



## 1. WELCOME

Thank you for purchasing the iMan; BioControl's Windows-CE based PDA/RFID-reader.

BioControl has been making RFID-applications for livestock for over 20 years and has gained great competence and skills in this specialized area.

The name iMan is a combination of 'identification' and 'Manager' and refers to the iMan's unique RFID Reader Concept that offers a range of exchangeable high-performing RFID-readers.

We have designed the iMan to be your workmate for intensive RFID-management in harsh environments such as livestock production and industry and hope that you will benefit from working with it in your 'real life'.



**Note:** Not all features described in this manual will apply to every iMan, as some features are offered as options. If the feature described does not apply to your unit, please disregard that section of the manual.

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## 1.1. Changes in this manual compared to previous version

- Startup Guide v1.1 changes compared to Startup Guide v1.0:
  - Chapter Welcome: small additions
  - Chapter 3: Picture with new keyboard layout
  - Chapter 4.6 changed number 4.5-7:
  - Chapter 5.2 small additions
  - Added chapter 5.4: iMan Menu application
  - Chapter 5.5 small additions
  - Chapter 8.1 new Readers Manager
  - Chapter 8.2 added info “iMan Readers Manager Manual”
  - Chapter 8.3 added info “iMan Read&Store Manual”
  - Chapter 11.1 changed 128 MByte SDRAM

## 2. PACKAGE CONTENTS

Check your package for the following items:

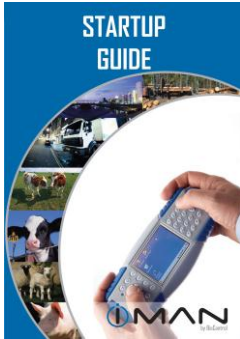
1



2



3



4



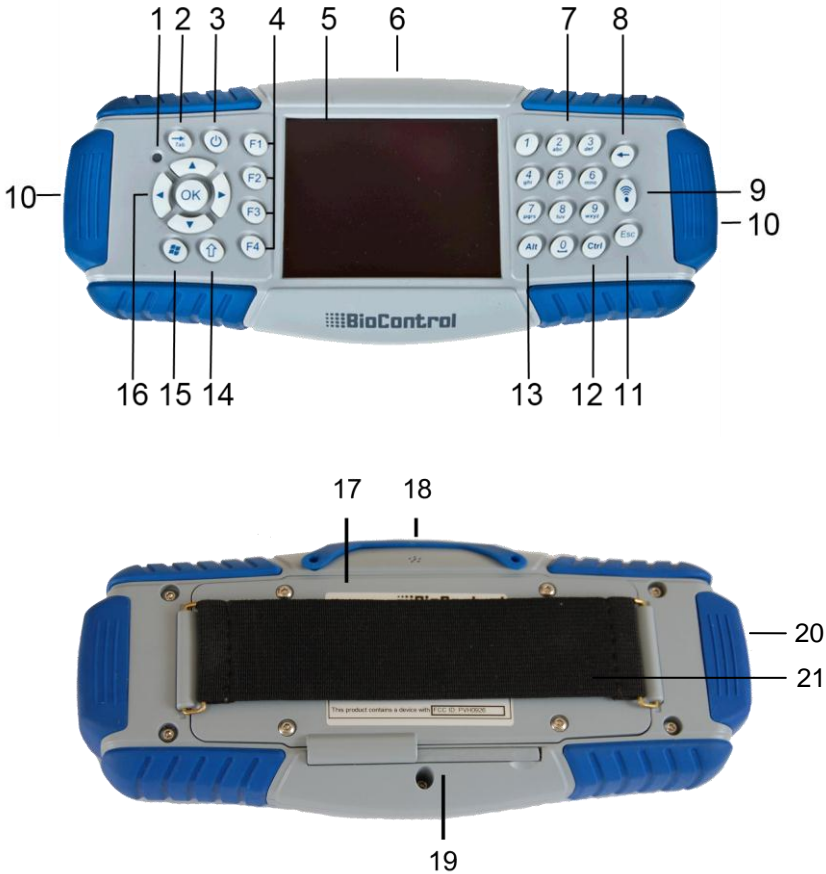
5



1. iMan
2. Docking Cable
3. Startup Guide

4. Software CD
5. Screen protector

### 3. HARDWARE OVERVIEW



- |                             |                     |
|-----------------------------|---------------------|
| 1. Multicolor indicator LED | 12. Ctrl key        |
| 2. Tab key                  | 13. Alt key         |
| 3. Power key                | 14. Shift key       |
| 4. Function keys            | 15. Windows key     |
| 5. Touch screen             | 16. Navigation keys |
| 6. Docking Connector        | 17. Back side       |
| 7. Alphanumeric keypad      | 18. Speaker         |
| 8. Backspace key            | 19. Stylus          |
| 9. RFID-read key            | 20. Side-cap        |
| 10. 4 pins connector        | 21. Hand strap      |
| 11. Esc key                 |                     |

## 4. IMAN BASICS AND FIRST TIME SETUP

Before using your iMan, please follow these steps.

### 4.1. Charge the battery

Connect the Docking Cable (2-2) to the Docking Connector (3-6) and plug the AC adapter into an electrical outlet.

The indicator LED (3-1) will blink blue fast while charging. It will blink blue slow when the battery is fully charged.

### 4.2. Install the screen protector

To keep the touchscreen clean and protected, install the supplied screen protector (2-5) following the instructions in the screen protector package.

### 4.3. Switch on your device

Press and hold the Power key (3-3) to switch-on the iMan. You will be asked to align the touchscreen at first time setup. Use the stylus (3-19) for this.

### 4.4. Rotate the screen

To change from landscape mode to portrait mode hold the Shift key (3-14) while pressing the Power key (3-3).

### 4.5. Navigating with the taskbar

Most icons on the taskbar will be self-explanatory. To list a few:



- |                                 |                              |
|---------------------------------|------------------------------|
| 1. Start                        | 5. WLAN                      |
| 2. Show hidden icons            | 6. Numeric/Alphanumeric mode |
| 3. LAN                          | 7. On-screen keyboard        |
| 4. Power source (mains/battery) | 8. Switch Window             |

### 4.6. Toggle between Numeric and Alphanumeric mode

The on-screen keyboard (4.5-7) can be used to enter Alphanumeric characters with the stylus. For fast typing you can also put the iMan in Alphanumeric mode to type like sms on your mobile phone.

Hold the Shift key while pressing the Ctrl key to toggle between Numeric and Alphanumeric-mode. Indication on taskbar (4.4-6):

 = Numeric mode       = Alphanumeric mode:

### 4.7. Indicator LED

The multicolor LED (3-1) provides status information. Standard is fast blinking blue (charging), slow blinking blue (battery full) and green (after 'hard' reset).

Application programs can control the speaker and the LED and may use different colors.

### 4.8. Set your time

Start>Settings>Control Panel>Date/Time.

#### 4.9. Set your country/language

Start>Settings>Control Panel>Regional Settings. Language options are determined by the installed language pack.

#### 4.10. Change the volume

Start>Settings>Control Panel>Volume & Sounds.

#### 4.11. Check battery status

Start>Settings>Control Panel>Power.

#### 4.12. Recalibrate the screen

Go to: Start>Settings>Control Panel>Stylus

In the 'Calibration'-tab, tap on the 'Recalibrate'-button and follow instructions.

#### 4.13. Set your password (optional)

Create a password if you are concerned about unauthorized use.

Start>Settings>Control Panel>Password.

**!** **Note:** don't forget your password!

### 5. WORKING WITH THE IMAN

#### 5.1. Memory management

The iMan has three memories: RAM, Flash and extra memory on the internal SD-card (if installed). The WinCE operating system is stored in Flash and is copied into RAM during start-up. The RAM also contains the so-called Object Store, WinCE registry and other temporary data.

**!** **Note:** data stored in RAM is not permanently stored but will be erased when the iMan starts! Data stored in 'My Device' is stored in Flash (or in SD-card, if selected) and will not be erased when the iMan starts.

#### 5.2. Synchronize iMan with your PC

For Windows XP and before: Install 'ActiveSync'.

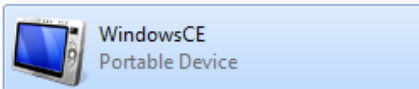
For Windows Vista and higher: Install 'Windows Mobile Device Center'.

