Operating instructions

Energy tower EMS-ENERGY

Rev 1.1

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1 Notes on using the operating instructions

In this operating manual the user obtains information

- for his own safety,
- for a quicker familiarization with the functional range of the camping tower,
- for safe working with the camping tower,
- for remedying faults and
- for maintaining the camping tower.

In order to maintain the reliability of the camping tower, to increase its useful life and to prevent downtimes, observe the instructions in the operating manual.

Study the "Safety" chapter thoroughly.
The arrangements and functions of all components must be known prior to initial commissioning of the camping tower.
Observe the information provided in the operating manual for all works.

Moreover, always observe the applicable accident prevention and environmental protection regulations as well as the generally recognized technical rules for safe and proper working.

Feel free to contact us if there are any unresolved issues after having read the operating manual.

The illustrations in the operating manual may differ from the actual design. The factual information content remains unaffected.

1.1 Symbols

Particularly important information in this operating manual are marked with the following symbols:

1.1.1 Symbols for personal protective equipment

Wear protective gloves.

Wear safety boots.

1.1.2 Hazard symbols

Danger!
This symbol combined with the signal word indicates an imminent danger to the life and health of persons.
The texts marked with this symbol and signal word provide information on how to prevent personal injury.

Warning!
This symbol combined with the signal word indicates a danger resulting in minor to moderate injuries.
The texts marked with this symbol and signal word provide information on how to prevent personal injury.

Caution!
This symbol indicates the danger of property damage.
The texts marked with this symbol and signal word provide information on how to prevent property damage.

If the source of danger can be clearly defined, the corresponding pictogram precedes the hazard warning:

Danger!
Hazardous electric voltage.
This symbol indicates dangers due to electric voltage.

1.1.3 Notice symbol

Note
This symbol indicates application tips or general information.

1.2 Validity of these instructions – name plate

This operating manual is valid for the camping tower EMS-ENERGY (hereinafter referred to as energy tower) with the following name plates:

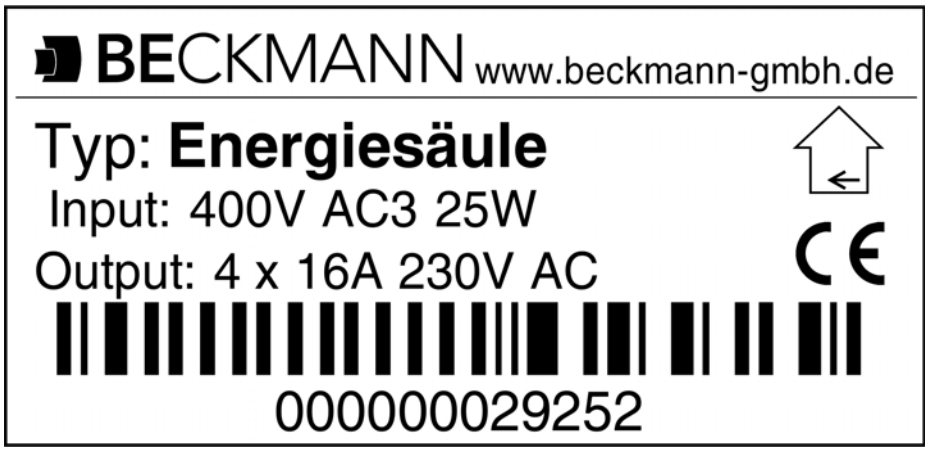

Fig. 1-1 Name plate of energy tower with 4 sockets

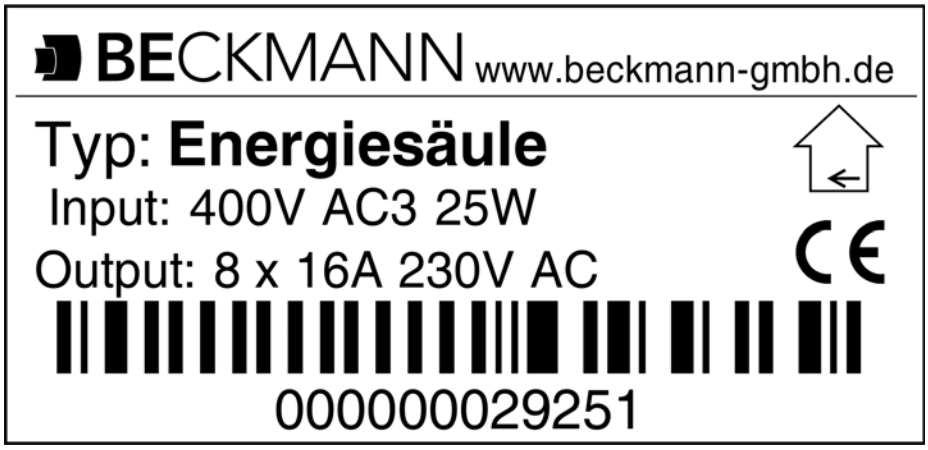

Fig. 1-2 Name plate of energy tower with 8 sockets

1.3 Limitation of liability

Beckmann GmbH is not liable with respect to the buyer of this product or to third parties for damage, loss, costs or expenses incurred as a result of accidents, misuse of the product, unauthorized changes, repairs or additions. Furthermore, Beckmann GmbH is not liable for losses, costs, malfunctions or consequential damage arising from the use of the control unit. The technical data correspond to the current state at the time of printing. Printing errors, mistakes and amendments reserved.
All of the specifications and information in this manual have been compiled in due consideration of the applicable standards and regulations, the state of the art and our many years of experience and findings.

The manufacturer assumes no liability for damages resulting from:

- the non-observance of these operating instructions
- improper use
- the deployment of unqualified personnel
- unauthorised alterations
- technical changes
- the use of non-approved spare and wear parts
- vandalism

The actual scope of delivery may differ from the descriptions and illustrations in this manual in case of special designs, when making use of additional order options or due to the latest technical modifications.
Apart from that, the obligations agreed upon in the delivery contract, the general terms and conditions as well as the manufacturer's delivery conditions and the legal provisions valid upon conclusion of the contract apply.

1.4 Customer service

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2 Technical information

2.1 Functional description

The energy tower provides a reliable power supply for motor homes and caravans on camping sites and RV parks.
Owing to the combination of master and slave tower up to 8 sockets can be supplied while using only one control unit. Selecting and paying for the respective socket is to be accomplished via the master tower. The master-slave concept facilitates the local distribution of towers and the allocation of the sockets regarding the camp site/parking space.
Located at the front are the selection keys for the different sockets. The LEDs above the buttons indicate their status, i.e. whether the socket is already in use or free.
Once a free socket has been selected and the corresponding sum paid, the amount of kWh will be unlocked. Payment can be effected by either inserting coins or using an RFID ticket, which is held to an RFID reading device.
The remaining amount of kWh can be read on a display.
The energy tower provides the person who runs it with additional programming options (e.g. rates, amounts of energy, timer etc.) which can be set and adjusted directly at the tower. The display then features the various menus, which can be accessed by means of the selection keys.
The master tower is optionally equipped with lighting at the front and sides, where sockets are located.

2.2 Equipment

The energy tower is available with the following equipment versions:

- 2 sockets on the left, 2 sockets on the right
- 2 sockets on the left, 2 sockets on the right and
  4 sockets at the slave tower
- 4 sockets on the left
- 4 sockets on the right
- LED illumination (optional)

2.3 Technical data

Tab. 2-1 Technical data

Parameter		Value
Type designation		EMS-ENERGY
Energy supply		400 V / 50 Hz on the mains side
CEE sockets		230 V, 16 A
Material housing		V2A stainless steel[1)]
Temperature area of application		-20 to +40 °C
Type of protection		IP44
Conductor type		5-core NYY buried cable
Laying system		underground at a depth of at least 0.5 m
Conductor cross-section min.		10 mm^2
Length max. at U_{min} 220 V		40 m at 3 % U_v [2)]
Dimensions (height x width x depth)	master	1300 mm x 260 mm x 275 mm
	slave	1017 mm x 100 mm x 100 mm
Weight	master	36 kg
	slave	10 kg

[1)] Optionally V4A when used near the coast / sea water.

[2)] The percentage-based voltage drop in the system behind the main counter should not exceed 3 %.

2.3.1 Dimensions

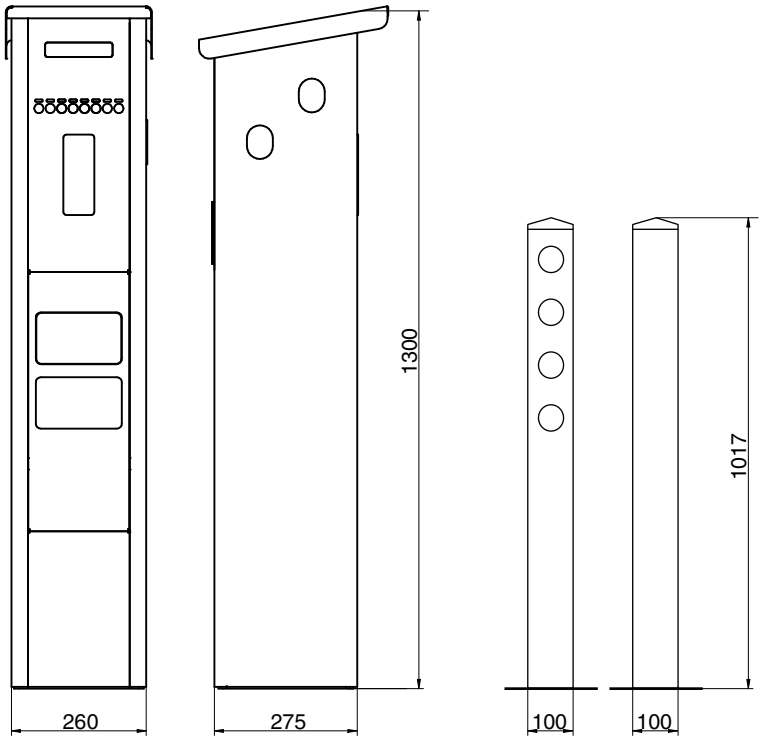


Fig. 2-1 Dimensions

2.4 Device depiction

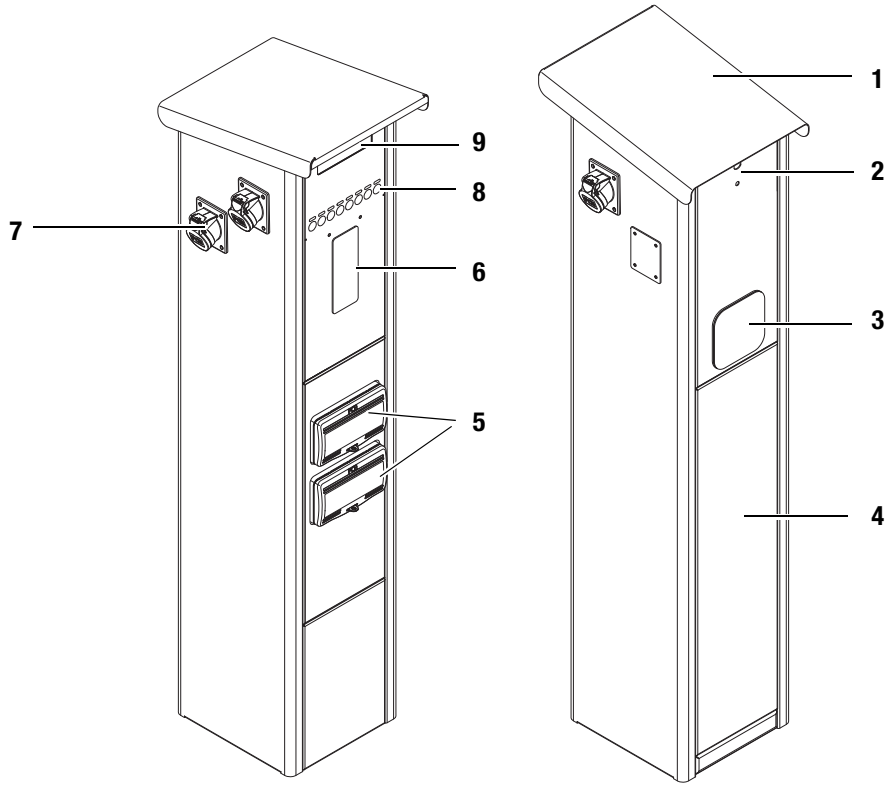


Fig. 2-2 Overview master tower

No.	Designation
1	Lid
2	Lock (lid)
3	Coin box with lock
4	Rear cover
5	Residual current device with cover flap
6	Coin slot with protective flap
7	Socket
8	Control panel with LEDs and selection buttons
9	Display

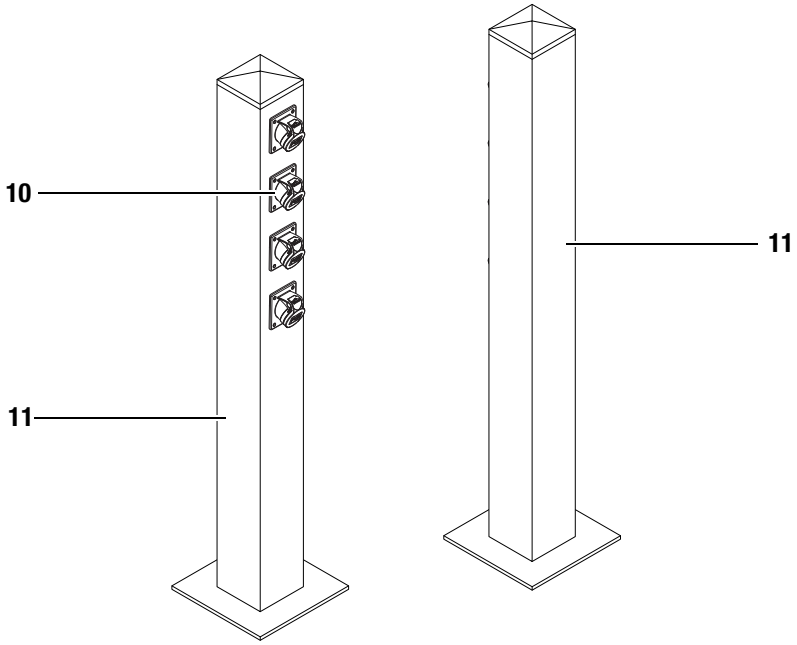


Fig. 2-3 Overview slave tower

No.	Designation
10	Socket
11	Slave tower

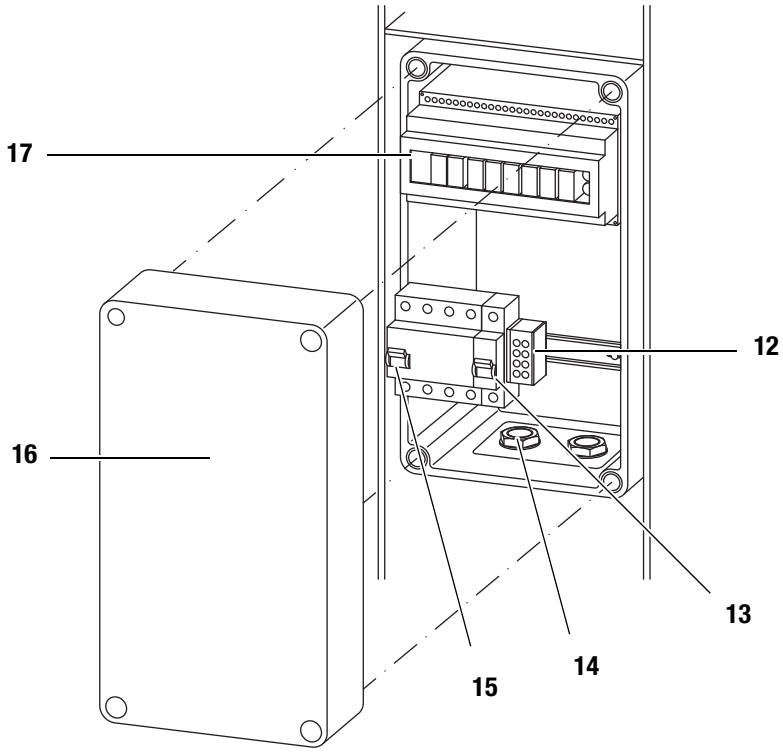


Fig. 2-4 Overview control box Isobox

No.	Designation
12	PE connection
13	Switch control unit
14	Cable bushing mains connection
15	Main switch (3 phases and neutral conductors)
16	Cover with terminal diagram (inside)
17	Control box Dinbox with relays

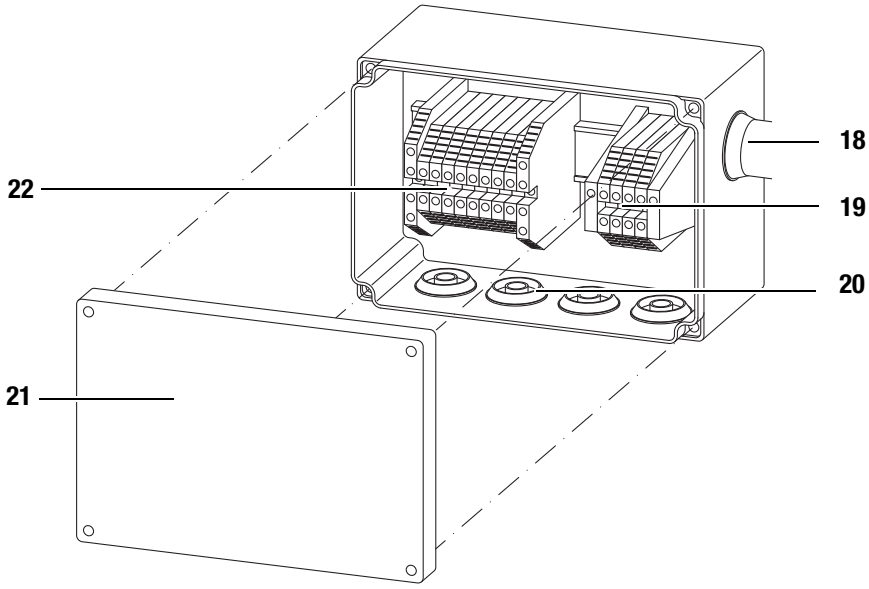


Fig. 2-5 Overview slave control box

No.	Designation
18	Supply line electric cable
19	PE terminals
20	Cable bushing
21	Cover with terminal diagram (inside)
22	Terminals slave

3 Safety

This device complies with the relevant safety regulations for measuring and control technology and has been constructed in accordance with state-of-the-art technology and the recognised safety rules and regulations Nevertheless, its use may result in danger for life and limb of the user or third parties or cause damage to the device and other assets.

