



# Uniswitch M1 motor control kit installation instructions

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1 (14)  
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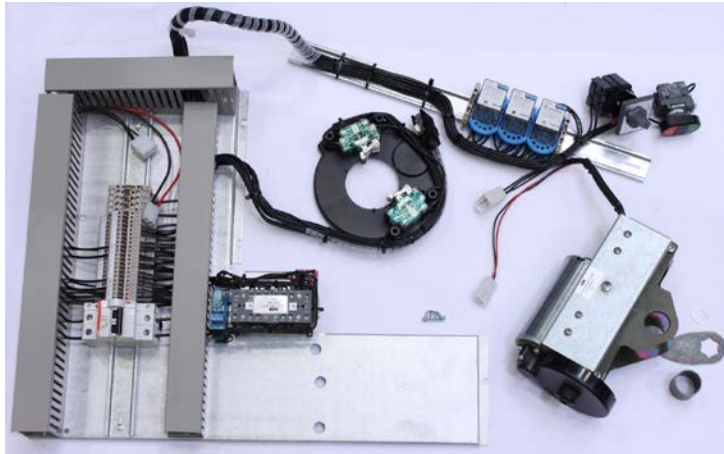
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## 2. Introduction

The motor control kit is intended for equipping a Uniswitch panel (SFG switch-disconnector) with motor operation. The kit contains the parts needed **for a standard motor operation solution**. The kit includes motor, control unit, auxiliary contacts, L/R switch, remote control relays and complete wiring. The wiring and operation is tested during our routine testing at the factory.



Example of motor control kit, 1-spring 500mm wide

### 3. Preparations

**Always obey local and national safety regulations!**

#### 3.1. Tools needed

Depending of the material of the existing cubicle, the following tools are needed for the motor kit installation.

- Various sizes of torx screwdrivers
- Circlip pliers
- Allen key size sw4
- Socket wrench size 7
- Wrench, size 8 and 10
- Knife for cutting door sticker, alternatively cut-out tool for 22mm pilot devices.



#### 3.2. Preparations for the switchgear

Ensure that power is shut off to the busbars. It must be possible to open / close the switch-disconnector.

#### 3.3. Identification of the spring device type

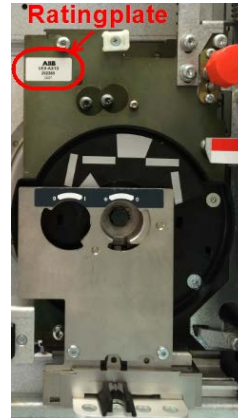
Check that the motor is compatible with the spring device in the cubicle.

Spring device	Motor type	Year	Description
UES-K3/2	UEMC40K8-UVDC/3	1999...2004	1-Spring normal
UES-K3/7	N/A	1999...2004	1-Spring light for EM
UES-K3/5	UEMC40K8-UVDC/3	1999...2004	1-Spring Belgium type
UES-A3/2	N/A	1999...2004	2-Spring normal
UES-A3M/2	1VFU120003R2-UVDC	1999...2004	2-Spring motor type
UES-K3/10	1VFU110001R2-UVDC	2004...	1-Spring normal
UES-K3/11	N/A	2004...	1-Spring light for EM
UES-A3/10	1VFU110002R2-UVDC	2004...	2-Spring normal

Position of rating plates:



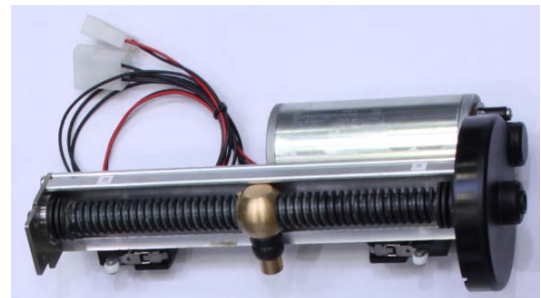
1-Spring device



2-Spring device



1-Spring motor, 1VFU110001R2-UVDC



2-Spring motor, 1VFU110002R2-UVDC

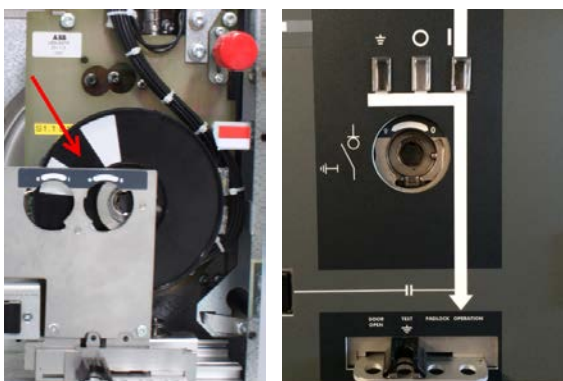


1-Spring motor, UEMC40K8-UVDC/3

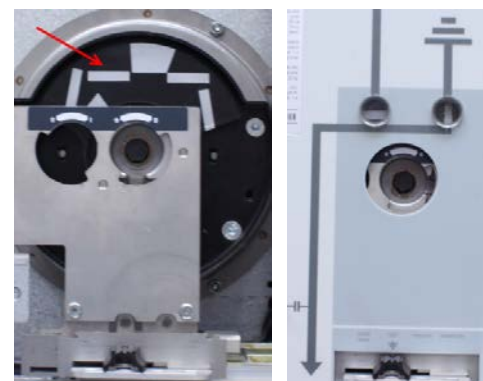
In case of 2-spring device type UES-A3/2, the complete spring device needs to be changed to type UES-A3/10.

### 3.4. Identification of position indicator type

The installation of position auxiliary contacts depends on the type of mechanical position indication installed in the cubicle.



Position indication disc / front view



Position indication disc / front view

In the left side picture, the position indication disc is of the older type, with auxiliary contacts installed directly to the cover plate of the spring device. Please refer to chapter 4.4.2 for installation of auxiliary contacts.

In the right side picture, the position indication disc is of the newer type, with auxiliary contacts installed directly to the base part of the position indication disc. Please refer to chapter 4.4.1 for installation of auxiliary contacts.

### 3.5. Switch-disconnector position during installation

When installing the motor, the switch-disconnector needs to be in the OPEN position.



Switch-disconnector in open position



Switch-disconnector in open position

### 3.6. Removal of the existing equipment and wiring

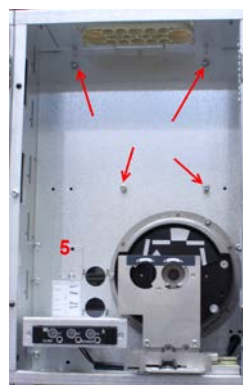
The motor kit is a complete, tested set with wiring and wiring plate. If the existing cubicle has wiring and secondary equipment installed, it is recommended that the existing secondary equipment is removed during the installation of the motor kit. The equipment can be reinstalled afterwards if needed.

### 3.7. Removal of the existing wiring plate

In order to reach the wiring plate upper screws, the cable channel needs to be removed. Use a 7mm socket wrench to loosen the two cable channel screws.



Cable channel to be removed



Empty LV-cabinet

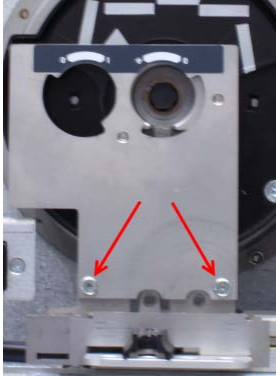
Remove the existing wiring and the wiring plate by loosening the 5 fixing torx-screws (do not remove completely). Only screw no. 5 in the picture is removed completely. Note that the picture from a 375mm cabinet, for a 500mm cabinet the screws are placed differently.



