Motor Operating Device  UEMC 40 A_, B_, D_

Installation and operating guide

ABB Power Distribution
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1. **General**

The UEMC 40 A\_\_, UEMC 40 B\_\_, and UEMC 40 D\_\_ motor operating devices are intended for indoor mounting on medium voltage disconnectors and earthing switches.

The operating device is reliable in changing temperature and humidity conditions.

Operation can be performed both electrically or by means of the manual operating lever. Operating time is about 5...8 s depending on the type of device and loading conditions.

2. **Standards**

The motor operating device complies with
- IEC 265 (1983)
- VDE 0530 motor voltage test

3. **Transport and storage**

The motor operating device can be transported in any position, and should be stored indoors in a dry area.

4. **Construction**

![Diagram of the motor operating device](image)

**Fig. A**

1. Power unit  
2. Limit switch  
3. Guide pin  
4. Coupling ring  
5. Locking catch  
6. Motor  
7. Terminal block  
8. Control push button  
10. Contactor  
11. Lever  
12. Nut

a) **Power transfer**

Power is transferred from the motor through a gear wheel and threaded shaft to the operating axel. The direction of operation for open and close control can be reversed by changing the motor's direction of rotation. The threaded shaft gear is assembled from a round stainless steel shaft and one or two bronze nuts. The shaft is self-locking which means that the operating device cannot be rotated with a force from the operating axel. This also applies if the operating device is in the central position. The nuts transfer the power through the specially formed lever to the operating axel. The lever is formed so that it can be locked in the extreme position.

By disengaging the coupling ring, manual operation can be performed by means of the control lever.

Both the gear wheel and the threaded shaft are greased with low temperature grease which ensures correct operation in temperatures as low as −50 °C.

b) **Mechanical locking**

The unit is fitted with a locking device which also includes a switch to prevent the motor from operating. The locking unit mechanically locks the operating device and is strong enough to withstand the driving force of the motor if the blocking switch S12 fails. The locking unit locks both the motor operating device and the manual operating device.

c) **Electrical operation**

Motor operating device type UEMC 40 A1\_, B1\_, and D1\_ are fitted with a lower level of electrical components, and require a separate control unit, such as UEZJ 1 or UEZJ 2.

Refer to circuit diagram: 31 UEMC 79.

Motor operating device type UEMC 40 A2\_, B2\_, and D2\_ are equipped with a complete control system including contactors, I- and O-push buttons and mcb.

Refer to circuit diagram: 31 UEMC 81.
5. General installation instructions

This is a general description covering the installation of a motor operating device. Refer also to point 6, examples of installation and basic adjustment method.

Note
The motor operating device should not be operated by driving the screw with a compressed air tool as this could damage the motors gearwheel.

a) Install the disconnector, shaft and interlocking between the disconnector and the earthing switch. Mount the elbow gear mechanism if the disconnector is to be mounted on the back wall of the cubicle. Refer to installation instructions for the disconnector, and also point 6.

b) Make the electrical connections to the motor operating device and earth the unit.

c) Fit the disconnector as detailed in the basic adjustment instructions, point 6, examples of installation on various disconnectors.

d) Test operate the motor operating device so that the coupling ring A-4 is free and the unit is driven by the motor, or by rotating the screw with a 19 mm socket spanner. If the motor operating device is driven by rotating the screw, ensure to stop when the spring washer begins to compress. Then operate the disconnector from the shaft using the handle, and make note of the position of the coupling ring when the operating is complete.

The following criteria should be met both in open and closed position:
- the shaft can be rotated to the point where the coupling ring latches.
- a margin in the operating angle should be available before the coupling ring A-4 latches.

e) Change the position of the motor operating mechanism to another spline on the shaft by turning if required, and repeat until the tolerance in the control angle in both the open and closed positions is symmetrical.

f) Electrically test operate the disconnector.

g) Tighten all locking bolts and nuts.

h) Check that the operating symbols are correct. Symbols for anti-clockwise closed are included in the delivery of UEMC 40 B_ and D_.

To change direction of operating for UEMC 40 A1, B1 and D1:
Refer to circuit diagram: 31 UEMC 157
31 UEMC 161

Stick the left hand label to the coupling ring.

To change direction of operation for UEMC 40 A2, B2 and D2:
- Swap connections X1:13 and X1:14, red to X1:13 and brown to X1:14.
- Stick the left hand label to the coupling ring.

