

ADS[®] ECHO[™] Qstart[™] Quick Reference Guide

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SERVICES[®]**

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Support

This Quick Reference Guide is intended to provide instructions for the configuration and activation of the ADS **ECHO** level monitor. *Note that all fields will not be described in this document.* For further information, please consult **Qstart**'s online help, the **ADS® ECHO Installation, Operation, and Maintenance Manual** at <http://www.adsenv.com/manuals> or contact Customer Support at:

Email: adssupportcenter@idexcorp.com

Telephone: 1-877-237-9585 (U.S. Customers), 256-430-6234 (customers outside the U.S.)

Configuration and Activation

This will cover all steps for configuration and activation of the monitor: installing the Bluetooth® driver; creating and configuring a monitor location; activating the monitor; and verifying wireless communication (as applicable).

Installing the Bluetooth Driver

Bluetooth activation is the recommended method of establishing initial communication with the monitor. Bluetooth requires near proximity (roughly 8 feet or 2.5 m) to the monitor.

1. Download the “**CP210x_Windows_Drivers.zip**” zipped folder containing the Bluetooth driver installer and files from the ADS website (<http://www.adsenv.com/softwaredownloads>) onto the computer which will be used for the **ECHO** communications.
2. Extract the files to a folder on the desktop. Run the “**CP210xVCPInstaller_x64.exe**” installer application for 64-bit systems, and the “**CP210xVCPInstaller_x86.exe**” for 32-bit systems.
3. Insert the ADS-supplied Bluetooth dongle (P/N ADS 9000-0061) into a USB port.

Activating the ADS SIM Card

The **ECHO** monitor includes a pre-installed AT&T static SIM card. The SIM card must be activated to allow for wireless communication. Request the activation **within 48 hours** of monitor installation and **before** heading to the field to install the **ECHO**.

1. Request activation of the SIM card by emailing ADSEODIP@idexcorp.com. Include the serial number of the specific **ECHO** monitor and the last four digits of the ICCID number (the 20 digit number found on the attached SIM punch-out card) as well as the name of the municipality or company requesting the activation. ADS employees should also include the project name and job number as part of the request.



SIM Punch-out Card with Last 4 Digits of ICCID Shown in Box

2. Wait for a return email from ADS. The email will contain the IP address of the SIM card and its associated phone number. If text messaging commands capability is desired, be sure to note the phone number associated with the IP address.
3. Wait at least 15 minutes from the receipt of email before initializing modem with the magnet. See *Verifying Wireless Communication* for details on initializing and verifying remote wireless communications.

Creating and Configuring the Monitor Location

This section includes instructions for creating a monitor location in *Qstart* as well as selecting and editing devices.

Note: Initial activation for a new **ECHO** monitor can occur via Bluetooth or a wireless connection. ADS recommends using the Bluetooth connection for initial configuration and activation of the monitor.

Launching the *Qstart* Software

Before traveling to the field for monitor installation, configuration, and activation activities, install the *Qstart* 1.6 (or higher) software on the field computer. *Qstart* software can be downloaded from the ADS website at <http://www.adsenv.com/softwaredownloads>.

Once installed, launch the *Qstart* software by selecting **Start > All Programs > ADS LLC > Qstart > Qstart** from the **Microsoft® Windows®** start menu or double-clicking on the *Qstart* icon on the **Windows** desktop.

