

DF-2

MEDIUM VOLTAGE SWITCHGEAR THE MODULAR CONCEPT



INSTRUCTION VDS EXCHANGE HR TO LRM D/EDN

READ THIS DOCUMENT CAREFULLY BEFORE ANY OPERATION



THE SPECIALIST IN **MEDIUM VOLTAGE SWITCHGEAR**

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TABLE OF CONTENTS

TABLE OF CONTENTS	3
PREFACE	4
INTRODUCTION	4
PICTOGRAMS AND SAFETY SYMBOLS IN AND ON THE MEDIUM VOLTAGE SWITCHGEAR	4
PICTOGRAMS IN THE DOCUMENTATION	5
RELATED DOCUMENTATION	5
SERVICE AND TECHNICAL SUPPORT	6
GENERAL SAFETY DIRECTIONS AND INSTRUCTIONS	6
INTENDED USE	7
1 CONTENT OF LRM KIT (D/EDN CUBICLE)	8
2 VDS EXCHANGE ON A/D-EDN CUBICLE	8
2.1 DISASSEMBLY OF THE HR FRONTPLATE	9
2.2 MOUNTING OF THE LRM FRONTPLATE	10
2.3 INSTALLATION OF THE VOLTAGE INDICATOR	10
2.3.1 VERIFICATION OF THE C2 VALUE	10
2.3.1.1 Voltage range 5-11kV	10
2.3.1.2 Voltage range 10-24kV	10
2.3.2 CONNECTION BETWEEN CAPACITIVE INSULATORS AND VDS	11
3 VERIFICATION OF THE PROPER FUNCTIONING	11

PREFACE

Introduction

This document is intended as a reference for qualified and trained operators to install the medium voltage switchgear in a safe and economical way.

This document uses the term “medium voltage switchgear” to denote a random, but in actual practice, existing combination of DR6 functions that, mutually coupled and connected, constitute a client-specific transformation or distribution station.

In the documentation the words “left”, “right”, “front” and “behind” are used to indicate a specific part of the medium voltage switchgear. The starting point is always the position of the operator, standing in front of the medium voltage switchgear, facing the switchgear.

Pictograms and safety symbols in and on the medium voltage switchgear

Depending on the version, the following pictograms are used on the medium voltage switchgear:



WARNING

Danger of high voltage

Access to this cubicle is only allowed after this cubicle and both the directly adjacent cubicles (previous and next one) are de-energized.



WARNING

Drilling prohibited.

Drilling is strictly prohibited on surfaces equipped with this pictogram.

Pictograms in the documentation

The following pictograms apply to the medium voltage switchgear user documents:



CAUTION!

A procedure that can, if not carried out with the proper care, result in damage to the medium voltage switchgear, the surrounding area or the environment.



WARNING

High Voltage Danger

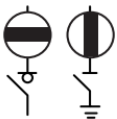


CAUTION!

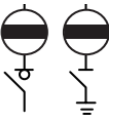
Clamping danger



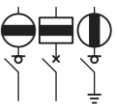
Notes, suggestions and advice.



Make this cubicle, the next one and the previous cubicle, voltage-free, before carrying out the work described.



Open the load break switch and the earthing switch before carrying out the work described in the manual.



Make this cubicle, the next one and the previous cubicle, voltage-free, before carrying out the work described. Open the load-break switch and the circuit breaker. Close the earthing switch



Consult the indicated information sources first.



Protect the medium voltage switchgear from water and damp.

Related documentation

The following technical documentation for medium voltage switchgear is available:

- Installation manual DF-2
- User manual DF-2

Service and technical support

For information concerning specific settings, maintenance or repair work which is not covered in the manual, please contact SGC - SwitchGear Company nv.

When contacting SGC – Switchgear Company nv, always provide the following information:

- Cubicle designation and characteristics
- Serial number of the cubicle(s)

General safety directions and instructions

SGC – SwitchGear Company nv does not accept any liability for damage or injury caused by not (strictly) following the safety directions and instructions, or by negligence during the installation, use, maintenance, or the repair of the medium voltage switchgear and its accompanying options.

Depending on specific user circumstances, or installed options, extra safety instructions may be required. Please contact SGC – SwitchGear Company nv immediately if you encounter a potential danger during the operation of the medium voltage switchgear.