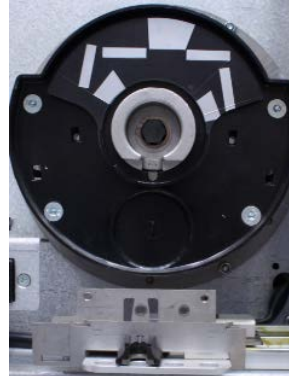
## 4. Installation of the motor unit and micro switches

### 4.1. Removal of interlocking plate, operating bushing and position indication disc

Remove the two screws and the front plate. In case the complete interlocking device needs to be removed, please refer to the Uniswitch installation manual UNIS 13GB, chapter 5.2.

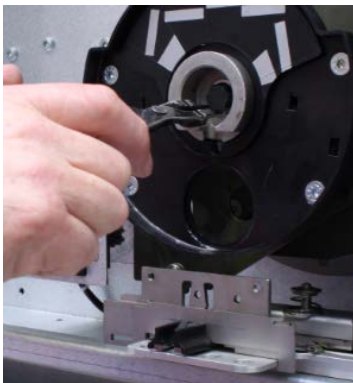


Interlocking device front plate



Interlocking front plate removed

Remove the locking ring



Removal of locking ring



Operating bushing and front position indication disc removed.

Remove possible washer, the operating bushing and the position indication disc.



Old type of position indication disc

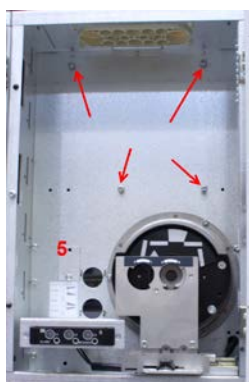


Position indication disc on 1-spring device removed



Position indication disc on 2-spring device removed.

Before installing the motor it is recommended to lift the new wiring plate in place. Fix the wiring plate with the five torx-screws.



Fixing screws for wiring plate



Wiring plate in place

## 4.2. Installation of motors for different spring devices

### 4.2.1. Motor 1VFU110001R2-UVDC on 1-spring UES-K3/10 device

Remove the plates of the spring device



Remove screws and plates

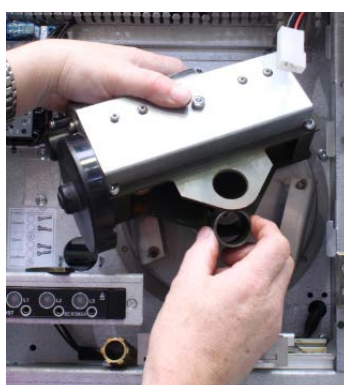


1-spring device without front plates

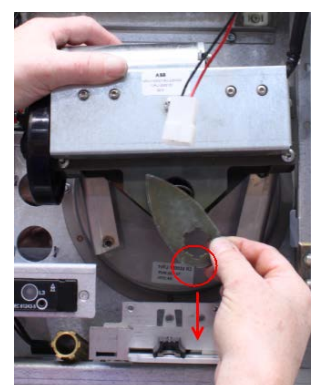
Remove the operation shaft. Lift the motor in place together with the bushing and lifting arm. Please note the position of the lifting arm is at 11 o'clock and with the edge cavity pointing down!



Operation shaft being removed



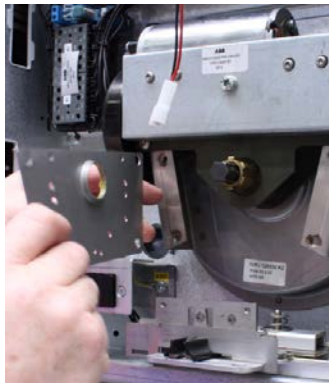
Motor lifted in place together with bushing and lifting arm



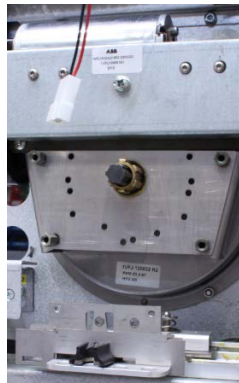
Position of lifting arm with edge cavity pointing down

Insert the operation shaft and fix the two front plates of the 1-spring mechanism

Notice that the motor operating device does not have any fixing screws to tighten. The small movement between the motor operating device and the limiting surface does not affect the operation of the mechanism.