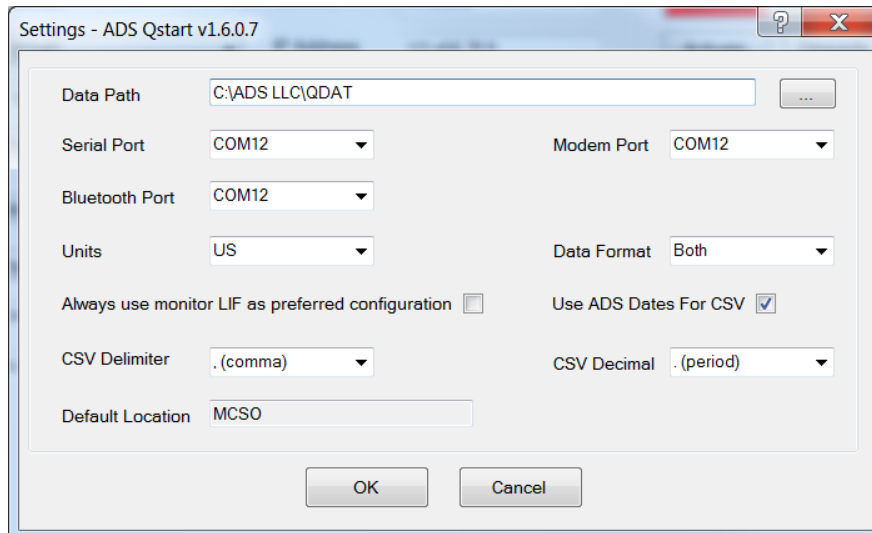


Qstart Icon on Desktop

If *Qstart* settings have already been configured, proceed to *Creating a Monitor Location*.

Setting Up the *Qstart* Parameters

Qstart stores and displays data, directs configuration, and performs communication based on certain parameters designated through the *Qstart* settings. This **Settings** dialog containing these parameters is available the first time you run the *Qstart* software following installation and through the main screen by clicking on the **Settings** button.



Settings Dialog

1. Enter the path or browse to the directory to which you want to save the Location Information Files (LIFs) and collected flow data in the **Data Path** field.
2. The **Bluetooth Port** will automatically update to the correct port designation once the Bluetooth dongle has been inserted. No user entry is required.
3. Select the desired units of measurement (**US** or **Metric**) to be used throughout *Qstart* to represent the data when entering values, saving data, and displaying data from the **Units** drop-down list. The **US** units report depth in inches and temperature in Fahrenheit. The **Metric** units report depth in millimeters and temperature in Celsius.

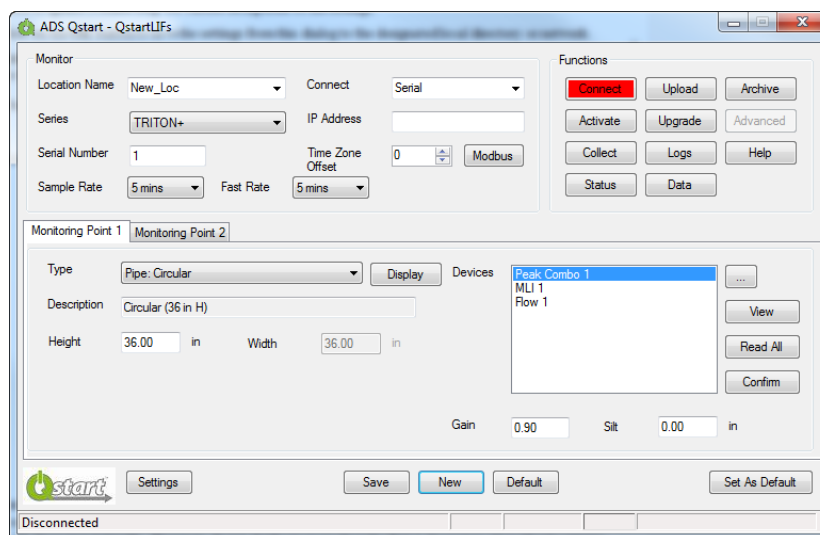
4. Refer to **Qstart**'s online help for further descriptions of the settings.
5. Click on the **OK** button to save the settings from this dialog to the designated local directory or network.

Note: Access the data path, CSV file configuration, and communication settings at any time by clicking on the **Settings** button on the **Qstart** main screen.

After the settings are configured, the **Qstart** main screen will display on each subsequent opening of the software.

