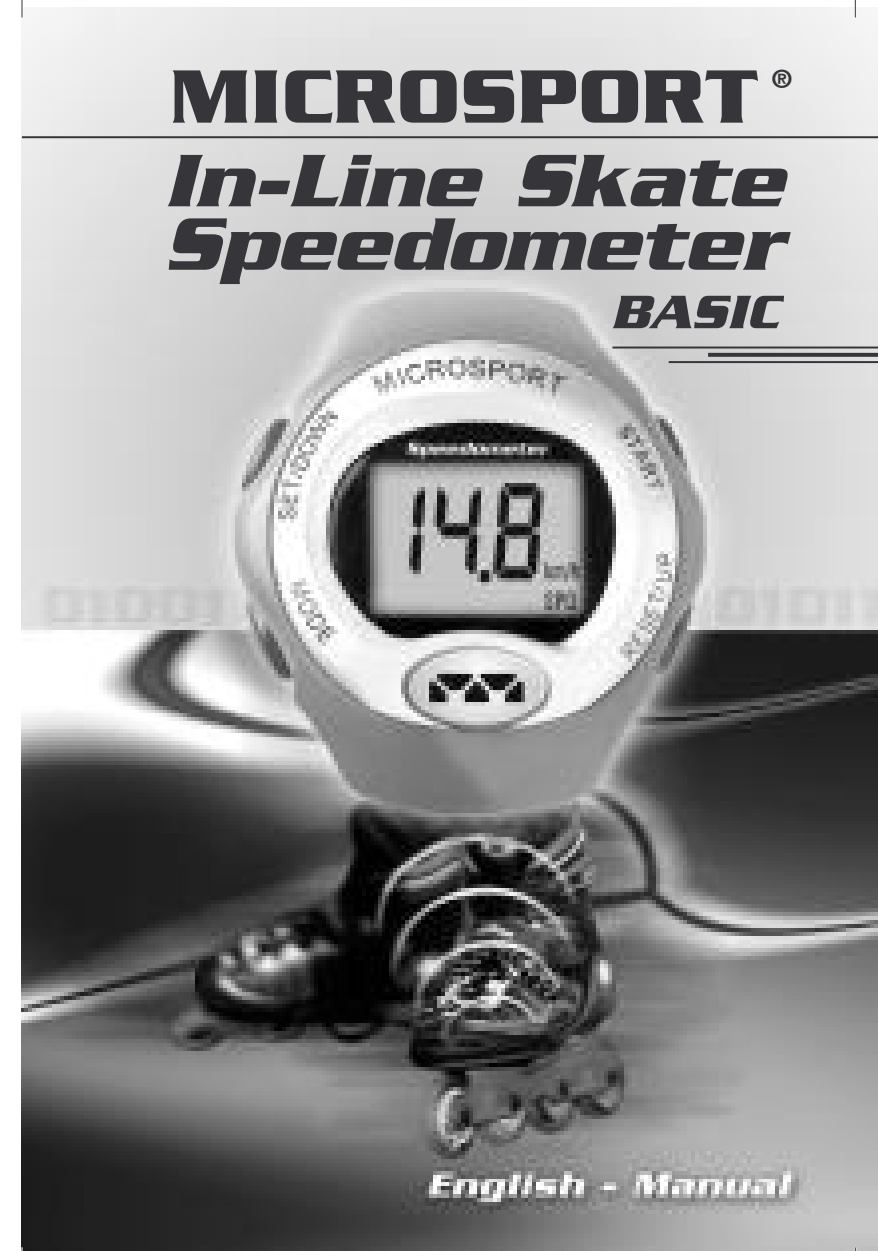


FCC-ID: OWUOK622-7

The devices comply with Part 15 of the FCC rules. Operation is subject to the following two conditions:

This device may not cause harmful interferences and this device must accept any interference received, including interference that may cause undesired operation.



In-Line Skate Speedometer BASIC Operating Instructions

- 1. Components** of the In-Line Skate Speedometer
- 2. The keys** of the display and their functions
- 3. Installation**
 - 3.1. Installation of the Wheel
 - 3.2. Display and Wheel Size
- 4. Operating** the In-Line Skate Speedometer
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 - 5.1. Changing the display battery
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- 6. Trouble Shooting**
- 7. Remarks**
- 8. Warranty**

Thank you very much for choosing the MICROSPORT In-Line Skate Speedometer. This Speedometer is recommended because of the easy installation and handling as well as its outstanding accuracy.

