BIRDOG ®

With DDSI
Digital Data Stream Identification Ver 2.50

Thank you for choosing our newest and most innovative satellite identification and alignment meter. This device far exceeds the capability of any alignment tools we have offered to date.

While most pointing devices only give you a general idea that there are indeed satellites in the sky, the BirDog® takes you one step further by positively identifying some satellites. This meter was specifically designed and intended to assist in simplifying the DirecWay alignment procedure; however, a secondary advantage lies in it's ability to identify some other satellites as well.

The BirDog® satellite menu can be reprogrammed to include only the satellites you are interested in or to search for satellites which are not found in the default menu. The procedure for making the modification is discussed in this document.

Please note that this manual was current at the time of publication and applies to BirDog meters with Ver 2.50 software ONLY. The latest news and updates are available at www.birdog.tv.

Specifications

Battery Pack	2.4 A, 7.2V Ni-MH
Intelligent Charger (UL approved) with delta V delta T detection	Fast charge, then Trickle
LNB supply voltage	12Vdc for V/R, 16 Vdc for H/L
LNB supply current	250 mA max
LNB short circuit protection	500 mA automatic limiter
RF input range	950 ~ 2150 MHz
Input dynamic range	-65dBm~-25dBm
Universal charger input range	80 Vac ~ 250 Vac
Battery Run time with full charge (single LNB):	3 hours
Number of satellite data lines available in memory:	32 lines (32 sats, one polarity)
Unit Discharge time (idle state)	~24 days
Computer interface:	Serial Port (COM 1,2,3 or 4)

Warning: the neck strap can present a choking hazard. Use only when falling or slipping is not a possibility.

Perfect 10 Satellite Distributing   1-800-205-8620

3901 Progress Street
North Little Rock, Arkansas 72114   Ver 1.5

In The Box!

BirDog Meter with Internal Battery, Protective Case & Neck strap

D.C. Auto charger cord
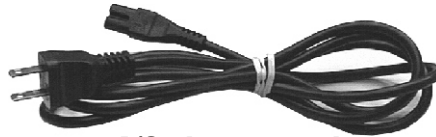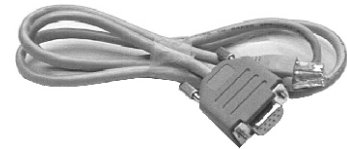
A/C charger cord

Computer interface cord

Your BirDog® is supplied with this manual, the meter, a protective case, an auto charge cord, an A/C charge cord and a computer download lead (serial port).

Charging The Battery

The meter's battery will **not** be charged when you receive it. We recommended that you charge the unit overnight to fully energize the batteries. If you absolutely can't wait that long, at least give it a four hour charge. Overnight charging will allow some trickle charging which Ni-MH batteries need to come up to full performance.

The batteries will need to be recharged occasionally even if the unit has not been used. Recharge batteries approximately every three weeks to keep the battery pack charged .

Note that it is not possible to use the BirDog® when the batteries are being charged.

Charging with the A/C cord

Open the flap on the back of the BirDog® to access the A/C charge port. Plug the A/C charger cord into this port and into a standard 110 Vac outlet. The battery is fully charged when you see the words "Trickle Charge" on the screen.
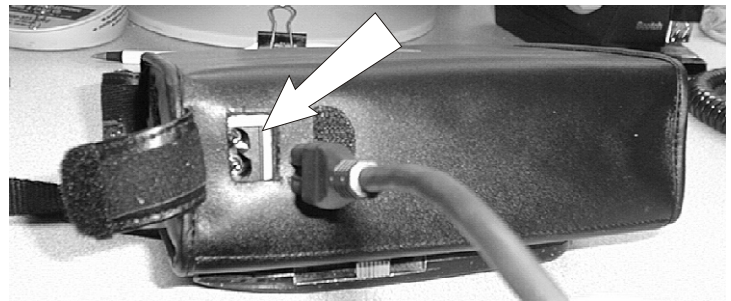
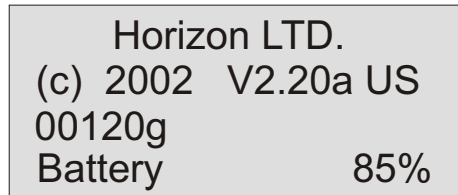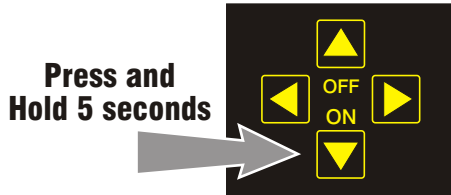### Charging from a Vehicle (D.C. Auto charge cord)

