

Application Note

Connecting the OMNI MAX using Bluetooth

This Application note describes how to establish a Bluetooth connection between the OMNI MAX and various devices. It also explains the various ways to communicate over Bluetooth to these devices.

Setting up a Bluetooth connection on the OMNI MAX

The Datamars OMNI MAX pet reader (Bluetooth version) can communicate with phones, PCs and other Bluetooth-enabled devices wirelessly. This enables RFID pet microchips to be read and seamlessly transmitted to programs running on these devices with a single press of a button and without having to connect cables.

There are three different ways for this Bluetooth communication to take place. These are called “profiles”:

1. “Keyboard wedge” profile is where the OMNI MAX reader acts like a keyboard for input to third-party applications. If an RFID chip is read by the OMNI MAX, the chip data is streamed via Bluetooth to the receiving application as if it were being input via a keyboard. For example, if the cursor in an Excel application is placed in the formula entry bar, then the chip data will appear in the currently selected cell. No additional software is needed.
2. “COM port” profile is used when the receiving application is expecting input via a serial interface device. In this case, if an RFID chip is read by the OMNI MAX reader, the chip data is streamed via Bluetooth to the receiving application as if it were being input via the serial port used by the application.
3. “iOS” profile is for connection to apps running on iOS devices such as iPhones and iPads. Note that the connection to an iPhone or iPad can also be made using the “Keyboard wedge” profile above if only chip data entry is needed.

Bluetooth profile (selected on reader)	Target device
Keyboard Wedge	Most Bluetooth-enabled devices
COM port	<ul style="list-style-type: none">• Wireless printers• Any PC or Mac, via S-ID or other software.• Android or Windows mobile devices running a UART terminal
iOS	iOS devices, using a dedicated app

The user first has to select which of these profiles is to be used. This is done via the “Settings” menu.

Selecting a profile

On power on, the OMNI MAX home screen (fig 1) is shown.

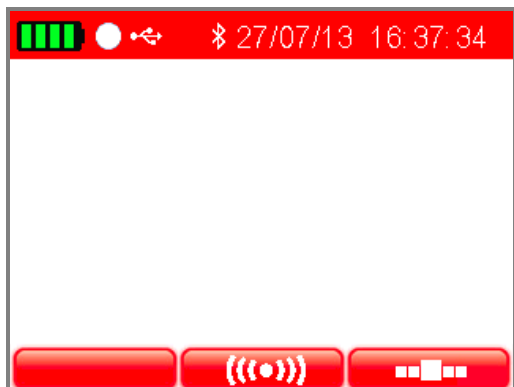


Fig 1. After powering on, the main menu appears.

To display the “Settings” menu, press the “Settings” button. This is the button below the symbol on the bottom right of the screen that looks like a cog.

Note: In this guide, the buttons to the upper right and upper left of the “ON” button will take on different meanings depending on what is shown on the screen directly above them.

When the settings menu is shown (fig 2) use the left arrow key to navigate to the Bluetooth option – this is the third symbol from the left on the top row - and press “ON”. The Bluetooth settings menu will then open.



Fig 2. The settings menu.

On opening, the Bluetooth on/off option is active (fig 3). If it is off, press the “ON” button to switch Bluetooth on. When Bluetooth is switched on, the message “Discoverable” appears on the screen (fig 4.) The reader can now be found by other Bluetooth devices such as computers, phones, etc.



Fig 3. The Bluetooth menu. On opening this menu, the Bluetooth on/off option is active.

Press the right arrow button to move to the second menu option, “Profiles.” Press the “ON” button repeatedly and the display will cycle through the keyboard wedge (keyboard symbol)/COM serial interface (“1010” symbol)/iOS (apple symbol) profiles. Select the desired profile.

It is explained below how to transmit data in each of these three profiles. First, however, the Bluetooth connection to the receiving device must be established.



Fig 4. The device is now “Discoverable” by another Bluetooth device. Here the “COM” profile has been selected (1010 symbol).

Establishing the Bluetooth connection

To connect the OMNI MAX to another Bluetooth device, such as a computer or phone, the devices must first “discover” each other. This can be done from other device, or from the OMNI MAX.

To connect from the other device, open the device’s Bluetooth menu and search for the OMNI MAX. This procedure will depend on the operating system used – e.g., in Windows it is “add a device.” When the OMNI MAX appears in the device list select it and it will connect. Upon successful connection, the message on the OMNI MAX display in the Bluetooth menu will change from “Discoverable” to “Connected” (fig 5) and the Bluetooth symbol at the top of the screen will change from white to green. The currently selected profile will appear below the “Connected” message

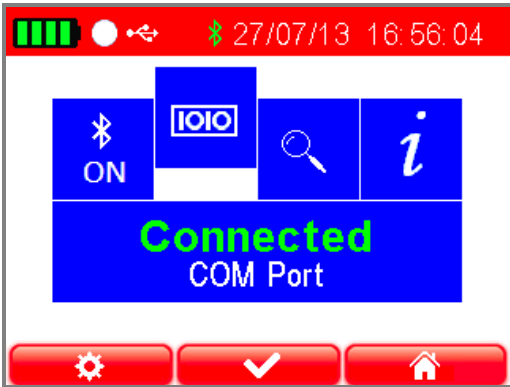


Fig. 5 – Reader is connected in COM port profile

To connect from the OMNI MAX, use the right arrow button to move to the third menu option in the Bluetooth menu (the magnifying glass) and select it using the “ON” key. Available Bluetooth devices will then be displayed. Use the down arrow button to highlight the desired device and press “ON” to select it. An hourglass symbol will show as the connection is established (fig. 6). The other Bluetooth device may then ask for permission to “pair” with the OMNI MAX and this permission should be given. Upon successful connection, the message on the OMNI MAX display will change from “Discoverable” to “Connected” (fig 5) and the Bluetooth symbol at the top of the screen will change from white to green. The currently selected profile will appear below the “Connected” message.

