

Configuration Utility

Features

- Configure dipoles using the GUI or the command line.
- Create and save custom dipole configurations to a file.
- Create and save custom (overlay) packets, including:
 - 21-bit high resolution packets
 - Shock and vibration packets
- Import custom packets into Detect Software.
- Save configurations from dipoles.
- Write configurations to dipoles.
- Automatically creates a log file for each session.

Applications

- Configure Model AP250 EM MWD Systems

Supported Devices

- Applied Physics Systems EM Dipole

Configuration Utility is part of the Applied Physics Systems Software Suite, which includes:

- *Configuration Utility
- Directional Sensor Configuration
- Log Viewer
- Depth Tracker
- Firmware Update Sensor
- Universal Roll Test
- Detect
- Firmware Update Utility
- Virtual Drill

*For more information about Applied Physics Systems Configuration Utility Software, see [Configuration Utility Help](#).

Use Configuration Utility to configure Model AP250 EM MWD Systems.

Configuration Utility consists of a GUI with menus, icons, and tabs. The Terminal tab is a command line interface.



- **Basic** - Configure the basics for the dipole, such as encoding mode and frequency.
- **Sensors** - Configure settings for sensors.
- **Battery** - Configure different settings for battery use.
- **Custom Packets** - Create custom packets for dipoles.
- **Dipole Control** - Configure different settings for dipole transmission.
- **Terminal** - Enter commands to configure dipole from the command line.

Configuration Utility








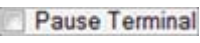
Menus

Configuration Utility has 4 menus. Some of the menu items can also be accessed using the icons.

File Menu	Load Configuration From File	Loads the configuration file and displays it in the utility.
	Save Configuration To File	Saves the configuration displayed into the utility to a file.
	Load Default Configuration	Resets the dipole to the factory default configuration.
	Load Only Custom Packets	Loads only custom packets and displays them in the utility.
Device Menu	Collect All Configuration	Collects the dipole's configuration and displays it in the utility.
	Write All Configuration	Writes the configuration displayed in the utility to the dipole.
	Collect Only Custom Packets	Collects only custom packets from the dipole and displays it in the utility.
	Write Only Custom Packets	Writes only custom packets displayed in the utility to the dipole.
Tools Menu	Connection Settings	Selects the COM port and baud rate to communicate with the dipole.
	Reconnect	Queries the dipole to establish communication.
	Sync Device Time with System Time	Resets the dipole's clock to the MWD laptop's clock.
Help Menu	Config Help	Displays Configuration Utility Help.
	About	Displays the product, version, and contact information.

