

# THUNDERBIRD



## HAND HELD ELECTRONIC TAG READER

MODEL PR20



## INSTRUCTIONS

**WARRANTY  
THUNDERBIRD**  
Electronic Tag Readers

Thunderbird warrants the PR20 reader against defective workmanship and faulty materials for 12 months from the date of purchase. We undertake, at our option, to replace or repair free of charge this product, or part thereof, on condition that it is returned to our factory freight prepaid, and found on examination to be suffering from material or constructional defect. We cannot be held responsible for any repair other than those carried out by us or our authorised agent.

**A photocopy of your proof of purchase and a request for warranty must also be returned with the item.**

This warranty is void if the product is subject to improper use or handling, incorrect power input voltage, damage through contact with chemicals, flooding, fire, explosion, excessive heat, lightning strikes, insect damage, moisture damage or damage to external wiring.

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**For your records:**

Model No.: .....

Serial No.: .....

Date of Purchase: .....

Place of Purchase: .....

Receipt No.: .....

connected to another device such as a scale, this device can control the reader and tell it to only scan for a tag when it's ready. If the other device appears ready, try disconnecting the device, turn the reader off then back on, and try again to see if the tag can be read. You will have to re-establish the connection to the other device if you turn the reader off.

### **Communication:**

Won't communicate -

- a) Tag reader is not turned on.
- b) Cable not connected properly.
- c) The tag reader is connected to the wrong COM port. Check the COM port settings.
- d) Baud rate is wrong. Make sure the tag reader and the other device are set to the same baud rate.

PC locks up -

- a) Older computer is being used with all 9 pins wired serial lead. Use a 'null modem' cable.

Loses communication with the Ultrascale

- a) The "confirm each ID" option is on in the tag reader, turn it off.
- b) The baud rate is incorrect. Make sure the baud rate is set to 9600 in the tag reader.

The Thunderbird PR20 is a rugged, portable electronic tag reader designed mainly for small to medium cattle and sheep producers, but is adaptable enough to be used in most electronic tag reading situations. It is capable of storing up to 6500 electronic IDs internally, which can be downloaded onto a PC at a later time. It is robust enough to withstand most of the rough handling normally encountered around a cattle yard.

### **Software Installation and Instructions**

A CD is supplied with the Thunderbird Portable Tag Reader. It contains software that can be installed on a PC, as well as other useful data on the NLIS.

**Note** - The tag reader requires a serial port on the computer for communication. If your computer doesn't have one, you will need to purchase a serial card or USB - RS232 adaptor and install it. If you are using a laptop and it has an "Express" slot in the side of it, Thunderbird have an Express card that gives you two RS232 ports which you can purchase. The Express card gives you much more reliable communication than an adaptor.

The software enables you to retrieve the electronic IDs from the Tag Reader, send matched electronic and visual IDs to the reader based on the NLIS "devices on my property" file, sort the tags, export a file ready for sending to the NLIS, and various other utilities.

**Windows XP installation:-** Insert the CD into your PC. If autorun is enabled the software installation should start automatically. Otherwise, Go to start, run, then type in CD drive letter followed by setup. For example, type "D:/setup", then press ENTER.

The Thunderbird Phoenix software is able to communicate with all of the Thunderbird products. When the software is run for the first time, a window will be displayed asking which device is connected. Select the Tag Reader, then click OK. The tag reader will become the default

device. The software is now ready to run.

**Windows Vista and Windows 7 installation:-** Insert the Thunderbird Phoenix CD and wait for autorun, or double click on “tbphoenix\_setup120.exe” if you downloaded the file.

\* For Vista, click “allow” in the Unidentified Publisher window.

\* Click “Allow” or “Yes” in the user account control window.

The Thunderbird Phoenix installation wizard will start.

\* Click “Next”

\* In the “Select Destination Location” window, change the install path from C:\Program Files\Thunderbird\Phoenix to C:\Thunderbird\Phoenix. Click “Next”, and the software will install.

**Note:** In some versions of Vista the software won’t operate after the first time. You will need to do the following:

\* Right click on the Phoenix shortcut on the desktop, click on advanced, and make sure the “Run as administrator” checkbox is ticked.