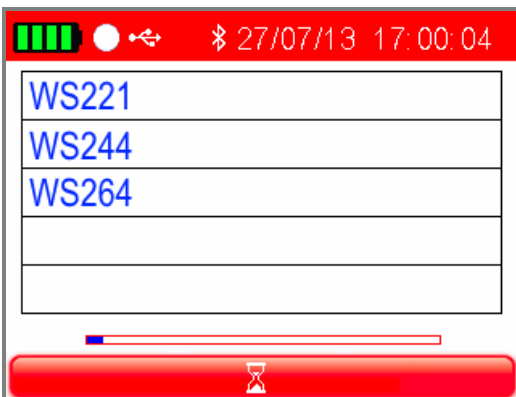


Fig. 6 An hourglass symbol is displayed while connection is established.

NOTE: When the profile (keyboard wedge/COM/iOS) is changed, the OMNI MAX will automatically disconnect the Bluetooth link and will revert to “Discoverable”. It will then have to be reconnected.

Now that Bluetooth has been switched on, and the OMNI MAX and the user’s device have been connected together via Bluetooth, chip data can be read. It is read differently depending on the profile selected:

Using the keyboard wedge profile

When the “keyboard wedge” profile has been selected and the Bluetooth connection established (fig. 7), as described above, it is possible to read pet chips into a PC, phone or other device as if they were being input via a keyboard.



Fig. 7 Reader is connected in Keyboard Wedge profile

On the PC, phone or other device, start the required application (e.g. Excel sheet or database on a PC, or notepad on an iPhone) and place the cursor where the animal code should appear.

Reading a chip will now cause the animal code to appear in the application, where the cursor was placed.

Reading chip data with this profile works with all Bluetooth enabled devices, and no special software is required.

Using the COM profile

This profile is used when the receiving application is expecting input via a serial interface device. The most common usage is with equipment such as weigh scales. In this case, once the pairing is established and the chip is read, the data is streamed via Bluetooth from the OMNI MAX to the receiving application as if it was being input via the serial port.

It is also possible to remotely control the reader from a PC using the COM profile, via the S-ID application software supplied with the reader. To do this, open S-ID on your computer click to connect to the reader by choosing the “reader remote control” option, and follow the instructions. Note that this functionality requires a full installation of S-ID (rather than a typical installation).

Note: The COM profile can also be used to connect to apps running on Android or Windows mobile devices.

Using the iOS profile

The iOS profile can be used to connect to any iOS device, such as an iPhone or iPad.

When the “iOS” profile has been selected and the Bluetooth connection established, as described above, it is possible to connect to dedicated apps running on iOS devices. Note that iOS devices can also be connected using the “Keyboard wedge” profile if only simple chip data entry is required. As opposed to keyboard wedge profile, the iOS profile allows for the remote control of the reader from the iOS device.

Note that this profile does not work with non-iOS devices (Android phones, PCs, Macs, etc.)

OMNI MAX information

If required, information about the OMNI MAX Bluetooth settings and status can be displayed (fig. 8). To display information, on the Bluetooth menu use the right arrow key to move to the “i” symbol (rightmost symbol) and press the “ON” button. Shown is:

- Device name – this is the Bluetooth name that is displayed on other Bluetooth devices that “discover” the OMNI MAX. Included in the name of the device will be a three-letter code that

shows the profile selected: “KWG” for keyboard wedge, “COM” for serial interface and “IAP” for iOS.

- Bluetooth network address
- Security PIN code
- Currently used profile
- Bluetooth status (“discoverable”, etc.)
- Host – the address of the device connected to. This will read “not available” if there is no device connected

Press “ON” to return to the Bluetooth menu.

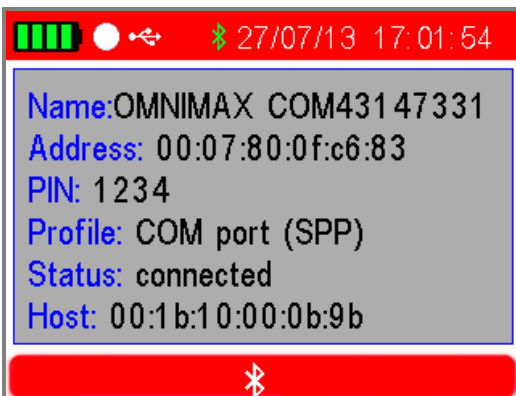


Fig. 8 - Bluetooth information screen