Icons

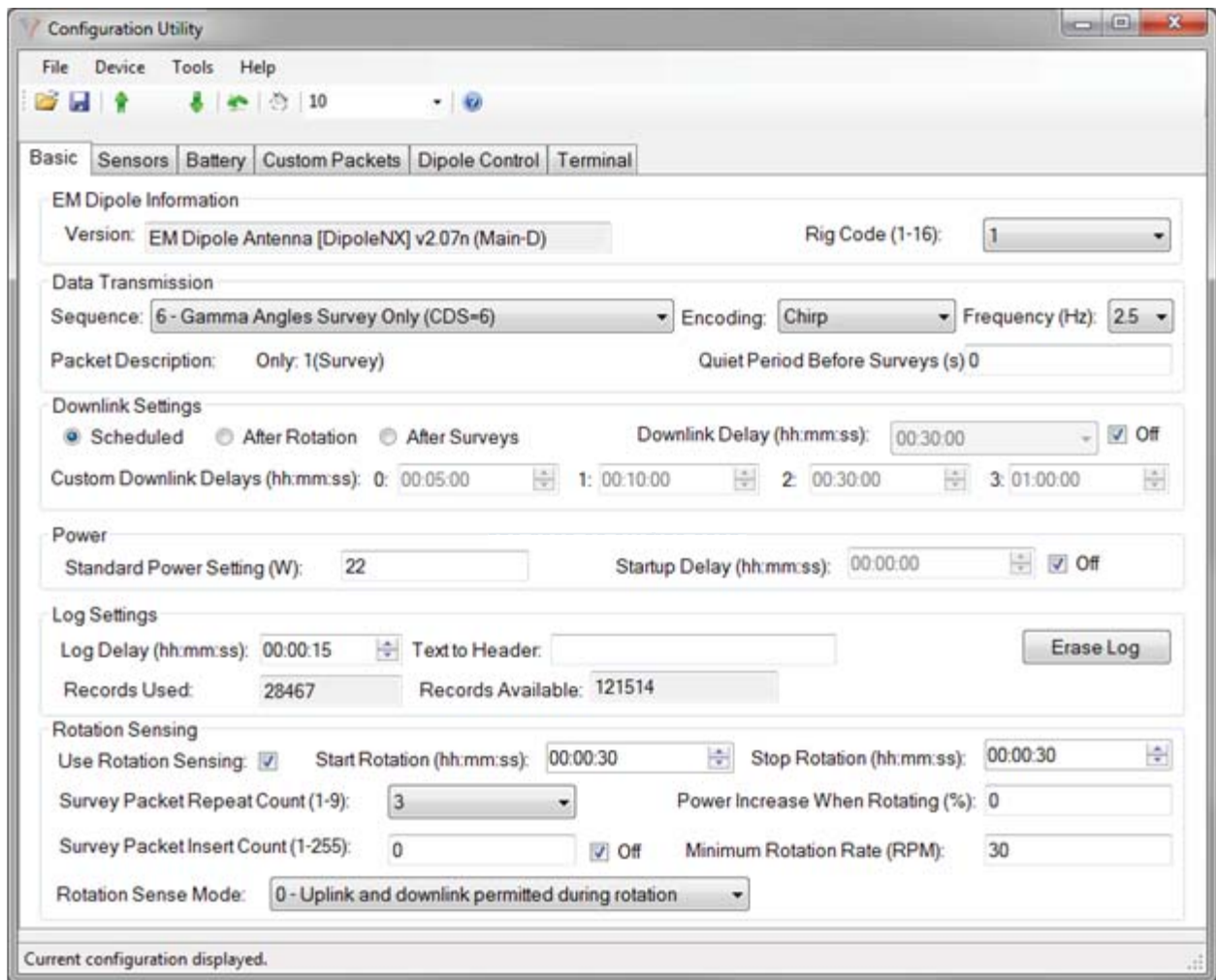
Configuration Utility has 9 icons. The first 6 functions listed below can also be accessed through the menu.

	Load Configuration From File	Same as File > Load Configuration From File on the menu.
	Save Configuration To File	Same as File > Save Configuration To File on the menu.
	Collect All Configuration	Same as Device > Collect All Configuration on the menu.
	Write All Configuration	Same as Device > Write All Configuration on the menu.
	Load Default Configuration	Same as File > Load Default Configuration on the menu.
	Sync Device Time with System Time	Same as Tools > Sync Device Time with System Time on the menu.
<input type="text" value="10"/>	Terminal Font Size (8 - 30)	Sets the font size in the Terminal tab.
	Activate / Deactivate Tool Tips	Activates or deactivates the messages when the cursor hovers over some configurable fields.
	Pause Terminal	Stops the terminal from scrolling.

The Basic Tab

Use the Basic tab to view, change, and save basic dipole configuration settings, such as encoding mode and frequency.

- Initially, when a dipole is connected to the MWD laptop running Configuration Utility and communication is established, **EM Dipole Detected** is displayed on the status bar at the bottom of the screen.
- Once communication is established and the dipole configuration has been collected, this screen displays the dipole configuration and the status bar displays **Current configuration displayed**.
- The status bar also displays other informational messages.
- Some fields, such as firmware version, records used, and records available are read-only.
- All other settings displayed on this screen can be modified and saved.