Don't expose your Speedometer to direct sunlight for a long period and protect the display from extreme cold and hot temperatures. Handle your display carefully and keep it in a clean and dry state.

Before you start using your Speedometer please read this operating manual carefully. The actual installation procedure will not take you longer than 10 minutes.

Attention:

1. The Skate Speedometer contains some small components which can be swallowed and can cause death by suffocation.
2. Always check the equipment before skating. Check the bearings and the fitting of the axle to avoid blocking or loosening of a wheel.

3. Skating accidents can always happen, even to experienced skaters. To avoid serious damage always wear the complete protective gear.
4. Skating needs the full attention of the skater, so don't let the Skate Speedometer disturb you from the traffic around you.

1. Components of the In-Line Skate Speedometer

Before you start please check the completeness of your Speedometer package. Your Speedometer consists of:

1. **A puck**, housing the skate computer. The puck is approximately 1 cm high and has a 5 cm diameter
2. **A skate wheel** with an internal magnet
3. **A watch like Display**

The package contains five different spacers:

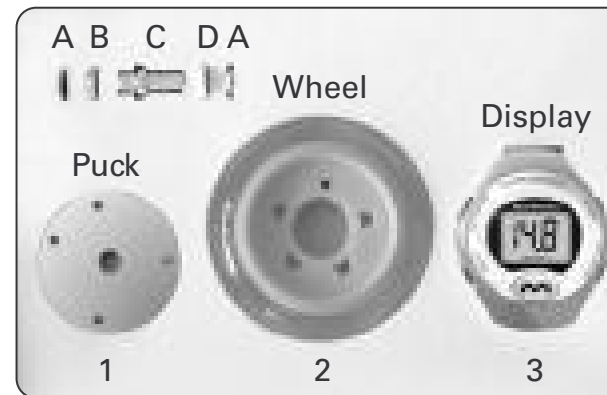
- A. Two outer spacers to fit the In-Line Skate Speedometer Wheel in wider frames.

- B. One spacer for skates with 8 mm axle diameter.
- C. One spacer for skates with 6,4 mm axle diameter.
- D. One distance ring.

And this instruction manual.

The different components of your speedometer are shown in picture 1.

- A) **Outer spacer**
- B) **Ring spacer**
- C) **Cylindrical spacer**
- D) **Distance ring**



Picture 1

Content of the packaging

2. The keys of the display and their functions

SET/DOWN

SET activates the Programming-Mode.
DOWN - the value programmed is reduced by one

MODE

By pressing **MODE** the following functions can be displayed:

SPD – actual speed
MX SPD – maximum speed
AV SPD – average speed
TRP TIME – trip time
TRP DST – trip distance
DST – total distance
PM – wheel ware rate

RESET

RESET erases all data except the total distance and the wheel wear rate

START

START activates the Data-Mode.



3. Installation

3.1. Installation of the Wheel

First you have to replace one of your current wheels with the Skate Speedometer Wheel. In principal it does not matter which wheel of your skates you replace, but we recommend that you choose the second or the third wheel. This guarantees the best protection of your Speedometer by the frame of your skate. Also we recommend that you replace a wheel on the left skate if you want to wear the display on the right wrist and vice versa.

Attention: Please use adequate equipment to replace the wheel, e.g. a special Skate-Tool (not included in this package).

1. Disassemble the axle of the wheel to be replaced. The wheel is fixed to the frame of your skates by two screws to the left and the right of the frame. These screws form the axle. While you turn out one

screw keep an eye on the other screw as well. If the other screw begins to turn freely please fix it with you hand or another tool. Store the two screws carefully (Picture 2) for reassembling.