Only use this device in perfect condition, in accordance with regulations, fully aware of safety and dangers and observing these operating instructions!

Have all faults, especially those which may jeopardise safety,
repaired immediately!

In addition to the operating manual also observe the generally applicable legal and other binding accident prevention and environmental protection regulations!

Do not change or modify the energy towers without prior consent of the manufacturer!

Spare parts must meet the requirements specified by the manufacturer! This is only guaranteed when using original spare parts.

Observe the deadlines for recurring maintenance intervals specified in this operating manual!

Ensure the safe and environmentally sound disposal of plastic parts and electronic replacement parts!

3.1 Intended use

The energy tower is only intended for the power supply of motor homes and caravans on camping sites and RV parks according to the technical data.

Intended use also includes the observance of these operating instructions and maintenance intervals.

3.2 Improper use

Any use of the energy tower other than described in chapter 3.1 is considered to be improper use.
It is prohibited to charge the battery of electric cars at the energy tower.

3.3 Personnel requirements

The energy tower may only be operated by personnel who have been instructed by either Beckmann GmbH or authorised specialist companies, their service partners or the operator and who have read and understood the operating manual.

Electrically skilled person
Electrically qualified personnel must be able to read and understand electric circuit diagrams, to commission and maintain electrical systems, to wire switch and control cabinets, to install controlling software, to ensure proper functioning of electrical components and to identify possible hazards in the work with electric and electronic systems.

Instructed person
Instructed persons were informed of the tasks assigned to them as well as of potential hazards of inappropriate behaviour by the operator. These persons are only allowed to perform service tasks (money collection, checking residual current devices).
The device is to be maintained and looked after by instructed personnel.

Tab. 3-1 Overview of the minimum required personnel qualifications

Activities	Instructed persons	Electrically skilled person
Transportation	X	
Assembly, mounting	X	
Electrical installation		X
Start-up		X
Shutdown	X	
Disassembly	X	
Electrical deinstallation		X
Cleaning	X	
Maintenance	X[1)]	X
Troubleshooting, repair		X
Disposal	X	

[1)] In terms of maintenance instructed persons are only allowed to check the residual current device.

3.4 Operator responsibilities

The operator is responsible for the regular assignment of safety-related checks, maintenance and service tasks. The operator must also ensure that the personnel has been trained in working with the device and that this operating manual is available at the operating site at all times. The operator must only use this device as intended. The operator may only use this device in perfect condition, this condition is to be checked at regular intervals. In case of any deviations operation is to be stopped immediately.
All faults, especially those which may jeopardise safety, have to repaired immediately.
The operator has to fulfil the legal obligations in terms of occupational safety.
In addition to the information on occupational safety provided in this manual the national safety, accident prevention and environmental protection regulations applicable for the field of application must be complied with.

3.5 Safety information

Danger!
Risk of death due to electrical voltage!
The energy tower must be de-energized before undertaking any work.
Shut the energy tower down, see chapter 6.3, page 6-11 and consult an electrically skilled person!

Warning!
Danger of minor injuries due to sharp edges or falling objects!
Wear your personal protective equipment.

Caution!
Property damage owing to the use of wrong cleaning agents!
Only use the cleaning agents specified in the maintenance chapter to clean the tower!
Never use a high-pressure cleaner to clean the tower!

3.6 Residual risks

The following residual risks result from the installation in a public place:

Danger!
Risk of death due to electrical voltage!
There might be voltage present at a socket, even though no consumers is connected.
Never reach into a socket barehanded!
Never leave minors unattended in the proximity of the energy tower!

Caution!
Property damage due to incorrect use.
Never use tools or other objects to operate the tower. Never try to change or repair any part of the energy tower.
If the energy tower does not function properly, immediately inform the operator!

Caution!
Property damage due to improper use
The energy tower is not suitable for consumers utilizing it in any other way than intended, such as electric cars.
When connecting an improper consumer, both the tower and the connected consumer may be damaged.

3.7 Protective devices

The residual current devices are located at the front of the tower.
Depending on the equipment, there are 4 or 8 residual current devices on the device.
The residual current devices de-energize the corresponding socket.

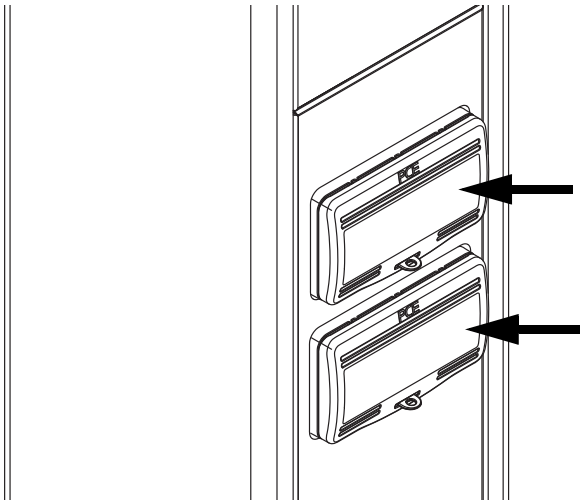


Fig. 3-1 Position of the residual current devices

3.8 Safety signs and labels at the energy tower

The following safety signs and labels at the energy tower are to be checked on a regular basis. If they are illegible, they must be replaced:

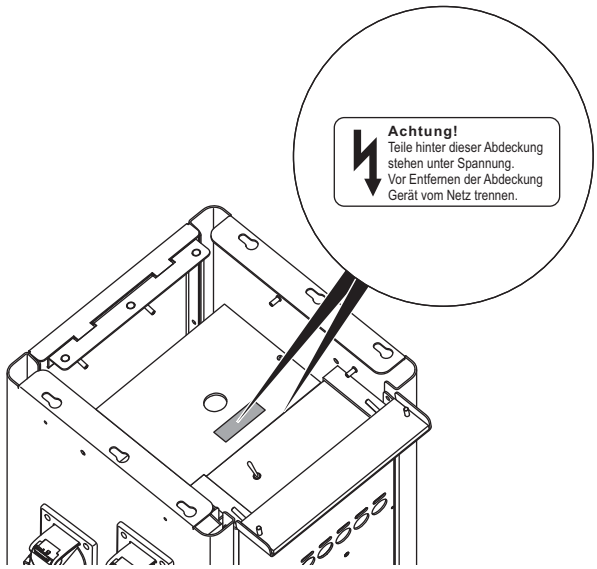


Fig. 3-2 Warning sign PVC cover and Alphabox

Warning sign	Designation
Achtung! Teile hinter dieser Abdeckung stehen unter Spannung. Vor Entfernen der Abdeckung Gerät vom Netz trennen.	Caution! There are live parts behind this cover. Only remove it after having disconnected the device from the mains.

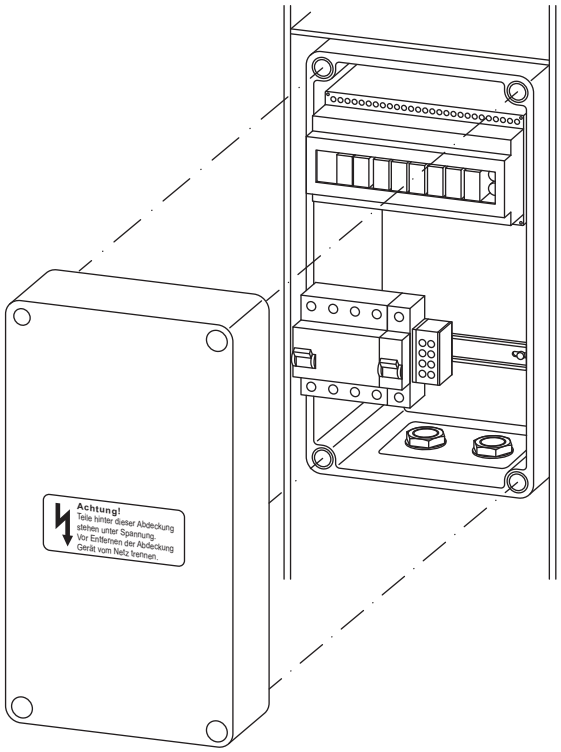


Fig. 3-3 Warning sign Isobox control box

Warning sign	Designation
Achtung! Teile hinter dieser Abdeckung stehen unter Spannung. Vor Entfernen der Abdeckung Gerät vom Netz trennen.	Caution! There are live parts behind this cover. Only remove it after having disconnected the device from the mains.

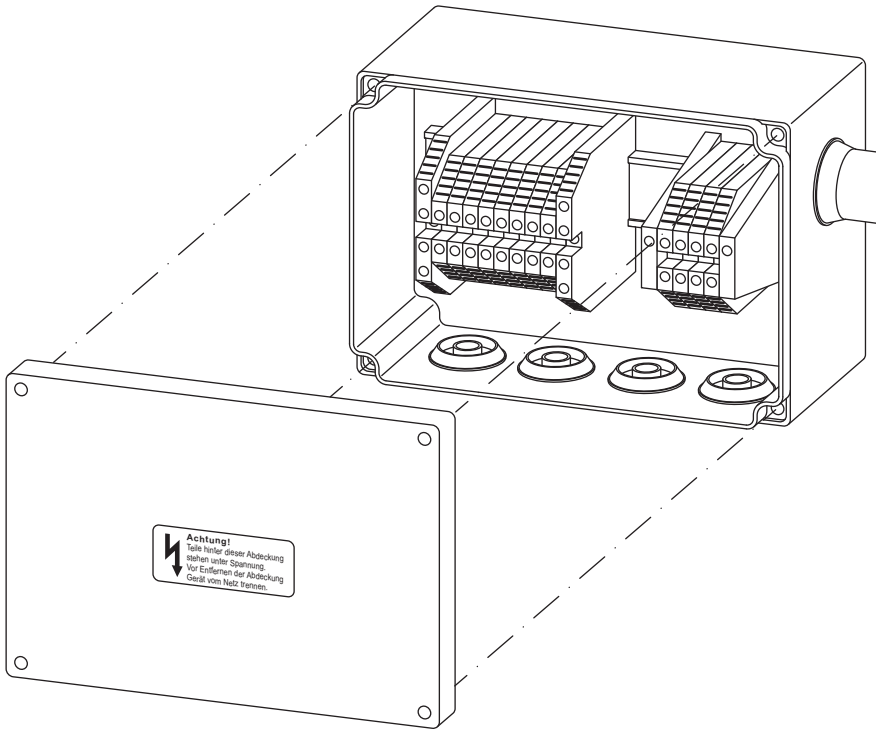


Fig. 3-4 Warning sign slave control box

Warning sign	Designation
Achtung! Teile hinter dieser Abdeckung stehen unter Spannung. Vor Entfernen der Abdeckung Gerät vom Netz trennen.	Caution! There are live parts behind this cover. Only remove it after having disconnected the device from the mains.

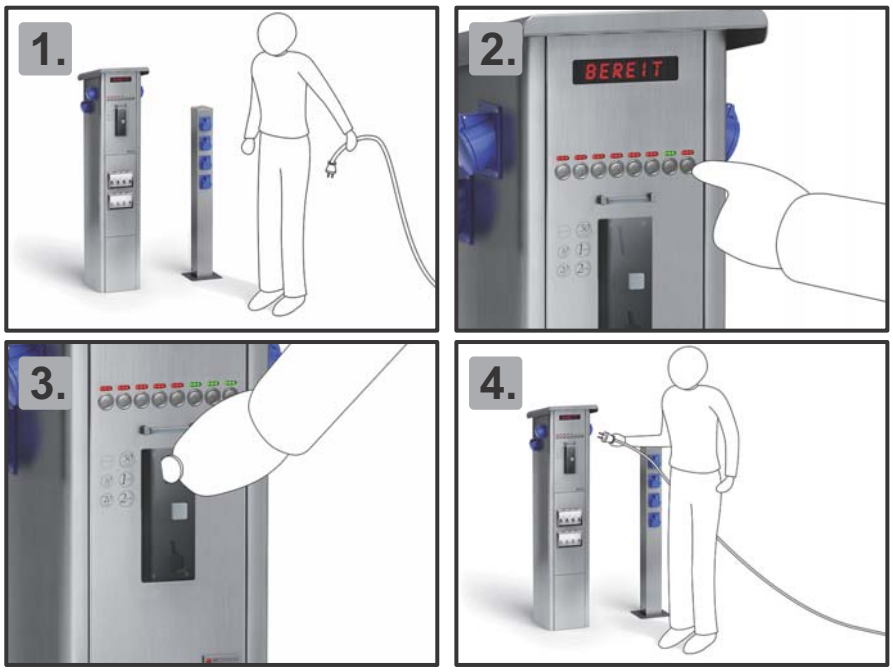


Fig. 3-5 Quick guide

4 Transport and storage

After delivery check the energy tower for visible transport damages and immediately report these to the supplier and Beckmann GmbH.

4.1 Scope of delivery

The energy tower delivery consists of the following components:

- master tower
- base plate for master tower (optional)
- slave tower (optional)
- base plate for slave tower (optional)
- 2 keys for master tower
- 2 keys for the coin compartment
- installation accessories
- lighting package for illumination (optional)

4.2 Transportation

The energy tower is to be transported by 2 people as closely as possible to the installation site.

4.3 Storage

All components of the energy tower are to be stored in a dry place, under a roof and at an ambient temperature of 10 to 40 °C to prevent the penetration of moisture into the parts' interior.

5 Set-up and installation

Before set-up and installation read the safety chapter.

5.1 Instructions for unpacking

- Remove the packing material from all parts.

5.2 Safety measures prior to installation

- Disconnect the supply line from the mains.
- Switch off all residual current devices at the front to ensure the sockets are de-energized.

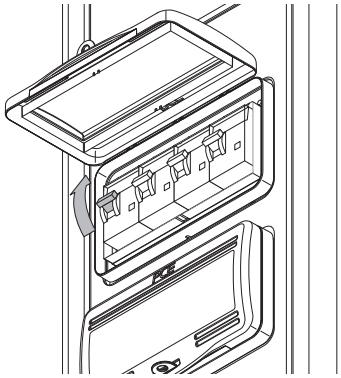


Fig. 5-1 Switching of residual current devices

5.3 Requirements at the installation site

The following requirements must be satisfied before set-up and installation of the energy tower:

- The foundation is prepared according to the specifications from Beckmann GmbH.
- The foundation is level.
- The threaded rods are free of dirt.
- The supply lines have been laid and prepared according to the length specifications from Beckmann GmbH.

5.3.1 Foundation

Note!
Place protective caps on top of the threaded rods before pouring the foundation.