The screenshot shows the Configuration Utility window with the Basic tab selected. The interface includes a menu bar (File, Device, Tools, Help), a toolbar, and several configuration sections:

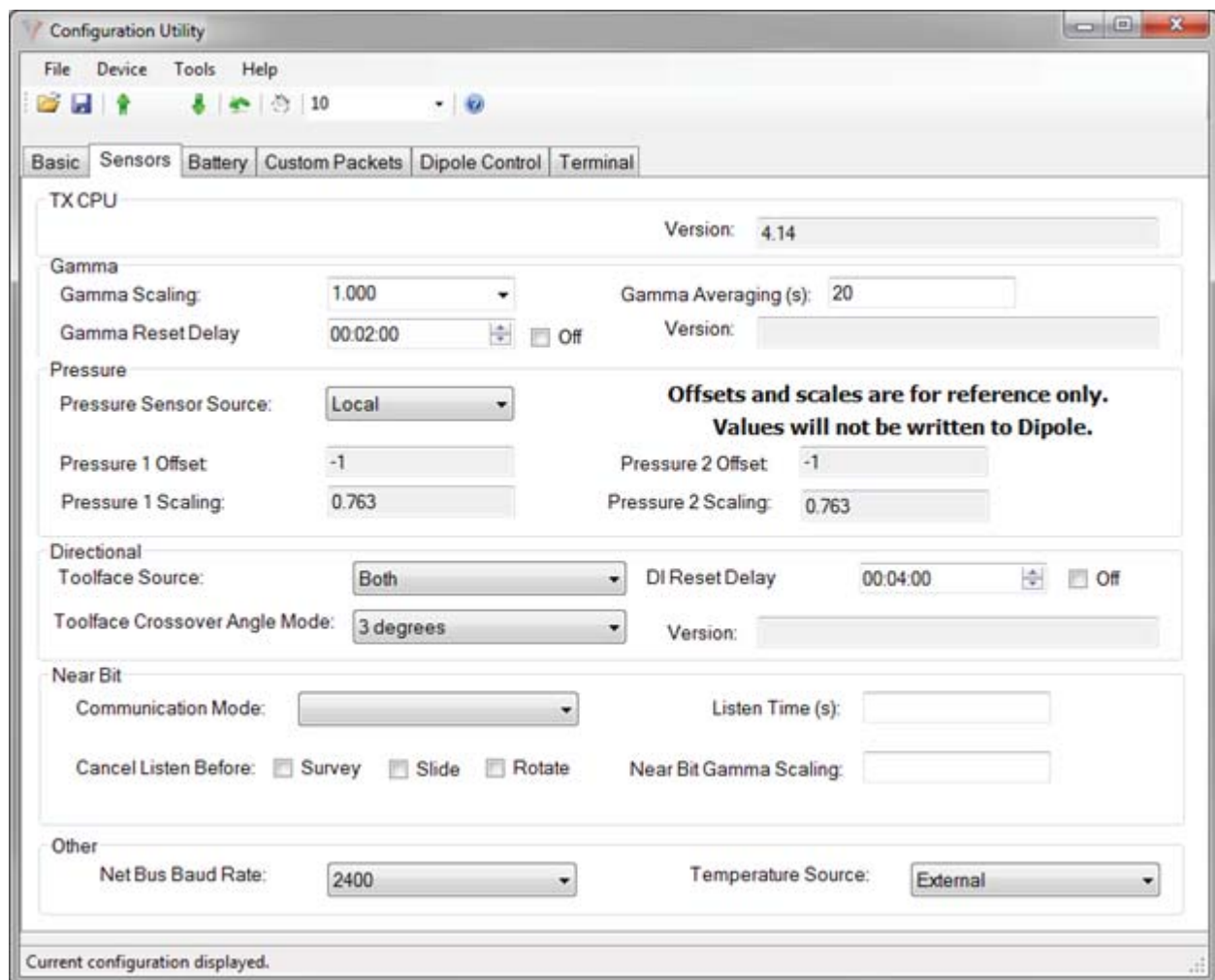
- EM Dipole Information:** Version: EM Dipole Antenna [DipoleNX] v2.07n (Main-D); Rig Code (1-16): 1
- Data Transmission:** Sequence: 6 - Gamma Angles Survey Only (CDS-6); Encoding: Chirp; Frequency (Hz): 25; Packet Description: Only: 1(Survey); Quiet Period Before Surveys (s): 0
- Downlink Settings:** Scheduled (selected), After Rotation, After Surveys; Downlink Delay (hh:mm:ss): 00:30:00; Off (checked); Custom Downlink Delays (hh:mm:ss): 0: 00:05:00, 1: 00:10:00, 2: 00:30:00, 3: 01:00:00
- Power:** Standard Power Setting (W): 22; Startup Delay (hh:mm:ss): 00:00:00; Off (checked)
- Log Settings:** Log Delay (hh:mm:ss): 00:00:15; Text to Header: [empty]; Erase Log button; Records Used: 28467; Records Available: 121514
- Rotation Sensing:** Use Rotation Sensing: checked; Start Rotation (hh:mm:ss): 00:00:30; Stop Rotation (hh:mm:ss): 00:00:30; Survey Packet Repeat Count (1-9): 3; Power Increase When Rotating (%): 0; Survey Packet Insert Count (1-255): 0; Off (checked); Minimum Rotation Rate (RPM): 30; Rotation Sense Mode: 0 - Uplink and downlink permitted during rotation

