



# MiniTracker 3-B

## User's Manual

Congratulations on the purchase of your new **Avid MiniTracker 3-B** with **Bluetooth®** low energy technology. This reader is capable of reading **Avid** RFID microchips, as well as many other brands of RFID microchips using the **FECAVA**, **Trovan**, and **ISO** (FDX-B) protocols. It can also send microchip ID numbers to your tablet, smart phone or computer with Bluetooth low energy support.

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# 1 Getting to Know your MiniTracker 3-B

Your MiniTracker 3-B is a hand-held, pocket-sized, self-contained RFID microchip reader. It has very simple controls, a built-in display, and a Bluetooth low energy interface. The reader is designed to be held comfortably in either hand, with your thumb near the read button.



Figure 1: MiniTracker 3-B Reader

## 1.1 Battery Compartment

The reader is powered by one 9-volt battery. An alkaline battery is recommended for longer battery life. The battery is located in the battery compartment on the lower back side of the reader housing. To replace the battery, slide the cover straight off to access the battery compartment. After replacing the battery, slide the cover back to its original position, making sure the wires are securely inside the compartment.

## 1.2 Power Switch

The power switch is located on the front of the reader housing. Slide it to ON to turn on the reader. When the reader is turned on, it will beep and show its operating mode on the display. If the reader does not beep and display some text, then check the battery.

To turn the reader off, slide the switch back to the OFF position. If left on, the reader will beep several times after every three minutes of inactivity to remind you to turn it back off after use.

## 1.3 iOS® On-Screen Keyboard (OSK)

The power switch can also be used to bring up the on-screen keyboard (OSK) in iOS® devices, e.g. iPad® and iPhone®. With the latest firmware (version B7A or newer), the MiniTracker 3-B always attempts to bring up the on-screen keyboard in iOS® upon connection. If your app is not showing the on-screen keyboard like the iOS® Notes app shown

in Figure 2, then simply switch off the device and switch it back on shortly after. The MiniTracker 3-B will bring up the on-screen keyboard like the screenshot shown in Figure 3.