Creating a Monitor Location

1. Select the **New** button at the bottom of the main **Qstart** screen.



Qstart Main Screen Showing the New Default Location

2. Enter a name for the new location in the **Location Name** field. This associated drop-down list contains all the locations available in the **Data Path** designated previously on the **Settings** dialog. A location name may be up to 19 characters in length. However, do not duplicate more than the first 7 characters of another location's name, unless the 8th or a later character is followed by an underscore (_) and a unique character(s). Do not put a space in the location name.
3. Select **ECHO** from the **Series** drop-down list.
4. Enter the serial number for the specific monitor in the **Serial Number** field.
5. Verify or select the desired interval at which the monitor will record data from the **Sample Rate** drop-down list.
6. Verify or select the desired interval at which the monitor will record data during alarm conditions from the **Fast Rate** drop-down list.
7. Select **Wireless** from the **Connect** drop-down list and enter the **IP Address** for the wireless connection.

Note: When entering an IP address, do not include leading zeroes in the address. For example, an IP address of 166.219.008.063 should be entered as 166.219.8.63. If leading zeroes are included in the address, monitor communications will be unsuccessful.

8. From the **Connect** drop-down list, select **Bluetooth**.
9. Under *Monitoring Point 1*, select the type or shape of the pipe or channel that the **ECHO** will be monitoring.
10. For **Height**, enter the distance from the bottom of the pipe to the crown (top or peak) of the pipe. For **Width**, enter the horizontal distance across the widest portion of the pipe (this is disabled for circular installations).

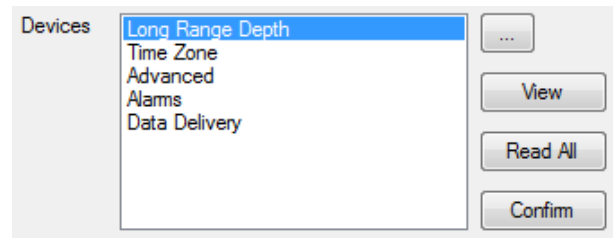
Note: The **Height** and **Width** can be approximations since the installation of the **ECHO** requires no manhole descent.

Selecting and Editing Devices

Select and edit the devices corresponding to the new monitor location to log the desired data. The default devices for the **ECHO** are **Long Range Depth**, **Time Zone**, **Advanced**, **Alarms**, and **Data Delivery**. Editing the devices involves setting specific parameters to ensure the monitor and **Qstart** properly obtain and process the data.

1. In the **Location Name** field, select the desired location to assign and edit devices.

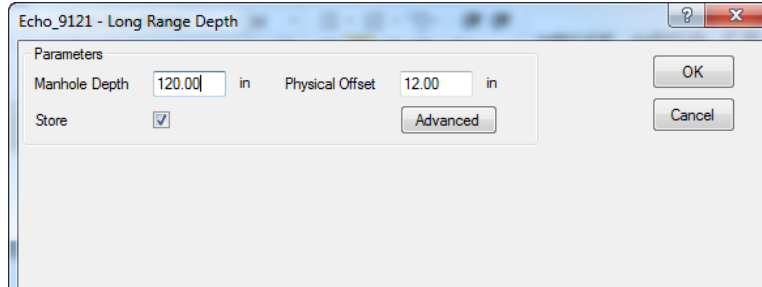
The **Devices** dialog displays the devices selected by default (i.e. based on **Qstart**'s or the user's designated default configuration) for the **ECHO** monitor series.



Devices Section

2. To edit the parameters associated with a device, select the desired device to view or modify from the **Devices** list and click the **View** button. The **Location Name** and **Device Name** are displayed at the top of the dialog. Edit or modify the device parameters as necessary, and then click on the **OK** button when complete. Refer to the following sections for details concerning the parameters for each specific device.
3. Repeat Step 2 for each additional device that requires modification of the parameters, and then click the **Save** button to save the devices with any parameter modifications to the local directory or network.