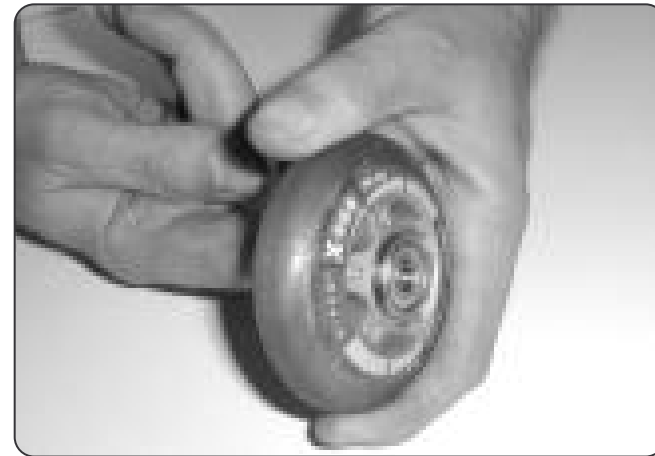
Picture 2

2. Extract the bearings of the wheel. In the wheel you have disassembled you find two bearings and one spacer in the middle. You now have to take these bearings and the spacer out of the wheel. This is most easily done with a special skate tool. If you don't have such a tool you can also use the cylindrical spacer (C in picture 1) in combination with a small screwdriver. If your skate uses a cylindrical spacer you can push out the first bearing by placing the cylindrical In-Line Skate Speedometer Spacer C on top of the original spacer (Picture 3) and



Picture 3

press. The second bearing can then be pushed out from the inside (Picture 4).



Picture 4

If your skate is operating with ring spacers (B in picture 1) put the screwdriver through the cylindrical In-Line Skate Speedometer Spacer C and insert it nearly half way into the wheel hole for the axle. By bending the screwdriver to the side you can extract the first bearing. Again the second bearing can then be pushed out from the inside without a problem. Store the bearings carefully.

3. Install the first of the bearings into the In-Line Skate Speedometer Wheel. Push one bearing with your fingers into the hole of the Skate Speedometer Wheel (Picture 5).



Picture 5



Picture 6

4. Place the correct spacer into the In-Line Skate Speedometer Wheel. Decide which of the In-Line Skate Speedometer Spacers you need. Principally if your original spacer looks cylindrical you need the cylindrical spacer. If your original spacer is a 1 cm thick ring you need the 3 mm ring spacer. Now place the spacer into the In-Line Skate Speedometer Wheel (Pictures 6+7).



Picture 7

5. Press the second bearing into the In-Line Skate Speedometer Wheel. The Skate Speedometer Spacer is now fixed between the two bearings (Picture 8).



Picture 8

Use a screwdriver to fix a ring spacer in the centre of the hole.

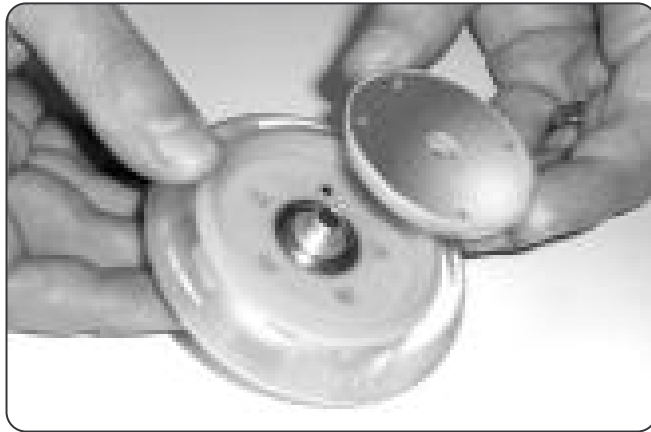
6. Place the distance ring D (smallest of the included rings) on the bearing on the inner side of the In-Line Skate Speedometer Wheel (Picture 9).



Picture 9

The inner side can be recognized by the significant hole to house the computer puck 1. The distance ring prevents the wheel and the puck from touching and grinding against each other.

7. Put the Computer Puck 1 into the In-Line Skate Speedometer Wheel. Please note, that the battery in the transparent puck case should show on to the outside (Picture 10).



Picture 10

The wheel is now prepared for reassembly into your skate. Put the complete wheel back into the frame.

8. Stick the long axle screw through the frame and the In-Line Skate Speedometer Wheel and fix it with the second, smaller screw from the other side of the frame (Picture 11).



Picture 11

Attention: If the wheel moves after tightening of the screws in the direction of the axle, unscrew the axle one more time and place one or two of the Outer Spacers A in front of the puck and behind the wheel to cover the distance (Picture 12).



Picture 12

The axle can now be put back into your skate.

9. Check that the Puck 1 does not turn with the wheel but keeps its fixed position while the wheel is spinning freely.

Attention: After a successful installation only the In-Line Skate Speedometer Wheel is rotating. The electronic puck will be fixed and should not turn.

You have completed the installation of the wheel now. You do not need any technical skills for the further steps. In just two minutes you can start your first trip.

