



General	page 3
	System overview – Product structure	4
	Product description – Modular system	5
	Product description – Function units	7
	CenterPro – PC-designed switchgear	9
Ordering information for MNS cubicles	10
	Technical data	11
	Overview	12
	Transformer cubicle	13
	Air circuit-breaker cubicle	15
	Disconnecter cubicle	18
	Apparatus cubicle for W and R units	21
	Non-equipped cubicle	24
Ordering information for MNS apparatus units	26
	Overview	27
	Incoming units, W	28
	Main cubicle-switch and sectioning circuit-breaker, R	29
	Motor starter units, W	30
	Distribution units, W and R	39
	Group boards, R	52
	Enclosure units	56
	Cover panels	57
For detailed information regarding apparatus	Air circuit-breaker Sace Megamax F (ACB)	1TSCB TC/CO/AA/10 and FRCTL 0058 95 GB
	Moulded-case circuit-breaker Sace Isomax (MCCB)	1TSCB 6490797003
	Moulded-case circuit-breaker Sace Limitor (MCCB)	Cat 2-9 6-1992
	Miniature circuit-breaker (MCB)	G STO 3113 94 50002
	ABB Fuseline	OF1-EN 95-94
	Switch-disconnector, earthing switch ABB Control Oy, OETL	1 EN 95-01
	Fuse-switch ABB Control Oy, OESA	1 A SE 94-11

Aluzink® is a registered trademark of SSAB, Sweden.

IBM PC is a registered trademark of International Business Machines Corp..

Design, data and dimensions may be subject to change without prior notice.



MNS systems are suitable for applications in all fields concerning the generation, distribution and use of electrical energy, e. g., they can be used as:

Main and sub-distribution boards for energy and
Motor current supply of Motor Control Centres

- in utility companies
- in power plants
- in oil refineries
- on off-shore drilling platforms
- on ships
- in production facilities
- in sewage management
- in buildings for other than dwelling purposes.



System features

The Modular Low-Voltage Switchgear System has proven its worth for many years worldwide. At the same time, it constitutes a safe investment for the future due to its continuous further development. The high flexibility of the MNS system results from a framework construction with maintenance-free bolted connections which can be equipped as required with standardized components and can be perfectly adapted to each application. The consistent application of the modular principle both in electrical and mechanical design permits optional selection of the structural design, interior arrangement and degree of protection according to the operating and environmental conditions.



The design and material used for the MNS system largely prevent the occurrence of electric arcs, or provide for arc quenching within a short time. The MNS-System complies with the requirements laid down in IEC 1641, and was furthermore subjected to extensive accidental arc tests by an independent institute. Type test certificates are available.

The MNS system offers the user many alternative solutions and notable advantages in comparison with conventional-type installations:

- Compact, space-saving design
- Economic energy distribution in the cubicles
- Easy project and detail engineering through standardized components
- Comprehensive range of standardized types
- Various design levels depending on operating and environmental conditions
- Easy combination of the different equipment systems, such as removable and withdrawable modules, in a single cubicle
- Arc-proof design
- Earthquake-, vibration- and shock-proof design possible
- Easy assembly without any special tools
- Easy conversion and retrofit
- Largely maintenance-free
- High operational reliability and availability
- Optimum personal protection

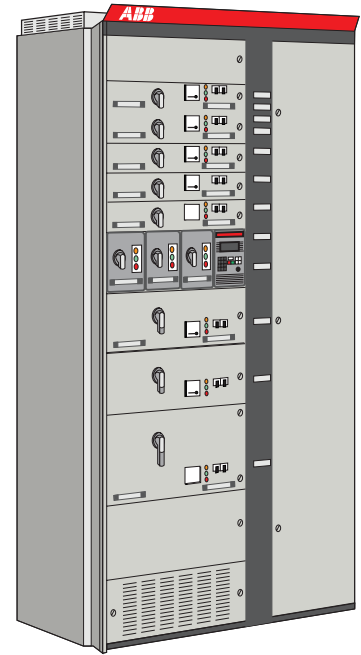
System overview

The basic design:

- Standard IEC 439-1
- For applications with more demanding requirements
- Re-building whilst in operation
- Personal safety
- Operational reliability
- Easy to install
- Maintenance and service friendly
- Planning aid in form of PC program

Rated current 3400 A *)
 Short-circuit strength (1 s) 50 and 75 kA
 Degree of protection IP 31, 41, 54
 No. of modules 36 M
 Apparatus units Withdrawable and removable

*) Rated current up to 5000 A on request.



Height
2263 mm

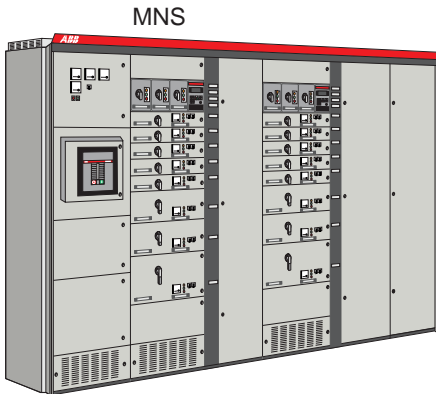
Depth
650 mm

Apparatus cubicle W/R.

Product structure

MODULAR SYSTEM (cubicles)

FUNCTION UNITS (apparatus)



MNS

- Transformer cubicle
- Circuit-breaker cubicle ACB
- Disconnecter cubicle
- Apparatus cubicle W/R
- Cubicle for optional equipment

- Incoming supply (W)
- Main cubicle-switch (R)
- Starters (W)
- Distribution units (W, R)
- Distribution units (R)
- Group boards (R)

Standards

MNS is designed to comply to the requirements of the international standard IEC 439-1 and any other referenced IEC publication.

IEC 439-1 contains a number of sections which state that the design is to be "as agreed between the user and the manufacturer". If no other agreement is made the ABB Installation standard is delivered.

Operating conditions

MNS switchgear is suitable for installation in closed locations for electrical equipment and other operating facilities in compliance with the switchgear degree of protection.

IP31-cubicles have ventilation grill in the rear panel and in roof panels. IP31 is only used for the cubicle while all individual distribution units are at least IP41.

IP41-cubicles are protected from contact by means of a fine mesh grill fitted to the ventilation openings.

IP54-cubicle is without any ventilation openings and with all doors and top plates sealed.

Corrosion resistance

The corrosion protection is obtained by using corrosion resistant materials.

All visible panels such as doors, end panels, rear panels, etc., are painted only to enhance the appearance of the switchgear.

All painted panels are protected by a 20 µm thick layer of zinc.

Non-painted panels and basic elements are manufactured from 1.5 mm Aluzink® which is a corrosion resistant sheet steel, plated with a 25 µm thick coating.

Anchor rails and hinges are made from zinc plated steel (12 µm) which is then either bright or yellow chromium plated.

Mechanical design

The cubicles are made up of mechanical parts joined together by screws.

The switchgear W-cubicle has a modular hole system for the installation of withdrawable units and cover plates. Module division: 50 mm = 1 M module.

Only the sides at the left and right ends of a row of cubicles, or the side panels on each side of a single cubicle, need to be fitted with end panels.

The MNS-cubicles are delivered complete with engraved legend plate for cubicle identification at the cubicle top, designation plates on the withdrawable units, and identification plate on the cubicle bottom in accordance with IEC 439-1.

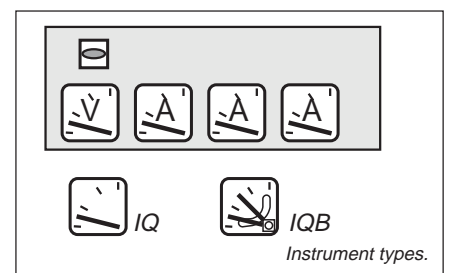
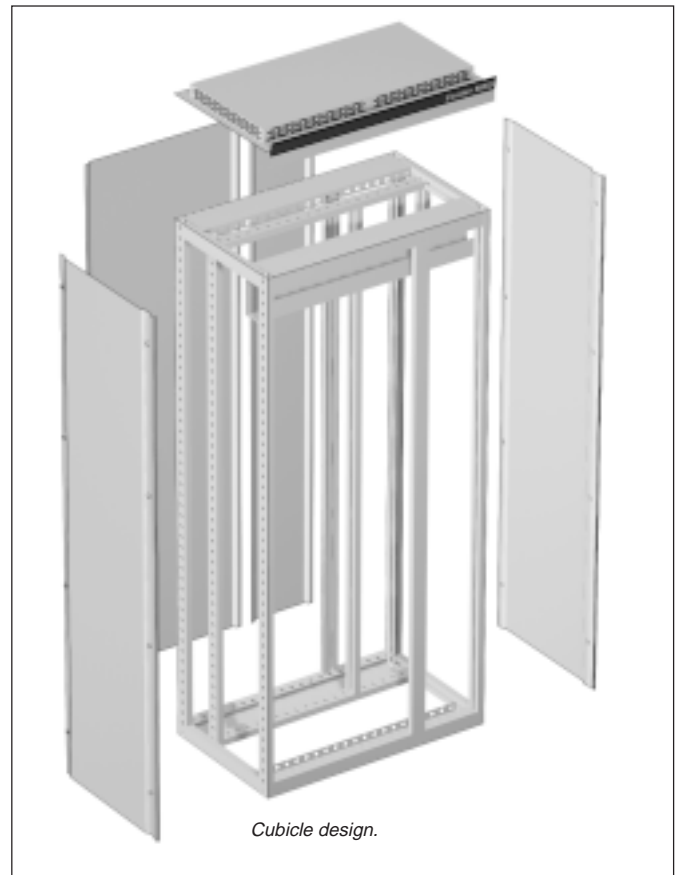
Measuring instruments

ABB CEWE Instruments are used as measuring instruments. Sizes are 96 x 96, 72 x 72 or 48 x 48 mm depending on the height of the distribution unit.

The **voltmeters** are of the type IQ with selector switch for measuring between phases and between phases and neutral. A 3-pole MCB is included. The voltmeter is delivered for ranges 0–250 V, 0–500 V and 0–600 V.

The **A-meters** are fed by current transformers and are available in two versions:

- with only instantaneous display (IQ)
- with combined instantaneous display and bi-metal system (15 minutes thermal lag) with slave pointer for maximum display (IQB).



Protective circuit continuity

Cubicle components which are painted before assembly, are fixed in place with self-tapping screws which destroy the painted surface in the thread area and so ensure good electrical contact.

Busbar system

The busbar system is installed in the cubicle before delivery and includes horizontal main busbar system including neutral and protective busbars; vertical busbars.

The **horizontal busbars** are situated, either at the top or at the bottom, in a segregated area at the rear of the cubicle to prevent accidental contact. The busbars in adjacent cubicles are interconnected at site after the cubicles have been fixed to the foundation. This arrangement facilitates easy extension of an already existing switchgear.

The **vertical busbars** are protected to degree of protection IP20. The apparatus units are connected to the busbars with plug-in contacts. The vertical busbar system are available with 3 or 4 poles and in two versions:

- metal enclosed
- insulated enclosed

Protective earth and neutral busbars can be arranged according to following alternatives:

- 3 pole + PEN
- 3 pole + N + PE
- 4 pole + PE.

Barriers

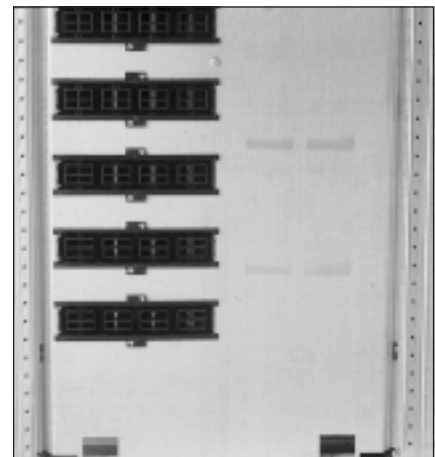
The switchgear cubicles is fitted with barriers:

- in front of horizontal busbar system
- between units
- between units and cable compartment
- in front of vertical busbars
- between apparatus and busbars.

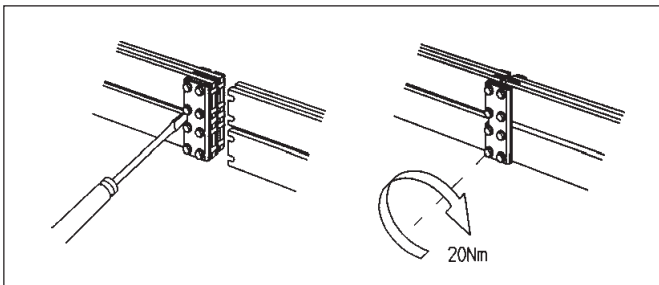
The material in the barriers will not produce poisonous gases if affected by arcing.



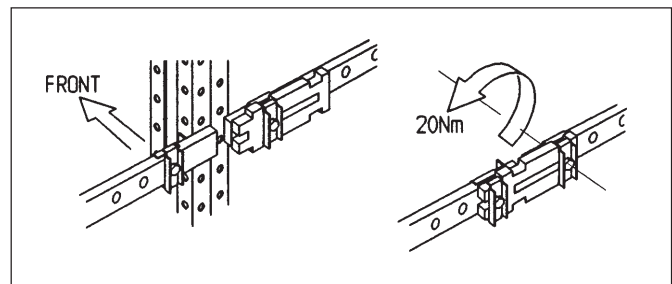
Insulated enclosed vertical busbar system.



Metal enclosed vertical busbar system.



Joining of horizontal busbars.



Joining of protective earth and neutral busbars.

Withdrawable units

The W/R-cubicle can accommodate two different types of withdrawable units; *Normal units* with full cubicle width and *Compact units* with 1/4 cubicle width. The compact units are available as DOL-starters in current sizes up to 15 kW at 400 V.

The main circuit power lines are connected to the cable connection device of the withdrawable units. The auxiliary circuit line is connected to a slide connector with screw terminals.

Compact units

The units have a 16-pole auxiliary circuit connector, a front panel and side panels made of insulating material. The operating handle is also used for the electrical as well as the mechanical interlocking function.

The handle can be set in five positions:

- I On-position**
All circuits connected. Unit locked in service position.
- O Off-position**
Main circuit disconnected, auxiliary circuit disconnected. Unit locked in service position.
- ⚡ Test position**
Main circuit disconnected, auxiliary circuit connected. Unit locked in position.
- ↕ Move position**
All circuits disconnected. Unit can be moved.
- ⚡ Disconnected position**
All circuits disconnected. Unit is locked in position.

The switch handle can be moved from position **O** to **I** only after the handle has been depressed (push-to-turn feature).

The switch handle can be locked in off, test and disconnected position with up to 3 padlocks.

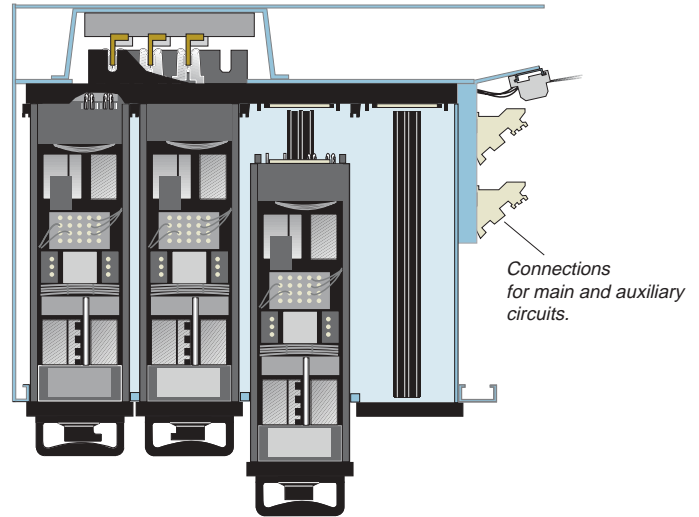
Normal units

The units have multi-pole contacts for connection of the auxiliary circuit. The operating handle is also used for the electrical as well as the mechanical interlocking function.

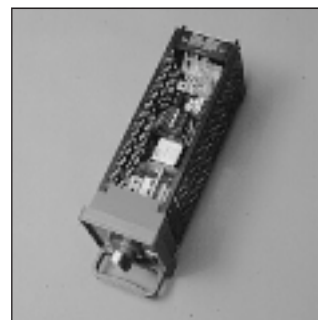
The handle can be set in four positions:

- I On-position**
All circuits connected. Unit locked in service position.
- O Off-position**
Main circuit disconnected, auxiliary circuit disconnected. Unit locked in service position or disconnected (isolated) position.
- TEST Test position**
Main circuit disconnected, auxiliary circuit connected. Unit locked in position.
- ↕ Move position**
All circuits disconnected. Unit can be moved.

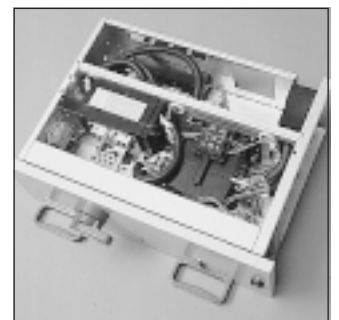
The switch handle can be locked in off, test and disconnected position with up to 3 padlocks.



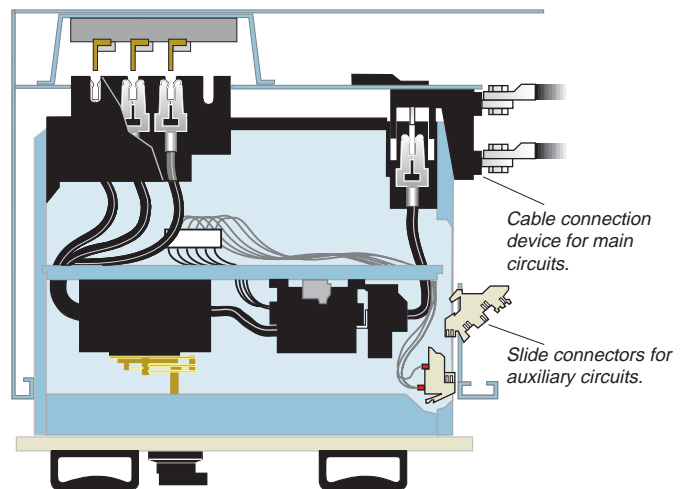
Compact units.



Compact motor starter unit with MCB.



Normal motor starter unit with MCCB.



Normal unit.

Removable units

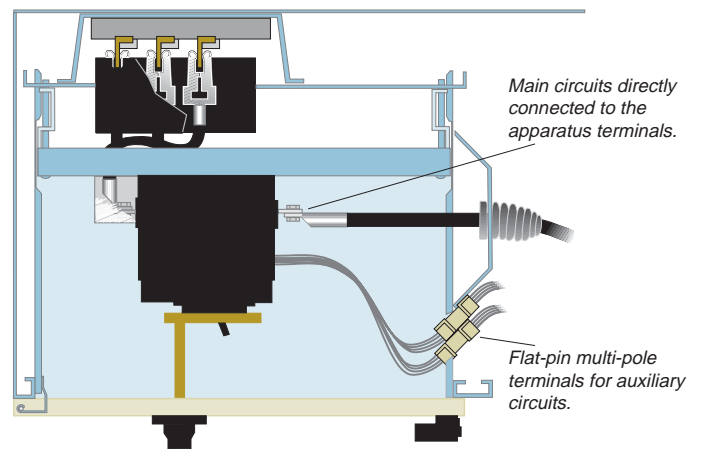
The W/R-cubicle can accommodate removable units (R-units). These units have the main circuit directly connected to the apparatus terminals and the auxiliary circuit connected to plug-in terminal blocks.

The units are screw-fixed to the cubicle. The outgoing cables must therefore first be removed before the unit itself can be removed.

The handle can be set in two positions:

- I On-position**
All circuits connected. Unit locked in service position.
- Off-position**
Main circuit disconnected. Unit can be removed after the outgoing cables have been disconnected.

The handle can be locked in off-position with up to 3 padlocks.



Removable unit.

