Motor Operating Device UEMC 40 A_, B_, D_

Installation, operating and recycling guide
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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

![Fig. A](image)

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 axle. 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 axle. 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 axle. 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 m.c.b. 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.

Connection of operating device to a disconnector with an A-mechanism

The opening time for the A-mechanism operated with the motor operating device is about 1 second. If a quicker opening time is required, the A-mechanism is to be fitted with a tripping coil.

The tripping coil can be connected in parallel with the opening circuit of the motor operating device which gives:
– quick opening with tripping coil
– the motor operating device will start at the same time as the tripping coil
– the motor operating device will be in the correct position for the following closing operation
– the disconnector will be in the correct position for earthing
– position indication laps will give both the disconnectors and the motor operating devices position.
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 of NAL-disconnector](image1)

**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 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 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.

1. Motor operation device UEMC 40 D2- or UEMC 40 D1-
2. Adjuster coupling UEMC-ZL 10 (only for KS-mechanism)

### 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 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 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

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. Disconnector 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 f or 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 \( \varnothing 6...10 \) 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>
</tr>
</thead>
<tbody>
<tr>
<td>Motor + gear wheel</td>
<td>UEZM 5/U/3</td>
<td>U = Voltage</td>
</tr>
<tr>
<td>Motor gear wheel</td>
<td>J403323</td>
<td></td>
</tr>
<tr>
<td>Diode</td>
<td>SK 1/16</td>
<td></td>
</tr>
<tr>
<td>Rectifier</td>
<td>- REC 36 MB 160 A</td>
<td></td>
</tr>
<tr>
<td>Limit switch. S1, S2</td>
<td>OYAX 13</td>
<td></td>
</tr>
<tr>
<td>Contactor K1, K2</td>
<td>- ABB VBC 6-30-01/U</td>
<td>U = Voltage</td>
</tr>
<tr>
<td>Relay K3</td>
<td>- RFI 40.52.9.048</td>
<td></td>
</tr>
</tbody>
</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>Rated voltage</th>
<th>Normal control current</th>
<th>Max. current</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In/A</td>
<td>Imax/A</td>
<td>M.c.b.</td>
</tr>
<tr>
<td>24 VDC</td>
<td>12</td>
<td>40</td>
<td>STO S272 K8</td>
</tr>
<tr>
<td>48 VDC</td>
<td>6</td>
<td>20</td>
<td>STO S272 K4</td>
</tr>
<tr>
<td>60 VDC</td>
<td>5</td>
<td>17</td>
<td>STO S272 K4</td>
</tr>
<tr>
<td>110 VDC</td>
<td>2</td>
<td>5.5</td>
<td>STO S272 K2</td>
</tr>
<tr>
<td>125 VDC</td>
<td>2</td>
<td>5.5</td>
<td>STO S272 K2</td>
</tr>
<tr>
<td>220 VDC</td>
<td>1</td>
<td>3</td>
<td>STO S282 UCK 1</td>
</tr>
<tr>
<td>230 VAC</td>
<td>1</td>
<td>3</td>
<td>STO S272 K1</td>
</tr>
</tbody>
</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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<table>
<thead>
<tr>
<th>Torque</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nm</td>
<td>kg</td>
</tr>
<tr>
<td>UEMC 40</td>
<td>A1</td>
</tr>
<tr>
<td>200</td>
<td>14.5</td>
</tr>
</tbody>
</table>

Contactors:
- Closing power W
- Holding power W
- Shortest control pulse s
- Operating angle Degr.

1) With accessory: Coupling ring UEMZ 452

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<table>
<thead>
<tr>
<th>Torque</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nm</td>
<td>kg</td>
</tr>
<tr>
<td>Operating time at different load</td>
<td></td>
</tr>
</tbody>
</table>

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M/Nm

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Operating time at different load
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.
∅ 25 splined / ∅ 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.