The Vehicle (12 Vdc) charge port is on the right side of the unit. Plug the 'D.C. Auto Charger cord' into the bottom socket and then into a 'lighter' socket in your vehicle. The 'D.C. Auto Charger cord' supplied with your BirDog® is the only lead to use for car charging. The use of any other lead can damage the meter and will void the warranty.

The BirDog can remain connected to either power source, in a "Trickle Charge" state, for an extended period of time without damaging any internal components.

To Turn The Meter ON

Solidly connect a good quality RG-6 jumper from the BirDog® "INPUT" jack on the front of the meter to the LNBF on the antenna. Note that a poor connection here can cause the meter to malfunction. Now, generally point the antenna in the azimuth (magnetic) direction specified by the software in your satellite receiver, or in the case of a DirecWay installation, a laptop, or customer's PC.

Press and Hold 5 seconds

```
OFF
ON
```

```
       Horizon LTD.
(c)  2002   V2.20a US
00120g
Battery              85%
```

First screen indicates version number, satellite list code and battery strength. The meter scrolls to next screen automatically.

Type Satellite
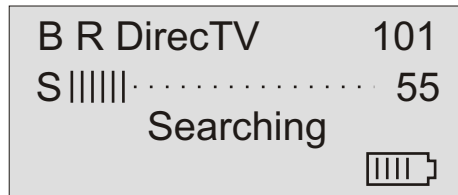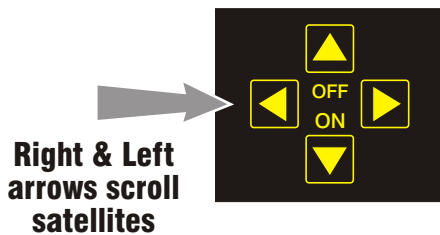B = Circular
C = C band
K = Ku band

Polarity Satellite Name Longitude

Note "S" = *Raw Signal Level*

```
K V  GE3              81
S||||||· · · · · · · · · · · · · 55
       Searching
                    |||||
```

Battery Strength

The second screen indicates the first satellite in the menu, the longitude of the satellite, raw signal received, battery strength and "Searching" since the satellite has not been found yet.

Selecting A Satellite

Right & Left arrows scroll satellites

```
OFF
ON
```

```
B R DirecTV          101
S||||||· · · · · · · · · · · · · 55
       Searching
                    |||||
```

Find the satellite you are interested in by scrolling through the stored memory. In this example, the DirecTV® satellite located at 101° is selected.

```
B R DirecTV          101
S||||||· · · · · · · · · · · · · 55
       Searching
                    |||||
```
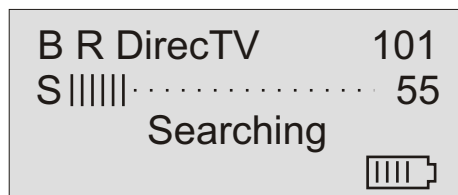
The display indicates a weak raw signal "S" and the text message "Searching". Keep scanning the sky until the "S" increases and the "Q" bar appears.