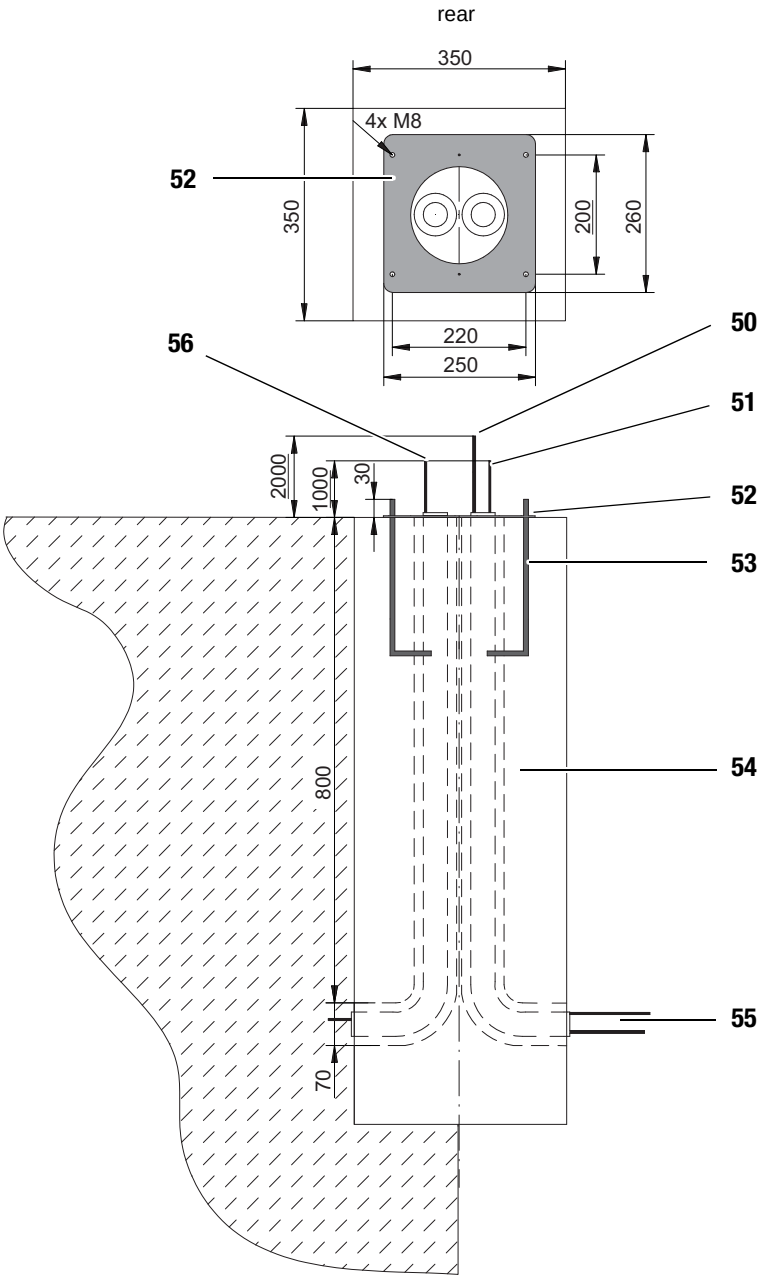


Fig. 5-2 Foundation master tower

No.	Designation
50	network cable (optional)
51	supply line on the mains side
52	base plate master tower
53	threaded rods M 8
54	concrete base
55	cable conduit M 50
56	supply line (supply slave tower, optional)

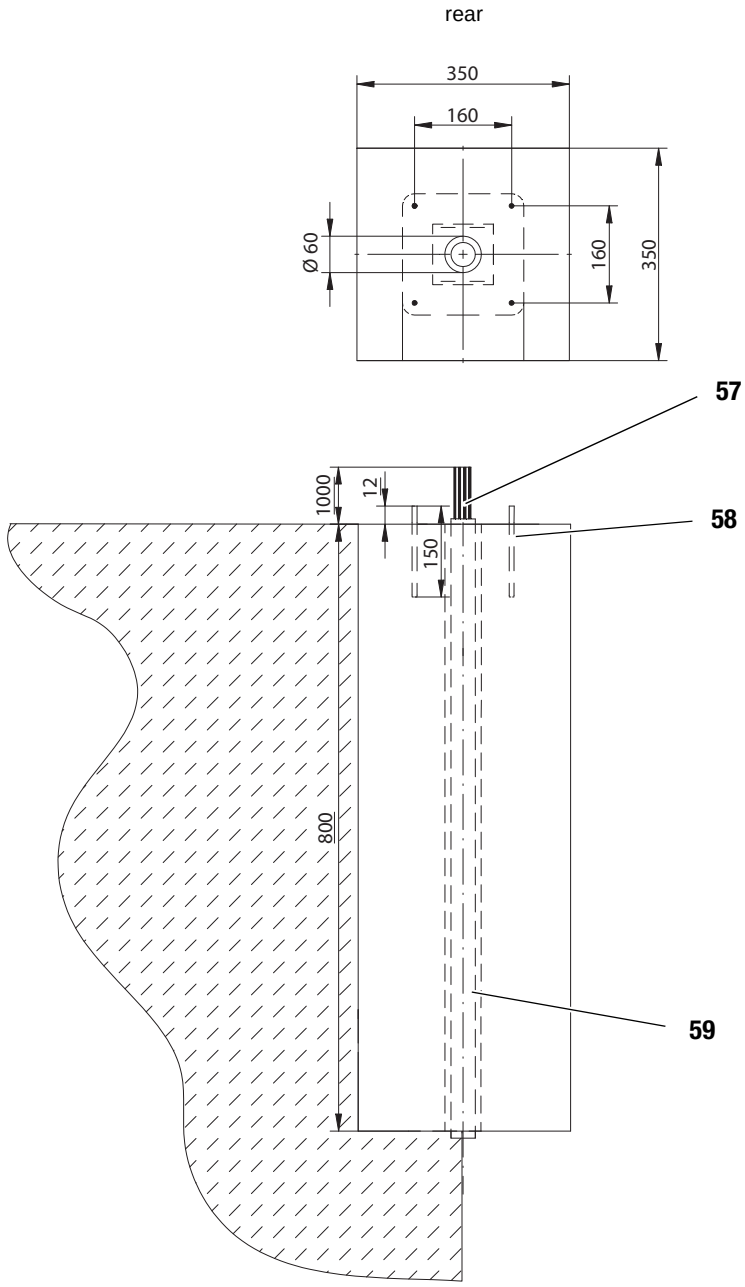


Fig. 5-3 Foundation slave tower

No.	Designation
57	supply line
58	boreholes for dowels
59	cable conduit M 50

5.4 Installation master tower

Requirements:

- The supply line is de-energized.
- Main switch and residual current device are switched off.
- The foundation is cleaned.
- The base plate is fitted to the foundation.
- The required tools are ready for use:

Tool	Type/size
slotted screwdriver	4.5x125
Phillips screwdriver	PH2, large
Phillips screwdriver	3.5x100, small
torx screwdriver	TX20
stripping tool	
spanner/socket	13-mm

1. Open the lock (30) at the back of the master tower.

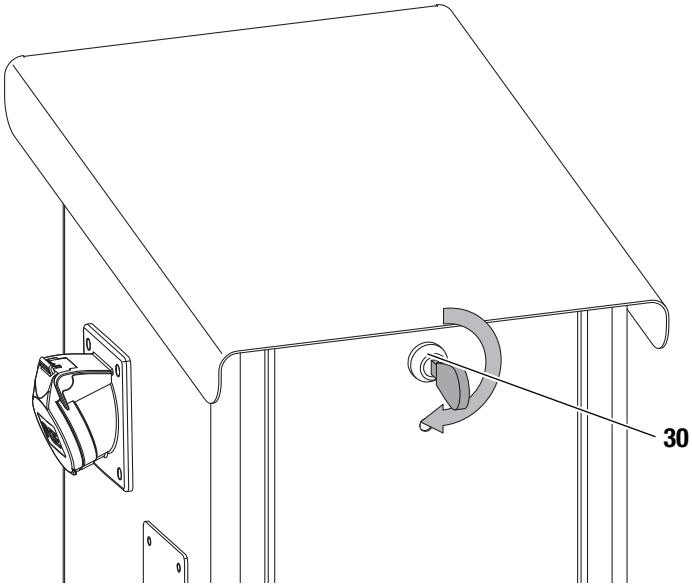


Fig. 5-4 Unlocking lid

2. Remove the cover from the tower.

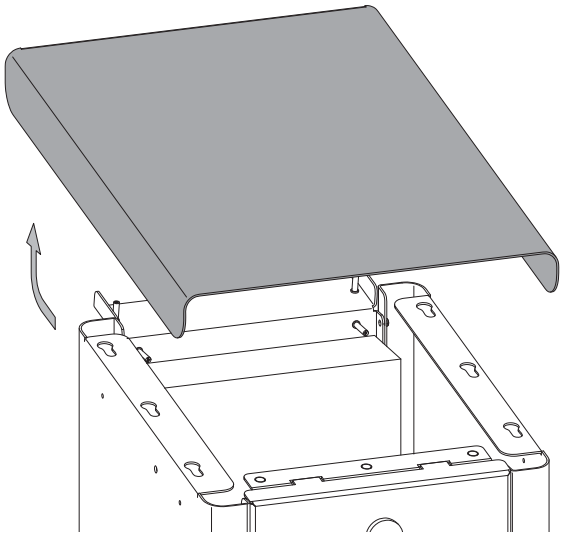


Fig. 5-5 Removing lid

3. Remove the two screws (31) on the white PVC cover (32) inside.

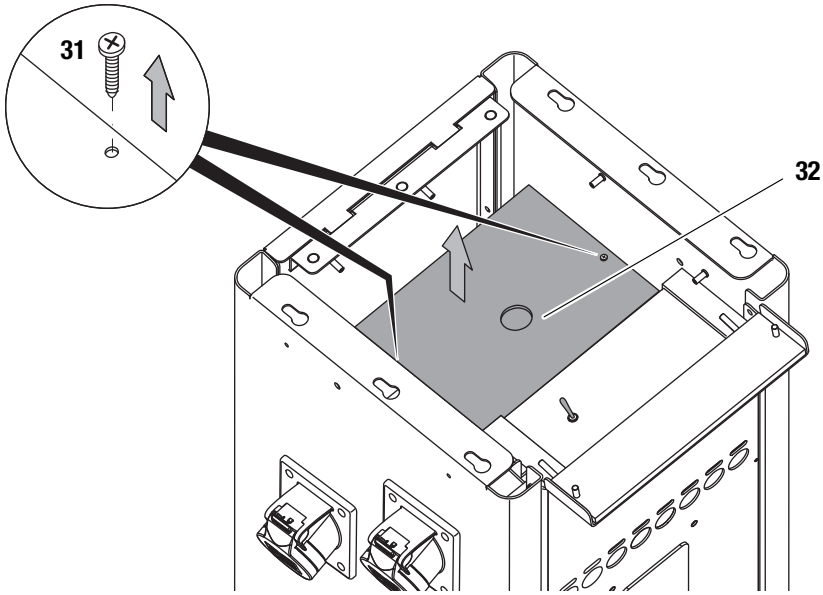


Fig. 5-6 Removing PVC cover

4. Remove the white PVC cover (32) and put it aside for later.

Note!
When it rains, cover the top section of the tower to prevent water from entering the housing.

5. Pull the release lever (33) within the device. It is located above the coin collection box at the rear.
   - The rear cover opens.

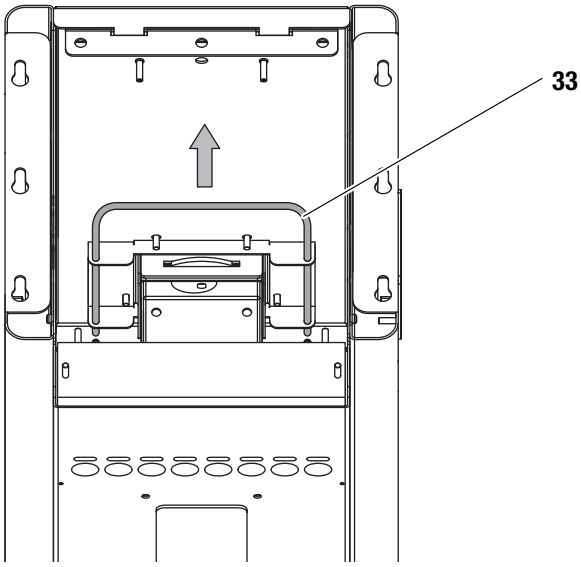


Fig. 5-7 Release lever for rear cover

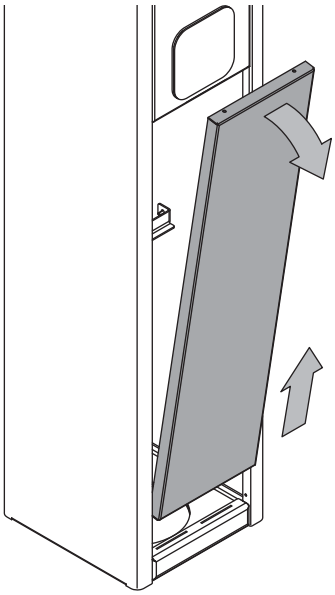


Fig. 5-8 Removing the rear cover

Warning!
Danger of minor injuries due to sharp edges or falling objects!
Wear your personal protective equipment.

6. Remove the cover and put it aside for later.
   - In the later course of the installation a second person is required.
7. Together lift the tower up onto the base plate.
8. First, set the tower up in a tilted position, so it can be held unproblematically.
9. While one person holds onto the tower, the second feeds the supply cables through the base plate and into the tower interior.

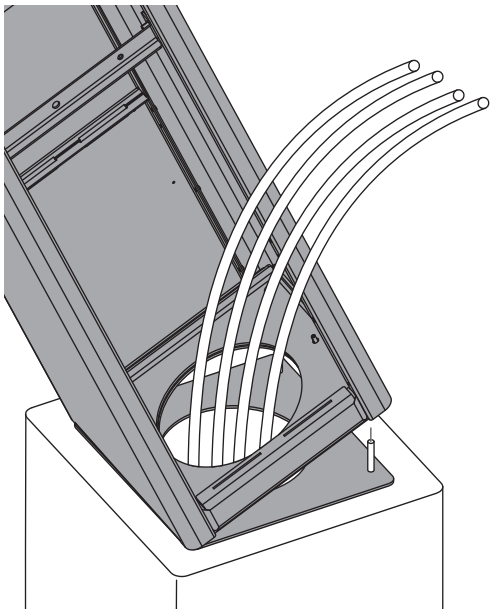


Fig. 5-9 Setting master tower down on the foundation

10. Adjust the supply cable for electrical installation and shorten it, if required.

11. Place the tower on the foundation and use the supplied nuts and washers to fasten it to the base plate.
    - Check whether the tower is still loose. If there is still play, tighten the nuts.
    - The master tower is ready for electrical connection.

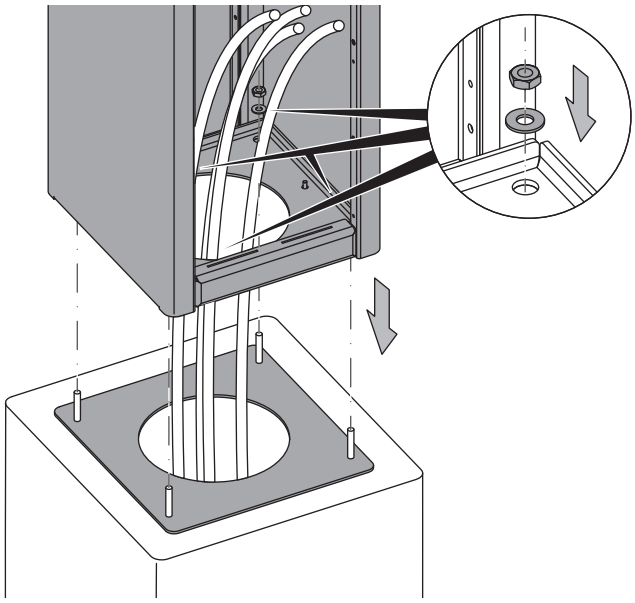


Fig. 5-10 Screwing together master tower and foundation

Note!
The electrical connection must be performed by an electrically skilled person.

5.4.1 Electrical connection

Note!
The electrical connection must be performed by an electrically skilled person.

Requirements:

- The supply line is de-energized.
- Main switch and residual current device are switched off.
- The tower is screwed to the foundation.
- The supply lines are fed into the tower and shortened appropriately.

1. Open the Isobox control box within the device.
   - The terminal diagram is located at the cover of the control box.

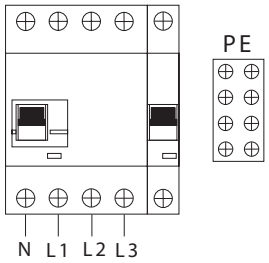


Fig. 5-11 Wiring diagram Dinbox control box

2. Switch the main switch to OFF.

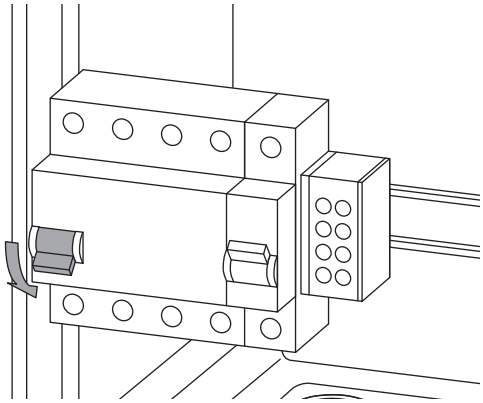


Fig. 5-12 Main switch OFF

3. Connect the supply line to the terminals at the main switch. In doing so, observe the wiring diagram for the main switch.

4. If a slave tower is to be installed, connect the cables for the slave tower to the master tower.
   - Pay close attention to the numbering of the cables.

