

**EFFEKTA®**

**UPS  
Uninterruptable Power Supply  
Compact RM 750 / 2200 / 3000**

**Operating Manual V 1.1**



Part numbers:  
ACX11COM75000000  
ACX11COM2K200000  
ACX11COM3K000000

Translation of the original operating manual

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We reserve the right to make changes to the design and the system that will improve the system, the production process, or the product.

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# 1. Introduction

## 1.1 Preface

Dear Operator,

This manual is required for the operation of the uninterruptible power supply described herein.

This operating manual should provide you with support for working responsibly and give basic information about the uninterruptible power supply, namely on how it works, its application and, in addition, what you should do in the event of malfunctioning. Furthermore, this operating manual contains instructions for the transport and storage as well as for the handling and installation of the uninterruptible power supply.

The planning guidelines in this operating manual only relate to special requirements and characteristics of the uninterruptible power supply. All national and local provisions and regulations for electrical installations have to be adhered to in the installation process. The same applies to the operation of the device.

The content of this operating manual may change due to technological progress. We have done our best to present the content correctly and clearly. If, however, we have made errors, we would be grateful if you would let us know.

We do not assume any liability for errors in this operating manual or any consequences resulting thereof.

The uninterruptible power supply is intended to protect sensitive electronic systems and equipment from interferences that could occur due to bad electric quality or network failures.

Please read this operating manual carefully and take particular note of the safety instructions!

If you have questions about the device, the technical supervisor at your company or our employees will gladly assist you.

Your  
EFFEKTA Regeltechnik GmbH

## 1.2 Validity

The descriptions in this operating manual relate solely to the uninterruptible power supply (UPS) defined in the technical data as a whole or as it refers to modules, components and individual parts that were developed and built by **EFFEKTA Regeltechnik GmbH**.



Read this documentation carefully and familiarize yourself with the product before you start operating it.

## 1.3 Storage

The operating manual for the device must be stored in the vicinity of the device at all times so it is immediately available if need be.

Pass this manual on to any subsequent users of the product.

## 1.4 Abbreviations, Terms and Symbols

In this manual, the abbreviation **UPS** stands for: uninterruptible power supply.

Typically, **accumulators** are used as energy storage of the UPS-equipment. Colloquially these are referred to as batteries or rechargeable batteries. A **battery bank** is then the term for the centralization of several accumulators into a group that forms the energy storage.

Danger, Warning, and Attention references are explicitly marked by the respective symbols (pictograms) and must be adhered to without fail. See the following list and explanations:

### Danger / Warning Levels / Notes:

**DANGER!**

Text that is marked with DANGER! provides a warning about dangers. If accident prevention measures are not taken, these dangers result in serious (irreversible) injuries or even death!

# WARNING!

Text that is marked with WARNING! provides a warning about hazards. If accident prevention measures are not taken, these hazards **may result** in serious (irreversible) injuries or even death!

# CAUTION!

Text that is marked with CAUTION! provides a warning about hazards. If accident prevention measures are not taken, these dangerous situations can lead to slight or medium reversible injuries.

# ATTENTION!

Text that is marked with ATTENTION! contains very important instructions for situations that, if accident prevention measures are not taken, may result in damage to the product and / or its functions or an object in its vicinity.



This symbol indicates text that contains notices or instructions / comments or tips.

### **Warning about danger spots:**



General warning about danger spots!

### *Specific warnings:*



Warning about dangerous electrical voltage!



Warning about proper handling of accumulators!

*Instruction Symbols:*



Take note of the provided documentation and/or instructions!



Disconnect before working!

*Environmental Symbols:*



Identifies instructions for recycling.



Identifies components that are subject to the Electronic Scrap Regulation.



Identifies components or parts that must be disposed of properly. Do not throw these into the household waste.



### ***Text Symbols:***

- This dot marks descriptions of activities that you should carry out.
- ✓ Requirement that must be fulfilled, for example:
  - ✓ The DC circuit breaker is "OFF".
- This dash marks specification lists.
- ⇒ This arrow marks a cross reference.  
If a cross reference to another chapter is necessary in the text, this is shortened for clarity.  
Example:           ⇒ OM, 2 Safety Instructions  
This means:        see Operating Manual,  
                          Chapter 2 Safety Instructions.  
If the cross reference refers to a page, figure or position number, this information is added at the end of the cross reference.  
Example:           ⇒ Fig. 4-4, Pos. 1  
This means:        see (in this manual in Chapter 4) in  
                          Figure 4, the position number 1.
- (3) Numbers in brackets refer to the positions in the figures.
- \*\* Annotations within the text are marked with \*\* and explained accordingly.

## **1.5 Information obligation**

This operating manual must be read and understood by all persons and qualified personnel working with this device (this equipment).

This applies, in particular, to maintenance, operating and cleaning personnel including persons responsible for transportation and/or disposal.

EFFEKTA Regeltechnik GmbH is not liable for damage incurred or caused by staff who have not been trained or who have been insufficiently trained!

## 1.6 Warranty conditions

The receipt of delivery is considered as the record for the initial purchase and should be kept in a safe place. It will be necessary for making use of the warranty. If the product is passed on to another user, this user has the right to the warranty for the remainder of the warranty period. The purchase receipt as well as this declaration should also be given to the new owner if the device is passed on.

We guarantee that this device, upon delivery, is in a functional state and technically conforms to the descriptions in the enclosed documentation.

The warranty period for UPS devices corresponds to the minimum periods stipulated by law.