The owner/operator of the medium voltage switchgear is fully responsible at all times for following the locally applicable safety directions and guidelines.

User manual

- Anyone who uses or operates the medium voltage switchgear, must be familiar with the contents of the user manual, and follow the directions contained within very closely. The owner/operator must educate the users in accordance with the user manual and obey all directions and instructions.
- Never change the order of the required actions.
- Always keep the user manual in the vicinity of the medium voltage switchgear.

Pictograms and safety symbols

The pictograms, symbols and instructions applied to the medium voltage switchgear are a part of the safety equipment. They may therefore not be covered or removed, and must be present and clearly readable throughout the entire lifespan of the medium voltage switchgear.

- Replace or repair unreadable or damaged pictograms, symbols and instruction immediately. Therefore, contact SGC – SwitchGear Company nv.

Operators

The execution of the work described (transport, installation, use and maintenance) is strictly reserved for trained and qualified operators, who are familiar with the dangers that can occur when operating medium voltage switchgear. Temporary staff and personnel in training may not operate the medium voltage switchgear under any circumstances.

Technical specifications

- Technical specifications may not be changed.
- Modification of the medium voltage switchgear (or parts thereof) is not permitted.

Transport, storage, installation, operation and maintenance

See corresponding documents:

- “Safety guidelines – transport”
- “Safety guidelines – storage”
- “Safety guidelines – installation”
- “Safety guidelines – operation”
- “Safety guidelines – maintenance”



Cubicles that fell over or have otherwise been damaged always **HAVE TO BE RETURNED** to SGC - SwitchGear Company for a checkup

Intended use

The medium voltage switchgear is designed exclusively for use as transformation or distribution stations, in accordance to the specifications and conditions provided by SGC – SwitchGear Company nv. Any other or further use is not in accordance with the intended use.¹

SGC – SwitchGear Company nv does not accept any liability for damage(s) or injuries resulting from deviation(s) of the intended use.

The medium voltage switchgear complies with the current norms and guidelines.
See: Technical Brochure

- Only use the medium voltage switchgear in technically perfect condition, in accordance with the intended use described above.



Leave the sealed connections intact, at all times. Breaking the sealed connections irrevocably voids any guarantee claims.

¹ The “Intended use” as defined in EN 292-1 “is the use for which the technical product is suited as specified by the manufacturer including his directions in the sales brochure.” In case of doubt, it is the use that can be deduced from the construction, the model and the function of the technical product that is considered normal use. Operating the product within the limits of its intended use also involves observing the instructions in the user manual.

1 CONTENT OF LRM KIT (D/EDN CUBICLE)

The delivered kit contains:

- Pre-assembly frontplate DA-EDN suited for LRM
- Voltage indicator of the type LRM
The required type of VDS should be specified during the order

2 VDS EXCHANGE ON A/D-EDN CUBICLE



This exchange may be performed at an installation in service. Therefore it is required to earth the three conductors prior to disconnect them from the voltage indicator. A special kit can be provided optionally (Figure 1).



Figure 1: Earthing of the voltage indicator

2.1 Disassembly of the HR frontplate

Open the LV compartment of relevant cubicle. The HR frontplate of the mechanism can be removed after disassembly of the 4 nuts (Figure 2- A). The HR frontplate (Figure 3-A) can now be removed as given in Figure 3.

