

en

Instructions for use

Docon[®] 7
Multicharger
10-bay quick charger



IMPORTANT

READ CAREFULLY BEFORE USE

KEEP THESE INSTRUCTIONS FOR FUTURE CONSULTATION

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Docon7Multicharger

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1 General safety instructions

1.1 Explanation of the safety symbols used

In these operating instructions visual symbols are used to highlight important instructions. Observing these instructions is the prerequisite for preventing hazards to patients and operating personnel, as well as for avoiding damage to or malfunctioning of the device.

1.1.1 Symbols used in the instructions for use



Caution



Information

1.1.2 Symbols on the device



Serial number



Compliance with the Low-Voltage Directive 2014/35/EU



Consult instructions for use



Return and disposal according to WEEE Directive



Caution

1.1.3 Symbols on the retail packaging



Catalogue number



Batch code



Serial number

Docon7 Multicharger

General safety instructions



Keep dry



Limitation



Temperature limitation



Manufacturer



Fragile, handle with care

Further information on the symbols used can be found on our homepage: www.moeller-medical.com/glossary-symbols



The performance, safety and electromagnetic compatibility of the device may be affected by the use of non-original parts.

1.2 Explanation of the conventions applied

Various typefaces are used in these instructions for easier reference.

Typeface	Use
Bold	Buttons used in operating procedures
<i>Italics</i>	Device options, buttons and references to chapters and sections in copy.

General safety instructions

1.3 Manufacturer's liability

The manufacturer is responsible for the safety, reliability and serviceability of the device in the following cases:



- Assembly, expansions, resetting, changes and repairs are performed by individuals authorised by the manufacturer.
- The electrical installation in the room in question complies with the relevant requirements and regulations (e.g. VDE 0100, VDE 0107 or IEC specifications).
- The device is used in accordance with the instructions for use and the country-specific regulations and special national requirements are observed.
- The conditions stated in the technical data are observed.

The manufacturer undertakes to accept returned old devices according to the WEEE Directive.

1.4 Owner's duty of care

The owner of the device must accept responsibility for the proper operation of the device. Whenever the **Docon7 Multicharger** is handled and used, detailed acquaintance and compliance with these instructions for use is essential.

Performance and safety may be impaired if OEM device parts are not used.

All work which requires tools must be performed by the manufacturer's technical service or parties authorised by the latter.

Docon7 Multicharger

General safety instructions

The **Docon7 Multicharger** may not be modified.

Liquids may not be allowed penetrate parts of the device under electrical voltage.

When cleaning, ensure that no cleaning agent gets into the connector/sockets.

Disconnect the **Docon7 Multicharger** from the mains voltage before cleaning.

Replace connecting cables of all kinds, even if they are only slightly damaged; make sure not to run over cables with carts etc.

Keep cables away from sources of heat. This is to avoid the risk of the insulation from melting, potentially causing a fire or electrocution.



Do not force the connector plug into the socket.

Do not pull on the cable when removing the plug.

Do not expose the **Docon7 Multicharger** to excessive heat or fire.

Do not subject the **Docon7 Multicharger** to major impacts.

If excessive heat, fumes or smoke are noticed, immediately disconnect the **Docon7 Multicharger** from the power supply.

Do not extinguish the **Docon7 Multicharger** with water in the event of fire.

Do not block the rear of the device around the fans either directly or indirectly, sufficient air circulation and heat dissipation must be ensured.



Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or the patient is established.

2 Purpose

2.1 Proper use - intended use

The **Docon7 Multicharger** is used to recharge the Docon7 lithium ion batteries (93005614).

The **Docon7 Multicharger** can accommodate up to 10 batteries at a time. The charge status is displayed visually. Defective batteries are detected and this is also indicated visually. Once charging is complete, the charger automatically switches to trickle charging.

No form of use other than the intended use described here is permitted.

2.2 Combination with other products

Only use products which have been specified and approved by the device manufacturer.

