

# MNS Light W

Low-voltage switchgear with withdrawable and removable units



ABB LV Systems



## Cubicle design

**MNS Light W switchgear is a flexible system that is primarily designed for motor control. The withdrawable starter units allow fast, safe replacements with the switchgear live. Apart from starters, MNS Light W can be equipped with distribution units and distribution boards.**

### Busbar systems

The busbar systems are protected against accidental human contact. The horizontal busbars are placed at the top of the switchgear and/or at the bottom. They are connected with screwed joints between each cubicle unit, thus simplifying assembly, replacement and extension. The vertical busbars are located at the rear of each apparatus cubicle.

A neutral or protective earth busbar can be included in the horizontal and vertical busbar systems.

### Ventilation

The cubicles are self-ventilating. Air is taken in at the front and led out at the rear/top.

### Incoming cubicles

The incoming cubicles can be fitted with circuit-breakers, ACBs, MCCBs or disconnectors. Earthing switches can always be included.

Connection possibilities:

- cables from below
- cables from above
- busduct trunking
- sectioning.

### Apparatus cubicles

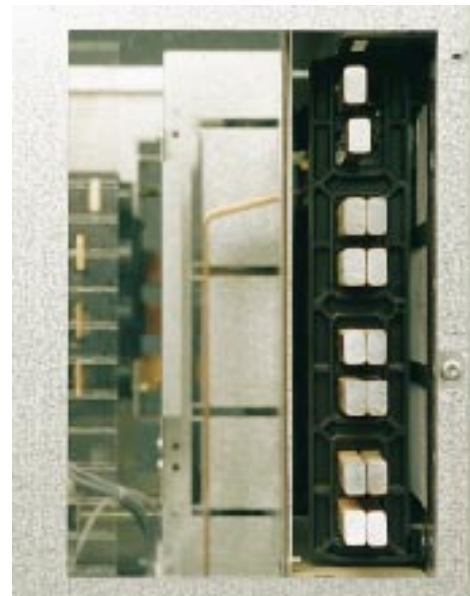
The apparatus cubicles have separate spaces for busbar systems, apparatus units and cables. The apparatus space is divided vertically into 72 E modules (36 M modules)\*. Screened apparatus cells minimize the risk of accidental touching of live parts.

\* 1 E = 25 mm, 1 M = 50 mm.

### Other cubicle types available

The range also includes:

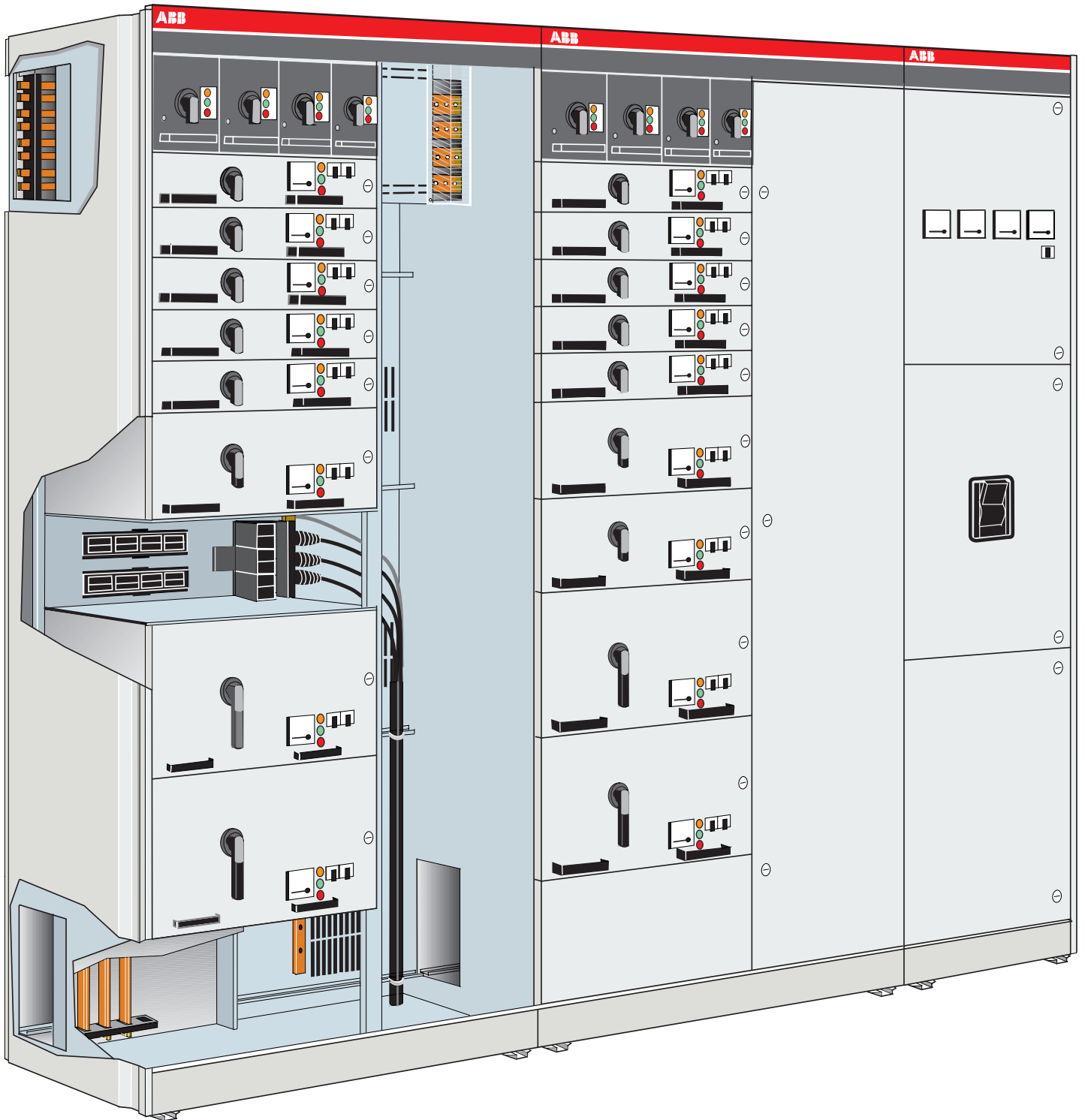
- transformer cubicles
- corner cubicles
- cubicles for frequency converters, soft starters, reactive power compensation, harmonic filter, etc.