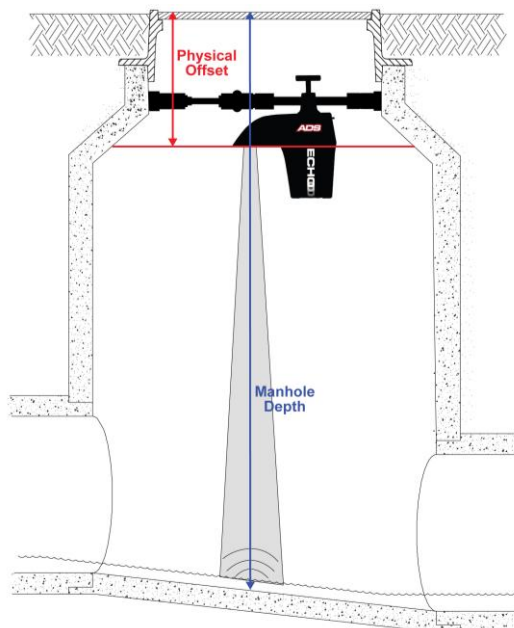
Editing the Long Range Depth Device



Long Range Depth Dialog

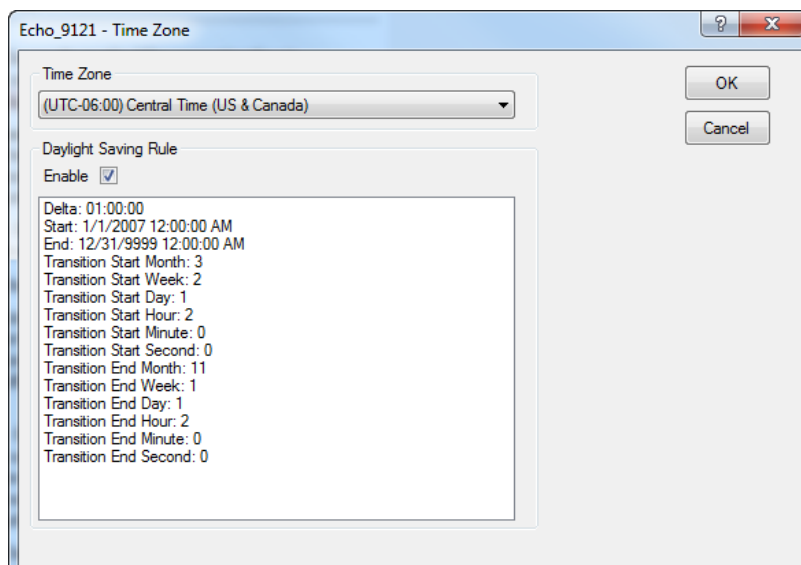
- **Manhole Depth** – Enter the distance (in inches or millimeters) from the manhole rim to the center of the invert.
- **Physical Offset** – Enter the distance (in inches or millimeters) from the manhole rim to the bottom of the parabolic reflector of the **ECHO** housing.

Note: The **Manhole Depth** and **Physical Offset** measurements will be taken upon installation of the monitor.



Physical Offset and Manhole Depth Measurements

Editing the Time Zone Device



Time Zone Device Dialog

- **Time Zone** – Select the time zone in which the selected **ECHO** monitor is located. **Time Zone** is a required device and must be configured before monitor activation.
- **Daylight Saving Rule** – Deselect the **Enable** checkbox to disable the Daylight Saving Rule, if Daylight Saving is not applicable to the region where the **ECHO** will be installed. Note that the content of the text box is not editable.

Editing the Alarms Device

The **Alarms** device allows the user to enable/disable alarms and define alarm thresholds.