Article numbers and accessories for the Docon7 Multicharger

Lithium ion battery pack	93005614
Nominal voltage: 22.2 V / 4500 mAh	

Connecting cable	93001047
------------------	----------

Docon7 Multicharger

Product description

3 Product description

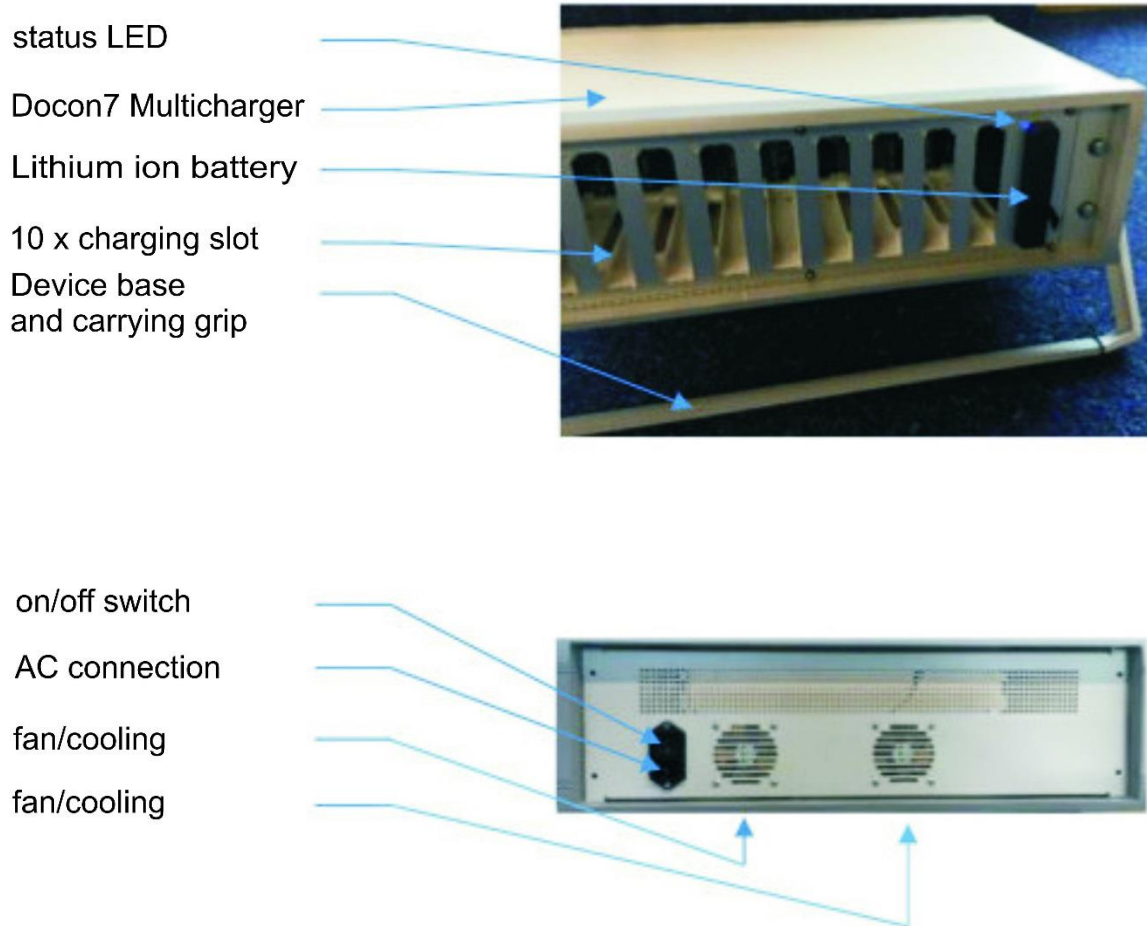


Figure 1: Docon7 Multicharger

3.1 Docon7 Multicharger charging bay

Each charging bay of the **Docon7 Multicharger** works independently, i.e., up to 10 batteries can be charged independently of each other.

The bays are equipped with an anti-twist guard for increased safety when inserting the batteries.

3.2 ON/OFF switch and connection options

The **Docon7 Multicharger** is switched on and off using the switch at the back of the device.

There is also an AC connection socket at the back (IEC socket). The mains cable is plugged into this to supply the **Docon7 Multicharger** with the required operating voltage.

Product description

3.3 Device feet and grip

For tabletop operation, the **Docon7 Multicharger** must be placed on the feet provided.

Alternatively, the grip can be used as a stand. If the device is at a low operating height, the charging bays can be easily accessed and the status LEDs are easier to see.

The **Docon7 Multicharger** can be transported using the carrying grip when there are no batteries in the charging bays.

3.4 Status display

The status LEDs on the front of the device (above each charging bay) provide information on the operating and charging status of the device and battery.

3.5 Cooling

There are two fans next to the ON/OFF switch, these dissipate any system heat which is created inside the device during charging into the ambient air.



Do not block the back of the device around the fans either directly or indirectly; sufficient air circulation and heat dissipation must be ensured.

A safety distance of at least 15 cm must be maintained between the device and the next nearest obstacle.