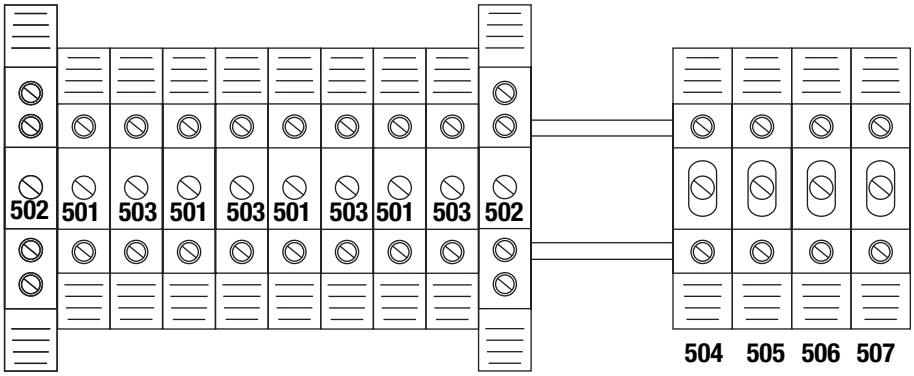


Fig. 5-13 Wiring diagram slave control box

No.	Designation
501	connection slave socket 5 - 8
502	protective earth conductor
503	neutral conductor
504	+ 12 V lighting package (optional)
505	- 12 V lighting package (optional)
506	bus A lighting package RGB (optional)
507	bus B lighting package RGB (optional)

5. Reattach the covers of the Isobox control box and, if applicable, of the slave control box and fasten these.
6. Close the rear cover of the housing. First insert the bottom section, then close the upper section until it locks into place.
7. Insert the white PVC cover into the upper section of the tower and screw the cover down.
8. Slide the stainless steel cover back onto the housing.
9. Use the key to lock it.
   - The installation of the master tower is now completed.
   - Where applicable, the installation of the slave tower still has to be effected.
   - The energy tower is ready for start-up.

5.5 Installation slave tower

Requirements:

- The supply line is de-energized.
- Main switch and residual current device are switched off.
- The base plate of the slave tower is unscrewed.
- The foundation is cleaned.
- The base plate is fitted to the foundation.
- Boreholes and dowels are available.
- The required tools are ready for use:

Tool	Type/size
slotted screwdriver	4.5x125
Phillips screwdriver	PH2, large
Phillips screwdriver	3.5x100, small
torx screwdriver	TX20
stripping tool	
spanner/socket	13-mm

1. Pull the cables from the foundation through the base plate and then through the socket openings.
   - Pay attention to the numbering of the cables.
2. Use the dowels included in the scope of delivery to screw base plate and foundation together.

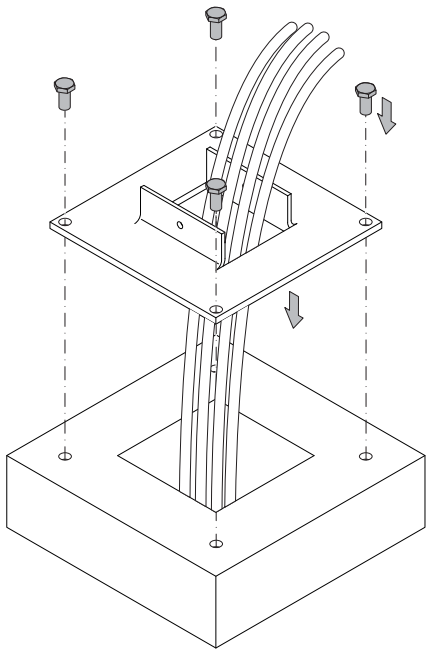


Fig. 5-14 Screwing base plate slave tower to foundation

3. Unscrew the screws of all 4 sockets at the slave tower.

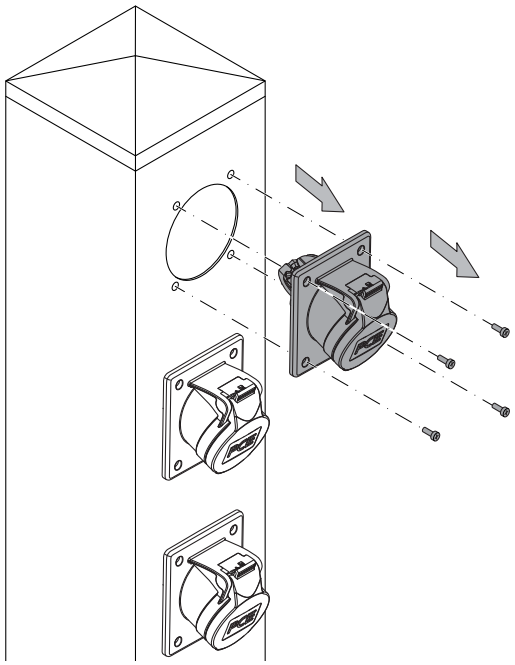


Fig. 5-15 Unscrewing sockets

4. Remove the sockets and put them as well as the screws aside for later.
5. Screw the base plate to the slave tower.
   - The tower must not be allowed to rock or shake. If necessary, check the screwing to the foundation.

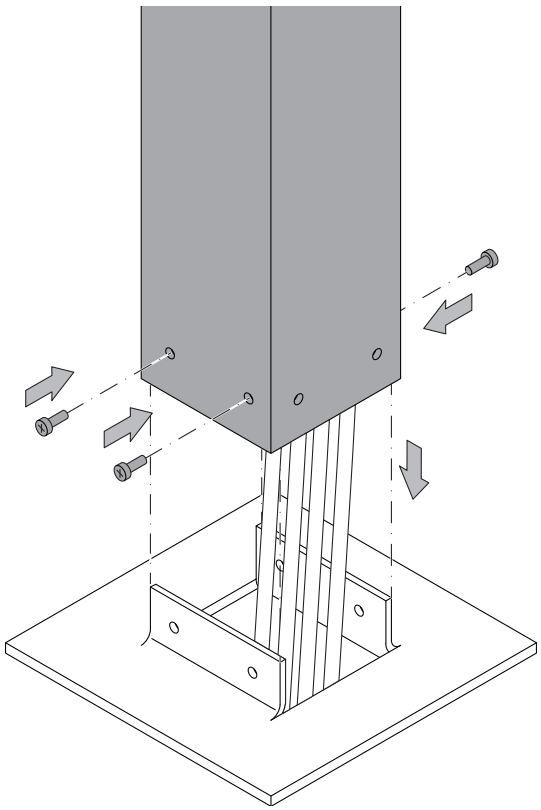


Fig. 5-16 Screwing slave tower to base plate

6. Shorten the cables if required.

7. Connect the cables to the corresponding sockets.
8. Screw the sockets back to the tower.

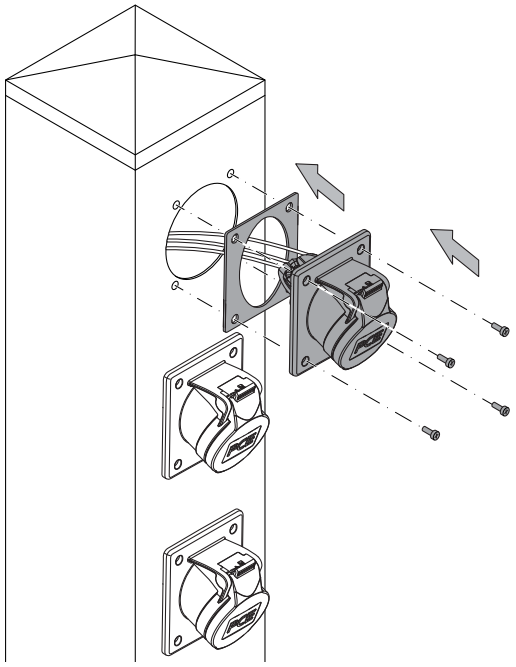


Fig. 5-17 Screwing down the sockets

9. Repeat the steps 4. to 8. until all sockets are connected.

Note!
Before start-up of the energy tower it must be by inspected and approved by a qualified electrician according to BGV[1] A3 and DIN VDE[2] 0100.

The initial and repeat examinations generally comprise the following test steps:

- inspection (for this specifically see VDE 0105, part 100; maintaining a proper condition)
- trial, function test and measurement

Appropriated measuring devices are to be used for checking according to DIN EN 61557-6 (VDE 0413-6). The measured values are to be documented in suitable inspection reports, e.g. a ZVEH[3] test report as per VDE 0100.

A template for an acceptance protocol is provided in the annex on page 11-6.

Should the acceptance not be effected, safe operation of the energy tower cannot be guaranteed.

1. *German Employers' Liability Insurance Association regulations*
2. *German Association for Electrical, Electronic & Information Technologies*
3. *Central Association of the German Electrical and Information Technology Trade*

6 Start-up and operation

Before start-up read the "Safety" chapter.

6.1 Start-up

Requirements:

- The tower is set up and installed according to chapter 5.
- It has been inspected and approved by a qualified electrician.

1. Open the lock (30) at the back of the master tower.

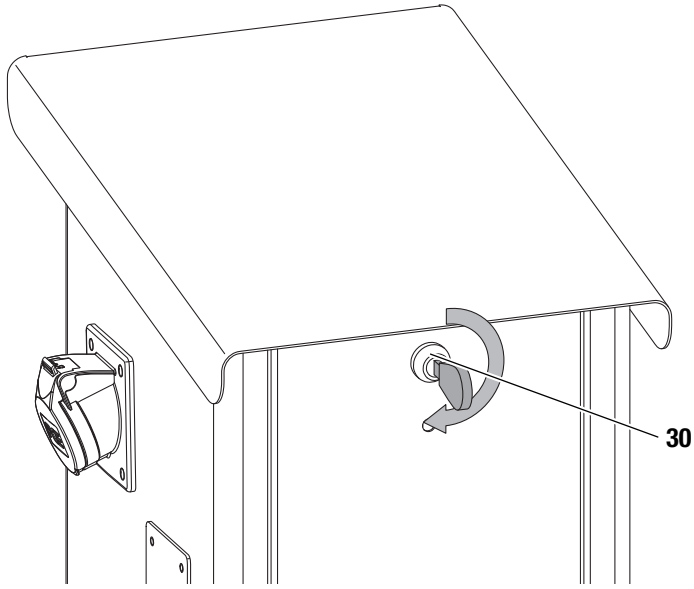


Fig. 6-1 Unlocking lid

2. Remove the cover from the tower.

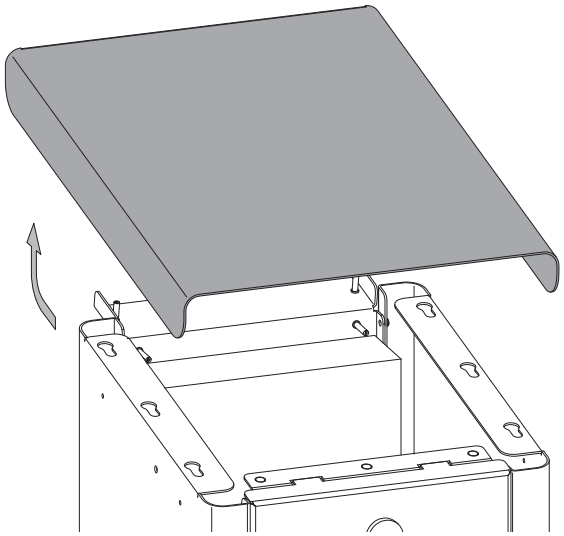


Fig. 6-2 Removing lid

3. Remove the two screws (31) on the white PVC cover (32) inside.

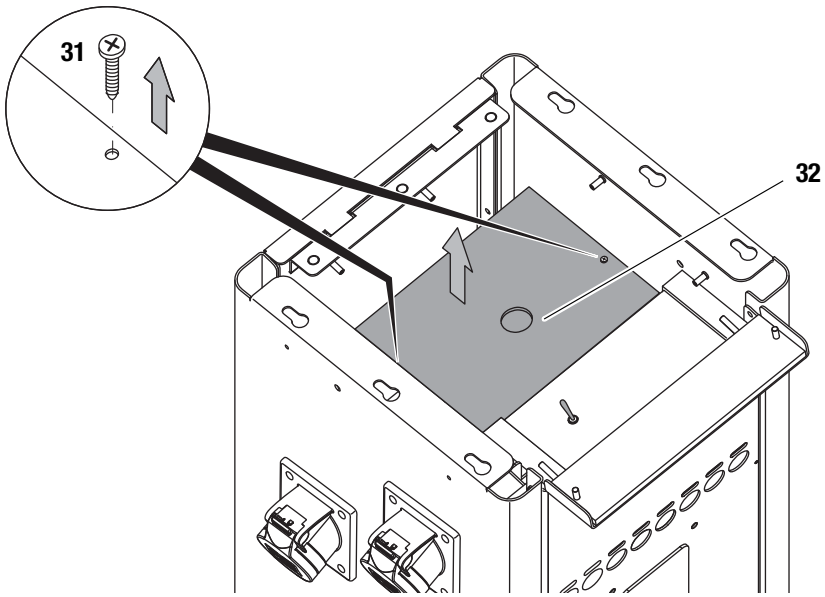


Fig. 6-3 Removing PVC cover

4. Remove the white PVC cover (32).

5. Pull the release lever (33) within the device. It is located above the coin collection box at the rear.
   - The rear cover opens.

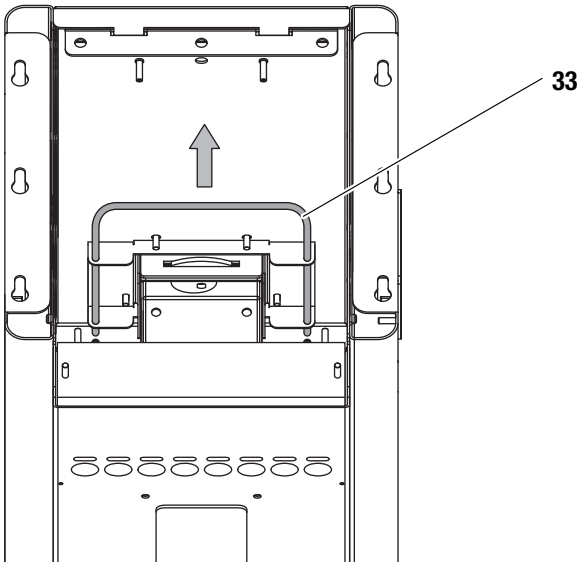


Fig. 6-4 Release lever for rear cover

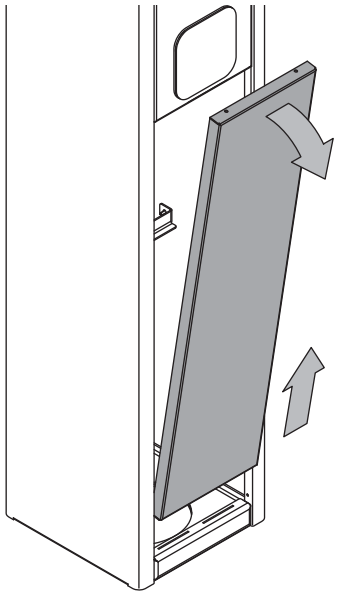


Fig. 6-5 Removing the rear cover

6. Make sure that both main switch and residual current devices are switched off.

7. Switch on the power supply at the supply line.

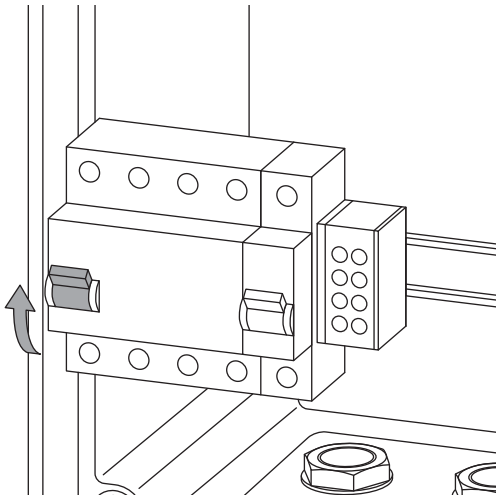


Fig. 6-6 Main switch ON

8. Switch on the main switch.
   - The control unit starts.
   - The display switches on.
   - The LEDs are illuminated.
9. Switch on all residual current devices.
10. If applicable, carry out the programming of the tower, see chapter 7.
11. Close the Isobox control box, reinsert the rear cover and lock the upper lid.
    - The energy tower is ready for operation.

6.2 Operation

6.2.1 Inserting coins or tokens

6.2.1.1 Booking a socket

1. Select one of the available sockets.
   - Available power points have a green LED above the number.
2. Press a selection button with a green LED.

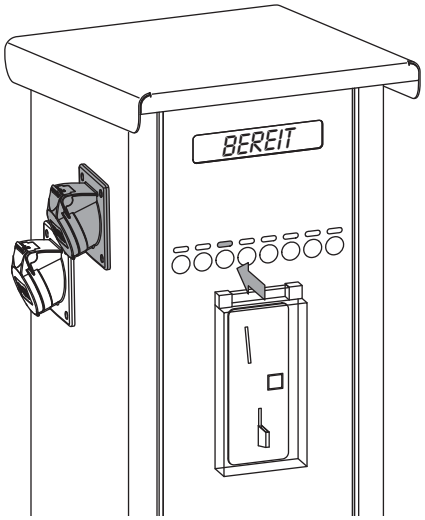


Fig. 6-7 Display and selection buttons for power outlets

3. Insert a coin or token into the coin slot.
   The price for one kWh can be gathered from the posting at the tower or inquired of the operator.
   - Your available kWh quota will be displayed.
   - The socket with the matching number is released and can now be used.