Both programs can be found on web page:

<http://www.microsoft.com/en-us/download/default.aspx>

Connect the iMan to your PC with the Docking Cable (2-2); you now can browse the files on the iMan from "My computer" on the PC.

#### Portable Devices (1)



### 5.3. Windows CE

Windows CE is like a ‘tool-box’ that offers a range of possible tools that can be installed on products like the iMan. BioControl offers two possible ‘tool-sets’ that are pre-installed on the iMan: iManLT (selection of WinCE Core tool-box) and iManPRO (selection of WinCE Pro tool-box). The installed tool-set is displayed at startup:



The section ‘Community’ on our website lists the content of the iManLT and iManPRO tool-sets.

### 5.4. iMan Menu application

The iMan desktop contains a program called ‘iMan Menu’. Open this, the screen will look like this (or similar). This will give you the access to the useful applications.



### 5.5. Verify version of Windows CE tool-set

The version of the tool-set (also called ‘image’) can be found in iMan Menu>System Info or Start>Settings>Control Panel>System (tab General)



### 5.6. Running Apps on the iMan

The iMan offers a versatile, complete and robust platform for Application Programs (Apps) made by System Integrators and Solution Providers. These apps are designed and tailored for specific users and applications and are not explained in this Startup Guide. This Startup Guide only explains apps related to the BioControl RFID-Reader (chapter 8).

### 5.7. Making Apps for the iMan

System Integrators and Solution Providers: please check the section ‘Community’ on our website for information how to program or tune the iMan for your App (e.g. commands to operate the RFID-Reader ‘under water’).



## 5.8. Reset the iMan

To perform a 'hard-reset', hold the Power key (3-3) for 30 seconds. This will stop the hardware watchdog and the iMan will shut-down and reset. The LED (3-1) will be green for a few seconds.

! **Note:** It will close down all active application programs and unsaved data will be lost. So only use this when an application program is 'hanging' the iMan. A hard-reset will not remove WinCE or application programs.

## 5.9. Connect to a WIFI network (option)

If the WIFI-option is installed, the WLAN icon will show on the taskbar. To change the setting for WLAN, double tap this icon.

## 5.10. Connect Bluetooth

Bluetooth settings (if Bluetooth-option is installed) can be changed in Start>Settings>Control Panel.

## 5.11. Connect GPRS

GPRS settings (if GPRS-option is installed) can be changed in Start>Settings>Control Panel.

## 5.12. Technical details

Please check the section 'Community' on our website for more information and technical details.

# 6. BATTERY MANAGEMENT

This section gives important information on battery charging and some hints how to reduce power consumption. Usage of the keyboard, display backlight, touchscreen and RFID-Reader consume power and therefore will reduce the actual operating time.

! **Note:** Even in 'Suspend Mode' the iMan will still consume power.

## 6.1. Battery charging

Battery charging time is approx. 3 hours (typical). Battery charging is indicated by the indicator LED blinking blue. Fast blinking = charging; slow blinking = fully charged.

! **Note:** (re)charge iMan battery at least every 3 months. The NiMH needs to be recharged periodically, otherwise the capacity will decrease, eventually it will go defect. Only use the original charger for charging the battery. Use of other chargers will void product warranty.

## 6.2. Battery capacity

The internal battery has a capacity of 2 Ah which is sufficient for >4 hours continuous operation (typical, see chapter 11.6). An optional handgrip battery can be used as extra capacity in case of 'emergencies' when the iMan can't be charged.

### 6.3. Suspend mode

Go to Start>Suspend to put the iMan in Suspend-mode. Resume working again by pressing the Power Key (3-3).



**Note:** The Suspend mode still consumes power, therefore switch off the iMan when not using the iMan. Switch off: press Power Key (3-3) for a few seconds.

### 6.4. Switch to idle when not in use

Start>Settings>Control Panel>Power>Schemes.

### 6.5. Reduce display backlight

Start>Settings>Control Panel>Display>Backlight.

### 6.6. RFID-Reader

Even when the iMan is switched off, the RFID-Reader will still use some power. Therefore disconnect the RFID-reader to avoid draining the battery.