At the bottom of the window, the status bar displays "Current configuration displayed."

The Sensors Tab

Use the Sensors tab to view or configure settings for sensors.

- Once the dipole configuration has been collected, this screen displays the sensor configuration and the status bar displays **Current configuration displayed.**
- The status bar also displays other informational messages.
- Some fields, such as version, pressure offsets and scales are read-only.
- All other settings displayed on this screen can be modified and saved.

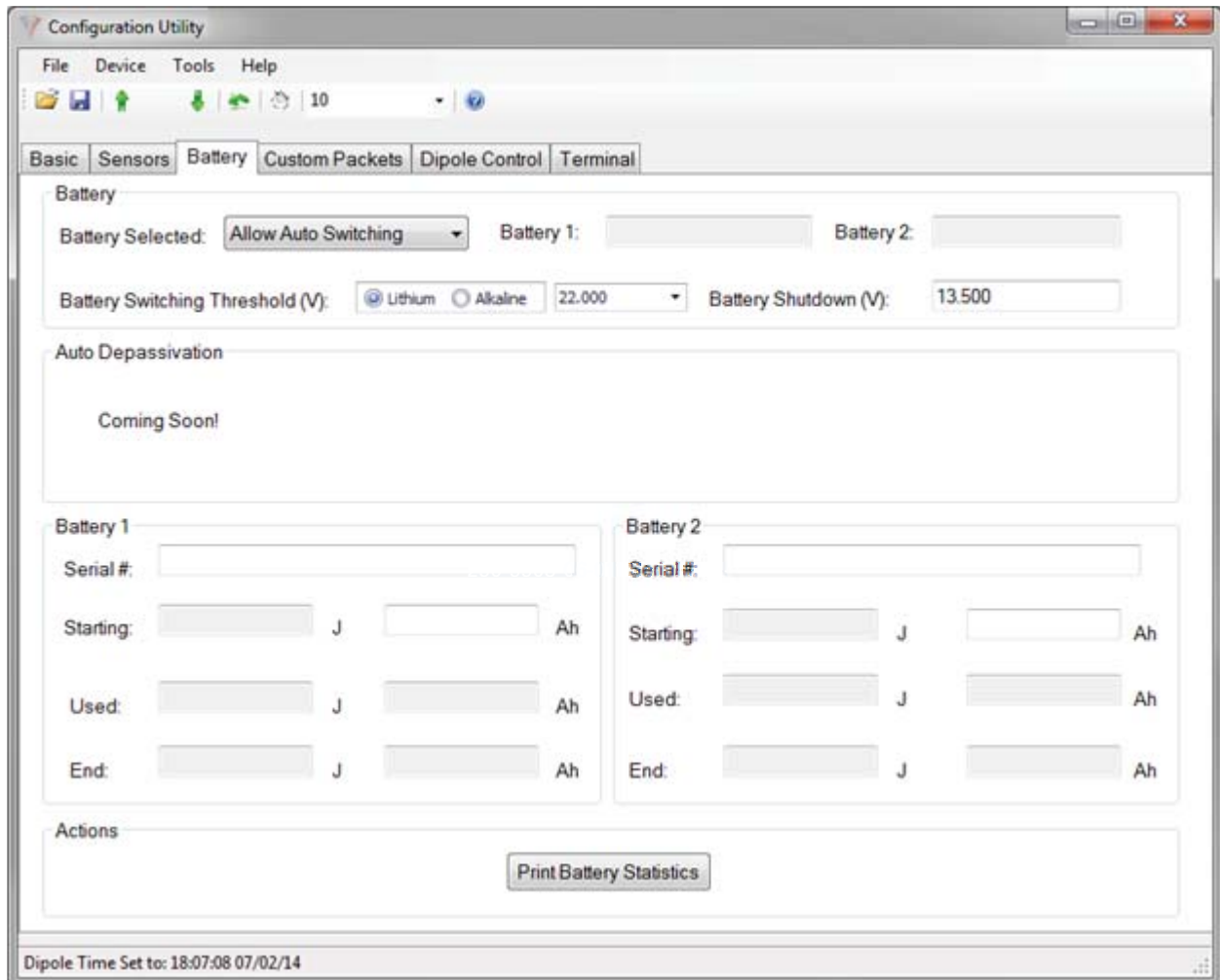


The Battery Tab

Use the Battery tab to configure the batteries and display the configuration.

- Select the battery configuration.
- Configure the batteries to determine at which voltage the tool will switch from drawing power from the first battery to other batteries.
- Set the voltage for a low battery warning.
- Display and print battery statistics.

Note: You must enter the starting value (Joules) for each battery before the other fields in this section are automatically populated with data.



The screenshot shows the 'Configuration Utility' window with the 'Battery' tab selected. The interface includes a menu bar (File, Device, Tools, Help), a toolbar, and several configuration sections:

- Battery Section:**
 - Battery Selected: (dropdown)
 - Battery 1:
 - Battery 2:
 - Battery Switching Threshold (V): Lithium Alkaline (dropdown)
 - Battery Shutdown (V):
- Auto Depassivation Section:**
 - Coming Soon!
- Battery 1 and Battery 2 Statistics Sections:**
 - Serial #:
 - Starting: J Ah
 - Used: J Ah
 - End: J Ah
- Actions Section:**
 -

The status bar at the bottom indicates: Dipole Time Set to: 18:07:08 07/02/14

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The Custom Packets Tab

Use the Custom Packets tab to create and save custom packet settings for dipoles.

- Create custom packets in the Custom Packets tab.
- Import custom packets into Detect.
- View custom packets from the Custom Packets tab and at the command line from the Terminal tab.