Note
Models UEMC 40 A1 and UEMC 40 A2 do not usually need to have their direction of rotation changed as the direction of operation of the disconnector can be chosen to suit by turning the larger toothed gearwheel to the left or right side of the smaller toothed gearwheel.

i) Select the right label for sticking on to the motor operating device, according to language and method of mounting. Label no. GB 3637-1 for push buttons mounted above and label no. GB 3637-2 for push buttons mounted below the operating shaft.
6. Examples of installation and basic adjustment method

A. NAL-disconnector mounted on the rear wall of the cubicle

Spring device: A-mec, K-mec or KS-mec.

![Diagram](image)

**Fig. B**

1. Motor operating device  
   UEMC 40 A2- or UEMC 40 A1-
2. Joint  
   UEMC-ZL 7
3. Adjuster coupling  
   UEMC-ZL 10 (only for KS-mechanism)
4. Beveled gearwheel  
   53362/HE
5. Transmission tube  
   53346 (length 1.3 m)
   53347 (length 2 m)

### A-mec, basic adjustment method

1. Operating device in the open position (as delivered).
2. Operate the disconnector in the direction of the open position until the spring is charged, (charging catch latches). Turn lightly using the handle, in the direction of the arrow on the A-mechanism until the free play is taken up.
3. Free the operating device's coupling ring A-4 for manual operation, and turn the coupling ring so that dimension \( X = 1 \text{ mm} \). Refer to fig. B.
4. Install the motor operating device in this position.
5. Refer to point 5, general installation instructions.

### K-mec, basic adjustment method

1. Operating device in the open position (as delivered)
2. With the disconnector in the open position, lightly turn using the handle, in the direction of the arrow on the K-mechanism until the free play is taken up.
3. Free the operating device's coupling ring A-4 for manual operation, and turn the coupling ring so that dimension \( X = 6 \text{ mm} \). Refer to fig. B.
4. Install the motor operating device in this position.
5. Refer to point 5, general installation instructions.
KS-mec, basic adjustment method

Applicable to both disconnector mounted on the side or rear wall of the cubicle. Refer to fig. B and fig.C.

1. Operating device in open position (as delivered).
2. Disconnector in the closed position. Operate the disconnector with the handle to charge the spring device, and continue in the direction of the arrow on the KS-mechanism until the free play is taken up.
3. Loosen the adjuster coupling screws to max. free play. The adjuster coupling provides facility to adjust the extreme positions exactly and to reduce the control angle.
4. Turn the adjuster coupling in the opposite direction of the arrow KS-mec. until the free play is taken up.
5. Install the motor operating device.
6. Tighten one adjustment screw on the adjuster coupling until a light resistance is felt towards the open position. Do not tighten it so much that the coupling ring cannot be drawn out by hand. The position of the adjuster coupling’s splines should be that the adjuster screw is screwed out only a few millimeters, otherwise the free play will not be enough for positioning at the other end.
7. Trip the disconnector to the open position using the tripping mechanism.
8. Free the operating device’s coupling ring A-4 and operate the motor operating device to the closed position, ensuring that the disconnector remains in the open position. The operation can be made electrically or by rotating the nut on top.
9. Operate the disconnector with the handle until the closing spring is charged and the end free play is taken up. If the coupling ring should not latch in refer to above point 6.
10. Tight the adjuster couplings other adjustment screw until a light resistance is felt towards the closed position, but do not tighten so much that the coupling ring cannot be drawn out by hand.
11. Trip the disconnector to the closed position using the tripping mechanism.
12. Refer to point 5, general installation instructions.
B. **NAL-disconnector mounted on the side wall of the cubicle**

Spring device: A-mec, K-mec or KS-mec.

The operating device can be mounted on the right hand or left hand side of the disconnector. When mounted on the right hand side it must be noted that the direction of operation should be changed to anti-clockwise closed. Refer to point 5.h.

**A-mec, basic adjustment method**

1. Operating device in open position (as delivered).
2. Operate the disconnector in the direction of the open position until the spring is charged, (charging catch latches). Turn lightly using the handle, in the direction of the arrow on the A-mechanism until the free play is taken up.
3. Free the operating devices coupling ring A-4 for manual operation, and turn the coupling ring so that dimension \( X = 5 \text{ mm} \). See fig. C
4. Install the operating device in this position.
5. Refer to point 5, general installation instructions.

