Installation-, operating- and recycling guide

ABB Power Distribution
Contents

1. General .......................................................... 3
2. Standards ....................................................... 3
3. Transport and storage ................................... 3
4. Construction ................................................... 3
5. Alternative methods of mounting .................. 4
6. Installation ...................................................... 6
7. Electrical connection ....................................... 8
8. Operation ....................................................... 9
9. Accessories .................................................... 10
10. Service ........................................................... 13
11. Spare parts and repairs .................................... 13
12. Range of models ........................................... 14
13. Technical details ............................................ 15
14. Instruction for recycling the product .......... 16
15. Dimension drawings ........................................ 19
16. Circuit diagrams ............................................. 20
1. General

This motor operating device is mainly intended for operating NAL and NALF disconnectors. The motor operating device can be mounted directly on the frame of the disconnector, or on the side of the cubicle. The same motor operating device can be used to operate disconnectors with both K- and A-mechanisms.

The motor operating device will disengage from the disconnector after each operation so that it is possible to operate the disconnector directly from the disconnectors axle, extension axle or with a separate manual operating device.

For disconnectors with KS-mechanism refer to motor operating device UEMC 40 A_ and UEMC 40 D_, installation- and operating guide 34 UEMC 36 GB.

2. Standards

The motor operating device complies with the following standards:
- IEC 265
- voltage test 2 kV, 50 Hz, 1 min, except for the motor 1.5 kV

3. Transport and storage

The motor operating device is delivered complete in a cardboard box. The type number is marked on the box. If the device is to be stored for a long period, it should be stored indoors in a dry place.

4. Construction

The motor operating device comprises of a motor, gear wheel, a screw gear and a lifting arm mechanism.

The motor A-2 drives gear wheels A-3 and A-4. Gear wheel A-4 rotates screw A-6 which pulls nut A-5. The nut turns the lifting arm A-1, but disengages from the arm after operation so that it is possible to manually operate the disconnector directly from the disconnectors axle. Position limit switches A-S1 and A-S2, break the motor current and stop the operating device performing the operation.

Fig. A
5. Alternative methods of mounting

ALT.A
Motor operating device mounting side to left.

ALT.A1
Motor operating device on right hand side of disconnector (fixed on the spring device).

1. Operating device UEMC 40 K3_
2. Disconnector NAL_, NALF

ALT.A2
Motor operating device on right hand outer wall of cubicle.

1. Operating device UEMC 40 K3_
2. Disconnector NAL_, NALF
3. Extension axle
4. Extension bushing
5. Cubicle wall
6. Protective cover (not included)

ALT.A3
Motor operating device on left inner wall of cubicle.

1. Motor operating device UEMC 40 K3_
2. Disconnector NAL_, NALF
3. Extension axle
4. Extension bushing
5. Cubicle wall

Note
The motor operating device can be rotated around the axle for ALT.A2 and ALT.A3 for installation in the intermediate positions (e.g. motor upwards).
**ALT.B**

Motor operating device mounting side to right.

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**ALT.B1**

Operating device on left hand side of disconnector (fixed to disconnector frame).

1. Motor operating device UEMC 40 K3_
2. Disconnector NAL_, NALF

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**ALT.B2**

Operating device on left hand outer wall of cubicle

1. Operating device UEMC 40 K3_
2. Disconnector NAL_, NALF
3. Extension axle
4. Extension bushing
5. Cubicle wall
6. Protective cover (not included)

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**ALT.B3**

Operating device on right hand inside wall of cubicle.

1. Motor operating device UEMC 40 K3_
2. Disconnector NAL_, NALF
3. Extension axle
4. Extension bushing
5. Cubicle wall

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**Note**

The motor operating device can be rotated around the axle in ALT.B2 and ALT.B3 for installation in the intermediate positions (e.g. motor downwards).
6. Installation

Note
Pay special attention to the fact that any sudden movement of the disconnector may cause personal injuries.

