-up (A)	Ig = In (*) x ... accuracy ± 10 %	A	B	C	D	E	F	G	H	I
	In ⩽ 1200 A	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
	In > 1200 A	500	640	720	800	880	960	1040	1120	1200
time setting tg (s)		0	0.1	0.2	0.3	0.4				
			0.1	0.2	0.3	0.4				
time delay (ms) at 10 In (*)	tg (max resettable time)	20	80	140	230	350				
I^2t Off or I^2t On	tg (max break time)	80	140	200	320	500				

** In: circuit-breaker rating*

External sensors (Neutral CT)

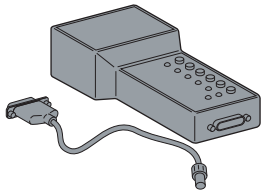


External sensor (CT).

External sensor for earth-fault and neutral protection
The sensors, used with the 3P circuit breakers, are installed on the neutral conductor for:
1. residual type earth-fault protection(with Microprocessor based ET Trip System)

The rating of the sensor (CT) must be compatible with the rating of the circuit breaker:
(i) MVS08 to MVS20: CT 400/2000
(ii) MVS25 to MVS32: CT 1000/3200

Hand-held test kit (HHTK)



The hand-held mini test kit may be used to:
check operation of the control unit and the tripping and pole-opening system by sending a signal simulating a short-circuit.

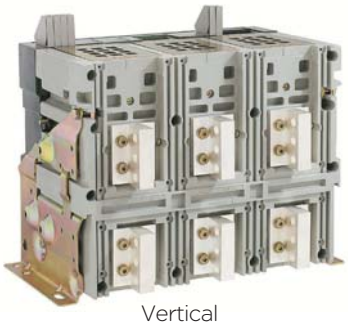
Power source: standard LR6-AA battery.

Connections
Overview of solutions

Two types of connection are available:
1.vertical rear connection.
2.horizontal rear connection.
The solutions presented are similar in principle for all Masterpact MVS fixed and drawout devices.

Rear connection

Horizontal



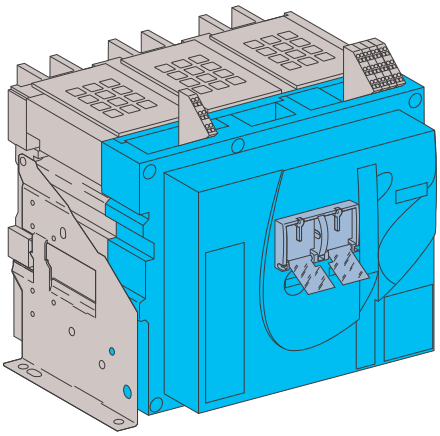
Vertical

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

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

Locking
On the device

Access to pushbuttons protected by transparent cover.

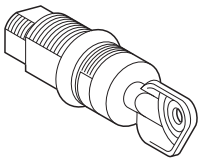


Pushbutton locking using a padlock.

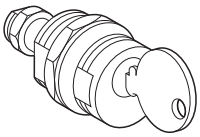
Pushbutton locking
The transparent cover blocks access to the pushbuttons used to open and close the device.
It is possible to independently lock the opening button and the closing button.
The locking device is often combined with a remote operating mechanism.
The pushbuttons may be locked using either:
1. three padlocks (not supplied)
2. lead seal
3. two screws.

Breaker front cover with keylocks option.

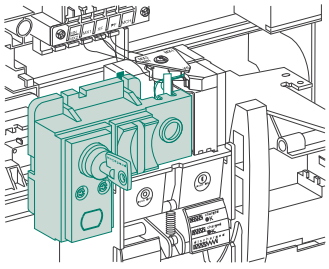
Device locking in the OFF position using key lock
The circuit breaker is locked in the OFF position by physically maintaining the opening pushbutton pressed down:
using keylocks (one or two different keylocks, supplied).
Keys may be removed only when locking is effective (Profalux or Ronis type locks).
The keylocks are available in any of the following configurations:
1. one keylock
2. two identical key locks - one keylock mounted on the device + one identical keylock supplied separately for interlocking with another device

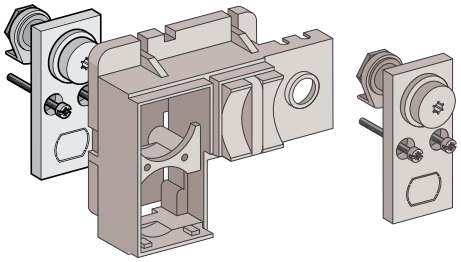


PROFAULX



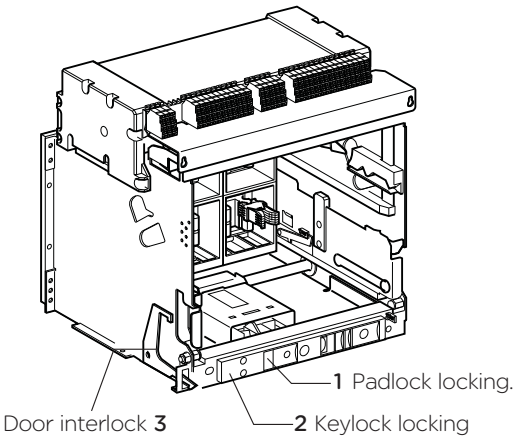
RONIS





OFF position locking using a keylock.

Locking
On the chassis



"Disconnected" position locking

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

1. using padlocks (standard), up to three padlocks (not supplied)
2. using keylocks (optional), one or two different keylocks are available.

Profalux and Ronis keylocks are available in different options:

1. one keylock
2. two identical key locks - one keylock mounted on the device + one identical keylock supplied separately for interlocking with another device.

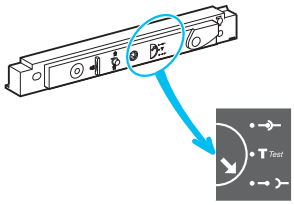
A locking kit (without locks) is available for installation of one or two keylocks (Ronis, Profalux).

"Connected", "disconnected" and "test" position locking

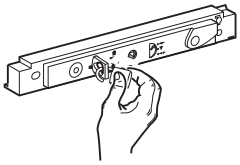
The "connected", "disconnected" and "test" positions are shown by an indicator. The exact position is obtained when the racking handle blocks. A release button is used to free it.

Padlock

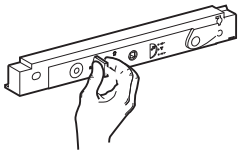
Circuit breaker in "disconnected" position.



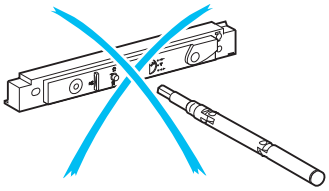
Insert the shackle (max. diameter 5 to 8 mm) of the padlock(s).



Pull out the tab.

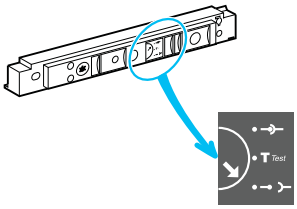


The crank cannot be inserted.

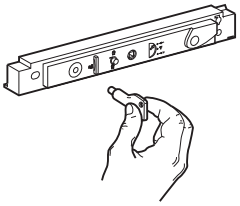


Keylock

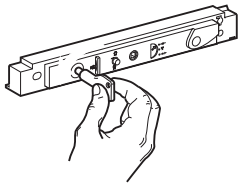
Circuit breaker in "disconnected" position.



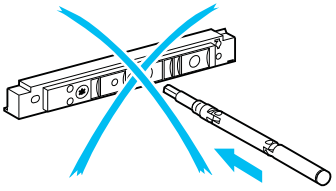
Remove the key(s)



Turn the key(s).



The crank cannot be inserted.



Door interlock catch

Door interlock catch

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

Indication contacts

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

ON/OFF indication contacts (OF)

This type of contacts indicate the ON or OFF position of the circuit breaker:

1. rotary type changeover contacts directly driven by the mechanism for Masterpact MVS. These contacts trip when the minimum isolation distance between the main circuit-breaker contacts is reached.

OF			MVS
Supplied as standard			4
Maximum number			8
Breaking capacity (A)	Standard		Minimum load: 100 mA/24 V
p.f.: 0.3	V AC	240/380	10/6 (1)
AC12/DC12	V DC	125	10/6 (1)

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

"Fault-trip" indication contacts (SDE)

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

1. a red mechanical fault indicator (reset)
2. one changeover contact (SDE).

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

SDE			MVS
Supplied as standard			1
Breaking capacity (A)	Standard		Minimum load: 100 mA/24 V
p.f.: 0.3	V AC	240/380	5
AC12/DC12	V DC	125	0.3

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

"Connected", "disconnected" and "test" position carriage switches

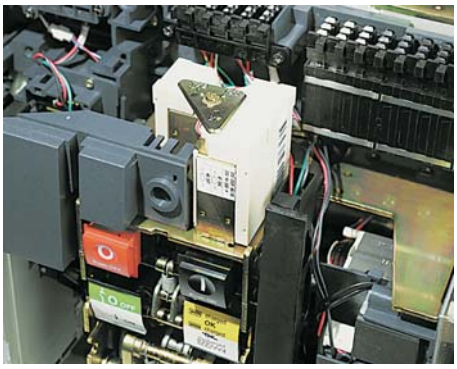
Three series of optional auxiliary contacts are available for the chassis:

1. changeover contacts to indicate the "connected" position (CE)
2. 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
3. changeover contacts to indicate the "test" position (CT). In this position, the power circuits are disconnected and the auxiliary circuits are connected.

