

M-CARE

Your step into a safe zone



MODEL OPTIMUM

TECHNICAL INSTRUCTIONS AND INSTRUCTIONS FOR USE

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1. INTRODUCTION

We congratulate you on purchasing your new M-Care device.

Instructions for use are an integral part of this product. They contain important comments regarding safety, handling, and disposal. Before using the product, get acquainted with all instructions on handling and safety. Use the product exclusively in the described way and in the specified areas of use. In the case of use of product by third parties, please submit them all relevant documentation.

To make sure you have the last version of user manual, please visit

www.m-care.eu/manual

2. PUTTING INTO SERVICE

2.1 Delivery and transport verification

Full delivery contains the following components:

- M-Care device
- Adapter
- USB cable
- Batteries, 2x
- Allen wrench 4 mm
- Lenticular screw M6x16, 4x
- Washer A6, 4x
- Stand

! IMPORTANT NOTE

Make sure that order is complete and check the device for visible damage.

In the case of an incomplete delivery or damage caused by the lack of packaging or transport damage, call or send an e-mail to service contact.

*Children are not allowed to play with packaging.
Suffocation hazard.*

Remove the device and instructions for use from packaging.

Remove all packaging from the device.

2.2 Safety instructions

! ELECTRIC SHOCK HAZARD

- ▶ Electric current source voltage must correspond to the data on the device's installation plate.
- ▶ Hand over a defective device for repair to a qualified professional workshop or contact customer service.
- ▶ Damaged network plugs or network cables may only be replaced by authorized professionals or customer service.

- ▶ When unplugging the device from the power supply, always pull the plug only, never pull a network cable.
- ▶ Do not bend or peel a network cable and set it up in such a way that it cannot come into contact with hot surfaces, and that no one can step on it or trip over it.
- ▶ Always unwrap a network cable completely before switching on the device and do not use an extension cable.
- ▶ Never touch a network cable or a network plug with wet hands.
- ▶ Keep the device and batteries away from any source of excessive heat. Do not put them on or in heating devices.
- ▶ Do not use the device in an environment filled with dust, smoke or near magnetic fields in order to prevent damage to parts or internal circuits of the device.
- ▶ Do not use, store, or transport the device where flammable substances or explosives are stored.
- ▶ In no case should the device be immersed in liquids and you must prevent any liquid from entering device housing.
- ▶ The device housing must not be opened. Submit damaged device exclusively to qualified expert staff for repair.
- ▶ Never use the device if there are visible damages. The device must first be repaired by qualified professional staff.
- ▶ This device may be used by children up to the age of 12 years and individuals with reduced physical, sensory or mental capabilities or lack of experience and/or knowledge if they are under the supervision of an adult or have received instructions for safe handling of the device, and if they understand the dangers arising from the use of the device.
- ▶ Children are not allowed to play with the device. Cleaning and maintenance of the device must not be performed by children without proper supervision.

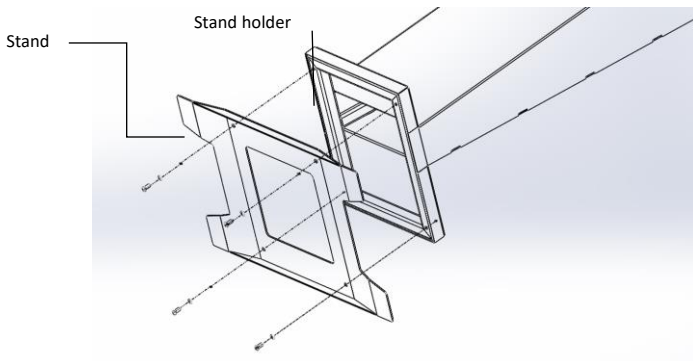
Caution! Warning! Electric shock hazard! Do not open product housing!

Caution! The use of an unauthorized or incompatible power adaptor, charger, cable, or battery may cause fire, explosion or other dangers! Use components delivered with your device.