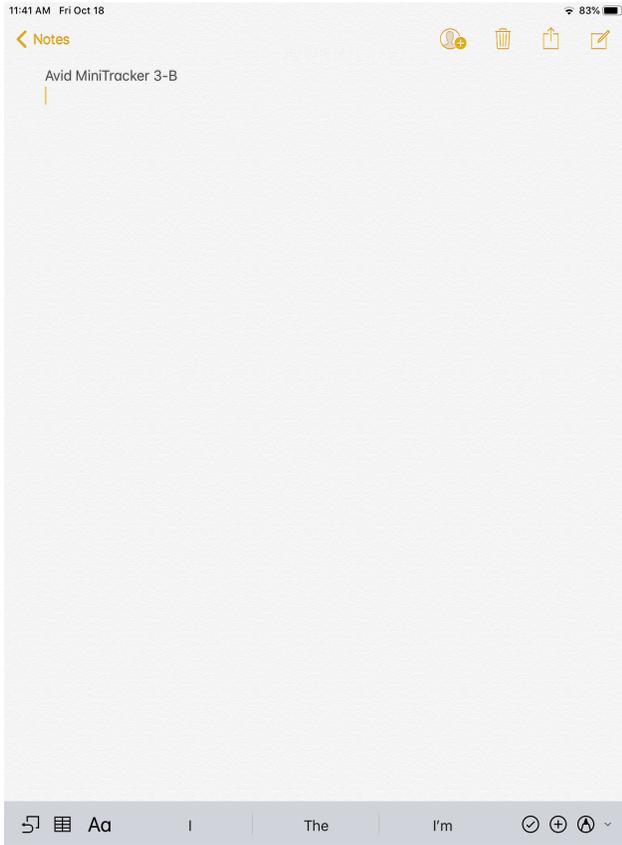


Figure 2: iOS® without On-Screen Keyboard

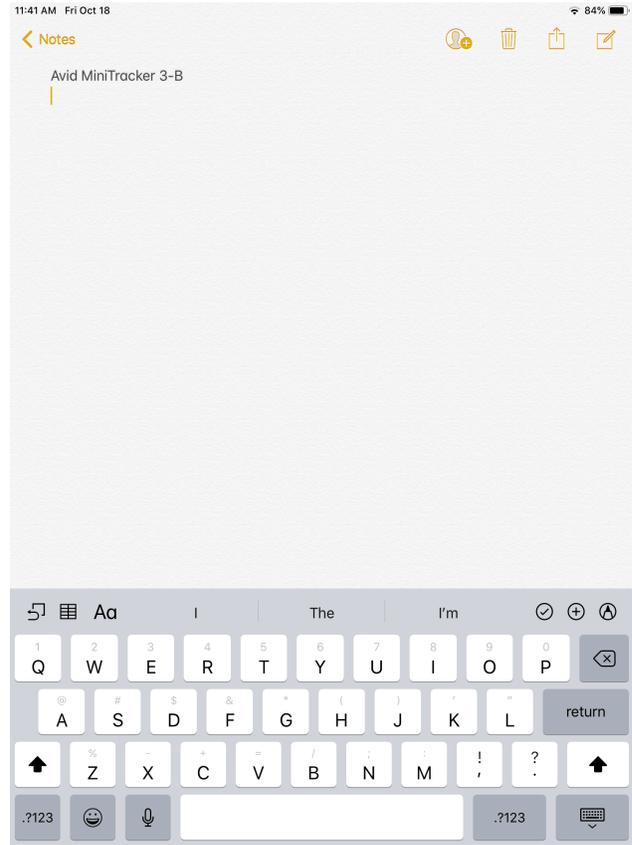


Figure 3: iOS® On-Screen Keyboard with MiniTracker 3-B Connected

## 1.4 Display

The reader displays microchip ID numbers and status messages with the display on the front of its housing. When you turn on the reader, it will briefly display the compatible protocols for about half a second. For a standard MiniTracker 3-B, the following message is displayed:

AVID/FEC/TR/ISO

The above message indicates that the MiniTracker 3-B can read Avid, FECAVA, Trovan, and ISO (FDX-B) microchips. Afterward half a second, the display switches to the Bluetooth firmware version and keyboard mode message shown below:

AVID NNNNN VVVK

*NNNNN* is the unique Bluetooth name for your reader, *VVV* is the Bluetooth firmware version, and *K* is the keyboard mode. Details on MiniTracker 3-B keyboard modes are described in Section 3.3.3.

After 3 seconds, the display will then show the current Bluetooth interface mode and will continue showing the current mode until you try to read a microchip. The Bluetooth mode display looks like the following:

AVID *NNNNN* *mode*

*NNNNN* is the unique Bluetooth name for your reader and *mode* is the current Bluetooth interface mode. Bluetooth modes will be covered in detail in Section 3.3.1.

## 1.5 Read Button

The MiniTracker 3-B's main control is the small black button marked READ on the front of its housing. Pressing and holding the read button tells the reader to begin looking for a microchip. The display will show:

Looking

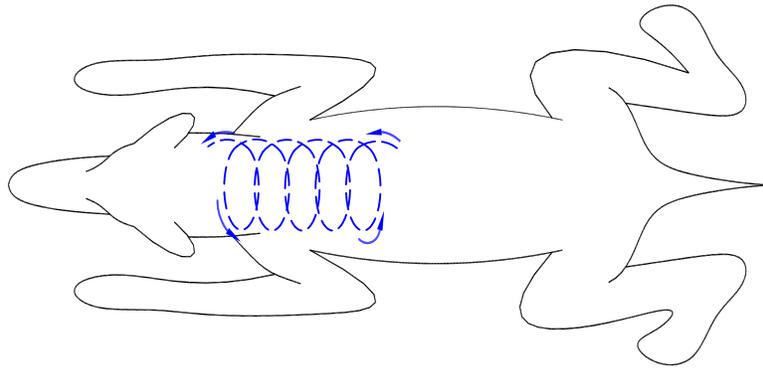
until a microchip is found or you release the read button.

When a microchip is found, the reader will beep twice with a high tone and show the number on the display. If you release the read button before the reader finds a microchip, the reader will beep once with a low tone the display will show:

No ID Found

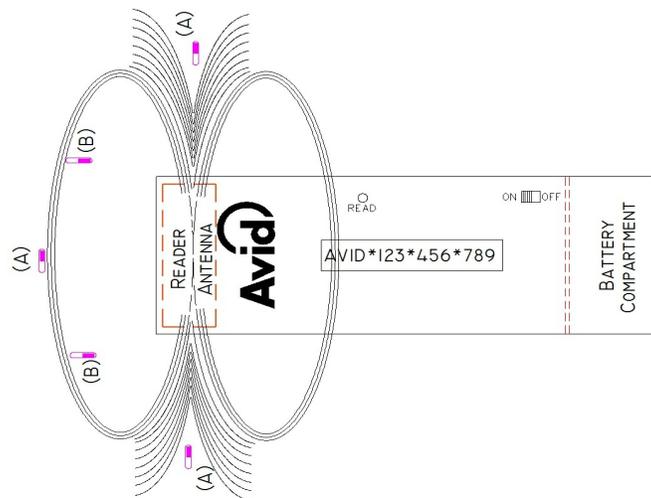
## 2 Reading Microchips with your MiniTracker 3-B