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

Remote operation
Remote ON / OFF

a point-to-point solution for remote operation of Masterpact MVS:



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:

1. an electric motor (MCH) equipped with a "spring charged" limit switch contact (CH)
2. two voltage releases:
   a a closing release (XF)
   b an opening release (MX)

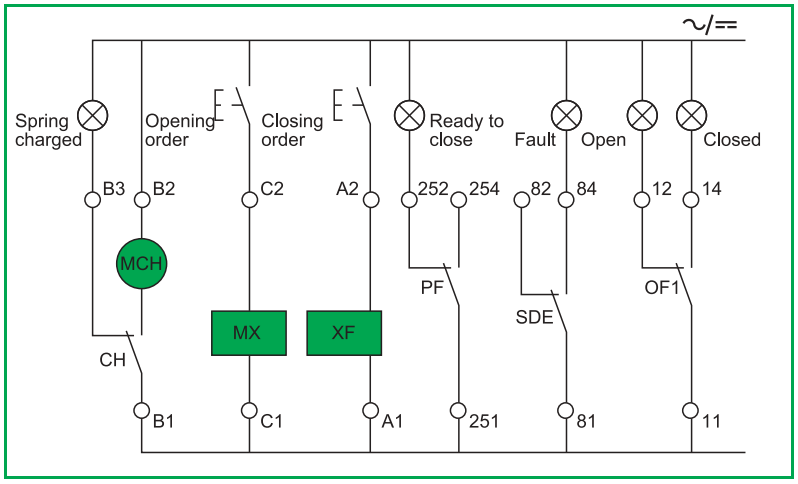
Optionally, other functions may be added:

1. PF ready-to-close contact

A remote-operation function is generally combined with:

1. device ON / OFF indication (OF)
2. "fault-trip" indication (SDE)

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



Remote operation
Remote ON / OFF

Electric motor (MCH) for Masterpact 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 for Masterpact MVS
Operating frequency		maximum 3 cycles per minute
CH contact		10 A at 240 V

XF and MX voltage releases.

Voltage releases (XF and MX)

Closing release (XF)

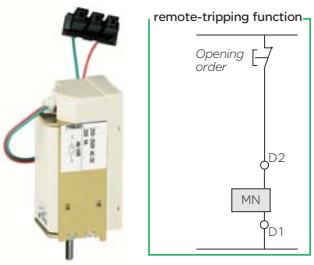
The XF release remotely closes the circuit breaker if the spring mechanism is charged.

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	100/130, 200/250, 380/480	
	V DC	24/30, 48/60, 100/130, 200/250	
Operating threshold	0.85 to 1.1 Un	0.7 to 1.1 Un	
Consumption (VA or W)	Hold: 4.5	Hold: 4.5	
		Pick-up: 200 (200 ms)	Pick-up: 200 (200 ms)
Circuit-breaker response time at Un		70 ms ±10	

Remote operation
Remote ON / OFF

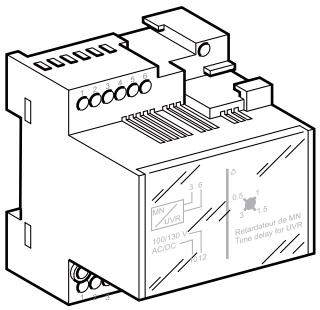


MN Voltage release

Instantaneous voltage releases (MN)

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

Characteristics			
Power supply	V AC 50/60 Hz	100/130, 200/250,380/480	
	V DC	24/30, 48/60	
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
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 V AC 50-60 Hz /DC	Non-adjustable Adjustable	100/130 - 200/250 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	

"Ready to close" contacts (PF).

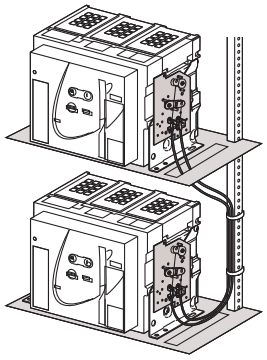
"Ready to close" contact (PF)

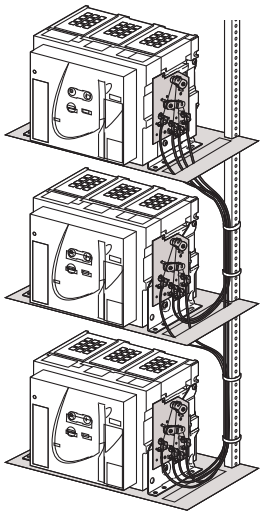
The "ready to close" position of the circuit breaker is indicated by a mechanical indicator and a PF changeover contact. This signal indicates that all the following are valid:

1. the circuit breaker is in the OFF position
2. the spring mechanism is charged
3. a maintained opening order is not present:
   a. MX energised
   b. fault trip
   c. remote tripping (MN)
   d. device not completely racked in
   e. device interlocked with a second device.

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

Mechanical interlocking





Interlocking of two Masterpact MVS or up to three Masterpact MVS devices using cables

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

Interlocking between two devices

This function requires:

1. an adaptation fixture on the right side of each device
2. a set of cables with no-slip adjustments.

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

Interlocking between three devices

This function requires:

1. a specific adaptation fixture for each type of interlocking, installed on the right side of each device
2. two or three sets of cables with no-slip adjustments.

The maximum distance between the fixing planes (vertical or horizontal) is 1000 mm.

Installation

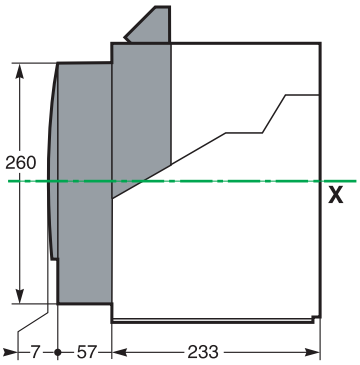
The adaptation fixtures, sets of cables and circuit breakers or switch-disconnectors are supplied separately, ready for assembly by the customer.

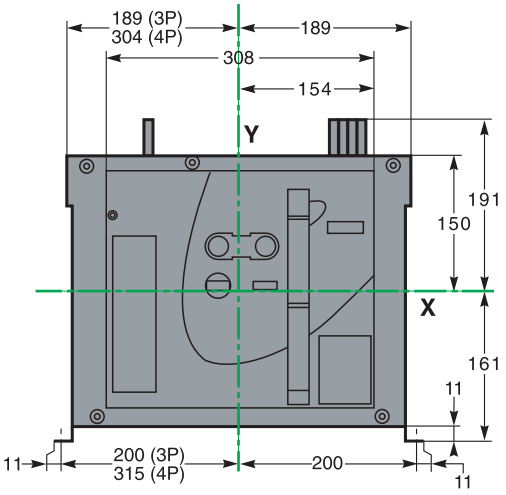
Installation conditions for cable interlocking systems:

1. cable length: 2.5 m
2. radius of curvature: 100 mm
3. maximum number of curves: 3

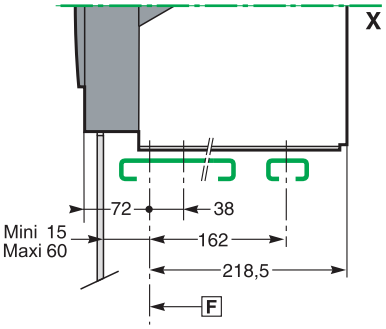
MVS08 to MVS32 circuit breakers
Fixed 3/4-poles device

Dimensions

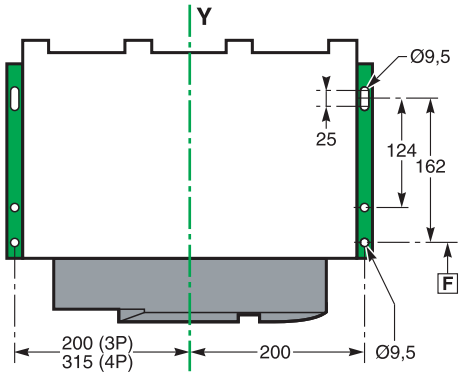




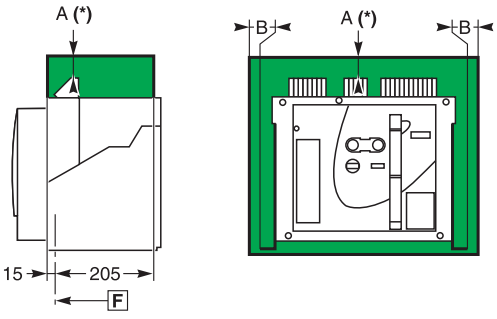
Mounting on base plate or rails



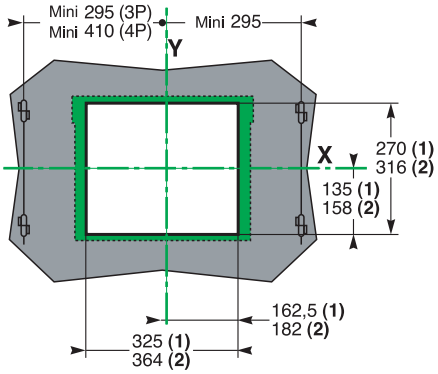
Mounting detail



Safety clearances



Door cutout



	Insulated	Metal	Energised
A	0	0	100
B	0	0	60

(1) Without escutcheon
(2) With escutcheon

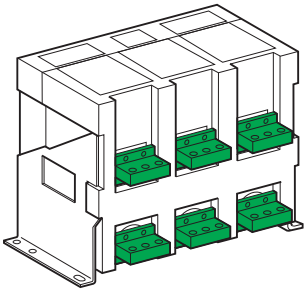
Note: X and Y are the symmetry planes for a 3-pole device
A(*) an overhead clearance of 110 mm is required to remove the arc chutes