**K-mec, basic adjustment method**

1. Operating device in open position (as delivered).
2. Disconnector in the open position. Turn lightly using the handle in the direction of the arrow on the K-mec until the free play is taken up.
3. Free the operating device's coupling ring A-4 for manual operation, and turn the coupling ring so that dimension \( X = 5 \text{ mm} \). See fig. C
4. Install the operating device's in this position.
5. Refer to point 5, general installation instructions.

**KS-mec, basic adjustment method**

The same installation instructions are applicable to disconnectors mounted on either the rear or side wall of the cubicle. Refer to point 6.A.
C. ADNN-, or OJON- disconnectors mounted on the rear wall of the cubicle

![Diagram of ADNN- or OJON-disconnectors](image)

Fig. D

1. Motor operating device UEMC 40 A2- or UEMC 40 A1

2. Elbow gear mechanism UEMC-ZL 23 including:
   - beveled gear wheel
   - transmission tube 33 x 1500 mm
   - joint
   - extension shaft

1. Operating device in the open position (as delivered).

2. Disconnecter in the open position. Lightly turn, using the handle, in the direction of the arrow until the free play is taken up.

3. Mount the motor operating device.

4. Free the operating device's coupling ring A-4 and operate the motor operating device to the closed position, ensuring that the disconnector remains in the open position. The operation can be made electrically or by rotating the screw.

5. Operate the disconnector with the handle to the closed position. Take note of when the coupling ring latches in. The coupling ring should latch in when the disconnector is completely closed. Loosen the connector from the operating mechanism and rotate it to a suitable spline as required.

6. Open the disconnector using the handle and repeat the above until the desired position is obtained.

7. Refer to point 5, general installation instructions.
D. ADNN-, or OJON- disconnectors mounted on the side wall of the cubicle

The operating device can be mounted on either the left hand or right hand side of the disconnector. When mounted on the left hand side it must be noted that the direction of operation should be changed to anti-clockwise closed, refer to point 5.h.

Fig. E

1. Motor operating device UEMC 40 B2-, or
   UEMC 40 B1

2. Adjuster coupling UEMC-ZL 9 for round shaft Ø 25
   UEMC-ZL 10 for splined shaft Ø 25

3. Extension shaft UEMC 242 fit to adjuster coupling UEMC-ZL 10

1. Operating device in open position (as delivered).

2. Loosen the adjuster coupling screws to max. free play. The adjuster coupling provides facility to adjust the extreme positions exactly and to reduce the control angle.

3. Disconnector in open position.

4. Turn the coupling adjuster and the disconnector lightly in the direction of the arrow until the free play is taken up.

5. Install the motor operating device.

6. Tighten one adjustment screw on the adjuster coupling until the disconnector turns lightly against the open stopper. The position of the adjuster coupling’s splines should be that the adjuster screw is screwed out only a few millimeters, otherwise the free play will not be enough for positioning at the other end. Change the adjuster coupling to another spline if required.

7. Free the operating device’s coupling ring A-4 and operate the motor operating device to the closed position, ensuring that the disconnector remains in the open position. The operation can be made electrically or by rotating the nut.

8. Operate the disconnector with the handle to the closed position.

9. Tighten the adjuster coupling’s other adjustment screw until the disconnector turns lightly against the close stopper.

10. Test operate and adjust the adjustment screws if necessary.

11. Refer to point 5, general installation instructions.
7. Operation and locking
   a) Motorized operation
      - Switch the “MOTOR”-switch to the ON position. In this position both the local and remote functions operate.
      - Use the control pushbuttons I or O for local control.
   b) Manual operation
      Switch the “MOTOR”-switch to the OFF-position. Pull the coupling ring out and operate using the control handle. Some disconnectors will need a slight turn in the other direction with the control lever before the coupling ring A-4 can be pulled out. See also accessories UEMZ 469.
   c) Motorized operation after manual operation
      After manually operating the disconnector once, the power unit is not in synch with the disconnector. The coupling ring A-4 usually drops into place itself when next using the motor operating device. To assist the coupling ring relocating itself, turn the axel slightly backwards after manually operating the disconnector. If for example the disconnector is opened manually and then it is to be closed using the motor operating device, first drive the motor operating device to the open position so that the coupling ring drops into place and then drive it to the closed position.
   d) Mechanical locking
      Switch the “MOTOR”-switch to the O-position. The disconnector can be locked when the motor operating device is in the open or closed position, also after manual operation, even if the coupling ring is disengaged. Lock after pushing the locking catch A-5 in using ø 6...10 mm padlock. The locking will also open the electrical operating circuit automatically.

