MEDIUM VOLTAGE PRODUCTS

Motor Operating Device UEMC 50
Installation, operating and recycling guide
## Content

1. Safety ........................................ 4  
2. Introduction .................................. 5  
3. Transport and storage ......................... 6  
4. Construction .................................. 6  
5. Installation of the motor operating devices .... 7  
6. Operating instructions ......................... 9  
7. Maintenance .................................... 10  
8. Repairs ......................................... 10  
9. Spare parts ..................................... 11  
10. Cable selection .................................. 11  
11. Heating the operating device .................. 11  
12. Selection of operating device ................. 11  
13. Changing direction of rotation ............... 11  
14. Basic diagrams .................................. 11  
15. Ordering form .................................. 13  
16. Functionality of basic models ................. 14  
17. Accessories .................................... 15  
18. Technical data .................................. 17  
19. Instructions for recycling the product ......... 17  
20. Dimension drawings ............................ 19  
21. Circuit diagrams ................................ 21
Motor Operating Device UEMC 50
Installation, operating and recycling guide

WARNING
HAZARDOUS VOLTAGE CAN SHOCK, BURN, OR CAUSE DEATH.
Do not attempt to handle, install, use or service this product before reading this installation guide

1. Safety Notices:
Must always follow the directions in the manual and good engineering practice.
Dangerous voltage can cause electric shock and burns.
• Do not perform any activity described in this document with the switch energized.
• ALWAYS follow your company’s or country’s Safety procedures before performing any work on this equipment.
• UEMC50 motor operating device should be installed only within the design limitation.
• All the activities listed on this document it must be performed with the switch completely de-energized, isolated, grounded and out of service.
• Must be observed appropriate guidance given in the manuals for all operations performed on the apparatus
• This product is intended to be installed, operated and maintained by qualified personnel, thoroughly trained and knowledgeable with the regards of the hazards involved. This publication is written only for such qualified persons and is not intended to be a substitute for adequate training and experience in the safety procedures for this device.

Warning
Detailed descriptions of standard repair procedures, safety principles, and service operations are not included. It is important to note that this document contains some warnings and cautions against some specific service methods that could cause personal injury to service personnel, or could damage equipment or render it unsafe. These warnings do not cover every conceivable method in which service (whether or not recommended by ABB) may be performed. Secondly, ABB cannot predict or investigate all potential hazards resulting from all conceivable service methods. Anyone using service procedures or tools, whether or not recommended by ABB, must satisfy himself thoroughly that either personal safety nor equipment safety will be jeopardized by the service method or tools selected.
All information contained in this manual is based on the latest product information available at the time of printing. The right is reserved to make changes at any time without notice.
2. Introduction

Motor operating device type UEMC 50_ is intended for the operation of outdoor pole mounted switches: NPS, Sectos, ON. The device is available in two enclosure sizes and with two different operating speeds.

2.1. Type designation

- Motor operating device
- Construction type: L=Low speed, H=High speed
- Enclosure size 1 or 5
- Voltage

UEMC 50 L 1 - 24VDC

2.2. Enclosure size:

Size 1:
- Height 480 mm
- Width 300 mm
- Depth 205 mm
- Material stainless steel AISI 304
- Degree of protection IP 55
- Refer to fig. 2.1.

Size 5:
- Height 620 mm
- Width 500 mm
- Depth 330 mm
- Material stainless steel AISI 304
- Degree of protection IP 55
- Refer to fig. 2.2.

2.3 Operation speed

Speed L:
- operation time 3 s
- torque 150 Nm

Speed H:
- operation time 1.2 s
- torque 80 Nm
3. Transport and storage

It is preferable to transport the motor operating device with the door upwards. If the devices are to be stored for long periods they should be kept in a dry room.

4. Construction

4.1. Power transfer mechanism

The mechanism consists of a gear wheel and a screw system. The screw is self-locking, so that forces from the disconnector do not affect the operating mechanism.

Material:
- frame and axle stainless steel
- nut and gear wheel bronze
- fork lever aluminum alloy (Al-Si)
- screw steel

Control torque and time depend on which of the two alternatives is chosen.
- UEMC 50 H_ fast operation 1.2 s and low torque
- UEMC 50 L_ slow operation 3 s and high torque

4.2. Motor

- UEMC 50 H_ series wound motor DC voltage
- UEMC 50 L_ permanent magnet motor DC voltage

Alternative motor voltages see range of models point 18

4.3 Relay sub-assembly

- The relay sub-assembly is fixed with two screws to the power transfer mechanism and is easily changed.
- Components and contactor voltages used in the relay sub-assembly are described in point 18.