Aligning the Dish On The Selected Satellite
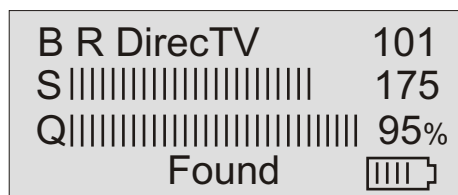
Move the dish until "Found"

Note "Q" = *Inverse of Data Error Rate*

```
B R DirecTV          101
S|||||||||||||||||||| 165
Q||| · · · · · · · · · · · · · 25%
       Found       |||||
```

Correct Satellite Is Confirmed

Getting close, the dish is pointing at the edge of the DirecTV® satellite. Note that the word "Found" appears. Keep moving the dish until the "Q" and "S" levels are maximized.
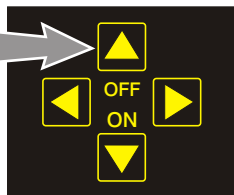
Maximize signal and Tighten Bolts

```
B R DirecTV          101
S|||||||||||||||||||||||| 175
Q|||||||||||||||||||||||||||| 95%
       Found       |||||
```

"Q" is now maxed out, "S" is maxed out. That's it......
<u>You</u> <u>are</u> <u>done.</u>
Tighten the mount bolts.

To Turn The Meter OFF
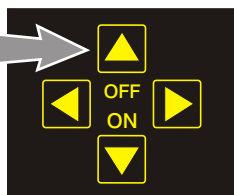
Press and Hold 5 seconds

Shutting Down

To turn the BirDog® off, press and release the upper (OFF) button. The display will indicate "Shutting Down" and then the display screen will go blank.

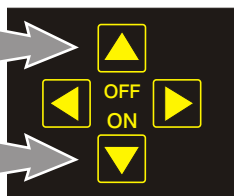## Other Features

Press and Hold

▶ Exit
Backlight on
Clicking   off
Sleep   6 Mins

The BirDog® must be turned <u>off</u> to access the optional setup screen.

To access other features, press and hold the up arrow. You will see this screen.

Up or down to select Options

▶ Sleep   6 Mins
Defaults
English
RF Linear

Press down or up keys to select the required function. The arrow head will indicate the selected item. The Auto Shutoff timer adjustment is selected in this example.

Continue scrolling down to reach these options:

English
RF Linear
Found
▶ BER Linear

More features are available, continue pressing the 'down' arrowhead to access them.

The language (English), RF presentation, Bit Error Rate (BER) and presentation when the satellite is "Found" can be modified to suit your preferences. The RF bar graph presentation can be change to micro volts "dBuV" or "Linear" graphs. The "Found" indication can be changed to the BER scientific presentation or just the word "Found" and the "Q" bar can be changed to a logarithmic scale or a linear bar graph scale.

To Change and Save a Feature

Press left or right to change the option setting
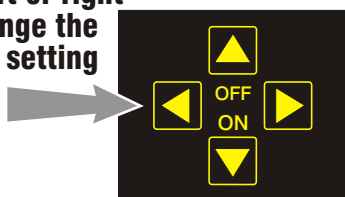
Clicking   off
▶ Sleep   15 Mins
Defaults
English

In this example we have selected the "Sleep" timer adjustment and changed the "Sleep" mode to 15 minutes.

To 'Save', press the right button.
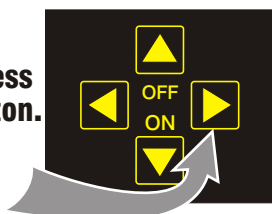
▶ Exit
Backlight on
Clicking   off
Sleep   15 Mins

To save the selection(s) you have made, press the upper button to position the arrowhead on "Exit", then press the right button.

To return all adjustable options (other than language) to their original factory setting, select "Defaults" and press the right arrow.

4

To Reduce the Raw Signal "S" Bar Graph

Press ➡
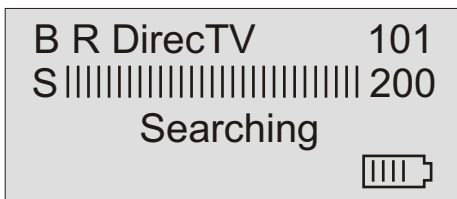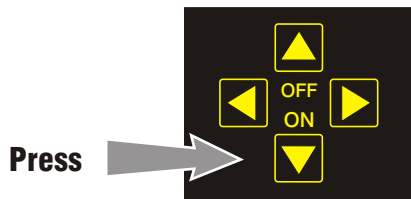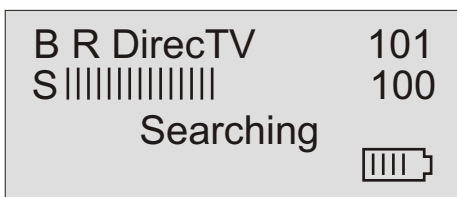
```
B R DirecTV      101
S|||||||||||||||||||||||||||||200
        Searching
               [====]
```

If the "S" (raw signal) bar graph is maxed out, press the bottom (ON) button once.