General

Center Pro is Projecting and quotation aid for Center switchgear. It is a PC-based program which minimizes the manual work of planning a switchgear.

The user has to answer questions regarding switchgear data and distribution objects. The program then dimensions and selects suitable switchgear modules such as breakers, starters, distribution units, busbar systems, etc., and organizes them in an optimal switchgear layout.

Easy to alter proposed layout

The computer-designed switchgear can easily be altered by the user. For example, if a specific distribution unit is to be over-dimensioned to facilitate expansion in the future this can be done by a simple command.

CenterPro facilitates the testing of alternative solutions. Planning a switchgear often means that several different solutions need to be tried. With CenterPro it is easy to try other designs and then see the result.

Information to be entered

General switchgear data, e.g. main voltage, degree of protection.

Information about the incoming supply, e.g. size of transformer, requirements for incoming circuit-breaker cubicle or busbar trunking units.

Object information, from object list or single line diagrams or similar. This is the information about the objects to be supplied and protected by the switchgear.

Computer-generated data

The program will automatically generate:

Technical specification

Block diagrams, front layouts and single-line drawings.

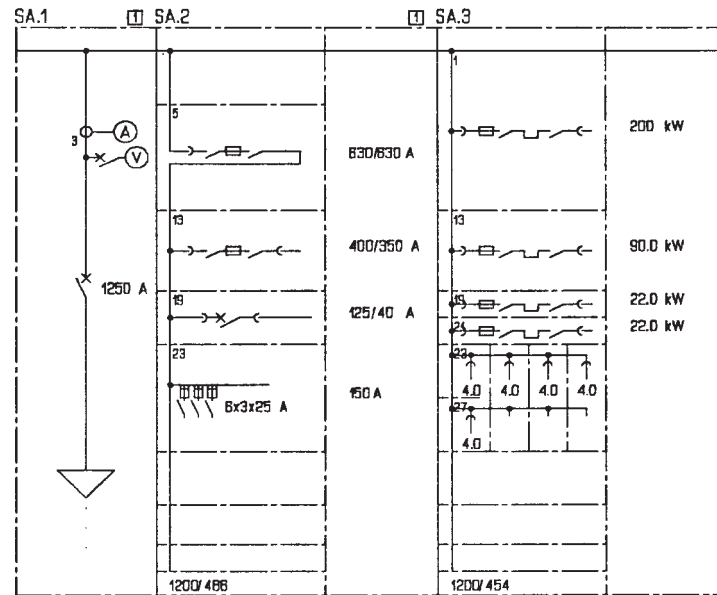
Circuit diagrams.

Spread worldwide

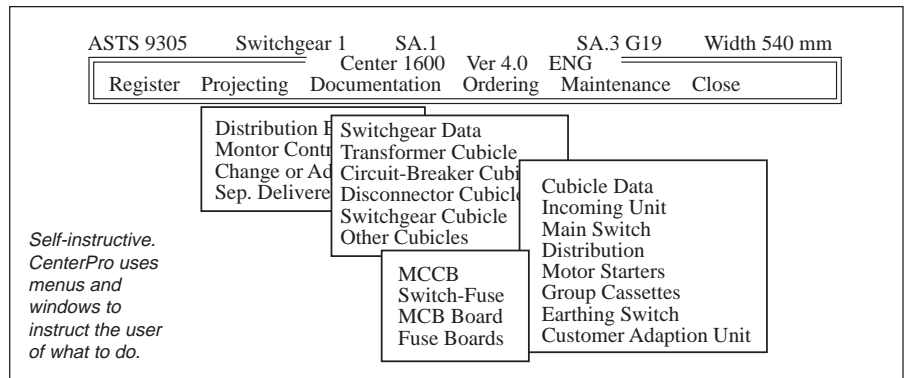
CenterPro is used by electrical consultants, in large industry and utility companies as well as within the ABB Group.

CenterPro is delivered on diskettes together with a Users Manual.

Low Voltage Switchgear
3/PEN, 400V 50Hz $I_n=1250A$, $I_k=35kA$, IP31



Computer-generated switchgear layout based on entered specification.



Computer requirements

Computer IBM PC or compatible using an INTEL 386/486 processor.

Primary memory Min. 580 kbytes available.

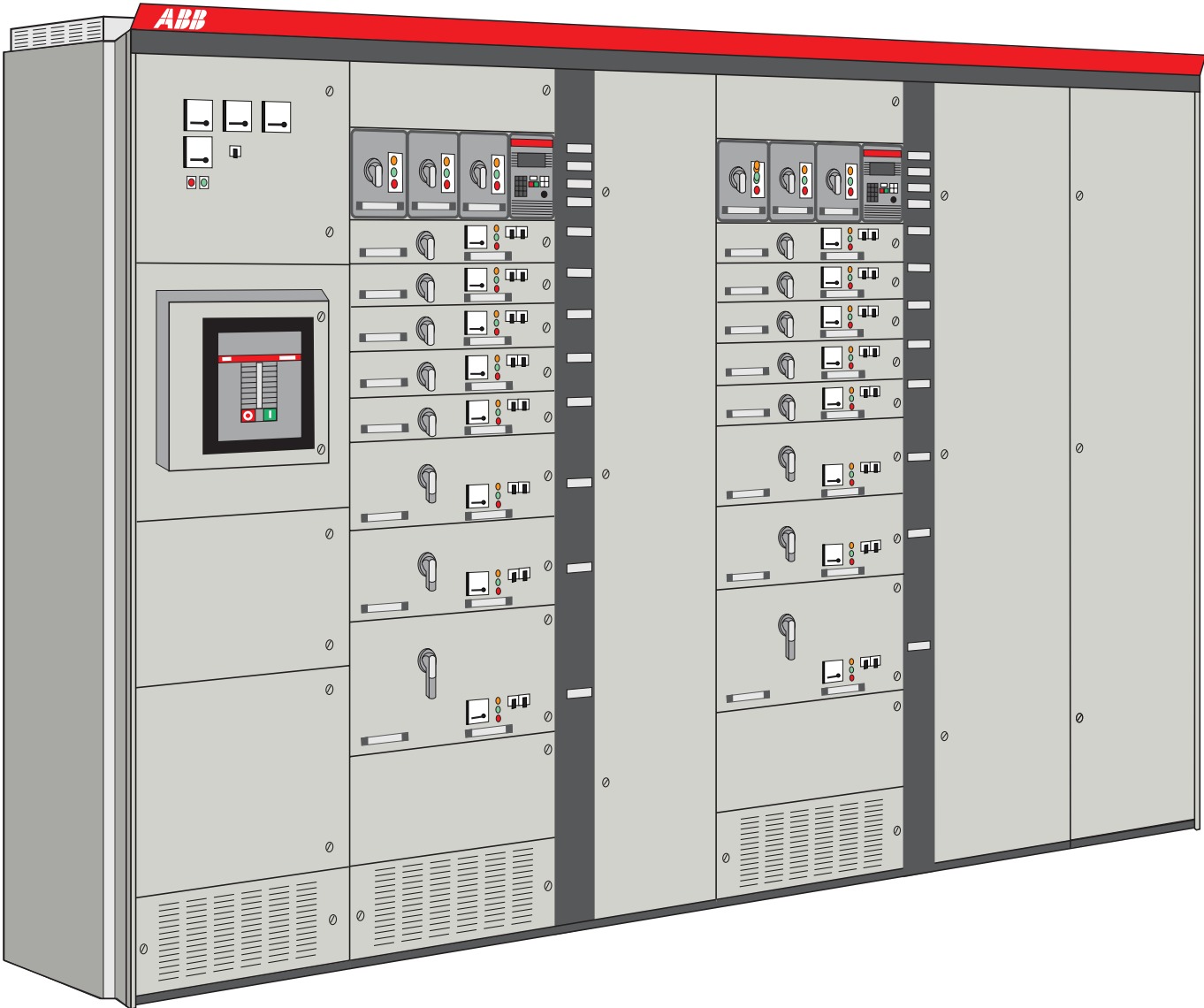
Hard disk Min 2.5 Mbytes available.

Operating system MS-DOS 3.3 or later.

Graphics EGA

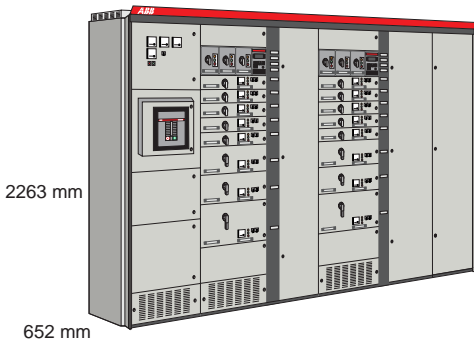
Printer IBM compatible graphics printer. HPGL compatible printer or plotter HP 7550 is required for single-line drawing and circuit diagram.

Ordering information for MNS cubicles



Standard	Type-tested switchgear assemblies in accordance with IEC 439-1
Test certificates	ABB Laboratory, supervised by Lloyds
Rated insulation voltage, busbars	1000 V AC
Rated operating voltage	Up to 690 V AC, depending on components used
Auxiliary circuits, starters	220, 230 V, 50 Hz or 110 V, 50 Hz
Rated thermal current, busbars at 35 °C ambient	
Horizontal	IP31, (IP41, IP54) Up to 3400 A, (3350 A, 2450 A)
Vertical, metal encl.	IP31, (IP41, IP54) Up to 1700 A, (1700 A, 1400 A)
Vertical, insol. encl.	IP31, (IP41, IP54) 750 A, (750 A, 750 A)
Rated short-circuit strength, busbars (1 s)	
Horizontal	50 to 100 kA
Vertical, metal enclosed	50 to 75 kA
Vertical, insulated enclosed	50 kA (fault free zone)
Derating of distribution units at IP54	10 %
Environment as per IEC 439-1	
ambient temperature	max. 35 °C in any 24 hour period
relative humidity	max. 50 % at <40 °C
Degree of protection as per IEC 529-1	
with closed door	IP31, IP41 or IP54
with open door, removed unit	IP20
Dimensions excl. transformer cubicle	
height	2263 mm (roof and lifting angles included)
depth	652 mm (doors and rear panel included)
width	400,600, 800, 1000, 1200 mm (end panel + 20 mm)
module height	1 M = 50 mm
Dimensions, transformer cubicle	
height	2327 mm (roof included)
depth	1452 mm (doors and rear panel included)
width	2000,2200, 2400, 2600, 2800 mm (end panel + 20 mm)
Number of modules	
Apparatus cubicles have 36 modules available for apparatus units	
Cubicle material	
frame	C-sections of 2 and 2,5 mm thick Aluzink® and galvanized sheet steel
apparatus units	2 and 1,5 mm Aluzink®
doors and external panels	1,5 mm galvanized and painted sheet steel
Busbar material	Copper (vertical distribution bars for plug-in: tin coated copper)
Surface protection	
doors and external panels	Polyester based paint: light grey RAL 7035 or optn. colour: light beige ASEA H Munsell 5Y 8/1
frame, roof, inner panels	Aluzink®
Installation	Indoors in dry conditions or in moderate humidity levels and factors of air pollution ("Normal operating conditions" as in IEC 439-1).
Phase order of busbars	
horizontal	L1, L2, L3, N from the top downwards. PE/PEN bar is placed at the bottom of the cubicle
vertical, apparatus cubicle	L1, L2, L3, N from left to right PE/N bar is placed to the right in the cable compartment
vertical, ACB cubicle	(PEN) N, L1, L2, L3, PE from left to right

MNS



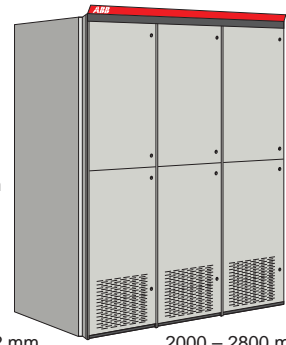
Horizontal busbar system, IP 31

- 1500 A
- 2100 A
- 3000 A
- 3400 A

Transformer cubicle

800 – 2500 kVA
50 – 75 kA

2327 mm



1452 mm

2000 – 2800 mm

Circuit-breaker cubicle, ACB

Incoming, sectioning, distribution

Circuit breaker size

- 1250 A
- 1600 A
- 2000 A
- 2500 A
- 3200 A
- 4000 A

2263 mm



600 – 1000 mm

Disconnecter cubicle

Incoming, sectioning, distribution

Disconnecter size

- 1250 A
- 1600 A
- 2500 A
- 3150 A

2263 mm



600 – 800 mm

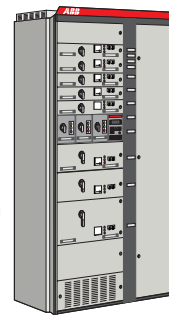
Apparatus cubicle W/R

For withdrawable and removable units

Metal enclosed vertical busbars

- 1175 A
- 1700 A

2263 mm



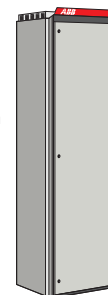
1000 – 1200 mm

Isolated vertical busbars

- 750 A

Non-equipped cubicle

2263 mm



400 – 800 mm

Construction

The fronts of the cubicle are made up of doors with hinges screwed to the cubicle frames on the "lock side". Cubicles are normally placed min. 40 mm from surrounding walls.

Cubicles are supplied as kits with assembly instructions. Self-tapping screws are used for assembly which require either electric or air driven screwdrivers.

Degree of protection IP31 (cubicles suitable for location in switchgear rooms).

Installation configurations

Transformer cubicles fitted with busbar systems can be directly connected to MNS switchgear with depth 652 mm.

Cubicle rows may be placed either left or right of the transformer cubicle.

The transformer cubicles may also be mounted as stand-alones without connection to a switchgear.

Horizontal busbar system

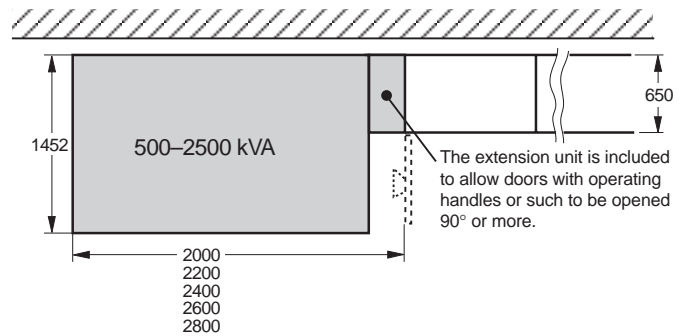
The horizontal busbar system included in the transformer cubicle has a stepped configuration which allows the apparatus cubicles to be connected either left or right of the transformer cubicle.

PE and N conductors

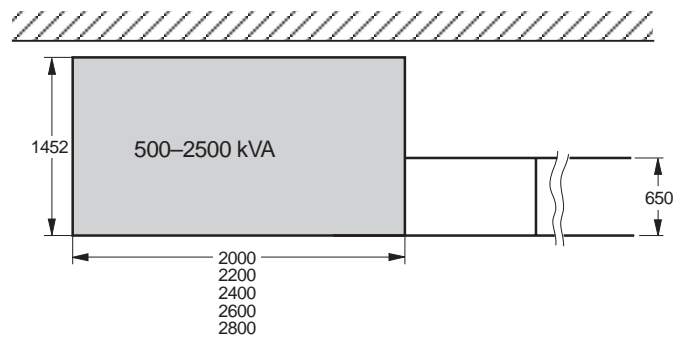
Horizontal protective earth and neutral conductors (PEN) are located at the bottom rear of the cubicle. Connection between conductor and transformer N connectors is made by RK type cables or site-assembled busbars.

Transformer connection bars

Down lead conductors are designed for direct connection of ABB Transformers Lepper Resiblock type DYHK10 and ABB Transformers type TFTTK-F for 10/0.4 kV.

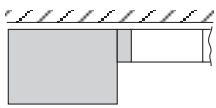


Rear in line with the switchgear cubicles.



Front in line with the switchgear cubicles.

Cubicle (delivered as kit)



Rear in line with switchgear cubicle



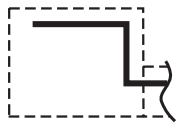
Front in line with switchgear cubicle

Width mm	Depth mm	Type name	For trafo type DYHK 10/0,4 kV kVA	For trafo type TFTTK-F 10/0,4 kV kVA
For rear in line with switchgear cubicles				
2000	1452	VMM253-D20	500, 630	
2200	1452	VMM253-D22	800, 1000	500, 630, 800, 1000, 1250
2400	1452	VMM253-D24	1250, 1600	1600, 2000
2600	1452	VMM253-D26	2000	2500
2800	1452	VMM253-D28	2500	
For front in line with switchgear cubicles				
2000	1452	VMM253-D20D	500, 630	
2200	1452	VMM253-D22D	800, 1000	500, 630, 800, 1000, 1250
2400	1452	VMM253-D24D	1250, 1600	1600, 2000
2600	1452	VMM253-D26D	2000	2500
2800	1452	VMM253-D28D	2500	

Horizontal busbar system including PEN(PE) bar



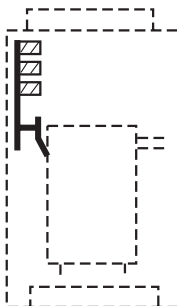
Rear in line with switchgear cubicle



Front in line with switchgear cubicle

Rated current A	Busbar size mm	For rear in line Type name		For front in line Type name	
		Top system	Bottom system	Top system	Bottom system
–	–	–H0	–H0	–H0	–H0
1500	2//30x10 Cu	–H4	–H04	–H4	–H04
2100	2//60x10 Cu	–H6	–H06	–H6	–H06
3000	4//60x10 Cu	–H8	–H08	–H8	–H08
3400	4//60x10 Cu	–H8A	–H08A	–H8A	–H08A

Transformer connection bars



Rated current A	Busbar size mm	Type name Horizontal busbar system		Trafo size kVA
		At top	At bottom	
For transformer type DYHK10				
1400	60x10 Cu	+A3	+A03	500
1400	60x10 Cu	+A4	+A04	630
1400	60x10 Cu	+A5	+A05	800
2400	100x10 Cu	+A6	+A06	1000, 1250
3100	2//100x10 Cu	+A7	+A07	1600, 2000
3600	2//100x10 Cu	+A8	+A08	2500
For transformer type TFTTK-F				
1400	60x10 Cu	+A3B	+A03B	500
1400	60x10 Cu	+A4B	+A04B	630
1400	60x10 Cu	+A5B	+A05B	800
2400	100x10 Cu	+A6B	+A06B	1000, 1250
3600	2//100x10 Cu	+A7B	+A07B	1600, 2000, 2500

Options

- Connection to isolated neutral in
feeded switchgears +N
- Bracket for contact thermometer +P12
- Earthing coupler, high voltage side ... +E1
- Busbars tinned +SN
- Switchgear colour, Standard + Grey
- Switchgear colour, ASEA H + Beige

General

The circuit-breaker cubicles are designed for ACB-type withdrawable air circuit-breakers. The circuit-breaker can be switched to the disconnected position with the cubicle door closed. The cubicle is available in ratings 1250 to 3900 A, 3- and 4-pole versions.

Incoming supply

Different incoming supplies are available:

Cable from below is used when incoming cable is available. The cubicle is equipped with cable conductor and anchor rail.

Cable from above is used when incoming cable is available. The cubicle is equipped with terminals for cable connection above the roof panel.

Busbars from above are used when connection is available (not trunking system). The cubicle has terminals for busbar connections above the roof panel.

Sectioning is used for sectioning of main busbars in the switchgear. Available for both right and left hand supplies. Sectioning version fits to transformer cubicles.

Circuit-breaker

The circuit-breaker is an ACB of type ABB SACE Megamax.