Material: stainless steel

The power transfer mechanism, motor and relay sub-assembly form a functioning unit independent of the enclosure.

See fig. 4.1

4.4 Control lever and tube fixing elements

The effective length of the control lever can be adjusted by moving the pin to a suitable hole.

Tube clamp for the pipe 30 mm of outside diameter.

Material:
- control lever: stainless steel
- tube clamp: hot dipped galvanized steel
- pin and bolts: stainless steel

4.5 Pole fixing elements

The pole fixing elements are intended for use with wooden poles, but can easily be modified for other fixing arrangements due to the detachable parts used.

See fig. 5.2.

Material: hot dipped galvanized steel
5. Installation of the motor operating devices

5.A. Installation of the motor operating device to the pole
A.1 Place the motor operating device on the pole in a position permitting an easy installation of the operating tube between the disconnector and the operating device. See fig. 5.1.

A.2 Define the installation height H (Recommended H = 1400 mm)

A.3 Installation on wooden pole (See fig. 5.2.)
A.3.1 Drill 2 fixing holes in the pole, diameter 12 mm depth 75 mm
Dimension A
UEMC 50 H1₁ and L1₁: 525 ± 5 mm
UEMC 50 H5₁ and L5₁: 665 ± 5 mm

A.3.2 Install the operating device using screws (a), washers (b) and tube clamp (c) provided, type UEMZ 1065. Move the clamping plates sideways if required so that the operating device fixing bracket does not rotate. See fig. 5.2.

A.4 Installation on concrete pole (See fig. 5.3.)
A.4.1 Install suitable clamps for square or round pole. Keep distance A between holes in the clamps.
A.4.2 Fix the operating device using M20 screws and nuts.
A.5 Make the electrical connections and earth the operating device.
5.B. Installation of UEMC 50 to drive NPS disconnector

This section describes the installation method for the motor operating device control lever, operating tubes, and adjustment of the tubes. The operating tubes are to be adjusted so that there is a small pretension. The pretension is to be in the form of an upwardly directed force on the operating tubes which will ensure that the disconnector closes when operated, and compensates for the changes in dimensions, looseness or flexibility. 

Pretension of the tubes is important to safeguard long trouble free operation of the disconnector.

B.1 Fit the control lever and tube fixing elements, type UEMZ 590, taking note of aligning the marks on the lever and shaft, see the mounting of washers fig. 5.5.

Remarks: If the tube is distinctly tilted from the vertical position, it could be necessary to rotate UEMZ590 lever on the main shaft from the standard position (factory marks).

Unscrew M12 screw, take off the lever from the shaft. Rotate the shaft, attach it to the shaft and tighten the M12 screw with torque 70Nm Fig 5.5.

B.2 Using the hand crank move the operating device to the closed position, i.e. the power transfer mechanism nut is at the bottom and the control lever at about 45° upwards.

B.3 Fit the pin and tube clamp in the correct hole.

For NPS disconnectors:

R110 mm NPS 24 A2
NPS 24 B1
NPS 24_-K4
NPS 24_-K5
NPS 36_

Refer to fig. 5.4

Tighten the nut of the pin with torque 110 Nm

B.4 Place the lower end of the control tube clamp on the motor operating device without tightening the screws so that the tube still moves freely.

B.5 Drive the disconnector to the fully closed position by pushing the control tube upwards against the limiter. Remove any free-play by pushing the control tube upwards and pulling the lever downwards. Mark on the tube with a felt-tip pen, the position of the upper edge of the tube clamp. Refer to fig. 5.6.

B.6 Operate the motor operating device in the opening direction with the crank until the mark on the tube moves about 20 mm upwards, Y = 20 mm. Tighten the tube clamp screw to a torque of 20 Nm. Refer to fig. 5.4.

B.7 Check the minimum opening gap of the disconnector when it is in the open position. Refer to the disconnectors installation instructions.

B.8 Test operate electrically.

B.9 Cut the tube 25-30 mm below the clamp for further adjustment. (fig. 5.6.B). Protect cut surface against corrosion (by paint or zink in spray)
5.C Installation of UEMC 50_ to drive

NXA_A3, NXA_A4
NXB_A3, NXB_A4
NXBD_A3, NXBD_A4

C.1 Fit the shaft and the cast metal lever to the switch with the screw M12*100 mm, so that the arrow on the lever is pointing to about 40°, when the free-play is removed by pushing the lever upwards.