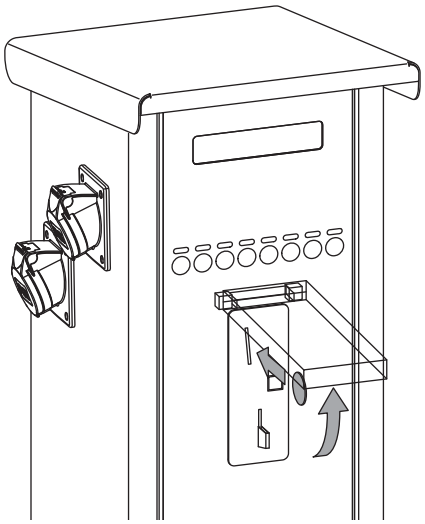


Fig. 6-8 Inserting a coin

Note!
Make sure that the used power cable is in perfect condition and of sufficient length.

6.2.1.2 Topping up your credit balance

1. Press the selection button with the corresponding socket number.
2. Open the protective flap covering the coin slot.
3. Insert a coin.

The balance will be recalculated and indicated on the display.

6.2.1.3 Checking your credit balance

1. Press the selection button with the corresponding socket number.
   - The remaining balance is indicated on the display.

6.2.2 RFID

The RFID reading device at the energy tower indicates its status by means of illuminated LEDs, their meaning is as follows:

Colour	Status	Meaning
white	illuminated	ready for operation
red	illuminated	fault
with held up RFID card:		
red	illuminated	socket already in use
red	flashing	RFID card invalid or cannot be read
green	illuminated	socket booked or released

6.2.2.1 Booking a socket

1. Select one of the available sockets.
   - Available power points have a green LED above the number.
2. Press a selection button with a green LED.

3. Hold your RFID card up against the reader.
   The price for one kWh can be gathered from the posting at the tower or inquired of the operator.
   - Your available kWh quota will be displayed.
   - The RFID reader lights up in green.
   - The socket with the matching number is released and can now be used.

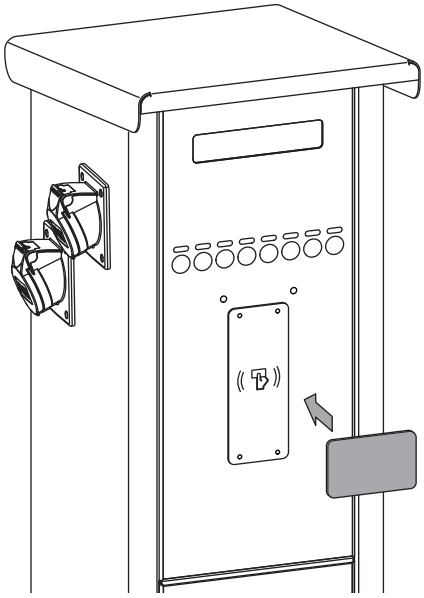


Fig. 6-9 RFID card

Note!
Make sure that the used power cable is in perfect condition and of sufficient length.

6.2.2.2 Releasing a socket

1. Select the booked socket via the selection button.
2. Hold the RFID card used for booking up against the reader.
   - The socked is released and free for booking.

Note!
If the credit on the RFID card is used up before releasing the socket, the socket is no longer available and will automatically be released for further booking.

6.2.3 Setting the coin validator

1. Open the lock (30) at the back of the master tower.

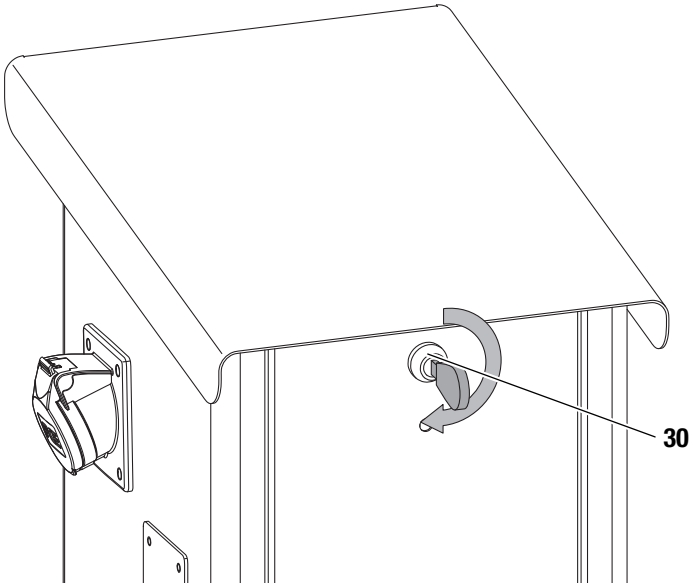


Fig. 6-10 Unlocking lid

2. Remove the cover from the tower.

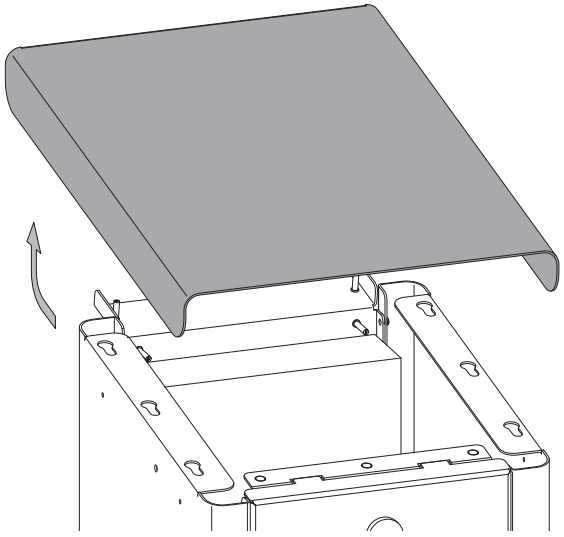


Fig. 6-11 Removing lid

3. Remove the two screws (31) on the white PVC cover (32) inside.

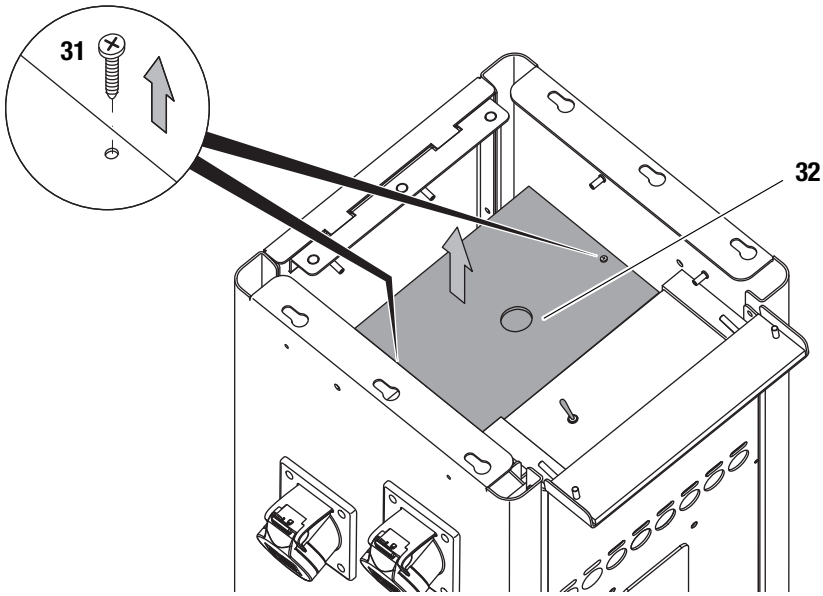


Fig. 6-12 Removing PVC cover

4. Remove the white PVC cover (32).
5. Remove the coin validator.
6. For information on how to set the coin validator please consult the coin validator's supplier instructions, see chapter 11.4.1, page 11-8.
7. Reinsert the white PVC cover (32) and re-tighten the screws (31).
8. Place the lid on the tower and lock it using the key.

6.2.4 Emptying the coin box

1. Insert the key into the lock of the coin box.

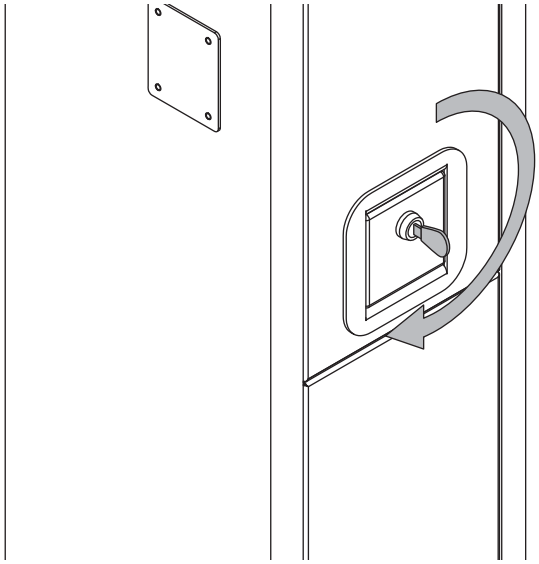


Fig. 6-13 Unlocking coin box

2. Rotate the key by 180°.

Note!
If the key can only be turned by 90°, you used the wrong key.
Do not attempt to force open the lock.

3. Remove the coin box.

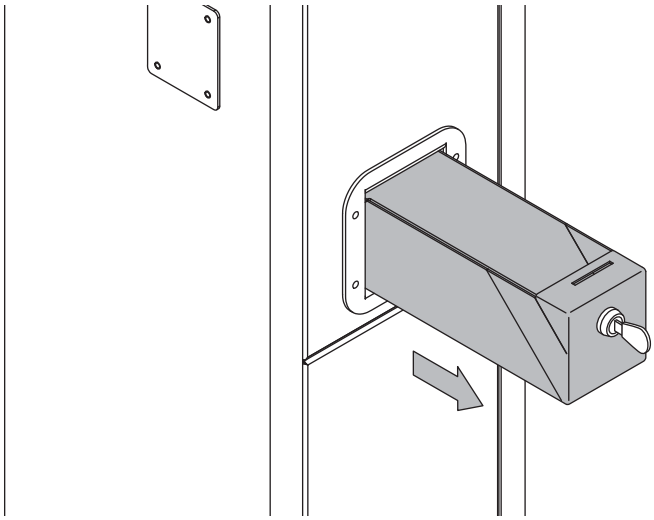


Fig. 6-14 Removing the coin box

4. Empty the contents of the coin box out into a suitable container.
5. Push the coin box back into the energy tower and lock it up.

6.3 Shutdown

1. Open the lock (30) at the back of the master tower.

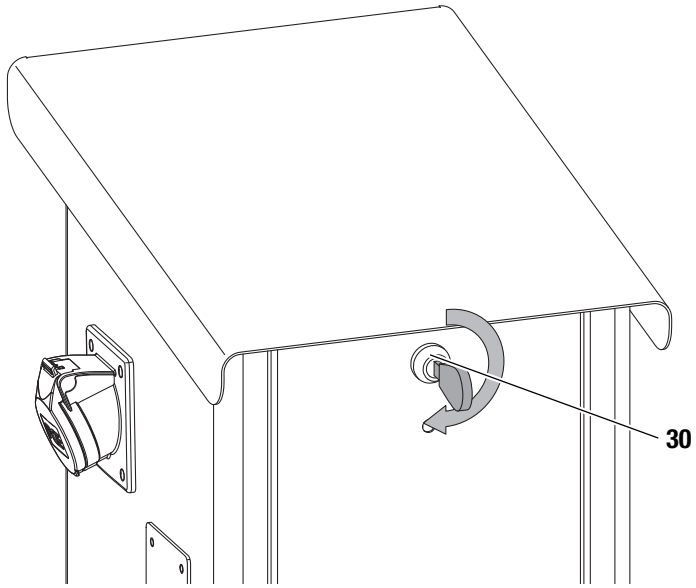


Fig. 6-15 Unlocking lid

2. Remove the cover from the tower.

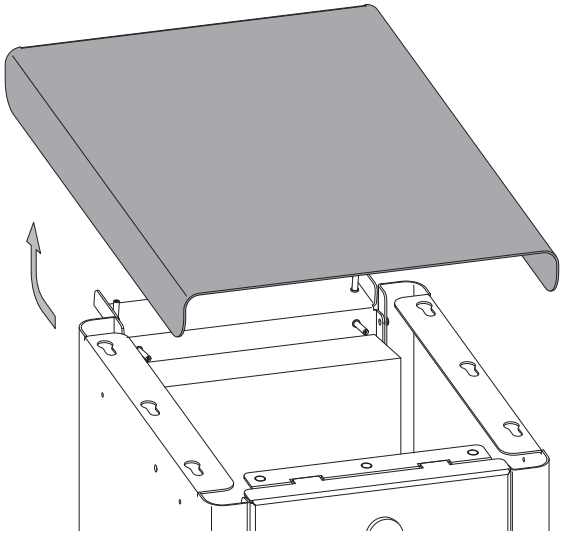


Fig. 6-16 Removing lid

3. Remove the two screws (31) on the white PVC cover (32) inside.

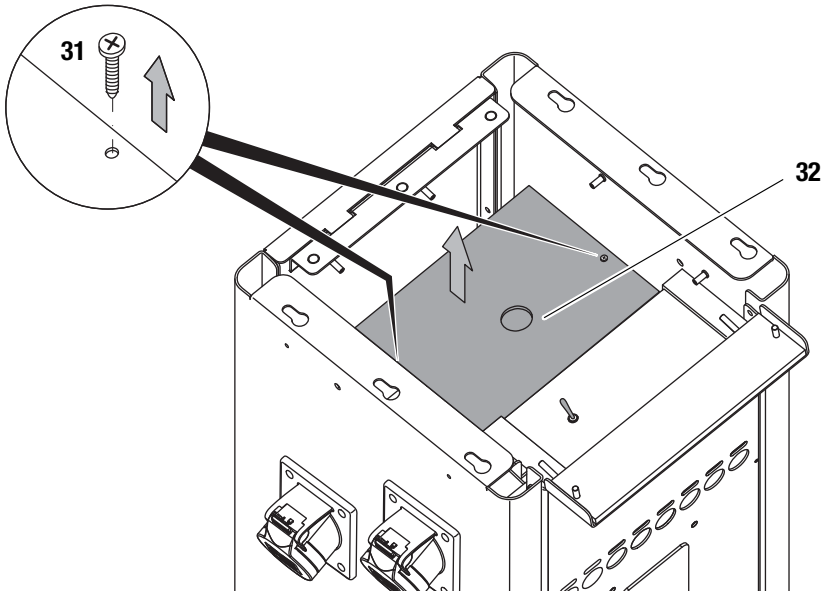


Fig. 6-17 Removing PVC cover

4. Remove the white PVC cover (32).
5. Pull the release lever (33) within the device. It is located above the coin collection box at the rear.
   - The rear cover opens.

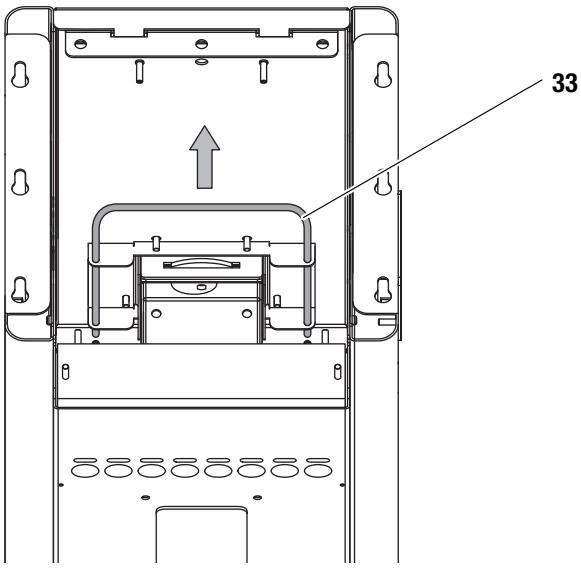


Fig. 6-18 Release lever for rear cover

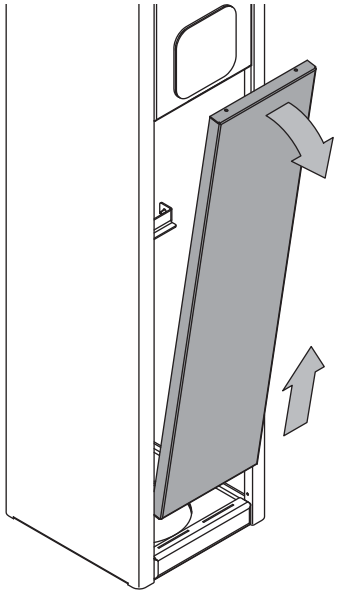


Fig. 6-19 Removing the rear cover

6. Open the Isobox control box.
7. Set the main switch to OFF.

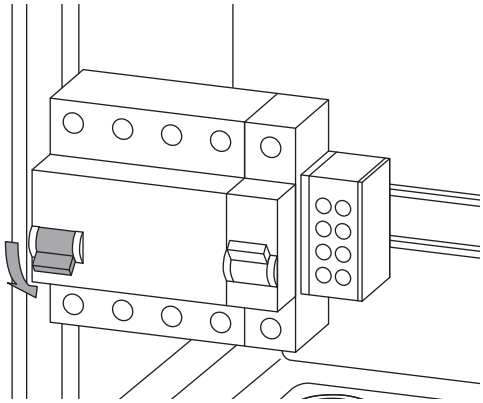


Fig. 6-20 Main switch OFF

8. Close the Isobox control box, reinsert the rear cover and lock the upper lid.
   - The energy tower is rendered inoperative.