<table>
<thead>
<tr>
<th>Motor voltage</th>
<th>Miniature circuit breaker type</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 VDC</td>
<td>- STO S272 K8</td>
</tr>
<tr>
<td>48 VDC</td>
<td>- STO S272 K4</td>
</tr>
<tr>
<td>60 VDC</td>
<td>- STO S272 K4</td>
</tr>
<tr>
<td>110 VDC</td>
<td>- STO S272 K2</td>
</tr>
<tr>
<td>125 VDC</td>
<td>- STO S272 K2</td>
</tr>
<tr>
<td>110 VAC</td>
<td>- STO S272 K2</td>
</tr>
<tr>
<td>220 VDC</td>
<td>- STO S282 UCK 1</td>
</tr>
<tr>
<td>230 VAC</td>
<td>- STO S272 K1</td>
</tr>
</tbody>
</table>

Auxiliary contact for m.c.b.

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

**Type** | **Circuit diagram**
---|---
UEZJ 2 - 24 VDC | 31 UEMC 148
UEZJ 2 - 48 VDC | 31 UEMC 148
UEZJ 2 - 60 VDC | 31 UEMC 148
UEZJ 2 - 110 VDC | 31 UEMC 148
UEZJ 2 - 125 VDC | 31 UEMC 148
UEZJ 2 - 220 VDC | 31 UEMC 148
UEZJ 2 - 110 VAC | 31 UEMC 148
UEZJ 2 - 230 VAC | 31 UEMC 148
UEZJ 2 - UU | 31 UEMC 149

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

**Type** | **Circuit diagram**
---|---
UEZJ 1 - 24 VDC | 31 UEMC 148
UEZJ 1 - 48 VDC | 31 UEMC 148
UEZJ 1 - 60 VDC | 31 UEMC 148
UEZJ 1 - 110 VDC | 31 UEMC 148
UEZJ 1 - 125 VDC | 31 UEMC 148
UEZJ 1 - 220 VDC | 31 UEMC 148
UEZJ 1 - 110 VAC | 31 UEMC 148
UEZJ 1 - 230 VAC | 31 UEMC 148
UEZJ 1 - UU | 31 UEMC 149

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

**Type** | **Circuit diagram**
---|---
UEZJ 1 - 24 VDC/2 | 31 UEMC 141
UEZJ 1 - 48 VDC/2 | 31 UEMC 141
UEZJ 1 - 60 VDC/2 | 31 UEMC 141
UEZJ 1 - 110 VDC/2 | 31 UEMC 141
UEZJ 1 - 125 VDC/2 | 31 UEMC 141
UEZJ 1 - 220 VDC/2 | 31 UEMC 141
UEZJ 1 - 110 VAC/2 | 31 UEMC 141
UEZJ 1 - 230 VAC/2 | 31 UEMC 141
UEZJ 1 - UU/2 | 31 UEMC 142

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 push buttons  UEZJ 3
Includes:
- I-button, with text: CLOSE
- O-button, with text: OPEN
- On/Off selector switch, with text: REMOTE ON/OFF

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

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

Adjuster coupling  UEMC-ZL 9
Provides facility to adjust the extreme positions exactly and to reduce control angle steplessly max 30°.
∅ 25 splined / ∅ 25

Adjuster coupling  UEMC-ZL 10
Provides facility to adjust the extreme positions exactly and to reduce control angle steplessly max 30°.
∅ 25 splined / ∅ 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
∅ 25 splined / ∅ 25

Elbow gear mechanism UEMC-ZL 23
Includes:
UEMZ 404: Beveled gear wheel
UEMZ 390: Joint
UEMZ 242: Extension shaft
UEMZ 403: Transmission tube ∅ 33.7 x 1500 mm
Tube length = A – 150 mm
Mechanism OJO-ZB 1 (alternative to UEMC-ZL 23)

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.

<table>
<thead>
<tr>
<th>Part</th>
<th>Type</th>
<th>pc</th>
<th>Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UEMC-ZL 9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>YHLS 25 x 15</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>OJO-ZAA 1 x 1500</td>
<td>1</td>
<td>or other specified length</td>
</tr>
<tr>
<td>4</td>
<td>YAWE 3</td>
<td>1</td>
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</tr>
<tr>
<td>5</td>
<td>YAWB 50</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>YAETX 123</td>
<td>2</td>
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<td>7</td>
<td>A 431589</td>
<td>1</td>
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<tr>
<td>8</td>
<td>OJO-ZAW 2 x 2000</td>
<td>1</td>
<td>or other specified length</td>
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<td>OJO - ZU 3</td>
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<tr>
<td>10</td>
<td>OJO-ZAA 1 x 600</td>
<td>1</td>
<td>or other specified length</td>
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<tr>
<td>11</td>
<td>OJE-ZAA 25</td>
<td>1</td>
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</tr>
<tr>
<td>12</td>
<td>FAPN 10.5 Y</td>
<td>4</td>
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<td>13</td>
<td>FSFN 3.2 x 25Y</td>
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<td>14</td>
<td>FLSW M8 x 16Y</td>
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</tr>
<tr>
<td>15</td>
<td>FSJA 8 x 40</td>
<td>4</td>
<td></td>
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</tbody>
</table>