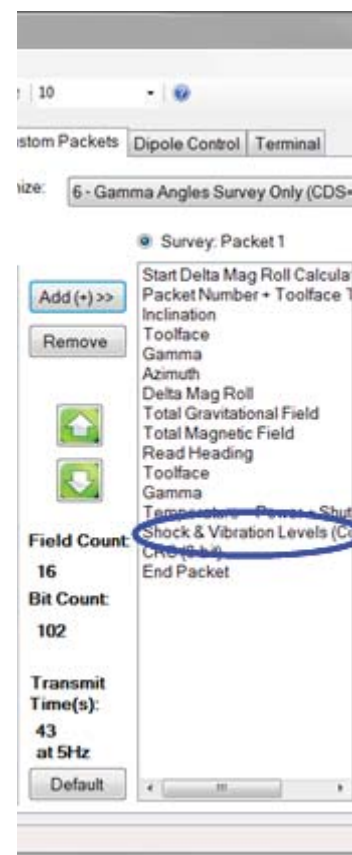
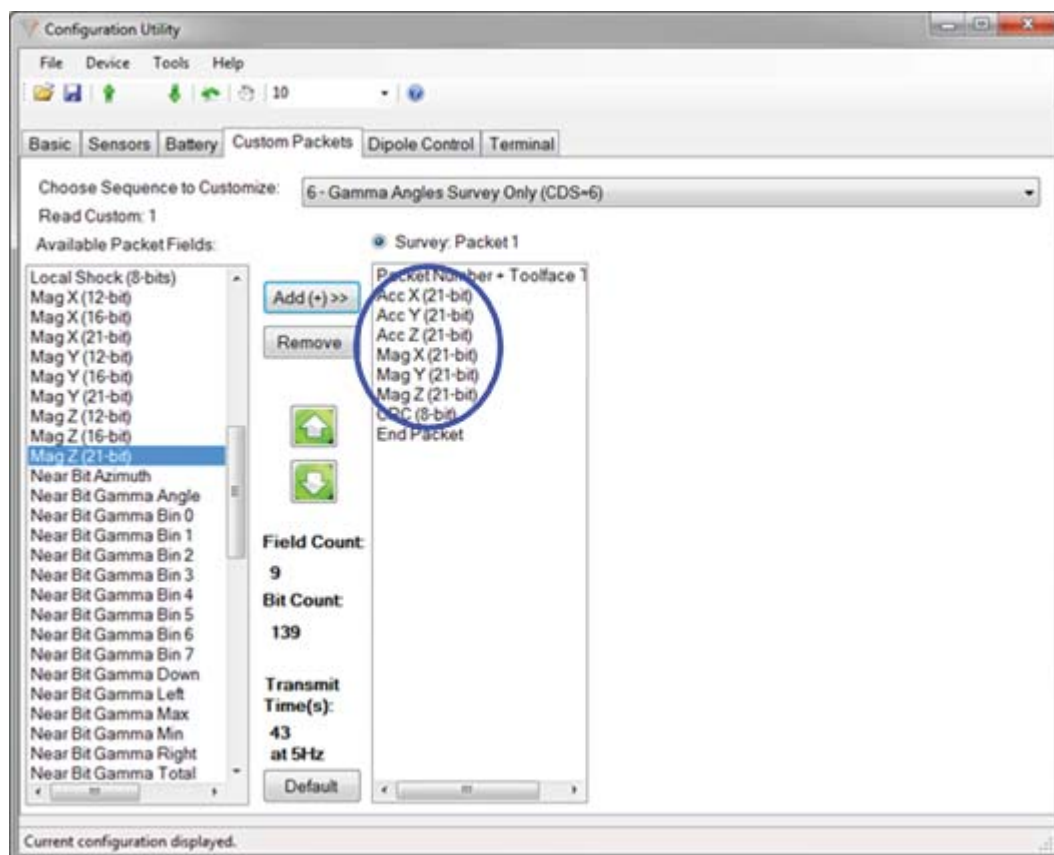
The examples below show a 21-bit high resolution custom packet and a shock and vibration custom packet.

In the first example, only 21-bit fields are in this packet. Other fields were removed.

In the second example, a shock and vibration field was added to the packet.