! WARNING

! INJURY HAZARD DUE TO IMPROPER DEVICE INSTALLATION

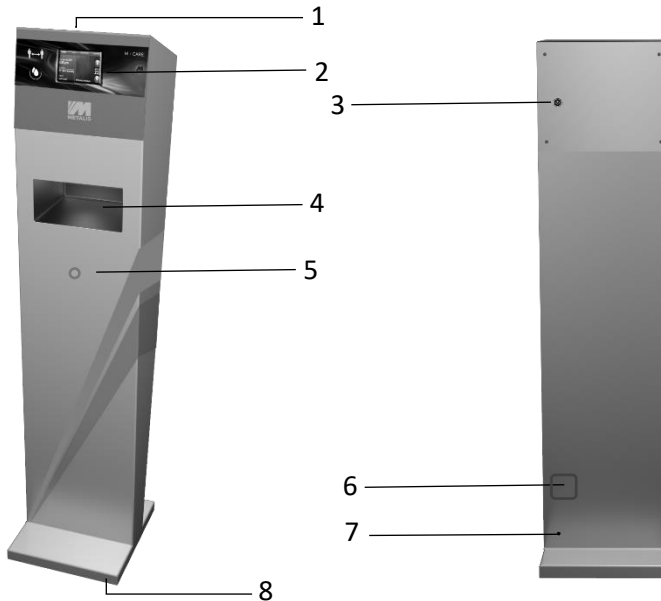
► **Always attach the device to a stand** with four M6x16 screws and four A6 washers, using the provided 4 mm Allen wrench. In order to attach the device to a stand, it is necessary to place the device into a lying position. The stand is an integral part of M-Care product.



► After the stand has been attached, and before putting the device into service, always put the device upright.

CAUTION! The device must not be cleaned using aggressive, chemical or abrasive cleaning agents. Otherwise, damages to device surface or parts may occur.

2.3 Parts and control elements



1 – disinfectant container lid / 2 - LCD screen / 3 – ON switch / 4 – opening for disinfectant dosing and temperature measurement / 5 – motion sensor / 6 – battery housing / 7 - micro USB port / 8 – holes for attaching device stand

2.4 Preparation for use

2.4.1 Connecting the device to power grid

After removing the device from packaging and **setting it in accordance with provided safety instructions**, insert the batteries into the battery slot (6), and then connect the device (7) to the power grid using the provided cable and adapter. In order to insert batteries, it is necessary to remove battery housing lid by unscrewing the screws using the provided 4 mm Allen wrench.

Caution!! Use the batteries you received with the device – rechargeable batteries 3.7 V li-Ion – type 18650! The use of inadequate batteries may cause damage to the device. The device must not be transported or stored with batteries inserted. When inserting batteries, pay attention to installing batteries + terminal and – terminal correctly according to markings inside the battery housing, otherwise damages to the device may occur! **Device damages caused by improper installation of batteries are not covered by warranty!** This note is also placed on the battery bay, to insert batteries, remove it from the bay and read the note:



CAUTION!!

Improper installation of batteries may cause damage to the device

Device damages caused by improper installation of batteries are not covered by warranty!

The purpose of batteries in M-Care device is to maintain the device in operation despite power outage. In order for the device to switch to battery mode, it is first necessary to connect the device to the

power grid (7) and to turn on the device by pressing the ON switch (3), and only then disconnect the device from the power grid.

If you would like to use the device with pre-charged batteries, without firstly connecting the device to the power grid prior to turning it on, it is necessary to open the lid (use the provided Allen wrench) of the battery housing (6), press the button on the battery housing (marked by the letter “a” in figure below) and to turn the device on within 10 seconds by pressing the ON switch (3).



Battery bay

2.4.2 Filling the disinfectant container

Open the disinfectant container lid (1) and fill the disinfectant container with a desired disinfectant. When opening container lid, the device will switch to filling mode and signals the level of filling with a sound signal and graphically on the device screen (2). After filling, close the disinfectant container lid. Insert your hand into the opening for disinfectant extrusion several times until the disinfectant is extruded and the disinfectant supply system is filled. The device is now ready for use.

The precision of container filling level may be influenced by atmospheric conditions. At a higher difference in the disinfectant temperature and container wall temperature, the recalibration of the container’s filling level is performed immediately after the filling.

Caution! The device is produced to be filled with a disinfectant. Do not fill the container with motor oils, petrol or corrosive agents. This can cause damage to the device.

Use disinfectants from original packaging, ready for use. Dilution of disinfectant with water or other liquids changes its properties and may disable dosage mechanism of the pump.

3. USE

Position your hand into the opening (4) with your palm facing upwards for disinfectant dosing and measuring skin temperature on the wrist as instructed on the device screen (2).

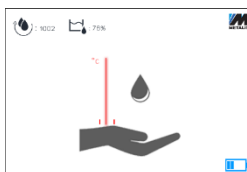
According to values measured, the device will dose a disinfectant on your palm and display on the screen the result of temperature measured on your wrist skin.