## 7. EXPANSION CONNECTORS

To access the 4-pin connector (3-10), remove the side-cap (3-20) on the side of the iMan. The optional RFID-reader (6-20) and handgrip battery (6-21) can be connected to either end of the iMan to user preference.



### 7.1. RFID-Reader (optional)

Plug the RFID-reader into the 4-pin connector (iMan switched-off!). The iMan will automatically detect the RFID-Reader and display the reader-icon in the taskbar. Refer to chapter 8 for using the RFID-Reader.

### 7.2. Handgrip battery (optional)

This enhances the capacity from 2 Ah to 4 Ah. Plug the handgrip battery into the 4-pin connector and it will immediately give the iMan that extra capacity.

## 8. WORKING WITH THE RFID-READER (OPTIONAL)



Switch-off the iMan before (dis)connecting the RFID-reader. Connect the RFID-Reader to either end of the iMan. Switch-on the iMan and turn-on the RFID-Reader. Point the Reader towards a transponder and press the RFID-read button. The iMan's 'Wedge'-function pastes the identified transponder at the cursor position of the active program.

### 8.1. Turn-on the RFID-Reader (Readers Manager)

The iMan Menu contains a program called Readers Manager. Open this, the screen will look like this (or similar). When application starts, it should automatically turn on RFID driver. When it's done you will see single, predefined reader record which represents reader with address 1.

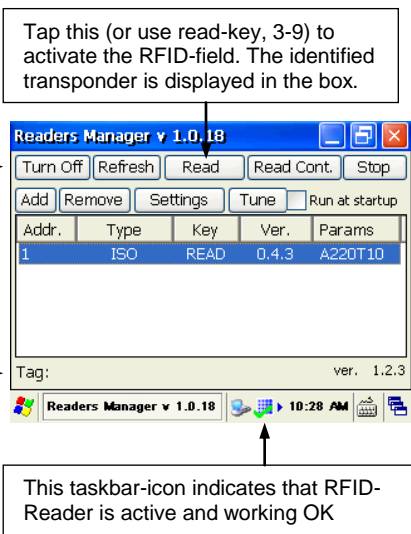
Turn-on/off the RFID-Reader. Note that the reader will use some power when it is on.

'Transponder-box' displays the identified transponder to check the performance.

 Taskbar-icon RFID-Reader reading  
 Taskbar-icon RFID-Reader not ok

This taskbar-icon indicates that RFID-Reader is active and working OK

Tap this (or use read-key, 3-9) to activate the RFID-field. The identified transponder is displayed in the box.



The screenshot shows the 'Readers Manager v 1.0.18' application window. At the top, there are buttons: 'Turn Off', 'Refresh', 'Read', 'Read Cont.', and 'Stop'. Below these are 'Add', 'Remove', 'Settings', 'Tune', and 'Run at startup'. A table displays the following data:

Addr.	Type	Key	Ver.	Params
1	ISO	READ	0.4.3	A220T10

Below the table is a 'Tag:' field and 'ver. 1.2.3'. The Windows taskbar at the bottom shows the application icon, the time '10:28 AM', and a printer icon.

### 8.2. Readers Manager settings

All functionality and settings are described in separate document: "iMan Readers Manager Manual".

Note that you can even choose your own WAV-files for notifications! We leave that to your own creativity...