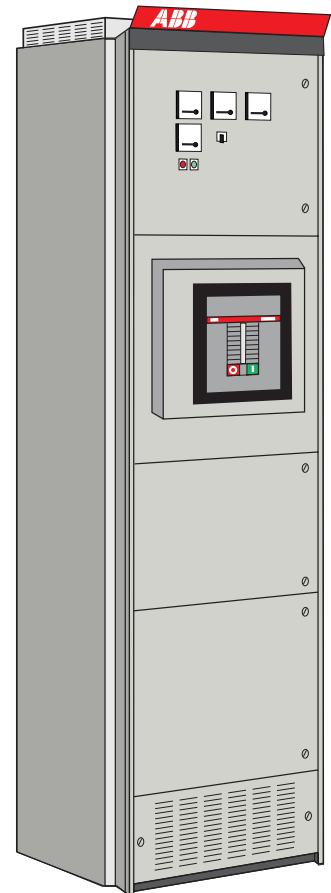
The breaker is equipped with an solid-state, microprocessor based protection unit with the following protective functions:

- Protection against overload (L)
- Selective protection against short-circuit (S)
- Instantaneous protection against short-circuit (I)
- Protection against earth fault (G).

The breaker is also equipped with auxiliary contacts, shunt opening release and shutters for auxiliary and main circuits.

Earthing switch (option)

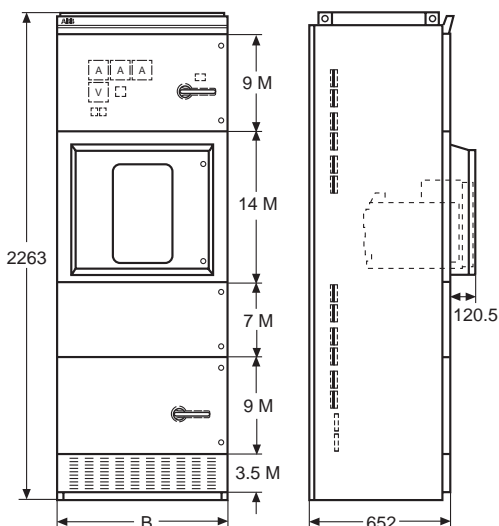
Protective earthing can be made to both the upper and lower part of the breaker using a built-in earthing switch, ABB Control Oy, type OETL.



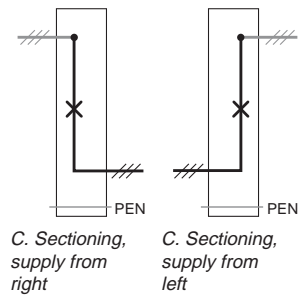
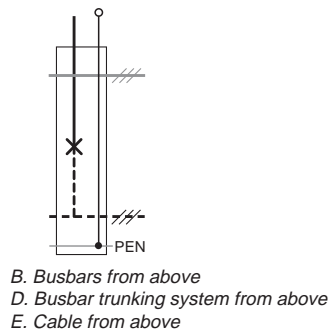
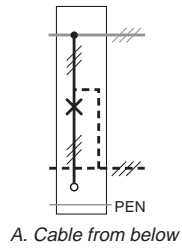
Ratings for air circuit-breaker cubicles at 35 °C ambient

Standard		IEC 947-2					
Size		1250A/F1	1600A/F1	2000A/F1	2500A/F2	3200A/F4	4000A/F5
Rated current	IP 31, IP 41	1250 A	1600 A	1900 A	2300 A	2950 A	3900 A
	IP 54	1000 A	1250 A	1600 A	2000 A	2600 A	3450 A

Dimensions



Cubicle including vertical busbar system



Circuit-breaker size	3-pole		4-pole	
	Cubicle width, mm	Type name	Cubicle width, mm	Type name
For cable connection from below (A)				
1250A/F1	600	VMM222-G4A	800	VMM222-4G4A
1600A/F1	600	VMM222-G5A	800	VMM222-4G5A
2000A/F1	600	VMM222-G6A	800	VMM222-4G6A
2000A/F2 1)	800	VMM222-G6A	800	VMM222-4G6A
2500A/F2	800	VMM222-G7A	800	VMM222-4G7A
3200A/F4	800	VMM222-G8A	1000	VMM222-4G8A
4000A/F5	1000	VMM222-G9A	1200	VMM222-4G9A
For busbar connection from above (B)				
1250A/F1	600	VMM222-G4B	800	VMM222-4G4B
1600A/F1	600	VMM222-G5B	800	VMM222-4G5B
2000A/F1	600	VMM222-G6B	800	VMM222-4G6B
2000A/F2 1)	800	VMM222-G6B	800	VMM222-4G6B
2500A/F2	800	VMM222-G7B	800	VMM222-4G7B
3200A/F4	800	VMM222-G8B	1000	VMM222-4G8B
4000A/F5	1000	VMM222-G9B	1200	VMM222-4G9B
For sectioning (C)				
1250A/F1	600	VMM222-G4C	800	VMM222-4G4C
1600A/F1	600	VMM222-G5C	800	VMM222-4G5C
2000A/F1	600	VMM222-G6C	800	VMM222-4G6C
2000A/F2 1)	800	VMM222-G6C	800	VMM222-4G6C
2500A/F2	800	VMM222-G7C	800	VMM222-4G7C
3200A/F4	800	VMM222-G8C	1000	VMM222-4G8C
4000A/F5	1000	VMM222-G9C	1200	VMM222-4G9C
For connection to busbar trunking system from above (D)				
1250A/F1	600	VMM222-G4D	800	VMM222-4G4D
1600A/F1	600	VMM222-G5D	800	VMM222-4G5D
2000A/F1	600	VMM222-G6D	800	VMM222-4G6D
2000A/F2 1)	800	VMM222-G6D	800	VMM222-4G6D
2500A/F2	800	VMM222-G7D	800	VMM222-4G7D
3200A/F4	800	VMM222-G8D	1000	VMM222-4G8D
4000A/F5	1000	VMM222-G9D	1200	VMM222-4G9D
For cable connection from above (E)				
1250A/F1	600	VMM222-G4E	800	VMM222-4G4E
1600A/F1	600	VMM222-G5E	800	VMM222-4G5E
2000A/F1	600	VMM222-G6E	800	VMM222-4G6E
2000A/F2 1)	800	VMM222-G6E	800	VMM222-4G6E
2500A/F2	800	VMM222-G7E	800	VMM222-4G7E
3200A/F4	800	VMM222-G8E	1000	VMM222-4G8E
4000A/F5	1000	VMM222-G9E	1200	VMM222-4G9E

1) 2000/F2 only needed at 75 kA.

Horizontal busbar system including PEN

Rated current at 35 °C ambient			Short-circuit withstand capacity kA _{eff}	Busbar size mm	Type name Horizontal busbar system	
IP31 A	IP41 A	IP54 A			At top	At bottom
For cubicle (A), (B), (D), (E)						
1500	1450	1250	50	2//30x10 Cu	-H4	-H04
2100	2050	1600	75	2//60x10 Cu	-H6	-H06
3000	2950	2100	100	4//60x10 Cu	-H8	-H08
3400	3350	2450	100	4//60x10 Cu	-H8A	-H08A
For cubicle (C)						
					At top and bottom	
1500	1450	1250	50	2//30x10 Cu	-H44	
2100	2050	1600	75	2//60x10 Cu	-H66	
3000	2950	2100	100	4//60x10 Cu	-H88	
3400	3350	2450	100	4//60x10 Cu	-H88A	

Options

Isolated neutral	+N
For 3-pole circuit breaker at 3 + PEN incoming (3 wire).	
Isolated neutral	+N5
For 3-pole circuit breaker at 3 + N + PE incoming (4 wire).	
Earth fault protection	+EFN
For 3-pole circuit breaker in 4-wire system.	
Capacitor for shunt trip	+F5
For arc detection TVOC.	
Earthing coupler below breaker ¹⁾	+E2
Max for 50 kA, 1 s.	
Earthing coupler above breaker ¹⁾	+E3
Max for 50 kA, 1 s.	
Earthing coupler below and above breaker ¹⁾	+E23
Max for 50 kA, 1 s.	
Auxiliary contacts	<i>included</i>
For earthing coupler.	
Interlocking solenoid	+A3F
For earthing coupler.	
Mechanical interlock	+A3M
For earthing coupler.	
Push button and signal lamp	+S3
For release of high voltage breaker.	

1) Below breaker = location in cubicle below the breaker.

Above breaker = location in cubicle above the breaker.

Remark! Electrically side of breaker depends on feeding direction and version of cubicle and lower/upper horizontal busbar system.

CURRENT MEASURING

Multifunction instrument VIP	+P2V
1 current transformer	+P2A
3 current transformers	+P2B
1 instantaneous A-meter	+P2D
1 instantaneous and max. A-meter	+P2DM
3 instantaneous A-meters	+P2E
3 instantaneous and max. A-meters	+P2EM
Transducer for one phase	+P3A
Transducer for three phases	+P3B
1 extra current transformer L1	+P4A
KWh meter, symmetrical load	+P20A
KWh meter, asymmetrical load	+P20B

VOLTAGE MEASURING

for 3-wire system without neutral bar

3 fuses	+P5A
3 fuses, V-meter and phase to phase selector switch above breaker ¹⁾	+P5D
3 fuses, V-meter and phase to phase selector switch below breaker ¹⁾	+P6D
3-pole MCB	+P5E
Specify voltage 400/500 V.	
3-pole MCB, V-meter and phase to phase selector switch above breaker ¹⁾	+P5F
Specify voltage 400/500 V.	
3-pole MCB, V-meter and phase to phase selector switch below breaker ¹⁾	+P6F
Specify voltage 400/500 V.	
3 fuses, 2-pole V-meter without selector switch	+P6G
3-pole MCB, 2-pole V-meter without selector switch	+P6H
Specify voltage 400/500 V.	
3 extra fuses	+P6A
Extra 3-pole MCB	+P6E
Specify voltage 400/500 V.	

VOLTAGE MEASURING

for 4-wire and 3-wire system with neutral bar

3 fuses	+P5AN
3 fuses, V-meter and phase to phase selector switch above breaker ¹⁾	+P5DN
3 fuses, V-meter and phase to phase selector switch below breaker ¹⁾	+P6DN
3-pole MCB	+P5EN
Specify voltage 400/500 V.	
3-pole MCB, V-meter and phase to phase selector switch above breaker ¹⁾	+P5FN
Specify voltage 400/500 V.	
3-pole MCB, V-meter and phase to phase selector switch below breaker ¹⁾	+P6FN
Specify voltage 400/500 V.	
3 extra fuses	+P6AN
Extra 3-pole MCB	+P6EN
Specify voltage 400/500 V.	

CUBICLE OPTIONS

Busbars tinned	+SN
Degree of protection IP 41	+IP41
Degree of protection IP 54	+IP54
Bottom plate	+B1
End panel, left	+UV
End panel, right	+UH
Cylinder locks for doors	+L1
Cubicle heater	+B2
100 W with thermostat.	
Switchgear colour, Standard	+Grey
Switchgear colour, ASEA H	+Beige

CIRCUIT-BREAKER OPTIONS

PR1/C Control unit	+E2A
Unit for reading current, voltage, frequency, active power and power factor. LED signal indicating need for contact service. Zone selectivity interlocking. Auxiliary external power source with selectable supply voltages: 110 V DC/AC and 220 V AC.	
PR1/D Dialogue unit	+E2B
Keyboard for programming of the protection (provides more accurate programming). (only available with +E2A)	
Undervoltage release	+F2A
Instantaneous trip (110 DC/110 AC/220 AC).	
Undervoltage release	+F2B
With fixed time delays of 0.5 s (110 DC/110 AC/220 AC).	
Motor operator and closing device	+G2
(110 DC/110 AC/220 AC)	
Trip indication, el. + mechanical	+I4
(el. always included in +E2A)	
Counter	+I5
(always included in +E2A)	
Lock device for pushbuttons	+L4

General

The disconnecter cubicle is designed for fixed disconnectors. The cubicle is available in sizes 1250, 2000, 2500 and 3150 A in 3- and 4-pole versions.

The cubicle has interlocking to prevent the door being opened when the switch-disconnector is in the on-position.

Incoming supply

Different incoming supplies are available:

Cable from below is used when incoming cable is available. The cubicle is equipped with cable conductor and anchor rail.

Cable from above is used when incoming cable is available. The cubicle is equipped with terminals for cable connection above the roof panel.

Busbars from above are used when connection is available (not trunking system). The cubicle has terminals for busbar connections above the roof panel.

Sectioning is used for sectioning of main busbars in the switchgear. Available for both right and left hand supplies.

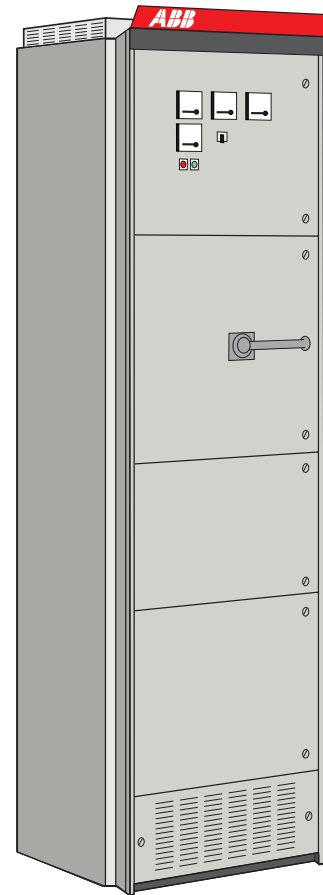
Switch-disconnector

The switch-disconnector is a fixed mounted type, ABB Control Oy, OETL with one opening and one closing auxiliary contact.

The cubicle has interlocking so that the door cannot be opened when the switch-disconnector is in on-position. The door must be closed to operate the switch-disconnector.

Earthing switch (option)

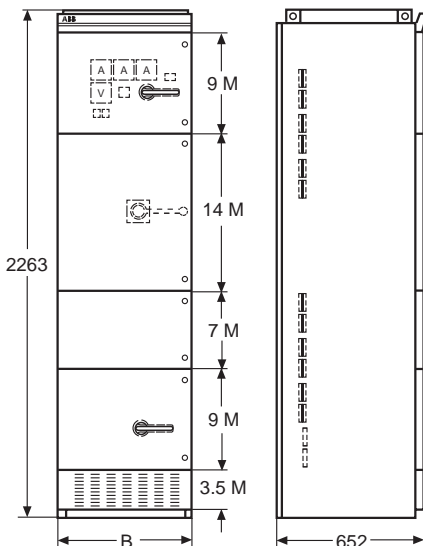
Protective earthing can be made to both the upper and lower part of the disconnecter using a built-in earthing switch, Control Oy, type OETL (1 s, 50 kA).



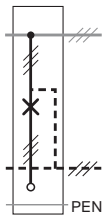
Ratings for disconnecter cubicle at 35 °C ambient

Size			1250A	1600A	2500A	3150A
Rated current	IP 31, IP 41	A	1250	1600	2300	2950
	IP 54	A	1000	1250	2000	2600

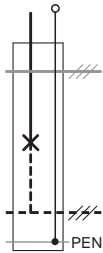
Dimensions



Cubicle including vertical busbar system



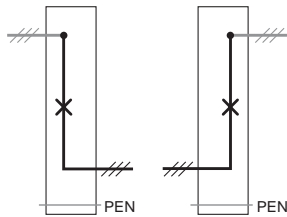
A. Cable from below



B. Busbars from above

D. Busbar trunking system from above

E. Cable from above



C. Sectioning, supply from right

C. Sectioning, supply from left

Disconnecter size	3-pole		4-pole	
	Cubicle width, mm	Type name	Cubicle width, mm	Type name
For cable connection from below (A)				
1250 A	600	VMM234-F4A	600	VMM234-4F4A
1600 A	600	VMM234-F5A	600	VMM234-4F5A
2500 A	600	VMM234-F7A	800	VMM234-4F7A
3150 A	600	VMM234-F8A	800	VMM234-4F8A
For busbar connection from above (B)				
1250 A	600	VMM234-F4B	600	VMM234-4F4B
1600 A	600	VMM234-F5B	600	VMM234-4F5B
2500 A	600	VMM234-F7B	800	VMM234-4F7B
3150 A	600	VMM234-F8B	800	VMM234-4F8B
For sectioning (C)				
1250 A	600	VMM234-F4C	600	VMM234-4F4C
1600 A	600	VMM234-F5C	600	VMM234-4F5C
2500 A	600	VMM234-F7C	800	VMM234-4F7C
3150 A	600	VMM234-F8C	800	VMM234-4F8C
For connection to busbar trunking system from above (D)				
1250 A	600	VMM234-F4D	600	VMM234-4F4D
1600 A	600	VMM234-F5D	600	VMM234-4F5D
2500 A	600	VMM234-F7D	800	VMM234-4F7D
3150 A	600	VMM234-F8D	800	VMM234-4F8D
For cable connection from above (E)				
1250 A	600	VMM234-F4E	600	VMM234-4F4E
1600 A	600	VMM234-F5E	600	VMM234-4F5E
2500 A	600	VMM234-F7E	800	VMM234-4F7E
3150 A	600	VMM234-F8E	800	VMM234-4F8E

Horizontal busbar system including PEN

Rated current at 35 °C ambient			Short-circuit withstand capacity kA _{eff}	Busbar size mm	Type name Horizontal busbar system	
IP31 A	IP41 A	IP54 A			At top	At bottom
For cubicle (A), (B), (D), (E)						
1500	1450	1250	50	2//30x10 Cu	-H4	-H04
2100	2050	1600	75	2//60x10 Cu	-H6	-H06
3000	2950	2100	100	4//60x10 Cu	-H8	-H08
3400	3350	2450	100	4//60x10 Cu	-H8A	-H08A
For cubicle (C)						
1500	1450	1250	50	2//30x10 Cu	At top and bottom -H44	
2100	2050	1600	75	2//60x10 Cu	-H66	
3000	2950	2100	100	4//60x10 Cu	-H88	
3400	3350	2450	100	4//60x10 Cu	-H88A	

Options

- Isolated neutral** +N
For 3-pole circuit breaker at 3 + PEN incoming (3 wire).
- Earthing coupler below breaker** ¹⁾ +E2
Max for 60 kA, 0.3 s / 50 kA, 1 s.
- Earthing coupler above breaker** ¹⁾ +E3
Max 50 kA.
- Earthing coupler below and above breaker** ¹⁾ +E23
Max 50 kA
- Auxiliary contacts** *included*
For earthing coupler.
- Interlocking solenoid** +A3F
For earthing coupler.

CURRENT MEASURING

- Multifunction instrument VIP** +P2V
- 1 current transformer** +P2A
- 3 current transformers** +P2B
- 1 instantaneous A-meter** +P2D
- 1 instantaneous and max. A-meter** +P2DM
- 3 instantaneous A-meters** +P2E
- 3 instantaneous and max. A-meters** .. +P2EM
- Transducer for one phase** +P3A
- Transducer for three phases** +P3B
- 1 extra current transformer L1** +P4A
- KWh-meter, symmetrical load** +P20A
- KWh-meter, asymmetrical load** +P20A

VOLTAGE MEASURING

for 3-wire system without neutral bar

- 3 fuses** +P5A
- 3 fuses, V-meter and phase to phase selector switch above breaker** ¹⁾ +P5D
- 3 fuses, V-meter and phase to phase selector switch below breaker** ¹⁾ +P6D
- 3-pole MCB** +P5E
Specify voltage 400/500 V.
- 3-pole MCB, V-meter and phase to phase selector switch above breaker** ¹⁾ +P5F
Specify voltage 400/500 V.
- 3-pole MCB, V-meter and phase to phase selector switch below breaker** ¹⁾ +P6F
Specify voltage 400/500 V.
- 3 fuses, 2-pole V-meter without selector switch** +P6G
- 3 pole MCCB, 2-pole V-meter without selector switch** +P6H
Specify voltage 400/500 V.
- 3 extra fuses** +P6A
- Extra 3-pole MCB** +P6E
Specify voltage 400/500 V.