The horizontal busbar system is placed in a screened-off space at the top or at the bottom of the switchgear.



Connecting the horizontal busbars between the cubicle units with bolted joints is easy to carry out from the front.



## Apparatus units

For use with MNS Light W there is a complete range of apparatus units. All units are adapted both to MNS Light W and MNS W.

### Withdrawable and removable apparatus units

The withdrawable units have plug-in connection both for incoming supply from the vertical bus-bar system and for outgoing cables.

The removable units have plug-in connection for incoming supply while outgoing cables are connected via bolted joints.

In both cases the units can be replaced with the switchgear live.

### Range of apparatus units

Direct-on-line starters, star-delta starters and two-direction starters up to 630 A.

Direct-on-line starters in compact design (mounted four alongside).

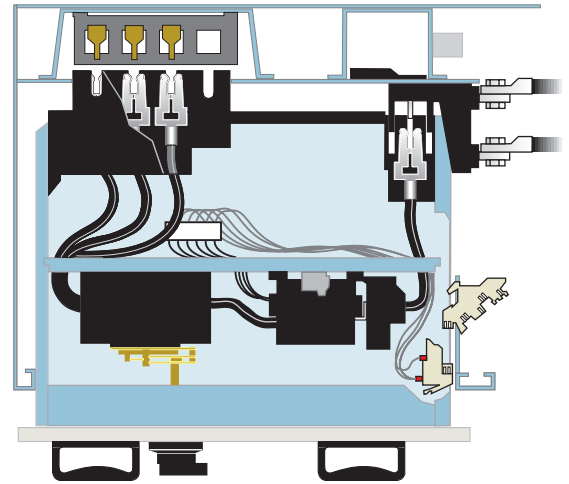
Distribution units with MCCB or switchfuse up to 800 A.

Distribution boards with MCBs or D-type fuses. MCCBs or switchfuses up to 800 A for cubicle supply.

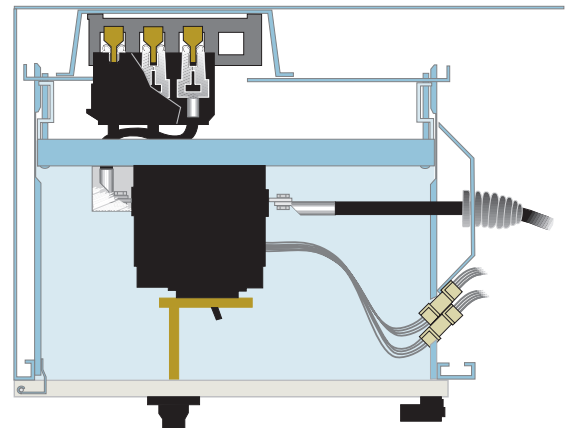
### Other units

Distributed I/O for communication with control systems.

INSUM system for control, monitoring and protection of motor drives.



