



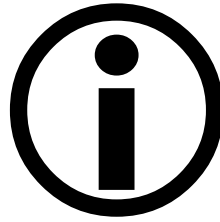
BOS[®] Cleantec

BOS[®] IR duct inspection robot



Operation and maintenance manual

Operating instructions must be read carefully before using the device.
This is important for correct and safe operation of the device!



- READ ALL SAFETY AND OPERATING INSTRUCTIONS!
- KEEP THE MANUAL FOR FUTURE USE!

Failure to follow the warnings and instructions could result in electric shock, fire and / or serious injury!

This manual only applies to BOS IR duct inspection robot. Device may only be used in dry conditions without any danger of explosion.

Devices are not intended for use by persons (including children) with physical, sensory or mental limitations, or lack of experience or knowledge as to how to use the machine. Children must be kept at a distance from the devices.

Disclaimer: This manual has been reviewed, but 100% accuracy is not guaranteed. As part of our policy of continuous product development we reserve the right to revise features and specifications of the product. Therefore, any claims based on the data, pictures, drawings or text in this manual cannot be accepted. We cannot guarantee that there are no errors.

GENERAL REGULATIONS

Products covered by this manual have been manufactured in Finland to existing laws, decrees and regulations as stated in the Declaration of Conformity below.

- The person who is in charge of machine operation must be acquainted with the construction and operation of the machine and must ensure safe operation.
 - The machine may only be used by people who are familiar with it.
 - Safety devices must not be removed or changed original installations.
 - If the device has to be installed in such a way that the operation of the safety devices is prevented, the person responsible for use must be notified.
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- The devices in this manual are only intended for the work for which they were designed and are mentioned in the manual
 - Use of the device for other purposes is prohibited!
 - The manufacturer is not liable for penalties if the device has been used in violation of the instructions!
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- Keep instructions available for the user.
 - Read the operating instructions carefully before installing and using the device.
 - Follow the operating and maintenance instructions to ensure trouble free operation of the device.
 - Follow safety instructions.
 - Only spare parts and components approved by the manufacturer must be used for maintenance.

The BOS® IR inspection robot is designed and built in accordance with general safety and electrical safety regulations. The inspection robots are intended for video recording and inspection of ventilation ducts, as well as for storing data for later use.

TECHNICAL SPECIFICATIONS

Case,	Polypropylene
- Dimensions, mm	480*440*20
Camera cable reel	Marine aluminium
- Control cable	LiF 12x0,25 25m
Screen	7"inch LCD color screen, 12 V DC
SD Recorder	1 CH mini dvr
- Memory card	SD card max. 32 GB
Connection cable	2M
Charger	110-240 VAC, 50 – 60 Hz
Control Unit / Control Panel	Stainless Steel
- Dimension, mm	230*220*55
- Batteries	3 pcs
- Battery type	Z LI 18650 N
- Battery capacity	3400 mAh
- Battery capacity Indicator	LCD Battery LI ion Capacity Indicator
- Microfon	Electrical microfon
Remote Control	Joystick, one-handed
- Connecting Cables	LIYY 8 x 0,25
Inspection Robot	Stainless Steel
- Dimension , mm	190*150*90
- Motors, 4 pcs	DC motor
- Cameras (Front and Back)	FPV colour camera
- Lights	Led 5 pcs (4+1)
- Rims	POM
- Tyres	Rubber tyres, 10X86/55

PROPERLY USE

BOS® IR Inspection robots are designed for professional use. The following safety instructions must be taken into account when working:

- ONLY USE THE DEVICES IN DRY CONDITIONS WITHOUT ANY DANGER OF EXPLOSION!
- Protect device from moisture and shaking.
- The device must not get wet during use!
- Do not cover the device during use.