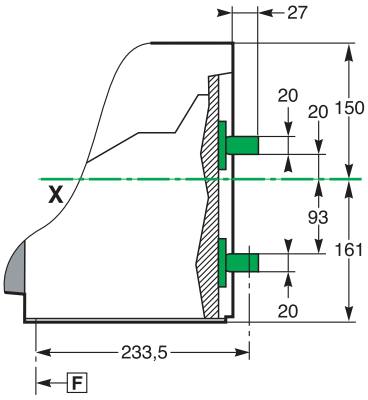
F : *datum.*

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

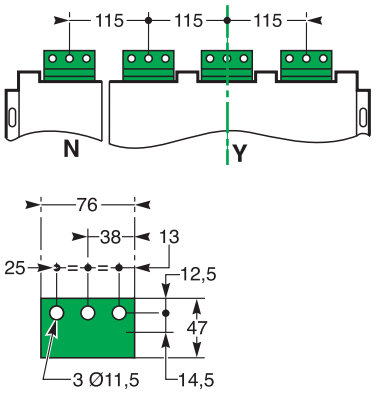
Connections

Horizontal rear connection

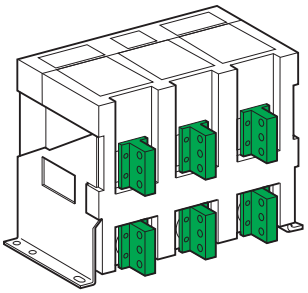


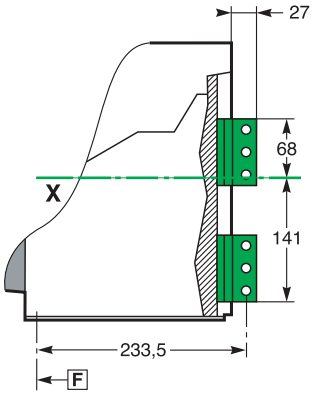


Detail

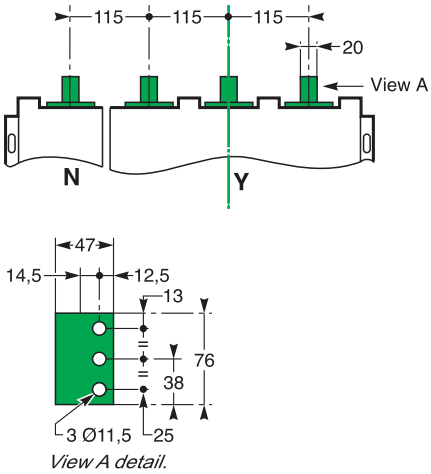


Vertical rear connection





Detail

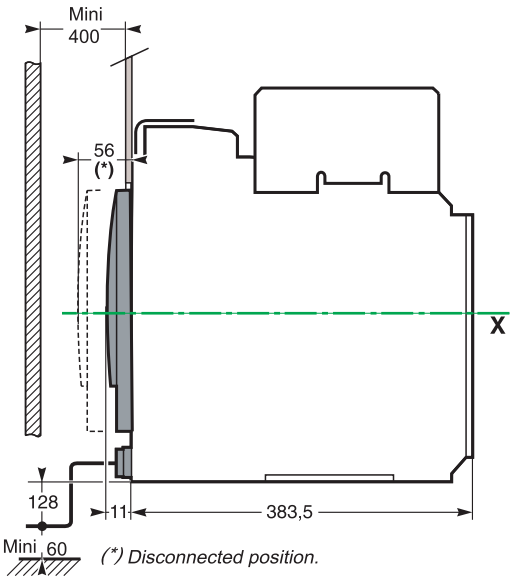


View A detail.

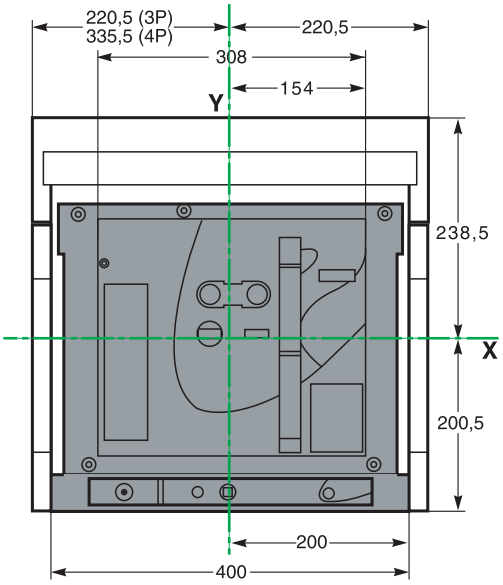
Note: recommended connection screws: M10 class8.8.
Tightening torque: 50 Nm with contact washer

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

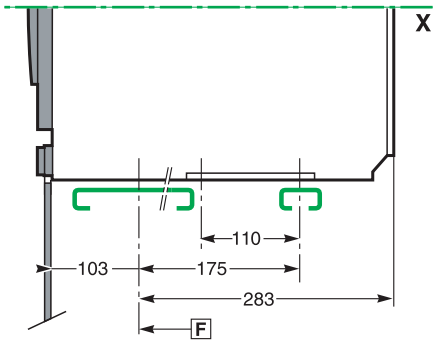
Dimensions



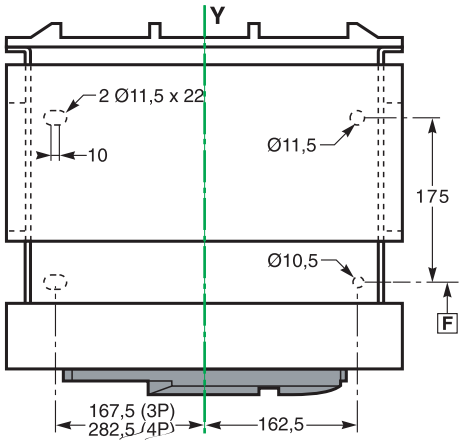
(*) Disconnected position.



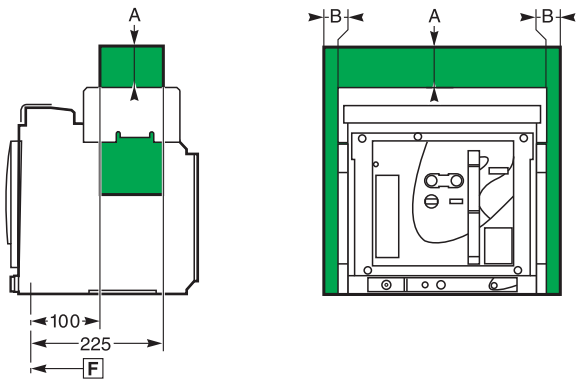
Mounting on base plate or rails



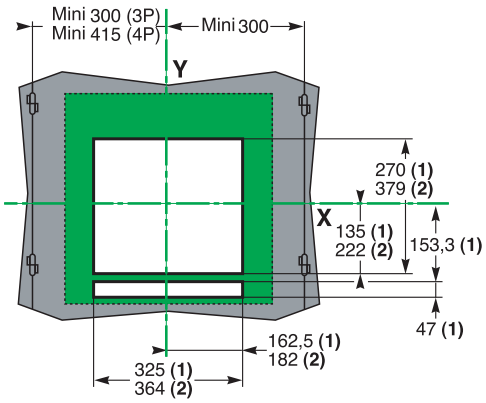
Mounting detail



Safety clearances



Door cutout



	Insulated	Metal	Energised
A	0	0	0
B	0	0	60

F : datum.

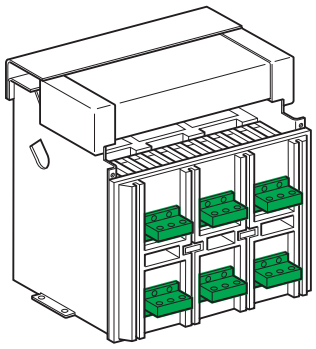
(1) Without escutcheon
(2) With escutcheon

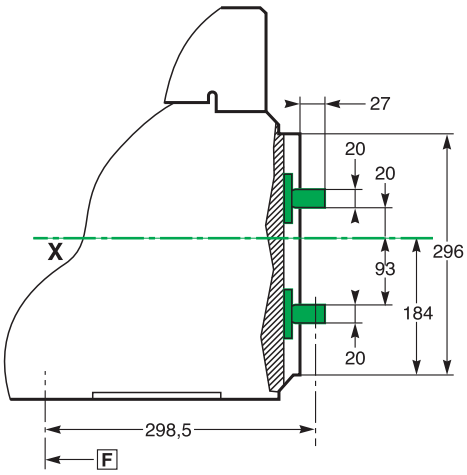
Note: X and Y are the symmetry planes for a 3-pole device

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

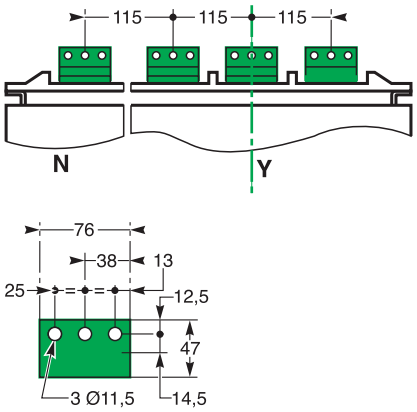
Connections

Horizontal rear connection

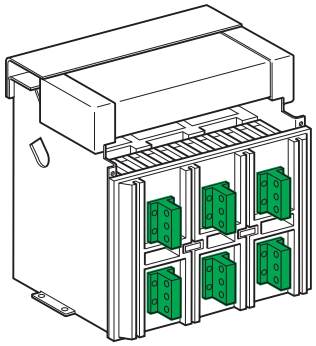


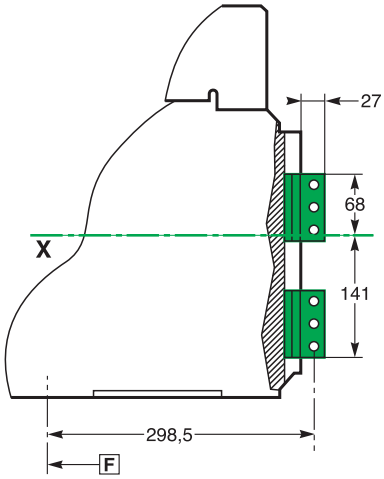


Detail

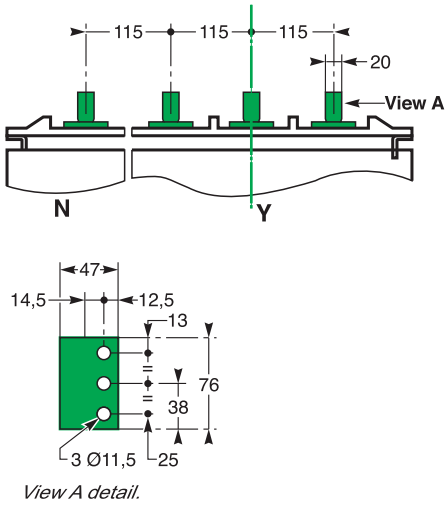


Vertical rear connection





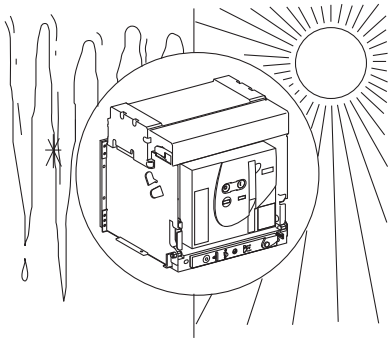
Detail



View A detail.