\* Click on the “Compatibility” tab, enable the tick in “Run this program in compatibility mode for”, and select Windows XP SP2.

\* Check also that “Run as administrator” ticked in this window.

\* Click on the “Security” tab, and make sure that “Full Control’ is ticked.

\* Click OK, and the software should run.

It is advisable to download your “devices on my property file” from the

reader and other equipment. Various problems that may occur are described below.

**Power:**

Won’t turn on-

- a) Internal battery might be flat. Charge the battery.
- b) Battery didn’t charge. Check that the charger was plugged in and turned on. Use a multimeter to check voltage across pins 5 and 9 to verify that there is power coming from the charger. If you don’t have a multimeter, connect the provided battery lead between a charged 12V battery and the tag reader for a few hours. The tag reader will charge it’s internal battery from the external 12V battery.

Battery goes flat quickly-

- a) Charger not working properly. See b) above to check the charger.
- b) Battery is faulty. Ni-MH batteries have a limited life of 500 to 1000 charge cycles. The internal battery may be replaced.

**Reading:**

Won’t read a tag -

- a) The reader is turned off.
- b) The tag isn’t within the read range. Check that the reader is closer to the tag than the distances quoted in the specs.
- c) It was the last tag read. The Reader won’t allow the same tag to be read twice in a row.
- d) The tag is faulty. If the reader will recognise other tags, but not the one you require, that tag is most likely to be faulty.
- e) The reader is waiting for a response via the keypad. Check the message on the display.
- e) Other device isn’t ready. If the tag reader is

reader don't match they will not communicate. In most cases it will be 9600.

In some cases the scale will delete all existing IDs in the reader's memory. Make sure you download any IDs you want to keep to a computer before connecting the reader to a scale.

**Note:** When connecting to the Thunderbird Ultrascale, make sure that the tag reader option "Confirm each ID" is turned off. Communication between the scale and the reader will be lost if this option is on. To set up the communication link to the Ultrascale, press "Select Electronic ID" button on the scale, and choose TIRIS from the on screen options. The scale will then display "ready for ID".

## Specifications

Internal Battery	Ni-MH 4.8V 2000mAH nominal
Operating Current	PR20 - 100mA average
External Supply	5 - 12Vdc
Charge Current	120mA approx.
Memory Capacity	6500 IDs (13000 optional)
Maximum No. of files	30
Duplicate Search	Last 1 - 20 IDs, selectable
Read Range	60-270mm at the end, 100-240mm at the side, depends on orientation
RS232 Format	8 bit, no parity, 1 stop bit, software Xon-Xoff or full duplex
Baud Rate	4800, 9600, 19200 or 57600
IP Rating	IP44

## Troubleshooting

Operating the tag reader is a relatively simple task. The area where you might encounter problems is establishing communication between the

NLIS website whenever tags are bought, and whenever animals are bought or sold. Only the pic, NLIS ID and RFID fields are needed.

You can import this file into the Thunderbird Pheonix software, and upload it into the tag reader. By doing this, the visual ID will be displayed on the tag reader when a tag is scanned, rather than the irrelevant electronic ID. It also makes much easier record keeping when the scanned tags are downloaded back to the computer later.

**Opening a "Devices on My Property" File** - This file must be downloaded as a text file, which is an option on the NLIS website. Save it to a location you can remember. The Pheonix software defaults to the folder "~/My Documents/Thunderbird/Data", so you might like to save it in this folder. After starting the Pheonix software, click on the "Open" button, then in the box labelled "Files of Type", select NLIS text file. You will then be able to see the "devices on my property" file name to open.

**Uploading the "Devices on My Property" File to the Tag Reader** - This operation is very simple. Connect the tag reader to the computer serial port, turn it on, and make sure it's displaying ready. Press ENTER if the reader is waiting for a file number. Make sure the baud rates are the same for both the tag reader and the computer, then simply press the button "Send IDs". The file will automatically be sent to the reader.