The screen will then indicate "Auto Ranging" where the bar graph was located. The meter will now re-center the raw signal strength.

(Attenuated Display Sensitivity)

```
B R DirecTV      101
S|||||||||||||||     100
        Searching
               [====]
```

When the bar graph reappears, it will be reduced in length and the digital strength will reflect the reduction. **The Auto Ranging only works if the satellite has not been "Found".**

Signal to Noise Ratio

Press ➡

```
B R DirecTV      101
S|||||||||||||||||||||||||  175
Q||||||||||||||||||||||||||  95%
        Found   [====]
```
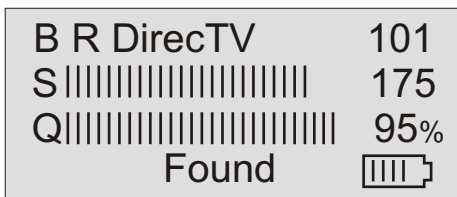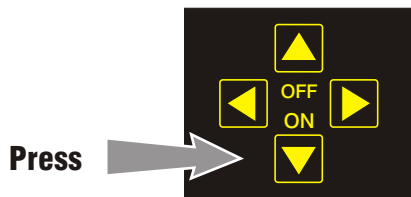
If you would like to look at the signal to noise ratio, the BirDog® can provide that information. With the satellite "Found", press the bottom (ON) button once.

```
B R DirecTV      101
C|||||||||||||||    65
V|||||||||||||||||||||||||||||  95%
        Found   [====]
```

The "S" changes to a "C" and now reflects the C/N or signal to noise ratio in db.

The V indicates inverse Bit Error Rate after error correction.

Overview of Downloading & Uploading Satellite Lists

You can change the pre-loaded satellite list which is currently in the memory of the BirDog® to a custom list of your choosing by going to www.birdog.tv. The instruction set which follows in this manual, "How To Download from the Website", was current at the time of this manual's printing but is superceded by any revisions found on the web site.

Note that the BirDog may not be able to positively identify the correct location of satellites other than those in the default menu (Default = G11, Satmex5, DirecTV 101 and DirecTV 119). Some of the satellites available for download from the website do cause the BirDog to indicate "Found" in one or more locations. You may download any of these other satellites but they are to be used with the understanding that misidentification may result. A thorough knowledge of the magnetic heading to the satellite you are attempting to positively identify can help you resolve some of the duplicate satellite locations.

The default satellite list which is pre-loaded at the factory will be overwritten by any uploads you perform. However, the factory default list is also available from the web site and can be reloaded if desired. Note that the satellites you choose need to be selected in the sequence that you want them to appear in the BirDog®. If, for example, you select a satellite located at 119° and then select one located at 101°, the 119° satellite will come up first as you scroll through the list of satellites in the stored memory. This can be handy knowledge as you may prefer to have the satellites you use most, located at the first of the list and less needed ones at the end of the list.

You can load from one to thirty two satellite data lines in memory. The fewer lines you select for your custom list, the quicker you can find the one you want when lining up antennas. Just keep in mind, only one list will be retained in the BirDog® memory. The previous list is overwritten by the next upload you do.

Computer Requirements for Download and Upload

This feature requires a Microsoft Operating system of Windows 98, Windows 98 ME, Windows NT, Windows 2000 or Windows XP. You will also need an Internet Service Provider (ISP) connection to the internet and an active, available 9-pin (COM 1,2,3 or 4) serial port connection on your computer.

Please note that Perfect 10 will <u>not</u> advise you on how to modify the software or bios settings of your PC. Contact your computer provider if you have any questions concerning COM port setups.