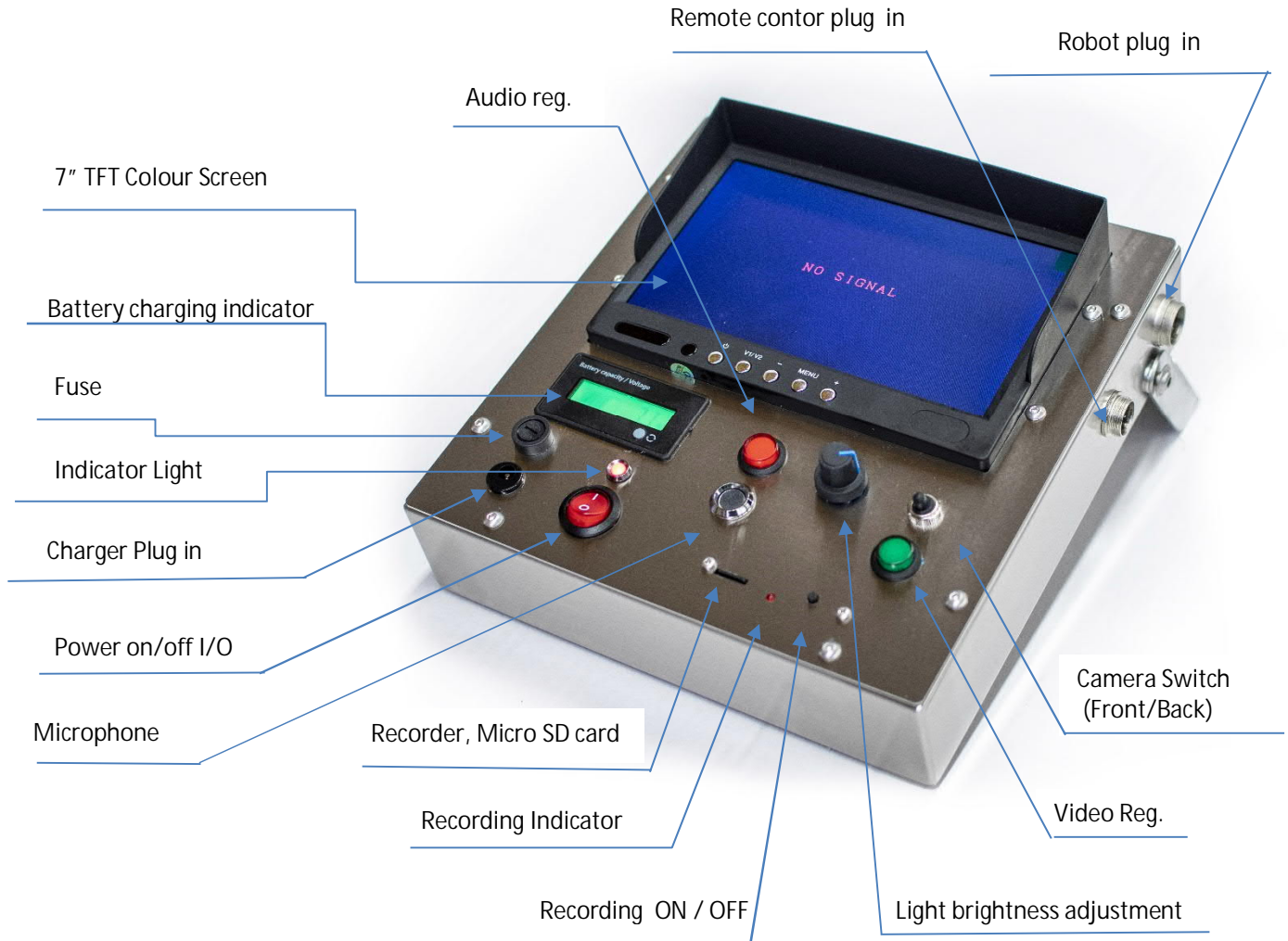
- Do not make any changes to the BOS® IR robot. If changes are made, the manufacturer is not liable for damage!
- Take care of the equipment and all separate parts.
- Check the moving parts are working properly and that there are no broken or damaged parts in the device that could interfere with operation.
- Make sure that the electrical cable of the charger is correct!
- Clean the device and cables after use, if necessary clean the camera lenses with a microfiber cloth or a cloth specially designed for cleaning the camera lenses!
- The user of the device is responsible for damage caused by wrong use!