A. ALT.A
Applicable to alternative mounting methods A1, A2 and A3. See point 5.

1. For ALT.A1 mount the device using 2 M8 x 20 bolts with washers and nuts included in the set of parts.

2. For ALT.A2 and ALT.A3 use spacer bushing and M8 x 60 bolts included in the set of parts.

3. ALT.A for disconnectors with an A-mechanism.
   - Disconnector in open position and spring uncharged.
   - Turn the operating axle in the direction of the arrow until the slack is taken up.
   - Mount the operating device in such a manner that the lifting arm tip is pointing from the motor and the tip is in line with, or a small distance from the edge of the screw track. See fig. H.

4. ALT.A for disconnectors with a K-mechanism
   - Disconnector in open position.
   - Turn the operating axle in the direction of the arrow until the slack is taken up.
   - Mount the operating device in such a manner that the lifting arm tip is pointing towards the motor and the tip is in line with, or a small distance from the edge of the screw track. See fig. I.

5. Test operate manually with the hand crank and check that:
   a) the disconnector will open and close.
   b) a gap at the opening and closing position exists. Make a note of the lifting arms position along the track at the open and closed position. With mechanism A, the opening point is when the charging catch latches.

6. Loosen the operating mechanism if required, and position the lifting arm on another spline. By turning the lifting arm around, a half tooth advantage can be gained from the spline pitch.

7. Make the electrical connections to the motor operating device taking into account the electrical regulations for wiring in high voltage cubicles. Refer also to point 7, electrical connections.

8. Check the electrical operation of the device.
B. ALT.B

Applicable to alternative mounting methods B1, B2 and B3. See point 5.

1. For ALT.B1 mount the device using 2 M8 x 20 bolts with washers and nuts included the set of parts.

2. For ALT.B2 and ALT.B3 use spacing bushing and M8 x 60 bolts in the set of parts.

3. ALT.B for disconnectors with an A-mechanism.
   – Disconnector in open position and spring uncharged.
   – Turn the operating axle in the direction of the arrow until the slack is taken up.
   – Mount the operating device in such a manner that the lifting arm tip is pointing towards the motor and the tip is in line with, or a small distance from the edge of the screw track. See fig. J.

4. ALT.B for disconnectors with a K-mechanism
   – Disconnector in open position.
   – Turn the operating axle in the direction of the arrow until the slack is taken up.
   – Mount the operating device in such a manner that the lifting arm tip is pointing from the motor and the tip is in line with, or a small distance from the edge of the screw track. Fig. K.

5. Test operate manually with the hand crank and check that:
   a) the disconnector will open and close.
   b) a gap at the opening and closing position exists. Make a note of the lifting arms position along the track at the open and closed position. With mechanism A, the opening point is when the charging catches latches.

6. Loosen the operating mechanism if required, and position the lifting arm on another spline. By turning the lifting arm around, a half tooth advantage can be gained from the spline pitch.

7. Make the electrical connections to the motor operating device, taking into account the electrical regulations for wiring in high voltage cubicles. Refer also to point 7, electrical connections.

8. Check the electrical operation of the device.
7. Electrical connection

Motor operating device

Type: UEMC 40 K3  
Circuit diagram: 31 UEMC 134

The motor operating device can be connected to a operating box or a control unit. Refer to points 9 and 16.

Protective m.c.b

The use of a protective m.c.b. in the supply circuit to the motor operating device is recommended. In order that the mcb will protect the motor against overload, the type is to be chosen for the respective voltage as detailed in point 9.

Alarm circuit

Refer to suggested alarm unit, circuit diagram no. 31 UEMC 151...154. During normal operation the alarm points are under voltage.

Alarm condition: When voltage disappears from the circuit.

Reason for alarm: – F1 has tripped  
– S6 is open  
– voltage to control unit broken

An alternative alarm circuit can be coupled from the auxiliary contact of the m.c.b. Refer to accessories, point 9.

Separation of motor and control circuit

If the motor circuit is to be separated from the control circuit, wire X1:1-3 and X1:2-4 is to be disconnected, and a separate DC-voltage is to be applied between X1:3 and X1:4 in order to operate the unit.