VOLTAGE MEASURING

for 4-wire and 3-wire system with neutral bar

- 3 fuses** +P5AN
- 3 fuses, V-meter and phase to phase selector switch above breaker** ¹⁾ +P5DN
- 3 fuses, V-meter and phase to phase selector switch below breaker** ¹⁾ +P6DN
- 3-pole MCB** +P5EN
Specify voltage 400/500 V.
- 3-pole MCB, V-meter and phase to phase selector switch above breaker** ¹⁾ +P5FN
Specify voltage 400/500 V.
- 3-pole MCB, V-meter and phase to phase selector switch below breaker** ¹⁾ +P6FN
Specify voltage 400/500 V.
- 3 extra fuses** +P6AN
- Extra 3-pole MCB** +P6EN
Specify voltage 400/500 V.

CUBICLE OPTIONS

- Busbars tinned** +SN
- Degree of protection IP 41** +IP41
- Degree of protection IP 54** +IP54
- Bottom plate** +B1
- End panel, left** +UV
- End panel, right** +UH
- Cylinder locks for doors** +L1
- Cubicle heater** +B2
100 W with thermostat.
- Switchgear colour, Standard** +Grey
- Switchgear colour, ASEA H** +Beige

1) Below breaker = location in cubicle below the breaker.

Above breaker = location in cubicle above the breaker.

Remark! Electrically side of breaker depends on feeding direction and version of cubicle and lower/upper horizontal busbar system.

General

The switchgear W-cubicle can be equipped with withdrawable W-units and removable R-units.

The cubicle consists of a 600 mm compartment for fitting of W and R-units and a 400 mm or 600 mm cable compartment on the right for outgoing (and incoming, if used) cables.

Cable compartment

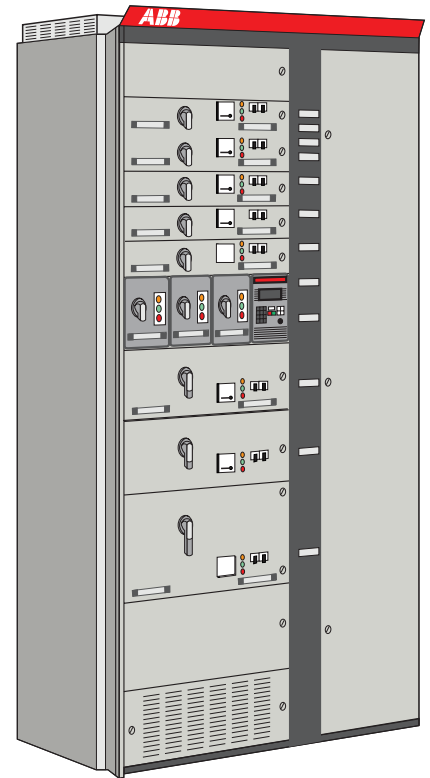
The cable compartment is provided with fixing points for both the main circuit and the auxiliary circuit cables.

Four mounting bars for power cables are positioned on the right hand side of cable compartment.

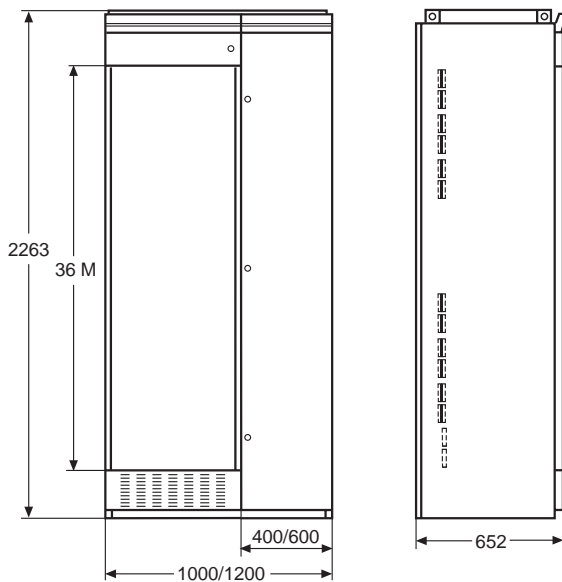
Horizontal cable channels for connection between cubicles are positioned at the very top (included).

Module space

The cubicle has space for 36 modules (36M). 1M = 50 mm.



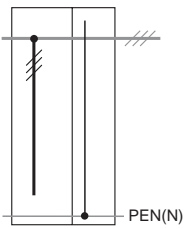
Dimensions



Cubicle

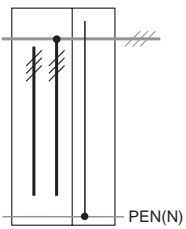
Cubicle width, mm	Type name
600 + 400	VMM201-D64
600 + 600	VMM201-D66

Primary vertical busbar system including PEN



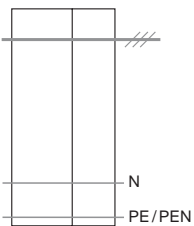
Rated current at 35 °C ambient			Short-circuit withstand capacity kA _{eff}	Busbar size mm	Type name
IP31 A	IP41 A	IP54 A			
Metal separation wall					
1175	1175	900	50	50 x 30 x 5	-V4W
1700	1700	1400	75	50 x 30 x 5 + 2//30 x 10	-V5W
Multi functional wall (isolated)					
750	750	750	47	50 x 30 x 5	-V4MFW

Secondary vertical busbar system including PEN



Rated current at 35 °C ambient			Short-circuit withstand capacity kA _{eff}	Busbar size mm	Type name
IP31 A	IP41 A	IP54 A			
Metal separation wall					
1175	1175	900	50	50 x 30 x 5	-W4W
Multi functional wall (isolated)					
750	750	750	47	50 x 30 x 5	-W4MFW

Horizontal busbar system including PEN



Rated current at 35 °C ambient			Short-circuit withstand capacity kA _{eff}	Busbar size mm	Type name Horizontal busbar system	
IP31 A	IP41 A	IP54 A			At top	At bottom
1500	1450	1250	50	2//30x10 Cu	-H4	-H04
2100	2050	1600	75	2//60x10 Cu	-H6	-H06
3000	2950	2100	100	4//60x10 Cu	-H8	-H08
3400	3350	2450	100	4//60x10 Cu	-H8A	-H08A

Options

End panel, left *+UV*

End panel, right *+UH*

Degree of protection IP 41 *+IP41*

Degree of protection IP 54 *+IP54*

Cylinder locks for doors *+L1*

Bottom plate *+B1*

Isolated neutral for 3-pole apparatus ... *+N*

Isolated neutral for 4-pole apparatus . *+N4*

Max. 50 kA_{eff}

Isolated neutral when 3- and 4-pole
apparatus are mixed in same
cubicle *+N4N*

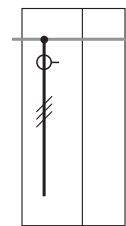
Max. 50 kA_{eff}

Busbars tinned *+SN*

Connection bar *+C4*
(For PEN or N).

Earthing bar for cable screens *+C3*

Earth fault transformer (IT system) *+EF*
For the vertical busbar system. Not for V5W.



This does not reduce
the space available for
modules.

Cabel entry from above *+K3*

Cubicle heater *+B2*
100 W with thermostat.

Switchgear colour, Standard *+Grey*

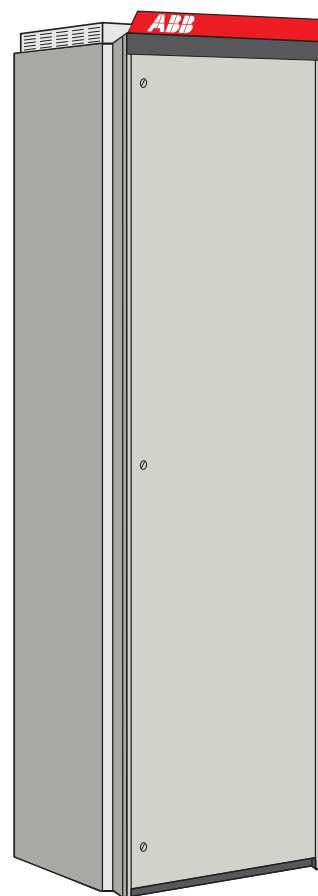
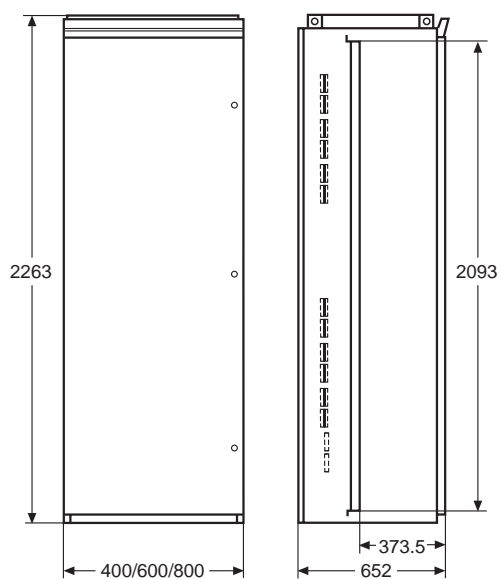
Switchgear colour, ASEA H *+Beige*

General

The non-equipped F-cubicle is 400 mm or 600 mm wide and can be equipped with an assembly plate for fixed mounting of apparatus.

The cubicle front is covered by a full height door with standard locks.

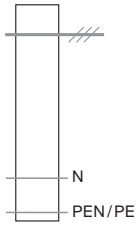
Dimensions



Cubicle

Cubicle width, mm	Type name
400	VMM203-D4
600	VMM203-D6
800	VMM203-D8

Horizontal busbar system including PEN



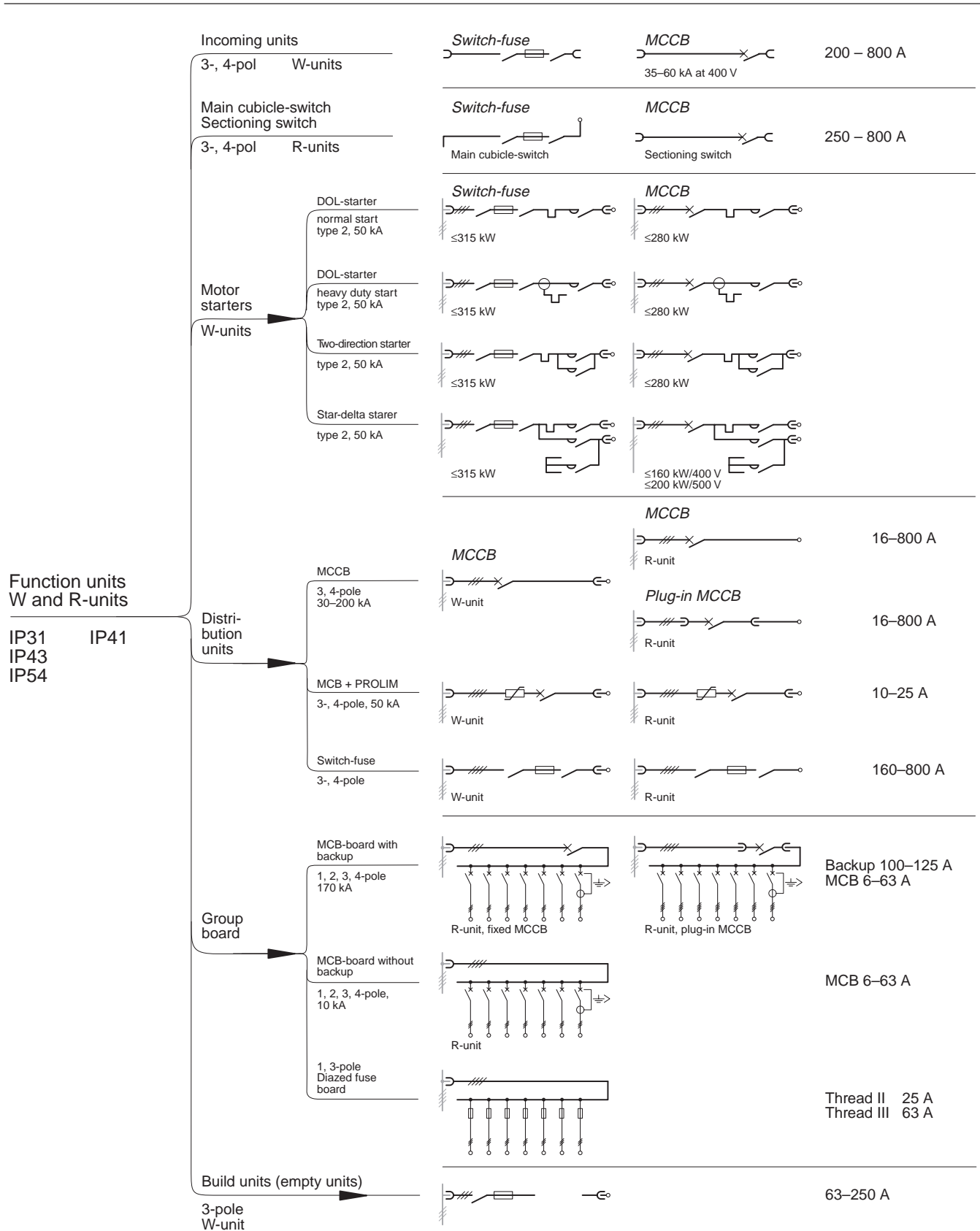
Rated current at 35 °C ambient			Short-circuit withstand capacity kA _{eff}	Busbar size mm	Type name Horizontal busbar system	
IP31 A	IP41 A	IP54 A			At top	At bottom
1500	1450	1250	50	2//30x10 Cu	-H4	-H04
2100	2050	1600	75	2//60x10 Cu	-H6	-H06
3000	2950	2100	100	4//60x10 Cu	-H8	-H08
3400	3350	2450	100	4//60x10 Cu	-H8A	-H08A

Options

- End panel, left +UV
- End panel, right +UH
- Degree of protection IP 41 +IP41
- Degree of protection IP 54 +IP54
- Cylinder locks for doors +L1
- Bottom plate +B1
- Isolated neutral +N
- Busbars tinned +SN
- Connection bar +C4
(For PEN or N).
- Cabel entry from above +K3
- Mounting plate for optional equipment +TL42A
- Cubicle heater +B2
- Switchgear colour, Standard +Grey
- Switchgear colour, ASEA H +Beige

Ordering information for MNS apparatus units



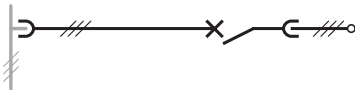


General

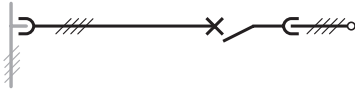
For a simple incoming supply the incoming line can be connected in a switchgear W-cubicle to an incoming unit of the same type as the distribution units.

The incoming units consists of a MCCB of type SACE Isomax or switch-fuse of type ABB Control Oy, OESA.

MCCB-units



3-pole
MCCB: ABB SACE Isomax N/H

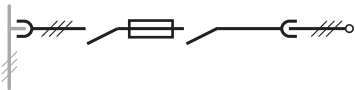


4-pole
MCCB: ABB SACE Isomax N/H

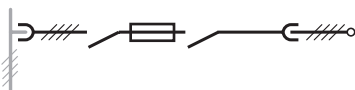
Rated current ¹⁾	Breaking capacity	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
400, 500, 690 V					
MCCB with normal breaking capacity, type SACE Isomax N					
175 – 250 A	35, 25, 14 kA	4 M	VMLMI3–N250–W4	8 M	VMLMI3–4N250–W8
100 – 250 A	35, 25, 14 kA	4 M	VMLMI4–N250–W4	8 M	VMLMI4–4N250–W8
130 – 320 A	35, 25, 20 kA	4 M	VMLMI5–N320–W4	8 M	VMLMI5–4N320–W8
160 – 400 A	35, 25, 20 kA	4 M	VMLMI5–N400–W4	8 M	VMLMI5–4N400–W8
250 – 630 A	35, 25, 20 kA	8 M	VMLMI6–N630–W8	12 M	VMLMI6–4N630–W12
320 – 800 A	35, 25, 20 kA	8 M	VMLMI6–N800–W8	12 M	VMLMI6–4N800–W12
MCCB with high breaking capacity, type SACE Isomax H					
175 – 250 A	65, 40, 18 kA	4 M	VMLMI3–H250–W4	8 M	VMLMI3–4H250–W8
100 – 250 A	65, 40, 18 kA	4 M	VMLMI4–H250–W4	8 M	VMLMI4–4H250–W8
130 – 320 A	65, 40, 25 kA	4 M	VMLMI5–H320–W4	8 M	VMLMI5–4H320–W8
160 – 400 A	65, 40, 25 kA	4 M	VMLMI5–H400–W4	8 M	VMLMI5–4H400–W8
250 – 630 A	65, 40, 25 kA	8 M	VMLMI6–H630–W8	12 M	VMLMI6–4H630–W12
320 – 800 A	65, 40, 25 kA	8 M	VMLMI6–H800–W8	12 M	VMLMI6–4H800–W12

¹⁾ Rated current is derated –10% at IP 54.

Switch-fuse units



3-pole
Switch-fuse: ABB Control Oy, type OESA



4-pole
Switch-fuse: ABB Control Oy, type OESA

Rated current	3-pole		4-pole	
	Mo- dule size	Type designation	Mo- dule size	Type designation
250 A	6 M	VMLLHI250–W6	8 M	VMLLHI250–4–W8
400 A	6 M	VMLLHI400–W6	8 M	VMLLHI400–4–W8
630 A	10 M	VMLLHI630–W10	12 M	VMLLHI630–4–W12
720 A	10 M	VMLLHI800–W10	12 M	VMLLHI800–4–W12

¹⁾ Rated current is derated –10% at IP 54.

Options

Measuring instruments

Instruments 72 x 72 mm fitted in the front:

- Three A-meters
- One V-meter with selector switch
- with instantaneous A-meters +P2K
- with instantaneous and maximum A-meters +P2KM

Auxiliary and alarm contacts for

MCCB unit +HL6

The contacts connected to terminal block.

Auxiliary contacts for

switch-fuse unit +HL2

1 No + 1 NC.

Neutral terminal block

for 3-pole design +A4N

GZNB type fitted to the protective earth and neutral busbar (PEN).

Degree of protection IP54 +IP54

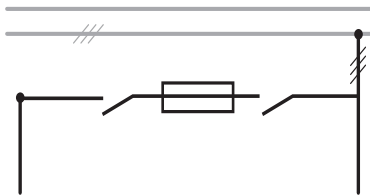
Rated current is derated –10 % at IP54.

General

The main cubicle switch sectionalises the vertical busbar system in the apparatus cubicles (W and R cubicles). For this purpose an additional vertical busbar system is needed placed to the right in the cubicle.

The switch is a switch-fuse of type ABB Control Oy, OESA.

Switch-fuse unit



Switch-fuse: ABB Control type OESA

Rated current	3-pole		4-pole	
	Module size	Type designation	Module size	Type designation
250 A	4 M	VMLLHS250B-R4	6 M	VMLLHS250B-4-R6
400 A	4 M	VMLLHS400B-R4	6 M	VMLLHS400B-4-R6
630 A	8 M	VMLLHS630B-R8	10 M	VMLLHS630B-4-R10
720 A	8 M	VMLLHS800B-R8	10 M	VMLLHS800B-4-R10

Options

Current meter

One A-meter 72×72 mm fitted in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and maximum A-meter +P2DM

Auxiliary contacts +HL2

1 NO + 1 NC.

Degree of protection IP54 +IP54

Rated current is derated -10 % at IP54.

General

The starter units are withdrawable and dimensioned according to IEC 947-4-1, type 2. They are available as normal and compact units:

- Normal units for complete range
- Compact units for small DOL starters

Three types of starters for up to 315 kW motors are available:

- **Direct-on-line starters (DOL)** for normal or heavy duty start
- **Two-direction starters** (the motor must be stopped before reversing)
- **Star-delta starters**

Design

The starters are available with switch-fuse or in fuse-less version.

Starters with switch-fuse

The switch-fuse is of the type ABB Control Oy, OESA. Type of fuse is aM-type of gG-type.