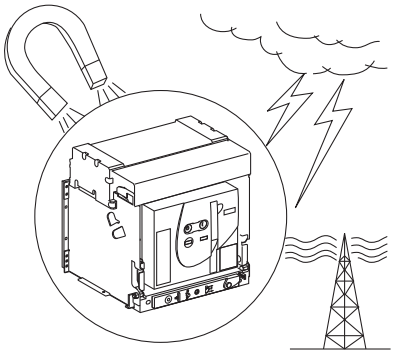
Note: recommended connection screws: M10 class8.8.
Tightening torque: 50 Nm with contact washer.

Operating conditions



Ambient temperature

Masterpact MVS devices can operate under the following temperature conditions:
1. the electrical and mechanical characteristics are stipulated for an ambient temperature of -5° C to +60° C
2. circuit-breaker closing is guaranteed down to -15° C
3. Masterpact MVS (without ET Trip System) can be stored in an ambient temperature of -20° C to +85° C



Electromagnetic disturbances

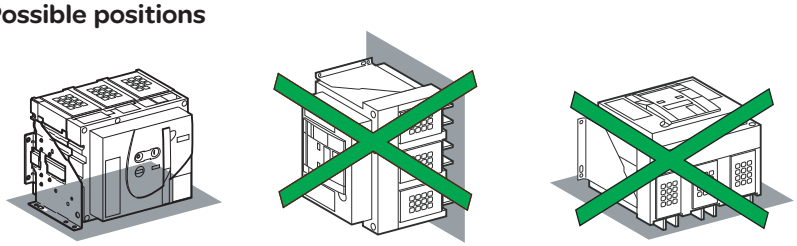
Masterpact MVS devices are protected against:
1. overvoltages caused by devices that generate electromagnetic disturbances
2. overvoltages caused by an atmospheric disturbances or by a distribution-system outage (e.g. failure of a lighting system)
3. devices emitting radio waves (radios, walkie-talkies, radar, etc.)
4. electrostatic discharges produced by users.

Masterpact MVS devices have successfully passed the electromagneticcompatibility tests (EMC) defined by the following international standards:
IEC 60947-2, appendix F

The above tests guarantee that:
1. no nuisance tripping occurs
2. tripping times are respected.

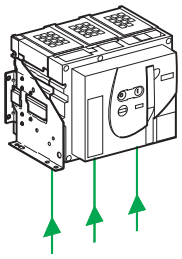
Installation in switchboard

Possible positions



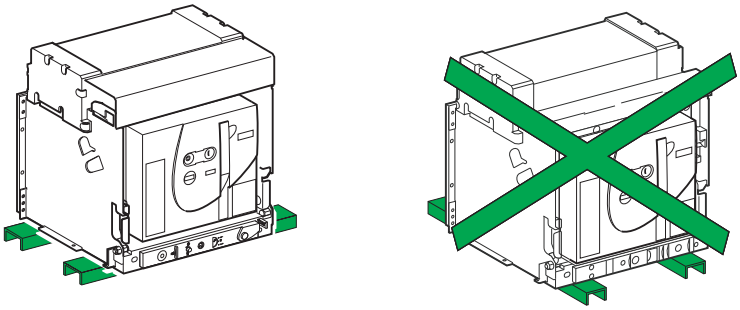
Power supply

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



Mounting the circuit-breaker

It is important to distribute the weight of the device uniformly over a rigid mounting surface such as rails or a base plate.
This mounting plane should be perfectly flat (tolerance on support flatness: 2 mm). This eliminates any risk of deformation which could interfere with correct operation of the circuit breaker.

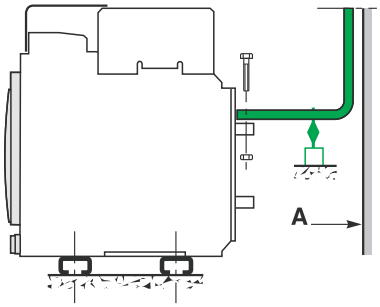


Mounting on rails.

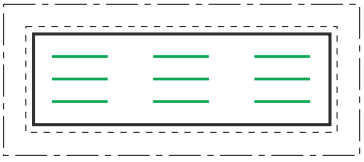
Installation in switchboard

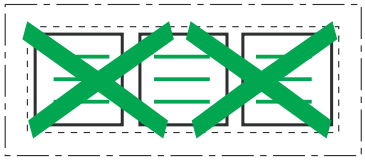
Partitions

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 non magnetic material.



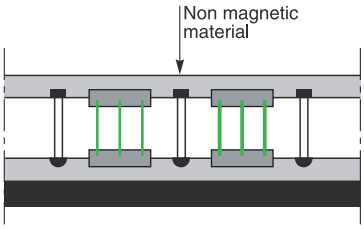
A: non magnetic material.





Busbars

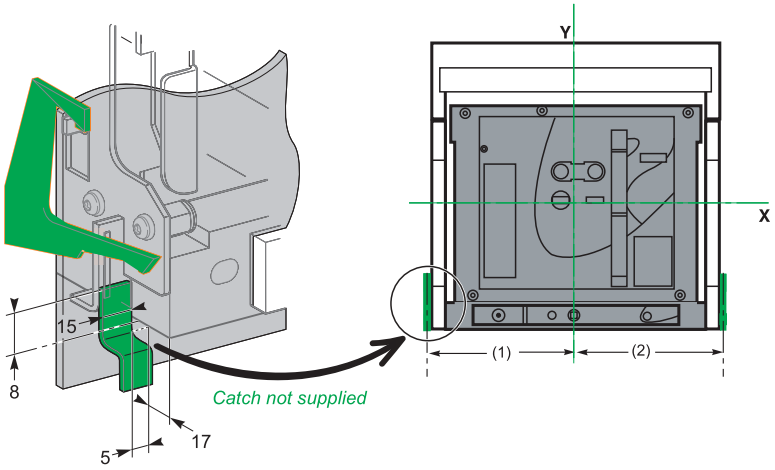
The mechanical connection must be exclude the possibility of formation of a magnetic loop around a conductor.



Door interlock catch

Door interlock

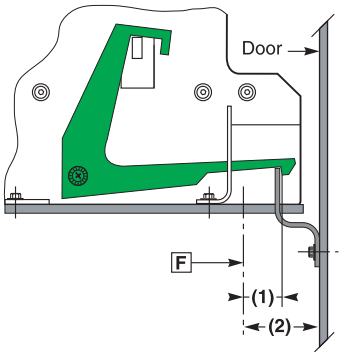
Mounted on the right hand side of the chassis, this device inhibits opening of the cubicle door when the circuit breaker is in "connected" or "test" position.
If the breaker is put in the "connected" position with the door open, the door may be closed without having to disconnect the circuit breaker.



Dimensions (mm)

Type	(1)	(2)
MVS08-32 (3P)	215	215
MVS08-32 (4P)	330	215

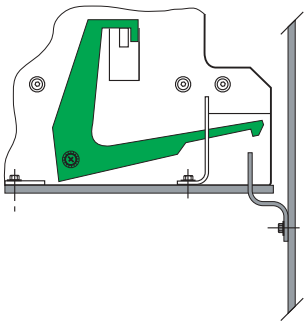
Breaker in "connected" or "test" position
Door cannot be opened



Dimensions (mm)

Type	(1)	(2)
MVS	83	103

Breaker in "disconnected" position
Door can be opened



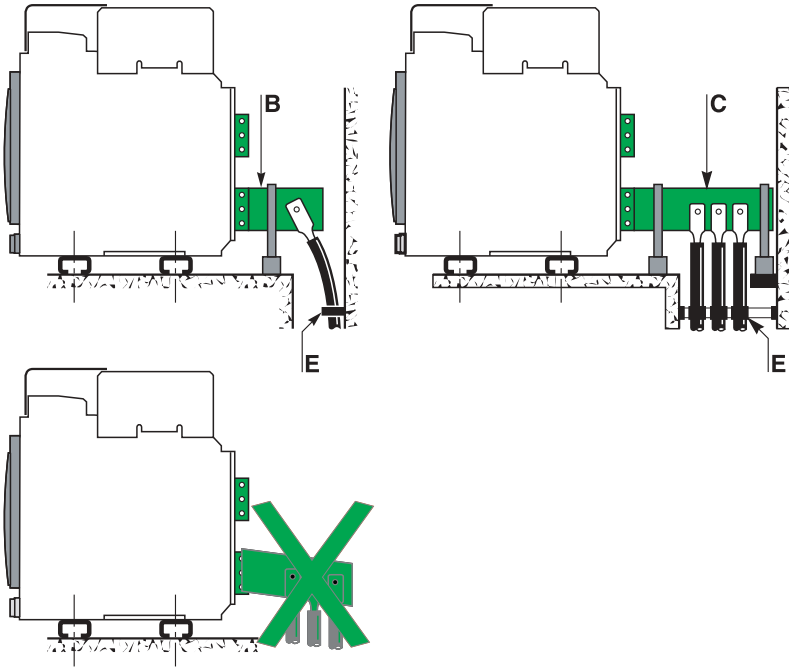
Note: the door interlock can be mounted on the right side of the breaker.
F : datum.

Power connection

Cables connections

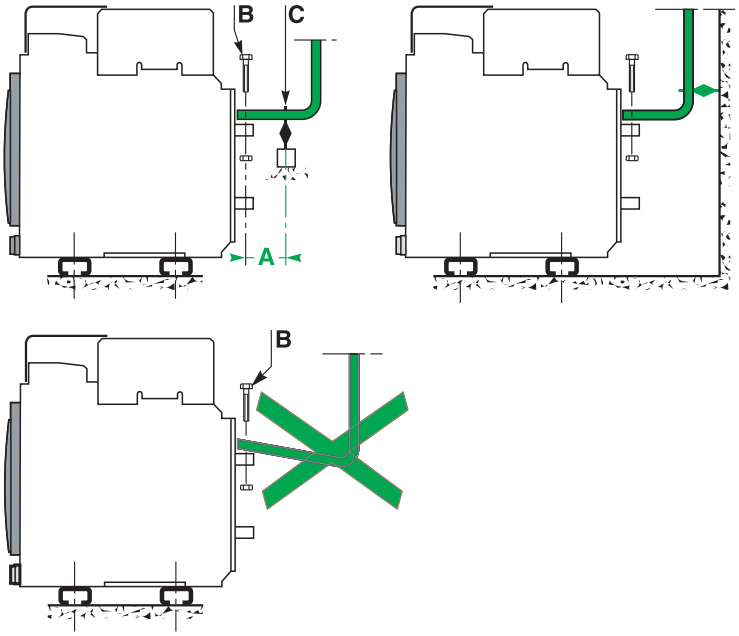
If cables are used for the power connections, make sure that they do not apply excessive mechanical forces to the circuit breaker terminals.
For this, make the connections as follows:

1. extend the circuit breaker terminals using short bars designed and installed according to the recommendations for bar-type power connections:
   a. for a single cable, use solution B opposite
   b. for multiple cables, use solution C opposite
2. in all cases, follow the general rules for connections to busbars:
   a. position the cable lugs before inserting the bolts
   b. 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).