The warranty ceases to apply in the following cases:

- if the defect is caused by: freight damage, accident, natural disasters, misuse, vandalism;
- in case of improper use, defective maintenance or incorrect repair by third parties;
- in the event of changes, unauthorized intervention, improper operation, false installation or other modifications not approved by us;
- in the case of improper use such as the connection of the device to unsuitable energy sources or unsuitable loads, or in general use in an unsuitable environment, etc.;
- in the event of failure to follow instructions in the provided documentation;
- for any defects caused by a lack of due care, e.g. splash water, etc.;
- in the event that the product is incompatible due to possible technical innovations or regulations (policies) that occur after the purchase;
- in the case of malfunctions or damage caused by the connection to incompatible devices or accessories;
- in the event of developments that are related to the normal ageing process of the product (wear parts); - e.g. shortened battery life at elevated (above 25°C) ambient temperature.
- in the event of defects that were caused by external fixtures, e.g. electrical outlets;
- in the event of failure to provide due maintenance and care for the product;
- The warranty period for replaced and/or repaired parts as part of this warranty expires together with the original warranty for the product.

Devices that are supplied without accessories are replaced without accessories. The return of the device is only accepted if it is sent in the original packaging.

Incurred transport costs are generally not included in the warranty.

In general, you shall bear the cost of repair and exchange of the device.

We are not liable for damage or consequential damage, whether directly, unintentionally or caused by negligence.

**EFFEKTA Regeltechnik GmbH** does not provide either explicit or implicit warranties related to this device and its quality, performance, saleability, or suitability for a certain purpose. In some countries, the exclusion of implicit warranties is not permitted by law. In this case, the validity of all explicit and implicit warranties is limited to the warranty period. With the expiration of these periods, all warranties lose their validity. In some countries, a limitation of the validity period of implicit warranties is not permitted by law so that the aforementioned limitation does not take effect.

## 1.7 Limitation of Liability

Claims to damage compensation are excluded unless they involve intent or gross negligence by EFFEKTA Regeltechnik GmbH or its employees. This does not affect liability according to the Product Liability Act. Under no circumstances are we liable for:

- Claims that third parties make against you due to losses or damage.
- Loss or damage of your records or data or the costs of recovering this data.
- Subsequent economic damage (including lost profits or savings) or concomitant damage, even in the event that we were informed of the possibility of such damage.

Under no circumstances is EFFEKTA Regeltechnik GmbH responsible for any accidental, indirect, specific, consequential or other damage of any kind (including, without any limitation, damage related to a loss of profits, interruption of business, loss of business information, or any other losses) that result from the use of the device or are connected with the device whether they are based on the contract, damage compensation, negligence, strict liability or other claims, even if EFFEKTA Regeltechnik GmbH was informed about the possibility of such damage in advance. This exemption also includes any liability that can result from the claims of third parties against the initial purchaser.

In some countries, the exemption or the limitation of concomitant consequential damage is not permitted by law so that the aforementioned declaration does not enter into force.

## 2. Safety Instructions

### 2.1 Introduction



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The UPS is a device that has been produced according to the rules and regulations of technology for an uninterruptible power supply.

---

The device is safe when used properly and under consideration of the safety requirements and instructions provided in this operating manual.

### 2.2 Proper Use



The UPS and its related components may only be used for purposes in accordance with its design – to provide a primary energy source for electrical devices and a short-term supply from a secondary energy source for electrical devices which does not exceed the nominal power in its entirety. Any other use is considered **improper** and can lead to injury of person or property and/or damage to the device!

## WARNING!

The device is not designed for use in:

- explosive;
- dusty or humid;
- radioactive or;
- biologically or chemically contaminated atmospheres;

For information about the respective IP protection class of the device please contact our service centre.

## WARNING!

The device class with regard to "electromagnetic compatibility" (EMC) must also be observed.



This is a Class C2 UPS device intended for commercial and light industrial applications. In residential areas, this product may cause radio interference and it may be necessary to ask the user to switch off the UPS until the radio interference problem has been corrected. This may require the involvement of qualified personnel or an organization trained in EMC issues.

## 2.3 Prevention of personal injury / property damage

- Please read this operating manual carefully to familiarize yourself with the device. Under no circumstances should you ignore the safety information.
- Pay particular attention during the installation and initial operation of the device.
- Operate this product only in the proper and appropriate manner and always within the mandated performance parameters (⇒ 12 Technical Data).
- Only perform maintenance and service work that is described in the documentation. Observe the required steps. Only use original replacement parts from EFFEKTA Regeltechnik GmbH

## 2.4 Environmental protection

Send the product back to **EFFEKTA Regeltechnik GmbH** after the end of its service life. We will ensure its environmentally friendly disposal.

## 2.5 Transport and Storage



The UPS may only be transported to the intended location in the original packaging. The same applies to moves or returns.

The packaging has a very good device-specific protective function. However, all devices damaged during transport must be checked by EFFEKTA Regeltechnik GmbH before the initial operation. The same applies in general for any damages to the device.

Should the device be in storage for more than 4 months, the battery bank of the UPS device must be charged urgently, see 4.1 Storage of the UPS.



# WARNING!

Due to the possibility of existing energy storage (accumulators) within a UPS, devices must generally be inspected by EFFEKTA Regeltechnik GmbH or a qualified service centre after transportation damages. In the case of transportation damages, there is a high risk that the energy storage units and/or their electrical connections have been affected. As a result, short circuits and/or the leaking of electrolytes cannot be ruled out. For this reason, the unit must be isolated until an inspection has been performed.

In addition, the device should not be transported or stored upside-down.



## 2.6 Positioning

Only operate the UPS in well-ventilated rooms, ensuring the specified ambient temperature range.

The UPS should not be placed in the vicinity of heat sources.

Always take the operating conditions into account when positioning the device.

Maintain the minimum distance to adjacent equipment and walls necessary for ventilation purposes, see ⇨ 12 **Fehler! Verweisquelle konnte nicht gefunden werden.** and ⇨ 5 Installation and Connection of the UPS).