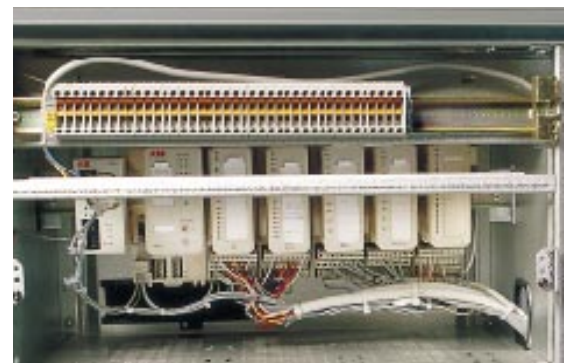
Withdrawable apparatus unit in withdrawn position.



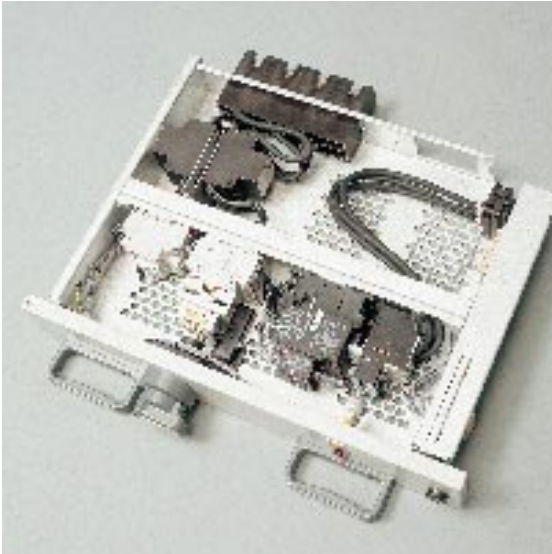
Removable apparatus unit in the operating position.



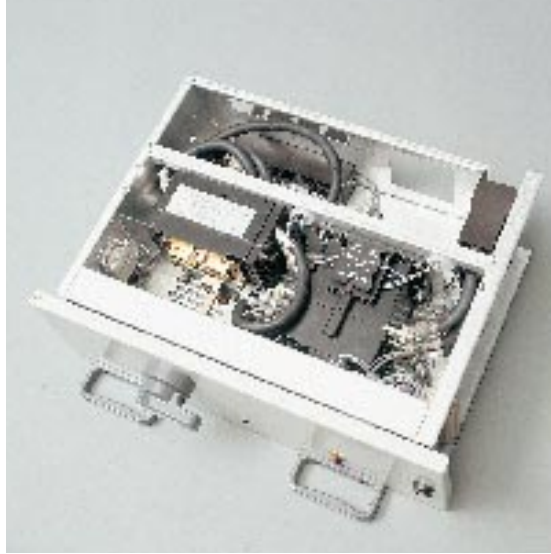
INSUM system for control, monitoring and protection. The illustration shows the operating and indicating unit with its display for operational status, measured values and fault information for up to 32 starters. Communication is also possible with a process control system.



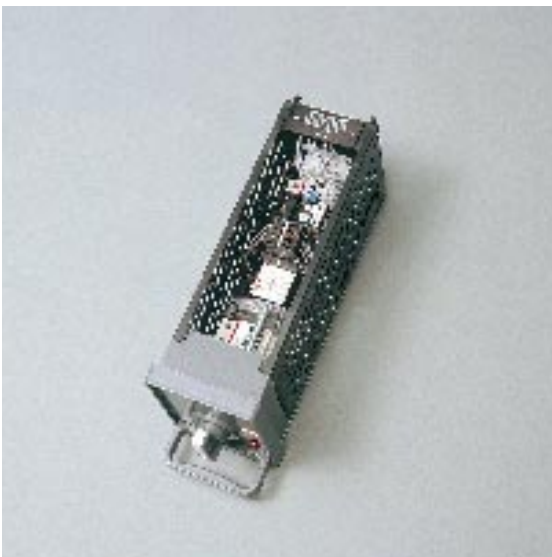
Distributed I/O built into switchgear module.



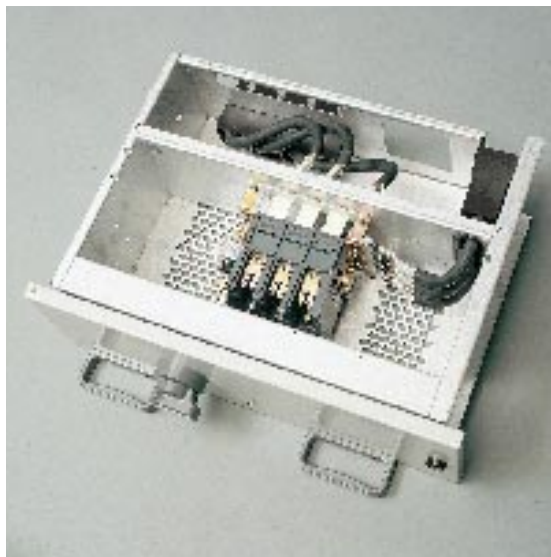
Withdrawable motor starter with MCB and current limiter PROLIM as short-circuit protection.  
Size: 4 E (2 M) modules.