Note that this could effect the operation of the alarm circuit and m.b.c.

System connection

Examples for connection of motor operating device to disconnector:

Note the direction of control (ALT.A or ALT.B) is defined by the alternative methods of mounting, see point 5.

Control unit

Two types of control units are available with the same electrical connection, but with different dimensions. See point 9.

Control units:  
UEZJ 1-  
UEZJ 1/-2

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 lamps will give both the disconnectors and the motor operating devices position.
8. Operation

a) Manual control
The motor operating device is mechanically dis-engaged in both the open and closed positions. Manual operation is by direct turning of the disconnectors axle, or extension axle, or by using a special type of manual operating device. If a manual operating device is to be used, it should be of the type that does not automatically lock the position of the device in end positions.

b) Motor control
The motor operating device can be electrically operated with the I- and 0- push buttons. After being manually operated, the motor operating device will not be in sync with the disconnector, which means that it must be operated twice to synchronize, for example open – close.

1. Motor operating device
2. Disconnector
3. Operating handle (shown in alternative operating positions)
4. Beveled gear wheel
5. Transmission tube
6. Front unit without automatic locking
9. 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

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

**UEZJ 2-**

<table>
<thead>
<tr>
<th>Type</th>
<th>Circuit diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEZJ 2 - 12 VDC</td>
<td>31 UEMC 148</td>
</tr>
<tr>
<td>UEZJ 2 - 24 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 48 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 60 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 110 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 125 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 220 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 110 VAC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - 230 VAC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 2 - UU (1)</td>
<td>31 UEMC 149</td>
</tr>
</tbody>
</table>

(*) 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

**UEZJ 1-**

<table>
<thead>
<tr>
<th>Type</th>
<th>Circuit diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEZJ 1 - 12 VDC</td>
<td>31 UEMC 141</td>
</tr>
<tr>
<td>UEZJ 1 - 24 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 48 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 60 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 110 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 125 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 220 VDC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 110 VAC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 230 VAC</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - UU (1)</td>
<td>31 UEMC 142</td>
</tr>
</tbody>
</table>

(*) 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

**UEZJ 1-/2**

<table>
<thead>
<tr>
<th>Type</th>
<th>Circuit diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEZJ 1 - 12 VDC/2</td>
<td>31 UEMC 141</td>
</tr>
<tr>
<td>UEZJ 1 - 24 VDC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 48 VDC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 60 VDC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 110 VDC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 125 VDC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 220 VDC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 110 VAC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - 230 VAC/2</td>
<td>&quot;</td>
</tr>
<tr>
<td>UEZJ 1 - UU/2 (1)</td>
<td>31 UEMC 142</td>
</tr>
</tbody>
</table>

(*) 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 VDC
- 230 VAC

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

The following details of the motor operating device is to be greased every 5 years, or after 1000 operations:

- screw A-6
- gear wheels A-3 and A-4
- lifting arm sliding surfaces A-1
- structure slides

Grease: ISOFLEX TOPAS NCA 52

If other types of lubrication are used, they must be of good quality, and suitable for use in the same range of temperatures as the operation device.

11. Spare parts and repairs

When repairing the motor operating device ensure that the wiring is protected from high voltages under the cover A-8. The motor should be mounted so that its wiring is protected under the same cover plate.

Typical spare parts:

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Type</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>UEZM 5/U</td>
<td>U = Voltage</td>
</tr>
<tr>
<td>Control unit for UniSwitch</td>
<td>UEZJ 1-U</td>
<td>U = Voltage</td>
</tr>
<tr>
<td>Diode V1, V2</td>
<td>SK 1/16</td>
<td></td>
</tr>
<tr>
<td>Rectifier V5, V6</td>
<td>- REC 36 MB 160 A</td>
<td></td>
</tr>
<tr>
<td>Limit switch. S1, S2</td>
<td>- OMR 2-15GW22-B7</td>
<td></td>
</tr>
<tr>
<td>Contactor K1, K2</td>
<td>- ABB VBC6-30-01/U</td>
<td>U = Voltage</td>
</tr>
<tr>
<td>Relay K3</td>
<td>- RFI 40.52.9.048</td>
<td></td>
</tr>
</tbody>
</table>
12. Range of models