3.6 Overview of signal statuses

The following signal statuses are indicated by the LEDs above each battery bay.

Status	Color	LED
Operating mode, fault (no battery inserted)	Red	On
Operating mode, charging	Blue	On
Operating mode, charging complete	Green	On
Operating mode, fault (with battery inserted)	Red	On

Docon7 Multicharger

Installation and start-up

4 Installation and start-up



Ensure that the packaging is undamaged on delivery. The carrier must be notified immediately of any transport damage. Check the **Docon7 Multicharger** for damage. If the product shows signs of defects, it may not be used and the supplier is to be notified immediately.

4.1 Transport and storage instructions

Temperature:	-20°C to +50°C
Humidity:	less than 90% rel. humidity
Weight with packaging:	8000 g
Dimensions of the Docon7 Multicharger with packaging:	Width x Height x Depth 620 mm x 450 mm x 300 mm

4.2 Unpacking the device and inspecting scope of delivery

On delivery, the **Docon7 Multicharger** consists of the device itself, a connecting cable, the instructions for use and a cardboard packaging. When unpacking ensure that no parts are left in the packaging.



It is recommended to retain the packaging for any service requests and not to dispose of it.

Only ship the **Docon7 Multicharger** in its original cardboard packaging in order to avoid damage during transport.

The standard **Docon7 Multicharger** version has the following scope of supply:

- 1 x Docon7 Multicharger
- 1 x AC connection cable
- 1 x instructions for use

4.3 Commissioning the Docon7 Multicharger

Whenever the **Docon7 Multicharger** is handled and used, detailed acquaintance and compliance with these instructions for use is essential.

4.3.1 Connecting

Set up the device in the desired position with the feet at the bottom.

Insert the connecting cable into the power supply input socket at the back of the device.

Insert the connecting cable into a mains socket. Pay attention to the voltage indicated on the identification plate.

4.3.2 Switching on

1. To switch the **Docon7 Multicharger** on, press the ON switch at the back of the device.
2. All 10 LEDs on the front of the device will then light up red and the **Docon7 Multicharger** is ready for use.

4.3.3 Switching off

1. After completing the charging processes, turn the **Docon7 Multicharger** off by pressing the ON/OFF switch.

5 Application and operation

5.1 Charging the battery

1. Insert the battery to be charged (with the rounded side facing upward) as far as it will go into one of the charging bays.
2. Once it is properly positioned, the LED changes its status color to blue and charging begins automatically.
3. When the LED changes color to green, this indicates that charging is complete.
4. Now remove the battery from the bay.

If the batteries remain in the **Docon7 Multicharger** after charging, the device switches over to trickle charging.



The charge time for empty batteries is approx. 4.5h.

If the respective LED on the **Docon7 Multicharger** is red and not green after charging, either the charging device or the battery itself could be defective. (See *Troubleshooting, page 15*).

5.2 Storage conditions

After use, store the **Docon7 Multicharger** in accordance with the storage conditions (see *Technical data, page 20*).

6 Troubleshooting

A number of faults are listed in this chapter which could occur in connection with the **Docon7 Multicharger**.

Several remedies may be possible for each fault. The suggested solutions should be performed in the stated order until the fault is remedied. The **Docon7 Multicharger** must always be switched off when connecting and disconnecting plug connections. If the solutions listed below do not remedy the fault, contact the Möller Medical Service Centre.

Problem	Solution
The Docon7 Multicharger will not turn on.	<ul style="list-style-type: none">• Check the power supply at the mains socket used.• Check the connecting cable
Fault due to moisture in the plug connection.	<ul style="list-style-type: none">• Remove the plug from the device and allow the connections to dry.
The Docon7 Multicharger fails to charge	<ul style="list-style-type: none">• Check the display. The LEDs on the charger must be blue.• If the LEDs are not on:• Check the socket and the connecting cable.• If the LEDs are red:• Check the battery's level indicator (this may be defective)• If the LEDs are green:• Check the battery's level indicator (it may be fully charged already)

If you are unable to remedy the fault, please contact your Möller Medical GmbH service team or distributor.

7 Service



The **Docon7 Multicharger** may not be opened by user. Service measures may only be performed by service teams that have received appropriate training from the manufacturer.

Only send cleaned and disinfected devices to the service team.



If returning the **Docon7 Multicharger**, ensure that the device is appropriately disinfected to avoid the risk of infection.

Service

Manufacturer



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Distributor:

8 Care

8.1 Cleaning and disinfection of the Docon7 Multicharger

To rule out any risk to the user, pull all connecting cables out of the **Docon7 Multicharger** before cleaning.