3.1 Display on device screen

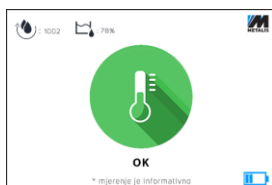
Home screen:



User instructions:



Normal measured value:



Increased measured value:



*measurement is informative

* images may differ

**If the measured value is below 34.0 °C, the screen will display “Lo” representing a low temperature. If the measured value is above 45

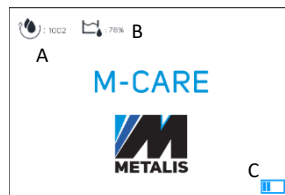
°C, the screen will display a notification: Above the measurement range. A body temperature of 37.5 °C or higher is considered an increased body temperature. In order to ensure proper measurement of the temperature of wrist skin, it is necessary to position your hand correctly according to the instructions on the screen – position the wrist towards the red light beam within the opening for disinfectant dosing and the temperature is measured in a way that a red laser beam is positioned in the middle of the wrist. The measured value is informative (+/- 0.5 °C). Measurement results serve as a reference and are not intended for making a medical diagnosis.

Additional information on the screen:

A – number of uses since the last filling

B – filling level

C – battery charge



3.2 Measured values

As with any temperature measurement method using a non-contact IR sensor, M-Care device measures the surface temperature of objects placed in front of the sensor and is intended for measuring the surface temperature of the wrist skin. M-Care device approximates the measured value of the wrist skin surface to the mathematical correlation given by a non-contact thermometer taking into account the emissivity of skin surface and external influences according to the following formula:

$$T_{oc} = \sqrt[4]{\left(\frac{T_{om}^4 - T_a^4}{Eps}\right) + T_a^4}$$

Where T_{oc} is – final temperature; T_{om} – temperature of the measured object, T_a – ambient temperature, ϵ – emissivity of the measured object.

Measurement results serve as a reference and are not intended for making a medical diagnosis.

The ideal ambient temperature for measuring is room temperature. External influences that can affect the measurement include: air conditioning, fans, hot or cold air flow.

Temperature of a human body varies during a day!

Changes in temperature during a day depend on numerous factors such as time of day, age, physical exertion, emotional state, menstrual cycle, pregnancy, environmental conditions, and illnesses.

Non-contact thermometers are used for quick temperature estimation!

An additional assessment of a general situation of a person is also very important. If you are not sure of the results of the measured values obtained via a non-contact method, measure the temperature again using another measurement method.

4. MAINTENANCE

M-care is a “plug 'n' play” device with minimal maintenance needs. The outer part of the housing is made of stainless steel and can be maintained by wiping with wet cloth or by means of available stainless steel cleaners. It is prohibited to use corrosive agents such as acetone or other solvents to clean any part of the device.

5. DISPOSAL

5.1 Package disposal



Packaging materials are selected according to environmental and disposal principles and therefore can be recycled. Dispose of packaging that you no longer need in accordance with the local regulations in force. Dispose of the packaging in an environmentally friendly way.

5.2 Device disposal



This symbol of a crossed out trash can on wheels indicates that this device is subject to the Directive 2012/19/EU. This Directive requires that after its service period the device must not be disposed of in usual household waste but must be submitted at the site for collection of special waste or submitted to a special waste disposal enterprise. This service is free of charge for you. Keep the environment safe and dispose of the device properly. You can find information on the possibilities of the disposal of used products at municipal or city administration.

6. TECHNICAL DATA

Voltage:	USB adapter (5 V)
Weight:	35 kg
Dimensions:	1400 x 300 x 400 mm
Operating temperature:	-20 to + 45 °C
Ideal temperature:	-5 to + 35 °C



This device corresponds to the essential requirements and other relevant regulations of the Electromagnetic Council Directive 2014/30/EU, the Low Voltage Directive 2014/35/EU.

7. PROBLEM DETECTION AND SOLVING

If problems occur with operation of the device, please first turn the device off and turn it on again using the ON switch (3), then pay attention to the device screen that will display a CODE, after reading a CODE, please consult the following code table:

CODE	Possible problem	Problem solution
ERROR 1	Memory error	Turn the device off and on 3 times, every time wait to see if a CODE appears at each starting of the device. If the CODE no longer appears and the home screen display the usual image of the initial screen or instruction, you have removed the problem. If the error CODE is still displayed, contact the service specified in the instructions.
ERROR 3	Error retrieving information from hand motion sensor	Turn the device off and on 3 times, every time wait to see if a CODE appears at each starting of the device. If the CODE no longer appears and the home screen display the usual image of the initial screen or instruction, you have removed the problem. If the error CODE is still displayed, contact the service specified in the instructions.
ERROR 4	Error retrieving information from fluid level sensor in container	Turn the device off and on 3 times, every time wait to see if a CODE appears at each starting of the device. If the CODE no longer appears and the home screen display the usual image of the