**Downloading IDs from the Tag Reader** - Make sure the tag reader is connected to the computer, turned on, **and is displaying ready**. Click on the "Get IDs" button, Select whether you want all IDs or only a file number, then the IDs will be automatically downloaded. **Note: Any IDs that have a file number of 0 have been uploaded previously but have not been scanned.**

More comprehensive instructions are available by clicking on "Help" on the menu line of the Pheonix software.

## Power Requirements

The PR20 has an internal 4.8V Ni-MH battery. **Charge this battery overnight before use** with the provided charger. This should give around 10 hours use on the internal battery. The internal battery may also be charged from a 12V car battery using the 12V lead provided, or from a controlling device such as a PC or scale if there is 5-12V available on pin 9 of the RS232 socket, providing the reader is in normal operation and not waiting for a file No. to be entered. The Tag Reader will charge its internal battery quicker with the power switch turned off.

**Only use the charger provided to charge the battery.** Other chargers may damage the reader.

**The Tag Reader will give 1 beep every 10 seconds if the internal battery starts to go flat.** If the battery becomes too low, the Tag Reader will stop scanning and beep continuously.

**Warning** - Turn the reader off before turning scale off, otherwise reader battery may interfere with the scale circuitry.

## Operating the Tag Reader

**The Tag Reader should be plugged into the charger overnight before use.** The internal batteries are capable of operating the unit for approximately 10 hours continuously. If you need a longer operating time, connect a 12V battery to the reader using the battery lead provided. Alternatively turn the reader off while not reading a tag. The IDs are stored in memory, and will not be lost if the Tag Reader is turned off.

**Warning!** The PR20 continuously scan for tags whenever it is turned on. If a loose tag is brought within range it will be read. You do have the ability to delete the last tag from memory.

**Caution!** The reader may not read a tag if 2 or more tag readers are

computer at a later time, you know which animals you separated.

This can be done by changing the file number before reading the tag of the animal, then changing back to your original file after the tag has been read.

## Communication

Communication is via an RS-232 interface. The format is 8 data bits, no parity and 1 stop bit, full duplex. The tag reader will respond to software Xon-Xoff commands.

Pin 9 of the interface is used both for charging the internal battery and for powering a cordless bluetooth adaptor should one be fitted. In rare cases on older computers the voltage on pin 9 can cause the computer to lock up if a cable with all 9 pins wired is used. If this is the case for you, use a “null modem” cable.

## Connecting the Reader to a Scale

There is a 9 pin socket at the rear of the tag reader which will allow connection to a scale. There are 2 possible means of communication with the scale.

The simplest method is to use an RS232 cable between the scale and the reader. The reader comes with a 5m RS232 cable for this purpose.

The second method is using an optional bluetooth cordless serial adaptor. The bluetooth adaptor takes the place of an attached cable if a controlling device is used. No cable means more freedom to move with the Tag Reader. Follow the instructions that come with the bluetooth adaptor to get the bluetooth link up and running.

Make sure the baud rate is correct! If the baud rate of the scale and

rapid scanning of animals in a race for example, so that you don't have to press a button hundreds of times. If you have unused tags laying around the reader might accidentally scan one, as it is always scanning. By selecting this option you must press ENTER before each tag will be recorded. Press YES or NO to select your choice, or press MENU to continue. The default setting is not to confirm ID.

5. ERASE ALL IDs IN MEMORY? You have the option of erasing everything in the memory and starting afresh. This feature can be used after experimenting with tags so that they don't get mixed in with IDs you want to keep. If you select YES you will be asked again to confirm that you want to erase the memory. Select NO or MENU if you want to keep the existing IDs.

6. BAUD RATE. The baud rate refers to the speed of communication between the tag reader and a computer or scale. In most situations this should be 9600, unless a scale calls for a different baud rate. There is a baud rate option of 57600, which allows a high speed data transfer to a computer if the memory is nearly full. Be aware that both devices must be set at the same baud rate, or the communication will not work. Press YES and NO to change the baud rate then press ENTER, or press MENU to return to the normal display.

All new settings are remembered, so that they will still be in force when the tag reader is powered up the next time.

## Drafting Using the Reader

The file number can be changed at any time. If you want to separate animals for any reason, for example culling, you can put these animals into a different file. That way, when you download the IDs to your

operating in the vicinity of each other, such as a portable reader and a race reader.