The reader's antenna is located in the narrow end of its housing. It provides communications between the microchip and the reader. While pressing down the read button with your thumb, move the reader in a circular pattern while moving it toward the animal's head, starting from the middle of the animal's back:



*Figure 4: Search Pattern*

The reason for this scanning pattern is that microchip orientation plays a major role in reading distances. In Figure 5, the curved lines represent the invisible magnetic field emitted by the reader's antenna. CHIP(s) A, in a parallel orientation to the antenna, will achieve their maximum reading distances towards the center of the reader. CHIP(s) B, in a perpendicular orientation to the antenna, will achieve their maximum read distance towards the outside edges of the reader. It is therefore recommended to move the reader in a circular motion so that the antenna and the microchip will be optimally oriented at some point in the scanning pattern.



*Figure 5: Microchip Orientation*

The reader will continue scanning for a microchip until either it finds one, or you release the read button. Once the reader finds a microchip, it will beep twice with a high tone and show the microchip ID number on its display. The display format will vary, depending on what type of tag was read. Here are some examples of what different tag types will look like on the display:

<b>Microchip Type</b>	<b>ID Number Sample</b>
Avid Protocol	AVID*123*456*789
ISO Protocol	977200000979956
FECAVA Protocol	22A2426F10
Trovan Protocol	00-0132-824F

If you release the read button before the reader finds a microchip, then it will beep once with a low tone and show:

No ID Found

Metal objects (especially ferrous metals) absorb electromagnetic fields. Operating the reader antenna or placing the microchip too close to metal objects can severely limit the reading range of the reader. If you are experiencing reduced operating range, check for metal tabletops, doors, cage walls, etc. in close proximity (a few inches) to any part of the microchip and/or reader. Also, make sure that you are using a fresh battery, because using a weak battery will reduce microchip read range.

### 3 Bluetooth Low Energy Interface

Your reader can send each microchip ID number that it reads directly to a device with Bluetooth low energy support, such as a tablet, smart phone or computer. The reader will appear as a wireless keyboard to the device. No special software or driver is required on the paired device as long as it has hardware and operating system support for a Bluetooth low energy wireless keyboard. The MiniTracker 3-B can be used with any software that can accept keyboard input, such as a spreadsheet, text editor, web browser, etc. Before the reader can talk to your device, you need to pair them as described in Section 3.1.

#### 3.1 Pairing with Your Device

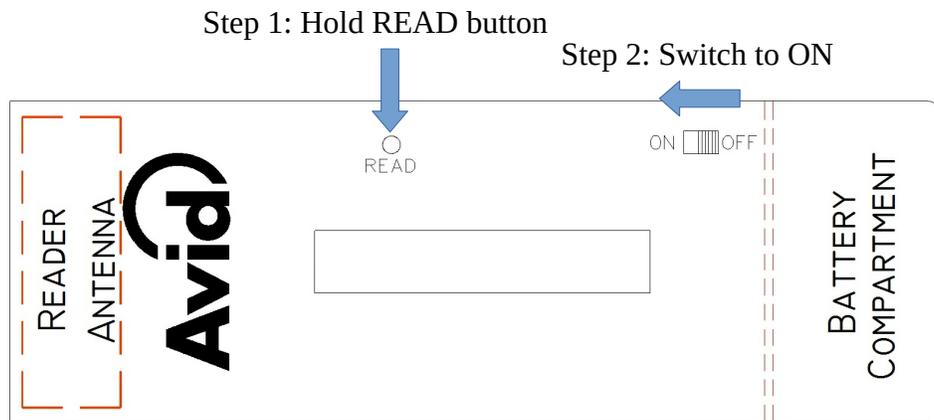


Figure 6: Start MiniTracker 3-B Pairing

The MiniTracker 3-B will start pairing with a new device if the `READ` button is held down at power-on as described in the following procedure<sup>1</sup>:

1. Hold the `READ` button down.
2. Switch `ON` the MiniTracker 3-B.
3. After 2 seconds, release the `READ` button.

The controls involved in the above procedure are illustrated in Figure 6. Upon completion, the MiniTracker 3-B will enter the `PAIR` mode and display the following message on the LCD:

AVID *NNNNN* PAIR

where *NNNNN* is a set of six characters that is unique to your reader.