NOTE! The length of the screw should not exceed 100 mm. Fit the pin to the outer hole, R = 155 mm.

See fig. 5.7.

C.2 Fit the operating lever and tube fixing elements, type UEMZ 590, to the motor operating device taking note of aligning the marks on the lever and shaft. See the mounting of washers fig. 5.5.

Remarks: If the tube is distinctly tilted from the vertical position, it could be necessary to rotate UEMZ590 lever on the main shaft from the standard position (factory marks).

Unscrew M12 screw, take off the lever from the shaft. Rotate the shaft, attach it to the shaft and tighten the M12 screw with torque 70Nm Fig 5.5. Fit the pin to the hole in the lever, R = 190 mm. See fig. 5.5.

C.3 Insert the control tube into the tube clamp of the switch, and tighten the screws to 20 Nm (14.7 lbf ft). Install the insulator and tube guides according to the installation instructions of the switch.

C.4 Check that both the switch and motor operating device are in open positions and the operating levers are pointing inclined downwards. See fig. 5.5 and 5.7.

C.5 Put the control tube into the tube clamp of the lever of the motor operating device, but do not tighten the screws. The tube shall easily slide inside the clamp.

C.6 Make a mark on the tube at 30 mm above the top of the tube clamp, with a felt tip pen. Check that the tube can be pulled down by hand until this mark is in line with the top of the tube clamp. Operate by using the hand crank until the mark is in line with the top of the tube clamp and tighten the screws to 20 Nm (14.7 lbf ft).

C.7 Cut the operating tube leaving min. 20 mm adjustment area.

C.8 Test the operation by using the hand crank, and check the function of the switch. The switch should open and close with some margin of operating angle in the operating device, and the operating device should easily reach its end positions. Finally test operate by the motor.

6. Operating instructions

6.1 Electrical control
OPEN, CLOSED Push buttons – for local control
MOTOR Miniature circuit breaker
I and O for motor protection
REMOTE Remote selector switch
I and O functions as remote control switch – see point 21 for details

6.2 Manual operation
The operating device is equipped with a hand crank for manual operation.

Method of manual operation:
• switch the m.c.b. „MOTOR” to the 0-position
• fit the crank to the bottom of the operating device and operate
• the operation is complete when the nut presses against the limit switch and the crank becomes heavy to turn
• return the m.c.b. „MOTOR” to the I-position

Blocking switch S3 will open the electrical operating circuit automatically when the device is being manually operated to increase safety.
6.3 Interlocking

The operating device can be mechanically locked with a padlock to prevent both the motor and the manual operation mechanism being used.

Method of locking:
- switch the m.c.b. „MOTOR“ to the 0-position
- fit a padlock to the locking flap under the operating device, see fig. 2.1.

Blocking switch S3 will open the control circuit automatically when the unit is padlocked. To ensure additional safety it is suggested that the m.c.b. is also open.

The locking point is also designed to withstand the motor’s torque if the motor should start.

![NOTE!]

Remember to switch the m.c.b. to the 1-position when removing the padlock.

The door of the enclosure can also be locked with a padlock.

7. Maintenance

Grease the power transfer mechanism screw and gears every 5 years or after 1000 operations.

Grease: Isoflex Topas NCA 52.

Check the functioning of the heater.

Charging batteries for UEMC 50_1 (small enclosure):
- loosen battery charger and fixing bracket
- move the battery to the upper corner and then it can be pulled out

8. Repairs

The operating device is assembled from several modules which can be easily changed or removed for repair.

![NOTE!]

Isolate the supply voltage to the heater and motor before commencing repair work.

8.1 Relay sub-assembly

The relay sub-assembly is attached to the power transfer mechanism by two screws and connected to the motor via a plug and socket.

When fitting the relay sub-assembly as a spare part:
- UEMC 50 H_ relay sub-assembly fits directly
- UEMC 50 L_ limit switches S1 and S2 are to be moved outwards to the next fixing holes

8.2 Motor

Changing the motor
- a) Remove the relay sub-assembly and motor plug.
- b) Remove the motor’s fixing base – 2 pcs M8-bolts.
- c) Transfer the motor’s fixing base and gear wheel to the new motor. Drill diameter 2,5 mm for the gear wheel on the motor axle.
- d) Fit the motor and relay sub-assembly.
- e) Check the motor’s direction of rotation as follows:
  - using the hand crank move the operating device to the middle position
  - press the „0” push button. The nut should then move upwards.
  - if it does not, immediately switch off the „MOTOR” m.c.b. and swap the motor’s anchor circuit wiring (red wires on the motor in the UEMC 50 H_ device).