6.4 Padlocking residual current devices

The residual current devices can be padlocked for unattended operation.

- Use a suitable, customary padlock to lock the RCDs.

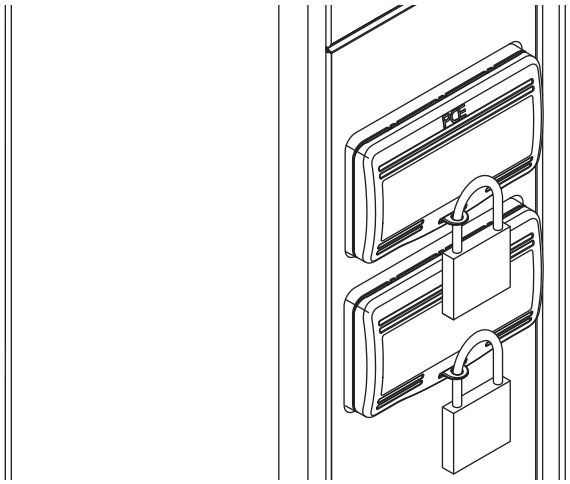


Fig. 6-21 Padlocking residual current devices

7 Programming

Programming the energy tower enables the setting of different rates (electricity rates) at different times (timer).

The programming is either preset by the specialist dealer or may be effected by the operator.

7.1 Requirements

Before you can start with the programming, the energy tower first has to be set to programming mode. To do so, please proceed as follows:

1. Open the lock at the back of the master tower.

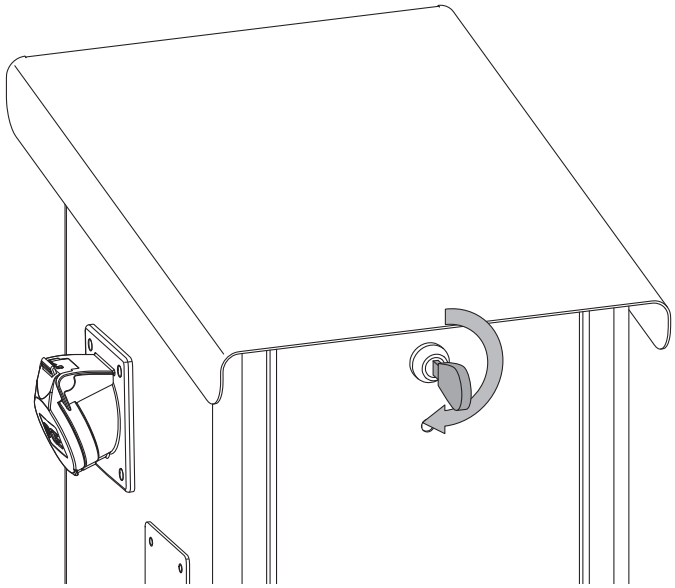


Fig. 7-1 Unlocking lid

2. Remove the cover from the tower.

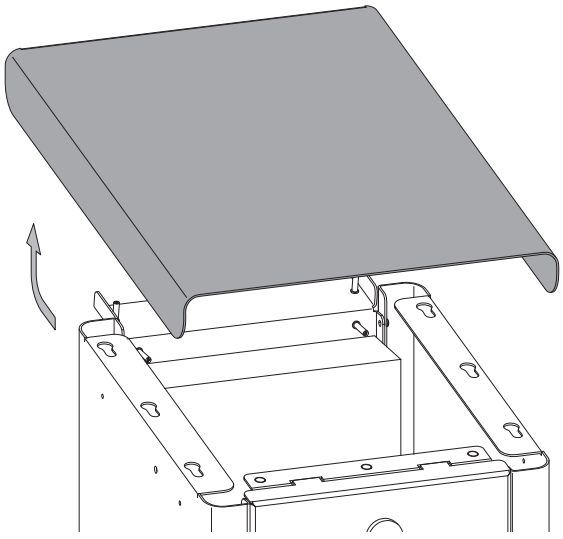


Fig. 7-2 Removing lid

3. Switch the programming switch (70) to ON.
   - For sockets, that have already been booked, the power supply and credit balance keeps running during programming mode.
   - It is not possible to book new sockets while in programming mode.
   - It is not possible to top up your credit for already booked sockets while in programming mode.

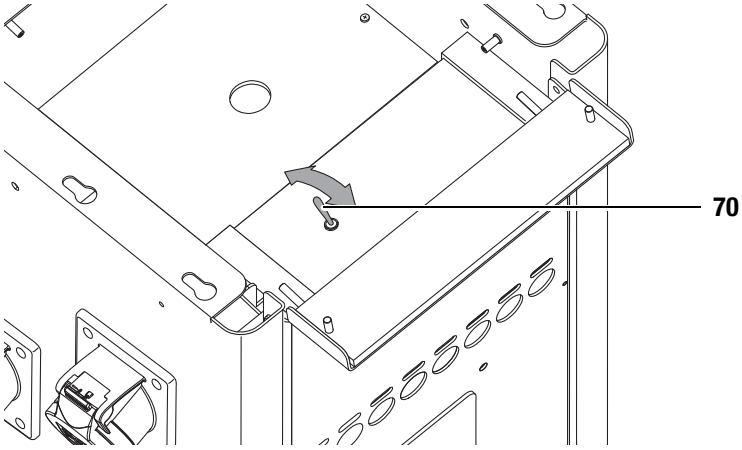


Fig. 7-3 Programming switch

4. To exit programming mode, set the programming switch back to OFF position.
5. Once the programming is completed, put the lid back on the tower and lock it using the key.

7.2 Navigation

The selection buttons at the front of the energy tower are to be used for menu navigation.
The four centre selection buttons are available. When programming mode is started, the two outer selection buttons light up in red, the inner two in green.

- Using outer two buttons you can navigate within a menu. Also the parameter values can be changed via these buttons. For the purpose of navigation these buttons are called Plus (71) and Minus (74).
- By use of the two inner buttons you can change the menu levels. For the purpose of navigation these buttons are called Next (72) and Previous (73).

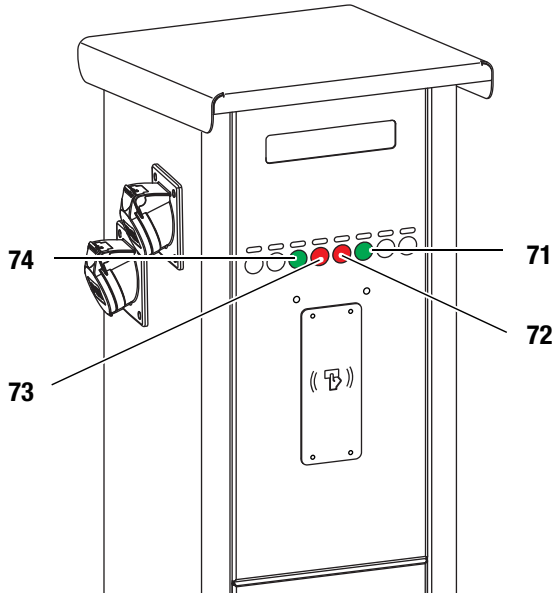


Fig. 7-4 Navigation in programming mode

No.	Designation
71	Plus key
72	Next key
73	Previous key
74	Minus key

7.3 Menu structure

The menu structure is made up of seven superordinate menus. Each menu comes with parameters that can be set. Further information on the parameters are provided in chapter 7.4.

7.3.1 Menu 1 – counters total

The parameters shaded in grey are optional. These parameters will only be active with an RFID card system.

1 – counters total				
Parameter	**P1**	**P2**	**P3**	**P4**
Name	registers sum 1	registers sum 2	cards sum 1	cards sum 2
Function Plus key	-	-	-	-
Function Minus key	delete	-	delete	-
Default value	€0.00	€0.00	€0.00	€0.00
Parameter	**P5**	**P6**	**P7**	**P8**
Name	tokens sum 1	tokens sum 2	consumption sum 1	consumption sum 2
Function Plus key	-	-	-	-
Function Minus key	delete	-	delete	-
Default value	0	0	0 Wh	0 Wh

7.3.2 Menu 2 – prices and power

2 – prices and power			
Parameter	**P1**	**P2**	**P3**
Name	standard price	kilowatt hours	max.
Function Plus key	+ €0.10	+ 0.001 Wh	+ 0.001 Wh
Function Minus key	- €0.10	- 0.001 Wh	- 0.001 Wh
Default value	€0.50	1000 Wh	5000 Wh

7.3.3 Menu 3 – clock & display

3 – clock & display					
Parameter	**P1**	**P2**	**P3**	**P4**	**P5**
Name	hours	minutes	weekday	day	month
Function Plus key	+ 1 h	+ 1 min	+ 1 weekday	+ 1 day	+ 1 month
Function Minus key	- 1 h	- 1 min	- 1 weekday	- 1 day	- 1 month
Default value	-	-	-	-	-
Parameter	**P6**	**P7**	**P8**	**P9**	
Name	year	clock display	sum display	decimal places	
Function Plus key	+ 1 year	yes	yes	+ 1 decimal place	
Function Minus key	- 1 year	no	no	- 1 decimal place	
Default value	-	no	no	2	

7.3.4 Menu 4 – operation

The parameters shaded in grey are optional. These parameters will only be active with an RFID card system.

4 – operation					
Parameter	**P1**	**P2**	**P3**	**P4**	**P5**
Name	operation	switch on everything	Unit price valid?	token value	adding token value to register
Function Plus key	yes	yes	yes	+ €0.10	yes
Function Minus key	no	no	no	- €0.10	no
Default value	yes	no	yes	€1.00	no
Parameter	**P6**	**P7**	**P8**	**P9**	**P10**
Name	token reset	debiting step	impulses per unit	basic setting	deleting card no.
Function Plus key	yes	+ €0.01	+1	yes	yes
Function Minus key	no	- €0.01	- 1	-	-
Default value	no	€1.00	1	-	-

7.3.5 Menu 5 – information

The parameters shaded in grey are optional. These parameters will only be active with an RFID card system.

5 – information				
Parameter	**P1**	**P2**	**P3**	**P4**
Name	software version	serial number	card no. 1	card no. 2
Function Plus key	-	-	-	-
Function Minus key	-	-	-	-
Default value	-	-	-	
Parameter	**P5**	**P6**	**P7**	
Name	card no. 3	card no. 4	card no. 5	
Function Plus key	-	-	-	
Function Minus key	-	-	-	
Default value	-	-	-	

7.3.6 Menu 6 – network

The parameters shaded in grey are optional. These parameters will only be active with an RFID card system.

6 – network				
Parameter	**P1**	**P2 - P5**	**P6 - P9**	**P10 - P13**
Name	register number	IP address	subnet	gateway
Function Plus key	+ 1	-	-	-
Function Minus key	- 1	-	-	-
Default value	200	-	-	-

7.3.7 Menu 7 – sockets 1 to 4/8

The parameters shaded in grey are optional. Parameter 3 will only be active with an RFID card system. The parameters 7, 9 and 11 are only available, when *Menu 4 - P3 Unit price valid?* is set to "No".

7 – sockets 1 to 4/8					
Parameter	**P1**	**P2**	**P3**	**P4**	**P5**
Name	test run	register cash	register card	register tokens	total consumption
Function Plus key	+ 0.3 kWh	-	-	-	
Function Minus key	emergency stop	delete	delete	delete	delete
Default value	-	€0.00	€0.00	0	0 Wh
Parameter	**P6**	**P7**	**P9**	**P11**	
Name	operation	standard price	kilowatt hours	max.	
Function Plus key	yes	+ €0.10	+ 0.001 Wh	+ 0.001 Wh	
Function Minus key	no	- €0.10	- 0.001 Wh	- 0.001 Wh	
Default value	yes	€0.50	1000 Wh	5000 Wh	

7.4 Parameterization

In this chapter the parameters of the menu structure are described in detail.
When a parameter is referred to, the systematics is as follows: "*menu number" - "parameter number" "parameter name"*.

7.4.1 Menu 1 – counters total

- **P1 registers sum 1**
  This parameter indicates the amount of € inserted in the coin slot since the last counter clearing.
  Pressing the Minus key sets the cash position back to €0.00.

- **P2 registers sum 2**
  This parameter indicates the amount of € inserted in the coin slot since start-up of the tower.
  This parameter cannot be reset.

- **P3 cards sum 1**
  This parameter indicates the amount of € put to use by means of RFID cards since the last counter clearing.
  Pressing the Minus key sets the counter reading back to €0.00.
  This parameter will only be active with an RFID card system.

- **P4 cards sum 2**
  This parameter indicates the amount of € put to use by means of RFID cards since start-up of the tower.
  This parameter cannot be reset.
  This parameter will only be active with an RFID card system.

- **P5 tokens sum 1**
  This parameter indicates the number of tokens inserted in the coin slot since the last counter clearing.
  Pressing the Minus key sets the counter reading back to 0.

- **P6 tokens sum 2**
  This parameter indicates the number of tokens inserted in the coin slot since start-up of the tower.
  This parameter cannot be reset.

- **P7 consumption sum 1**
  This parameter indicates the W-operating hours supplied by all sockets of the tower since the last counter clearing.
  Pressing the Minus key sets the counter reading back to 0.

- **P8 consumption sum 2**
  This parameter indicates the W-operating hours supplied by all sockets since start-up of the tower.
  This parameter cannot be reset.

7.4.2 Menu 2 – prices and power

These settings can only be viewed when *Menu 4 – P3 – unit price* is activated.

- **P1 standard price**
  The standard price is the minimum amount that has to be paid to book the selected port. For it you receive the amount of energy specified in *Parameter P2 (kilowatt hours)*. If the customer pays more than this amount, more energy will be credited to him. However, there is also a limit to the payable sum, for the maximum amount of energy set in *Parameter P3 maximum* cannot be exceeded. From that point onward the coin validator is disabled for further coin acceptance, i.e. any more inserted coins will be returned immediately.

- **P2 kilowatt hours**
  Here the amount of energy released for the sums set in *P1 (standard price)* is defined (in Wh).

- **P3 maximum**
  This parameter stipulates the maximum amount of energy that can be booked through paying.

7.4.3 Menu 3 – clock and display

- **P1 hours**
  Here the current time is set (hours).

- **P2 minutes**
  Here the current time is set (minutes).

- **P3 weekday**
  Here the current weekday is set.

- **P4 day**
  Here the current date is set.

- **P5 month**
  Here the current month is set.

- **P6 year**
  Here the current year is set.

- **P7 clock display**
  With an activated clock display the time is displayed during operation of the tower.

- **P8 sum display**
  This parameter defines whether the amount of energy paid for will be displayed in kWh as soon as the minimum value is reached. If this parameter is set to "yes", only the (remaining) sum will be displayed.

- **P9 decimal places**
  Here the number of decimal places to be displayed can be set.
  This parameter is essential for a correct representation of the consumption in combination with the number of impulses from the measuring counter.

7.4.4 Menu 4 – operation

- **P1 operation**
  By means of this parameter you set whether the entire tower is to be in operation or not. When the tower is deactivated, no sockets can be booked. In that event inserted coins will be returned immediately.

- **P2 switch on everything**
  When this parameter is active, all sockets are enabled and an unlimited amount of energy can be used without paying (construction site operation, cleaning operation).

- **P3 Unit price valid?**
  If this parameter is set to "yes", the prices and performance specifications given in menu 2 apply for all the available sockets at the tower.
  If the parameter is set to "no", individual prices and energy amounts can be set in the respective socket menus starting from menu 7...

- **P4 token value**
  This parameter defines the equivalent value of a token in euros. This value is used for calculating the booked energy amount according to the rate settings.

- **P5 adding token value to register**
  If this parameter is activated, the set token value of each inserted token is added to the register.

- **P6 token reset**
  If this parameter is set to "yes", the selected outlet will be released upon insertion of a token and the remaining amount of energy will be deleted. The so far available credit balance expires. If this option is used, tokens will generally not be accepted as paying medium any more.

- **P7 debiting step**
  This parameter will only be active with an RFID card system.

- **P8 impulses per unit**
  Depending on type and manufacturer, the integrated electricity meters can emit a different number of impulses to the interface S0. The most common values can be set in this parameter. The value may only be changed if one electricity meter was exchanged for another with a different number of pulses.

- **P9 basic setting**
  If reset is initiated, the entire tower will be set back to the factory setting.

- **P10 reset card numbers**
  If reset is initiated, the system's card number will be deleted, so that a new one can be learned, e.g. when losing a system card.
  This parameter will only be active with an RFID card system.

7.4.5 Menu 5 – information

- **P1 software version**
  This parameter indicates the installed software version.

- **P2 serial number**
  This parameter indicates the individual serial number of the tower.

- **P3 card no. 1**
  Relevant to the RFID reader version: This parameter indicates the no. of special card 1.
  This parameter will only be active with an RFID card system.

- **P4 card no. 2**
  Relevant to the RFID reader version: This parameter indicates the no. of special card 2.
  This parameter will only be active with an RFID card system.

- **P5 card no. 3**
  Relevant to the RFID reader version: This parameter indicates the no. of special card 3.
  This parameter will only be active with an RFID card system.