Do not use sharp objects for cleaning.

No moisture must be allowed to penetrate into the device. Therefore, spray disinfectants may not be used directly on the device.

Lint-free, soft tissues are to be used for wipe-down disinfection and cleaning.

Clean using a cloth dampened with mild soap solution or 70% isopropane solution.

After cleaning, disinfect the surfaces of the **Docon7 Multicharger** with a pH-neutral, approved detergent-alcohol based disinfectant with up to 70% alcohol (e.g. propan-1-ol, recommended disinfectant: Melisepto®). During disinfection, follow the instructions of the disinfectant manufacturer.

Ensure that the cleaning agents and disinfectants have completely evaporated before using the **Docon7 Multicharger**.

Visual inspection: The connections and plugs of the cables to be connected must be free of all types of soiling.

8.2 Service

8.2.1 Service documents

The service documents required to maintain the device can be requested from the manufacturer's authorised service partners.

8.3 Transport

The **Docon7 Multicharger** may only be transported as per the conditions of transport (see Technical data on page 20).

If the **Docon7 Multicharger** is sent to the service team, it must be packed in its original packaging as this provides the device with the best possible protection from external damage.

Care



Please note that the **Docon7 Multicharger** is an electromechanical device. It may not be thrown. If condensation forms after the device is transported in the cold and set up in a warm room, the **Docon7 Multicharger** should not be switched on until the condensation has evaporated. Please keep a special lookout for any condensation on the connection sockets. The warm-up and cool-down phases are based on a room temperature of 20°C.

Transport temperature	Warm-up / cool-down phase
- 20°C	90 minutes
50°C	30 minutes

8.4 Disposal

Docon7 Multicharger and accessories



This device contains materials which must be disposed in accordance with environmental regulations. The European Directive 2012/19/EU on waste electrical and electronic equipment (WEEE2) applies to this device. The identification plate of the device bears the symbol of the crossed out garbage bin.

Return devices and batteries which are no longer used to Möller Medical GmbH. This ensures that the device is disposed in compliance with the national requirements of the WEEE Directive.

9 Annex

9.1 Technical data

General characteristics	
Order number REF:	00003841
Dimensions of the device	Length x width x height
Without carrying grip	516 mm x 306 mm x 171 mm
With carrying grip	575 mm x 450 mm x 171 mm
Weight [kg]:	7000 g
Energy value:	1 J with load from impact
Electrical connection input of the Docon7 Multicharger	
Voltage:	230 V AC
Frequency:	50 Hz
Power:	300 VA
Output	25.2 V DC, 1 A
Protection class:	I
Protection rating:	IP X0
Transport and storage instructions	
Temperature:	-20°C to +50°C
Humidity:	less than 90% relative humidity
Weight with packaging:	8000 g
Dimensions of packaging:	Width x height x depth 620 mm x 450 mm x 300 mm
Air pressure:	700 – 1050 hPa
Operating conditions:	
Temperature:	+10 °C to +40 °C
Humidity:	30 % to 75 % relative humidity
Air pressure:	790 – 1050 hPa
Operating altitude:	< 2000 m
Device service life	8 years

9.2 Electromagnetic emissions

The **Docon7 Multicharger** is intended for use in the electromagnetic environment specified below. The customer or the operator of the **Docon7 Multicharger** should ensure that it is being operated in an environment of this kind.

Measurement of emitted interference	Conformity	Guidelines for the electromagnetic environment
RF electromagnetic interference acc. to CISPR 11	Group 2	To perform its intended function, the Docon7 Multicharger must emit electromagnetic energy. This may cause interference with electronic devices in the vicinity.
RF electromagnetic interference acc. to CISPR 11	Class B	The Docon7 Multicharger is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purpose.
Harmonic emissions acc. to IEC 61000-3-2	Class A	
Voltage fluctuations/flicker acc. to IEC 61000-3-3	Complies	

Docon7 Multicharger

Annex


9.3 Electromagnetic resistance

The **Docon7 Multicharger** is intended for use in the electromagnetic environment specified below. The customer or the operator of the **Docon7 Multicharger** should ensure that the equipment is used in a compliant environment.