- The type plate is located on the robot and case!
- The information on the nameplate must be noticed when ordering service or spare parts!

- When using a robot, local regulations of the work site must be followed!
- Follow local country regulations.
- Person who using the device must read and understand the instructions.

CONSTRUCTION AND CONTROLS

BOS® IR Control Panel



Recording to the SD card (max 32 Gb) :

Recording video file to the memory card:

- Push video reg switch → Green indicator light turns on. Recording starts and Indicator LED-light flash.

Recording audio file to the memory card :

- Push audio reg switch → Red indicator light turns on. At the end of the recording, push audio reg. switch again.

Finishing recording

- Push recording ON / OFF switch, recording indicator light stays on red colour..

Continue recording:

- Push again recording ON / OFF switch → recording start and indicator light starts flashing . Audio files can be added to the recorder as previously described.

➤ **If recording is not performed, keep the recording switches OFF to save battery !**

OPERATING AND SAFETY INSTRUCTIONS

PLEASE CAREFULLY OBSERVE THE FOLLOWING BEFORE AND DURING OPERATION:

- The machine user must ensure that the machine is fit for the intended purpose.
- The user of the machine must ensure that the voltage and current correspond to the ratings on the CE plate.
- Occupational safety regulations must be observed.
- Before using make it sure that there is no risk of explosion in the operating environment.
- Flammable or explosive materials must not be stored or used in the place where the device is used.
- The machine must be protected from moisture, vibration and getting wet.
- Only use spare parts that are suitable for the machine (approved by the manufacturer).
- Do not cover the robot during operation.
- The machine must keep as clean as possible.
- The operating temperature must not exceed + 35°C or fall below -0°C
- No changes may be made to the device.
- Do not use damaged batteries. Damaged or modified batteries can behave unexpectedly and cause a fire or explosion.
- Do not expose the battery to fire or excessive temperatures.
- Follow the download instructions.
- Never make any service for damaged batteries. All battery maintenance must be performed by the manufacturer or an authorized service center.

Person(s) working on site should wear a helmet, hearing and respiratory protection, goggles, clothing and footwear, and other personal protective equipment depending on the work performed.

INSTRUCTIONS

1. Transport

The machine must be protected against dirt and moisture during transport. The machine must not be stored outdoors unprotected. Exercise extreme care and caution when moving or lifting the machine. Avoid impacts and knocks during transport and handling. Before commissioning, inspect the machine to make sure it is exactly as it should be (and without any transport damage).
(Note the capacity of the batteries in air transport).

2. Storage

Store the machine in a dry place, protected from the weather. Avoid extreme temperatures (high and low) during storage.

Batteries should be charged, the recommended charge level is 70-90%.

Never store the device below 0 ° or above + 30 °.

3. Commissioning

Install the case on a flat surface and check that it is protected from the weather. Make sure the equipment is in good condition, fasten the cables as instructed before starting work. Protect the case and its parts from vibration and possible damages. Check that all components are in place and the equipment is fully functional. Check the connections are correct and the battery is fully charged. (The maximum operating temperature is 35 ° C.

4. Use of the machine

- Before starting work, make sure that the work area is free and there are no obstacles that restrict work.
- Check all accessories
- Take care of personal protective equipment.
- Put the robot in the duct and start recording. Use the camera selector switch on the control panel to select the front camera when driving forward, use the rear camera when driving back.
- Save audio and / or video files on a memory card in the recorder for later use.
- When work is complete, clean the equipment and place it in the case in its designated locations.
- Note the battery charge after use.

5. Charging voltage

The battery can be charged in the mains 100 - 240 VAC, and 50-60 Hz.

- **Make sure the battery is charged!**
- **Make sure that the connecting cables are correct!**
- **Clean the equipment after use!**
- **Only a suitably qualified person can use the equipment!**

MAINTENANCE

- The equipment and cables must be cleaned of dirt and dust after each use!
- Running water for cleaning is prohibited!
- Before carrying out maintenance and cleaning work on the device, operating switch must be set to the off position!

All maintenance and repair work that requires the protection of the robot, control unit or remote control to be opened must be carried out by an authorized customer service workshop. Only original spare parts must be used for maintenance.