Part list
12. Range of models

Disconnector 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>34 UEMC 36_</td>
</tr>
<tr>
<td>OJD_</td>
<td>Elbow gear mec. UEMC-ZL 6</td>
<td>Coupling ring UEMZ 452</td>
<td>34 UEMC 28_</td>
</tr>
</tbody>
</table>

Disconnector mounted on the side 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>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>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_ OJJO-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_ OJJD-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_ OJJO-ZMA_ OJWM_</td>
<td>Adjuster coupling UEMC-ZL 9</td>
<td>UEMC 40 B_</td>
<td>34 UEMC 36_</td>
</tr>
<tr>
<td>OJWN_ OJJD-ZM_</td>
<td>Extension shaft UEMZ 242</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 5</td>
<td>UEMC 40 D_</td>
<td>34 UEMC 36_</td>
</tr>
</tbody>
</table>

Extension shaft UEMC-ZL 24
Disconnector mounted on the rear wall of cubicle

Disconnector
NAL_
NALF_

Joint
UEMC-ZL 7

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

Operating handle
UEKO-ZK 1 or
HE 53235

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

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

Set of indicator lamps
UEZJ 4 - 24 V
- 48 V
- 60 V
- 110 V
- 125 V
- 220 VDC
- 230 VAC

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
NAL_
NALF_

Joint
UEMC-ZL 7

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

Operating handle
UEKO-ZK 1 or
HE 53235

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

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

Set of indicator lamps
UEZJ 4 - 24 V
- 48 V
- 60 V
- 110 V
- 125 V
- 220 VDC
- 230 VAC

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

**Control push buttons**

UEZJ 3

**Set of indicator lamps**

UEZJ 4 - 24 V

- 48 V
- 60 V
- 110 V
- 125 V
- 220 VDC
- 230 VAC

**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 rear wall of cubicle

- **Disconnector**
  - **OJON**
  - **ADNN 12-36 kV**
  - **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
  - **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

- **Set of indicator lamps**
  - **UEZJ 4**
    - 24 V
    - 48 V
    - 60 V
    - 110 V
    - 125 V
    - 220 VDC
    - 230 VAC

- **Control push buttons**
  - **UEZJ 3**

- **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**
    - 24 V
  - **STO S272 K4**
    - 48 V
  - **STO S272 K4**
    - 60 V
  - **STO S272 K2**
    - 110 V
  - **STO S272 K2**
    - 125 V
  - **STO S272 K1**
    - 230 VAC
  - **STO S282 UCK 1**
    - 220 VDC

- **Aux. contacts for m.c.b.**
  - **STO S2-S/H**
UEMC 40 B_
Disconnector mounted on the side wall of cubicle

- Disconnector
  - OJON_
  - ADNN_

  - Operating handle
    - UMKO-ZK 1 or
    - HE 53235

  - Adjustment coupling
    - UEMC-ZL 10

  - Extension shaft
    - UEMZ 242

  - Adjustment coupling
    - UEMC-ZL 9

- 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

- 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

Set of indicator lamps
- UEZJ 4
  - 24 V
  - 48 V
  - 60 V
  - 110 V
  - 125 V
  - 220 VDC
  - 230 VAC
13. Instruction for recycling the product

13.1 Introduction
This document includes instructions for recycling the product UEMC 40 A, B, D. The document includes which material that are used in the products and handling instructions when the product is taking out of use.

The environment regulation varies from country to country and develops fast. Due to this it is recommended to contact the local customers and inform them about how to handle when the product is taking out of use.

Together with this document it should be given information to the local customers about returning of the product that is taking out of use.

ABB Oy can give more information.

Information that is in this document is not part of an extract or deal, it supposes to be the most correct and trustful and can be changed without notice. The publisher will not take any responsibility for the consequences.