Fuse-less starters

The short-circuit protection is an MCCB of type SACE Modul LN series or MCB and PROLIM for small starters.

Starter dimensioning

The starter tables on the next pages give rated motor current together with motor power in kW. These figures are based on the following:

- Coordination according IEC 947-4-1
- Coordination type 2, 400 and 500 V, 50 kA
- ABB motors, short-circuited one-speed motors MST ≤ 55kW, HXV ≥ 75 kW, 4-pole, 1500 rpm
- Utilisation category AC3
- Dimensioned for thermal/mechanical short-circuit resistance only for unit (external cable and motor are not included)
- Heavy duty start acc. to 947-4-1, class 20 (= starting time max. 20 s), ≥ 75 kW class 30 (= starting time max. 30 s).

The correct selection of starter for a specific motor may be obtained using CenterPro.

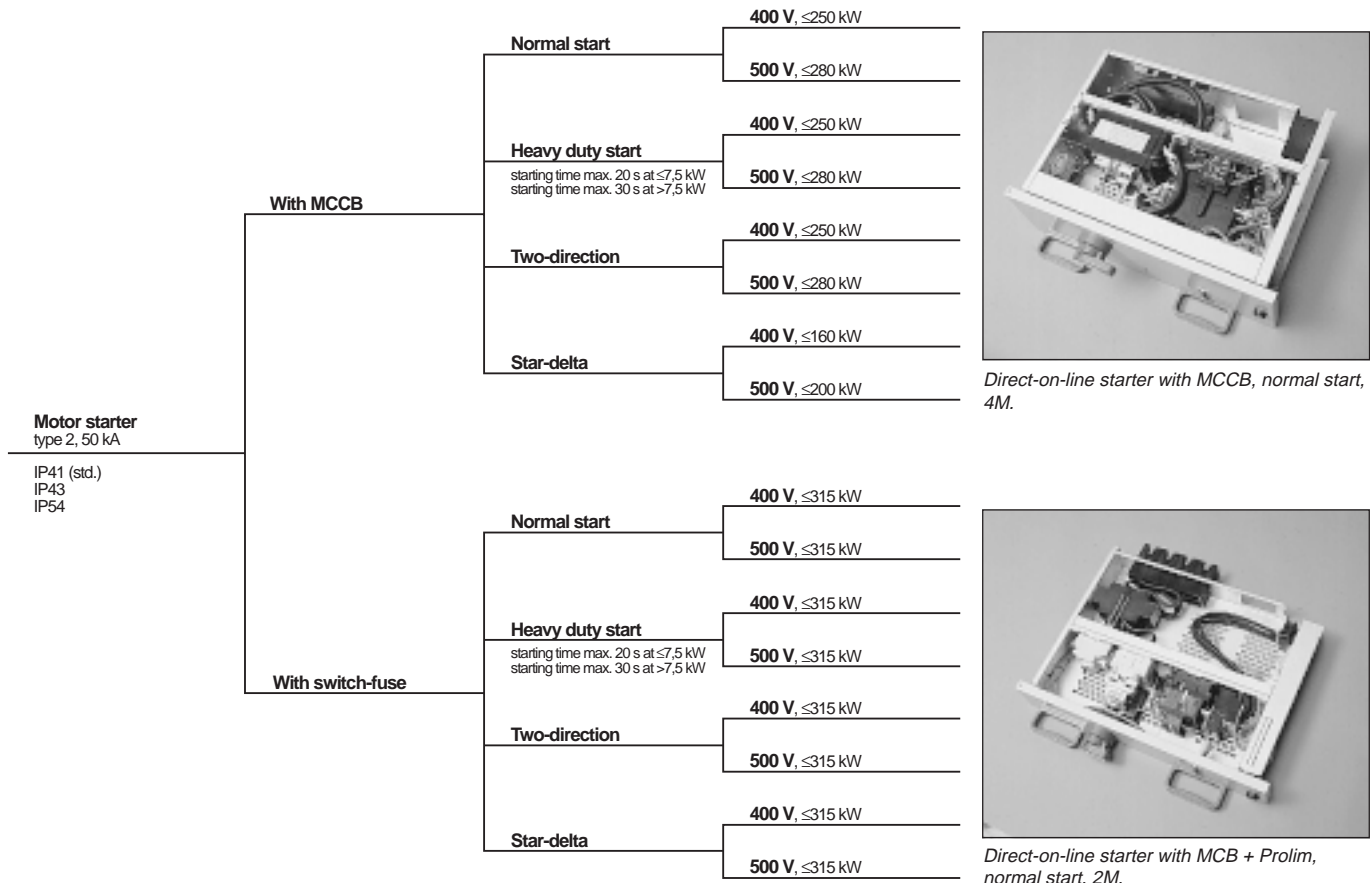
Operating supply

The starter operating voltage is 220 and 230 V, 50 Hz or 110 V, 50 Hz.

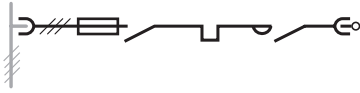
Circuit diagrams

Each starter is supplied with a circuit diagram detailing the functions of the starter. Position designations Q, K, F, etc., are as per IEC 750 "Item designation in electrotechnology".

Overview



Direct-on-line starters (DOL) with switch-fuse, normal start, type 2, 50 kA



400 V					500 V				
Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM Max. current for the unit I_{max} A	Module size	Type designation	Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM Max. current for the unit I_{max} A	Module size	Type designation
Normal units									
3	8,3	8,3	2 M	VMLD9-L80-W2	4	7	7	2 M	VMLD9-L80-W2
4	11	11	2 M	VMLD12-L80-W2	5,5	11	11	2 M	VMLD16-L80-W2
7,5	16	16	2 M	VMLD16-L80-W2	7,5	14	14	2 M	VMLD25-L80-W2
11	–	25	2 M	VMLD25-L80-W2	11	19	19	2 M	VMLD50-L80-W2
22	50	50	2 M	VMLD50B-L80-W2	22	42	42	2 M	VMLD50B-L80-W2
30	59	59	2 M	VMLD63-L80-W2	30	45	45	2 M	VMLD63-L80-W2
37	75	75	4 M	VMLD75-L160-W4	37	63	63	4 M	VMLD75-L160-W4
45	96	96	4 M	VMLD90B-L160-W4	45	80	80	4 M	VMLD90-L160-W4
55	–	110	4 M	VMLD100-L160-W4	75	–	125	4 M	VMLD100-L160-W4
55	110	–	6 M	VMLD100-L250-W6	75	125	–	6 M	VMLD100-L250-W6
75	–	145	4 M	VMLD145-L160-W4	90	150	150	6 M	VMLD145-L250-W6
75	145	–	6 M	VMLD145-L250-W6	110	–	185	6 M	VMLD210-L250-W6
90	–	185	6 M	VMLD210-L250-W6	110	185	–	6 M	VMLD300-L400-W6
90	185	–	6 M	VMLD210-L400-W6	132	225	225	6 M	VMLD300B-L400-W6
110	–	210	6 M	VMLD210B-L250-W6	160	250	250	6 M	VMLD300C-L400-W6
110	210	–	6 M	VMLD210B-L400-W6	200	–	300	6 M	VMLD300D-L400-W6
132	250	250	6 M	VMLD300C-L400-W6	200	300	–	12 M	VMLD300-L630-W12
160	–	305	6 M	VMLD300E-L400-W6	250	–	370	8 M	VMLD370-L400-W8
160	327	–	12 M	VMLD370-L630-W12	250	370	–	12 M	VMLD370-L630-W12
200	–	370	8 M	VMLD370B-L400-W8	315	–	500	12 M	VMLD550-L630-W12
200	399	–	12 M	VMLD370B-L630-W12	315	500	–	12 M	VMLD700-L800-W12
250	500	500	12 M	VMLD550-L630-W12					
280	532	532	12 M	VMLD550B-L630-W12					
315	565	565	12 M	VMLD700B-L800-W12					
Compact units									
3	8,3	8,3	4 M/4	VMLD9-L63-W4/4	4	7	7	4 M/4	VMLD9-L63-W4/4
4	11	11	4 M/4	VMLD12-L63-W4/4	5,5	11	11	4 M/4	VMLD16-L63-W4/4
7,5	16	16	4 M/4	VMLD16-L63-W4/4	7,5	14	14	4 M/4	VMLD25-L63-W4/4
11	–	25	4 M/4	VMLD25-L63-W4/4	15	25	25	4 M/4	VMLD30-L63-W4/4
15	30	30	4 M/4	VMLD30-L63-W4/4	18,5	32	32	4 M/4	VMLD50-L63-W4/4

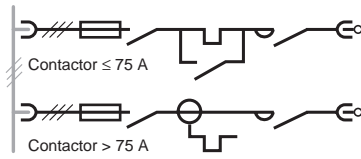
Options, see page 38

**Direct-on-line starters (DOL), fuse-less
normal start, type 2, 50 kA**


400 V				500 V			
Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation	Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation
Normal units							
0,37	1,4	2 M	VMLD9-M25S1-W2	1,1	2,4	2 M	VMLD9-M25S4-W2
0,75	2,4	2 M	VMLD9-M25S2-W2	1,5	3,1	2 M	VMLD16-M25S4-W2
1,1	3,1	2 M	VMLD25-M25S4-W2	2,2	4,8	2 M	VMLD25-M25S9L5-W2
2,2	6,5	2 M	VMLD25-M25S6-W2	4	8,5	2 M	VMLD50-M25S9L5-W2
3	8,3	2 M	VMLD50-M25S9-W2	11	19	2 M	VMLD50-M2S20L5-W2
4	11	2 M	VMLD50-M25S12-W2	15	25	2 M	VMLD50-M2S25L5-W2
5,5	14	2 M	VMLD50-M25S16-W2	22	42	4 M	VMLD50-M125L-W4
11	25	2 M	VMLD50-M25S25-W2	30	52	4 M	VMLD63-M125L-W4
22	52	2 M	VMLD50-M28K63L-W2	37	63	4 M	VMLD90-M125L-W4
37	75	4 M	VMLD75-M125L-W4	45	80	4 M	VMLD145-M125L-W4
45	90	4 M	VMLD145B-M125L-W4	55	109	4 M	VMLD145-M160L-W4
55	110	4 M	VMLD210-M160L-W4	75	130	4 M	VMLD210B-M160L-W4
75	145	6 M	VMLD145-M200L-W6	110	175	6 M	VMLD210-M200L-W6
90	175	6 M	VMLD210-M200L-W6	132	210	8 M	VMLD210-M320L-W8
110	210	8 M	VMLD210-M320L-W8	160	250	10 M	VMLD300-M500L-W10
132	250	10 M	VMLD300-M500L-W10	200	300	10 M	VMLD300B-M500L-W10
200	375	10 M	VMLD370-M500L-W10	250	370	10 M	VMLD370-M500L-W10
250	485	12 M	VMLD550-M800L-W12	280	500	12 M	VMLD550-M800L-W12
Compact units							
0,37	1,4	4 M/4	VMLD9-M25S1-W4/4	1,1	2,4	4 M/4	VMLD9-M25S4-W4/4
0,75	2,4	4 M/4	VMLD9-M25S2-W4/4	1,5	3,1	4 M/4	VMLD16-M25S4-W4/4
1,1	3,1	4 M/4	VMLD25-M25S4-W4/4	2,2	4,8	4 M/4	VMLD25-M25S9L5-W4/4
2,2	6,5	4 M/4	VMLD25-M25S6-W4/4	4	8,5	4 M/4	VMLD30-M25S9L5-W4/4
3	8,3	4 M/4	VMLD30-M25S9-W4/4	11	19	4 M/4	VMLD30-M25S20L5-W4/4
4	11	4 M/4	VMLD30-M25S12-W4/4	15	25	4 M/4	VMLD30-M25S25L5-W4/4
5,5	14	4 M/4	VMLD30-M25S16-W4/4				
11	25	4 M/4	VMLD30-M25S25-W4/4				

Options, see page 38.

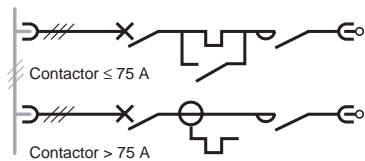
Direct-on-line starters (DOL) with switch-fuse heavy duty start, type 2, 50 kA



400 V					500 V				
Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM Max. current for the unit I_{max} A	Module size	Type designation	Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM Max. current for the unit I_{max} A	Module size	Type designation
Normal units									
3	8,3	8,3	2 M	VMLDH9-L80-W2	4	7	7	2 M	VMLDH9-L80-W2
4	11	11	2 M	VMLDH12-L80-W2	5,5	11	11	2 M	VMLDH16-L80-W2
5,5	14	14	2 M	VMLDH16-L80-W2	7,5	14	14	2 M	VMLDH25-L80-W2
7,5	19	19	2 M	VMLDH50-L80-W2	11	19	19	2 M	VMLDH50-L80-W2
18,5	42	42	2 M	VMLDH50B-L80-W2	22	42	42	2 M	VMLDH50B-L80-W2
22	52	52	2 M	VMLDH63-L80-W2	30	–	45	2 M	VMLDH63-L80-W2
30	–	63	2 M	VMLDH75-L80-W2	30	45	–	4 M	VMLDH63-L160-W4
30	63	–	4 M	VMLDH75-L160-W4	37	63	63	4 M	VMLDH75-L160-W4
37	–	78	4 M	VMLDH90-L160-W4	45	–	80	4 M	VMLDH90-L160-W4
37	78	–	6 M	VMLDH100-L250-W6	45	80	–	6 M	VMLDH100-L250-W6
45	–	90	4 M	VMLDH100-L160-W4	55	–	90	4 M	VMLDH100-L160-W4
45	96	–	6 M	VMLDH100B-L250-W6	55	100	–	6 M	VMLDH100B-L250-W6
55	127	112	6 M	VMLDH145-L250-W6	75	129	129	6 M	VMLDH145-L250-W6
75	156	–	6 M	VMLDH210B-L400-W6	90	–	145	6 M	VMLDH210-L250-W6
90	–	185	6 M	VMLDH210B-L250-W6	90	145	–	6 M	VMLDH210-L400-W6
90	185	–	6 M	VMLDH300-L400-W6	110	–	185	6 M	VMLDH210B-L250-W6
110	225	225	6 M	VMLDH300B-L400-W6	110	185	–	6 M	VMLDH300-L400-W6
132	–	250	8 M	VMLDH370-L400-W8	132	225	225	6 M	VMLDH300B-L400-W6
132	250	–	12 M	VMLDH370-L630-W12	160	–	250	8 M	VMLDH370-L400-W8
160	–	327	12 M	VMLDH370B-L630-W12	160	250	–	12 M	VMLDH370-L630-W12
160	327	–	12 M	VMLDH700-L800-W12	200	–	330	12 M	VMLDH370B-L630-W12
200	–	370	12 M	VMLDH370C-L630-W12	200	330	–	12 M	VMLDH700-L800-W12
250	–	500	12 M	VMLDH550-L800-W12	250	–	370	12 M	VMLDH370C-L630-W12
280	–	550	12 M	VMLDH550B-L800-W12	315	–	485	12 M	VMLDH550-L800-W12
315	–	565	12 M	VMLDH700B-L800-W12					

Options, see page 38.

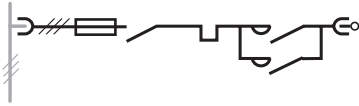
Direct-on-line starter (DOL), fuse-less heavy duty start, type 2, 50 kA



400 V				500 V			
Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation	Max. motor output kW	Max. current for AC3the unit A	Module size	Type designation
Normal units							
0,55	1,8	2 M	VMLDH9-M25S2-W2	1,1	2,4	2 M	VMLDH9-M25S4-W2
0,75	2,4	2 M	VMLDH25-M25S4-W2	1,5	3,1	2 M	VMLDH25-M25S6-W2
1,5	4	2 M	VMLDH25-M25S6-W2	2,2	5	2 M	VMLDH25-M25S9L5-W2
2,2	6,5	2 M	VMLDH50-M25S9-W2	3	6,5	2 M	VMLDH50-M25S9L5-W2
3	8,5	2 M	VMLDH50-M25S12-W2	4	8,5	2 M	VMLDH50-M25S12L5-W2
4	11	2 M	VMLDH50-M25S16-W2	7,5	14	2 M	VMLDH50-M25S20L5-W2
7,5	19	2 M	VMLDH50-M25S25-W2	11	19	2 M	VMLDH50-M25S25L5-W2
22	52	4 M	VMLDH75-M125L-W4	15	25	4 M	VMLDH100B-M125L-W4
37	75	4 M	VMLDH75B-M125L-W4	18,5	32	4 M	VMLDH100C-M125L-W4
45	90	4 M	VMLDH145B-M125L-W4	22	42	4 M	VMLDH100D-M125L-W4
55	110	4 M	VMLDH210-M160L-W4	37	63	4 M	VMLDH100E-M125L-W4
75	160	6 M	VMLDH210B-M200L-W6	45	80	4 M	VMLDH145-M125L-W4
90	185	8 M	VMLDH300-M200L-W8	55	110	4 M	VMLDH145-M160L-W4
110	235	8 M	VMLDH370-M320L-W8	75	135	4 M	VMLDH210B-M160L-W4
132	250	10 M	VMLDH370-M500L-W10	90	145	6 M	VMLDH210-M200L-W6
200	375	10 M	VMLDH370B-M500L-W10	110	185	8 M	VMLDH300-M200L-W8
250	500	12 M	VMLDH700-M800L-W12	132	235	8 M	VMLDH370-M320L-W8
				160	250	10 M	VMLDH370-M500L-W10
				250	370	10 M	VMLDH370B-M500L-W10
				280	500	12 M	VMLDH700-M800L-W12

Options, see page 38.

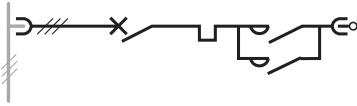
Two-direction starters with switch-fuse type 2, 50 kA



400 V					500 V				
Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM Max. current for the unit I_{max} A	Module size	Type designation	Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM Max. current for the unit I_{max} A	Module size	Type designation
Normal units									
3	8.3	8.3	2 M	VMLR9-L80-W2	4	7	7	2 M	VMLR9-L80-W2
4	11	11	2 M	VMLR12-L80-W2	5,5	11	11	2 M	VMLR16-L80-W2
7,5	16	16	2 M	VMLR16-L80-W2	7,5	14	14	2 M	VMLR25-L80-W2
11	–	25	2 M	VMLR25-L80-W2	11	19	19	2 M	VMLR50-L80-W2
22	50	50	2 M	VMLR50B-L80-W2	22	42	42	2 M	VMLR50B-L80-W2
30	63	63	2 M	VMLR63-L80-W2	30	45	45	2 M	VMLR63-L80-W2
37	75	75	4 M	VMLR75-L160-W4	37	63	63	4 M	VMLR75-L160-W4
45	96	96	6 M	VMLR90B-L160-W6	45	80	80	6 M	VMLR90-L160-W6
55	–	110	8 M	VMLR100-L160-W8	75	–	125	8 M	VMLR100-L160-W8
55	110	–	8 M	VMLR100-L250-W8	75	125	–	8 M	VMLR100-L250-W8
75	–	145	8 M	VMLR145-L160-W8	90	150	150	8 M	VMLR145-L250-W8
75	145	–	8 M	VMLR145-L250-W8	110	–	185	8 M	VMLR210-L250-W8
90	–	185	8 M	VMLR210-L250-W8	110	185	–	10 M	VMLR300-L400-W10
90	185	–	8 M	VMLR210-L400-W8	132	225	225	10 M	VMLR300B-L400-W10
110	–	210	8 M	VMLR210B-L250-W8	160	250	250	10 M	VMLR300C-L400-W10
110	210	–	8 M	VMLR210B-L400-W8	200	–	300	10 M	VMLR300D-L400-W10
132	250	250	10 M	VMLR300C-L400-W10	200	300	–	12 M	VMLR300-L630-W12
160	–	305	10 M	VMLR300E-L400-W10	250	–	370	12 M	VMLR370-L400-W12
160	327	–	18 M	VMLR370B-L630-WR18	250	370	–	18 M	VMLR370C-L630-WR18
200	–	370	12 M	VMLR370-L400-W12	315	–	500	18 M	VMLR550-L630-WR18
200	399	–	18 M	VMLR370C-L630-WR18	315	500	–	20 M	VMLR700-L800-WR20
250	500	500	18 M	VMLR550-L630-WR18					
280	550	550	18 M	VMLR550B-L630-WR18					
315	630	630	20 M	VMLR700B-L800-WR20					

Options, see page 38.