8. Maintenance
   The operating devices threaded shaft and gearwheel is to be greased at 5 year intervals or after 1000 operations.
   Recommended grease type is Isoflex Topas NCA 52 or similar synthetic low temperature resistant grease. The grease can be ordered from the manufacturer of the operating device.
   If the operating device is fitted with an anti-condensation heater check that it works.

9. Spare parts
   When ordering spare parts all details on the rating plate are to be mentioned.

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Type</th>
<th>Remarks</th>
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<td>Motor + gear wheel</td>
<td>UEZM 5/U3</td>
<td>U = Voltage</td>
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<td>Motor gear wheel</td>
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<td>Diode</td>
<td>SK 1/16</td>
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<tr>
<td>Rectifier</td>
<td>- REC 36 MB 160 A</td>
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<td>Limit switch. S1, S2</td>
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<td>Contactor K1, K2</td>
<td>- ABB BC 6-30-01/U</td>
<td>U = Voltage</td>
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<td>Relay K3</td>
<td>- RFI 40.52.9.048</td>
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</table>
10. Technical details

- Direction of operation:
  clockwise to close easily changeable, see point 5.h.
- Motor:
  Rectified DC, permanent magnet type

<table>
<thead>
<tr>
<th>5 niece voltage</th>
<th>10 UnDCofftubCFXWacten</th>
<th>0 Dx. FXWactn</th>
<th>5 eFommended</th>
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<td>,mDx/A</td>
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<table>
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<th>UE0 C 40 B1</th>
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<td>0.1</td>
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<td>110</td>
<td>150</td>
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</table>

- Manual operating device with operating handle UEKO-ZK 1
- Terminal block 6 mm²
- Anti-condensation heater 5 W (to be ordered separately)

- Operating time at standard load 5...8 s

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<tr>
<td>200</td>
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<td>100</td>
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</table>
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Operating time at different load

1) With accessory: Coupling ring UEMZ 452
11. Accessories

Operating handle  UEKO-ZK 1 or HE 53235

The operating handle is insulated and fitted with an insulated grip.

Extension shaft  UEMC -ZL 24

Includes:
– shaft 240 mm (splined)
– extension socket 70 mm (splines to splines)
The shaft have cutting grooves at regular intervals.
Ø 25 splined / Ø 25 splined

Coupling ring  UEMZ 452

Increases the operating angle to 210° for motor operating devices UEMC 40 A_

Protective m.c.b.

Used to connect the supply circuit and protect the motor against overloading.

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<th>0 iniDXUfXit EULmDeUtype</th>
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Auxiliary contact for m.c.b.

- STO S 2-S/H
Includes 2 pcs. change-over contacts.
### Operating box

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<th>CiIFxi d1d1Dm</th>
<th>31 UEMC 148</th>
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(1) Type UEZJ 2-UU is to be ordered when different motor and auxiliary voltages are to be used. Please give details of the voltages when ordering.

### Control unit

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(1) Type UEZJ 1-UU is to be ordered when different motor and auxiliary voltages are to be used. Please give details of the voltages when ordering.

### Control unit

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(1) Type UEZJ 1-UU is to be ordered when different motor and auxiliary voltages are to be used. Please give details of the voltages when ordering.
Box
Includes:
- grey polycarbonat box, IP 67
- bracket
- screws

The box is suitable for control unit UEZJ 1-/2

Control push buttons
Includes:
- I-button, with text: CLOSE
- O-button, with text: OPEN
- On/Off selector switch, with text: REMOTE ON/OFF

Set of indicator lamps
Type: UEZJ 4 - 24 V
- 48 V
- 60 V
- 110 V
- 125 V
- 220 V

Includes: red, green, and yellow lamps.
The same type for both DC and AC.