13.2 The products casing
The product is cased in card, paper and foamplastic. The card and the paper can be recycled normally. The foamplastic can be i.e. used for energy production in a facility build for this purpose.

To avoid pollution when making unnecessary transports the manufacturer will not accept used package. Recycling has to be arranged locally according to local instructions. Recycling is recommended when it saves raw material and reduces the waste.

13.3 Material of the product
Information about the construction and main parts of the operating device can be found in point 4, construction. The steel parts are normally surface treated (hot galvanized or electrical galvanized). This does not affect the recycling.
### 13.3.1 Material of the main components

See figure A page 3.

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Power unit</td>
<td>1) Steel</td>
<td>3) 4.5 – 4.7 kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Stainless steel</td>
<td>4) 0.3 – 0.4 kg</td>
</tr>
<tr>
<td>2.</td>
<td>Limit switch</td>
<td>Steel</td>
<td>0.6 kg</td>
</tr>
<tr>
<td>3.</td>
<td>Guide pin</td>
<td>Steel</td>
<td>0.4 kg</td>
</tr>
<tr>
<td>4.</td>
<td>Coupling ring</td>
<td>Steel</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>5.</td>
<td>Locking catch</td>
<td>Steel</td>
<td>1.7 kg</td>
</tr>
<tr>
<td>6.</td>
<td>Motor</td>
<td>Steel</td>
<td>0.6 – 0.8 kg</td>
</tr>
<tr>
<td>7.</td>
<td>Terminal block</td>
<td>Steel</td>
<td>0.4 kg</td>
</tr>
<tr>
<td>8.</td>
<td>Control push button</td>
<td>Steel</td>
<td>0.6 – 1.0 kg</td>
</tr>
<tr>
<td>9.</td>
<td>M.c.b.</td>
<td>Steel</td>
<td>0.6 kg</td>
</tr>
<tr>
<td>10.</td>
<td>Contactor</td>
<td>Steel</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>11.</td>
<td>Lever</td>
<td>Steel</td>
<td>0.7 – 1.0 kg</td>
</tr>
<tr>
<td>12.</td>
<td>Nut</td>
<td>Bronze</td>
<td>0.3 kg</td>
</tr>
</tbody>
</table>

*) The motors are mainly made of materials that are easily to recycle, such as iron, copper and sink. Their recycling is also economically.

### 13.3.2 Material of other components

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Box</td>
<td>Hot galvanized steel</td>
<td>2.6 – 3.2 kg</td>
</tr>
<tr>
<td>2.</td>
<td>Operating handle</td>
<td>Steel</td>
<td>0.9 kg</td>
</tr>
<tr>
<td>3.</td>
<td>Operating shaft</td>
<td>Steel</td>
<td>2.5 kg/m</td>
</tr>
<tr>
<td>4.</td>
<td>Extension shaft</td>
<td>Steel</td>
<td>1.1 kg</td>
</tr>
<tr>
<td>5.</td>
<td>Joint</td>
<td>Steel</td>
<td>0.6 – 0.8 kg</td>
</tr>
<tr>
<td>6.</td>
<td>Adjuster coupling</td>
<td>Steel</td>
<td>0.4 kg</td>
</tr>
<tr>
<td>7.</td>
<td>Coupling ring</td>
<td>Steel</td>
<td>0.4 kg</td>
</tr>
<tr>
<td>8.</td>
<td>Elbow gear mechanism</td>
<td>Steel</td>
<td>3.3 kg</td>
</tr>
<tr>
<td>9.</td>
<td>Operating box</td>
<td>Steel</td>
<td>0.6 kg</td>
</tr>
<tr>
<td>10.</td>
<td>Control unit</td>
<td>Steel</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>11.</td>
<td>Box UEMZ 480</td>
<td>Polycarbonat</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>12.</td>
<td>Set of indicator lamps</td>
<td>Several</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>13.</td>
<td>Diode</td>
<td>Several</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>14.</td>
<td>Relay K3</td>
<td>Several</td>
<td>0.3 kg</td>
</tr>
<tr>
<td>15.</td>
<td>Rectifier</td>
<td>Several</td>
<td>0.3 kg</td>
</tr>
</tbody>
</table>

The weight of some parts will fluctuate depending of the type on the operating device (A, B and D). The weight for the really light parts are not printed, the operating device also contains screws, nuts, washers and rivets and also some parts that not are important when recycling. Over 70 % of the weight of the product are big metal parts, which are easy to recycle (13.3.1 metal parts and box). The motor is over 11 % of the weight and it is also easy to recycle. Also some of the accessores are metal parts that are easy to recycle.
13.4 Recycling the product
To deal with junk requires in most countries permission and you have to get permission for your own company. Information about local junkyards can be obtained from the agency of environment.