Alarms Device Dialog

- **Unidepth Averaging** – Select the number of consecutive *UNIDEPATH* readings for the monitor to average to minimize the potential for false alarms due to erroneous depth readings. **ECHO** alarms are generated from *UNIDEPATH* rather than raw *LRDEPTH* readings.
- **Low Level** – Define the depth at which the monitor will trigger a **Low Level** alarm. This event indicates that the flow depth measured at a location has fallen below this threshold. This depth should be lower than the lowest depth that typically occurs at the location.
- **Full Pipe** – This monitor event indicates that the flow depth in the manhole is greater than or equal to the pipe height as measured by the **ECHO** monitor.
- **High Level** – Define the depth at which the monitor will trigger a **High Level** alarm.
- **High High** – Define the depth at which the monitor will trigger a **High High** alarm. This value must be zero when this feature is not in use, or greater than the value entered for the **High Level** alarm when it is in use. ADS recommends setting this value at least 2 inches higher than the value designated for **High Level**.
- **Overflow** – This event indicates that the **ECHO** monitor's internal pressure sensor has detected the site is experiencing overflow conditions, where the flow is above the manhole rim.

Editing the Data Delivery Device

By default the **ECHO**'s modem is in the *Always Off* mode to conserve battery power. Therefore, configure the **Data Delivery** device to upload data stored in the monitor memory to ADS **FlowView** and/or an FTP server at an interval designated by the user. To upload data to **FlowView** and/or an FTP server, you must know the IP address or DNS of the server. FTP servers also require the username and password the monitor must use to access the server, and when applicable, the name of the folder on the server in which the monitor is to place the data.

Data Delivery Device Dialog

- **FlowView**
 - **Server** – Contact ADS Client Services for the IP address for **FlowView** where the monitor will deliver data.
 - **Normal** – Select the interval at which the monitor will deliver data under normal conditions.
 - **Fast** – Select the increased interval at which the monitor will deliver data under alarm conditions. This feature can also be turned off.
 - **FTP Setup 1**
 - **Mode** – Select the appropriate port assignment (**Active** or **Passive**) for the FTP server. **Passive** is the recommended **Mode** for file transfers.
 - **Normal** – Select the interval at which the monitor will deliver data under normal conditions.
 - **Fast** – Select the increased interval at which the monitor will deliver data to the FTP server under alarm conditions.
 - **Server** – Enter the address for the FTP server to which the monitor will deliver data. Either the numeric IP address or the letter name (DNS) of the URL is acceptable for ADS provided AT&T SIM cards. For non-ADS provided SIM cards, contact the provider to determine which address format is needed.
 - **Folder (optional)** – Enter the name of the folder on the FTP site in which the monitor will upload the data.
- Note:** *Qstart* will not create a folder on the FTP server automatically. Therefore, if it is desired that the monitor deliver data to a specific folder, create the folder through the FTP server manually before the monitor begins uploading data to the server. If a specific folder is not designated, the monitor will upload data to the FTP server's root directory.
- **Username** – Enter the username the monitor must use to access the FTP server.
 - **Password** – Enter the password associated with the username the monitor must use to access the FTP server.

- **CSV Format** – Select the option corresponding to the type and format of the data the monitor will upload to the FTP server.
 - **ADS** – Choose this option to deliver all of the entity data from the monitor to the designated FTP server.
 - **GE** – Choose this option to deliver the data in GE CSV format, which will group readings and their corresponding quality values in rows rather than displaying all stored values in column format.
- **FTP Setup 2** – Refer to the instructions for the **FTP Setup 1** parameters to set up an additional FTP server to which the monitor can deliver data.

Editing the Advanced Device

The **Advanced** device includes three tabs representing parameters related to diagnostic information, modem setup, and alarm notification.

Note: No changes are necessary to the **Advanced** device unless using a non-ADS supplied AT&T public, static SIM card or the **ECHO** needs to be configured to deliver notifications directly from the monitor, rather than to **FlowView**.

Activating the Monitor

Configuration of the monitor is now complete, and the **ECHO** is ready for activation. Monitor activation occurs through the **Diagnostics** tool in *Qstart* using a Bluetooth connection.