3.2. Display and Wheel Size

The bracelet of the In-Line Skate Speedometer Display is equipped with an elastic part under the actual watchcase which allows you to lengthen the bracelet. You can therefore decide whether to wear the display directly on the wrist or over the recommended wrist pads.

The In-Line Skate Speedometer is equipped with an automatic wear out function. The computer takes into account the reduction of the wheel perimeter over time. This guarantees the accuracy of the measurement even if the wheels are already used.

To determine the perimeter of new wheels use the following list to help you to find the perimeter of your wheel.

Ø 76 mm \Leftrightarrow PM 239 mm

Ø 78 mm \Leftrightarrow PM 245 mm

Ø 80 mm \Leftrightarrow PM 251 mm

Attention: The perimeter programmed into the display always has to correspond to the In-Line Skate Speedometer Wheel (the wheel size is printed on the packaging). The display in the packaging is preset to a 239 mm perimeter corresponding to a 76 mm diameter wheel. If you have bought your speedometer with a different wheel you have to adjust the perimeter in the Programming-Mode before you start skating.

Generally you can calculate the perimeter of a wheel from the diameter (which is usually written on the wheel) with the following formula:

$$\text{Perimeter} = \text{Diameter} \times 3,14$$

To use the In-Line Skate Speedometer with worn wheels:

You can easily use the In-Line Skate Speedometer with a used set of other skate wheels. Most skate brands allow the "rockering" of the skate wheels. This feature it meant to assemble wheels of different sizes into one frame. You can determine the ability of your skates by dismantling one wheel. When taking out the axle you can see a small plastic or metal part called "washer" with the hole for the axle. This hole is not in the centre of the washer so it depends on the installation of the washer at which height the axle is built into the frame.

If your In-Line Skate Speedometer Wheel is bigger than the others you will have to built in the axle closer to the boot. If your Skate Speedometer Wheel is smaller, the axle should be closer to the ground.

If “rockering” is not possible with your skates please use the next larger size of the In-Line Skate Speedometer Wheel. The exposure of this wheel will soon be worn out by the higher pressure on this wheel. The bigger size of the wheel does not effect the accuracy of the measurement. Pay attention that you always program the perimeter of the In-Line Skate Speedometer Wheel in the display and not the perimeter of your other wheels.

Adjusting the wear out function:

The built in wear out function is based on the statistical normal use of skates. The real perimeter reduction may differ individually due to the conditions of the ground usually skated on as well as the weight and technique of the skater. If you get the feeling that the displayed perimeter differs from the real perimeter, you should reprogram the watch with the actual value to guarantee the precision of the measurement.

Attention!

Measuring the actual perimeter of the wheel: To measure the actual perimeter of your wheel, make a dot on the In-Line Skate Speedometer Wheel. Then roll your skate over a piece of paper and mark the places when the dot is closest to the paper at least two times, the distance between the two marks is the required perimeter in [mm].

Programming the Display:

1. Setting the perimeter of the wheel:

To start the programming mode of the display press **MODE** followed by the **SET**-button. On the display the **PM** (perimeter) symbol appears.

The preset perimeter is 239 mm, which is equivalent to a 76 mm diameter wheel. The range for the allowed perimeters varies from 210 to 251. Press **DOWN** until the correct value is reached, i.e. 251 for an 80 mm wheel.

2. Confirm the correct value by pressing MODE.

3. You can now chose between measurement in Miles or Kilometres:
Press **SET** to switch between Miles (M) and Kilometres (km). Press **MODE** to confirm your selection

4. You have completed the programming of the display and the display switches into the Viewing-Mode.

4. Operating the Skate Speedometer

In this section the function of the different keys is explained in detail. Your In-Line Skate Speedometer display uses four different modes during operation:

1. Data Mode

This mode has to be activated during skating for recording your speed and distance information.

2. Viewing Mode

You can browse through the different stored values of your Skate Speedometer.

3. Sleeping Mode

Switches off the display in order to minimize battery consumption. All values remain stored.

4. Programming Mode

You can set the wheel perimeter and select between kilometres and miles.

Data Mode

To activate the Data-Mode press **START**. First you see the wheel icon in the upper right corner of the display. This indicates that the display is searching for a puck transmitter (in the In-Line Skate Speedometer Wheel). When the display changes to the actual speed and the wheel icon begins to blink, the connection has been established successfully. If no transmitter is found the display changes to the viewing mode automatically.