Adjuster coupling
Provides facility to adjust the extreme positions exactly and to reduce control angle steplessly max 30°.
Ø 25 splined / Ø 25

Adjuster coupling
Provides facility to adjust the extreme positions exactly and to reduce control angle steplessly max 30°.
Ø 25 splined / Ø 25 splined
Joint **UEMC-ZL 7**
For transmitting the operating movement through an angle of max 40°.
For tube diameter: 3/4" (26.9 mm)

Joint **UEMZ 390**
For transmitting the operating movement through an angle of max 40°.
For tube diameter: 1" (33.7 mm)

Extension shaft **UEMZ 242**
Ø 25 splined / Ø 25

Elbow gear mechanism **UEMC-ZL 23**
Includes:
UEMZ 404: Beveled gear wheel
UEMZ 390: Joint
UEMZ 242: Extension shaft
UEMZ 403: Transmission tube Ø 33.7 x 1500 mm
Tube length = A – 150 mm

Manual operation by means of an insulated staff
Contents:
1. Screw extensions UEMZ 469
2. Conical adapter ~ RAG MGA 87
3. Operating rod ~ RAG MTG 201-K
   Length 6390 mm

Function:
The conical adapter can be fitted on the end of an insulated staff as used for changing fuses on pole mounted transformers. Manufactured by Melby or Ragnar Stålskog. By turning the staff, the operating mechanism can be controlled.
12. Range of models

Disconnected mounted on the rear wall of cubicle

<table>
<thead>
<tr>
<th>Disconnector</th>
<th>Important accessories</th>
<th>Motor operating device</th>
<th>Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAL_</td>
<td>Joint UEMC-ZL 7</td>
<td>UEMC 40 A_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>OJON_ ADNN 12-24 kV</td>
<td>Elbow gear mec. UEMC-ZL 23</td>
<td>UEMC 40 A_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>ADNN 52 kV ADNN 72.5 kV</td>
<td>Elbow gear mec. UEMC-ZL 23</td>
<td>Coupling ring UEMZ 452</td>
<td>UEMC 40 A_</td>
</tr>
<tr>
<td>OJD_</td>
<td>Elbow gear mec. UEMC-ZL 6</td>
<td>Coupling ring UEMZ 452</td>
<td>UEMC 40 A_</td>
</tr>
</tbody>
</table>

Disconnected mounted on the side wall of cubicle

<table>
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<tr>
<th>Disconnector</th>
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<th>Motor operating device</th>
<th>Guide</th>
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</thead>
<tbody>
<tr>
<td>NAL_</td>
<td>Extension shaft UEMC-ZL 24</td>
<td>UEMC 40 D_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>OJON_ ADNN_</td>
<td>Adjuster coupling UEMC-ZL 9</td>
<td>UEMC 40 B_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td></td>
<td>Extension shaft UEMC-ZL 242</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OJD_</td>
<td>Extension shaft UEMC-ZL 5</td>
<td>UEMC 40 B_</td>
<td>34 UEMC 28_</td>
</tr>
</tbody>
</table>
UEMC 40 A_, B_, D_

Earthing switch mounted on the rear wall of cubicle

<table>
<thead>
<tr>
<th>Earthing switch</th>
<th>Accessories</th>
<th>Motor operating device</th>
<th>Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ_ OJO-ZMA_ OJWM_</td>
<td>Elbow gear mec. UEMC-ZL 23</td>
<td>UEMC 40 A_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>OJWN_ OJD-ZM_</td>
<td>Elbow gear mec. UEMC-ZL 6</td>
<td>UEMC 40 A_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>E for NAL EB for NAL</td>
<td>Joint UEMC-ZL 7</td>
<td>UEMC 40 A_</td>
<td>34 UEMC 36_</td>
</tr>
</tbody>
</table>

Earthing switch mounted on the side wall of cubicle

<table>
<thead>
<tr>
<th>Earthing switch</th>
<th>Accessories</th>
<th>Motor operating device</th>
<th>Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ_ OJO-ZMA_ OJWM_</td>
<td>Adjuster coupling UEMC-ZL 9 Extension shaft UEMZ 242</td>
<td>UEMC 40 B_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>OJWN_ OJD-ZM_</td>
<td>Adjuster coupling UEMC-ZL 10 Extension shaft UEMC-ZL 5</td>
<td>UEMC 40 B_</td>
<td>34 UEMC 28_</td>
</tr>
<tr>
<td>E for NAL EB for NAL</td>
<td>Extension shaft UEMC-ZL 24</td>
<td>UEMC 40 D_</td>
<td>34 UEMC 36_</td>
</tr>
</tbody>
</table>
UEMC 40 A
Disconnector mounted on the rear wall of cubicle

Disconnector
NAL_
NALF_

Adjuster coupling
UEMC-ZL 10
only for KS-mec.