A Serial (COM) Port
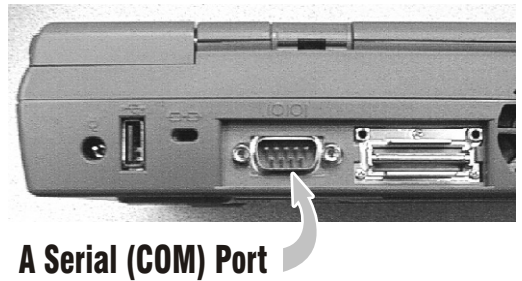
How to Download from the Website

To change the satellite menu in your BirDog, go to "www.birdog.tv" and press the "News" button to see if any current news will affect your download. Then press the "Configure" button. Scroll down the page until you see the following screen:

② **Right arrow key adds them to your list**

Available Transponders

① **Select the satellite lines you want**

```
DBS/S Dishnetwork 61.5 West
C Galaxy6 74 West
KU SBS6 74 West
KU Satcom K2 81 West
C AMC2 85 West
KU AMC3 87 West
KU Telstar4 89 West
KU Galaxy11 91 West
KU Telstar6 93 West
KU Galaxy3R 95 West
```

Selected Transponders

☐ Create zipped exe file*

*If this boxed is checked you will receive a zip file rather than an exe file. You can use

Generate

Select the satellite lines you want in your list, in the order that you want them to appear in your Birdog. As you select each satellite, press the right arrow key to insert them into the list on the right side. Remember, you can pick the sequence they will appear in the BirDog at this time.

Available Transponders

```
DBS/S Dishnetwork 61.5 West
C Galaxy6 74 West
KU SBS6 74 West
KU Satcom K2 81 West
C AMC2 85 West
KU AMC3 87 West
KU Telstar4 89 West
KU Telstar6 93 West
KU Galaxy3R 95 West
KU Telstar5 97 West
```

Selected Transponders

```
KU Satmex5 116.8 West
KU Galaxy11 91 West
```

☐ Create zipped exe file*

*If this boxed is checked you will receive a zip file rather than an exe file. You can use this if you want to download a smaller file, but you will have to unzip it.

Generate

③ **Send the list to yourself**

In this example, I have selected Satmex 5 as the FIRST satellite to appear when I turn the BirDog on. Galaxy 11 will appear second.

The BirDog can hold a configuration file with a maximum of 32 lines.

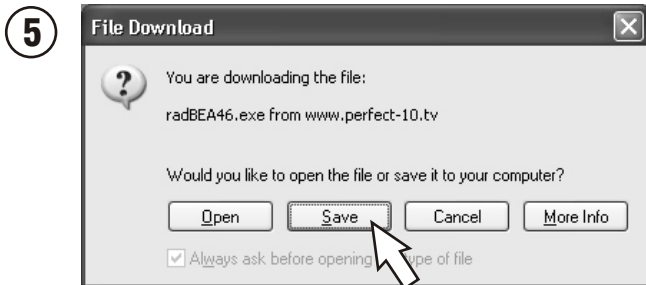Press the "Generate" button when you are done. An email will be sent directly to you with the zip file attached.

④

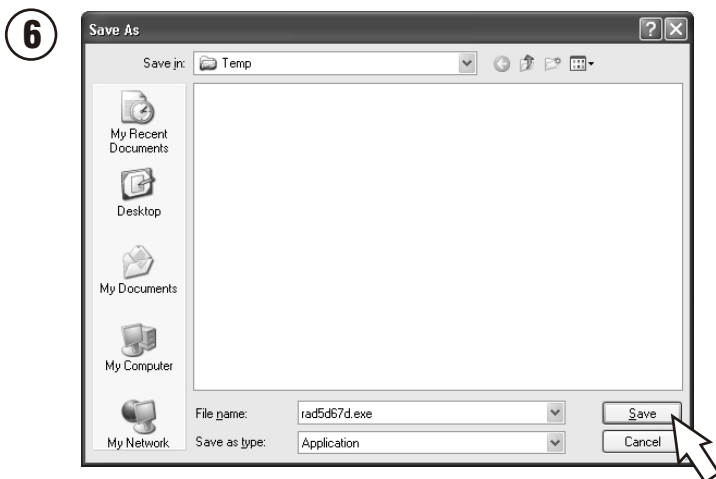http://www.perfect-10.tv/meter/Downl...