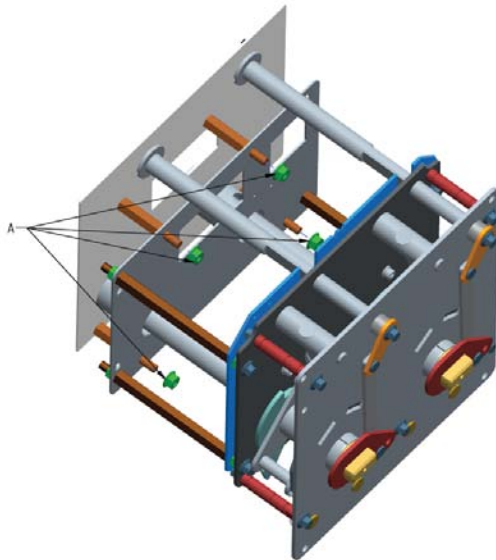


Figure 2: Rear view DA-98 EDND mechanism

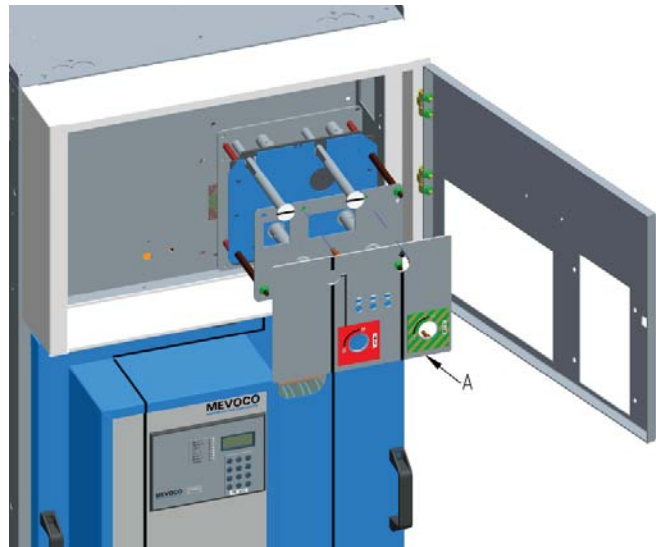


Figure 3: Remove HR frontplate

Unplug the three connectors and the earthing connection at the rear side of the HR-2 interface.

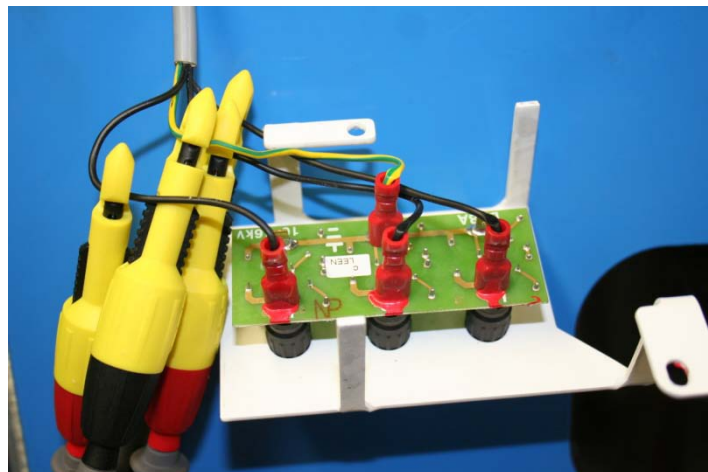


Figure 4: Disconnect the HR-2 interface

2.2 Mounting of the LRM frontplate

Mount the pre-assembly of the LRM-frontplate on the mechanism (Figure 5-A). Fix the LRM-frontplate by means of the 3 nuts (Figure 5-B).