Operating handle
UEKO-ZK 1 or
HE 53235

goint
UEMC-ZL 7

Motor operating device
UEMC 40 A1 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC

Motor operating device
UEMC 40 A2 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

Control unit
UEZJ 1 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

Control push buttons
UEZJ 3

pet of indicator lamps
UEZJ 4 - 24 V
- 48 V
- 60 V
- 110 V
- 125 V
- 220 V

Operating box
UEZJ 2 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

Protective m.c.b.
- STO S272 K8 for 24 V
- STO S272 K4 for 48 V
- STO S272 K4 for 60 V
- STO S272 K2 for 110 V
- STO S272 K2 for 125 V
- STO S272 K1 for 230 VAC
- STO S282 UCK 1 for 220 VDC

Aux. contacts for m.c.b.
- STO S2-S/H
Disconnector mounted on the side wall of cubicle

Disconnector
NAL_
NALF_

Extension shaft
UEMC-ZL 24

Adjuster coupling
UEMC-ZL 10
only for KS-mec.

Operating handle
UEKO-ZK 1 or
HE 53235

Motor operating device
UEMC 40 D1 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC

Motor operating device
UEMC 40 D2 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

Control unit
UEZJ 1 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

Operating box
UEZJ 2 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

Control push buttons
UEZJ 3

pet of indicator lamps
UEZJ 4 - 24 V
- 48 V
- 60 V
- 110 V
- 125 V
- 220 V

Protective m.c.b.
- STO S272 K8 for 24 V
- STO S272 K4 for 48 V
- STO S272 K4 for 60 V
- STO S272 K2 for 110 V
- STO S272 K2 for 125 V
- STO S272 K1 for 230 VAC
- STO S282 UCK 1 for 220 VDC

Aux. contacts for m.c.b.
- STO S2-S/H
Disconnector mounted on the rear wall of cubicle

**Disconnector OJON**
ADNN 12-36 kV

**Disconnector ADNN 52 kV**
ADNN 72.5 kV

**Coupling ring**
UEMZ 452

**Operating handle**
UEKO-ZK 1 or HE 53235

**Elbow gear mechanism**
UEMC-ZL 23

**Motor operating device**
UEMC 40 A1 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC

**Control unit**
UEZJ 1 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

**Motor operating device**
UEMC 40 A2 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC
- UU

**Control push buttons**
UEZJ 3

**Pet of indicator lamps**
UEZJ 4 - 24 V
- 48 V
- 60 V
- 110 V
- 125 V
- 220 V

**Protective m.c.b.**
- STO S272 K8 for 24 V
- STO S272 K4 for 48 V
- STO S272 K4 for 60 V
- STO S272 K2 for 110 V
- STO S272 K2 for 125 V
- STO S272 K1 for 230 VAC
- STO S282 UCK 1 for 220 VDC

**Aux. contacts for m.c.b.**
- STO S2-S/H
Disconnector mounted on the side wall of cubicle

- Disconnector OJON_ ADNN_
  - Operating handle
    - UEKO-ZK 1 or
    - HE 53235
  - Adjustment coupling
    - UEMC-ZL 10
  - Extension shaft
    - UEMZ 242

- Motor operating device
  - UEMC 40 B1 - 24 VDC
    - 48 VDC
    - 60 VDC
    - 110 VDC
    - 125 VDC
    - 220 VDC
  - Motor operating device
    - UEMC 40 B2 - 24 VDC
      - 48 VDC
      - 60 VDC
      - 110 VDC
      - 125 VDC
      - 220 VDC
      - 110 VAC
      - 230 VAC
      - UU

- Control unit
  - UEZJ 1 - 24 VDC
    - 48 VDC
    - 60 VDC
    - 110 VDC
    - 125 VDC
    - 220 VDC
    - 110 VAC
    - 230 VAC
    - UU
  - Operating box
    - UEZJ 2 - 24 VDC
      - 48 VDC
      - 60 VDC
      - 110 VDC
      - 125 VDC
      - 220 VDC
      - 110 VAC
      - 230 VAC
      - UU