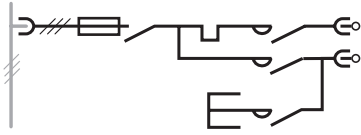
Two-direction starters, fuse-less type 2, 50 kA



400 V				500 V			
Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation	Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation
Normal units							
0,37	1,4	2 M	VMLR9-M25S1-W2	1,1	2,4	2 M	VMLR9-M25S4-W2
0,75	2,4	2 M	VMLR9-M25S2-W2	1,5	3,1	2 M	VMLR16-M25S4-W2
1,1	3,1	2 M	VMLR25-M25S4-W2	2,2	4,8	2 M	VMLR25-M25S9L5-W2
2,2	6,5	2 M	VMLR25-M25S6-W2	4	8,5	2 M	VMLR50-M25S9L5-W2
3	8,3	2 M	VMLR50-M25S9-W2	11	19	2 M	VMLR50-M25S20L5-W2
4	11	2 M	VMLR50-M25S12-W2	15	25	2 M	VMLR50-M25S25L5-W2
5,5	14	2 M	VMLR50-M25S16-W2	22	42	4 M	VMLR50-M125L-W4
11	25	2 M	VMLR50-M25S25-W2	30	52	4 M	VMLR63-M125L-W4
22	52	2 M	VMLR50-M28K63L-W2	37	63	6 M	VMLR90-M125L-W6
37	75	4 M	VMLR75-M125L-W4	45	90	6 M	VMLR100-M125L-W6
45	90	6 M	VMLR100-M125L-W6	55	110	6 M	VMLR100-M160L-W6
55	110	6 M	VMLR100-M160L-W6	75	135	6 M	VMLR210-M160L-W6
75	145	6 M	VMLR145-M200L-W6	90	145	6 M	VMLR210-M200L-W6
90	175	6 M	VMLR210B-M200L-W6	110	175	6 M	VMLR210B-M200L-W6
110	210	8 M	VMLR210-M320L-W8	132	210	8 M	VMLR210-M320L-W8
132	250	10 M	VMLR300-M500L-W10	160	250	10 M	VMLR300-M500L-W10
200	375	18 M	VMLR370-M500L-W18	200	300	10 M	VMLR300B-M500L-W10
250	485	18 M	VMLR550-M800L-W18	250	370	18 M	VMLR370-M500L-WR18
				280	500	18 M	VMLR550-M800L-WR18

Options, see page 38.

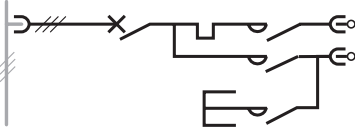
Star-delta starters with switch-fuse type 2, 50 kA



400 V					500 V				
Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM I_{max} A	Module size	Type designation	Max. motor output AC3 kW	Fuse type gG Max. current for the unit I_{max} A	Fuse type aM I_{max} A	Module size	Type designation
Normal units									
7,5	16	16	4 M	VMLS9-L160-W4	7,5	14	14	4 M	VMLS12-L160-W4
11	23	23	4 M	VMLS12-L160-W4	11	19	19	4 M	VMLS16-L160-W4
15	30	30	4 M	VMLS16-L160-W4	15	24	24	4 M	VMLS25-L160-W4
18,5	42	42	4 M	VMLS25-L160-W4	22	43	43	4 M	VMLS50-L160-W4
22	50	50	4 M	VMLS50-L160-W4	45	72	72	4 M	VMLS50B-L160-W4
37	78	78	4 M	VMLS50B-L160-W4	55	90	90	4 M	VMLS63-L160-W4
45	96	96	4 M	VMLS63-L160-W4	75	112	112	4 M	VMLS75-L160-W4
55	127	125	4 M	VMLS75-L160-W4	90	138	138	6 M	VMLS90-L160-W6
75	156	156	6 M	VMLS90B-L160-W6	110	–	160	8 M	VMLS100-L160-W8
110	210	210	10 M	VMLS100-L250-W10	132	207	200	10 M	VMLS100-L250-W10
132	–	250	10 M	VMLS145-L250-W10	160	–	250	10 M	VMLS145-L250-W10
132	250	–	10 M	VMLS145-L400-W10	160	250	–	10 M	VMLS145-L400-W10
160	327	315	10 M	VMLS210-L400-W10	200	303	303	10 M	VMLS210-L400-W10
200	–	370	12 M	VMLS300-L400-W12	250	400	355	12 M	VMLS300-L400-W12
200	399	–	18 M	VMLS300-L630-WR18	315	519	500	18 M	VMLS300B-L630-WR18
250	486	486	18 M	VMLS300B-L630-WR18					
315	–	630	18 M	VMLS370-L630-WR18					
315	630	–	18 M	VMLS370-L800-WR18					

Options, see page 38.

**Star-delta starters, fuse-less
type 2, 50 kA**



400 V				500 V			
Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation	Max. motor output AC3 kW	Max. current for the unit A	Module size	Type designation
Normal units							
15	32	4 M	VMLS75B-M125L-W4	7,5	14	4 M	VMLS75-M125L-W4
22	55	4 M	VMLS75C-M125L-W4	18,5	32	4 M	VMLS75B-M125L-W4
30	69	6 M	VMLS100B-M160L-W6	22	43	4 M	VMLS75C-M125L-W4
37	80	6 M	VMLS100C-M160L-W6	30	46	6 M	VMLS100-M160L-W6
45	95	6 M	VMLS210-M200L-W6	45	69	6 M	VMLS100B-M160L-W6
55	138	8 M	VMLS210-M320L-W8	55	95	6 M	VMLS210-M200L-W6
75	170	8 M	VMLS210B-M320L-W8	90	138	8 M	VMLS210-M320L-W8
90	190	10 M	VMLS300-M500L-W10	132	190	10 M	VMLS300-M500L-W10
110	210	10 M	VMLS300B-M500L-W10	160	250	18 M	VMLS370-M800L-WR18
132	250	10 M	VMLS300C-M500L-W10	200	320	18 M	VMLS370B-M800L-WR18
160	320	18 M	VMLS370B-M800L-WR18				

Options

Auxiliary voltage supply with 2-pole MCB +F6

2-pole MCB for auxiliary supply.

Auxiliary voltage supply with 1-pole MCB + neutral +F5F

Mounted in front door. Not compact.

For sizes > 160 A one 2-pole MCB is added behind the door.

Indication on/off/fault +H12

Remote on/off +S10

Local and remote on/off +S11

Remote on/off via relays +S12

Local and remote on/off via relays +S13

Position indication +H21

Fuse supervision +FS

Current measurement with one current transformer +P2A

Not compact.

Current measurement with one current transformer and one A-meter +P2B

Not compact.

Reset button for thermal overload relay from front +S2

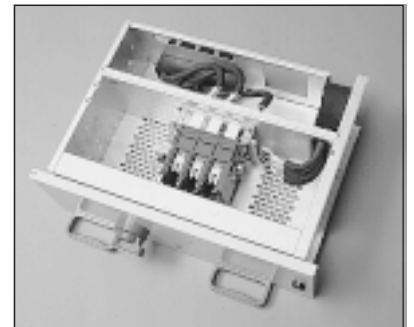
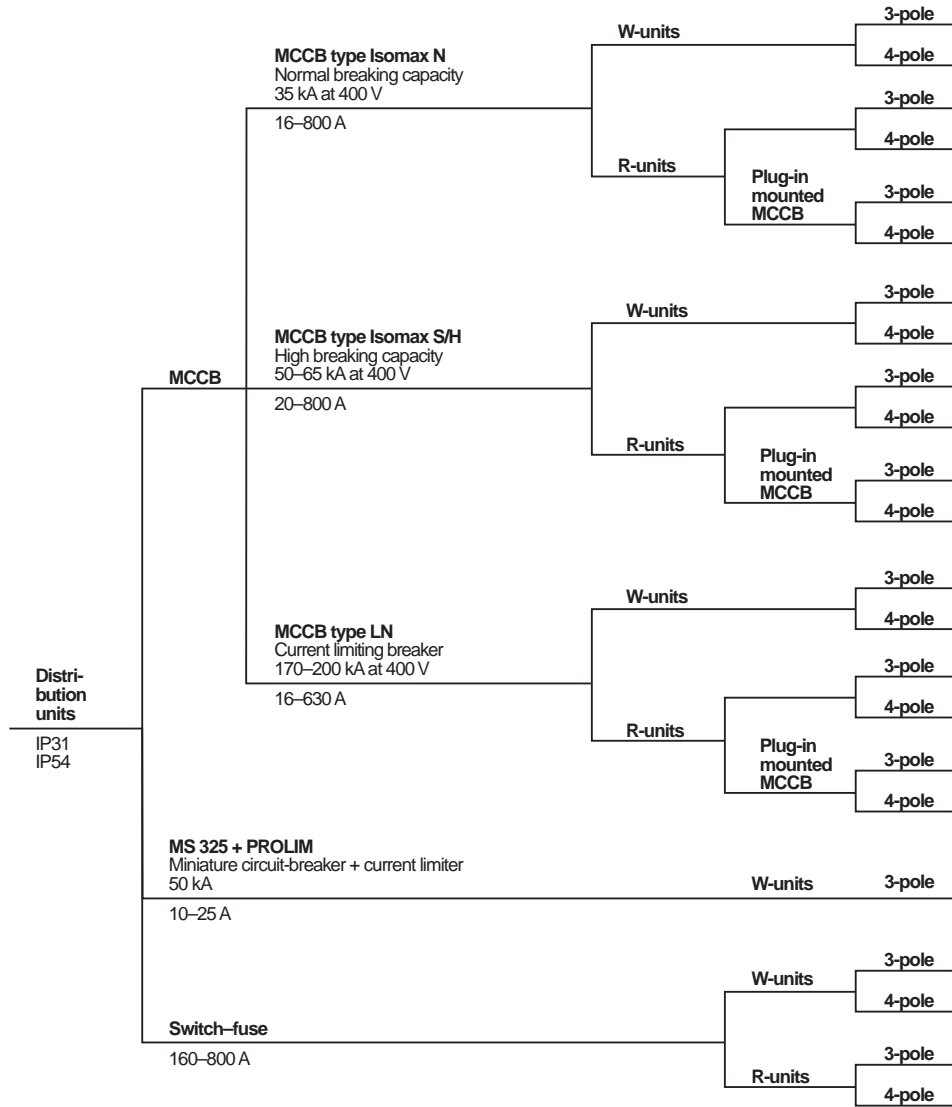
Degree of protection IP54 +IP54

Cubicle parts +VMM

Switchgear colour, Standard +Grey

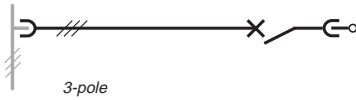
Switchgear colour, ASEA H +Beige

Overveiw



Withdrawable (W) distribution unit with switch-fuse.

MCCB W-units, normal breaking capacity, 3- and 4-pole



MCCB: ABB SACE Isomax N

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
MCCB type SACE Isomax N, size S2					
17,5 – 25 A	35, 12, 8 kA	4 M	VMLM2-N25-W4	4 M	VMLM2-4N25-W4
22,5 – 32 A	35, 12, 8 kA	4 M	VMLM2-N32-W4	4 M	VMLM2-4N32-W4
28 – 40 A	35, 12, 8 kA	4 M	VMLM2-N40-W4	4 M	VMLM2-4N40-W4
35 – 50 A	35, 12, 8 kA	4 M	VMLM2-N50-W4	4 M	VMLM2-4N50-W4
44 – 63 A	35, 12, 8 kA	4 M	VMLM2-N63-W4	4 M	VMLM2-4N63-W4
56 – 80 A	35, 12, 8 kA	4 M	VMLM2-N80-W4	4 M	VMLM2-4N80-W4
70 – 100 A	35, 12, 8 kA	4 M	VMLM2-N100-W4	4 M	VMLM2-4N100-W4
87,5 – 125 A	35, 12, 8 kA	4 M	VMLM2-N125-W4	4 M	VMLM2-4N125-W4
MCCB type SACE Isomax N, size S3					
19 – 32 A	35, 25, 14 kA	4 M	VMLM3-N32-W4	4 M	VMLM3-4N32-W4
30 – 50 A	35, 25, 14 kA	4 M	VMLM3-N50-W4	4 M	VMLM3-4N50-W4
48 – 80 A	35, 25, 14 kA	4 M	VMLM3-N80-W4	4 M	VMLM3-4N80-W4
70 – 100 A	35, 25, 14 kA	4 M	VMLM3-N100-W4	4 M	VMLM3-4N100-W4
87,5 – 125 A	35, 25, 14 kA	4 M	VMLM3-N125-W4	4 M	VMLM3-4N125-W4
112 – 160 A	35, 25, 14 kA	4 M	VMLM3-N160-W4	4 M	VMLM3-4N160-W4
140 – 200 A	35, 25, 14 kA	4 M	VMLM3-N200-W4	8 M	VMLM3-4N200-W8
175 – 250 A	35, 25, 14 kA	4 M	VMLM3-N250-W4	8 M	VMLM3-4N250-W8
MCCB type SACE Isomax N, size S4					
40 – 100 A	35, 25, 14 kA	4 M	VMLM4-N100-W4	4 M	VMLM4-4N100-W4
64 – 160 A	35, 25, 14 kA	4 M	VMLM4-N160-W4	4 M	VMLM4-4N160-W4
100 – 250 A	35, 25, 14 kA	4 M	VMLM4-N250-W4	8 M	VMLM4-4N250-W8
MCCB type SACE Isomax N, size S5					
130 – 320 A	35, 25, 20 kA	4 M	VMLM5-N320-W4	8 M	VMLM5-4N320-W8
160 – 400 A	35, 25, 20 kA	4 M	VMLM5-N400-W4	8 M	VMLM5-4N400-W8
MCCB type SACE Isomax N, size S6					
250 – 630 A	35, 25, 20 kA	8 M	VMLM6-N630-W8	12 M	VMLM6-4N630-W12
320 – 800 A	35, 25, 20 kA	8 M	VMLM6-N800-W8	12 M	VMLM6-4N800-W12

¹⁾ Rated current is derated –10% at IP 54.

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB W-units, high breaking capacity, 3- and 4-pole



MCCB: ABB SACE Isomax H (S)

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
MCCB type SACE Isomax S, size S2					
17,5 – 25 A	50, 15, 10 kA	4 M	VMLM2-S25-W4	4 M	VMLM2-4S25-W4
22,5 – 32 A	50, 15, 10 kA	4 M	VMLM2-S32-W4	4 M	VMLM2-4S32-W4
28 – 40 A	50, 15, 10 kA	4 M	VMLM2-S40-W4	4 M	VMLM2-4S40-W4
35 – 50 A	50, 15, 10 kA	4 M	VMLM2-S50-W4	4 M	VMLM2-4S50-W4
44 – 63 A	50, 15, 10 kA	4 M	VMLM2-S63-W4	4 M	VMLM2-4S63-W4
56 – 80 A	50, 15, 10 kA	4 M	VMLM2-S80-W4	4 M	VMLM2-4S80-W4
70 – 100 A	50, 15, 10 kA	4 M	VMLM2-S100-W4	4 M	VMLM2-4S100-W4
87,5 – 125 A	50, 15, 10 kA	4 M	VMLM2-S125-W4	4 M	VMLM2-4S125-W4
MCCB type SACE Isomax H, size S3					
19 – 32 A	65, 40, 18 kA	4 M	VMLM3-H32-W4	4 M	VMLM3-4H32-W4
30 – 50 A	65, 40, 18 kA	4 M	VMLM3-H50-W4	4 M	VMLM3-4H50-W4
48 – 80 A	65, 40, 18 kA	4 M	VMLM3-H80-W4	4 M	VMLM3-4H80-W4
70 – 100 A	65, 40, 18 kA	4 M	VMLM3-H100-W4	4 M	VMLM3-4H100-W4
87,5 – 125 A	65, 40, 18 kA	4 M	VMLM3-H125-W4	4 M	VMLM3-4H125-W4
112 – 160 A	65, 40, 18 kA	4 M	VMLM3-H160-W4	4 M	VMLM3-4H160-W4
140 – 200 A	65, 40, 18 kA	4 M	VMLM3-H200-W4	8 M	VMLM3-4H200-W8
175 – 250 A	65, 40, 18 kA	4 M	VMLM3-H250-W4	8 M	VMLM3-4H250-W8
MCCB type SACE Isomax H, size S4					
40 – 100 A	65, 40, 18 kA	4 M	VMLM4-H100-W4	4 M	VMLM4-4H100-W4
64 – 160 A	65, 40, 18 kA	4 M	VMLM4-H160-W4	4 M	VMLM4-4H160-W4
100 – 250 A	65, 40, 18 kA	4 M	VMLM4-H250-W4	8 M	VMLM4-4H250-W8
MCCB type SACE Isomax H, size S5					
130 – 320 A	65, 40, 25 kA	4 M	VMLM5-H320-W4	8 M	VMLM5-4H320-W8
160 – 400 A	65, 40, 25 kA	4 M	VMLM5-H400-W4	8 M	VMLM5-4H400-W8
MCCB type SACE Isomax H, size S6					
250 – 630 A	65, 40, 25 kA	8 M	VMLM6-H630-W8	12 M	VMLM6-4H630-W12
320 – 800 A	65, 40, 25 kA	8 M	VMLM6-H800-W8	12 M	VMLM6-4H800-W12

¹⁾ Rated current is derated –10% at IP 54

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

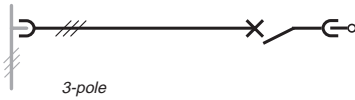
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB W-units, current limiting, 3- and 4-pole



MCCB: ABB SACE Limitor LN

Rated current ¹⁾	Breaking capacity	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
Current limiting MCCB, type SACE Limitor LN					
16 – 20 A	170, 70, 40 kA	4 M	VMLM125-L20-W4	4 M	VMLM125-4L20-W4
20 – 25 A	170, 70, 40 kA	4 M	VMLM125-L25-W4	4 M	VMLM125-4L25-W4
25 – 32 A	170, 70, 40 kA	4 M	VMLM125-L32-W4	4 M	VMLM125-4L32-W4
32 – 40 A	170, 70, 40 kA	4 M	VMLM125-L40-W4	4 M	VMLM125-4L40-W4
40 – 50 A	170, 70, 40 kA	4 M	VMLM125-L50-W4	4 M	VMLM125-4L50-W4
50 – 63 A	170, 70, 40 kA	4 M	VMLM125-L63-W4	4 M	VMLM125-4L63-W4
63 – 80 A	170, 70, 40 kA	4 M	VMLM125-L80-W4	4 M	VMLM125-4L80-W4
80 – 100 A	170, 70, 40 kA	4 M	VMLM125-L100-W4	4 M	VMLM125-4L100-W4
100 – 125 A	170, 70, 40 kA	4 M	VMLM125-L125-W4	4 M	VMLM125-4L125-W4
125 – 160 A	200, 125, 50 kA	4 M	VMLM200-L160-W4		
125 – 160 A	200, 125, 75 kA			12 M	VMLM200-4L160-W12
160 – 200 A	200, 125, 50 kA	4 M	VMLM200-L200-W4		
160 – 200 A	200, 125, 75 kA			12 M	VMLM200-4L200-W12
200 – 250 A	200, 125, 75 kA	4 M	VMLM320-L250-W4	12 M	VMLM320-4L250-W12
250 – 320 A	200, 125, 75 kA	4 M	VMLM320-L320-W4	12 M	VMLM320-4L320-W12
320 – 400 A	200, 125, 75 kA	8 M	VMLM500-L400-W8	12 M	VMLM500-4L400-W12
400 – 500 A	200, 125, 75 kA	8 M	VMLM500-L500-W8	12 M	VMLM500-4L500-W12
500 – 630 A	200, 125, 75 kA	8 M	VMLM630-L630-W8	12 M	VMLM630-4L630-W12

¹⁾ Rated current is derated –10% at IP 54.