8.3 Power transfer mechanism

Removal and repairs
- remove the relay sub-assembly and motor plug.
- remove the operating lever.
- remove the power transfer mechanisms fixing bolts M8 and then the whole power transfer mechanism.

If the power transfer mechanism is disassembled
- note the use of spring washers. The outer washers are to be turned so that they press onto the outer rings of the bearings.
- gear wheel tightening torque 60 Nm.
9. Spare parts

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

Typical spare parts:

<table>
<thead>
<tr>
<th>Spare part</th>
<th>Type</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay</td>
<td>UEZ1 N/U</td>
<td>N = circuit diag. (\text{eg. 121})</td>
</tr>
<tr>
<td></td>
<td>UEZM2/U/1</td>
<td>U = voltage (\text{eg. 24 VDC})</td>
</tr>
<tr>
<td>Motor +</td>
<td>UEZM5/U1</td>
<td></td>
</tr>
<tr>
<td>gear wheel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UEZA7</td>
<td>U = Voltage for DC</td>
</tr>
<tr>
<td></td>
<td>UEZA6</td>
<td>U = Voltage for AC</td>
</tr>
<tr>
<td>Power</td>
<td>UEZA7</td>
<td>U = Voltage for DC</td>
</tr>
<tr>
<td>transfer</td>
<td>UEZA6</td>
<td>U = Voltage for AC</td>
</tr>
<tr>
<td>mechanism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contactor</td>
<td>ABB VB6-30-01/U</td>
<td></td>
</tr>
<tr>
<td>K1+K2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micro switch</td>
<td>OMZ-15GW22-B7</td>
<td></td>
</tr>
<tr>
<td>Diode</td>
<td>SK 1/16</td>
<td></td>
</tr>
<tr>
<td>Heater</td>
<td>UEZR1 -220V</td>
<td>230 VAC</td>
</tr>
<tr>
<td></td>
<td>UEZR1 -110V</td>
<td>110 VAC</td>
</tr>
<tr>
<td>Rectifier</td>
<td>REC 36 MB 160 A</td>
<td></td>
</tr>
</tbody>
</table>

10. Cable selection

If the power source is outside the operating device, choose the cross sectional area of the supply cables in accordance with the following list:

- \(L = \text{distance from to operating device to power source}\)
- \(a = \text{min. cable cross-sectional area}\)

<table>
<thead>
<tr>
<th>L/m</th>
<th>24 V (a/\text{mm}^2)</th>
<th>48 V (a/\text{mm}^2)</th>
<th>60 V (a/\text{mm}^2)</th>
<th>110 V (a/\text{mm}^2)</th>
<th>220 V (a/\text{mm}^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>10</td>
<td>6.0</td>
<td>2.5</td>
<td>2.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>20</td>
<td>10.0</td>
<td>4.0</td>
<td>4.0</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>40</td>
<td>10.0</td>
<td>6.0</td>
<td>6.0</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>80</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>6.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.5</td>
</tr>
</tbody>
</table>

For 24 V voltages, we recommend the use of battery and charger in each operating device, for longer distances.

11. Heating the operating device

The motor operating device includes heater which prevents condensation in the box and increases the reliability of the electric components. Therefore it’s important that heater is electrically connected!

When ordering power supply of heater has to be defined 220-230 VDC/VAC or 110 VDC/VAC.

12. Selection of operating device

a) for NPS disconnectors UEMC 50 L_ slow operation
   - NPS 24 kV disconnectors
   - NPS 36 kV disconnectors

   UEMC 50 H_ fast operation
   - NPS 24 kV switch disconnectors with NPAK5 chamber (making capacity 12kA)

b) for Sectos disconnectors
   UEMC 50 L_ slow operation
   - NXA
   - NXB
   - NXB

c) for ON disconnectors
   UEMC50 L_ slow operation
   - ONI 20, ONI 30
   - ONIII 20, ONIII 30

d) Enclosure size
   The enclosure can be delivered in two different sizes and can be chosen according to the space requirements for the different accessories to be installed. See dimension drawings in section 20 and range of models section 16.
   The smallest type UEMC 50 L_ is usually big enough, if no accessories are to be installed.
   If a remote control unit and radio are to be installed the bigger enclosure may have to be used UEMC 50_5.