### 8.3. RFID Read & Store

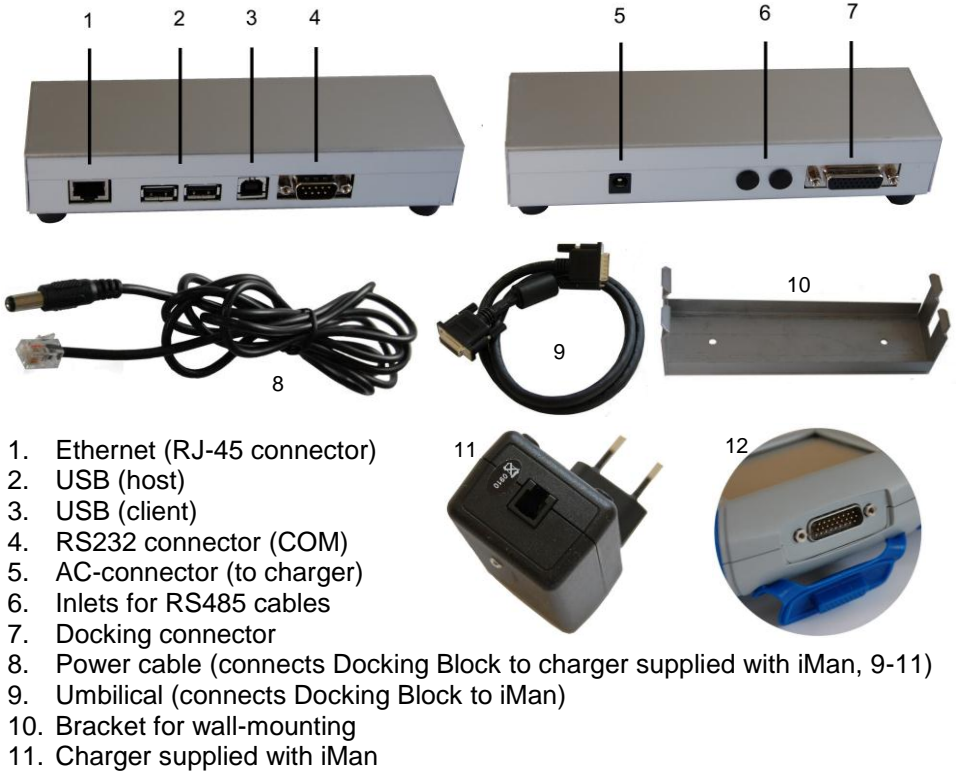
The iMan is standard equipped with a simple application program on the iMan Menu called 'Read&Store'. This program can also print the identified transponders on a 2" printer (supplied with iMan, if ordered).

Please refer "iMan Read&Store Manual" for more details.

## 9. THE DOCKING BLOCK (OPTIONAL)

The optional Docking Block expands the iMan's interfaces with Ethernet, USB-Host, USB-Client, RS232 and RS485. It also connects the iMan to the charger.

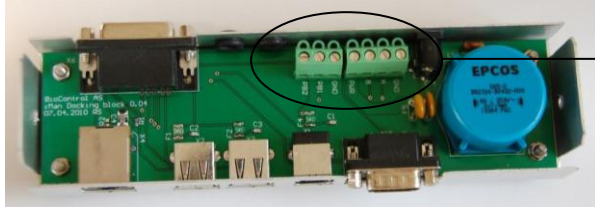
### 9.1. Hardware overview



1. Ethernet (RJ-45 connector)
2. USB (host)
3. USB (client)
4. RS232 connector (COM)
5. AC-connector (to charger)
6. Inlets for RS485 cables
7. Docking connector
8. Power cable (connects Docking Block to charger supplied with iMan, 9-11)
9. Umbilical (connects Docking Block to iMan)
10. Bracket for wall-mounting
11. Charger supplied with iMan

### 9.2. Connecting the Docking Block

Connect the Power Cable (9-8) to the Docking Block and the charger (9-11). Connect the Umbilical cable (9-9) to the Docking Block and the iMan (9-12). Connections are self-explanatory. E.g. when a USB memory stick is connected, it shows as an 'Hard disk' in 'My Device'.



RS232 and RS485 connectors

## 10. CARE FOR YOUR IMAN

The rugged design makes the iMan fit for challenging circumstances, but you still need to take care of your iMan. It is your best friend on the job!

The following instructions will help you get the most out of your iMan in your real life circumstances.

### 10.1. The body

Clean the iMan with a soft cloth dampened with either water or a diluted mild detergent.

**!** **Note:** if a mild detergent is used, rinse with water to ensure all residue is removed. Do not use any chemical cleaners and do not put the iMan in the dishwasher!

### 10.2. The screen

Use only the included stylus (3-19) with the touchscreen. The use of pens, nails or other sharp objects will damage the screen. Do not apply any cleaner directly to the screen, do not use abrasive cleaner. Use screen protectors as provided, see 4.2. Protect the display from impact, pressure, or abrasive substances that can scratch or crack it.

### 10.3. Water

The iMan is designed to withstand accidental immersion (with side caps 3-20 properly mounted).

