



ROLF JANSSEN GMBH  
ELEKTROTECHNISCHE WERKE

# TopDraw *plus*

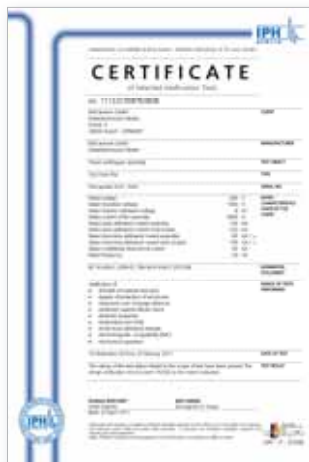
## LOW VOLTAGE SWITCH PANEL

TopStick  
Fixed installation  
technology



# The modular system solution

## Quality, Conformity



Increased requirements in terms of levels of automation and multi-shift operations are bringing potential hazards to the modern industrial world. Along with product safety and the permanent availability of a switch system, the highest levels of personal safety are also required.

### Superb results

With the development of the TopDraw-Plus low voltage switch system, these aims have been achieved to their fullest extent. Detailed, strictly applied tests in conformity to the switch systems norm DIN EN 61439-1 attest to the company Rolf Janssen's many years of experience in this area of technology.

All of the tests completed in the scope of a complete design certification, with components from all of the acclaimed manufacturers have been completed with exemplary results and passed with superb technical data.

### Durable quality

The quality management system ISO 9001:2008 which has been in place for several years guarantees the organisation of the finishing and an optimum level of quality. The OHSAS: 18001:2007 quality verification and certification according to KTA 1401 (nuclear installations guideline) that are available represent further supportive elements.

# Rail assembly

## Electromagnetic compatibility

A key change in comparison to the Top-Draw switch system is the arrangement of the main bus bars. These are situated on the ‚back‘ of the switch system.

In this context, the neutral conductor is guided together with the external conductors. This results in optimum electromagnetic behaviour. Through the arrangement of the main bus bars, it is possible for the distribution bar to be completed in as short a format as possible in circuit breaker fields. Shortened distribution bars result in an exceptionally limited contact resistance and therefore a minimum level of power loss.

### Flexible contact options

The main bus bars can be arranged in two system heights. This second rail plane means a connection in a field with a ‚normal‘ depth can be realized. Connections by bus bar channels for the connection between the trans-

former and the switch system can therefore be completed from either below or from above.

### Safety against accidental electric arcs

In the event of several fields that are arranged together with a continuous main bus bar, this is partitioned from field to field as standard. An accidental electrical arc occurring in the event of fault would not be able to spread to the adjacent fields.

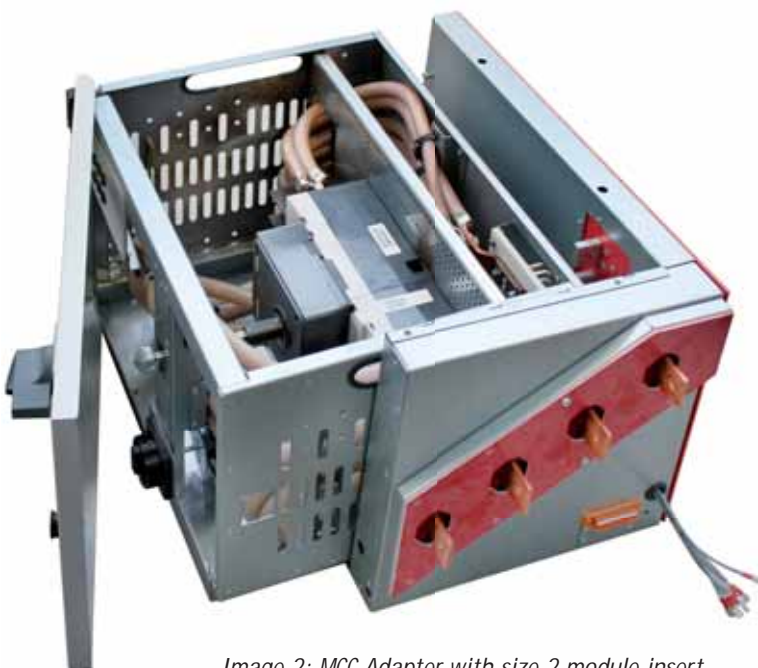
In order to prevent an accidental electrical arc from occurring in the first place, the low voltage TopDraw-Plus distributor can be configured without an accidental electrical arc pulse-width attachment. This option offers the operating personnel and the operating personnel the highest levels of safety. TopDrawPlus was tested according to the norm DIN 60439-1, supplementary sheet 2:2009-

05, IEC/TR 61641:2008-01 and fulfils the Pehla criteria 1-7.