12. Changing direction of rotation

Sometimes it is necessary to change the direction of rotation:

- swap I and O push-buttons
- swap I and O labels of push-buttons
- swap position indication labels on enclosure outside.
- swap terminals X1:7 and X1:8 incoming I and O control impulse signals.

14. Basic diagrams

14.1 Alarm function

Terminal block X1:3 is live under normal conditions.

During an alarm, the voltage to terminal block X1:3 is interrupted, the reason being:
- F1 has tripped
- S6 is open
- voltage supply to operating device is interrupted. Refer to circuit diagram for respective type.
14.2 Remote control

CLOSE  Impulse to terminal X1:7
OPEN   Impulse to terminal X1:8

The voltage for the impulse can be taken from
a) terminal X1:3 via the relay contact
b) directly from the remote control unit

14.3 Separate motor and control circuits

Type    UEMC 50_ UU/1
Circuit diagram  31 UEMC 166

For this type, the voltage for the motor and control circuit can be different, however if separate circuits are required for the motor and control with the same voltage then this type will be delivered.
## 15. Ordering form

<table>
<thead>
<tr>
<th>Box number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your selection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Enclosure size</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small box 480x300x205 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Big box 620x500x330 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Drive speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>H</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small torque, fast operation 1.2 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Big torque, slow operation 3 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Voltage</td>
<td></td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Heater voltage</td>
<td></td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>24 VDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>48 VDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60 VDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>110 VDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>220 VDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>110 VAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>230 VAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Auxiliary contacts</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 NO + 1 NC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1 NO + 1 NC AND 3 NO/NC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>1 NO + 1 NC AND 6 NO/NC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Thermostat and MCB for heater and charger</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 YES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Charger</td>
<td>WITHOUT</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>230 VAC / 24VDC</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>110 VAC / 24VDC</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Batteries</td>
<td>WITHOUT</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 VDC / 17Ah</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 VDC / 24Ah</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 VDC / 38AH</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Service socket</td>
<td>WITHOUT</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TYPE E (WITH EARTHING PIN)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TYPE F (SCHUKO TYPE)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Blocking coil</td>
<td>NIE</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 VDC</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>110 VDC</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>220 VDC</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Signalization contacts</td>
<td>WITHOUT</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCB (Micro Circuit Breaker) Motor</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCB Motor, MCB heater and charger</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCB Motor and mechanical lock</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCB Motor and selector</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCB Motor, mechanical lock and selector</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MCB Motor, MCB heater and charger, mechanical lock and selector</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Door switch or light</td>
<td>WITHOUT</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door switch</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door switch and light 24 VDC</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door switch and light 110 VAC</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door switch and light 230 VAC</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional accessories not included in the style code:
- pole fixing
- door-retainer
16. Functionality of basic models

<table>
<thead>
<tr>
<th>Type</th>
<th>Ordering code</th>
<th>Fast operation (1,2 s)</th>
<th>Slow operation (13)</th>
<th>Enclosure 1</th>
<th>Enclosure 5</th>
<th>Limit switches</th>
<th>Mechanical lock</th>
<th>Heater</th>
<th>Contactors</th>
<th>Auxiliary contacts</th>
<th>1 NO + 1 NC</th>
<th>Motor MCB</th>
<th>Remote control selector</th>
<th>Motor MCB 121</th>
<th>Motor MCB 128</th>
<th>Motor MCB 165</th>
<th>Motor MCB 166</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEMC 50 H1 – 24 VDC/1</td>
<td>1HAA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 48 VDC/1</td>
<td>1HBA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 60 VDC/1</td>
<td>1HCA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 110 VDC/1</td>
<td>1HDA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 220 VDC/1</td>
<td>1HEA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 110 VAC/1</td>
<td>1HEA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 230 VAC/1 xx)</td>
<td>1HGA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ UU/1 *)</td>
<td>1HH000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UEMC 50 H5 – 24 VDC/21</td>
<td>SHAA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UEMC 50 H5 – 230 VAC/21</td>
<td>SGH000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UEMC 50 L1 – 24 VDC/1</td>
<td>1LAA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 48 VDC/1</td>
<td>1LBA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 60 VDC/1</td>
<td>1LCA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 110 VDC/1</td>
<td>1LDA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 220 VDC/1</td>
<td>1LEA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 110 VAC/1</td>
<td>1LFA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ 230 VAC/1 **)</td>
<td>1LGA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>~ UU/1 *)</td>
<td>1LHA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UEMC 50 L5 – 24 VDC/21</td>
<td>SLAA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UEMC 50 L5 – 230 VAC/21</td>
<td>SLGA000000000</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*) Type _UU/1 for device with different motor and auxiliary voltages. Voltages to be specified when ordering.