Download your File

Close Window

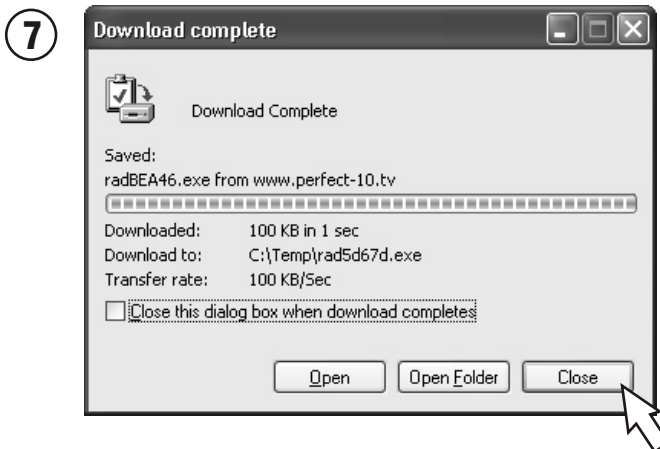This screen will appear. Click on "Download your File".

⑤

This screen will appear. Click on the "Save" button.

⑥

A screen similar to this will open. Decide where you want to store the download. In this example, the file will be stored in a "Temp" file.

After you have made your choice of the storage point, press the "Save" button.

⑦

This screen advises you that the file has been downloaded and lists the location where the file is now stored.

Press the "Close" button.

This completes the "Download" or Configuration process. The next step will be uploading the new menu into the BirDog.

You might want to keep track of the executable file number just in case you want to download a different satellite list from the website at a later date, the file name will be different each time. That way you can pick and choose from the previous downloads that you have already stored on your computer.

This example, 'rad5D67D.exe' has only Satmex 5 and G11 in it. I might have two or more executable menus previously downloaded . Each would have a different file name and contain a completely different list of satellites.

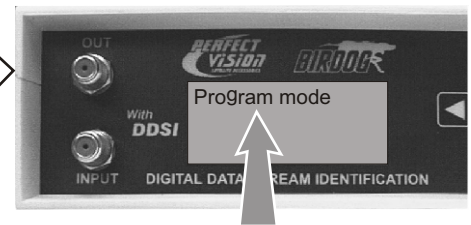## *How to Upload the new Menu into the BirDog*

1

Temp

File Edit View Favorites Tools Help

Back • Search Folders

Address C:\Temp

Name	Size	Type	Date Modified
rad5d67d.exe	100 KB	Application	01/23/2002 02:22 PM

Double-click the new file

Then

BirDog Satellite Meter

File ComPort Transfer Help
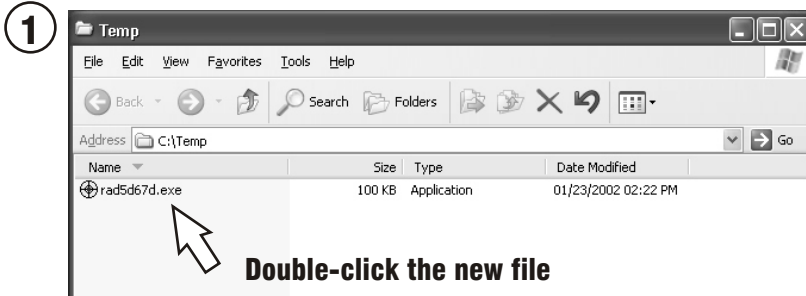
This Screen Will Appear

Find the .exe file you just downloaded from the website. Double-click on that file.