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

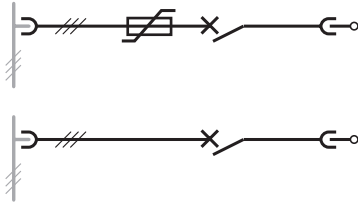
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MS 325, MS 325 + PROLIM



Rated current A	Breaking capacity, kA	MS 325 for max. 400 V		MS 325 + PROLIM for max. 500 V	
		Mo- dule size	Type designation	Mo- dule size	Type designation
W-units, 3-pole					
6,3	50	2 M	VMLM25S-6-W2	2 M	VMLM25S-6L5-W2
12,5	50	2 M	VMLM25S-12-W2	2 M	VMLM25S-12L5-W2
16	50	2 M	VMLM25S-16-W2	2 M	VMLM25S-16L5-W2
20	50	2 M	VMLM25S-20-W2	2 M	VMLM25S-20L5-W2
25	50	2 M	VMLM25S-25-W2	2 M	VMLM25S-25L5-W2

Options

A-meter

A-meter 48 x 48 mm in the front for indication of the outgoing current.

- with instantaneous A-meter +P2B
- with maximum A-meter +P2BM

Auxiliary and alarm contacts +HL6

2 auxiliary and 1 alarm contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to the PEN busbar.

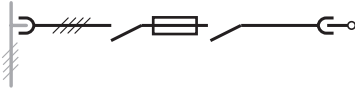
Degree of protection IP54 +IP54

Rated current is derated -10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

Switch-fuse



¹⁾ VMLL 63 only single breaking and fuse accessible only when withdrawn unit.

Rated current	Module size	Type designation
---------------	-------------	------------------

W-units, 3-pole

63 A ¹⁾ (63 A/500V)	2 M	VMLL63-W2
160 A	4 M	VMLLH160-W4
250 A	6 M	VMLLH250-W6
400 A	6 M	VMLLH400-W6
630 A	8 M	VMLLH630-W8
800 A	8 M	VMLLH800-W8

W-units, 4-pole

160 A	4 M	VMLLH160-4-W4
250 A	8 M	VMLLH250-4-W8
400 A	8 M	VMLLH400-4-W8
630 A	12 M	VMLLH630-4-W12
800 A	12 M	VMLLH800-4-W12

Options

A-meter

A-meter 72 x 72 mm in the front for indication of outgoing current. ²⁾

- with instantaneous A-meter** +P2D
- with instantaneous and maximum A-meter** +P2DM

Auxiliary contacts

Choice of up to 2 NO/NC.

- 1 NO + 1 NC** +HL2

Cable clamps +A4D

For copper and aluminium cables.

Only R units.

Neutral terminal block +A4N

GZNB type fitted to the PEN busbar. (Only at 3-pole design.)

Degree of protection IP54 +IP54

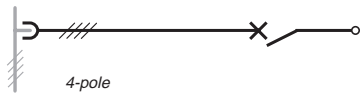
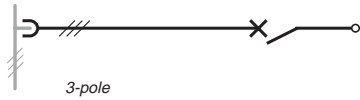
Rated current is derated -10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

²⁾ A-meter 48x48, +P2B, +P2BM for VMLL63-W2

MCCB R-units with fixed MCCB, normal breaking capacity, 3- and 4-pole



MCCB: ABB SACE Isomax N

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
MCCB type SACE Isomax N, size S2					
17,5 – 25 A	35, 12, 8 kA	4 M	VMLM2-N25-R4	4 M	VMLM2-4N25-R4
22,5 – 32 A	35, 12, 8 kA	4 M	VMLM2-N32-R4	4 M	VMLM2-4N32-R4
28 – 40 A	35, 12, 8 kA	4 M	VMLM2-N40-R4	4 M	VMLM2-4N40-R4
35 – 50 A	35, 12, 8 kA	4 M	VMLM2-N50-R4	4 M	VMLM2-4N50-R4
44 – 63 A	35, 12, 8 kA	4 M	VMLM2-N63-R4	4 M	VMLM2-4N63-R4
56 – 80 A	35, 12, 8 kA	4 M	VMLM2-N80-R4	4 M	VMLM2-4N80-R4
70 – 100 A	35, 12, 8 kA	4 M	VMLM2-N100-R4	4 M	VMLM2-4N100-R4
87,5 – 125 A	35, 12, 8 kA	4 M	VMLM2-N125-R4	4 M	VMLM2-4N125-R4
112 – 160 A	35, 12, 8 kA	4 M	VMLM2-N160-R4	4 M	VMLM2-4N160-R4
MCCB type SACE Isomax N, size S3					
19 – 32 A	35, 25, 14 kA	4 M	VMLM3-N32-R4	4 M	VMLM3-4N32-R4
30 – 50 A	35, 25, 14 kA	4 M	VMLM3-N50-R4	4 M	VMLM3-4N50-R4
48 – 80 A	35, 25, 14 kA	4 M	VMLM3-N80-R4	4 M	VMLM3-4N80-R4
70 – 100 A	35, 25, 14 kA	4 M	VMLM3-N100-R4	4 M	VMLM3-4N100-R4
87,5 – 125 A	35, 25, 14 kA	4 M	VMLM3-N125-R4	4 M	VMLM3-4N125-R4
112 – 160 A	35, 25, 14 kA	4 M	VMLM3-N160-R4	4 M	VMLM3-4N160-R4
140 – 200 A	35, 25, 14 kA	4 M	VMLM3-N200-R4	4 M	VMLM3-4N200-R4
175 – 250 A	35, 25, 14 kA	4 M	VMLM3-N250-R4	4 M	VMLM3-4N250-R4
MCCB type SACE Isomax N, size S4					
40 – 100 A	35, 25, 14 kA	4 M	VMLM4-N100-R4	4 M	VMLM4-4N100-R4
64 – 160 A	35, 25, 14 kA	4 M	VMLM4-N160-R4	4 M	VMLM4-4N160-R4
100 – 250 A	35, 25, 14 kA	4 M	VMLM4-N250-R4	4 M	VMLM4-4N250-R4
MCCB type SACE Isomax N, size S5					
130 – 320 A	35, 25, 20 kA	4 M	VMLM5-N320-R4	6 M	VMLM5-4N320-R6
160 – 400 A	35, 25, 20 kA	4 M	VMLM5-N400-R4	6 M	VMLM5-4N400-R6
MCCB type SACE Isomax N, size S6					
250 – 630 A	35, 25, 20 kA	6 M	VMLM6-N630-R6	8 M	VMLM6-4N630-R8
320 – 800 A	35, 25, 20 kA	6 M	VMLM6-N800-R6	8 M	VMLM6-4N800-R8

¹⁾ Rated current is derated –10% at IP 54.

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

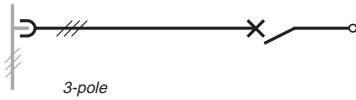
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB R-units with fixed MCCB, high breaking capacity, 3- and 4-pole



MCCB: ABB SACE Isomax H (S)

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
MCCB type SACE Isomax S, size 2					
17,5 – 25 A	50, 15, 10 kA	4 M	VMLM2-S25-R4	4 M	VMLM2-4S25-R4
22,5 – 32 A	50, 15, 10 kA	4 M	VMLM2-S32-R4	4 M	VMLM2-4S32-R4
28 – 40 A	50, 15, 10 kA	4 M	VMLM2-S40-R4	4 M	VMLM2-4S40-R4
35 – 50 A	50, 15, 10 kA	4 M	VMLM2-S50-R4	4 M	VMLM2-4S50-R4
44 – 63 A	50, 15, 10 kA	4 M	VMLM2-S63-R4	4 M	VMLM2-4S63-R4
56 – 80 A	50, 15, 10 kA	4 M	VMLM2-S80-R4	4 M	VMLM2-4S80-R4
70 – 100 A	50, 15, 10 kA	4 M	VMLM2-S100-R4	4 M	VMLM2-4S100-R4
87,5 – 125 A	50, 15, 10 kA	4 M	VMLM2-S125-R4	4 M	VMLM2-4S125-R4
MCCB type SACE Isomax H, size 3					
19 – 32 A	65, 40, 18 kA	4 M	VMLM3-H32-R4	4 M	VMLM3-4H32-R4
30 – 50 A	65, 40, 18 kA	4 M	VMLM3-H50-R4	4 M	VMLM3-4H50-R4
48 – 80 A	65, 40, 18 kA	4 M	VMLM3-H80-R4	4 M	VMLM3-4H80-R4
70 – 100 A	65, 40, 18 kA	4 M	VMLM3-H100-R4	4 M	VMLM3-4H100-R4
87,5 – 125 A	65, 40, 18 kA	4 M	VMLM3-H125-R4	4 M	VMLM3-4H125-R4
112 – 160 A	65, 40, 18 kA	4 M	VMLM3-H160-R4	4 M	VMLM3-4H160-R4
140 – 200 A	65, 40, 18 kA	4 M	VMLM3-H200-R4	4 M	VMLM3-4H200-R4
175 – 250 A	65, 40, 18 kA	4 M	VMLM3-H250-R4	4 M	VMLM3-4H250-R4
MCCB type SACE Isomax H, size 4					
40 – 100 A	65, 40, 18 kA	4 M	VMLM4-H100-R4	4 M	VMLM4-4H100-R4
64 – 160 A	65, 40, 18 kA	4 M	VMLM4-H160-R4	4 M	VMLM4-4H160-R4
100 – 250 A	65, 40, 18 kA	4 M	VMLM4-H250-R4	4 M	VMLM4-4H250-R4
MCCB type SACE Isomax H, size 5					
130 – 320 A	65, 40, 25 kA	4 M	VMLM5-H320-R4	6 M	VMLM5-4H320-R6
160 – 400 A	65, 40, 25 kA	4 M	VMLM5-H400-R4	6 M	VMLM5-4H400-R6
MCCB type SACE Isomax H, size 6					
250 – 630 A	65, 40, 25 kA	6 M	VMLM6-H630-R6	8 M	VMLM6-4H630-R8
320 – 800 A	65, 40, 25 kA	6 M	VMLM6-H800-R6	8 M	VMLM6-4H800-R8

¹⁾ Rated current is derated –10% at IP 54

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

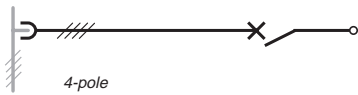
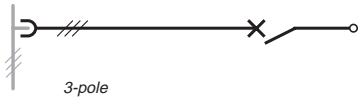
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB R-units with fixed MCCB, current limiting, 3- and 4-pole



MCCB: ABB SACE Limitor LN

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
Current limiting MCCB, type SACE Limitor LN					
16 – 20 A	170, 70, 40 kA	4 M	VMLM125–L20–R4	4 M	VMLM125–4L20–R4
20 – 25 A	170, 70, 40 kA	4 M	VMLM125–L25–R4	4 M	VMLM125–4L25–R4
25 – 32 A	170, 70, 40 kA	4 M	VMLM125–L32–R4	4 M	VMLM125–4L32–R4
32 – 40 A	170, 70, 40 kA	4 M	VMLM125–L40–R4	4 M	VMLM125–4L40–R4
40 – 50 A	170, 70, 40 kA	4 M	VMLM125–L50–R4	4 M	VMLM125–4L50–R4
50 – 63 A	170, 70, 40 kA	4 M	VMLM125–L63–R4	4 M	VMLM125–4L63–R4
63 – 80 A	170, 70, 40 kA	4 M	VMLM125–L80–R4	4 M	VMLM125–4L80–R4
80 – 100 A	170, 70, 40 kA	4 M	VMLM125–L100–R4	4 M	VMLM125–4L100–R4
100 – 125 A	170, 70, 40 kA	4 M	VMLM125–L125–R4	4 M	VMLM125–4L125–R4
125 – 160 A	200, 125, 50 kA	4 M	VMLM200–L160–R4		
125 – 160 A	200, 125, 75 kA			8 M	VMLM200–4L160–R8
160 – 200 A	200, 125, 50 kA	4 M	VMLM200–L200–R4		
160 – 200 A	200, 125, 75 kA			8 M	VMLM200–4L200–R8
200 – 250 A	200, 125, 75 kA	4 M	VMLM320–L250–R4	8 M	VMLM320–4L250–R8
250 – 320 A	200, 125, 75 kA	4 M	VMLM320–L320–R4	8 M	VMLM320–4L320–R8
320 – 400 A	200, 125, 75 kA	6 M	VMLM500–L400–R6	8 M	VMLM500–4L400–R8
400 – 500 A	200, 125, 75 kA	6 M	VMLM500–L500–R6	8 M	VMLM500–4L500–R8
500 – 630 A	200, 125, 75 kA	6 M	VMLM630–L630–R6	8 M	VMLM630–4L630–R8

¹⁾ Rated current is derated –10% at IP 54.

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

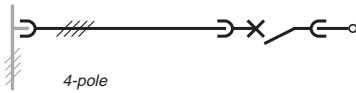
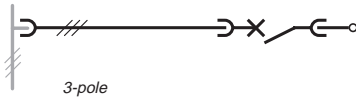
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB R-units with plug-in MCCB, normal breaking capacity, 3- and 4-pole



MCCB: ABB SACE Isomax N

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
MCCB type SACE Isomax N, size 2					
17,5 – 25 A	35, 12, 8 kA	4 M	VMLM2-NP25-R4	4 M	VMLM2-4NP25-R4
22,5 – 32 A	35, 12, 8 kA	4 M	VMLM2-NP32-R4	4 M	VMLM2-4NP32-R4
28 – 40 A	35, 12, 8 kA	4 M	VMLM2-NP40-R4	4 M	VMLM2-4NP40-R4
35 – 50 A	35, 12, 8 kA	4 M	VMLM2-NP50-R4	4 M	VMLM2-4NP50-R4
44 – 63 A	35, 12, 8 kA	4 M	VMLM2-NP63-R4	4 M	VMLM2-4NP63-R4
56 – 80 A	35, 12, 8 kA	4 M	VMLM2-NP80-R4	4 M	VMLM2-4NP80-R4
70 – 100 A	35, 12, 8 kA	4 M	VMLM2-NP100-R4	4 M	VMLM2-4NP100-R4
87,5 – 125 A	35, 12, 8 kA	4 M	VMLM2-NP125-R4	4 M	VMLM2-4NP125-R4
112 – 160 A	35, 12, 8 kA	4 M	VMLM2-NP160-R4	4 M	VMLM2-4NP160-R4
MCCB type SACE Isomax N, size 3					
19 – 32 A	35, 25, 14 kA	4 M	VMLM3-NP32-R4	4 M	VMLM3-4NP32-R4
30 – 50 A	35, 25, 14 kA	4 M	VMLM3-NP50-R4	4 M	VMLM3-4NP50-R4
48 – 80 A	35, 25, 14 kA	4 M	VMLM3-NP80-R4	4 M	VMLM3-4NP80-R4
70 – 100 A	35, 25, 14 kA	4 M	VMLM3-NP100-R4	4 M	VMLM3-4NP100-R4
87,5 – 125 A	35, 25, 14 kA	4 M	VMLM3-NP125-R4	4 M	VMLM3-4NP125-R4
112 – 160 A	35, 25, 14 kA	4 M	VMLM3-NP160-R4	4 M	VMLM3-4NP160-R4
140 – 200 A	35, 25, 14 kA	4 M	VMLM3-NP200-R4	4 M	VMLM3-4NP200-R4
175 – 250 A	35, 25, 14 kA	4 M	VMLM3-NP250-R4	4 M	VMLM3-4NP250-R4
MCCB type SACE Isomax N, size 4					
40 – 100 A	35, 25, 14 kA	4 M	VMLM4-NP100-R4	4 M	VMLM4-4NP100-R4
64 – 160 A	35, 25, 14 kA	4 M	VMLM4-NP160-R4	4 M	VMLM4-4NP160-R4
100 – 250 A	35, 25, 14 kA	4 M	VMLM4-NP250-R4	4 M	VMLM4-4NP250-R4
MCCB type SACE Isomax N, size 5					
130 – 320 A	35, 25, 20 kA	4 M	VMLM5-NP320-R4	6 M	VMLM5-4NP320-R6
160 – 400 A	35, 25, 20 kA	4 M	VMLM5-NP400-R4	6 M	VMLM5-4NP400-R6
MCCB type SACE Isomax N, size 6					
250 – 630 A	35, 25, 20 kA	6 M	VMLM6-NP630-R6	8 M	VMLM6-4NP630-R8
320 – 800 A	35, 25, 20 kA	6 M	VMLM6-NP800-R6	8 M	VMLM6-4NP800-R8

¹⁾ Rated current is derated –10% at IP 54.