- **P6 card no. 4**
  Relevant to the RFID reader version: This parameter indicates the no. of special card 4.
  This parameter will only be active with an RFID card system.

- **P7 card no. 5**
  Relevant to the RFID reader version: This parameter indicates the no. of special card 5.
  This parameter will only be active with an RFID card system.

7.4.6 Menu 6 – network

This menu is only available for energy towers with network connection (online version).

- **P1 register number**
  This parameter indicates the register number.
  This parameter will only be active with an RFID card system.

- **P2 IP address**
  This parameter indicates the IP address.
  This parameter will only be active with an RFID card system.

- **P3 subnet**
  This parameter indicates the subnet.
  This parameter will only be active with an RFID card system.

- **P4 gateway**
  This parameter indicates the gateway.
  This parameter will only be active with an RFID card system.

7.4.7 Menu 7 – sockets 1 to 4/8

The following parameters refer to the sockets 1 to 4 or 8. "X" is used as wildcard in place of the socket number.

- **P1 test run**
  This parameter serves for the individual function test of socket X. By pressing the Plus key an energy amount of 0.3 kWh is credited to the account of socket X. With every subsequent actuation the account is credited with another 0.3 kWh.
  Pressing the Minus key aborts this process, the credit will be deleted and the port will be released again.

- **P2 register cash**
  Indicates the amount of euros inserted as coins for booking socket X since the least counter clearing.
  This parameter is set back to 0, when reset is initiated in *Menu 1 – registers sum 1*.

- **P3 register card**
  Indicates the amount of euros put to use for booking socket X by means of RFID cards since the least counter clearing.
  This parameter is set back to 0, when reset is initiated in *Menu 1 – registers sum 1*.

- **P4 register tokens**
  Indicates the amount of euros inserted as tokens for booking socket X since the least counter clearing.
  This parameter is set back to 0, when reset is initiated in *Menu 1 – tokens sum 1*.

- **P5 total consumption**
  Indicates the kW-operating hours supplied by socket X since the last counter clearing.
  This parameter is set back to 0, when reset is initiated in *Menu 1 – kWh sum 1*.

- **P6 operation**
  By means of this parameter you set whether the individual socket X is to be in operation or not.

- **P7 standard price**
  This menu item can only be adjusted if *Menu 4 - P3 Unit price valid?* is set to "no".
  The standard price is the minimum amount that has to be paid to book socket X. For it you receive the amount of energy specified in *Parameter P9 kilowatt hours*. If the customer pays more than this amount, more energy will be credited to him. However, there is also a limit to the payable sum, for the maximum amount of energy set in *Parameter P11 maximum* cannot be exceeded. From that point onward the coin validator is disabled for further coin acceptance.

- **P9 kilowatt hours**
  This menu item can only be adjusted if *Menu 4 - P3 Unit price valid?* is set to "no".
  Here the amount of energy released for the sums for socket X set in P6 (standard price) is defined (in kWh).

- **P11 maximum**
  This menu item can only be adjusted if *Menu 4 - P3 Unit price valid?* is set to "no".
  This parameter stipulates the maximum amount of energy that can be booked for socket X through paying.

8 Maintenance

Anyone charged with maintenance tasks must have read and understood this operating manual, especially the safety chapter.

For information on which maintenance tasks are required please see chapter 8.2, page 8-2.

If questions arise please contact your specialist dealer or Beckmann GmbH.

For work at the electrical installation consult an electrically skilled person.

8.1 Safety

Take the energy tower out of operation before starting maintenance, see chapter 6.3, page 6-11.

Danger!
Risk of death due to electrical voltage!
The energy tower must be de-energized before undertaking any work.
Shut the energy tower down, see chapter 6.3, page 6-11 and consult an electrically skilled person!

Warning!
Danger of minor injuries due to sharp edges or falling objects!
Wear your personal protective equipment.

Caution!
Property damage owing to the use of wrong cleaning agents.
Only use the cleaning agents specified in chapter 8.3.1 to clean the tower!
Never use a high-pressure cleaner to clean the tower!

8.2 Maintenance schedule

Tab. 8-1 Maintenance intervals

Component	Maintenance activity	Maintenance interval				Further information
		daily	weekly	monthly	annually	
housing	visual inspection for damage	X				
sockets	visual inspection for damage and foreign objects	X				Always de-energize the socket in case of foreign objects! For troubleshooting see table 9-1, page 9-2.
residual current device	visual inspection for damage	X				
	functional check			X		
coin validator	cleaning coin slot				X	as needed, see supplier instructions in chapter 11.4.1, page 11-8.
housing	cleaning	in case of heavy contamination, e.g. when the display is no longer legible				Do not use a high-pressure cleaner. Do not use any aggressive cleaning agents. Use cleaning agents especially suited for stainless steel.

8.3 Maintenance activities

8.3.1 Cleaning the housing

Clean the housing by means of a damp, soft, lint-free cloth. Only use clear water and, if required, a cleaning agent suitable for stainless steel.
Ensure that no moisture can enter. Do not use any solvents, alcohol-based cleaning agents or abrasive cleaners. Do not use a high-pressure cleaner.

8.3.2 Cleaning the coin validator

1. Open the lock (30) at the back of the master tower.

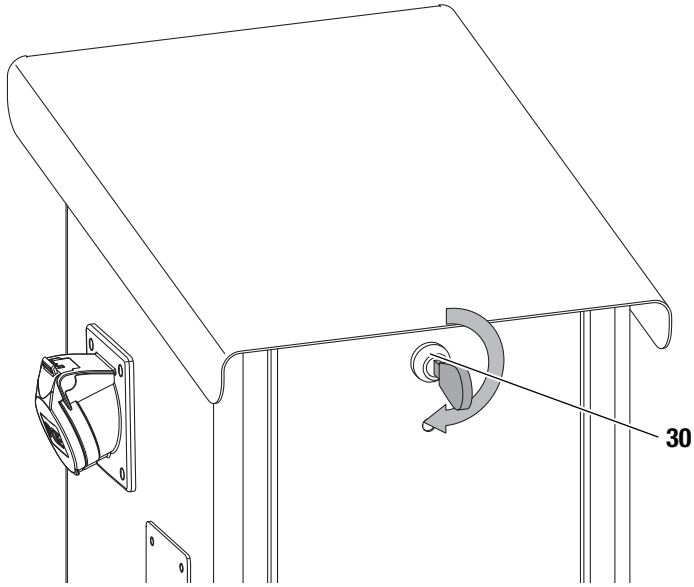


Fig. 8-1 Unlocking lid

2. Remove the cover from the tower.

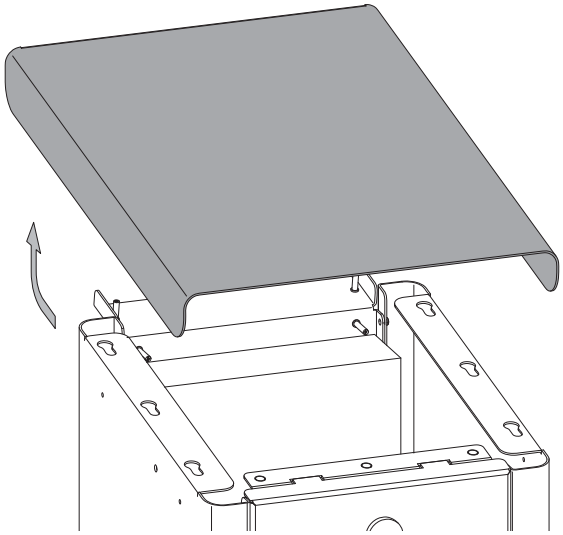


Fig. 8-2 Removing lid

3. Remove the two screws (31) on the white PVC cover (32) inside.

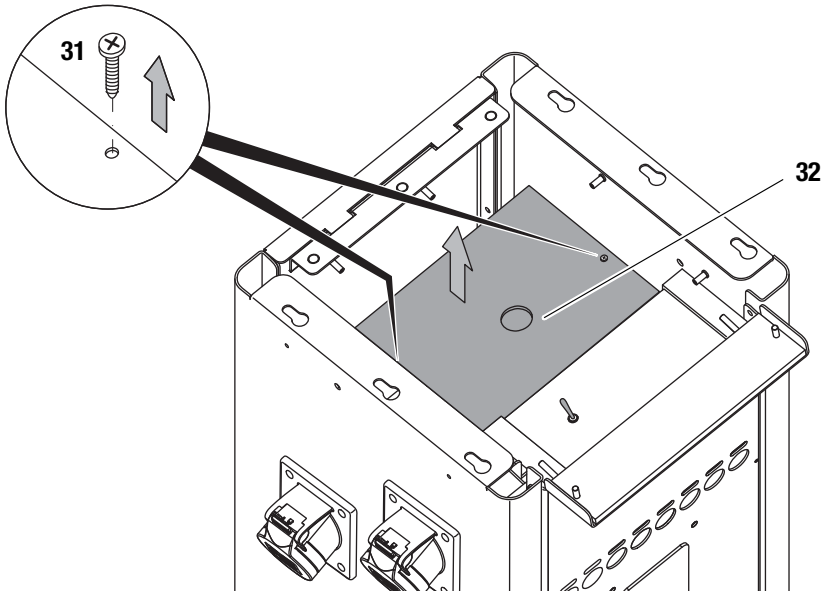


Fig. 8-3 Removing PVC cover

4. Remove the white PVC cover (32).
5. Remove and clean the coin validator. For information on how to proceed, please see the supplier instructions in chapter 11.4.1, page 11-8.
6. Reinsert the white PVC cover (32) after cleaning and re-tighten the screws (31).
7. Place the lid on the tower and lock it using the key.

9 Faults

Anyone charged with the task of troubleshooting must have read and understood this operating manual, especially the safety chapter.

Rectify faults immediately to prevent further damage.
Information on how to identify and clear the fault is provided in the fault table on chapter 9.2, page 9-2 as well as in the supplied external operating manuals.

If questions arise please contact your specialist dealer or Beckmann GmbH.

In case of faults at the electrical installation, consult an electrically skilled person.

9.1 Safety

Take the energy tower out of operation before performing troubleshooting, see chapter 6.3, page 6-11.

Danger!
Risk of death due to electrical voltage!
The energy tower must be de-energized before undertaking any work.
Shut the energy tower down, see chapter 6.3, page 6-11 and consult an electrically skilled person!

Warning!
Danger of minor injuries due to sharp edges or falling objects!
Wear your personal protective equipment.

Caution!
Property damage owing to the use of wrong cleaning agents!
Only use the cleaning agents specified in the maintenance chapter to clean the tower!
Never use a high-pressure cleaner to clean the tower!

9.2 Fault table

The following tables lists a number of faults which can occur during operation and may be rectified by yourself.
If you are not able to clear the fault, immediately notify your specialist dealer or Beckmann GmbH.

Tab. 9-1 Faults

Fault	Cause	Remedial measure
Socket supplies no power in spite of the red LED.	Residual current device of the corresponding socket is switched off.	Switch on residual current device.
	The outlet is overloaded.	The power limit is 16 A. Switch off any connected consumers. Then switch the RCD back on.
Residual current device continually tripped.	Fault in the electric circuit	If the RCD is still tripped after the third restart, contact your specialist dealer or Beckmann GmbH.
Plug connection to the socket cannot be effected.	Socket blocked by foreign object	Always de-energize the socket in case of foreign objects! If the foreign object cannot be removed, consult a qualified electrician.
No countdown for consumed power	Defective counter	Have the defective counter checked by a qualified electrician and replaced, if required.
LED is not illuminated in spite of the corresponding socket being in use or free.	Defective LED	Have the defective LED checked by a qualified electrician and replaced, if required.
Coin cannot be inserted.	Coin validator blocked by foreign object	Clean the coin validator, see chapter 8.3.2, page 8-3.
Coin is not recognized	Coin is not programmed	Check the programming of the coin validator, see supplier instructions in chapter 11.4.1, page 11-8.
	Dirty coin validator	Clean the coin validator, see chapter 8.3.2, page 8-3.
	Defective coin validator	If after cleaning the coin validator still does not function, have it checked by a qualified electrician and replaced, if required.

10 Disposal

Disassemble the energy tower for disposal and separate it into the individual material groups:

- plastics
- non-ferrous metals (e. g. copper scrap)
- aluminium
- electronic scrap
- steel

Dispose of the materials according to the national regulations.

11 Annex

11.1 Declaration of Conformity

in accordance with the EC Low Voltage Directive 2006/95/EC, Annex III, Section B

Herewith we declare that the following energy tower has been declared in conformity with the EC Low Voltage Directive 2006/95/EC.

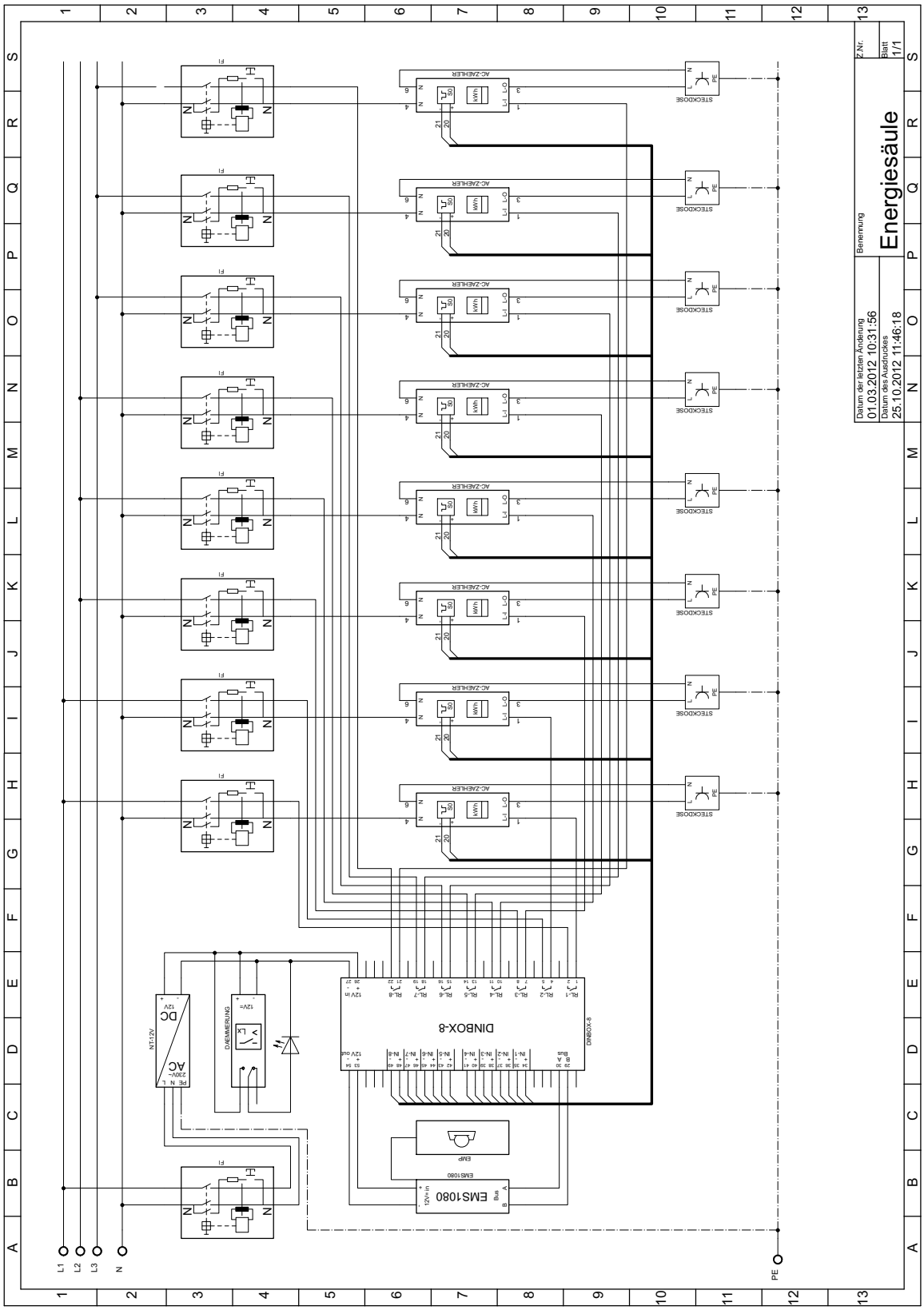
Description of the electrical equipment:	Energy tower EMS-ENERGY
Year of manufacture:	as of 2014
Relevant EC directives:	Low Voltage Directive 2006/95/EC as of 12 December 2006
	Directive 2004/108/EC on electromagnetic compatibility as of 15 December 2004
Applied harmonised standards:	
Other applied technical standards and specifications:	Safety standards: DIN EN 61010-1:2011-07 EMC standards: DIN EN 61326-1:2013-06
Manufacturer:	Beckmann GmbH Brandtstr. 1 33161 Hövelhof Germany

Place, date: Hövelhof, 01 September 2014

Signature: _____

Identification of signer: Jürgen Beckmann, Managing Director

11.2 Circuit diagram



11.3 Acceptance protocol template

BECKMANN MANAGEMENTSYSTEME

Protokoll Nr.:

Prüfprotokoll

Stammdaten

Kunden Nr.:	**Auftrags Nr.:**
Kunde:	Auftragnehmer:
Beauftragter:	*Prüfer:*

Anlage

Anlage:	Netz: V/ Hz
Zählernummer:	Netzform: ☐TN-C ☐ TN-S ☐ TN-C-S ☐TT ☐ IT
Zählerstand (kWh):	VNB/EVU:

Prüfung

Beginn der Prüfung:	17.07.2014	Ende der Prüfung:	17.07.2014
Grund der Prüfung:			
Durchgeführt nach:			
Verwendete Messgeräte:			

Besichtigung

Ok	n.OK		Ok	n.OK	
☒	☐	Schutz gegen direktes Berühren	☒	☐	Schutz und Überwachungseinheiten
☒	☐	Brandschottung	☒	☐	Querschnitt der Schutz- / Erdungs- / PA-Leiter
☒	☐	Leiter (Strombelastbarkeit / Spannungsfall)	☒	☐	Sicherheitseinrichtungen
☒	☐	Zugänglichkeit	☒	☐	Trenn- und Schalteinrichtungen
☒	☐	Zusätzlicher (örtlicher) Potentialausgleich	☒	☐	Vollständige Dokumentation
☒	☐	Wärmeerzeugende Betriebsmittel	☒	☐	Schutzisolierung
☒	☐	Betriebsmittel	☒	☐	Schutztrennung
☒	☐	Auswahl Betriebsmittel (äußere Einflüsse)	☒	☐	Kleinspannung mit sicherer Trennung
☒	☐	Kennzeichnung Stromkreise	☒	☐	Gebäudesystemtechnik - Anordnung Buskomponente
☒	☐	Kennzeichnung Sicherungen	☒	☐	Gebäudesystemtechnik - Leitungsverlegung
☒	☐	Kennzeichnung Schalter	☒	☐	Gebäudesystemtechnik - Leitungslängen
☒	☐	Kennzeichnung Klemmen / Leiterverbindungen	☒	☐	Gebäudesystemtechnik - Zielbezeichnung
☒	☐	Kennzeichnung N- und PE-Leiter			

Erprobung

Ok	n.OK		Ok	n.OK	
☒	☐	Funktionsprüfung der elektrischen Anlage	☒	☐	Drehrichtung der Motoren
☒	☐	Rechtsdrehfeld der Steckdosen	☒	☐	Funktionsprüfung der Gebäudesystemtechnik
☒	☐	Spannungsfestigkeit	☒	☐	Funktion RCD Schutzschalter
☒	☐	Spannungspolarität	☒	☐	Zähleranlauf

Protokollierung

Ja	Nein	
☒	☐	Schaltungsunterlagen übergeben
☒	☐	EIB-Lastenheft und Dokumentation übergeben
☒	☐	Prüfergebnis mängelfrei
☒	☐	Prüfplakette im Stromkreisverteiler eingeklebt
☒	☐	Anlage entspricht den anerkannten Regeln der Elektrotechnik

Nächste Prüfung	17.07.2015
Prüfzyklus (Monate):	12
Bemerkung:	

☐ Anlage ist bis zum folgenden Termin instandzusetzen

Unterschrift

Beauftragter:			**Prüfer:**		
	17.07.2014			17.07.2014 ☒	
Ort	*Datum*	*Unterschrift*	*Ort*	*Datum*	*Unterschrift*

Protokoll Nr.: 1 / 2

Messwerte																
Nr.	Stromkreis	Leitungsart	Leiteranzahl	Leiterquerschnitt	Charakteristik	Nennstrom	Zs/Ik	Zl/Ik	RISO	RCD In	RCD Idn	IF ID	IDN ta	IF UB	RLO	Bestanden
1	#EMS ENERGY	H07V-K	3	2.5	B/L	16A										
2	Steckdose 1	H07V-K	3	2.5	B/L	16A										
3	Steckdose 2	H07V-K	3	2.5	B/L	16A										
4	Steckdose 3	H07V-K	3	2.5	B/L	16A										
5	Steckdose 4	H07V-K	3	2.5	B/L	16A										
6	Steckdose 5	H07V-K	3	2.5	B/L	16A										
7	Steckdose 6	H07V-K	3	2.5	B/L	16A										
8	Steckdose 7	H07V-K	3	2.5	B/L	16A										
9	Steckdose 8	H07V-K	3	2.5	B/L	16A										

Erdungswiderstand (Re):

11.4 Supplier documentation

11.4.1 EMP coin validator

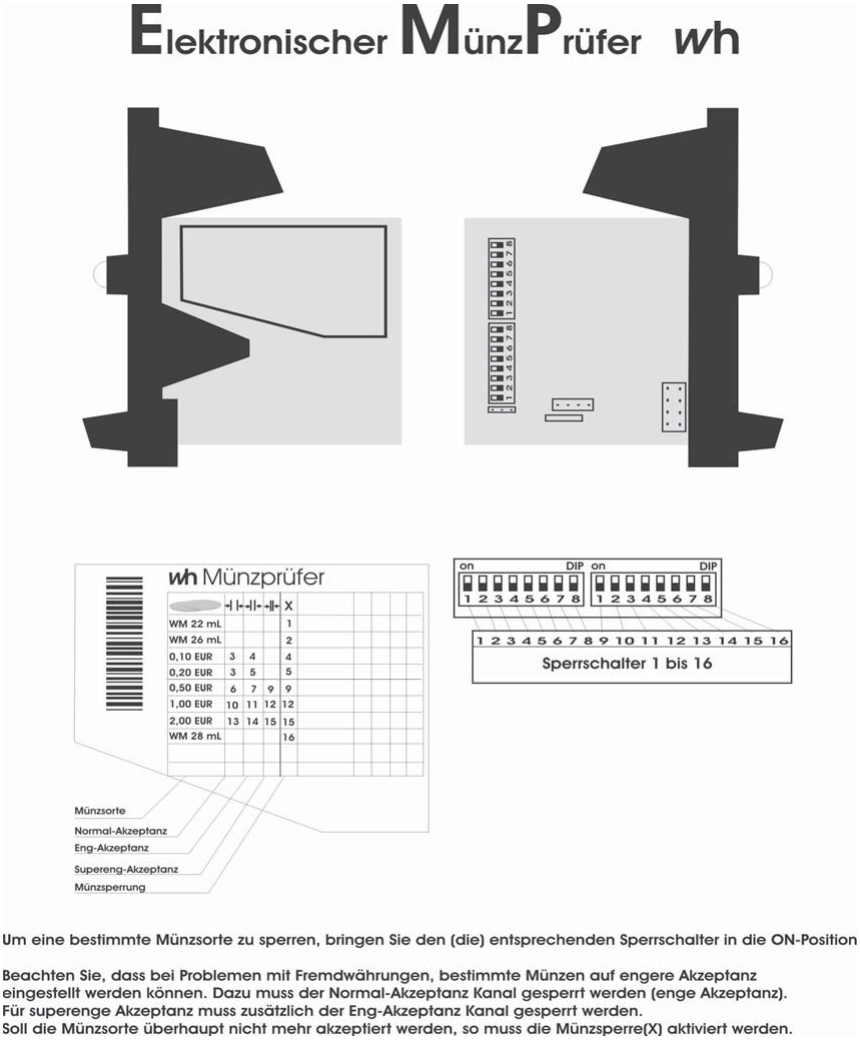
11.4.1.1 Coin validator settings

- **P9 Aus mit WM**

  Ist dieser Parameter aktiviert, wird bei Einwurf einer Wertmarke der gewählte Ausgang freigegeben und die Restenergiemenge wird gelöscht. Wenn diese Option genutzt wird, können Wertmarken grundsätzlich nicht mehr zum Bezahlen genutzt werden.

7 Der elektronische Münzprüfer

Abbildung 2 :Der elektronische Münzprüfer (WH)



Um eine bestimmte Münzsorte zu sperren, bringen Sie den (die) entsprechenden Sperrschalter in die ON-Position

Beachten Sie, dass bei Problemen mit Fremdwährungen, bestimmte Münzen auf engere Akzeptanz eingestellt werden können. Dazu muss der Normal-Akzeptanz Kanal gesperrt werden (enge Akzeptanz). Für superenge Akzeptanz muss zusätzlich der Eng-Akzeptanz Kanal gesperrt werden. Soll die Münzsorte überhaupt nicht mehr akzeptiert werden, so muss die Münzsperre(X) aktiviert werden.

7.1 Programmieren der Münzkanäle des EMP

Die elektronischen Münzprüfer (EMP) von wh sind werksseitig auf die in der Tabelle 9 angegebenen Münzen in unterschiedlichen Toleranzen programmiert. Jede dieser Münzen kann durch Setzen eines Sperrschalters separat verriegelt werden.

Die nachfolgende Tabelle zeigt die Belegung der Kanäle der EURO EMP - Version.

Münzart EURO	Bezeichnung (normal)	Bezeichnung (eng)	Bezeichnung (extra eng)	Sperrschalter
WM 22mm mit Loch	1	-	-	1 links
WM 26mm mit Loch	2	-	-	2 links
10 Cent normal	3	4	-	4 links
20 Cent normal	3	5	-	5 links
50 Cent normal	6	7	9	1 rechts
1 EURO	10	11	12	4 rechts
2 EURO	13	14	15	7 rechts
WM 28mm mit Loch	16			8 rechts

Tabelle 1 :Belegung der Münzkanäle

Bei der Einstellung des EMP ist folgendes zu beachten:

- Sperrschalter auf ON (nach oben) sperrt den entsprechenden Kanal, Sperrschalter auf OFF (nach unten) gibt den entsprechenden Kanal frei.
- Die Münzen können teilweise in verschiedenen Stufen freigeschaltet werden, wobei bedeuten:
  - **normal:** Der EMP prüft die Münzen in normalen Toleranzbereichen. Diese Einstellung ist werksseitig eingestellt.
  - **Eng:** Die Toleranzbereiche werden eingeengt. Dadurch können Falschmünzen besser aussortiert werden. Die Akzeptanz für die eingestellte Münzart geht leicht zurück. Um eine Münze “eng” zu prüfen, muß der Sperrschalter “normal” für diese Münzart auf ON stehen.
  - **Supereng:** Weiter verbessertes Erkennen von Falschmünzen. Die Akzeptanz für die engestellte Münzart geht weiter zurück. Die Sperrschalter “normal” und “eng” müssen auf ON stehen.
- Nach Umstellen eines Schalters muss die Energiesäule aus- und wieder eingeschaltet werden, um die neuen Einstellungen zu aktivieren.

Es ist darauf zu achten, dass der freie Fall der Münzen aus dem EMP nicht behindert wird (z.B. durch eine zu volle Münzbox), da sonst eine einwandfreie Münzerkennung nicht gewährleistet ist, und durchfallende Münzen nicht gewertet werden können.

11.4.1.2 EMP coin validator, label, maintenance, troubleshooting

5. Münzprüfer-Label

Auf dem Label des Münzprüfers sind alle notwendigen Angaben zu den Münzen, den Ausgängen und den Sperrschaltern enthalten. Im einzelnen sind folgende Informationen dem Label zu entnehmen:

Abb. 17 Beispiel eines EMP 800 v7 Labels

Oben in der Mitte steht die vollständige Typenbezeichnung des Münzprüfers:

EMP 800.00 v7

Am Ende der gleichen Zeile sind alle Optionen durch einen „/"-Strich getrennt aufgeführt, im Beispiellabel:

/E erweiterter Temperatur- und Feuchtigkeitsbereich

Links neben dem Barcode (90° gedreht), ist die Seriennummer, die Herstellungswoche und das Herstellungsjahr zu finden. Die gleichen Angaben enthält auch der Barcode. Ganz links außen ist die Nummer der Liefervorschrift, mit der das Gerät im Werk programmiert wurde, aufgedruckt.

Alle weiteren Angaben beziehen sich auf die programmierten Münzen, welche in Form einer Tabelle dargestellt sind. Die einzelnen Spalten haben folgende Bedeutung:

- Münzsorte (Wert und Währung)
  Teachmode Kanäle werden mit TKn gekennzeichnet. Das „n" steht für die Nummer des Sperrschalters, mit dem der Teachmode für diesen Kanal aktiviert wird.
- Sperrschalter für den weiten Kanal
- Sperrschalter für den mittleren Kanal
- Sperrschalter für den engen Kanal
- ✕ Sperrschalter für eine Münze oder Münzgruppe (ggf. eine Währung)
- Ausgangsleitung

Für den EMP 8x0.00 v7 werden die Ausgangsleitungen (1 bis 6) direkt angegeben. Beim EMP 8x0.04 v7 mit binär codierten Ausgängen, erfolgt die Angabe in hexadezimaler Form (Zum Beispiel ist bei 2,- € der Eintrag „0E" zu finden. Dieser entspricht dem Binärcode 001110, also werden bei 2,- € die Ausgangsleitungen 2, 3 und 4 aktiviert).

6. Wartung

6.1. Reinigung

Der EMP 800 v7 ist ein sehr robuster Münzprüfer und arbeitet im Wesentlichen wartungsfrei. Bei starker Beanspruchung oder bei Betrieb an Orten mit hoher Luftverunreinigung, wie z.B. durch Staub, Reinigungsmitteln, Chemikalien, Nikotin etc. sollte der Münzprüfer in regelmäßigen Abständen gereinigt werden. Die erforderlichen Intervalle hängen sehr stark von den jeweiligen Einsatzbedingungen ab.

Bei einer mittleren Umweltbelastung und mechanischen Beanspruchung genügt es, den Münzprüfer einmal pro Jahr bei geöffneter Klappe innen mit einem weichen, mit einer alkoholischen Flüssigkeit getränkten Lappen auszuwischen. Es kann auch lauwarmes Wasser mit etwas Spülmittel verwendet werden. Es ist unbedingt darauf zu achten, dass bei der Reinigung kein Schmutz in die Bohrungen des optischen Messsystems eingetragen wird. Die Lichtschranken am Münzaustritt sollten mit einem weichen Pinsel gereinigt oder mit Druckluft ausgeblasen werden.

Stellen Sie sicher, dass der Münzprüfer während der Reinigung stromlos ist.

Achten Sie darauf, dass das Tuch feucht, nicht nass ist. Es darf keinesfalls Flüssigkeit in das Gerät laufen.

Vermeiden Sie Lösungs- oder Scheuermittel die den Kunststoff angreifen können.

Verwenden Sie niemals einem öligen Lappen! Ölen Sie niemals den Weichenmagneten, Scharniere etc.!

6.2. Beseitigung von Störungen

Nicht jede Funktionsstörung muss ihre Ursache in einem Defekt des Münzprüfers haben. Die Ursachen liegen oftmals auch in beschädigten oder losen Anschlussleitungen, falschen Einstellungen oder einer zu schwachen Stromversorgung.

Die nachfolgende Tabelle gibt Ihnen einen Überblick über die häufigsten Fehlerursachen. Prüfen Sie daher bitte zuerst an Hand der nachfolgenden Tabelle, ob Sie die Störung nicht ganz einfach selbst beseitigen können.

Fehler-bild	mögliche Ursachen	Fehlerbeseitigung
Münz-prüfer nimmt Münze nicht an	keine Versorgungs-spannung	• Automat mit Spannung versorgen, prüfen ob das Netzteil auch wirklich Spannung liefert • Zustand des Kabels kontrollieren, Kabel richtig am Münzprüfer und Automaten anschließen
	Versorgungsspan-nung zu schwach	• Wenn das Netzteil unterdimensioniert ist, kann es zum Zusammenbrechen der Stromversorgung kommen, wenn der Weichenmagnet anzieht und damit der kurzzeitige Stromverbrauch des Münzprüfers stark ansteigt. Stellen Sie sicher, dass bei einer Last von 400 mA die Versorgungsspannung nicht unter 8 Volt zusammenbricht!
	Münze gesperrt	• Prüfen ob die Münzen nicht über die Sperrschalter gesperrt sind • Sicherstellen, dass der Münzprüfer nicht über das Signal „Generalsperre" (Pin 6) durch den Automaten gesperrt ist. • Sicherstellen, dass Pin 5 (Rückgabesignal) nicht durch den Automaten auf Masse gezogen wird.
	Münzprüfer verschmutzt	• Münzprüfer reinigen
	Rückgabehebel bzw. Rückgabetaste klemmt	• Sicherstellen, dass der Rückgabehebel bzw. die Rückgabetaste nicht dauerhaft betätigt ist. Die Rückgabebetätigung wird mit einem Mikroschalter detektiert (Ausnahme Option/P) und dem Münzprüfer gemeldet. Dieser nimmt so lange keine Münzen an, wie das Rückgabesignal anliegt. Der Mikroschalter wird bereits betätigt, bevor sich die Klappe beginnt zu öffnen!
	Lichtschranke im Münzaustritt verschmutzt oder durch einen Gegenstand blockiert	• Lichtschranke reinigen • Fremdkörper im Münzaustritt entfernen

Münz-prüfer nimmt Münze an, gibt aber kein Kassier-signal aus	Münzaustritt wird behindert, so dass sich die Münze zu lange in der Licht-schranke befindet oder nach dem Austritt aus der Lichtschranke wieder in ihren Bereich zurückspringt	• Sicherstellen, dass der Münzaustritt nicht durch Fremdkörper oder nach geschaltete Konstruktionselemente behindert wird