<sup>1</sup> Prior to versions B12/C3, the MiniTracker 3-B can only enter the `PAIR` mode by reading the Mode Change Card described in Section 3.3.1.

While the reader is in the `PAIR` mode, initiate pairing with a new Bluetooth keyboard on your device. Your MiniTracker 3-B should appear as "AVID `NNNNN`" on your device's Bluetooth discovery list, where `NNNNN` is the same unique sequence of numbers and/or letters that is displayed on the reader's display. Select the corresponding MiniTracker 3-B to pair; if a keyboard option is available for the paired MiniTracker 3-B in your device's settings, enable it.

## 3.2 Using the Bluetooth Low Energy Interface

Once the MiniTracker 3-B is paired with your device and connected to it, put the device's cursor on its device screen where you want a microchip number typed in. Read a microchip with your reader and then the microchip number will appear on the paired device as though the number had been typed in from an HID keyboard.

Many devices will hide their on-screen keyboard when any wireless keyboard is connected. Switching off the MiniTracker 3-B and quickly switching it back on again will automatically bring up the on-screen keyboard when the Bluetooth connection is re-established.

### 3.3 Configuration Change Cards

Your MiniTracker 3-B comes with 'Change Cards' to configure its Bluetooth low energy interface. Read them with your reader just like any RFID microchip to change the Bluetooth settings. All standard readers come with a **Mode Change Card** and a **Format Change Card**. International readers also come with a **Region Change Card**.

Keep the change cards away from the reader's antenna during normal use so that they will not interfere with reading other microchips.



Figure 7: Mode Change Card

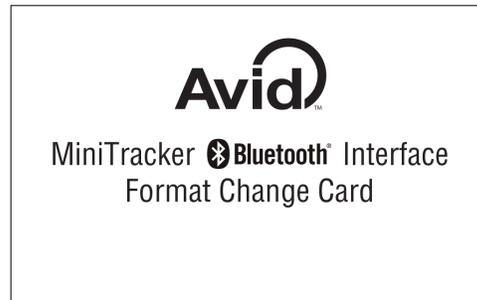


Figure 8: Format Change Card



Figure 9: Region Change Card

#### 3.3.1 Mode Change Card

Each time you read the Mode Change Card with your MiniTracker 3-B, the reader will change its current Bluetooth interface mode and then show which mode it has just changed to on the display. The display will look like:

AVID *NNNN* *mode*

where *NNNN* is a unique identifier for your reader, and *mode* is the new Bluetooth interface mode. The possible modes are:

Mode	Pairing Required <sup>2</sup> ?	Description
OFF	No	Bluetooth low energy interface is disabled.
PAIR	No	Allow the reader to pair with a new device. This mode times out in two minutes. When a new pairing is created, the reader automatically switches to the NONE mode after the timeout. If no new pairing is created, then the reader forgets its existing pairing and switches to the OFF mode.
NONE	Yes	Bluetooth low energy keyboard emulation mode with no trailing key after the microchip ID number.
ENTR	Yes	Bluetooth low energy keyboard emulation mode with ENTER key after the microchip ID number.
TAB	Yes	Bluetooth low energy keyboard emulation mode with TAB key after the microchip ID number.

### 3.3.2 Format Change Card

Each time you read the Format Change Card with your MiniTracker 3-B, the reader will change how it formats Avid protocol microchip ID numbers when they are sent over the Bluetooth low energy interface. Four formats are available:

Avid Microchip ID Number Format
AVID*123*456*789
123*456*789
A123456789
123456789

The default format is A123456789, but you can choose whichever format is convenient for use with your software. No matter which format you choose, Avid protocol microchip ID numbers will always be displayed in AVID\*123\*456\*789 format on the reader's display, and the formatting of other types of microchip ID numbers will not be affected.

<sup>2</sup> The "pairing required" modes are only available if the reader has been paired with another device, as described in Section 3.1.

### 3.3.3 Region Change Card (for International Readers)

The Region Change Card is provided for international readers to change the MiniTracker 3-B Bluetooth HID region. At power-on, the MiniTracker 3-B displays the firmware version and keyboard mode message for 3 seconds before switching to displaying the operation mode shown in Section 3.3.1. The following is the format of the firmware version and keyboard message:

AVID NNNNN VVVK

*NNNNN* is the Bluetooth name of your MiniTracker, *VVV* is the Bluetooth firmware version number, and *K* is the keyboard mode.