A product that is not in use anymore can be taking care of in two alternatively ways. The product can be manually demolished or be crushed mechanically.

Before the process all parts that are containing problem waste have to be removed and send to a facility made for this purpose.

Information about the facilities can be obtained from the local agency of environment.

13.4.1 Manual demolition
The product can be demolished manually and the parts are sorted depending of what material they are containing according this table:

- steel*
- bronze*
- plastic
- cablejunk
- other

* More information, see 13.4.3. directory over eventual damaging material and problem waste.

The metal parts are easy to recycle the others according to locally arrangements. No especially tools are needed for the demolition.

13.4.2 Mechanical crushing
In this process the whole product will be crushed to small metal pieces and will be sorted automatically. Components containing dangerous material must be removed before the crushing (for more information see 13.4.3. directory over eventual damaging material and problem waste).

13.4.3 Eventual damaging material and problem waste
Definition and regulation for damaging material varies from country to country and changes all the time. Materials used in the manufacturing are typical for electrically and electronically products. Some are classed as problem waste, if they can be found in ministry of environments waste- and problem waste catalogue. It is based on the EU regulations. The directory over different parts material content is based on EACEM (European Association of Consumer Electronics Manufacturers) directory and problem waste catalogue. In the note column it is marked if the part is problem waste.

13.4.3.1 Directory over eventual damaging material and problem waste

<table>
<thead>
<tr>
<th>Part</th>
<th>Damaging material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>No</td>
<td>Problem waste</td>
</tr>
<tr>
<td>Steel</td>
<td>Grease *)</td>
<td>Problem waste</td>
</tr>
<tr>
<td>Bronze</td>
<td>Grease *)</td>
<td></td>
</tr>
<tr>
<td>Cables</td>
<td>PVC **)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

*) The screw and the gear wheel are greased with grease (Isoflex NCA 52).

**) Does not inhibit granulating in suitable facility.

More information abou the grease can be ordered from the manufacturer:

Klüber Lubrication München KG
Geisenhausenerstrasse 7
D-81379 München
Phone: +49 89 7876-0
Fax: +49 89 7876-333
Internet: www.klueber.com

13.4.4 Possible recycling methods
The mentioned way to recycle is one possible method but there are also many other methods:

- steel       recycles as material
- bronze      recycles as material
- plastic     burns for energy production
- cables      to cable granulating facility
- other       burns or is transported to a dumping ground
14. Dimension drawing
Mittapiirustus
Måtttritning
Motor Operating Device UEMC 40 A, B, D
Moottoriohjain
Motormanöverdon

13 UEMC 408 D

Only with types
Ainoastaan lajeilla
Endast för typerna
UEMC 40
A2
B2
D2

Front panel drilling
Etulevyn poraus
Fästplåtens borning

<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>A1</td>
<td>67</td>
<td>476</td>
<td>162</td>
<td>190, 210 (1)</td>
<td>200</td>
</tr>
<tr>
<td>A2</td>
<td>67</td>
<td>476</td>
<td>162</td>
<td>190, 210 (1)</td>
<td>200</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
Latera. erikseen tilattava
Tilläggsut. kan beställas separat
15. Circuit diagram
Piirikaavio
Kretsschema

Motor Operating Device UEMC 40 A1, B1, D1
Moottoriohjain
Motormanöverdon

31 UEMC 79 C

For types:
UEMC 40 A1 - 24 VDC
- 48 VDC
Lajeille
- 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)

M1 = Moottori
S1, S2 = Ändlägeskontakter
S12 = Blockeringskontakt för låsning

1) R2 = Lämmitysvastus (tilattava eikseen)