2 **Turn the BirDog "off".**

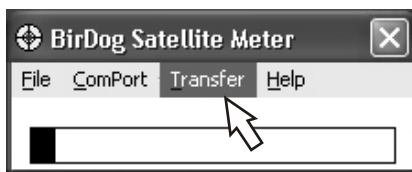**Connect the Cable**

Then
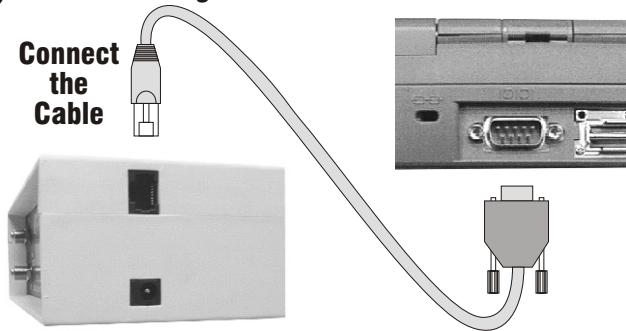
Look at the Face of Your BirDog

Program mode

With DDSI

INPUT   DIGITAL DATA STREAM IDENTIFICATION

This Text Will Appear if the connection is complete

3 **Press The "Transfer" Button**

BirDog Satellite Meter

File ComPort Transfer Help

BirDog Satellite Meter

ⓘ Transfer Complete!

OK

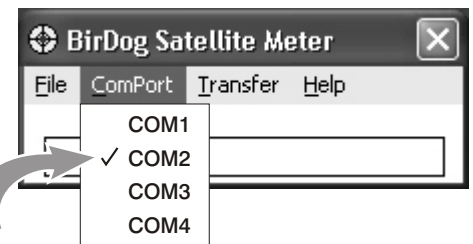**If you see this screen you are _Done_. Your upload to the BirDog is completed.**

Press the "OK button and Disconnect the Cable

OR

BirDog Satellite Meter

✕ Error - Ack not received

OK

BirDog Satellite Meter

File ComPort Transfer Help

COM1
✓ COM2
COM3
COM4

If you get this Error message, change your COM port selection by checking the <u>correct</u> COM number.

Then try to "Transfer" again. A failure to achieve "Transfer Complete" indicates a COM problem.

The COM port <u>number</u> selection is important, not the specific IRQ or address of the COM port. If you get in a hassle trying to get the COM port working, use a different computer or laptop for downloading and uploading.

Basic Operation and Characteristics

The BirDog® was specifically designed as a measuring device to greatly simplify the DirecWay , 1-way and 2-way installation process. You will find this instrument does an excellent job of identifying DirecWay satellites and optimizing the installers ability to see the "cross-pole".

The BirDog® looks at several data stream features broadcast from the satellites. Some satellites (like DirecWay birds) transmit data which is unique and identifiable. The "Found" indication is a positive and error free indication of the satellites identity. However, there are a few broadcast satellites which have exactly the same data stream and are not unique. In that case, a "Found" indication can be the desired satellite or one of several duplicate satellites. The BirDog can still be helpful on duplicate satellites as your knowledge of the magnetic azimuth to the satellites will be the key to sort out the duplicates. Please refer to www.birdog.tv for the most current information on duplicate satellite transmissions:

There is no "constant" maximum signal number you should try to achieve. The LNBF, antenna and geographic location will vary the maximum signal level. Each installation is unique with variable conditions.

The BirDog®does not control polarity motors like those found on C-band dishes. If there is a polarity motor on the feed horn of dish you are aiming, use the receiver to set the polarity of the rotor motor, or, manually rotate the LNB and horn to the proper polarity before attempting to find the satellite. The BirDog® does control circular polarity voltage controlled LNBFs like those found on DirecTV and EchoSphere antennas via it's internal voltage driver control.

The 'Backlight' feature draws more current from the battery. Therefore, this should only be turned ON when it is needed and normally left in the OFF to preserve run time. See "Other Features" on page 4.

You must have a clear shot at the satellite for the BirDog® to work. Trees and buildings violate the rules. Try to have a clear sky shot initially so you can identify the satellites true location. Then you can work on manipulating the hole-in-the-trees shot for the tough installations.