- Disconnector
  - NAL_
  - NALF_

- Operating handle
  - UEKO-ZK 1 or HE 53235

- Extension axle
  - UEMZ 242

- Motor operating device
  - UEMC 40 K3 - 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

- 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

- 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 V AC
  - STO S282 UCK 1 for 220 V DC

- Aux. contacts for m.c.b.
  - STO S2-S/H
13. Technical details

Weight 6 kg
Operating time opening 3.5 s
Closing 3.5 s
A-mec 1 s
Operating angle 150°
Contactors power requirement 3 W
Shortest control pulse 0.1 s
Operating voltage range 0.85...1.1 x Un
Operating temperature range -40...+55 °C
Terminal block size 6 mm²
Motor Rectified DC, permanent magnet type

<table>
<thead>
<tr>
<th>Motor operating device</th>
<th>Rated current *)</th>
<th>Max. current **)</th>
<th>Protective mcb type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEMC 40 K3 - 24 VDC</td>
<td>20 A</td>
<td>40 A</td>
<td>- STO S272 K8</td>
</tr>
<tr>
<td>- 48 VDC</td>
<td>10 A</td>
<td>20 A</td>
<td>- STO S272 K4</td>
</tr>
<tr>
<td>- 60 VDC</td>
<td>9 A</td>
<td>17 A</td>
<td>- STO S272 K4</td>
</tr>
<tr>
<td>- 110 VDC</td>
<td>5 A</td>
<td>9 A</td>
<td>- STO S272 K2</td>
</tr>
<tr>
<td>- 125 VDC</td>
<td>5 A</td>
<td>9 A</td>
<td>- STO S272 K2</td>
</tr>
<tr>
<td>- 220 VDC</td>
<td>2 A</td>
<td>4.5 A</td>
<td>- STO S282 UCK1</td>
</tr>
</tbody>
</table>

For AC supplies, use rectified motor current. Rated current are the same as for a corresponding DC motor. *) Rated current is the current under normal working conditions. **) Max. current is the current for a stalled load from the motor operating device.
14. Instruction for recycling the product

14.1. Introduction
This document includes instructions for recycling the product UEMC 40 K3. 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 Transmit 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.

14.2. The products casing
The product is cased in card, paper and foampiastic. The card and the paper can be recycled normally. The foampiastic 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 rawmaterial and reduces the waste.

14.3. Material of the product
Information about the construction and main parts of the operating device can be found in point 12, construction figure A. The steel parts are normally surface treated (electrical gaivanized). This does not affect the recycling.

14.3.1 Material of the main parts

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lifting arm</td>
<td>Steel</td>
</tr>
<tr>
<td>2.</td>
<td>Motor</td>
<td>Several *)</td>
</tr>
<tr>
<td>3.</td>
<td>Gear wheel</td>
<td>Bronze</td>
</tr>
<tr>
<td>4.</td>
<td>Gear wheel</td>
<td>Bronze</td>
</tr>
<tr>
<td>5.</td>
<td>Nut</td>
<td>Bronze</td>
</tr>
<tr>
<td>6.</td>
<td>Screw</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>7.</td>
<td>Terminals</td>
<td>Several</td>
</tr>
<tr>
<td>8.</td>
<td>Protective cover</td>
<td>Steel</td>
</tr>
<tr>
<td>9.</td>
<td>Fixing bracket</td>
<td>Steel</td>
</tr>
<tr>
<td>10.</td>
<td>Spacer</td>
<td>Steel</td>
</tr>
<tr>
<td>S1.</td>
<td>Limit switch</td>
<td>Several</td>
</tr>
<tr>
<td>S2.</td>
<td>Limit switch</td>
<td>Several</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.
14.3.2 Material of the accessories