1) R2 = Värme (beställes separat)
Circuit diagram
Piirikaavio
Kretsschema
Motor Operating Device UEMC 40 A2, B2, D2
Moottoriohjain
Motormanöverdon

31 UEMC 81 L

UEMC 40 A2
- 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 230 VAC

UEMC 40 B2
- 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC

UEMC 40 D2
- 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC

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

*) R2 = Heater
(**) = Detail motor and aux. voltage

*) = Automatsäkring
S45 = Tryckknappar (I och O)
M1 = Motor
K1, K2 = Manöverkontaktorer
K3 = Relä för 48-220 V
S1, S2 = Ändlågeskontakter
S12 = Blockeringskontakt, låsning
V5 = Likriktare för AC
V1-V3 = Dioder för DC
R1 = Motstånd för 110-230 V

**) = Mainitse moottori- ja kontaktoriännite
(**) = Uppge motor- och manöverspänningen

(UU **) = Detail motor and aux. voltage

(to be ordered separately)
K1, K2 = Operating contactors
K3 = Relay for 48-230 V
V1, V2 = Diodes
V5 = Rectifier only for AC
R1 = Resistor for 110-230 V

For types: UEZJ 1 - 12 VDC
Lajeille: - 24 VDC
Für typerna: - 48 VDC - 60 VDC - 110 VDC - 125 VDC - 220 VDC - 110 VAC *) - 230 VAC *)

UEZJ 1 - 12 VDC/2
- 24 VDC/2
- 48 VDC/2
- 60 VDC/2
- 110 VDC/2
- 125 VDC/2
- 220 VDC/2
- 110 VAC/2 *)
- 230 VAC/2 *)
31 UEMC 142 D

For types: UEZJ1_UU
Lajeille: UEZJ1_UU/2
Für typerna:

Note. DC-contactors
Huom. DC-kontaktoreita
Obs. DC-kontakter

Circuit diagram
Kretsschema

Control unit
Kontaktoriyksikkö
Reläenhet

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 D

For types: UEZJ 2 - 12 VDC
Lajille: - 24 VDC
För typerna: - 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
V5 = Rectifier only for AC
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow

K1, K2 = Suunnanvaihtokontaktorit
S4, S5 = Painonapit
S6 = Kauko-ohjauksen kytkin
K3 = Rele 48-230 V:lle
R1 = Vastus 110-230 V:lle
V1, V2 = Diodit
V5 = Tasasuunt. ainoastaan AC:lle
H4 = Asennonos.valo, kiinni, pun.
H5 = Asennonos.valo, auki, vihreä
H9 = Sulakelauk. merkkivalo, keltainen

K1, K2 = Manöverkontakter
S1, S2 = Tryckknappar
S6 = Väljare för avståndsmått
K3 = Relä för 48-230 V
R1 = Motstånd för 110-230 V
V1, V2 = Dioder
V5 = Likritare endast för AC
H4 = Lägesindik.lampa, sluten, röd
H5 = Lägesindik.lampa, öppen, grön
H9 = Säkringsutlösningslampa, gul
Circuit diagram
Piirikaavio
Kretsschema
Operating box
Ohjauskotelo
Manöverlåda

31 UEMC 149 E
For types: UEZJ 2_UU
Lajille:
För typerna:

*) Only for AC
Ainoastaan AC:lle
Endast för AC

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
V5, V6 = Rectifier only for AC
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow

K1, K2 = Suunnanvaihtokontaktorit
S4, S5 = Painonapit
S6 = Kauko-ohjaoksen kytkin
K3 = Rele 48-230 V:lle
R1 = Vastus 110-230 V:lle
V1, V2 = Diodit
V5, V6 = Tasasuuntaajat vain AC:lle
H4 = Asennonos. valo, kiinni, pun.
H5 = Asennonos. valo, auki, vihreä
H9 = Sulakelauk. merkkival, keltainen

K1, K2 = Manöverkontaktorer
S1, S2 = Tryckknappar
S6 = Väljare för avståndsmåver
K3 = Relä för 48-230 V
R1 = Motstånd för 110-230 V
V1, V2 = Diodar
V5, V6 = Likriktare endast för AC
H4 = Lägesindik. lampa, slutet, röd
H5 = Lägesindik. lampa, öppen, grön
H9 = Säkringsutlösningslampa, gul
Example of connection for UEMC 40_... + UEZJ 1
Kytentäesimerkki
Kopplingsexemplet för

31 UEMC 156 D

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

F1 = Automaattivaroke  
S4,S5 = Painonapit  
S6 = Kauko-ohjausen kytkin  
S7 = Erottimen apukosketin  
S8 = Maadoituserottimen apukosketin  
S9 = Sulakelaukaisun apukosketin  
H4 = Asennonos.valo, kiinni, pun.  
H5 = Asennonos.valo, auki, vihreä  
H9 = Sulakelauk.merkkivalo, kelt.