21-bit High Resolution Custom Packet

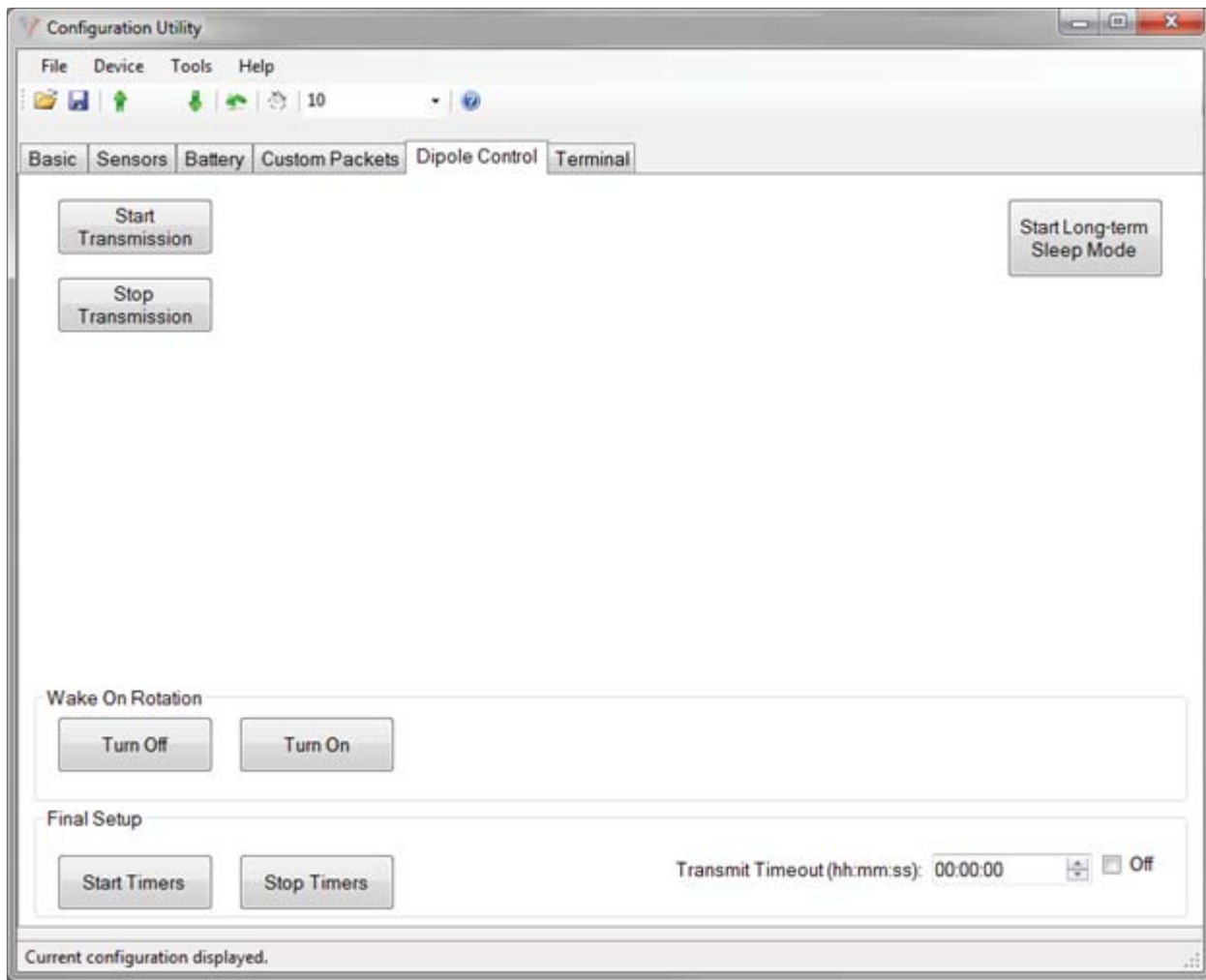
Shock & Vibration Custom Packet



The Dipole Control Tab

Use the Dipole Control tab to configure dipole transmission for the following:

- To start sending data and to pause transmission.
- To put the dipole into a low power mode for long term storage.
- To automatically start transmitting when rotation has begun (when rotation is enabled).
- To put the system to sleep until drilling begins.
- To stop the timers before the dipole begins sending data.
- To auto reboot, if transmission stops.
- To enable or disable transmit timeout.



Configuration Utility

The Terminal Tab

Use the Terminal tab to enter commands to communicate with dipoles.