In the case of configuration without an accidental electrical arc pulse-width attachment all phases are designed in a single pin insulation.



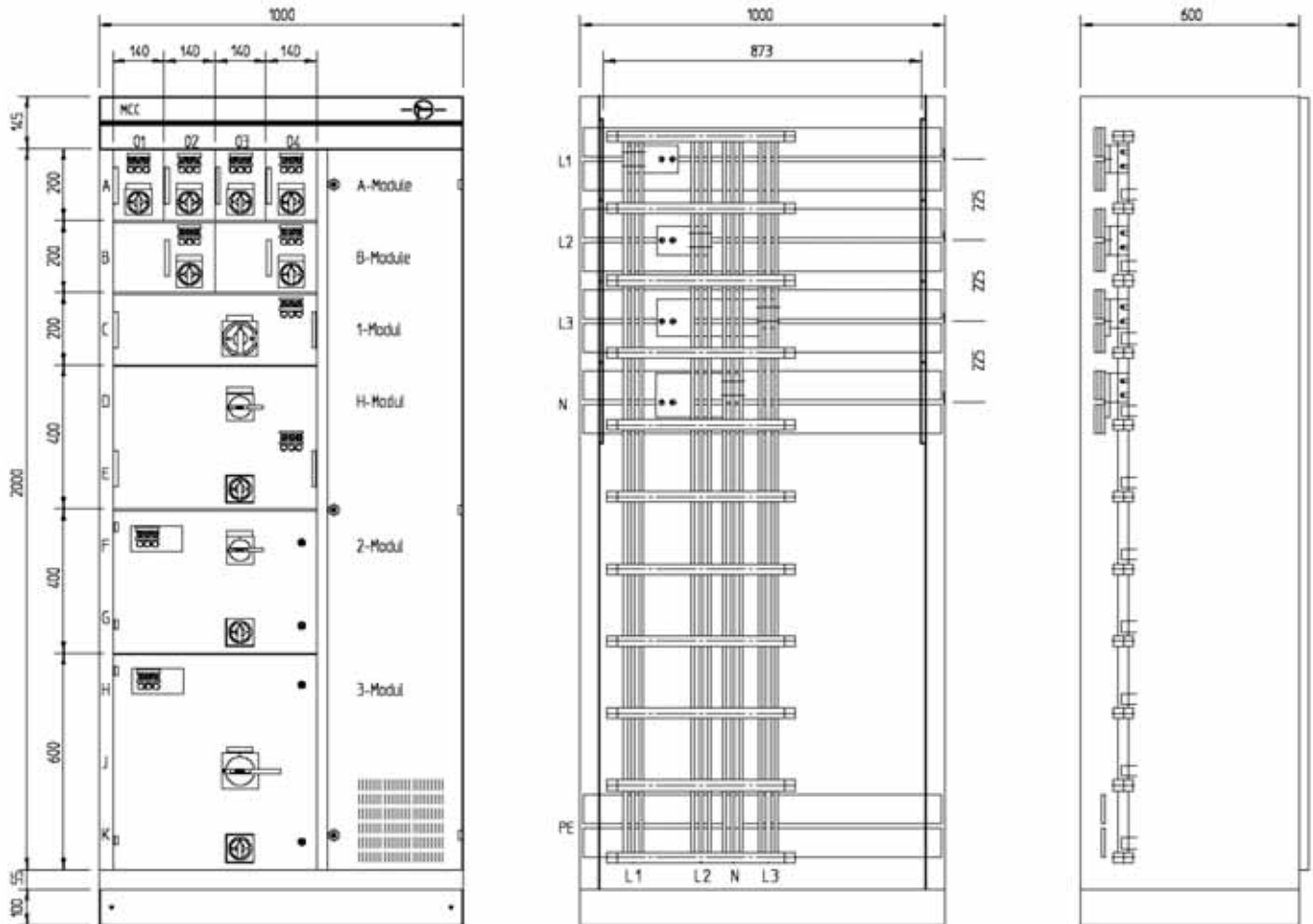
*Image 1: The main bus bars can be optionally arranged either above or below.*



*Image 2: MCC-Adapter with size 2 module insert*

# Field configuration

## Variable project planning



*Upgrading can take place during running operations*

The module-insert system is based on a standard frame. This results in extremely short throughput times in the manufacturing and simplified installation.