- Control push buttons
  - UEZJ 3

- pet of indicator lamps
  - UEZJ 4 - 24 V
    - 48 V
    - 60 V
    - 110 V
    - 125 V
    - 220 V

- Protective m.c.b.
  - STO S272 K8 for 24 V
  - STO S272 K4 for 48 V
  - STO S272 K4 for 60 V
  - STO S272 K2 for 110 V
  - STO S272 K2 for 125 V
  - STO S272 K1 for 230 VAC
  - STO S282 UCK 1 for 220 V DC

- Aux. contacts for m.c.b.
  - STO S2-S/H
13. Dimension drawing  Motor Operating Device  UEMC 40 A_, B_, D_

### 13 UEMC 408 D

![Diagram of a 13 UEMC 408 D motor operating device]

**Front panel drilling**

<table>
<thead>
<tr>
<th>Type</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>V (Degr.)</th>
<th>M (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEMC 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>67</td>
<td>476</td>
<td>162</td>
<td>190</td>
<td>210 (1)</td>
</tr>
<tr>
<td>A2</td>
<td>67</td>
<td>476</td>
<td>162</td>
<td>190</td>
<td>210 (1)</td>
</tr>
<tr>
<td>B1</td>
<td>55</td>
<td>376</td>
<td>112</td>
<td>110</td>
<td>300</td>
</tr>
<tr>
<td>B2</td>
<td>55</td>
<td>376</td>
<td>112</td>
<td>110</td>
<td>300</td>
</tr>
<tr>
<td>D1</td>
<td>65</td>
<td>376</td>
<td>112</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>D2</td>
<td>65</td>
<td>376</td>
<td>112</td>
<td>150</td>
<td>200</td>
</tr>
</tbody>
</table>

(1) Accessories, to be ordered separately
14. Circuit diagram    Motor Operating Device    UEMC 40 A1, B1, D1

31 UEMC 79 C

For types:  
UEMC 40 A1 - 24 VDC  
- 48 VDC  
- 60 VDC  
- 110 VDC  
- 125 VDC  
- 220 VDC  

UEMC 40 B1 - 24 VDC  
- 48 VDC  
- 60 VDC  
- 110 VDC  
- 125 VDC  
- 220 VDC  

UEMC 40 D1 - 24 VDC  
- 48 VDC  
- 60 VDC  
- 110 VDC  
- 125 VDC  
- 220 VDC  

M1 = Motor  
S1, S2 = Limit switches  
S12 = Blocking switch for locking  

1) R2 = Heater (to be ordered separately)
31 UEMC 81 J

<table>
<thead>
<tr>
<th>UEMC 40 A2</th>
<th>UEMC 40 B2</th>
<th>UEMC 40 D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 VDC</td>
<td>24 VDC</td>
<td>24 VDC</td>
</tr>
<tr>
<td>48 VDC</td>
<td>48 VDC</td>
<td>48 VDC</td>
</tr>
<tr>
<td>60 VDC</td>
<td>60 VDC</td>
<td>60 VDC</td>
</tr>
<tr>
<td>110 VDC</td>
<td>110 VDC</td>
<td>110 VDC</td>
</tr>
<tr>
<td>125 VDC</td>
<td>125 VDC</td>
<td>125 VDC</td>
</tr>
<tr>
<td>220 VDC</td>
<td>220 VDC</td>
<td>220 VDC</td>
</tr>
<tr>
<td>110 VAC</td>
<td>110 VAC</td>
<td>110 VAC</td>
</tr>
<tr>
<td>230 VAC</td>
<td>230 VAC</td>
<td>230 VAC</td>
</tr>
</tbody>
</table>

- UU (1)  

F1 = M.c.b.
S45 = Push buttons (I and O)
M1 = Motor
K1, K2 = Operating contactors
K3 = Relay for 48-220 V
S1, S2 = Limit switches
S12 = Blocking switch, locking
V5 = Rectifier for AC
V1-V3 = Diodes for DC
R1 = Resistor for 110-230 V

(1) R2 = Heater (to be ordered separately)
(2) = Detail motor and aux. voltage
31 UEMC 141 D