**!** **Note:** do not open the backside. Unauthorized opening of the backside will void the warranty. Opening only by an authorized iMan service center.

### 10.4. Dust and dirt

Place the cover on the Docking Connector (9-12) when the iMan is not connected, this will keep the dirt out.

### 10.5. Mechanical shock

Secure the iMan from unnecessary falling by using the hand strap (3-21), this will also give better grip and improve the ergonomics.

Even though the iMan is designed to withstand an incidental drop from reasonable height under specific circumstances, you must prevent the iMan from falling on its nose (i.e. the RFID-Reader).

### 10.6. Temperature

Even though the iMan is designed to be rugged, do not leave it in direct sunlight or in a vehicle in the sunlight for extended periods.

Batteries perform best at room temperature. The battery has a stable capacity when temperatures rise, but the lower the temperature, the more the available battery life will be reduced. When working in cold conditions, consider carrying a fully charged handgrip battery in a warm place. The battery performance will improve by keeping the iMan and the handgrip battery warm (e.g. keeping them inside your coat).

## 11. HARDWARE SPECIFICATION

### 11.1. Features

- Operating System Windows CE 6
- Processor ATMEL AT91SAM9261
- Processor speed 210 MIPS
- RAM 128 MByte SDRAM
- Memory extension Micro SD Card
- NAND Flash memory 128 MByte

### 11.2. User Interface

- Display 3.5" QVGA 320x240 TFT
  - LED backlight
  - Sunlight readable
  - Touchscreen
- Keyboard Backlighting for dusk/night use
- Notification light Bright full color RGB LED
- Sound Real Audio speaker

### 11.3. Physical characteristics

- Dimensions 22.3 x 9.4 x 4.2 cm.
- Weight Approx. 580 gr.
- Battery 2.000 mAh, NiMH
- Water, dust protection IP67 (with all caps mounted)

### 11.4. Standard accessories

- Docking Cable USB cable and mains charger
- On both iMan sides RS485 interface for readers and other intelligent units
- On D-SUB (26 pins)
  - Ethernet
  - USB host
  - USB client
  - RS232
  - RS485
  - Headset
  - Piggyback
- Handstrap on back
- Windows CE

## 11.5. D-SUB pin description

Pin Nr.	Function	Description
1	Charge	9V to 15V DC
2	Head set right (8Ω)	HSR
3	Head set left (8Ω)	HSL
4	PiggyBack	OUT 2
5	PiggyBack	OUT 1
6	USB	DDP
7	USB	DDM
8	USB	CNX
9	USB	HDPB
10	USB	HDMB
11	USB	HDP A
12	USB	HDMA
13	USB	5V_USB
14	ETHERNET	GND SHIELD
15	NC	NC
16	ETHERNET	RX-
17	ETHERNET	RX+
18	ETHERNET	TX-
19	ETHERNET	TX+
20	RS485	B
21	RS485	A
22	RS232	RXD
23	RS232	TXD
24	Internal RS232	DRXD
25	Internal RS232	DTXD
26	GND	GND

## 11.6. Battery capacity

Typical, RFID reading every 5 seconds, keys and display backlight On:

- WLAN Off: 4,5 hours until battery 15%
- WLAN On: 4 hours until battery 15%

Battery charging time (typical, empty battery to full battery): 3 hours

**!** **Note:** battery capacity depends on temperature and reduces when batteries get older. Refer to chapter 6 (Battery management).

## 12. CE DECLARATION OF CONFORMITY

As manufacturer, we declare under our sole responsibility that

**Product name:** iMan

**Part Nr.:** 50501

**Options:** ALL

complies with requirements of the following directives:

### EMC:

**EN 55022 (2006)**

**EN 61000-6-3 (2007)**

**EN 301 489-01 (V1.8.1)**

**EN 301 489-03 (V1.4.1)**

**FCC Part 15 Section 15.207**

**FCC Part 15 Section 15.209**

### Reference:

**NEMKO** Report No. E10015.00

**Date:** 07.06.2011

Signed:

A handwritten signature in blue ink, appearing to read "Even Jahren".

Name: Even Jahren

Position: Managing Director

### Name and address of manufacturer:

BioControl AS

Grimstad Gård, 1890 Rakkestad

NORWAY