1. Ensure the Bluetooth dongle is inserted.
2. In *Qstart*, select the desired **Location**, verify the configuration parameters are correct, and select *Bluetooth* for the **Connect** type.
3. Hold the blue ADS Magnet (P/N 8000-0460) on the **Wake** activation point on the **ECHO** monitor. Hold it until until the **COMMS** LED (closest to the T-handle) starts flashing a deep blue. This should take approximately 5-10 seconds. Remove the magnet after the **COMMS** LED is flashing deep blue.



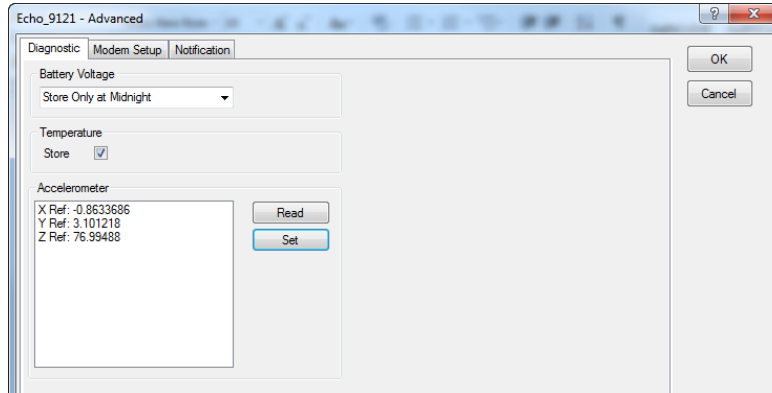
Wake Activation Point

4. Click on the **Activate** button in the **Functions** section. *Qstart* initiates and establishes communication with the monitor and then downloads the appropriate information and files. Once the activation is complete, the status bar displays an **Activate Successful** message. *Qstart* generates an activation log that is available for viewing through the log viewer within *Qstart*.
5. Stay online with the **ECHO**; do not hang up.

Final Configuration

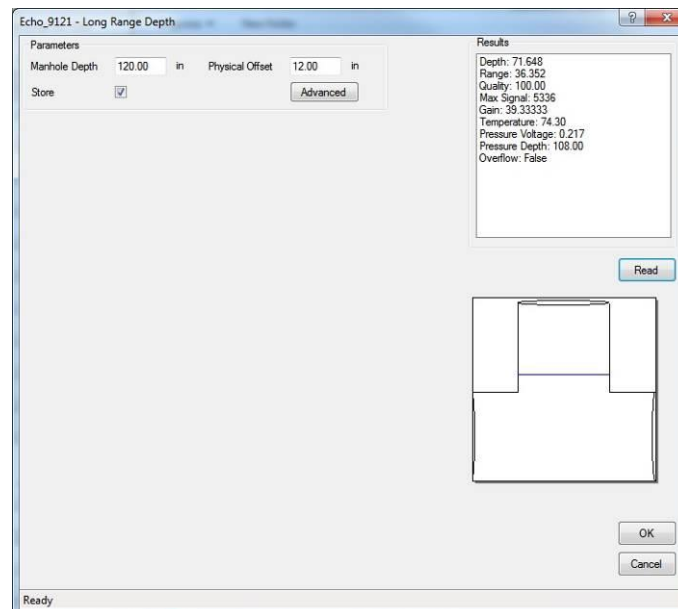
This section includes the procedures for final configuration, as well as verification of the monitor readings. Also included are instructions on how to change the monitor's modem power savings settings. By default the modem is configured in the *Always Off* mode, turning on each day between 11AM and 12PM monitor time, allowing for remote, wireless communication during this hour if the **ECHO** has a static IP SIM.

1. While still online with the **ECHO** (if not online, reinitialize Bluetooth communication and connect again), select the **Advanced** device. Under the **Diagnostics** tab, the **Accelerometer** must be set to establish a baseline against which it will compare later readings to check for a **Tilt** alarm. Click the **Set** button to set the initial values. This will display reference values for the X, Y, and Z.