If the connection could not be established correctly there might be two reasons:

1. The puck is not transmitting.

The transmission of the puck is initiated by the first turn of the In-Line Skate Speedometer Wheel. Please ensure that the wheel is turning or has been turned shortly before you press the **START**-Button.

2. The battery power of the transmitter and the receiver is not sufficient.

Please replace the batteries as explained in section 5.

When the transmission is received successfully the wheel icon is blinking continuously. By pressing **MODE** you can switch through the different functions of your skate speedometer.

Your In-Line Skate Speedometer offers you the following functions:

SPD	actual speed
MX SPD	maximum speed
AV SPD	average speed
TRP TIME	trip time
TRP DST	trip distance
DST	total distance
PM	wheel wear rate

ATTENTION! If you stop skating and the In-Line Skate Speedometer Wheel is not turning for more than 60 seconds your Speedometer switches off automatically and changes to the viewing mode.

Please keep in mind that the **START**-, **SET**- and **RESET**-Buttons are disabled while the system is in the Data-Mode. Pressing one of these buttons has no effect at that time.

Viewing Mode

To enter the Viewing Mode press **MODE** in the Sleeping Mode (when the display is blank).

In the Viewing Mode you can review the stored information about your trips by pressing the **MODE**-Button. By pressing **RESET** you can erase the information stored in the **MX SPD, AV SPD, TRP TIME** and **TRP DST** functions. The **SET**-Button activates the Programming Mode and **START** lets the display switch into the Data Mode.

If you don't press any button in the Viewing Mode for more than 20 seconds the display returns to the Sleeping Mode and turns off.

Sleeping Mode

The sleeping mode reduces the battery consumption of your skate speedometer. You can leave the Sleeping mode either by pressing **MODE** to enter the Viewing Mode or by pressing **START** to enter the Data Mode.

Programming Mode

The Programming Mode is activated by pressing **SET** while the display is in the Viewing Mode and offers the program-

ming of the wheel perimeter and the unit selection for the distance measurements as described in section 3.2.

ATTENTION: In the unlikely event that the display does not react to any of your inputs – the CPU of your display might be down. In this case open the watch case as described in section 5.1. – take out the battery for more than 1 minute and reinstall the battery. This restarts the display software. You might have to reprogram the actual perimeter of the wheel after this procedure!

5. Changing the Batteries

5.1. Changing the display battery

The lifespan of the display battery and the puck battery are the same. If you need to replace the batteries please always change both. The changing of the batteries and the speedometer maintenance is very easy with the "Battery Service Kit". This Kit contains two CR 1632 batteries,

o-rings and screws for maintaining the water resistance, a small screwdriver and an instruction manual.

You can get the "Battery Service Kit" in your local sports store or by contacting our service-team (see last page).

If all segments of the display are on after installation you have entered the display test mode accidentally. Please try again until the display reacts normally.

ATTENTION!

Empty batteries should NOT be thrown away. Please check your local regulations before dumping the batteries.

The bracelet of your skate speedometer contains a part of the antenna. Please handle the bracelet with care to avoid antenna damage which could lead to a failure of your In-Line Skate Speedometer.

5.2. Changing of the puck battery

Remove the wheel from the frame according to your skate manual. Open the four screws of the puck with a small screwdriver. Open the case and remove the CR 1632 battery carefully. Insert the new battery with + facing up and replace the cover in the proper position. Fix the cover with the screws.

Open the Watch Case Cover and carefully remove the old battery from the battery clip by unscrewing the clip. Insert the new battery of the type CR 1632 with + facing up and reinstall the battery clip. Close the back cover of the watch with the screws again. To check that the installation has been successful press **MODE**.

If you are using the "Battery Service Kit" for changing the batteries we recommend you replace the o-rings of the puck case as well. Also please use the small o-rings for the screws for improved water resistance.

6. Troubleshooting

Problem: Nothing appears on the display.

Solution: Press **MODE**, if the display remains blank replace batteries of the display and the electronic puck and press **MODE** again.

Problem: Display readings fade out.

Solution: The Batteries of the watch and the electronic puck are running out and need to be replaced.

Problem: Slow display response.

Solution: The current temperature is higher or lower than the operating temperature of the speedometer (0 °C to 55 °F / 32 °C to 131 °F).

Problem: Black display.

Solution: Temperature is too high, perhaps the display has been exposed to direct sun-

light for too long. Cool down the display temperature until the operating temperature (0 °C to 55 °F / 32 °C to 131 °F) is reached.