Never place or operate the device in a moist environment. Liquids must, as a rule, be kept away from the device.



Due to major temperature differences, condensation or dew effects may occur after the positioning of the UPS. Therefore, an acclimatization period of at least two hours must be observed before any further steps are taken. Make sure the temperature adjustment has been completed and that any surfaces with condensation inside and outside the device have completely dried.

### WARNING!

Never operate the UPS in a combustible and/or unventilated environment.

## 2.7 Connection

Always use the connection terminals provided for the purpose of connecting the UPS.

### DANGER!



To avoid electrical hazards, the connection of the unit may only be made under de-energized conditions.

The PE (protective earth) conductor must be connected without fail. The UPS-device, as well as the connected loads, must not be used without the PE conductor under any circumstances!

The UPS output is supplied with power even in the event of a power outage; according to the provisions included in EN62040-1, the lines and power outlets supplied by the UPS must be clearly labelled!

In addition, the following points must always be followed when connecting the UPS:

- Install all connections appropriately and keep the cable length as short as possible;
- Only use suitable power cables when connection the UPS to the mains power supply and pay attention to the required current carrying capacity;
- Only use suitable power cables when connecting appliances to the UPS and pay attention to the required current carrying capacity;
- The safeguarding of any appliance must always be performed immediately in front of an appliance and may never be done centrally in front of the UPS;
- Never operate any household devices or tools such as e. g. fan heaters, vacuum cleaners, electric drills, hairdryers, toasters, etc. by means of the UPS;
- Do not connect any appliance to the UPS that could overload the device;
- In general, only use appropriate tools for the installation.

## 2.8 Operation

Only qualified personnel are allowed access to the unit and the operation of the equipment.

### **WARNING!**

It must be kept in mind that the UPS includes an energy storage or is connected to an external energy storage unit. This means that the UPS outlet can be current-carrying even when the UPS has already been disconnected from the mains power supply.

Consequently, the UPS output is guaranteed to be de-energized only when the device has completely shut down and has been disconnected from the mains power supply.

---

## 2.9 Working with accumulators

When handling accumulators, there is always a risk of electric shock, burns and/or chemical burns.

This is why unauthorized personnel should not have access to accumulators.



# DANGER!

Accumulators and their circuit points can cause electric shocks.

In the event of a short-circuit of the accumulators, touching the current-carrying parts can result in severe burns.

Do not place accumulators in the vicinity of heat sources and do not bring them into contact with open fire. Explosion hazard!



Accumulators should never be opened or destroyed. The electrolyte released presents a great danger to health and the environment. It could result in chemical burns to skin and eyes; electrolyte is very toxic.



# WARNING!

Defective accumulators must be disposed of an environmentally friendly manner!



Never dispose of accumulators with regular household waste!

Local disposal regulations must be observed!



## 2.10 Maintenance, service and malfunctions



# DANGER!

Attention – Risk of electric shock.

Even after switching off the supply with the power button or after disconnecting the accumulator feed, parts of the UPS can still carry high voltages.

---

# ATTENTION!

The following precautions must be taken when working on the UPS and the accumulators:

- The UPS must first be switched off and disconnected from the mains power supply and the loads before work on it is begun.
  - Remove wristwatches, jewelry and other metallic objects;
  - Use only isolated tools;
  - Work on live equipment must only be performed by specially trained personnel. These persons must wear the appropriate personal protective equipment (PPE) at all times;
  - The UPS may not be disassembled;
  - Work on the accumulators must only be carried out and supervised by personnel with the required expertise concerning safety regulations;
  - Unauthorized persons must be kept away from the UPS and the accumulators;
-

### 3. UPS device description

Sensitive loads require comprehensive protection against supply disruption. This includes: temporary mains failure, mains voltage fluctuations, mains voltage peaks, frequency changes, etc. The uninterruptible power supply unit is intended to support mains-supplied, sensitive electronic devices such as: computers, workstations, cash registers, operation-critical instruments, telecommunication devices, process control systems, etc. against supply disruptions. In doing so, the UPS supervises the above-mentioned network sizes and supports the loads in critical moments. The support time, or autonomous duration, is dependent on the size of the installed or adapted energy storage (accumulator).

#### 3.1 Topology and operation modes

In the COMPACT RM-series, there is a so-called "LINE INTERACTIVE" or "OFF-LINE" setting. This is identified in that the load is directly supplied by the mains power supply in standard mode (**Mains operation**) (see Fig. 3-1). Light mains voltage fluctuations are then equalized by the AVR (AUTOMATIC VOLTAGE REGULATION) so that a load operation is ensured to always remain in the standard mains voltage range.

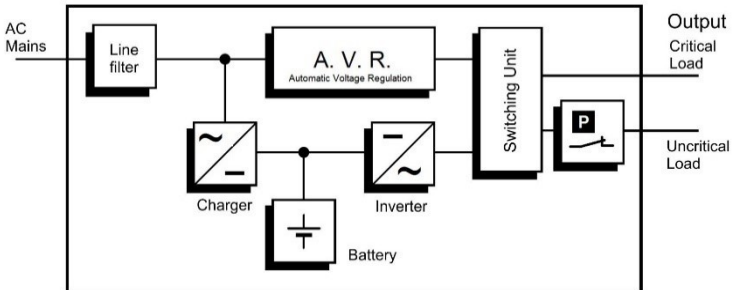


Fig. 3-1 Block diagram or setup of the COMPACT RM-series.