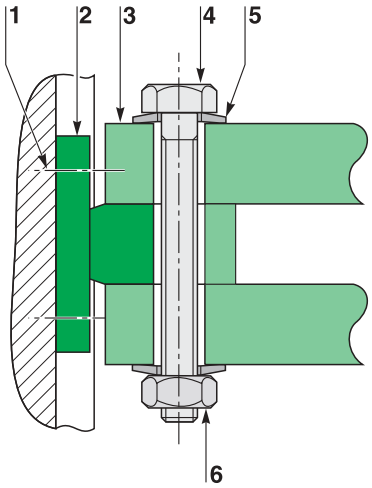
Electrodynamic stresses

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.

Ics (kA)	50
Distance A (mm)	300

Power connection

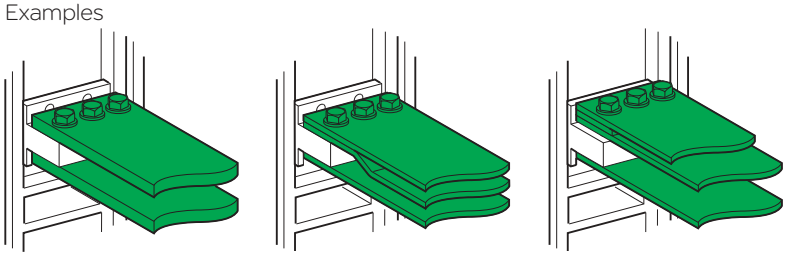


1. Terminal screw factory-tightened to 16 Nm.
2. Breaker terminal.
3. Busbar.
4. Bolt.
5. Washer.
6. Nut.

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

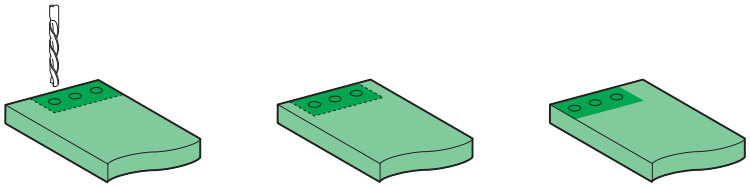


Tightening torques

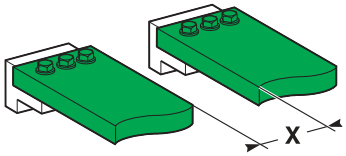
Ø (mm) Nominal	Ø (mm) Drilling	Tightening torques (Nm) with grower or flat washers	Tightening torques (Nm) with contact or corrugatec washers
10	11	37.5	50

Busbar drilling

Examples



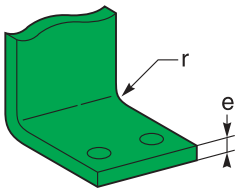
Isolation distance



Dimensions (mm)

Ui	X (min)
600 V	8 mm
1000 V	14 mm

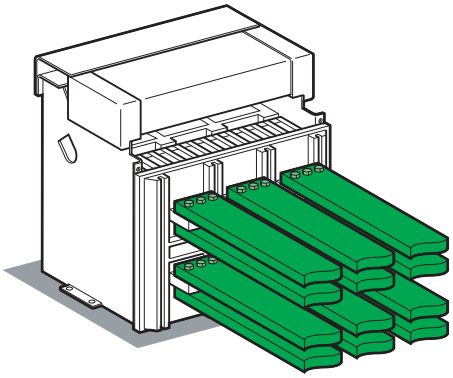
Busbar bending
When bending busbars maintain the radius indicated below(a smaller radius would cause cracks).



Dimensions (mm)

e	Radius of curvature r (min)	Recommended
5	5	7.5
10	15	18 to 20

Busbar sizing



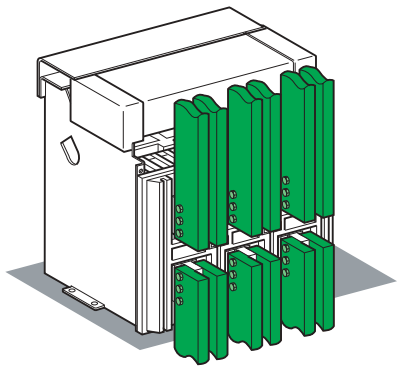
Basis of tables

- maximum permissible busbars temperature : 100°C
- Ti = temperature around the circuit breaker and its connection : 40°C
- busbar material is unpainted Copper/ Aluminium

Rear horizontal connection

Masterpact MVS N/NA	Maximum service Current	Calculation	
		Unpainted Copper - Ti : 40°C	Unpainted Aluminium - Ti : 40°C
MVS08	800 A	2b50*5	2b50*5
MVS10	1000 A	2b50*5	2b50*8
MVS12	1250 A	3b50*5	2b63*12
MVS16	1600 A	3b80*5	3b63*12
MVS20	2000 A	3b100*5	3b100*10
MVS25	2500 A	4b100*5	4b100*10
MVS32	3200 A	6b100*5	6b100*10

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



Basis of tables

- maximum permissible busbars temperature : 100°C
- Ti = temperature around the circuit breaker and its connection : 40°C
- busbar material is unpainted Copper/ Aluminium

Rear vertical connection

Masterpact MVS N/NA	Maximum service Current	Calculation	
		Unpainted Copper - Ti : 40°C	Unpainted Aluminium - Ti : 40°C
MVS08	800 A	2b50*5	2b50*5
MVS10	1000 A	2b50*5	2b50*8
MVS12	1250 A	2b63*5	2b63*12
MVS16	1600 A	3b63*5	4b50*10
MVS20	2000 A	3b100*5	3b80*10
MVS25	2500 A	4b100*5	3b100*10
MVS32	3200 A	6b100*5	4b100*12

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.

Use of proper spacers between parallel busbars is recommended.

Temperature derating Power dissipation and input / output resistance

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. Circuit breakers with mixed connections have the same derating as horizontally connected breakers.
Ti: temperature around the circuit breaker and its connection.

Version	Drawout										Fixed									
Connection	Front or rear horizontal					Rear vertical					Front or rear horizontal					Rear vertical				
Temp. Ti	40	45	50	55	60	40	45	50	55	60	40	45	50	55	60	40	45	50	55	60
MVS08 N	800					800					800					800				
MVS10 N	1000					1000					1000					1000				
MVS12 N	1250					1250					1250					1250				
MVS16 N	1600					1600					1600					1600				
MVS20 N	2000			1980	1890	2000					2000				1920	2000				
MVS25 N	2500					2500					2500					2500				
MVS32 N	3200		3100	3000	2900	3200					3200					3200				

Power dissipation and input / output resistance

Total power dissipation is the value measured at In, 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).

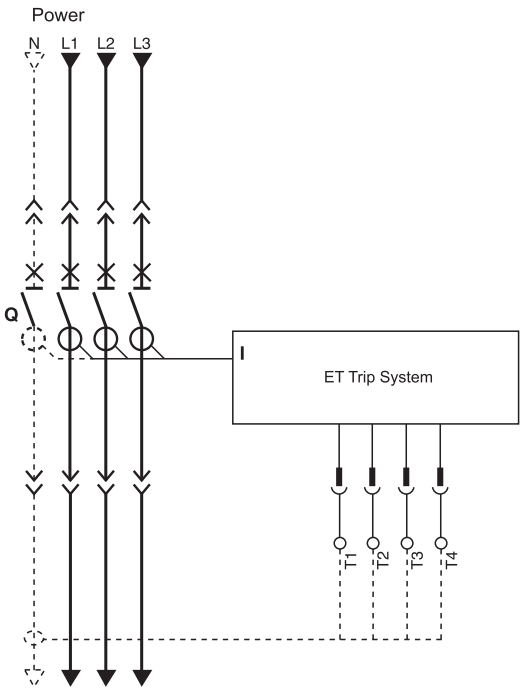
Version	Drawout		Fixed	
	Power dissipation (Watts)	Input/output resistance (µohm)	Power dissipation (Watts)	Input/output resistance (µohm)
MVS08 N	100	30	42	13
MVS10 N	150	30	70	13
MVS12 N	230	27	100	13
MVS16 N	390	27	170	13
MVS 20 N	470	27	250	13
MVS25 N	600	19	260	8
MVS32 N	670	13	420	8

Electrical diagrams

Masterpact MVS
Fixed and drawout devices

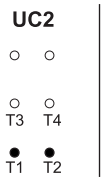
The diagram is shown with circuit deenergised,all devices open,connected and charged and relays in normal position