Note that the BirDog® is very frequency specific on the LO (local oscillator) of the LNB. You must be using common LNBFs for the device to work. If, for example, it is a C-band bird you are trying to identify, use a common 3.7~4.2 LNBF with an I.F. of 950~1500. It may be necessary for you to install a common LNBF to identify the satellite, then install any 'special' LNBFs when you have finished aligning the antenna.

Pay particular attention to the menu where it specifies the type of data stream; 'B'=circular, 'C'=C-band linear and 'K' =Ku band linear. See page #3 under "To Turn The Meter ON" for the location of this critical data. If the data line indicates that it is for a 'K' data stream, the BirDog must be attached to a Ku LNB on the dish you are aligning in order to receive the correct information. In other words, don't select a Ku band (linear) bird from the menu and then connect the BirDog to a circular polarized LNBF.

Really cold weather conditions affect the performance of this meter. The rechargeable battery pack's available stored charge is greatly reduced in cold weather, this is just a fact of life for batteries. Additionally, if the temperature is down into the 20's (F), the LCD display crystals can freeze and cease to function, the display will remain "blank". The LCD is not damaged by this characteristic and when warmed up again the display will work fine. Just remember that when it's cold try to keep the meter in a warmer environment until time for use.

The Ver 2.50 BirDog has the capability to control the DishPro dual or quad LNBF. You must download the "DishPro 110 West" and/or the "DishPro 119 West" satellite lines from the "Configure" page on the www.birdog.tv website. Note that the BirDog CANNOT control the DP34 or DP21 switches as the current demand of the switch and all connected LNBFs can exceed the performance range of the internal battery. If these switches are, or will be, in the system, bypass them initially and connect the BirDog directly to the DishPro LNBFs on port #1 for identification and alignment. Once the alignment is complete you can connect, or reconnect, the DP switches.

Manufacturers Notes

The BirDog meter has a design temperature range of 32°F to 100° F at humidity levels less than 85%. Beyond these limits the meter may not operate properly. At temperatures below 32° the internal battery can lose up to 60% of it's rated capacity; additionally, the LCD (liquid crystal) display can stop displaying information. **It is very important that, in cold weather conditions, the meter is kept in a dry and warm place prior to use.** Keep in mind that at cold temperatures the LNBF will also draw more current and therefore demand more from the battery..

Satellite selections which utilize left hand circular polarization demand more power from the battery than selections which are right hand polarized. Specifically, LHCP requires 18vDC and RHCP 13vDC.

The manufacturer suggests that, in cold weather conditions, the meter be kept warm, fully charged, and connected solidly to the LNBF before attempting to turn the meter "ON".

The BirDog meter has two error codes, "Empty Table" and "I2C Error".

The "Empty Table" text display indicates that the download from the website is faulty. Re-select the desired satellites from the website and download the file again.

The "I2C" Error indicates that the internal electronics are not receiving correct communication with the internal tuner. This can be caused by low batteries (typically in cold weather), a high amp demand form the LNBF/switch set, loose connections between the meter and the LNBF or switching to LHCP with a weak battery.

Replacement Part Numbers

A/C Charger Cord LDSM020
Computer Interface Cord LDSM232
D.C. Auto Charger Cord LDSM12DC

Protective Case ....CDSM
Rechargeable Battery Pack BDSM072

Utility of this Device

The satellite programmers have complete control of the data stream information. They change the data stream methods and technology at will and for their own purposes. Perfect 10 has no control over the evolution of data streaming. While we will make every effort to provide you with current satellite identification downloads, this device could eventually loose it's ability to identify specific satellites by the evolution of technology.

Warranty

Perfect 10 Satellite Distributing will, at our option, repair or replace any BirDog meter found defective in manufacture within a warranty period of one year. This warranty period is determined from the date of purchase. Keep your receipt as proof of purchase date. Otherwise, the warranty is determined by date of manufacture. This warranty does not apply to damage caused by accident, misuse or tampering with the unit. Removal of tamper seals voids this warranty.

Perfect 10 Satellite Distributing
3901 Progress Street
North Little Rock, Arkansas 72114

1-800-205-8620