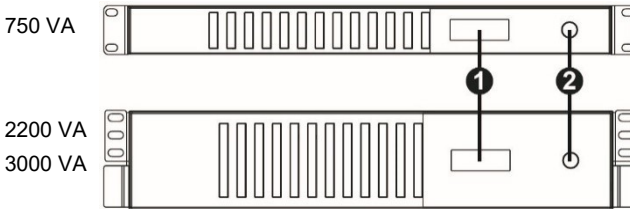
In the event of a massive mains fault, the switching unit turns on in the **Inverter mode** (Inverter operation or autonomous mode). The loads will only be operated directly via the inverter for the duration of the fault. The inverter draws the necessary power from the accumulator during this autonomous period. Once the mains fault / mains failure has passed, the switching unit switches again to mains operation.

Insofar as the device is connected to the mains power supply, the charging unit of the accumulator is being charged (**Charging mode**). The maximal autonomous duration for the UPS is dependent on both the charging status and the capacity of the accumulator. Please see the section on technical data in this operating manual for details.

### 3.2 UPS device components

The entire device series is integrated in a metal case. All components of the device for operation are located on the front panel of the device, and all components for the connection are distributed on the backside of the device (see the following figures).

**Front View:**

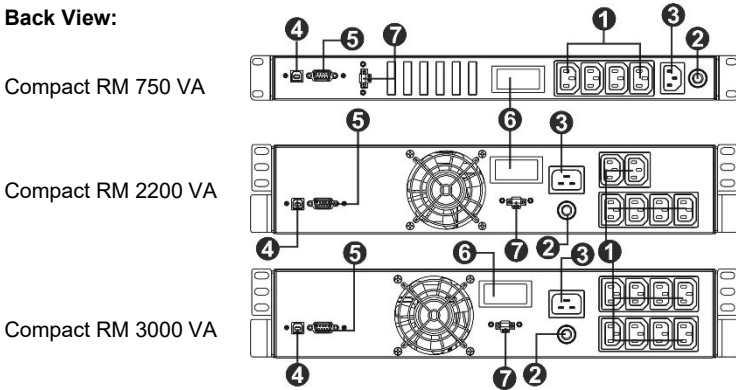


The front panel of the device also serves as an operation panel and is presented here as representative of all units:



(1) Device indicator (DISPLAY); (2) Power switch On/Off

**Back View:**



**Description:**

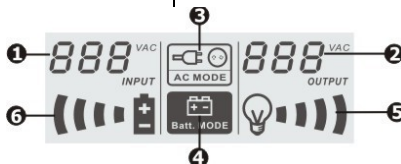
- (1) Output: IEC C13 / 10A
- (2) Input fuse/breaker
- (3) AC-Input
- (4) Communication port (USB)
- (5) Communication port (RS232)
- (6) Slot (SNMP-card optional on request)
- (7) EPO

**3.2.1 The operation panel (front panel of device)**

In this device, the control panel is reduced to the power switch and the device display:



Power switch: for switching the UPS on and off. If the UPS is already connected to the mains power, the unit starts up automatically and initial  
Only the UPS device outlet port remains switched off.



Device display for the clear presentation of all status data. The operating parameters can be read during operation.

Meaning of the individual display symbols:

- (1) Display of the UPS input data (Mains voltage in volts).
- (2) Display of the UPS output data (Consumer voltage in volts).
- (3) AC mode indicator
- (4) Battery mode indicator
- (5) Load level indicator, flashing indicates overload
- (6) Battery capacity indicator, flashing indicates low battery voltage

### 3.2.2 Acoustic operating, warning, or alarm message



In addition to the information on the display, some operation, warning, and alarm signals are provided acoustically via the integrated signal (BUZZER).

### 3.2.3 The connection panel (back panel of device)



1

Programmable UPS outputs (C13 socket). The outputs are generally intended for non-critical loads that can be dropped relatively quickly (programmable) during the support phase.



2

Input fuse.

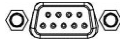


3

UPS inputs (IEC plugs C14, C20) are used to connect the UPS to the mains supply.



**4** Communication port of the UPS, USB port for the exchange of device data and the signals for shutting down sensitive loads (PC, SHUT DOWN). If the USB-port is used, the serial port remains inactive.



**5** RS232 communication port: RS232 port for the exchange of device data and the signals for shutting down sensitive loads (PC, SHUT DOWN). If the serial port is used, the USB-port remains inactive. The RS232 port supports the MODBUS protocol.



**6** Intelligent expansion slot (INTELLIGENT SLOT). As a rule, a series of different communication cards (adapter cards) are available to connect the device, for example, with a network or a superordinate system.

See detailed information for this under ⇨ 144 Optional accessories.



**7** EPO (EMERGENCY POWER OFF), emergency dropping of the UPS outputs in a case of emergency. This input should be controlled by an external emergency switch.

### 3.2.4 Name plate (Device identification)

UPS device identification. The following information is on the name plate:

- model name;
- data for connected load values;
- the CE-marking and the serial number for the device;



---

# ATTENTION!

Always compare the type plate of the device and the existing manual for agreement. This prevents incorrect use of the manual and the UPS.

---

## 4. Storage and unpacking

### 4.1 Storage of the UPS

If the UPS is to be put in storage after delivery, it is imperative to observe the following instructions:

#### ATTENTION!

- Always leave the device and accessories in the original packaging;
- Never store the UPS upside-down;
- The recommended storage temperature should be between 10 – 25°C. The maximum temperature values may never be exceeded (see also ⇨ Technical data);
- The delivered goods must also be protected against moisture. The device must therefore be stored in a dry area;
- If the storage period exceeds four months, the UPS must be connected to the mains power supply for approximately 24 hours to avoid a total discharge of the accumulators, which would result in irreversible damage to the accumulators;

### 4.2 Transport to the installation site

As the point of delivery is usually not the point of installation, the equipment has to be transported to the installation site. Please follow these instructions for the transport of the UPS:

#### ATTENTION!

- Always transport the delivery in the original packaging as close as possible to the installation site;
- Always transport the UPS in the specified transport position. Do not transport the device upside-down;
- Also mind the specified centre of gravity when transporting the device;
- There is always a general risk of tipping with appliances with a high centre of gravity;





### 4.3 Unpacking and positioning of the device

Remove the packaging at the installation site with the utmost care to avoid causing any possible damage to the device and the packaging material.