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

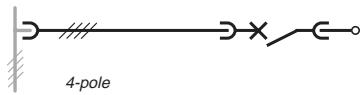
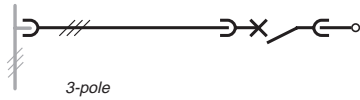
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB R-units with plug-in MCCB, high breaking capacity, 3- and 4-pole



MCCB: ABB SACE Isomax H (S)

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
MCCB type SACE Isomax S, size 2					
17,5 – 25 A	50, 15, 10 kA	4 M	VMLM2-SP25-R4	4 M	VMLM2-4SP25-R4
22,5 – 32 A	50, 15, 10 kA	4 M	VMLM2-SP32-R4	4 M	VMLM2-4SP32-R4
28 – 40 A	50, 15, 10 kA	4 M	VMLM2-SP40-R4	4 M	VMLM2-4SP40-R4
35 – 50 A	50, 15, 10 kA	4 M	VMLM2-SP50-R4	4 M	VMLM2-4SP50-R4
44 – 63 A	50, 15, 10 kA	4 M	VMLM2-SP63-R4	4 M	VMLM2-4SP63-R4
56 – 80 A	50, 15, 10 kA	4 M	VMLM2-SP80-R4	4 M	VMLM2-4SP80-R4
70 – 100 A	50, 15, 10 kA	4 M	VMLM2-SP100-R4	4 M	VMLM2-4SP100-R4
87,5 – 125 A	50, 15, 10 kA	4 M	VMLM2-SP125-R4	4 M	VMLM2-4SP125-R4
112 – 160 A	50, 15, 10 kA	4 M	VMLM2-SP160-R4	4 M	VMLM2-4SP160-R4
MCCB type SACE Isomax H, size 3					
19 – 32 A	65, 40, 18 kA	4 M	VMLM3-HP32-R4	4 M	VMLM3-4HP32-R4
30 – 50 A	65, 40, 18 kA	4 M	VMLM3-HP50-R4	4 M	VMLM3-4HP50-R4
48 – 80 A	65, 40, 18 kA	4 M	VMLM3-HP80-R4	4 M	VMLM3-4HP80-R4
70 – 100 A	65, 40, 18 kA	4 M	VMLM3-HP100-R4	4 M	VMLM3-4HP100-R4
87,5 – 125 A	65, 40, 18 kA	4 M	VMLM3-HP125-R4	4 M	VMLM3-4HP125-R4
112 – 160 A	65, 40, 18 kA	4 M	VMLM3-HP160-R4	4 M	VMLM3-4HP160-R4
140 – 200 A	65, 40, 18 kA	4 M	VMLM3-HP200-R4	4 M	VMLM3-4HP200-R4
175 – 250 A	65, 40, 18 kA	4 M	VMLM3-HP250-R4	4 M	VMLM3-4HP250-R4
MCCB type SACE Isomax H, size 4					
40 – 100 A	65, 40, 18 kA	4 M	VMLM4-HP100-R4	4 M	VMLM4-4HP100-R4
64 – 160 A	65, 40, 18 kA	4 M	VMLM4-HP160-R4	4 M	VMLM4-4HP160-R4
100 – 250 A	65, 40, 18 kA	4 M	VMLM4-HP250-R4	4 M	VMLM4-4HP250-R4
MCCB type SACE Isomax H, size 5					
130 – 320 A	65, 40, 25 kA	4 M	VMLM5-HP320-R4	6 M	VMLM5-4HP320-R6
160 – 400 A	65, 40, 25 kA	4 M	VMLM5-HP400-R4	6 M	VMLM5-4HP400-R6
MCCB type SACE Isomax H, size 6					
250 – 630 A	65, 40, 25 kA	6 M	VMLM6-HP630-R6	8 M	VMLM6-4HP630-R8
320 – 800 A	65, 40, 25 kA	6 M	VMLM6-HP800-R6	8 M	VMLM6-4HP800-R8

¹⁾ Rated current is derated –10% at IP 54

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

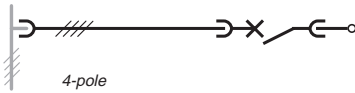
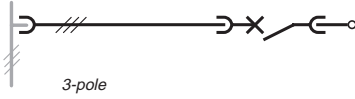
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCCB R-units with plug-in MCCB, current limiting, 3- and 4-pole



MCCB: ABB SACE Limitor LN

Rated current ¹⁾	Breaking capacity 400, 500, 690 V	3-pole		4-pole	
		Mo- dule size	Type designation	Mo- dule size	Type designation
Current limiting MCCB, type SACE Limitor LN					
16 – 20 A	170, 70, 40 kA	4 M	VMLM125-LP20-R4	4 M	VMLM125-4LP20-R4
20 – 25 A	170, 70, 40 kA	4 M	VMLM125-LP25-R4	4 M	VMLM125-4LP25-R4
25 – 32 A	170, 70, 40 kA	4 M	VMLM125-LP32-R4	4 M	VMLM125-4LP32-R4
32 – 40 A	170, 70, 40 kA	4 M	VMLM125-LP40-R4	4 M	VMLM125-4LP40-R4
40 – 50 A	170, 70, 40 kA	4 M	VMLM125-LP50-R4	4 M	VMLM125-4LP50-R4
50 – 63 A	170, 70, 40 kA	4 M	VMLM125-LP63-R4	4 M	VMLM125-4LP63-R4
63 – 80 A	170, 70, 40 kA	4 M	VMLM125-LP80-R4	4 M	VMLM125-4LP80-R4
80 – 100 A	170, 70, 40 kA	4 M	VMLM125-LP100-R4	4 M	VMLM125-4LP100-R4
100 – 125 A	170, 70, 40 kA	4 M	VMLM125-LP125-R4	4 M	VMLM125-4LP125-R4
125 – 160 A	200, 125, 50 kA	4 M	VMLM200-LP160-R4		
125 – 160 A	200, 125, 75 kA			8 M	VMLM200-4LP160-R8
160 – 200 A	200, 125, 50 kA	4 M	VMLM200-LP200-R4		
160 – 200 A	200, 125, 75 kA			8 M	VMLM200-4LP200-R8
200 – 250 A	200, 125, 75 kA	4 M	VMLM320-LP250-R4	8 M	VMLM320-4LP250-R8
250 – 320 A	200, 125, 75 kA	4 M	VMLM320-LP320-R4	8 M	VMLM320-4LP320-R8
320 – 400 A	200, 125, 75 kA	6 M	VMLM500-LP400-R6	8 M	VMLM500-4LP400-R8
400 – 500 A	200, 125, 75 kA	6 M	VMLM500-LP500-R6	8 M	VMLM500-4LP500-R8
500 – 630 A	200, 125, 75 kA	6 M	VMLM630-LP630-R6	8 M	VMLM630-4LP630-R8

¹⁾ Rated current is derated –10% at IP 54.

Options

Current meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary and alarm contacts +HL6

Alarm contact and auxiliary contact connected to terminal blocks.

Neutral terminal block +A4N

GZNB type fitted to PEN busbar.

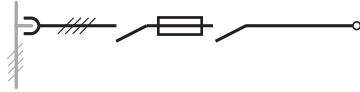
Degree of protection IP54 +IP54

Rated current is derated –10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

Switch-fuse



Rated current	Module size	Type designation
R-units, 3-pole		
160 A	4 M	VMLLH160-R4
250 A	4 M	VMLLH250-R4
400 A	4 M	VMLLH400-R4
630 A	6 M	VMLLH630-R6
800 A	6 M	VMLLH800-R6
R-units, 4-pole		
160 A	4 M	VMLLH160-4-R4
250 A	6 M	VMLLH250-4-R6
400 A	6 M	VMLLH400-4-R6
630 A	8 M	VMLLH630-4-R8
800 A	8 M	VMLLH800-4-R8

Options for switch-fuse unit

A-meter

A-meter 72 x 72 mm in the front for indication of outgoing current.

with instantaneous A-meter +P2D

with instantaneous and

maximum A-meter +P2DM

Auxiliary contacts

Choice of up to 2 NO/NC.

1 NO + 1 NC +HL2

Cable clamps +A4D

For copper and aluminium cables.

Only R units.

Neutral terminal block +A4N

GZNB type fitted to the PEN busbar. (Only at 3-pole design.)

Degree of protection IP54 +IP54

Rated current is derated -10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

General

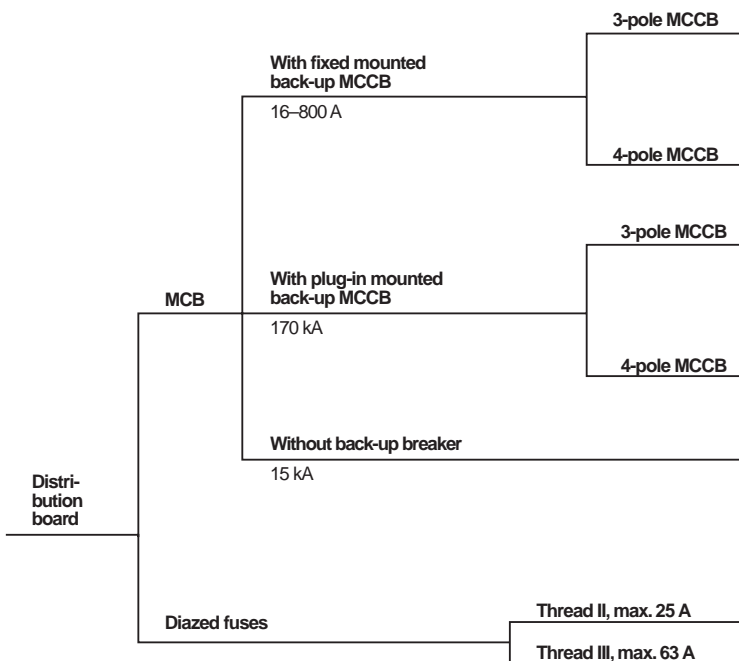
Group boards are available in two basic designs:

With miniature circuit-breakers MCB and with D-type fuses.
See overview below.

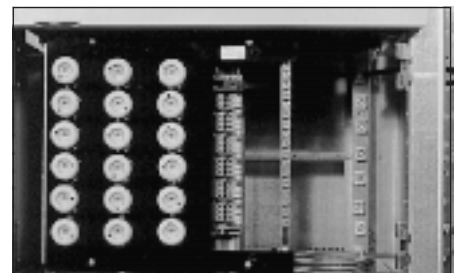
MCB units are designed without separate terminals for the main circuit. External cables are connected directly to apparatus and can therefore be used in a terminal row.

D-fuse units are available in three versions: without terminal – external cables are connected directly to the D-fuse holders, with terminal and with group switches where the switches are positioned last and used as terminals.

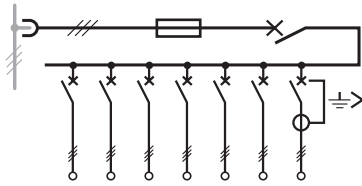
Overview



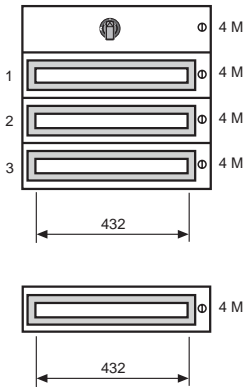
MCB-unit with back-up MCCB.



D-type fuse board with terminal block row.



Limitor MCCB: ABB SACE: SACE Limitor LN125.
 MCB: ABB Stotz type S270-S280.
 MCB/RCD: ABB type F260/F280.



MCB-unit with or without backup Limitor MCCB

No. of rows	3-pole Module size		4-pole Module size		3-pole Steel plate door		4-pole Steel plate door	
					Glass door		Glass door	

Fixed backup MCCB

100 – 125 A (90 – 115 A at IP 54), 170 kA
 Instantaneous release 1000 A.

1	8 M	VMLMA125-L125-	8 M	VMLMA125-4L125-	-R8	-R8C	-R8	-R8C
2	12 M	VMLMA125-L125-	12 M	VMLMA125-4L125-	-R12	-R12C	-R12	-R12C
3	16 M	VMLMA125-L125-	16 M	VMLMA125-4L125-	-R16	-R16C	-R16	-R16C

Plug-in backup MCCB

100 – 125 A (90 – 115 A at IP 54), 170 kA
 Instantaneous release 1000 A.

1	8 M	VMLMA125-LP125-	8 M	VMLMA125-4LP125-	-R8	-R8C	-R8	-R8C
2	12 M	VMLMA125-LP125-	12 M	VMLMA125-4LP125-	-R12	-R12C	-R12	-R12C
3	16 M	VMLMA125-LP125-	16 M	VMLMA125-4LP125-	-R16	-R16C	-R16	-R16C

Without backup MCCB

(as independent direct-supply central at low short circuit levels or for optional external supply).
 3 and 4-pole are the same. Max. load 180 A.

Limited to 15 kA by the connection and 10 kA if MCB type S270 is used.

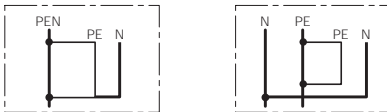
1	4 M	VMLA180-					-R4	-R4C
---	-----	----------	--	--	--	--	-----	------

Options

Degree of protection IP54 +IP54

Neutral terminal block +N

Not required when using only MCB apparatus as they are connected with tripping of neutral. The neutral connection in this case takes place directly in MCB apparatus.



Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

MCB apparatus with ¹⁾ C-characteristics as per IEC 898, for use in MCB units

270 series 10 kA	1-pole	2-pole	3-pole	4-pole
Rated current	18 mm	36 mm	54 mm	72 mm
6 A	+1S6	+2S6	+3S6	+4S6
10 A	+1S10	+2S10	+3S10	+4S10
16 A	+1S16	+2S16	+3S16	+4S16
20 A	+1S20	+2S20	+3S20	+4S20
25 A	+1S25	+2S25	+3S25	+4S25
32 A	+1S32	+2S32	+3S32	+4S32
40 A	+1S40	+2S40	+3S40	+4S40
50 A	+1S50	+2S50	+3S50	+4S50
63 A	+1S63	+2S63	+3S63	+4S63

280 series 15 kA	1-pole	2-pole	3-pole	4-pole
Rated current	18 mm	36 mm	54 mm	72 mm
10 A	+1SH10	+2SH10	+3SH10	+4SH10
16 A	+1SH16	+2SH16	+3SH16	+4SH16
20 A	+1SH20	+2SH20	+3SH20	+4SH20
25 A	+1SH25	+2SH25	+3SH25	+4SH25
32 A	+1SH32	+2SH32	+3SH32	+4SH32
40 A	+1SH40	+2SH40	+3SH40	+4SH40

MCB/RCD with over-current and earthing fault protection

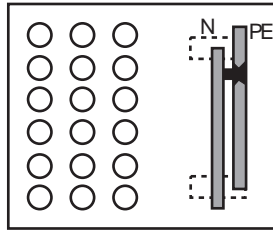
270 series	Earthing fault protection 0,03 A		Earthing fault protection 0,3 A	
	2-pole	4-pole	2-pole	4-pole
Rated current	72 mm	108/144 mm	72 mm	108/144 mm
6 A	+2F6	+4F6	+2F6B3	+4F6B3
10 A	+2F10	+4F10	+2F10B3	+4F10B3
16 A	+2F16	+4F16	+2F16B3	+4F16B3
20 A	+2F20	+4F20	+2F20B3	+4F20B3
25 A	+2F25	+4F25	+2F25B3	+4F25B3
32 A	+2F32	+4F32	+2F32B3	+4F32B3
40 A	+2F40	+4F40 (144 mm)	+2F40B3	+4F40B3 (144 mm)
50 A	+2F50	+4F50 (144 mm)	+2F50B3	+4F50B3 (144 mm)
63 A	+2F63	+4F63 (144 mm)	+2F63B3	+4F63B3 (144 mm)

280 series	Earthing fault protection 0,03 A		Earthing fault protection 0,3 A	
	2-pole	4-pole	2-pole	4-pole
Rated current	72 mm	108/144 mm	72 mm	108/144 mm
10 A	+2FH10	+4FH10	+2FH10B3	+4FH10B3
16 A	+2FH16	+4FH16	+2FH16B3	+4FH16B3
20 A	+2FH20	+4FH20	+2FH20B3	+4FH20B3
25 A	+2FH25	+4FH25	+2FH25B3	+4FH25B3
32 A	+2FH32	+4FH32	+2FH32B3	+4FH32B3
40 A	+2FH40	+4FH40 (144 mm)	+2FH40B3	+4FH40B3 (144 mm)

Option				
Signal contact and auxiliary contact				
6 A (1 NO, 1 NC)				
Width 9 mm	+SH			

¹⁾ With C-characteristics as per IEC 898, i.e.
 Overload protection = $1,13 - 1,45 \times I_N$
 Short circuit protection = $5 - 10 \times I_N$

D-type fuse boards



Max. fuse size, thread	No. of groups		Module size	Type designation
	1-pole	3-pole		

With N and PE busbars

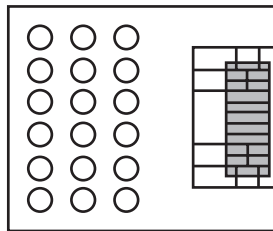
N and PE busbars are equipped with common neutral isolation and requisite two-screw clamp for 3-pole connection of outgoing groups. Connectable area 25 mm².

25 A, D II	18	6	8M	VMLG18120-R8
25 A, D II	9	3	6M	VMLG9120-R6
63 A, D III	-	5	8M	VMLG5360-R8
63 A, D III	-	2	6M	VMLG2360-R6

With terminal block row

All groups are connected to a terminal block row which also contains disconnectable neutral terminals for common and individual isolation of groups. PE busbars with two-screw clamp and wiring to main N terminal. Connectable area 16 mm².

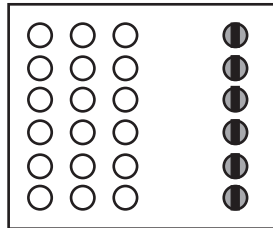
25 A, D II	-	6	8M	VMLGP6320-R8
25 A, D II	18	-	8M	VMLGP18120-R8
25 A, D II	-	3	6M	VMLGP3320-R6
25 A, D II	9	-	6M	VMLGP9120-R6
63 A, D III	-	5	8M	VMLGP5360-R8
63 A, D III	-	2	6M	VMLGP2360-R6



With group switch

Each group is equipped with a 3-pole group switch. N and PE busbars are equipped with common neutral isolation and requisite two-screw clamp for 1-pole connection of outgoing groups. Connectable area 16 mm².

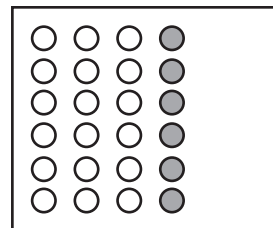
25 A, D II	-	6	8M	Group switch 40 A	VMLGL6320-R8
63 A, D III	-	5	8M	Group switch 80 A	VMLGL5360-R8



With extra fuse row

Six fuse sockets, 25 A, mounted on a phase bar beside the ordinary three rows. Connectable area 25 mm² for 3-pole group and 10 mm² for 1-pole group.

25 A, D II	24	-	8M	VMLG18120-612-R8
25 A, D II	6	6	8M	VMLG18120-612-R8
63 A, D III	6	5	8M	VMLG5360-612-R8



Option

Degree of protection IP54 +IP54

Switchgear colour, Standard +Grey

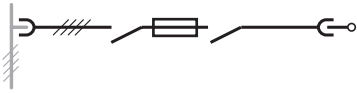
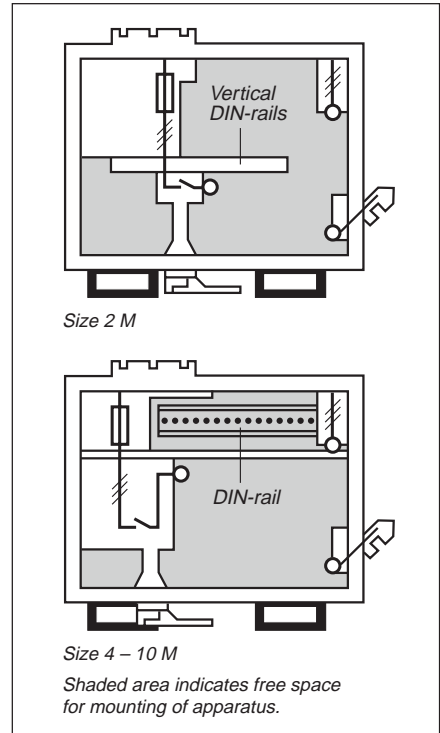
Switchgear colour, ASEA H +Beige

General

Unit enclosure are semi-finished units for customized function. The units have the same switch-fuse and modular sizes as the motor starter units.

A unit consists of:

- Withdrawable enclosure.
- 3-pole switch-fuse with auxiliary contacts.
- Switch interlock device. The switch can only be operated with the withdrawable unit in service position.
- Plug-in contacts for incoming supply.
- Cable connectors in cable compartment for both main circuit and auxiliary circuit.



Switch-fuse: ABB Control Oy, type OESA

Unit enclosure with basic apparatus

Rated current ¹⁾	No. of auxiliary contacts	Module size
-----------------------------	---------------------------	-------------

Normal units

63 A	24	2 M	VMLX-W2
125 A	24	4 M	VMLX-W4
250 A	24	6 M	VMLX-W6
250 A	24	8 M	VMLX-W8
250 A	24	10 M	VMLX-W10

Compact unit

45 A ¹⁾	16	4/4 M	VMLX-W4/4
--------------------	----	-------	-----------

Condaptor for compact units (1 per 4M unit)

VML-CON-W4

¹⁾ Rated current is derated -10% at IP54.

²⁾ Max. fuse 63 A.

Options

Degree of protection IP54 +IP54

Rated current is derated -10 % at IP54.

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige

General

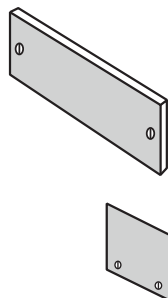
The cover panels are used for covering non-equipped areas in switchgear W-cubicles.

Cover panels for normal units

Front cover panels for normal units are the same type of screwed front covers as the front for the W-units.

Cover panels for compact units

Front cover panels for compact units consists of black plastic fronts.



Cover panels

Module size

For normal units

2 M
4 M

VML-CP62
VML-CP64

For compact units

4/4 M

VML-CP4/4

Options

Degree of protection IP54 +IP54

Switchgear colour, Standard +Grey

Switchgear colour, ASEA H +Beige



Catalogue 1TSC 221-EN Edition 4 October 1998

ABB LV Systems AB
SE-721 62 Västerås, Sweden
Telephone +46 21 346000
Fax +46 21 346110
www.abb.se/lvs