Problem: Grinding of the electronic puck against the wheel.

Solution A: Check whether the distance ring D in picture 1 is installed correctly between the bearing and the computer puck.

Solution B: Your bearings are worn out. Replace bearings. We recommend at least ABEC-1 quality.

Problem: The displayed actual speed seems not to be realistic.

Solution A: The transmission may have been interrupted for a short time. Such an interruption has no significance for the accuracy of the measurement of the distance, as long as the interruption is for no longer than 1 kilometre.

Solution B: The underlying wear-out

function is not equivalent to the real usage of the wheels. Check the perimeter of the In-Line Skate Speedometer Wheel and correct the programming if necessary.

Solution C: Your bearings are either extremely good or extremely bad. In this case it can happen, that the skating software returns a distance differing from the real distance more than 3%. By reprogramming the perimeter of the wheel you can adjust the software to your individual style and equipment. The new value for the perimeter calculates as: **real distance divided by shown distance multiplied by the real perimeter.**

Problem: The communication between puck and display does not work.

Solution A: The transmitter in the puck is not activated yet. Turning the In-Line Skate Speedometer Wheel activates the transmitter after one turn. Check the connection by pressing **START**.

Solution B: The battery is weak so the

distance between puck and display is too big. You can check by bringing puck and display close together. If the signal is ok when they are close together, you need to replace the batteries.

Solution C: The direction of the puck antenna needs to be optimised. The transmission quality is very much influenced by the frame of the skates. Loosen the axle screw and turn the puck approx 30°. Fasten the screw again and check the transmission. Repeat this until you have found the best antenna position.

7. Remarks

You can get special spare parts and equipment for your Skate Speedometer. The "Battery Service Kit" is a complete maintenance set. It consists of spare screws, new o-rings, a screwdriver, two batteries and an instruction manual, or you can get our spare wheels in one of the following sizes: 76mm/80A, 78mm/80A, 80mm/82A.

These (MICROSPORT) spare parts can be bought in skate shops or ordered by contacting our Microsport Service Center:
Phone: (089) 30725599 or
E-Mail: service@microsport.de
at Munich, Germany or through our Online-Shop at www.microsport.de.

If you have any other problems or questions please don't hesitate to contact our service center.

8. Warranty

MICROSPORT offers the original buyer of this In-Line Skate Speedometer the warranty corresponding to the laws in the country of purchase beginning from the date of the purchase for material and/or manufacturing errors. This warranty does not cover manual damage, damage during commercial usage, usual wear and tear, accident and disregarding the warnings in this manual. Also the batteries are not covered by warranty.

MICROSPORT can decide to repair or exchange items during the period of the warranty.

We hope you enjoy this unique In-Line Skate Speedometer. Comments are welcome.

**MICROSPORT GmbH & Co. KG
Grüntal 10a, D-81925 München**

Skate Speedometer Service-Number:

+49(0)89 307 255 99

Fax-support: +49(0)89 307 255 98

Online-support: service@microsport.de

Internet: www.microsport.de

The MICROSPORT In-Line Skate Speedometer fulfils the following requirements for devices in the EU and the USA:

The devices comply with the requirements of ETS 300 683 Electro Magnetic Compatibility (EMC) standard for Short Range Devices (SRD) operating on frequencies between 9 kHz and 25 GHz.

The devices comply with the requirements of EEC directive 89/336/EEC with regard

to Electromagnetic Compatibility and fulfil the requirements of 99/5/EC with regard to Radio Equipment and Systems (RES); Electro Magnetic Compatibility (EMC) standard for Short Range Devices (SRD).

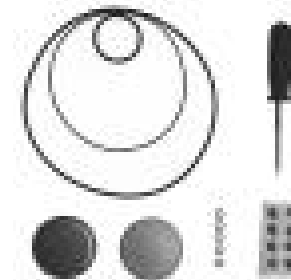
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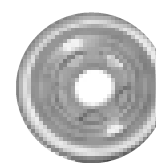
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Ersatzteile / Spare Parts:

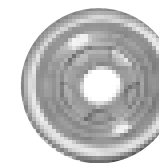
Batterie Austausch-Set / Battery Sercive Kit



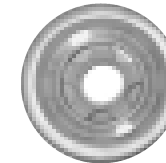
Ersatzrollen / Spare Wheels



76 mm



78 mm



80 mm