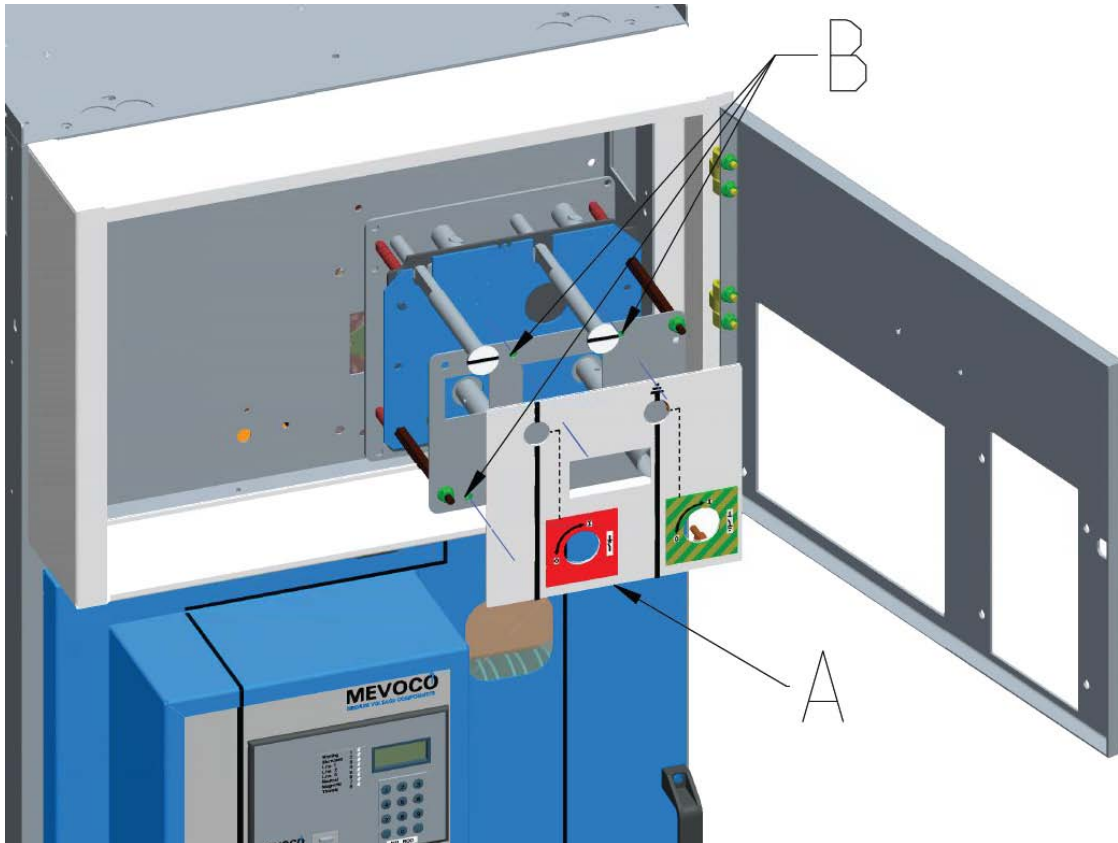


Figure 5: Mounting of the LRM frontplate

2.3 Installation of the voltage indicator

2.3.1 Verification of the C2 value

The verification of the C2 value is only applicable on the voltage indicator type Capdis S1+ and Capdis S2+. The C2m module can be found at the back side of the voltage indicator. Set the desired C2 value where the red mark is indicated.

2.3.1.1 Voltage range 5-11kV

C2 value should be set on 33nF

2.3.1.2 Voltage range 10-24kV

C2 value should be set on 69nF



Figure 6: Voltage indicator type Capdis

2.3.2 Connection between capacitive insulators and VDS

The different conductors coming from the capacitive insulators are labelled in accordance with the corresponding phase. On the back side of the voltage indicator, the corresponding phase is given next to the connector.

Next to the three phases, the ground terminal should be connected.

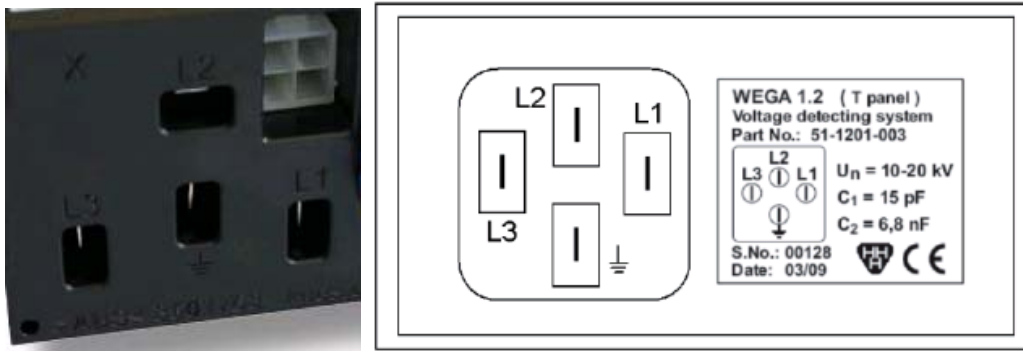


Figure 7: Connection on the back side of the VDS

After the connection of the conductors to the voltage indicator, the earthing connection of the conductors can be removed (if present, see §2)

Once the connection between the voltage indicator and the capacitive insulators are made, the voltage indicator mounted in the LRM frontplate by pressing the VDS into the opening.

3 VERIFICATION OF THE PROPER FUNCTIONING

It is recommended to verify the proper functioning of the installed voltage indicator by performing a verification of the phase sequence by applying a test voltage to each individual phase. During this test one should check the proper functioning “voltage present” of the installed voltage indicator.

If the installation is in service during the exchange of the voltage indicators, the phase sequence can be verified by removing the earth connection (if present, see §2) one phase at a time.