**ATTENTION!**

Check the scope of delivery (see ↪ 13 Scope of delivery).

Check all packaging materials to ensure that no items are missing.

Inspect the appearance of the UPS after unpacking to see if any visible damage incurred during transportation. Do not turn on the unit if you detect any damages or if any parts are missing, but rather notify the carrier and dealer immediately.

---



---

The shipping materials are recyclable. After unpacking, save them for later use or dispose of them appropriately.

---

## 5. Installation and Connection of the UPS

All critical values listed in the technical specifications concerning ambient and operating conditions must be met to ensure proper operation of the UPS.

### ATTENTION!

The UPS must be installed in a well-ventilated area, far from water, flammable gases and corrosive agents.

### 5.1 Rack assembly / installation of the UPS

In general, the following rules apply to the installation of the UPS:

- The device may only be set up on a firm, stable and horizontal surface;
- Note the given installation position (see Fig. 5.1);
- Install only in clean, dust-free and dry places;

Furthermore, an air exchange according to EN62040-1, Appendix M for devices with accumulators must be observed;

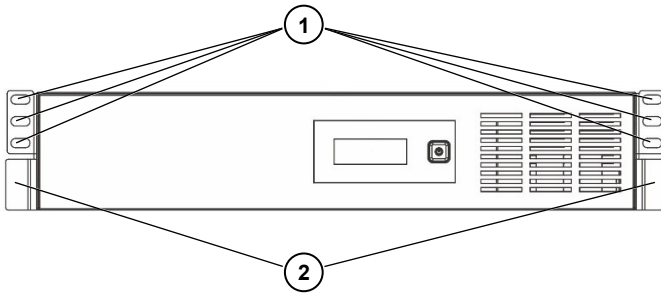


Fig. 5.1 Alignment as a plug-in device for the entire COMPACT RM series

*In addition, make sure that the ventilation channels of the UPS are not blocked and that there is sufficient clearance between the device and other equipment, furniture, and walls to allow the device to cool.*

The UPS (**Illustration exemplary**) is supplied with mounting brackets as standard, which are attached to the front with the screws provided.

- Slide the UPS into the slot of the 19" rack and secure it with suitable fastening screws in the cabinet.



- (1) Holes for fastening screws in the 19" cabinet
- (2) Handholds



Make sure to use mounting rails suitable for the weight of the UPS in your 19" cabinet.

---

## 5.2 Connection of the UPS device

### 5.2.1 Input and output connection for the

The COMPACT RM series is usually connected to the supply network with the cold device cable provided on the input side. This can connect the UPS with the customary wall socket (Schuko).



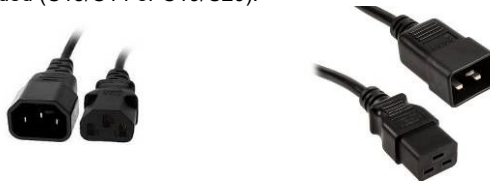
**ATTENTION!**

If the UPS has been connected to the mains power supply, it automatically starts up in the STANDBY or charging mode. The relevant display follows. The fan starts momentarily; the UPS output is not active.

**WARNING!**

In any case, ensure that the wall socket is properly secured and the PE conductor is present.

In the next step, the load(s) can be reconnected to the UPS with the cold device cable provided (C13/C14 or C19/C20).



If a fixed connection for the UPS should follow, please note the following connection scheme and the connection data of the table.

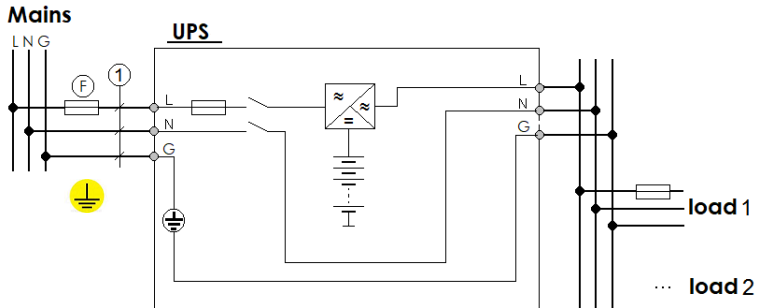


Fig. 5-1 Fixed connection scheme of the UPS to the network and the loads.

Fuse on the input side:	UPS-Type [VA]:			Comment:
	750	2200	3000	
Circuit breaker (S):	10 A	13 A	16 A	Type „C“
Cable cross section:	3x 0.75 mm <sup>2</sup>	3x 1.00 mm <sup>2</sup>	3x 1.50 mm <sup>2</sup>	max. 20 m

# WARNING!



Without fail, the PE conductor must be connected in the fixed connection and the loop resistance be maintained until the last load. It is also possible to separately secure and to directly ground the loads against excess and residual current.

Always pay attention to the correct polarity between the in- and output of the UPS. If the UPS is within an emergency stop circuit, it must be noted that, after the activation of the emergency stop circuit, the UPS output is not without current. The loads will continue to be supplied during the duration of the UPS autonomous period.

## 5.2.2 Connection of the communication port USB

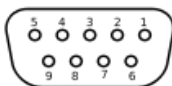
Please use the USB cable (type A to type B) for connecting the USB communication port and use it to connect the UPS to your PC or hub. The USB port is a “PLUG & PLAY” connection (HID-DEVICE). Further actions are not necessary.