**) For voltage 220...240 VAC
17. Accessories

17.1 Extra auxiliary contacts
Type UEZS_

Extra auxiliary contacts cannot be wired to terminal blocks. Each contact is 3-way, and the user can choose the contact function for example NC or NO.

See circuit diagram no 31 UEMC 129.

NOTE!
All models already have 1NC + 1NO contacts as standard. Available options 3 or 6 NO / NC.

Charger can not be fitted in models UEMC 50 _1_ when using extra auxiliary contacts.

17.2 Batteries
The batteries are hermetically sealed, with suspension electrolytes, maintenance-free and usable in any position.

AGM types:
- NPL 24-12 (long life type)
- NPL 38-12 (long life type)
- NP 17-12

Operating temperature: -15°C to +50°C

When ordering batteries from ABB, please use the type designations mentioned in points a...c

The expected life of batteries depends on ambient temperature:

Designed life for NPL batteries (information by YUASA Battery Gmbh)

```
<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Designed life (year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>60</td>
<td>0.5</td>
</tr>
</tbody>
</table>
```

Designed battery life (20°C)

AGM types:
- NP 17-12 5 years
- NPL 24-12, NPL 38-12 10 years

The battery capacity is dependent on what type of radio and remote control system is to be supplied, and how long the station is to operate after battery charging voltage is removed. Without other loading a 24 V-17 Ah battery can be used to operate a motor operating device open-closed 800 times without needing recharging.

a. NPL batteries for 24V
   - Type: 24Ah-24V
   - Includes: 2 pcs NPL batteries connected in series and fixing components
   - Suitable for: big enclosure (5)
   - Type: 38Ah-24V
   - Includes: 2 pcs NPL batteries connected in series and fixing components
   - Suitable for: big enclosure (5)

b. NP batteries for 24V
   - Type: UEZGP 17Ah-24V
   - Includes: 2 pcs. NP batteries connected in series and fixing components
   - Suitable for: All models

c. Spare part batteries

NOTE!
The types do not include fixing components and cables.

```
<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions (length, width, height)</th>
<th>Weight/pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>17Ah-12V - 1YMU0000113M0001</td>
<td>181 x 76 x 167 mm</td>
<td>5.6 kg/pc</td>
</tr>
<tr>
<td>24Ah-12V - 1YMU000113M0002</td>
<td>166 x 175 x 125 mm</td>
<td>9 kg/pc</td>
</tr>
<tr>
<td>38Ah-12V - 1YMU0000113M0003</td>
<td>197 x 165 x 170 mm</td>
<td>13.8 kg/pc</td>
</tr>
</tbody>
</table>
```

17.3. Chargers
Charger types G2:
- voltage supply monitoring
- battery condition monitoring
- deep battery discharge protection

Available types for supply voltage 110 or 230 VAC

Includes 1 pc charger and fixing components.
Spare part chargers:
a. Type G2: 1YMU000252MP001
  Charging current: 3.5 A
  Charging voltage: 28,8 V
  Maintenance voltage: 27,3 V
  Supply voltage: 180–265 VAC
  Operating temperature range: -10°C – +55°C
  Suitable for: all models

b. Type G2: 1YMU000252MP002
  Charging current: 3.5 A
  Charging voltage: 28,8 V
  Maintenance voltage: 27,3 V
  Supply voltage: 87–132 VAC
  Operating temperature range: -10°C – +55°C
  Suitable for: all models

17.4 Interlocking coil
Function: Voltage has to be supplied to the coil in order to operate electrically (local push-buttons or remotely) or manually by lever.

Suitable for all models except for small enclosure (1) equipped with batteries.

17.5 Thermostat and MCB for heater and charger
Thermostat function: The thermostat disconnects the heater if the temperature rises above 30°C.
Rated current: 2 A
Suitable for: all models

17.6 Zero-voltage relay (K4)
Function: The zero-voltage relay interrupts the contactor holding voltage when the motor voltage is broken. This prevents the motor operating device from responding to an earlier operating impulse and from automatically starting the motor when the voltage returns. The power required by the zero-voltage relay is 3 W continuous.