F1 = Automatsäkring  
S4,S5 = Tryckknappar  
S6 = Väljare för avståndsmanöver  
S7 = Fränskiljarens hjälpkontakt  
S8 = Jordningskopp. hjälpkontakt  
S9 = Säkringsutlösns. hjälpkontakt  
H4 = Lägesind. lampa, sluten, röd  
H5 = Lägesind. lamp, öppen, grön  
H9 = Säkringsutlösningslampa, gul
Example of connection for UEMC 40 ... + UEZJ 1
Kytkentäesimerkki
Kopplingsexemplet för

31 UEMC 157 D

F1 = M.c.b.  F1 = Automaattivaroke  F1 = Automatsäkring
S4,S5 = Push buttons  S4,S5 = Painonapit  S4,S5 = Tryckknappar
S6 = Remote control selector  S6 = Kauko-ohjausen kytkin  S6 = Väljare för avståndsmänöver
S7 = Aux. contact for disconnector  S7 = Erottimen apukosketin  S7 = Fränskiljarens hjälpkontakt
S8 = Aux. contact for earthing switch  S8 = Maadoituser. apukosk.  S8 = Jordningskopplarens hjälpk.
S9 = Aux. contact for fuse tripping  S9 = Sulakelaukaisun apukosketin  S9 = Säkringsutlösningens hjälpko.
H4 = Pos. indicator, closed, red  H4 = Asennonos.valo, kiinni, pun.  H4 = Lägesind.lampa, slut, röd
H5 = Pos. indicator, open, green  H5 = Asennonos.valo, auki, vihreä  H5 = Lägesind.lampa, öppen, grön
H9 = Indic. for fuse tripping, yellow  H9 = Sulakelauk.merkkivalo, kelt.  H9 = Säkringsutlös. lamp, gul
Example of connection for UEMC 40_... + UEZJ 2

Kytkentäesimerkki
Kopplingsexempel för

31 UEMC 160 C

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**Diagram**

- **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

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**Legend**

- **F1** = Automaattivaroke
- **S14, S15** = Painonapit
- **S7** = Erottimen apukosketin
- **S8** = Maadoituserott. apukosk.
- **S9** = Sulakelauk. apukosketin
- **H14** = Asennonos.valo, kiinni, pun.
- **H15** = Asennonos.valo, auki, virh.
- **H19** = Sulakelauk. merkkiv., kelt.

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**Additional Text**

- **F1** = Automatsäkring
- **S14, S15** = Tryckknappar
- **S7** = Fränskiljarens hjälpkontakt
- **S8** = Jordningskopp. hjälpkontakt
- **S9** = Säkringsutl. hjälpkontakt
- **H14** = Lägesind.lampa, sluten, röd
- **H15** = Lägesind.lampa, öppen, grön
- **H19** = Säkringsutl.lampa, gul
Example of connection for UEMC 40_ ... + UEZJ 2

Kytkentäsimerkki
Kopplingsexempel för

31 UEMC 161 C

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

F1 = Automaattivaroke
S14, S15 = Painonapit
S7 = Erottimen apukosketin
S8 = Maadoituserrott. apukosk.
S9 = Sulakelauk. apukosketin
H14 = Asennonos.valo, kiinni, pun.
H15 = Asennonos.valo, auki, virh.
H19 = Sulakelauk.merkkiv., kelt.

F1 = Automatsäkring
S14, S15 = Tryckknappar
S7 = Frånkiljarens hjälpkontakt
S8 = Jordningsk. hjälpkontakt
S9 = Säkringsutl. hjälpkontakt
H14 = Lägesind.lampa, sluten, röd
H15 = Lägesind.lampa, öppen, grön
H19 = Säkringsutl.lampa, gul