Power



Terminal block marking

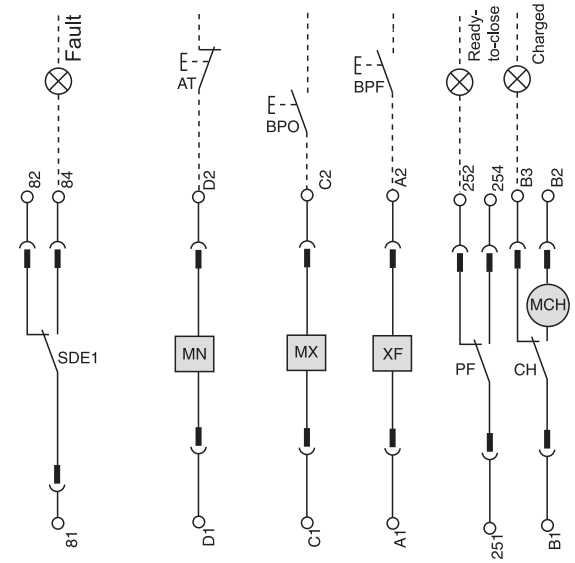
Trip System



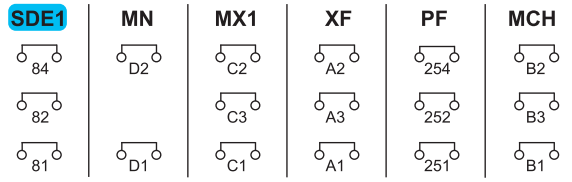
Trip System

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

Remote operation



Remote operation

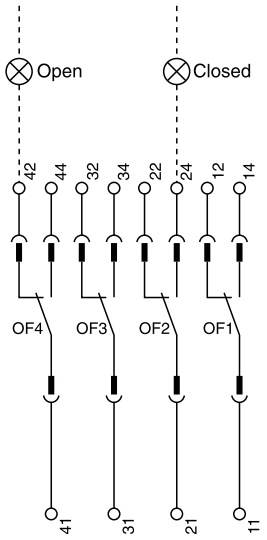


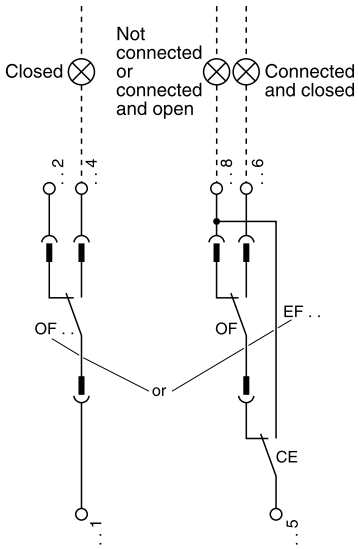
Remote operation

SDE1 : fault-trip indication contact (supplied as standard)
MN : undervoltage release
MX1 : shunt release
XF : closing release
PF : ready-to-close contact
MCH : electric motor

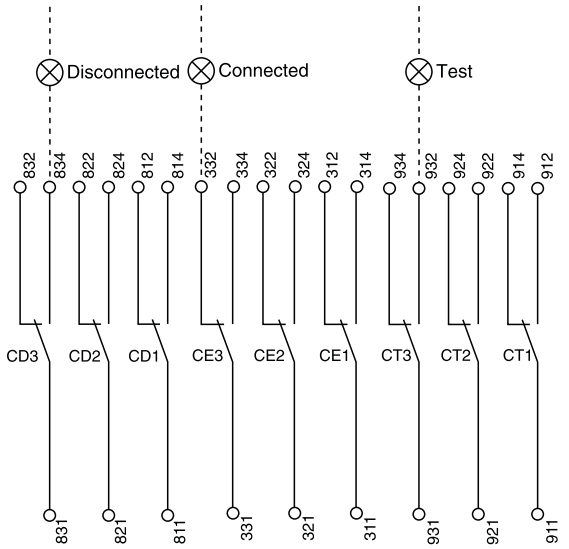
Masterpact MVS
Fixed and drawout devices

Indication contacts





Chassis contacts



Indication contacts

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

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

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

Indication contacts

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

OF 14 ON/OFF indication contacts
OF 13 Combined "connected/closed" indication contacts
OF 12 indication contacts
OF 11

Chassis contacts

CD3: Disconnected position
CD2 position
CD1 position

CE3 : Connected position
CE2 position
CE1 position

CT3: Test position
CT2 position
CT1 position

Key:

optional

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

Interconnected connections
(only one wire per connection point)

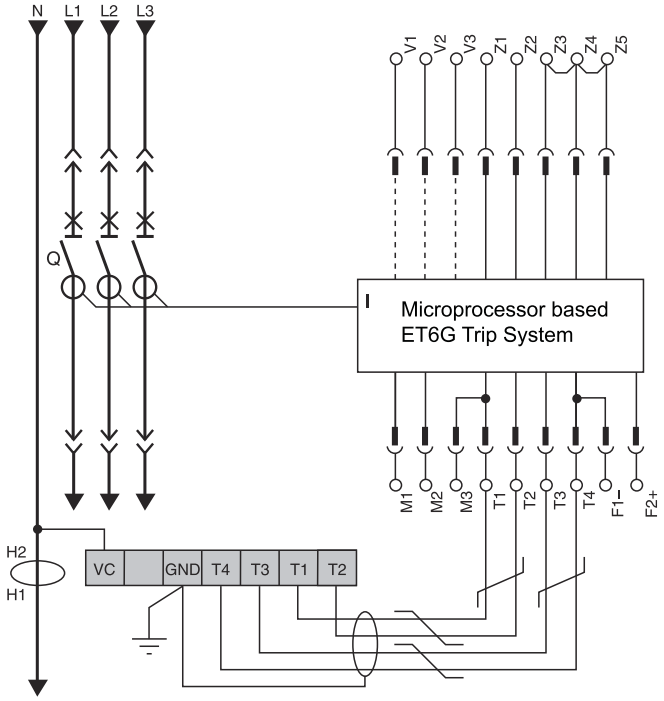
Masterpact MVS
Earth-fault protection
Neutral protection

External sensor (CT) for residual earth-fault protection

Connection of current-transformer secondary circuit for external neutral

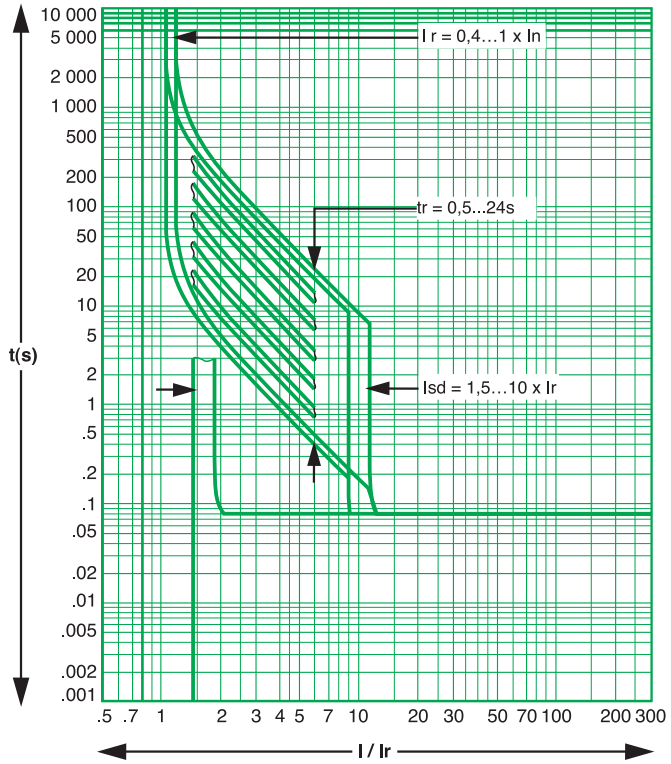
Masterpact equipped with a ET6G Trip System:

1. shielded cable with 2 twisted pairs
2. T1 twisted with T2
3. T3 twisted with T4
4. shielding connected to GND on one end only
5. maximum length 10 meters
6. cable cross-sectional area 0.4 to 1.5 mm^2
7. recommended cable: Belden 9552 or equivalent.
   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 c onnected 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.

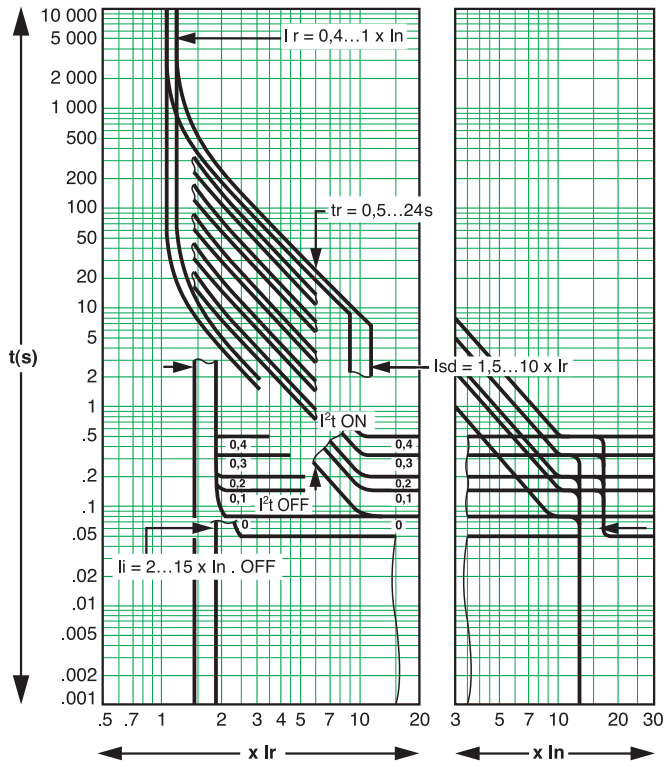


Tripping curves

Long time & Instantaneous protection (ET2I Trip System)

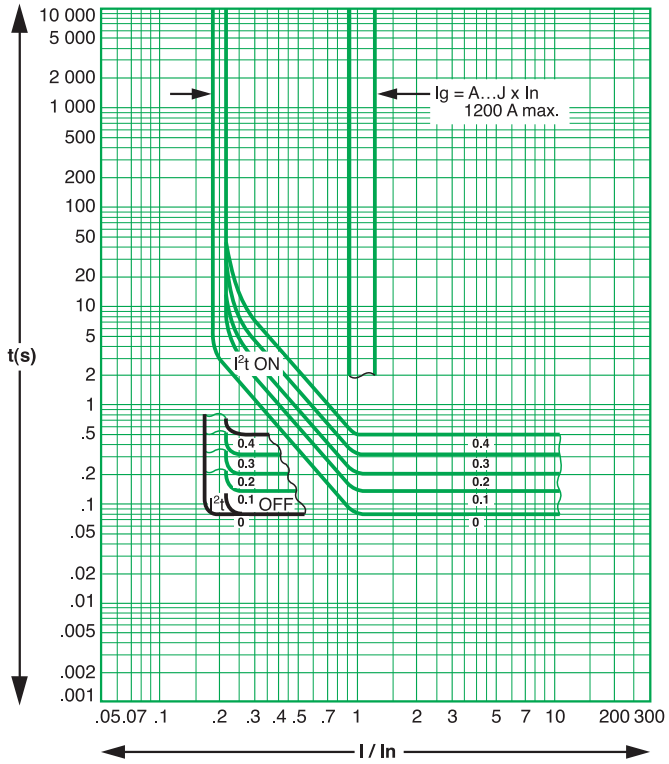


Long time, Short time & Instantaneous protection (ET5S/6G Trip System)



Tripping curves

Earth fault protection (ET6G Trip System)



Ig = In x...	A	B	C	D	E	F	G	H	J
In ⩽ 1 200A (... x In)	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
In > 1 200A (A)	500	640	720	800	880	960	1040	1120	1200

Selection guide and reference numbers

Masterpact MVS Selection guide

	Range	Current Rating	Type	Pole	Installation	Protection	
	Masterpact MVS (from 800 to 3200A) Icu=Ics=Icw (1 sec)=50kA						
	MVS	08 10 12 16 20 25 32	N NA	3P 4P	MF EF MW EW	2I 6G D	
Digits used:	3	2	1or2	2	2	1or2	12 digit reference no.