Operation shaft in place  
inner front plate to be installed



Inner front plate installed



Outer front plate in place

#### 4.2.2. Motor 1VFU110002R2-UVDC on 2-spring UES-A3/10 device

To make room for the motor installation, remove the voltage indicator with bracket, by loosening the two screws fixing the bracket. Remove the upper gear cover of the motor, fixed by two screws.

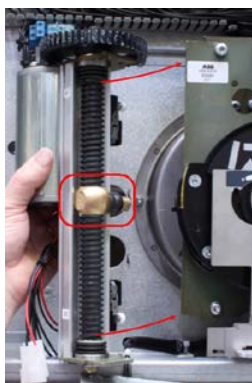


VIS with bracket removed



Motor gear cover removed

Before installing the motor in place, note the position of the yoke in picture below!  
Lift the motor in place to the left side of the 2-spring device.



Position of yoke



Motor in place

Fasten the motor in place with four screws included, two 4X25 from below and two 5X12X-TORX from top.





Fastening of motor from below



Fastening of motor from top  
(1<sup>st</sup> screw)



Fastening of motor from top  
(2<sup>nd</sup> screw)

Finally install the gear cover and fasten the voltage indicator with bracket.

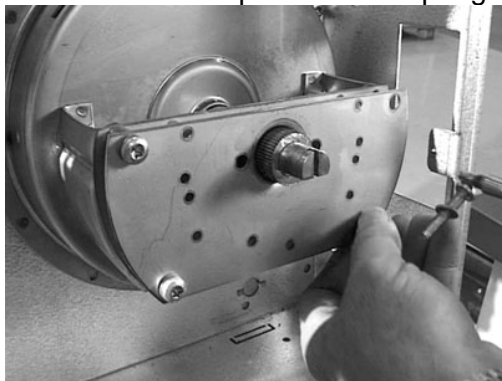


Motor gear cover in place

#### 4.2.3. Motor UEMC40K8-UVDC/3 on 1-spring UES-K3/2 or UES-K3/5 device

Remove the gear cover and micro switch cover of the motor, attached by two screws.

Remove the front plates of the spring device.



Removing the front plates

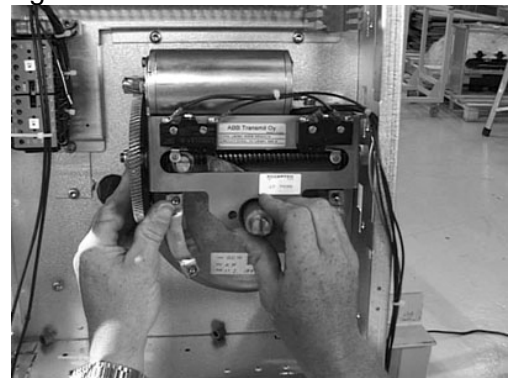


1-spring device without front plates  
(picture of UES-K3/10 type)

Lift the motor in place together with the lifting arm.

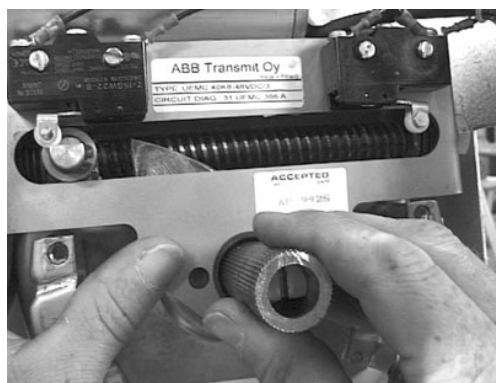


Remove covers of motor unit



Motor in place with lifting arm

Pull the brass operation shaft and adjust the lifting arm to the correct position!