17.7. Door-retainer
Function: Prevents from uncontrollable closing of the door when door are in open position.
Suitable for: big enclosure (5)

17.8. Service light
Voltage supply: 24 VDC
110 VAC
230 VAC
Suitable for: all models

17.9 Fixing bracket for concrete or steel pole
Type: UEMZ 1066
Measure A: <300 mm
Measure B: 200...300 mm
Suitable for: All models

Type: UEMZ 1146
Measure A: <500 mm
Measure B: 520...680 mm
Suitable for: All models

NOTE!
The zero-relay is required only for separate motor and control circuits, for types UEMC50_UU/1.
17.10 Fixing bracket for circular concrete or steel pole

Type: 1YMU000054M0003
Diameter: up to 400mm
Suitable for: All models

Type: 1YMU000128M0001
Diameter: 400-550mm
Suitable for: All models

17.11 Service socket

Used for 230/110 V AC supplies

Type:
- 1YMU000139M0001 Socket with pin (type E)
- 1YMU000139M0002 Socket type Schuko (type F)
Suitable for: All models

18. Technical data

<table>
<thead>
<tr>
<th></th>
<th>weight</th>
<th>operating time</th>
<th>torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEMC 50 H1</td>
<td>22 kg</td>
<td>1.2 s</td>
<td>80 Nm</td>
</tr>
<tr>
<td>L1</td>
<td>22 kg</td>
<td>3 s</td>
<td>150 Nm</td>
</tr>
<tr>
<td>UEMC 50 H5</td>
<td>36 kg</td>
<td>1.2 s</td>
<td>80 Nm</td>
</tr>
<tr>
<td>L5</td>
<td>36 kg</td>
<td>3 s</td>
<td>150 Nm</td>
</tr>
</tbody>
</table>

Contacts, power consumption: 3 W
Min. operating impulse: 0.1 s
Terminals: 6 mm2
Aux. contacts: S1.2 and S2.2
Norm. voltage/current: 380 VAC/15 A, 125 VDC/0.5 A, 220 VDC/0.25 A

Motor

<table>
<thead>
<tr>
<th>Nominal</th>
<th>Nominal</th>
<th>Max.</th>
<th>MCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 VDC</td>
<td>12 A</td>
<td>40 A</td>
<td>- S201 K8</td>
</tr>
<tr>
<td>48 VDC</td>
<td>6 A</td>
<td>20 A</td>
<td>- S202 K4</td>
</tr>
<tr>
<td>60 VDC</td>
<td>5 A</td>
<td>17 A</td>
<td>- S202 K4</td>
</tr>
<tr>
<td>110 VDC</td>
<td>2 A</td>
<td>5.5 A</td>
<td>- S202 K2</td>
</tr>
<tr>
<td>220 VDC</td>
<td>1 A</td>
<td>3 A</td>
<td>S282 UCK 1</td>
</tr>
<tr>
<td>110 VAC</td>
<td>2 A</td>
<td>6 A</td>
<td>- S202 K2</td>
</tr>
<tr>
<td>230 VAC</td>
<td>1 A</td>
<td>3 A</td>
<td>- S202 K1</td>
</tr>
</tbody>
</table>

Energy consumption: 0.01 Ah/operation equivalent to 800 OPEN-CLOSE operations with 24V-17Ah battery without recharging.

19. Instruction for recycling the product

This document includes instructions for recycling the product UEMC 50. The document includes which material that are used in the products and handling instructions when the product is taking out of use. The document is to be used together with the installation and operating guide.

The environment regulation varies from country to country and develops fast. Due to this it is recommended to contact the local waste handler who is authorized and specialized in disposing electronic waste including lead-acid batteries.

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

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.

19.1 The products casing

The product is cased in cardboard, paper and foam plastic. Materials have to be segregated and utilized according local requirements.

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.
19.2 Material of the product
Information about the construction, main parts and their material can be found in the installation and operating guide, point 6. Construction on page 6.

19.2.1. Material of the main parts

<table>
<thead>
<tr>
<th>Parts</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame, screw and axle</td>
<td>Stainless steel</td>
<td>3.9 kg</td>
</tr>
<tr>
<td>Nut and gear wheel</td>
<td>Bronze</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>Operating lever</td>
<td>Aluminium (Al-Si)</td>
<td>2.3 kg</td>
</tr>
</tbody>
</table>

Motor
The materials depend on the type of the motor. Usually it consists of iron, copper, sink and aluminum

Relay unit
Material: Stainless steel
Weight: 1.0 kg

Control lever and tube fixing elements

<table>
<thead>
<tr>
<th>Parts</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating lever</td>
<td>Stainless steel</td>
<td>0.7 kg</td>
</tr>
<tr>
<td>Tube fixing element</td>
<td>Hot dip galvanized steel</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>Pin and bolt</td>
<td>Stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