Setting the Accelerometer

2. To ensure all settings have been configured properly, perform a test fire of the **Long Range Depth** sensor. If still online with the **ECHO**, open the **Long Range Depth** device dialog. Otherwise, reconnect with the **ECHO** by selecting **Connect**, then open the **Long Range Depth** device dialog. Click on the **Read** button to initiate the test. Observe the results to confirm proper sensor performance.



Long Range Depth Dialog – Test

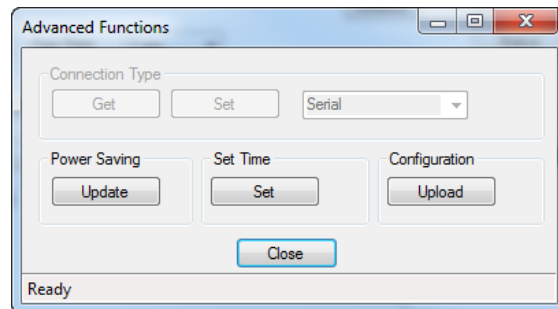
Configuring the Power Saving Parameters

Qstart enables the user to configure the monitor for uninterrupted modem communications or for modem downtime during specific periods throughout each day of the week. Powering down the wireless modem during specific hours of the day conserves battery power. Use the **Power Saving** option in **Qstart** to configure the monitor to conserve battery power. The monitor automatically powers up the wireless modem each day between 11AM and 12PM to receive incoming calls.

Note: In order to maximize battery life, **Power Saving** default is set to *Always Off* and the **ECHO** should be configured to deliver data to **FlowView** or an FTP at the desired interval. Data delivery files and alarm notifications will still be delivered to **FlowView** and/or an FTP server when the modem is in the *Always Off* configuration.

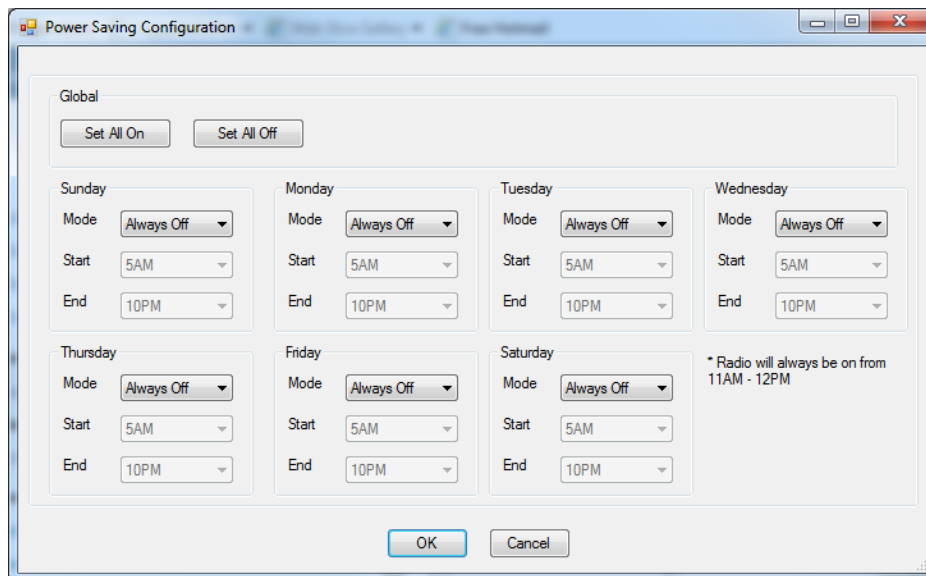
Setting up the power savings option occurs through the **Advanced** function while communicating with the monitor.

1. While still online with the **ECHO** (if not online, reinitialize Bluetooth communication and connect again), click on the **Advanced** button in the **Functions** section. This will display the **Advanced Functions** dialog.



Advanced Functions Dialog

2. Click on the **Update** button. The **Power Saving Configuration** dialog displays the current power savings parameters in the monitor configuration.