		initial screen or instruction, you have removed the problem. If the error CODE is still displayed, contact the service specified in the instructions.
ERROR 5	Error retrieving information from hand motion sensor and fluid level sensor in container	Turn the device off and on 3 times, every time wait to see if a CODE appears at each starting of the device. If the CODE no longer appears and the home screen display the usual image of the initial screen or instruction, you have removed the problem. If the error CODE is still displayed, contact the service specified in the instructions.
ERROR 7	Error retrieving information from IR sensor	Turn the device off and on 3 times, every time wait to see if a CODE appears at each starting of the device. If the CODE no longer appears and the home screen display the usual image of the initial screen or instruction, you have removed the problem. If the error CODE is still displayed, contact the service specified in the instructions.
Image on screen are not displayed	SD card not reached	Turn the device off and on 3 times, every time wait to see if the problem is removed, i.e. is the screen displaying the usual image.
Disinfectant not extruded	Disinfectant container is empty or disinfectant delivery hose has not yet been filled with disinfectant.	Check that you have filled the disinfectant container. Put your hand in the disinfectant extrusion opening several times to start the extrusion of disinfectant.

<p>Device not working on batteries</p>	<p>Incorrect device turning on procedure.</p>	<p>The purpose of batteries in M-Care device is to maintain the device in operation despite power outage. In order for the device to switch to battery mode, it is first necessary to connect the device to the power grid (7) and to turn on the device by pressing the ON switch (3), and only then disconnect the device from the power grid.</p>
<p>Container filling level deviates from real values by more than 20%</p>	<p>Recalibration of container must be initiated</p>	<p>To recalibrate the device, the container must be empty. Open the container lid; lift it 6 times in a row with less than 7 seconds between the two lifting. The screen will display a message INIT in the lower middle part of the screen. After the message appears, turn the device off and on. By doing this, you will start device recalibration process. This way, you have recalibrated the bottom of the container – 0%. When you fill the container to the fullest, that value will be entered, i.e. the device will now remember that the container is 100% full.</p>
<p>Device extrudes disinfectant uncontrollably</p>	<p>Obstacles in front of a motion sensor.</p>	<p>Clean the opening of the motion sensor with clean cotton fabric. The motion sensor opening is on the top panel of the hand opening, the motion sensor opening is the upper panel opening that is closest to the rear wall.</p>

8. WARRANTY

Dear customers,

This device has a warranty of 2 years starting from the date of purchase. In the case of product's deficiencies, you are entitled to legal rights at the expense of the seller of the product. The warranty presented below does not restrict these legal rights.

Warranty terms:

Warranty territorial validity: in the territory of the Republic of Croatia.

The warranty period starts on the day of purchase. Please, save your invoice. It is required as a proof of purchase.

If, within two years from the date of purchase of this product, there is a material error or a factory error, the product will be – based on our choice - repaired or replaced for you free of charge. For such fulfilment of the warranty obligation, it is necessary to present the defective device and proof of purchase (invoice) within the two-year time limit and briefly describe in writing the device error that occurred and when the said error occurred.

If the malfunction is covered by our warranty, we will send you a repaired or a new product. The repair of the product does not start a new warranty period.

Warranty period and legal law in case of deficiencies:

The exercise of the warranty right does not extend the warranty period. A 3-month warranty period is provided for all replaced and repaired parts. Damages and deficiencies that may be present at the

time of purchase should be reported immediately after unpacking. After the expiration of the warranty period, repairs are charged.

Warranty scope:

The device has been carefully manufactured in accordance with strict quality guidelines and has been carefully inspected prior to delivery.

This warranty is valid for material and manufacture errors. This warranty does not cover parts of products that are exposed to normal wear and are therefore considered as early wear parts or damage to breakable parts, such as switches, batteries or parts produced from glass. This warranty shall fail if the product is damaged and if the product has not been professionally used or serviced. For the professional use of the product, all instructions specified in the instructions for use must be followed precisely. Use of the product for purposes and operations that are not recommended or referred to in the instructions must be avoided.

The warranty shall cease to apply in the event of misuse, improper use, application of force and interventions on a device that have not been carried out by an authorised branch of the service.

Realisation in case of a warranty claim:

In order to ensure prompt processing of your claim, please follow the following notes: Please hold the invoice and item number (e.g. MC-1-000001) for all pending queries as proof of purchase. You can find the item number on the product's installation plate, in the form of a sticker on the back of the product, near the connection of the product to the power grid.

Metalis d.o.o., Toplička cesta 54, 49240 Donja Stubica, Croatia

www.m-care.eu / sales@m-care.eu

If there are any malfunctions or other deficiencies, first contact the service department below by telephone or e-mail.

Service and deficiency reporting:

Phone: +385 49 286 206

E-mail: service@m-care.eu

Address: Toplička cesta 54, 49240 – Donja Stubica, Croatia

The service is performed exclusively at the specified location of the service and is not performed in customer premises.