Adjusting of the lifting arm position



Correct position of lifting arm  
with operation shaft pushed back

Push back the operation shaft and reattach the gear and micro switch covers. Install the two front plates of the 1-spring mechanism, together with the auxiliary contacts.

Notice that the motor operating device does not have any fixing screws to tighten. The small movement between the motor operating device and the limiting surface does not affect the operation of the mechanism.



Inner front plate installed  
(picture of UES-K3/10 type)



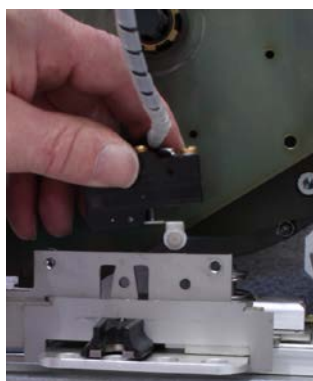
Outer front plate  
(picture of UES-K3/10 type)



Outer front plate with aux. contacts  
(picture of UES-K3/10 type)

#### 4.3. Installation of the interlocking device micro switch

Install the S10 micro switch behind the interlocking device with the supplied bolts and nuts.



S10 micro switch installation  
behind interlocking



S10 micro switch installed



Open position of S10  
micro switch

## 4.4. Installation of the auxiliary contacts and position indication disc

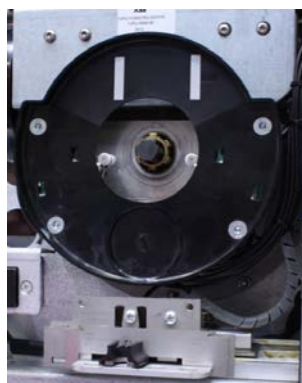
### 4.4.1. Installation of the newer type of position indication

The motor kit includes the standard auxiliary contacts (micro switch) 2NO+2NC for switch-disconnector position indication and 2NO+2NC for the earthing switch position indication. It is recommended to use the micro switches which are already installed in the back of the position indication disc.

Fasten the back position indication disc with the auxiliary contacts attached to the front plate of the spring device.



S01 and S09 micro switch on position indication disc



Back position indication disc. with aux. contacts installed

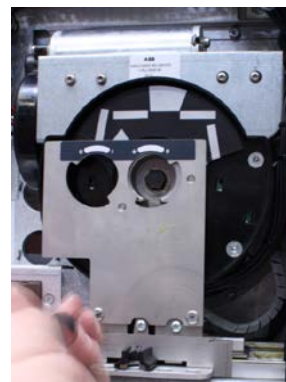
Insert the front position indication disc, operating bushing and possible washer. Use the new locking ring included to attach the operating bushing. Finally, re-attach the front interlocking plate to the interlocking device.



Front position indication disc, operating bushing



Locking ring



Interlocking front plate installed

### 4.4.2. Installation of the older type position indication disc and auxiliary contacts

The motor kit includes the standard auxiliary contacts (micro switch) 2NO+2NC for Switch-disconnector position indication and 2NO+2NC for earthing switch position indication. Remove the micro switches from the supplied position indication disk. Install the micro switches onto the front plate of the spring device and reattach the front plate with 4 screws. Note, for the 2-spring device, the micro switches are screwed directly to the device.