## 5.2.3 Connection of the communication port RS232

The serial port RS232 serves to couple the system with a PC or the application installed on it (software).

The connection is likewise designed for a serial standard cable and the allocation is described below (pins not listed are unallocated):



USV RS232:	USV RS232:	Function:
Pin 2	Pin 2	Tx UPS, Rx PC
Pin 3	Pin 3	Rx UPS, Tx PC
Pin 5	Pin 5	GND

The communication here follows the MODBUS protocol.

**5.2.4 Connection of the emergency shutdown, dropping of the loads**

The function of the emergency shutdown EPO or REPO (REMOTE EMERGENCY POWER OFF) serves the immediate dropping of the connected loads. An external emergency eject button must be connected to the EPO signal input for this purpose (potential-free contact).



*Fig. 5-2 Connector plug of the EPO function.*

Function:	Switching behavior:	PIN, connection:	Comment:
EPO		1	Emergency shutdown (Opener) closed in resting state.
		2	

**ATTENTION!**

The emergency shutdown button must be realized as standard “opener” in the COMPACT RM series! If the EPO remote triggering is not used, the connection must remain **closed** (bridge).

**5.2.5 Extension of the system (INTELLIGENT SLOT)**

The UPS device can be functionally extended with an adapter card at any time. This includes the coupling to a network (SNMP). Please see here for additional information ⇨ 14 Optional accessories.

## 6. Operation of device and service

Due to the comprehensive protective functions which the device performs regarding the loads, the UPS runs completely automatically. This reduces the operation of the device to a few steps.

### ATTENTION!

In general, the operating personnel should inform affected employees (keyword: consumer network) about any scheduled tasks concerning the UPS system.

Have the status and error messages listed in chapter 8 ready to facilitate the immediate interpretation of the operation display and possibly occurring errors.

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### 6.1 Operation and operation modes of the UPS

As a rule, the switching on or starting and switching off of the device is carried out by the operating personnel.

### WARNING!

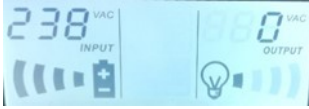
The operator of the UPS-system must always adhere to the instructions in this operating manual. Only the operator can perform the following actions and must always exercise particular care:

- Switching on and off the UPS;
  - Reading the display messages and interpreting the acoustic warning signals;
  - Switching from standard mode to autonomous mode and vice versa.
- 

In addition, data can be exchanged with the UPS via the communication interface(s), but this data exchange is not imperative for general operation. Therefore, particular care and diligence are also required here as the UPS can, for example, be shut down by the software.

### 6.1.1 Switching on the UPS, Charging mode

If the UPS is connected to the mains, the device starts automatically and starts with the initialization.



The device then automatically and automatically switches to charging mode and changes to the adjacent display

There is no acoustic signal when the UPS starts up

## ATTENTION!

In any case, it is advantageous to keep the device in charge for a few hours to fully charge the battery before the UPS is switched on and assumes its support function.

### 6.1.2 Start of the UPS (mains connection already exists)



The device is switched on using the on / off switch. The display changes to the graphics shown left. The UPS is now in mains operation. (The displays of load, battery charge status and input and output voltage may differ from the graphic on the left).



A short acoustic signal sounds when the UPS is switched on

The UPS output is switched on and the consumers are now being supplied. The charging unit remains active until the battery is fully charged.

### 6.1.3 Autonomous mode of the UPS (Battery Mode)



If the mains connection is interrupted, the UPS switches to autonomous mode. The display changes to the graphics shown on the left side. (Load, battery state of charge and output voltage may differ)



An acoustic signal sounds at regular intervals during autonomous operation.

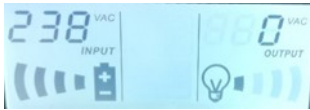


The UPS output remains switched on, the consumers continue to be supplied for the duration of the autonomy period.

The discharge of the battery can be observed. The display icon shows the remaining battery capacity ("approx. Values" in 25% steps).

In addition, a battery status LOW BATTERY can be recognised by the flashing battery indicator. The near end of autonomous operation is also signalled by an acoustic signal.

### 6.1.4 Turn off the UPS



The UPS is switched off by pressing the on / off switch. The device switches off the UPS output and continues charging.

The display changes to the display shown on the left.

To switch off the device completely, the UPS must also be disconnected from the mains. Then the display is off.

### 6.1.5 Direct activation of the battery mode (COLD START)



If the UPS is switched on by pressing the ON / OFF switch without a mains connection, the UPS starts and switches directly to battery mode.

The display briefly shows the display above and then changes to the display below (load, battery charge status and output voltage may differ).



The starting process is accompanied by an acoustic signal when switching on.

The UPS output is switched on and the consumers are supplied for the duration of the autonomy time. After pressing the on / off switch again, the UPS switches off completely.

### 6.1.6 UPS overload operation

If the UPS is overloaded on the output side, the loads continue to be supplied for a short time depending on the overload.

There is a quick beep during the overload operation (0.5 s interval).

In the event of a subsequent error, there is an acoustic continuous signal.



### 6.1.7 Error mode of the UPS

If the UPS e.g. changes due to overload in the error mode, the device switches off the output. The consumers are no longer supplied.

In the event of a fault, an acoustic continuous signal is given.



## WARNING!

The UPS does not automatically return from fault operation. For this it is necessary to switch the device off and on again. However, this may only be carried out if the source of the error has been eliminated beforehand.

---

## 7. Initial operation of the UPS

The initial operation generally requires that all previous chapters of this manual have already been successfully read or processed.



Additionally, check that all connected loads are switched off.