Withdrawable motor starter with MCCB.  
Size: 8 E (4 M) modules.



Withdrawable compact motor starter with handoperated circuit-breaker combined with current limiter PROLIM as short-circuit protection. Size: 8 E (4 M) modules (to be mounted four alongside each other).



Withdrawable distribution unit with switchfuse.  
Size: 8 E (4 M) modules.

## Installation and service

MNS Light W switchgear assembly is delivered in the form of complete, function-tested cubicles that are easy to install and commission.

The CenterPro engineering system makes it possible to provide complete switchgear documentation immediately after ordering.

### Installation

The horizontal busbars are ready-mounted upon delivery and can easily be connected at site with joints between each cubicle. They can be located at the top or low down and there is ample space for cable connection both from above and below. The connections for outgoing cables are easily accessible.

### Service and extension

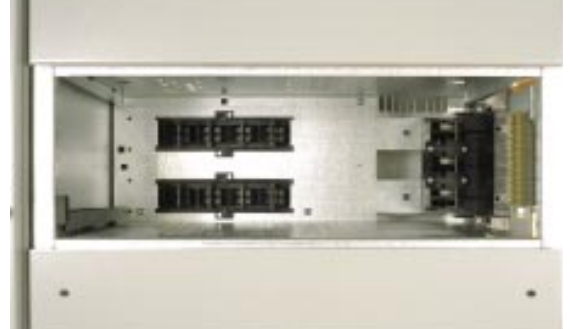
Service and extension can normally take place with the switchgear live. This might involve the replacing of apparatus units or adding of new units in empty seats in the cubicles.

Since the horizontal busbar system can be divided up between each cubicle, it is also easy to replace or add with new cubicles in the switchgear assembly.

### Safety

The individual screening of busbar, apparatus and cable spaces minimize the risk of accidental touching of live parts.

The operating knobs and handles are placed on the outside and have their positions clearly marked. The apparatus unit doors are interlocked via their operating handle. Operating handles can be locked with up to three padlocks.



When an apparatus unit is removed, the empty apparatus compartment is screened against live parts.



Holes for anchor bolts can be drilled with the cubicles in place.



The cable compartment of the apparatus cubicles has ample space for the connection of outgoing cables.

### Operating and moving the withdrawable apparatus units.

#### Position of knob: Function:



On  
All electrical circuits closed.  
The door interlocked.



Off  
All circuits disconnected.



Test  
Main circuits disconnected and auxiliary circuits closed. The operation of the unit can be tested.



Move  
The unit can be moved.



## Technical data for MNS Light W

Rated insulation voltage	1000 V AC
Rated operation voltage	Up to 690 V
Rated current, horizontal busbars	IP 21, IP 31, IP 41: max. 1900 A IP 43, IP 54: max. 1600 A
Rated short-circuit strength	35 or 50 kA <sub>RMS</sub>
Ambient conditions as per IEC 439-1	
Temperature	max. 35 °C for 24 hours
Relative humidity	max. 50 % at < 40 °C
Degree of protection as per IEC 529	
With doors closed	IP 21, IP 31, IP 41, IP 43, IP 54
With doors open and withdrawn groups	IP 20
Internal separation	Form 4b
Dimensions	
Height	2129 mm
Height module	E = 25 mm (M = 50 mm)
Depth	650 mm
<u>Cubicle width</u>	
Circuit-breaker cubicle, ACB	600 mm
Circuit-breaker cubicle, MCCB	500 mm
Disconnecter cubicle	500 or 600 mm
Apparatus cubicle	600 + 400 or 600 + 600 mm
Apparatus cubicle for extra equipment	500 mm or 600 mm
Material	
Cubicle	1.5 mm Aluzink sheet steel
Busbar system	Exconal (copper-clad aluminium) or copper
Finish	
Doors and external surfaces	Light grey polyester paint RAL 7035
Frame and internal surfaces	Aluzink
Operating conditions as per IEC 439-1	Normal
Phase sequence	
Horizontal busbars	L1, L2, L3 from above and downwards
Vertical busbars	L1, L2, L3 from left to right

Design, data and dimensions are subject to changes without prior notice.