Protections offered

2I	LI
6G	LSIG
D	No Protection for Switch

Installation Type

M	Manually Operated ACB/SD
E	Electrical Operated ACB/SD
F	Fixed type ACB/SD
W	draw-out type ACB/SD

Number of Poles

3P	3 Poles
4P	4 Poles

Breaker/ Swich Disconnector

N	Circuit Breaker with Micro processor based ET trip system Icu=Ics=Icw(1sec)=50kA
NA	Switch disconnector without Protection Icu=Ics=Icw(1sec)=50kA

Current Rating

08	800 Amps
10	1000Amps
12	1250Amps
16	1600Amps
20	2000Amps
25	2500Amps
32	3200Amps

example 1 MVS 32 N 4P EW 6G

MVS	32	N	4P	EW	6G
Masterpact MVS	3200A	Breaker 50kA	4 Pole	Electrical operated draw-out type	ET trip system 6G (LSIG)

example 2 MVS 16 NA 3P MW D

MVS	16	NA	3P	MW	D
Masterpact MVS	1600A	Switch 50kA	3 Pole	Manual operated draw-out type	Switch disconnector without protection

Selection guide and reference numbers

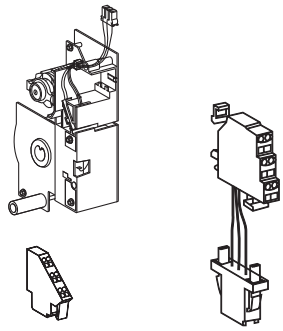
Choose your Masterpact MVS 800 to 3200A

Type	Rated Current	Air Circuit Breakers				Switch Disconnectors	
		3 Pole		4 Pole		3 Pole	4 Pole
		LI Protections	LSIG Protections	LI Protections	LSIG Protections	without Protections	without Protections
Manual Fixed	800A	MVS08N3PMF2I	MVS08N3PMF6G	MVS08N4PMF2I	MVS08N4PMF6G	MVS08NA3PMFD	MVS08NA4PMFD
	1000A	MVS10N3PMF2I	MVS10N3PMF6G	MVS10N4PMF2I	MVS10N4PMF6G	MVS10NA3PMFD	MVS10NA4PMFD
	1250A	MVS12N3PMF2I	MVS12N3PMF6G	MVS12N4PMF2I	MVS12N4PMF6G	MVS12NA3PMFD	MVS12NA4PMFD
	1600A	MVS16N3PMF2I	MVS16N3PMF6G	MVS16N4PMF2I	MVS16N4PMF6G	MVS16NA3PMFD	MVS16NA4PMFD
	2000A	MVS20N3PMF2I	MVS20N3PMF6G	MVS20N4PMF2I	MVS20N4PMF6G	MVS20NA3PMFD	MVS20NA4PMFD
	2500A	MVS25N3PMF2I	MVS25N3PMF6G	MVS25N4PMF2I	MVS25N4PMF6G	MVS25NA3PMFD	MVS25NA4PMFD
	3200A	MVS32N3PMF2I	MVS32N3PMF6G	MVS32N4PMF2I	MVS32N4PMF6G	MVS32NA3PMFD	MVS42NA4PMFD
Electrical Fixed	800A	MVS08N3PEF2I	MVS08N3PEF6G	MVS08N4PEF2I	MVS08N4PEF6G	MVS08NA3PEFD	MVS08NA4PEFD
	1000A	MVS10N3PEF2I	MVS10N3PEF6G	MVS10N4PEF2I	MVS10N4PEF6G	MVS10NA3PEFD	MVS10NA4PEFD
	1250A	MVS12N3PEF2I	MVS12N3PEF6G	MVS12N4PEF2I	MVS12N4PEF6G	MVS12NA3PEFD	MVS12NA4PEFD
	1600A	MVS16N3PEF2I	MVS16N3PEF6G	MVS16N4PEF2I	MVS16N4PEF6G	MVS16NA3PEFD	MVS16NA4PEFD
	2000A	MVS20N3PEF2I	MVS20N3PEF6G	MVS20N4PEF2I	MVS20N4PEF6G	MVS20NA3PEFD	MVS20NA4PEFD
	2500A	MVS25N3PEF2I	MVS25N3PEF6G	MVS25N4PEF2I	MVS25N4PEF6G	MVS25NA3PEFD	MVS25NA4PEFD
	3200A	MVS32N3PEF2I	MVS32N3PEF6G	MVS32N4PEF2I	MVS32N4PEF6G	MVS32NA3PEFD	MVS42NA4PEFD
Manual Drawout	800A	MVS08N3PMW2I	MVS08N3PMW6G	MVS08N4PMW2I	MVS08N4PMW6G	MVS08NA3PMWD	MVS08NA4PMWD
	1000A	MVS10N3PMW2I	MVS10N3PMW6G	MVS10N4PMW2I	MVS10N4PMW6G	MVS10NA3PMWD	MVS10NA4PMWD
	1250A	MVS12N3PMW2I	MVS12N3PMW6G	MVS12N4PMW2I	MVS12N4PMW6G	MVS12NA3PMWD	MVS12NA4PMWD
	1600A	MVS16N3PMW2I	MVS16N3PMW6G	MVS16N4PMW2I	MVS16N4PMW6G	MVS16NA3PMWD	MVS16NA4PMWD
	2000A	MVS20N3PMW2I	MVS20N3PMW6G	MVS20N4PMW2I	MVS20N4PMW6G	MVS20NA3PMWD	MVS20NA4PMWD
	2500A	MVS25N3PMW2I	MVS25N3PMW6G	MVS25N4PMW2I	MVS25N4PMW6G	MVS25NA3PMWD	MVS25NA4PMWD
	3200A	MVS32N3PMW2I	MVS32N3PMW6G	MVS32N4PMW2I	MVS32N4PMW6G	MVS32NA3PMWD	MVS42NA4PMWD
Electrical Drawout	800A	MVS08N3PEW2I	MVS08N3PEW6G	MVS08N4PEW2I	MVS08N4PEW6G	MVS08NA3PEWD	MVS08NA4PEWD
	1000A	MVS10N3PEW2I	MVS10N3PEW6G	MVS10N4PEW2I	MVS10N4PEW6G	MVS10NA3PEWD	MVS10NA4PEWD
	1250A	MVS12N3PEW2I	MVS12N3PEW6G	MVS12N4PEW2I	MVS12N4PEW6G	MVS12NA3PEWD	MVS12NA4PEWD
	1600A	MVS16N3PEW2I	MVS16N3PEW6G	MVS16N4PEW2I	MVS16N4PEW6G	MVS16NA3PEWD	MVS16NA4PEWD
	2000A	MVS20N3PEW2I	MVS20N3PEW6G	MVS20N4PEW2I	MVS20N4PEW6G	MVS20NA3PEWD	MVS20NA4PEWD
	2500A	MVS25N3PEW2I	MVS25N3PEW6G	MVS25N4PEW2I	MVS25N4PEW6G	MVS25NA3PEWD	MVS25NA4PEWD
	3200A	MVS32N3PEW2I	MVS32N3PEW6G	MVS32N4PEW2I	MVS32N4PEW6G	MVS32NA3PEWD	MVS42NA4PEWD

Masterpact MVS accessories

Remote operation

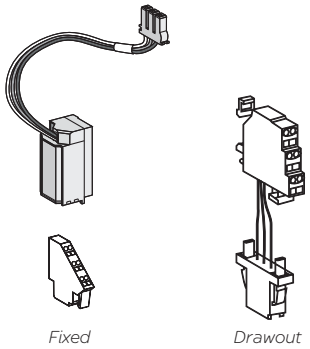
Gear Motor



MCH (1 part)

AC 50/60 Hz	100/130 V	**47893**
	200/240 V	**47894**
	380/415 V	**47896**
DC	24/30 V	**47888**
	48/60 V	**47889**
	100/125 V	**47890**
	200/250 V	**47891**
Terminal block (1 part)	For fixed circuit breaker	**47074**
	For drawout circuit breaker	**47849**
Installation manual		**47951**

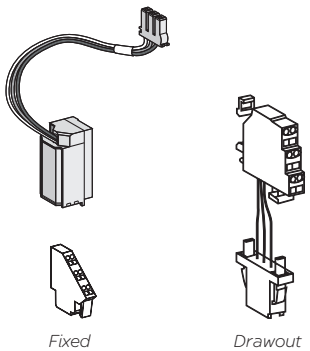
Closing and opening release (XF or MX)



Standard coil (1 part)

AC 50/60 Hz	"24 V AC, 24/30 V DC"	**33659**
DC	" 48 V AC, 48/60 V DC"	**33660**
	100/130 V AC/DC	**33661**
	200/250 V AC/DC	**33662**
	380/480 V AC	**33664**
Terminal block (1 part)	For fixed circuit breaker	**47074**
	For drawout circuit breaker	**47849**
Installation manual		**47951**

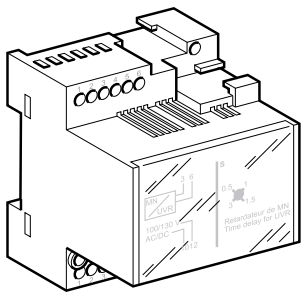
Undervoltage release MN



Undervoltage release (1 part)