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Operating handle</td>
<td>Steel</td>
<td>0,9 kg</td>
</tr>
<tr>
<td>2.</td>
<td>Transmission tube</td>
<td>Steel</td>
<td>2,5 kg/m</td>
</tr>
<tr>
<td>3.</td>
<td>Extension shaft</td>
<td>Steel</td>
<td>1, 1 kg</td>
</tr>
<tr>
<td>4.</td>
<td>M.c.b</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Operating box</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Relay unit</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Box UEMZ 480</td>
<td>Polycarbonate</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Control push buttons</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Set of indication lights</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Diode</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Relay K3</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Rectifier</td>
<td>Several</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Contactor</td>
<td>Several</td>
<td></td>
</tr>
</tbody>
</table>

14.4.1 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

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

* More information, see 14.4.3.1 Directory over eventual damaging material and problem waste.

14.4.2 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 14.4.3.1 Directory over eventual damaging material and problem waste).

14.4.3 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.

14.4. 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.
14.4.3.1 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></td>
</tr>
<tr>
<td>Steel</td>
<td>Grease *)</td>
<td>Problem waste</td>
</tr>
<tr>
<td>Bronze</td>
<td>Grease *)</td>
<td>Problem waste</td>
</tr>
<tr>
<td>Cables</td>
<td>PVC **)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

*) Parts mentioned under point 10 service are greased with grease (Isoflex NCA 52).

**) Does not inhibit granulating in suitable facility.

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

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

14.4.4. Possible recycling method

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
15. Dimension drawing  UEMC 40 K3

135 UEMC 12 C
31 UEMC 134 E

For types: UEMC 40 K3 - 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC

M1 = Motor
S1, S2 = Limit switches
For types: UEZJ 1 - 12 VDC
- 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC

For types: UEZJ 1 - 24 VDC/2
- 48 VDC/2
- 60 VDC/2
- 110 VDC/2
- 125 VDC/2
- 220 VDC/2
- 110 VAC/2 (*)
- 230 VAC/2 (*)

K1, K2 = Operating contactors
K3 = Relay for 48-230 V
V1, V2 = Diodes
V5 = Rectifier only for AC
R1 = Resistor for 110-230 V
Circuit diagrams

**31 UEMC 142 D**

For types: UEZJ 1_ UU

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
For types:  UEZJ 2- 24 VDC
- 48 VDC
- 60 VDC
- 110 VDC
- 125 VDC
- 220 VDC
- 110 VAC
- 220 VAC
- 110 VAC (*)
- 230 VAC (*)

K1, K2 = Operating contactors
S1, S2 = 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
V5 = Rectifier only for AC
31 UEMC 149 E

For types: UEZJ 2 - UU  *) Only for AC

K1, K2 = Operating contactors
S1, S2 = 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
V5, V6 = Rectifier only for AC
F1 = M.c.b.
S4, S5 = Push buttons
S6 = Remote control selector
S7 = Aux. contact for disconn.
S8 = Aux. contact for eating switch
S9 = Aux. contact for fuse tripping
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow
Circuit diagram Example of connection for ALT.B

31 UEMC 152 E

Alt. B

F1 = M.c.b.
S14, S15 = Push buttons
S6 = Remote control selector
S7 = Aux. contact for disconn.
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 = M.c.b.
S14, S15 = Push buttons
S6 = Remote control selector
S7 = Aux. contact for disconn.
S8 = Aux. contact for eathing switch
S9 = Aux. contact for fuse tripping
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow
F1 = M.c.b.
S14, S15 = Push buttons
S6 = Remote control selector
S7 = Aux. contact for disconn.
S8 = Aux. contact for eathing switch
S9 = Aux. contact for fuse tripping
H4 = Position indicator, closed, red
H5 = Position indicator, open, green
H9 = Indicator for fuse tripping, yellow
ABB is working to continuously improve the products. Therefore, we reserve the right to change design, dimension and data without prior notice.