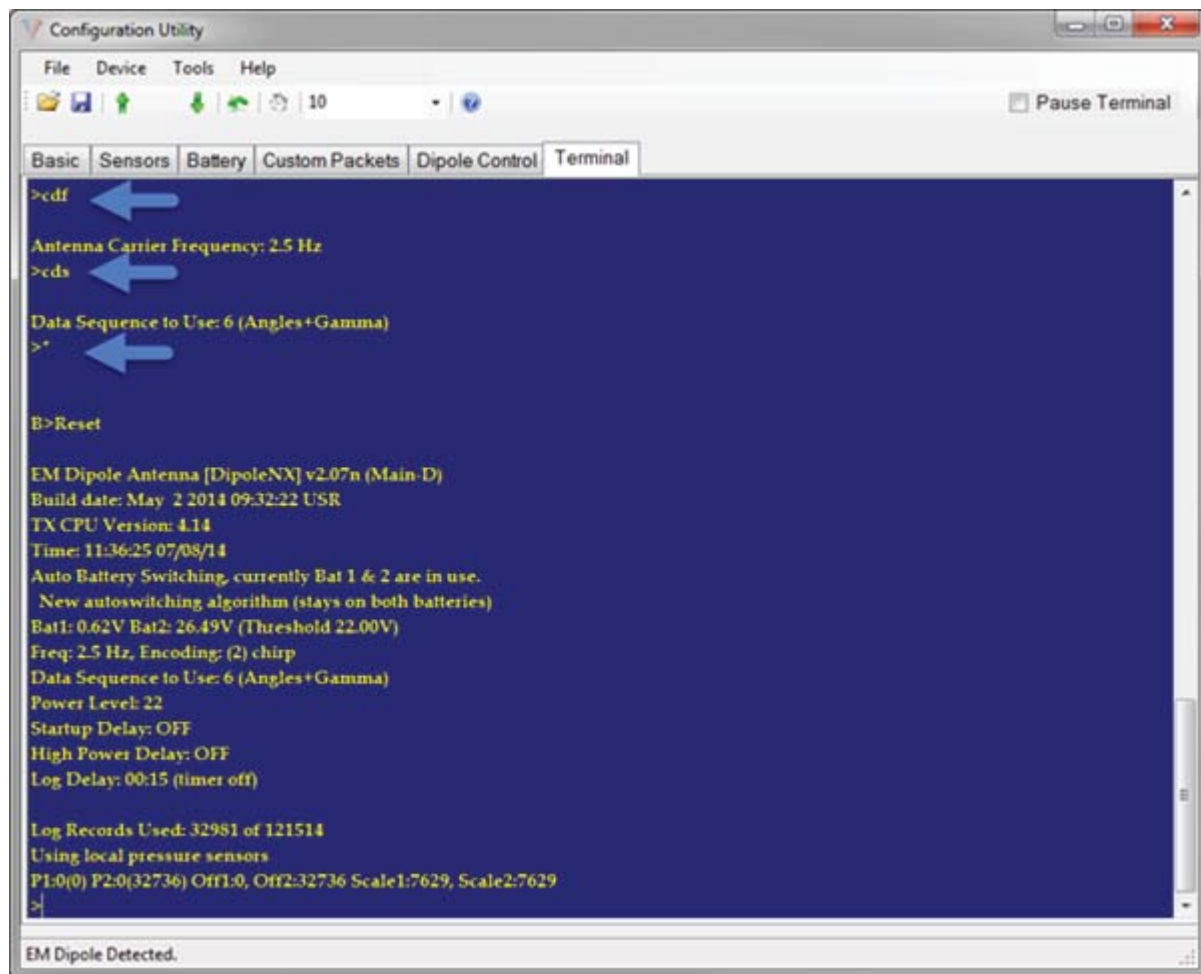
- Commands can be used to view the current configuration and to change the configuration.
- Enter commands at the command prompt `>`.
- Click **Pause Terminal** to stop the screen from scrolling when viewing output.

Below are some commonly used commands and their output displayed on Terminal tab.

- > `cdf` Displays the dipole frequency.
- > `cds` Displays the data sequence selected.
- > `*` Resets the dipole.

Below are some additional useful commands.

- > `?` Press the space bar and use the scroll bar on the right to view a list of basic and advanced commands.
- > `#D` Starts the dipole transmissions.



The screenshot shows the Configuration Utility software interface with the Terminal tab selected. The terminal window has a dark blue background and displays the following text:

```

>cdf
Antenna Carrier Frequency: 2.5 Hz
>cds
Data Sequence to Use: 6 (Angles+Gamma)
>*
B>Reset

EM Dipole Antenna [DipoleNX] v2.07n (Main-D)
Build date: May 2 2014 09:32:22 USR
TX CPU Version: 4.14
Time: 11:36:25 07/08/14
Auto Battery Switching, currently Bat 1 & 2 are in use.
New autoswitching algorithm (stays on both batteries)
Bat1: 0.62V Bat2: 26.49V (Threshold 22.00V)
Freq: 2.5 Hz, Encoding: (2) chirp
Data Sequence to Use: 6 (Angles+Gamma)
Power Level: 22
Startup Delay: OFF
High Power Delay: OFF
Log Delay: 00:15 (timer off)

Log Records Used: 32981 of 121514
Using local pressure sensors
P1:0(0) P2:0(32736) Off1:0, Off2:32736 Scale1:7629, Scale2:7629
>
  
```

Blue arrows in the original image point to the command prompts `>` before `cdf`, `cds`, and `*`. A "Pause Terminal" checkbox is visible in the top right corner of the terminal window.