AC 50/60 Hz	"24 V AC, 24/30 V DC"	**33668**
DC	" 48 V AC, 48/60 V DC"	**33669**
	100/130 V AC	**33670**
	200/250 V AC	**33671**
	380/480 V AC	**33673**
Terminal block (1 part)	For fixed circuit breaker	**47074**
	For drawout circuit breaker	**47849**
Installation manual		**47951**

MN delay unit



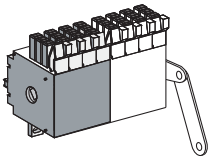
MN delay unit (1 part)

	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			**47951**

Masterpact MVS accessories

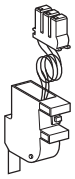
Indication Contacts

ON/OFF Indication Contacts (Additional OF contact)



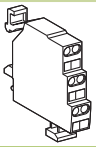
1 additional block of 4 contacts		64922
Wiring	For fixed circuit breaker	47074
	For drawout circuit breaker	47849
Installation manual		47951

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



		PF
1 changeover contact (5 A - 240 V)		47080
Wiring	For fixed circuit breaker	47074
	For drawout circuit breaker	47849
Installation manual		47951

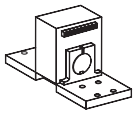
Connected, disconnected, test position indication contact (carriage switches) / 1 part



Changeover contacts CE,CD,CT	6 A - 240 V	33170
Installation manual		47952

External sensors

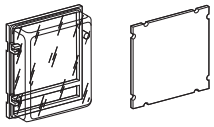
External sensor for earth-fault protection (TCE) / 1 part



Sensor rating	MVS08-MVS20	400/2000 A	34035
	MVS25-MVS32	1000/3200 A	34036

Device Mechanical accessories

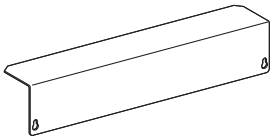
Transparent cover and accessories / 1 part



	Fixed	Drawout
Transparent cover (IP 54)		48604
Escutcheon blanking plate	48605	48605
Installation manual		47951

Chassis accessories

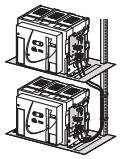
Auxiliary terminal shield (CB) / 1 part



800/3200 A	3P	64942
	4P	48596
Installation manual		47952

Mechanical interlocking for source changeover

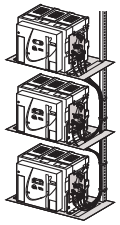
Interlocking of 2 devices using cables (1)



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

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

Interlocking of 3 devices using cables



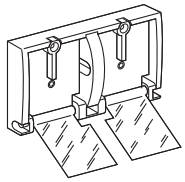
Choose 3 adaptation (inclusing 3 adaptation fixtures + cables)	
3 sources, only 1 device closed, fixed or drawout devices	48610
2 sources + 1 coupling, fixed or drawout devices	48609
2 normal + 1 replacement source, fixed or drawout devices	48608

Note: For mounting procedure, kindly refer to user manual/ installation manual.

Masterpact MVS accessories

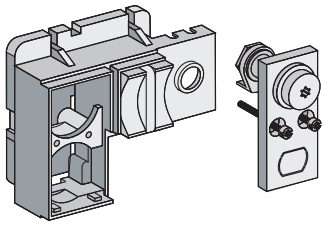
Circuit breaker locking

Push button locking device / 1 part



By padlocks		48536
Installation manual		47951

OFF position locking (VSPO) / 1 part - Order customised front cover along with VSPO key lock

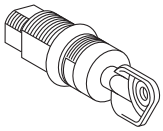


By Profalux keylocks (without adaptation kit)

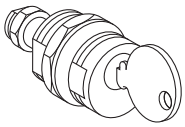
Profalux	1 lock with 1 key	42888
	2 locks 1 key	42878

By Ronis keylocks (without adaptation kit)

Ronis	1 lock with 1 key	41940
	locks 1 key	41950



PROFALUX



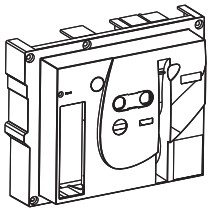
RONIS

Adaptation kit (without keylock)

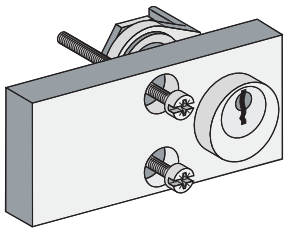
Adaptation kit Profalux / Ronis	64991
Installation manual	47951

Customised front cover for key lock option

Front cover	64992



"Disconnected" position locking (VSPD) / 1 part

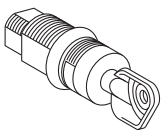


By Profalux keylocks (without adaptation kit)

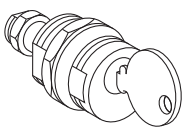
Profalux	1 lock with 1 key	42888
	2 locks 1 key	42878

By Ronis keylocks (without adaptation kit)

Ronis	1 lock with 1 key	
	2 locks 1 key	41950



PROFALUX

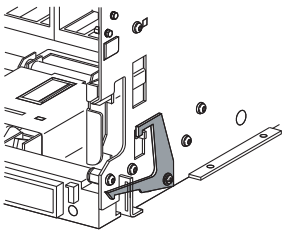


RONIS

Adaptation kit (without keylock)

Adaptation kit Profalux / Ronis	48564
Installation manual	47951

Door interlock (VPECD) / 1 part



On Right hand side of chassis	47914
Installation manual	47952

Order form

Order ref no:

Date:

Product ref no:

Masterpact MVS Circuit breaker and Switch-disconnectors

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 / Switch Disconnector	**N/ NA**	
Number of poles	**3 or 4**	
Type of equipment	Fixed	☐
	Drawout with chassis	☐
	Drawout without chassis (moving part only)	☐
	Chassis alone	☐
Operating Mechanism	**Manual operated**	☐
	Electrical operated	☐
MCH - Gear Motor	**V**	
XF - Closing voltage release	**V**	
MX - Shunt/opening voltage release	**V**	

ET Trip System

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)	☐
LR	- long-time rating plug — Standard 0.4 to 1 Ir	

Connection

Horizontal	**Top**	☐	**Bottom**	☐
Vertical	**Top**	☐	**Bottom**	☐

Indication contacts

OF - ON/OFF indication contacts

Standard	1 block of 4 OF	10 A-240/380V AC	
Additional	1 block of 4 OF	6 A-240/380V AC	☐

SDE - "fault-trip" indication contact

Standard	1 SDE	5A -240/380V AC	

Optionals

Carriage switches		8 A-240/380V AC	
CE - "connected" position	Max. 3	qty	
CD - "disconnected" position	Max. 3	qty	
CT - "test" 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	☐
TCE - external sensor (CT) fro neutral of 3 Phase- 4 Wire systems		400/2000A	☐
TCE - external sensor (CT) fro neutral of 3 Phase- 4 Wire systems		1000/3200A	☐
PF - "Ready to close" contact		5 A-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)

Choose "Customised front cover" while selecting VSPO "Key lock" option.

	Customised front cover for key lock option				☐
	Key lock kit (w/o key lock)	Profalux	☐	Ronis	☐
	1 key lock	Profalux	☐	Ronis	☐
	2 identical key locks, 1 key	Profalux	☐	Ronis	☐
Chassis locking in "Disconnected" position:					
VSPD - by key locks	Key lock kit (w/o key lock)	Profalux	☐	Ronis	☐
	1 key lock	Profalux	☐	Ronis	☐
	2 identical key locks, 1 key	Profalux	☐	Ronis	☐

Chassis locking in any CE/CT/CD position-Lock modification

Locking in connected/disconnected/test position lock ☐

Door Interlock

VPECD - Door interlock — On right-hand side of chassis ☐

Accessories

VO - Safety shutters on chassis	**Supplied as Standard**
CDP - Escutcheon	**Supplied as Standard**
CP - Transparent cover for escutcheon	☐
OP - Blanking plate for escutcheon	☐
CB - Auxiliary terminal shield fitted on chassis	☐
HHTK - Hand held test kit	☐

Notes:

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

All breakers/switches will be supplied with Escutcheon as standard.

For Electrical operated breakers/switches, voltage ratings of MCH, XF & MX to be filled in:

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

Masterpact MVS range of ACBs are complimented by Compact CVS range of MCCBs

• Compact CVS is packed with world class features and designed especially to meet technical & commercial needs of customers

Compact CVS 100-800A

16 to 630A in 3/ 4 pole versions

- Conforms to IS/IEC 60947-1 & 2
- Breaking Capacities: 25kA (16-250A), 36kA (16A-630A), 50kA (400&630A)
- Complete range with Service breaking capacity, Ics=100% Ultimate breaking capacity, Icu
- Two frame sizes for complete range helps is faster design & delivery of distribution systems
- Thermal magnetic trip units (up to 250A) & electronic trip units (400& 630A)
- Fault current limitation technology helps to reduce the thermal stresses & thus increases the life of cables and installation
- Front accessible common snap fit auxiliaries simplifies the installation procedures & reduces inventory costs
- Suitability for Isolation ensures that the circuit is isolated from the remainder of the system thus the personnel carry out work with complete safety
- Class 2 front face reinforces safety with unique modular construction where the auxiliaries are isolated from the main current path
- MCCBs can be pad locked & with key lock option ensuring safety and better control on installation
- High electrical & mechanical endurances
- Unique electronic ground fault protection device with individual LEDs for system healthiness & fault trip indications
- Systems can be upgraded with easily retrofit table with Compact CVS or Compact NSX without any modifications in the panel design

Compact CVS also available in 800A frame size in 3/ 4 Pole versions

- Breaking Capacities : 35kA & 50kA with Ics=100% Icu
- Compact CVS range is complete with 800A offering:
- Line-load reversibility
- High endurances assures continuous performance
- Available in thermal magnetic version with both adjustable over-load & short circuit settings
- Wide range of accessories & auxiliaries
- Sufficient pole pitch helps to terminate copper and Aluminium bus bars or cables
- Compact CVS respects the environment throughout the life cycle & confirms to ROHS/WEEE norms

Kindly contact your nearest sales office to get your copy of Compact CVS Catalogue

Global specialist in Energy Management

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1800 103 0011 (Airtel)
Phone: +91 11 4168 2434/35

Schneider Electric

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