Interference resistance test	IEC 60601 - testing level	Conformity level	Electromagnetic environment / Guidelines
Discharge of static electricity (ESD) IEC 61000-4-2	±6 kV Contact discharge ±8 kV Air discharge	±6 kV Contact discharge ±8 kV Air discharge	Floors should consist of wood or concrete or covered with ceramic tiles. If the floor is coated with a synthetic material, relative humidity must be at least 30 %.
Electrical fast transients/bursts IEC 61000-4-4	±2 kV for power lines ±1 kV for input/output lines	±2 kV for power lines ±1 kV for input/output lines	The quality of the supply voltage should be comparable to that for a typical commercial or hospital environment.
Impulse voltage (surges) IEC 61000-4-5	±1 kV Normal mode voltage ±2 kV Common mode voltage	±1 kV Normal mode voltage ±2 kV Common mode voltage	The quality of the supply voltage should be comparable to that for a typical commercial or hospital environment.
Voltage dips, temporary interruptions and fluctuations of the supply voltage IEC 61000-4-11	< 5% U _T (> 95% dips of U _T) for 0.5 cycle 40% U _T (60% dips of U _T) for 5 periods 70 % U _T (30 % dips of U _T) for 25 periods < 5% U _T (> 95% dips of U _T) for 5 seconds	< 5% U _T (> 95% dips of U _T) for 0.5 cycle 40% U _T (60% dips of U _T) for 5 periods 70 % U _T (30 % dips of U _T) for 25 periods < 5% U _T (> 95% dips of U _T) for 5 seconds	The quality of the supply voltage should be comparable to that for a typical commercial or hospital environment. We recommend an uninterrupted power supply or battery for operators of the product demanding continuous function even during an interrupted power supply.
Magnetic field of supply frequency (50/60 Hz) IEC 61000-4-8	3 A/m	3 A/m	Magnetic fields of the supply frequency should conform with the typical values found in commercial or hospital environments.

Note: U_T is the AC supply voltage prior to application of the testing level.

Annex

Interference re-sistance test	IEC 60601 - testing level	Conformity level	Electromagnetic environment / Guidelines
Conducted HF interference in accordance with IEC 61000-4-6	10 V _{eff} 150 kHz to 80 MHz	10 V _{eff}	
Conducted HF interference in accordance with IEC 61000-4-3	10 V/m 80 MHz to 6.0 GHz	10 V/m	<p>Portable and mobile RF communications equipment should not be used any closer to any part of the Docon 7, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended safety distance:</p> $d = 1,2\sqrt{P}$ for 80 MHz to 800 MHz $d = 2,3\sqrt{P}$ for 800 MHz to 2.5 GHz with P as nominal transmitter power in Watt (W) acc. to transmitter manufacturer specifications and d as recommended safety distance in metres (m). <p>Based on on-site^{a)} testing, the field intensity of stationary radio transmitters should be lower than the compliance level^{b)}.</p> <p>Interference may occur in the vicinity of devices bearing the following symbol.</p> 

Notes:

NOTE 1: The higher frequency range applies at 80 MHz and 800 MHz.

NOTE 2: These guidelines may not be applicable in all cases.

The propagation of nominal electromagnetic factors is influenced by absorption and reflection of buildings, objects and people.

a) The field strength of stationary emitters, such as base stations for cell phones and mobile terrestrial radio systems, amateur radio stations, AM and FM radio and television emitters, cannot be theoretically accurately predicted. To determine the electromagnetic environment in terms of the stationary emitter, a study of electromagnetic phenomena on-site should be considered. If the measured field strength in the location in which the Docon 7 is used exceeds the applicable RF compliance level above, the Docon 7 should be monitored to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Docon 7.

b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Docon7 Multicharger

Annex

9.4 Recommended safety distances

Recommended separation distances between portable and mobile RF communications equipment and the Docon7 Multicharger			
The Docon7 Multicharger is intended for use in an electromagnetic environment in which radiated RF interference is controlled. The customer or the user of the Docon7 Multicharger can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Docon7 Multicharger as recommended below, according to the maximum output power of the communications equipment.			
Nominal transmitter value [W]	Safety distance dependent on transmission frequency [m]		
	150 kHz to 80 MHz $d = 1,2\sqrt{P}$	80 MHz to 800 MHz $d = 1,2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2,3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.73
1	1.2	1.2	2.3
10	3.7	3.7	7.3
100	12	12	23

9.5 Accessories



Ordering accessories:

From Möller Medical GmbH or your direct distributor

Article numbers and accessories for the Docon7 Multicharger

Docon7 Multicharger	00003841
Docon7 Multicharger connecting cable	93001047
Docon7 Multicharger packaging	93006509
Docon7 Multicharger instructions for use	93006517
Docon7 Multicharger Lithium ion battery pack Nominal voltage: 22.2 V / 4500 mAh	93005614



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