Each time the MiniTracker 3-B reads the Region Change Card, the reader will rotate its keyboard layout mode in the sequence listed in the country-compatibility table below:

<b><i>K</i></b>	<b>Keyboard Mode</b>	<b>Compatible Countries (Language)<sup>3</sup></b>
Q	QWERTY	Brazil, Canada, Netherlands, United Kingdom, United States
+	QWERT+	Colombia, Germany, Italy, Mexico, Portugal, Spain
3	QWERT3	Switzerland (German)
'	QWERT'	Denmark, Finland, Norway (Bokmål), Sweden
Y	AZERTY	France
\$	AZERT\$	Belgium (French)

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3 Not all compatible countries are listed. Please consult your sales representatives to confirm compatibility with your country and/or language.

## 4 Display Messages

The reader's display can show many different status and mode messages in addition to microchip ID numbers. Here is a summary of the various messages which you might see while using your reader:

Message	Timeout	Description
Battery Low	None	The battery voltage is very low. Please turn off the reader power and remove the weak battery immediately to prevent battery leakage, and replace it with a fresh battery.
Connected <i>NNN</i>	3 sec.	The reader has successfully connected with a Bluetooth device in <i>NONE</i> , <i>ENTR</i> , or <i>TAB</i> modes. <i>NNN</i> is the connection state code.
Disconnect <i>NNNN</i>	3 sec.	The reader has disconnected from a Bluetooth device. <i>NNNN</i> is the disconnection code.
No ID Found	None	The reader did not find a microchip before the read button was released.
Pair again	3 sec.	The existing pairing data was invalid. The reader automatically returns to <i>OFF</i> mode. The user may initiate pairing again by switching to <i>PAIR</i> mode.
Pair failed <i>NNNN</i>	3 sec.	The Bluetooth device cannot connect to the reader. The failure code <i>NNNN</i> indicates the problem with the Bluetooth device, e.g. device has outdated pairing information.
Paired <i>NNN</i>	None	The reader has successfully paired with a Bluetooth device in <i>PAIR</i> mode. <i>NNN</i> is the pairing state code.
Pairing outdated	3 sec.	The reader rejected pairing request. The pairing information on the rejected device is outdated.
Pairing removed	3 sec.	The <i>PAIR</i> mode timed out after 2 minutes. The existing pairing information on the reader has been removed.
Ready to read	3 sec.	The reader can accept more tag reads for Bluetooth keyboard entries.
Wait for ready	3 sec.	The Bluetooth keyboard entry queue is full. Wait for the <i>Ready to read</i> message before scanning another tag. The reader will display <i>Ready to read</i> when it is ready to read and transfer another tag.

## 5 Specifications

Operating Frequency:	125kHz
Operating Temperature Range:	32° to 122°F (0° to 50°C)
Storage Temperature Range:	4° to 158°F (-20° to 70°C)
Power:	One 9-volt alkaline battery
Display:	16 character monochrome, reflective liquid crystal display (LCD)
Indicators:	Audible beeps and LCD
Microchip Compatibility:	Avid (125kHz), FECAVA (125kHz), Trovan (128kHz) and ISO FDX-B (134.2kHz) protocol microchips, produced by multiple manufacturers
Reader Dimensions:	2.4"W (6.1cm) x 6.9"L (17.5cm) x 0.86"H (2.2cm)
Weight:	0.47 lbs. (215grams)
Avid Injectable Microchip Read Range:	4.5" (11.4cm) typical <sup>4</sup>
FECAVA Injectable Microchip Read Range:	4.5" (11.4cm) typical <sup>4</sup>
ISO (FDX-B) Injectable Microchip Read Range:	3.25" (8.25cm) typical <sup>4</sup>
Trovan Injectable Microchip Read Range:	2.75" (7cm) typical <sup>4</sup>

<sup>4</sup> Reading ranges were measured using 12mm implantable microchip transponders. Reading distances will vary depending on the orientation and the size of the microchip transponder.

## 6 Regulatory Information

FCC ID	IOL-125-AV1034-3B
Contains FCC ID	QOQBLE113

This equipment has been tested and found to comply with the limits for a class B digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the users authority to operate the equipment.

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## 7 Warranty and Customer Service

The MiniTracker 3-B is warranted to be free of manufacturing defects for a period of one year from the date of purchase. Defective readers will be repaired or replaced at the discretion of Avid Identification Systems, Inc.

Please contact an Avid representative for a Return Merchandise Authorization (RMA) number, or if you have any questions about using your MiniTracker 3-B.

### Customer Service:

Within USA: 1-800-336-2843  
Outside USA: +1-951-371-7505  
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