### Easy to adjust

At the beginning of the system planning, stating the rated current for the main bus bars and distribution bus bars is sufficient. The distribution bus bars of the MCC fields can be adapted to the rated current in three stages. The rated currents are 466A, 933A and 1400A.

### Touch-safe components

The neutral conductor is also guided together with the external conductors in this case. This can be installed at 50%, 100% or even 200%.

The installation of the adapters and modules can also be completed during the operation of the system. The live bus bars and distribution bus bars are touch-safe at all times and covered on the basis of BGV A3. Optionally, every height unit in the MCC field can also be equipped with shutters.



# Adapter and modules

## High flexibility



The connections of the distribution bars to the module insert, and of the module insert to the cable terminal compartment are completed using corresponding adapters.

### Seven construction sizes

The adapter and module inserts are available in construction sizes A, B, H, 1, 2, 3 and 4. Module inserts of construction size A, B, 1 and H are equipped with a front panel. Over construction size 2, the module inserts have a door which is connected with the module insert.

### A stable case

From the electrical connection of the distribution bus bar to the terminal in the cable terminal compartment, the adapter consists of a fixed case. After installing the base and the adapter, the level that thus occurs is prepared for the use of the corresponding module inserts.



*In the size AB adapter it is possible to flexibly combine module inserts of sizes A and B.*

# Certified safety

## System solution without downtime



Through the designation according to CE, Rolf Janssen GmbH confirms the conformity of the TopDrawplus switch system with the corresponding EU

guidelines and compliance with the specified 'basic requirements' for guaranteeing the end users both safety and a high level of reliability.



*All modules are subjected to intensive inspection prior to delivery*

### **Maintenance during running operations**

The error and interruption-free operation of production systems is a key business factor in modern industry.

In compliance with the highest levels of personal and operational safety, the maintenance and repair work on the TopDrawPlus can also be completed without expensive downtimes.



# TopDraw *plus* Technical Data



## Design verification according to DIN EN 61439-1, -2

Rated surge withstand current (Ipk): 220kA  
Short time rated surge withstand current (Icw): 100kA  
Rated duration of short circuit: 1s

**Rated operating voltage (Ue):** 690V and 400V +/- 10%

**Rated insulation voltage (Ui):** 1,000V  
(corresponds with DIN IEC 60038)

**Measuring frequency:** 50Hz

## Air gaps

Maximum nominal voltage against earth: 1,000V  
Rated surge withstand current: 8kV  
Überspannungskategorie: III  
(Fall A, inhomogenes Feld)

## Creepage distance:

Rated insulation voltage (Ui): 1,000V  
(corresponds with DIN IEC 60038)  
Contamination level: 3

## Bus bars

Rated currents:  
Main bus bars 4,000A (higher values on enquiry)  
Distribution bus bars for circuit breakers: See main bus bars  
Field buses for module insert technology: 466A, 933A, 1,400A  
Field buses for roll-cap technology: 630A, 1,200A, 1,500A

## Rated current for devices

Circuit breakers: 5,000A (higher values on enquiry)  
Internal isolation: Form 4b for module inserts

**Protection class:** IP41

**Environmental temperature:** -5°C to +40°C  
(Average value over 24 h: 35°C)

## Test under accidental electrical arc conditions according to DIN EN 60439-1, Bbl.2 2009-05 and IEC/TR 61641:2008-1

(Proof of behaviour in the event of internal faults)

Short time rated surge withstand current: 100kA  
Rated duration of short circuit: 300ms  
Accidental electrical arc conditions: 300ms

**Standard cabinet dimensions:** Height: 2,200mm  
Width: 400/600/800/1,000mm  
Depth: 600mm

**Standard colour:** RAL 7035







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