Equipment in continuous professional use should be serviced every year.

If the device malfunctions, it must be returned for service immediately.

During transport, care must be taken to protect the product and prevent further damage. Maintenance work includes cleaning the device and checking the condition of the cables, also cleaning the tires if necessary. Maintenance and repair work on the control unit and batteries may only be carried out by a specialist, authorized by the manufacturer.

- Any repairs must be carried out by a specialist, approved by the manufacturer.
- The cables and the robot should always be cleaned of dirt and grease with a mild detergent after use and the batteries must be charged for the next use.
- Clean the camera lenses with a microfiber cloth or a cloth specially designed for cleaning lenses!
- Expired batteries can be replaced with new ones from the service door below the control panel.
- The manufacturer accepts no liability for maintenance performed by a third party.

WARRANTY

Provided that the operating and maintenance instructions are strictly adhered to, the product is covered by a 12-month factory warranty starting from the date of purchase.

Any defects discovered during this warranty period are rectified free of charge, provided that

- The defect is in materials or components
- The defect has occurred during normal use
- All maintenance and repair works on the machine have been performed by the manufacturer or an authorized representative – the manufacturer accepts no liability for any maintenance works performed by a third party
- Products repaired or replaced by the manufacturer are warranted as of the original date of purchase.
- A warranty claim has been submitted in writing.

The warranty does not cover defects resulting from normal wear and tear, negligence, improper use or maintenance/repair works not performed by the manufacturer.

The product has been manufactured to existing international regulations. In case of any questions regarding commissioning or malfunctions, please contact the manufacturer.

For maintenance or warranty repair, the machine should be sent to the following address:

Bierkühl Oy
Pellonlaita 1, 50600 Mikkeli
Puh. +358 440 178 111

Bierkuhl reserves the right to make changes.

ENVIRONMENT / RECYCLING

- Waste materials must be disposed of in compliance with the relevant legislative requirements and without harming the environment.
- A discarded machine or any part of it must not be disposed of together with household waste!
- Discarded machine parts and accessories must be taken to an environmentally compatible recycling point.
- The product uses valuable materials and components that are recommended for recycling and reuse.

If an appropriate recycling point cannot be found, the product can also be returned to the seller or manufacturer to be recycled.

Metal parts (housing and motor) can be recycled as scrap metal.

Electronic parts should be taken to an authorised recycling facility.

Batteries must be taken to appropriate recycling points.

Other parts can be recycled as mixed waste.

In observance of the European Directive on waste electrical and electronic equipment and its implementation in accordance with national law, discarded electric tools must be collected separately and returned to an approved recycling facility.



DECLARATION OF CONFORMITY

Manufacturer: Bierkühl Oy, Pellonlaita 1 50600 MIKKELI FINLAND
Tel.: +358 440 178 111
Website: www.boscleantec.com

Product designation: Electric duct cleaning machine
Product name: BOS® Clean
Intended use: Duct description, inspection and recording
Serial number:
Year of manufacture::

We hereby declare that the product named above has been designed to comply with the Finnish Government Decree on the safety of machinery (400/2008) and meets the requirements of the Machinery Directive(2006/42/EY). We also declare that the following Directives and harmonised standards have been applied:

Essential characteristics and performance	Harmonised technical specification
Safety of machinery	SFS – EN ISO 12100:2010
Electrical equipment of machinery – Part 1: General requirements	SFS _ EN 60204-1:2018
Decree on the safety of machinery	Finnish Government Decree No. 400/2008
Machine Directive (MD)	MD 2006 / 42 / EY
Low Voltage Directive (LVD)	2014/35/EU
Electromagnetic Compatibility (EMC) Directive	EMC 2004/108/EY 2014/30/EU
Restriction of Hazardous Substances (RoHS) Directive	2011/65/EU
Waste Electrical and Electronic Equipment Directive (WEEE)	WEEE 2012/19/EU

This product conforms with the requirements to achieve CE marking.

Bierkühl Oy 12.04.2023

Pentti Hiltunen
Managing Director