For types:  
UEZJ 1- 24 VDC  
UEZJ 1- 24 VDC/2
Lajeille:  
- 48 VDC  
- 48 VDC/2
För typerna:  
- 60 VDC  
- 60 VDC/2  
- 110 VDC  
- 110 VDC/2  
- 125 VDC  
- 125 VDC/2  
- 220 VDC  
- 220 VDC/2

(1) -110VAC  
-230VAC

\[ \begin{align*} 
(+) & \quad 1 \\
(L1) & \quad 21 \\
\text{X1:} & \quad 22 \\
\text{V5} & \quad 21 \\
\end{align*} \]

K1, K2 = Operating contactors  
K3 = Relay for 48-230 V  
V1, V2 = Diodes  
R1 = Resistor for 110-230 V

1) V5 = Rectifier only for AC
31 UEMC 142 C

For types: UEZJ 1_UU
UEZJ 1_UU/2

Note. DC-contactors

K1, K2 = Operating contactors
K3 = Relay for 48-230 V
V1, V2 = Diodes
V5, V6 = Rectifier only for AC
R1 = Resistor for 110-230 V
31 UEMC 148 C

For types UEZJ 2-24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC

K1, K2 = Operating contactors
S4, S5 = Push buttons
S6 = Remote control selector
K3 = Relay for 48-230 V
R1 = Resistor for 110-230 V
V1, V2 = Diodes
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow

1) V5 = Rectifier only for AC
31 UEMC 149 D
For types. UEZJ 2_UU

K1, K2 = Operating contactors
S4, S5 = Push buttons
S6 = Remote control selector
K3 = Relay for 48-230 V
R1 = Resistor for 110-230 V
V1, V2 = Diodes
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow

1) V5, V6 = Rectifier only for AC
Example of connection for UEMC 40... + UEZJ 1

31 UEMC 156 C

- F1 = M.c.b.
- S4, S5 = Push buttons
- S6 = Remote control selector
- S7 = Aux. contact for disconnector
- S8 = Aux. contact for earthing switch
- S9 = Aux. contact for fuse tripping
- H4 = Position indicator, closed, red
- H5 = Position indicator, open, green
- H9 = Indicator for fuse tripping, yellow
Example of connection for  UEMC 40_ ... + UEZJ 1_

31 UEMC 157 C

Alt.  B  Vastapäivään kiinni  
E  O Moturs slutning  
Anti-clockwise closed

Hälytys  Alarm

F 1
(+)

S12

K1
K3
K2

R 1

K2
K1

V1

K1
K2

A2
A1

A2
A1

X1: 1 3 7 8

X2: 1 2 9 10

F 1  (-)

UEZJ 1-  

UEMC 40 A1.B1.D1-  

Red
Black

M 1

S12
S1
S12
S2

S9
S8

S11

S14

S7
S5

K3
K2
K1

H4
H5
H9

(+)

Red
Gr
Y

x1
x2
x1
x2

(+) (N) (L1)  

(1)  

21 22

R 2

F1  = M.c.b.  
S4, S5  = Push buttons  
S6  = Remote control selector  
S7  = Aux. contact for disconnector  
S8  = Aux. contact for earthing switch  
S9  = Aux. contact for fuse tripping  
H4  = Pos. indicator, closed, red  
H5  = Pos. indicator, open, green  
H9  = Indic. for fuse tripping, yellow

30
Example of connection for UEMC 40 ... + UEZJ 2

31 UEMC 160 B

---

F1 = M.c.b.
S14, S15 = Push buttons
S7 = Aux. cont. for disconnector
S8 = Aux. cont. for earthing switch
S9 = Aux. cont. for fuse tripping
H14 = Pos. indicator, closed, red
H15 = Pos. indicator, open, green
H19 = Indic. for fuse tripping, yellow
31 UEMC 161 B

Alt. B Vastapäivän kiinni
I Moturs slutning
O Anti-clockwise closed

Hälytys Alarm

UEMC 40 A1, B1, D1-

S12

UEZJ 2-

F1 =M.c.b.
S14, S15 =Push buttons
S7 =Aux. cont. for disconnector
S8 =Aux. cont. for earthing switch
S9 =Aux. cont. for fuse tripping
H14 =Pos. indicator, closed, red
H15 =Pos. indicator, open, green
H19 =Ind. for fuse tripping, yellow