Pole fixing elements
Material: Hot dip galvanized steel
Weight: 3.5 – 6.5 kg (depending on the model)

Box
Material: Stainless steel AlSi 304
Weight: 8.3 – 19.2 kg (depending on the model)

19.2.2. Spare parts and accessories
The weight for the light parts are not printed, the operating device also contains screws, nuts, washes and rivets of steel and also some parts that are not important when recycling. 70 – 90% of the weight of the product are big metal parts, which are easy to recycle (4.1 metal parts). The motor is 7 – 11% of the weight and it is also easy to recycle.

19.3 Product recycling
Materials have to be segregated and utilized according local requirements.
20. Dimension drawings

Types: UEMC50L1; UEMC50H1 small enclosure (1)
Types: UEMC50L5; UEMC50H5 big enclosure (5)
21. Circuit diagrams

Circuit diagram 31 UEMC 121 G

Motor operating device: UEMC 50_ - 24 VDC/1

UESMC 50 L_ - 24 VDC/21

Motor operating device: UEMC 50 H_ - 24 VDC/1

UESMC 50 L_ - 24 VDC/21

S1.2 = Aux. contact NO (switch open)
S2.2 = Aux. contact NO (switch closed)
S3 = Blocking switch for hand operating and locking
S4, S5 = Push buttons
F1 = M.C.B
R1 = Heater
S6 = Remote control switch

M1 = Motor
K1, K2 = Contactors
S1.1, S2.1 = Limit switches
Motor operating device UEMC 50 – 48 VDC/1
– 60 VDC/1
– 110 VDC/1
– 125 VDC/1
– 220 VDC/1

M1 = Motor
K1, K2 = Contactors

S1.1, S2.1 = Limit switches
S1.2 = Aux. contact NO (switch open)
S2.2 = Aux. contact NO (switch closed)
S3 = Blocking switch for hand operating and locking
S4, S5 = Push buttons
F1 = M.C.B
R1 = Heater
S6 = Remote control switch
K3 = Relay, only for UEMC 50 L
Circuit diagram 31 UEMC 165 F

Motor operating device UEMC 50_ – 110 VAC/1
  – 110 VAC/21
  – 230 VAC/1
  – 230 VAC/21

M1 = Motor
K1, K2 = Contactors
S1.1, S2.1 = Limit switches
S1.2 = Aux. contact NO (switch open)
S2.2 = Aux. contact NO (switch closed)
S3 = Blocking switch for hand operating and locking
S4, S5 = Push buttons
F1 = M.C.B
R1 = Heater
S6 = Remote control switch
K3 = Relay, only for UEMC 50 L
V5 = Rectifier
Circuit diagram 31 UEMC 166 E

Motor operating device UEMC 50 – UU/1
UU Voltage to be specified when ordering

M1 = Motor
K1, K2 = Contactors
S1.1, S2.1 = Limit switches
S1.2 = Aux. contact NO (switch open)
S2.2 = Aux. contact NO (switch closed)
S3 = Blocking switch for hand operating and locking
S4, S5 = Push buttons
F1 = M.C.B
R1 = Heater
S6 = Remote control switch
K3 = Relay, only for UEMC 50 L 48-230 V
V5 = Rectifier
K4 = Zero voltage relay
V1, V2 = Diodes only for DC
R2 = Resistor 110-230 V
Circuit diagram 31 UEMC 129 C

<table>
<thead>
<tr>
<th>UEMC 50L</th>
<th>UEMZS2/S10</th>
<th>UEMZS2/S11</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NC</td>
<td>NO</td>
</tr>
<tr>
<td>NC</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>NO</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>NC</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>NO</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>NC</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

3 NC/NO  6 NC/NO

Function of aux. contacts

- Contact open
- Contact closed

Nominal current 16 A
Breaking capacity (L/R = 40 ms)

- 24 VDC = 16 A
- 48 VDC = 10 A
- 60 VDC = 10 A
- 110 VDC = 5 A
- 220 VDC = 2 A
- 230 VAC = 16 A

Disconnector
Nominal voltage 500 V

NO
NC
Thermostat and MCB of charger and heater

Charger

Batteries

Service socket

Light 230 VAC or 110 VAC

Light 24 VDC

Auxiliary signalization circuits:
MCB F1, F2
Mechanical lock (S3)
Selector (S6)

Blocking coil