The initial operation of UPS devices is exclusively reserved for accredited personnel.

---

Please conduct the initial operation in the following order:

- Connect the UPS to the mains power supply;

Then the UPS starts up automatically and switches to the **charging mode**. The UPS output remains off. The corresponding image occurs in the display. Now switch the UPS on and, from here, the UPS switches to the standard mode; the UPS output is now active;

- Check all the status information on the display;
- Turn on the loads individually, under the observation of the indicated power levels;
- Briefly test the autonomous mode similarly under the observation of the power levels and status information;
- The UPS can be left in the mains operation (standard mode), the loads are secured via the UPS;
- Switching off the UPS occurs in the reverse order.

## WARNING!

Should errors occur during the initial connection, these must first be analysed and removed before the initial operation can be continued.

---

## 8. Error messages and support

In the event the UPS device is not working properly, please first check the operation information on the operation unit.

Please try to localize the problem with the aid of the following table:

Problem	Possible Cause	Solutions
No words display on the front panel.	Low battery.	Charge the UPS at least 6 hours.
	Battery fault.	Replace the battery with the same type of battery.
	The UPS is not turned on.	Press the power switch again to turn on the UPS.
Alarm continuously sounds when the mains is normal.	The UPS is overload.	Remove some loads first. Before reconnecting equipment, please verify that the load matches the UPS capability specified in the specs.
When power fails, back-up time is shorten.	The UPS is overload.	Remove some critical load.
	Battery voltage is too low.	Charge the UPS at least 6 hours.
	Battery defect. It might be due to high temperature operation environment, or improper operation to battery.	Replace the battery with the same type of battery.
The mains is normal Bu the unit is on battery mode.	Power cord is loose.	Reconnect the power cord properly.

# ATTENTION!

Never try to start up the UPS when there is an error status. Always remove the error source first and then switch the device on again.

## 9. Troubleshooting

Over the course of time, failures or malfunctions of the UPS, the accumulator or their surroundings can arise. In this event, please contact our customer service (service hotline) as soon as possible.

When contacting the service centre, please provide the following information to ensure swift resolution:

- Model number, serial number and configuration of the device;
- Progress of the issue and date on which it first occurred
- Control panel LCD/LED display information (status or warning or alarm messages);
- Condition of the mains power supply, load condition, environment conditions, temperature and moisture, ventilation conditions;
- Information of the condition, such as the age, of the accumulator;

Most importantly, name the respective qualified contact persons for the clarification of the issue and its resolution.

## 10. Service-Hotline

Should you encounter any general problems or require any information regarding safety, please contact our service hotline:

Phone: 0049 / (0) 741 – 17451-52

Fax: 0049 / (0) 741 – 17451-29

You can also reach us via email at:

**[kundendienst@effekta.com](mailto:kundendienst@effekta.com)**

In addition, you can contact the relevant department or branch office directly as listed on our website.

**<http://www.effekta.com>**

## 11. Maintenance and service

You can expect a long service life and trouble-free operation for this product. However, the service life and reliability of the UPS is largely determined by the ambient conditions. The temperature and humidity in the device environment must be within the specified limits. In addition, the area around the UPS should be as clean and dust-free as possible.

With an optimal ambient temperature range of approx. 20-25°C, the typical lifespan of the batteries is approx. 4 years. An increased ambient temperature (greater than 25°C) will significantly reduce the lifespan of the batteries, thus voiding the warranty on the batteries.

It should be checked at regular intervals (6-12 months) whether the remaining autonomy time (bridging period) is sufficient for the intended purposes. If this is no longer the case, the accumulators must be replaced.

### 11.1 Measuring the support time (battery time)

## WARNING!

Before beginning with this procedure, it is obligatory that all open data files must be secured. Also, inform all concerned employees of your intentions.

There are essentially two methods to measure the support time.

**Method A** is suitable for measuring the actual back-up duration whereby the loads are required to be currentless at the end of the autonomy time. For this purpose, force the UPS into the autonomous mode and measure the time until it automatically shuts down.

**Method B** allows for the determination of the remaining capacity after a defined back-up period. Even for this method, first force the UPS into the autonomous mode for a specific duration. In returning to the mains operation mode, note the remaining capacity. Then calculate the autonomy duration through an estimation (linear).



Please remember that after measuring the autonomous period, the accumulator may be discharged. This means that the UPS device must remain in standard mode for several hours (min. 6 h) to recharge the accumulator bank accordingly, before this is again up to 70 % operational (capable of supporting).

---

## ATTENTION!

If the backup-time is not measured due to local conditions or regulations, we recommend the prophylactic replacement of the accumulators every other year to avoid any risk of an insufficient autonomous period (back-up time) caused by degenerated accumulators.



In addition, the fans and ventilation ducts of the device should be inspected regularly and cleaned, if needed, to ensure full output power. The frequency of the inspection and cleaning depends very much on the environment of the equipment. (key word: dust).

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### 11.2 Replacing components / accumulators

## DANGER!






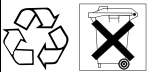
Only EFTEKTA Regeltechnik service personnel or personnel of other accredited service points is allowed to replace accumulators or other UPS components.

## WARNING!

During the replacement of accumulators and other components, the loads are directly connected to the mains power supply via an external by-pass. Therefore, there is no protection or support function by the UPS during this period. Mains power failures or other grid problems are directly transferred to the load.

## 11.3 Maintenance and service contracts

EFFEKTA Regeltechnik GmbH offers corresponding maintenance and service contracts to guarantee the best possible reliability and availability of your UPS equipment. Under a maintenance contract, our service personnel can, in addition, support and help you in the following areas:

	Periodical inspection of the equipment, in particular, the accumulators, and their timely replacement.
	Inspection of the UPS installation and its functionality.
	Measuring the remaining back-up time or battery time.
	Professional cleaning, of particular importance for the ventilation areas.
	Proper disposal of defective or degenerate components.
	Environmentally sound disposal of accumulators.