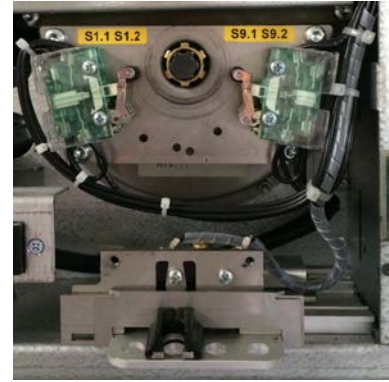




Attaching of micro switch to front plate spring device



Micro switch on 2-spring device



Micro switch on 1-spring device

Insert the position indication disc, operating bushing and possible washer. Use the new locking ring included to fasten the operating bushing. Finally, re-attach the front interlocking plate to the interlocking device.



Installing the locking ring



Locking ring



Interlocking front plate installed



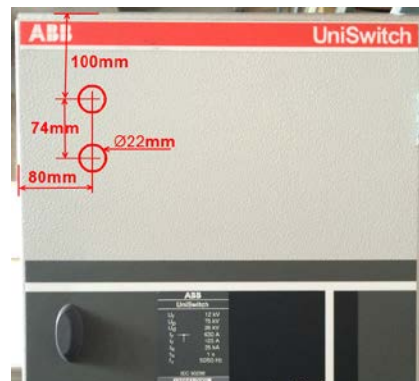
## 5. Installation of the secondary equipment and wiring

### 5.1. Installation of the door material

If the door is pre-cut for the L/R switch and pushbutton, cut an opening in the door sticker. If the door is not pre-cut, two  $\varnothing 22\text{mm}$  holes need to be drilled for the L/R switch and pushbutton openings. It is recommended to use a cut-out tool suitable for 22mm pilot devices.

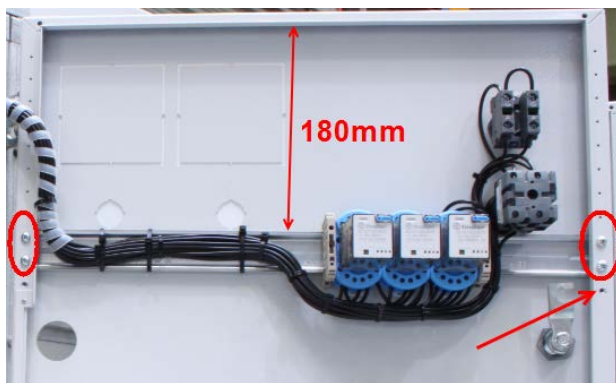


Opening of door sticker  
in case of pre-cut door



Measures for L/R switch and pushbutton openings

Attach the installation bar with M.C.B., auxiliary relays, pushbutton and L/R switch to the inner side of the door with the four 4.2x13 screws supplied. Note, the height of the bar is 180 mm from top of the door! Ensure that it is possible to close the door without affecting the secondary equipment!



Installation bar for door

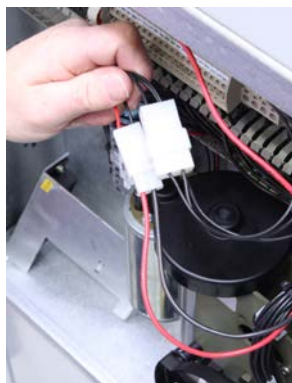


Fixing of installation bar with  
4 pcs of 4.2x13 torx-screws

Install the L/R switch and the open/close pushbutton through the door. Plug the motor wires, organize and secure the wiring with cable ties.



L/R switch and I/O pushbutton



Motor wiring plugs



Cable tie on 2-spring device



Door wiring secured with 4.2x19 torx-screw



Picture 3.3.1) Example of motor kit for 2-spring device, installed in 500mm wide SDF cubicle.

## 6. Testing

### 6.1. Testing of wiring

The motor kit wiring has been pretested in the factory. Check that the wiring has not been damaged or loosened during the installation. If there have been changes in the wiring, please perform adequate testing procedures to ensure correct connections.

### 6.2. Function testing

Perform at least the following function tests 2-3 times:

- Open/close from local pushbuttons, check the L/R switch positions
- Manual open/close, the motor needs to follow the switch position
- Open/close from remote, check the L/R switch positions