Power Saving Configuration Dialog

3. Click on one of the following buttons in order to apply power savings settings for all seven days of the week:

- **Set All On** – Choose this button to configure the monitor to provide uninterrupted power to the modem 24 hours a day, 7 days a week. Choosing this setting will cause the **Always On** option to display for the **Mode** on all 7 days, resulting in no power savings to the monitor.
 - **Set All Off** – Choose this button to configure the monitor to provide power to the modem only from 11AM to 12PM each day of the week. The monitor will withhold power from the modem at all other times. This option offers the greatest power savings to the monitor. Choosing this setting will cause the **Always Off** option to display for the **Mode** on all 7 days.
4. Select one of the following methods to apply power savings settings for each individual day of the week from the **Mode** drop-down list. This step must be completed for each day of the week. Some modes may require designating a corresponding time range.
 - **Always On** – Choose this option to configure the monitor to provide uninterrupted power to the monitor for the entire day, resulting in no designated power savings to the monitor on that day.
 - **Always Off** – Choose this option to configure the monitor to provide power to the modem only from 11AM to 12PM on that day, offering the most significant power savings available within that day.
 - **Span On** – Choose this option to configure the monitor to provide uninterrupted power to the modem for the time period designated in the **Start** and **End** fields. Select the time at which the monitor will begin powering on the modem on the corresponding day from the **Start** drop-down list. Then select the time at which the monitor will discontinue powering the modem on that day from the **End** drop-down list.
 - **Span Off** – Choose this option to configure the monitor to withhold power from the modem for the time period designated in the associated **Start** and **End** fields. Select the time at which the monitor will discontinue powering the modem on the corresponding day from the **Start** drop-down list. Then select the time at which the monitor will resume powering the modem on that day.
 5. Click the **OK** button to save the power savings parameters to the monitor. This will again cause the **Advanced Functions** dialog to display.
 6. Click on the **Close** button to exit the **Advanced Functions** dialog.
 7. Click on the **Hangup** button in the **Functions** section on the **Qstart** main screen.
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Saving Final Configuration and Creating New Default Location

1. Save the configuration by clicking the **Save** button at the bottom of the **Qstart** main screen.
 2. Clicking on the **Set As Default** button will update the default new location parameters to match how the **ECHO** was just configured. This will allow the user to create a configuration template for all subsequent **ECHO** monitor locations, and clicking **New** will then populate the configuration with the template parameters.
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Verifying Wireless Communication

It is recommended that wireless communication be verified upon installation of the monitor.

1. Ensure an antenna is attached to the **ECHO**.
2. Hold the magnet on the **Wake** activation point for 25 to 30 seconds until the **SENSE** LED illumines magenta. Hold the magnet in place for another 1 to 2 seconds once this light illumines, then quickly remove the magnet. The **SENSE** light will begin to rapidly flash a green light and the **COMMS** LED will be a solid green until connected to the network. Once the green light is flashing, wireless communications will be enabled.
3. Change the connection type to *Wireless*, and verify the IP address is correct.
4. Verify the **COMMS** LED is a slow flashing green light.

5. Attempt communication with the monitor by clicking the **Status** button.
6. If the monitor status information is displayed, wireless communication has been verified.

```
Monitor Status: Echo_HSV3
Current Host Time: 12/5/2016 11:26:56 AM
Current Monitor Time: 12/5/2016 11:26:50 AM
Oldest Entry Time: 7/30/2016 3:05:00 PM
Newest Entry Time: 12/5/2016 11:25:00 AM
Scan Interval: 300
Monitor Temperature: 66.99 F
Firmware Version: V8.01
Multi-block Modem Attached: Yes
Model Number: X900
BASIC Code Program Status: OK
BASIC Code Fault: 0
Events Pending Status: 0
Abnormal Resets: 0
Battery Voltage: 7.8 V
TCP/IP Signal Strength: -81 dB
```

Monitor Status

7. Close the print preview of the status screen and click on the **Hangup** button in the **Functions** section on the **Qstart** main screen.

The configuration and activation of the **ECHO** is now complete.