Please contact our service hotline listed above for a complete list of our services or send us an email request.





## 12. Specifications

		COMPACT RM:			
		750 750 VA, 450 W	2200 2200 VA, 1320 W	3000 3000 VA, 1800 W	
UPS Input	Input	1 Phase, neutral conductor and PE conductor			
	Nominal Voltage	220, 230, 240VAC			
	Voltage Range	170-280VAC			
	Frequency Range	60/50 Hz (auto-sensing)			
UPS Output	Nominal Voltage	1 Phase, neutral conductor and PE conductor			
	Voltage	220, 230, 240VAC			
	Voltage accuracy	±10 % (Inverter-mode)			
	Frequency	50Hz ±1% (Inverter-mode)			
	Wave Form	Sinewave			
	Switchover Time	Typical 2-6ms, max. 10 ms			
Batteries	Voltage	12 VDC	24 VDC	36 VDC	
	Capacity	2x 6V/10 Ah	2x 12V/10 Ah	3x 12V/10 Ah	
	Charging Time	90% in 8h			
Device	Device Protection	Overload, deep discharge, overcharge			
	Dimensions	44 x 438 x 280	44 x 438 x 280	88 x 438 x 400	
	Weight	8,2	14,9	20,7	
	Communication	RS232, USB, EPO, slot for optional SNMP-/relay card			
	Standards	Safety	IEC/EN 62040-1		
		EMC	IEC/EN 62040-2, class 2		
		Service	IEC/EN 62040-3		
Environment	Temperature Ranges	Operation: 0 to 40°C Recommended: + 15 to + 25°C (outside the recommended range, the Lifetime of the accumulators significantly reduced)			
	Rel. Humidity	0 – 90% (noncondensing)			
	Noise Level	< 40dB (without fan)		< 45 dB	

## 13. Scope of delivery

The following is the list of the scope of delivery; please compare the list with the delivered goods. Should any items or components be missing in your delivery, please let us know immediately.

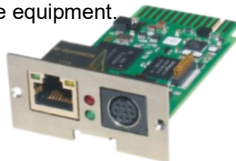
Number	Article	View	Description:
1 x	UPS		COMPACT RM Series, according to your order;
1 x	Power cord: acc. to IEC 60320		Plug types: C13 (750,) C19 (2200, 3000)
1x	Output cable: acc. to IEC 60320		Consumer connection, power cord (C13 / C14);
1x	USB cable		Plug types: Typ A to Typ B
1x	Serial cable		RS232 cable (1:1)
1x	EPO		EPO plug with bridge, screwable
1x	Software		Software (Download- Link) <a href="https://www.generelex.de/de/partners/oem/32">https://www.generelex.de/de/partners/oem/32</a>
1 x	Manual		Manual English V 1.0

## 14. Optional accessories

The components, devices and/or equipment listed below are accessories that fit the OFFICE series and that have been tested and approved by EFFEKTA Regeltechnik GmbH.

### 14.1 Communication adapter SNMP

The SNMP adapter integrates the UPS into a network and communicates via TCP/IP, Telnet or FTP. After assigning an individual IP-address, the UPS can be accessed from any location, which is of particular interest for remote administration and maintenance of the equipment.



*Fig. 14-1 SNMP adapter to connect the UPS to a network.*

The SNMP adapter can be easily integrated into the UPS as a plug-in card adapter. You can obtain further information about this product and the associated software package from our sales and service centres.

### 14.2 19"-mounting rails

Mounting rails for 19" UPS. To install the 19" rackmount UPSs in the server cabinet, you can obtain our optional installation rails.



*Fig. 14-2 19"-mounting rails for 1U-devices (Compact RM 750VA)*



*Fig. 14-3 19"-mounting rails for 2U-devices (Compact RM 2200VA/3000VA)*

### 14.3 External Bypass

An external by-pass system allows the operation of the loads on two different paths. In the UPS operation mode (Fig. 14-4) the UPS system is integrated into the current path and the loads are protected in the usual manner. In the bypass mode (Fig. 14-5), the loads are directly connected to the mains power supply, and the UPS input and output are isolated.

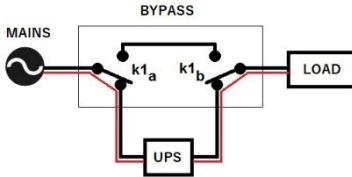


Fig. 14-4 UPS operation mode

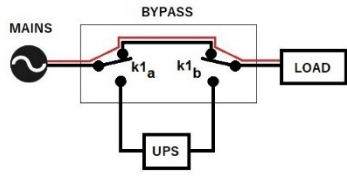


Fig. 14-5 Bypass mode

In this case, maintenance and service tasks on the UPS or the battery bank can be performed faster and safer. On rare occasions, the UPS or its components can also be replaced without interrupting the loads.

Moreover, the application of an external bypass allows for a cost-efficient and clear installation of the UPS device.

## 15. Spare parts

The components listed below can show regular wear and are excluded from the warranty for this UPS:

Wear part	Function	Article number
XXXX XX XX ** accumulator (BATTERY) 6V / 12V xx Ah	Accumulator	Depending on assembly!

\*\* The name and identification of the accumulators can be found in the delivery documents or are available upon request.

## 16. Declaration of conformity

All units labeled with a CE sign fulfill the EU harmonized standards and regulations.

The EU declaration of conformity for this product is available upon request.



**EFFEKTA**  
innovating power.

**EFFEKTA Regeltechnik GmbH**  
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