**Turning the Reader On** - The on-off switch is located at the base of the tag reader. The internal battery can be charged irrespective of whether the reader is on or off.

When the reader is turned on, it goes through an initialisation process. It will then ask for a file number. The current file number will be displayed. Use the YES and NO keys to select the desired file No. then press ENTER. If there are IDs already recorded to that file number the display will show USED next to the number. It's your option if you want to select a used file number and add more IDs to it, or select an unused file number.

Once the file number has been entered the display will show the number of IDs in the current file and the file number.

## Reading a Tag

Operation is very simple. You only need to turn the Tag Reader on, select a file number, and bring it within range of a tag. You can select whether you want to let the reader automatically record the ID into its memory, or confirm each entry by pressing the YES or ENTER button.

The reader won't record the same tag twice in the same file. It won't allow a tag to be read twice in a row, except if you delete the last ID recorded. **If the same ID is read twice in a row, there won't be any beep.** You will however, see a message on the display.

The reader searches all the IDs in memory to check whether the ID has been recorded, and if it has the file number that the ID is recorded under is checked. If the file number is different the ID will be moved to the current file number and recorded, otherwise a warning will appear that

the ID is already in the current file. You will also only hear one beep instead of two when the tag is scanned.

You can set a duplicate warning for a history of 1 to up to 20 tags, and the reader will tell you when you last read the tag if it was read within the set duplicate warning range.

**Automatic Entry** - You will hear a beep to say that the tag has been read and the ID will be displayed, then a second beep if the ID is a new recording to the file. The ID is recorded to the memory. There won't be a second beep if the ID has already been recorded into the current file. If a tag bucket file has been uploaded into the reader and the ID is in the tag bucket file, the NLIS ID will be displayed rather than the electronic ID. The ID will be displayed for up to 15 seconds.

**Manual Entry** - You will hear a beep to say that the tag has been read and the ID will be displayed. You then must press either the YES or ENTER button to accept the ID, or NO to reject it. Once the ID is accepted, it will be recorded and a second beep will be heard if the ID is a new entry to the file. There won't be a second beep if the ID has already been recorded into the current file. If a tag bucket file has been uploaded into the reader and the ID is in the tag bucket file, the NLIS ID will be displayed rather than the electronic ID. The ID is displayed until a button is pressed.

**The Tag Reader continuously scans for any tag within range.** It will not record the same tag twice in a row. If you need to read the tag again, delete the last ID first, then you can read it again. Alternatively, if the history is set to 1, read a different tag then you can read the 1st tag again.

**PR20 read range** - The maximum read range for the PR20 is approximately 270mm from the end of the shaft with the face of the tag perpendicular to the shaft. This range reduces to approximately 60mm if the face of the tag is parallel to the shaft. The read range to the side of the

shaft is 100 - 240mm, depending on the orientation of the tag.

## Using the Keypad

There are 4 keys on the reader for setting up operating parameters and for performing tasks.

By successively pressing the MENU key, you can cycle through the various tasks that can be performed. There are 6 tasks in total. The 7th press of the MENU key returns you to the normal display. You can select your choice by pressing the YES or NO keys. If no button is pressed within 10 seconds the display will return to normal. The 6 choices are:-

1. DELETE LAST ID? Selecting this option will allow you to delete the last ID scanned. You can only delete 1 ID. It won't allow you to keep on deleting or delete an ID from a previous session. If there is no ID to delete, such as when first turning on, this option won't appear.
2. CURRENT FILE No. The Thunderbird tag reader can store IDs in up to 30 different files. The file numbers will appear alongside the ID when they are downloaded onto a computer. You can use the YES key to select a new file No. then press ENTER, or press MENU to move on.
3. DUPLICATE SEARCH. You have the choice of allowing the reader to check whether the tag just scanned was scanned previously. The search history is from the last 1 to the last 20 IDs. Use the YES and NO keys to select the required search history then press ENTER, or press MENU to proceed. A tag cannot be recorded twice in a row.
4. CONFIRM EACH ID ENTRY? The Thunderbird tag reader will scan for tags while it's turned on. This feature allows the