FREEWAVE

WC30i Wireless Pressure Sensor Quick Start Guide

Thank you for purchasing the WC30i Wireless Pressure Sensor.

This **Quick Start Guide** provides brief procedures for the hardware installation and configuration of the WC30i Wireless Pressure Sensor.

> **Important!**: It is assumed that the reader and installer have completed the FreeWave WC30i installation and setup training to follow the procedures in this document.

> **Note**: For more detailed installation, connection, and configuration procedures, download the WC30i Wireless Pressure Sensor **User Manual** from the http://support.freewave.com/ website.
> Registration is required to use this website.

The basic steps are:

Included Equipment

The WC30i package contains one of these Wireless Pressure Sensors and the Quick Start Guide:

Included Equipment		
FreeWave Part #	**Qty**	**Description**
WC30i-PSI-1	1	0 to 1 psi Wireless Pressure Sensor
WC30i-PSI-20	1	0 to 20 psi Wireless Pressure Sensor
WC30i-PSI-100	1	0 to 100 psi Wireless Pressure Sensor
WC30i-PSI-500	1	0 to 500 psi Wireless Pressure Sensor
WC30i-PSI-1K	1	0 to 1000 psi Wireless Pressure Sensor
WC30i-PSI-3K	1	0 to 3000 psi Wireless Pressure Sensor
WC30i-PSI-5K	1	0 to 5000 psi Wireless Pressure Sensor
WC30i-PSI-10K	1	0 to 10,000 psi Wireless Pressure Sensor
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User-supplied Equipment

- 4-pin to USB programming cable (FreeWave Part #: WC-USB-4PIN).
- Computer for WAVECONTACT device configuration.

Power Connection

> **Important!**: Verify the items listed in **Included** and **User-supplied Equipment** section are available before starting this procedure.

1. All wiring should be neat and orderly.
2. Unscrew the cover from the WC30i base.
3. Connect the battery cable to the **Internal Lithium Battery** connection.
4. Connect the 4-pin to USB programming cable to the **RS232 Config / Debug** connector.
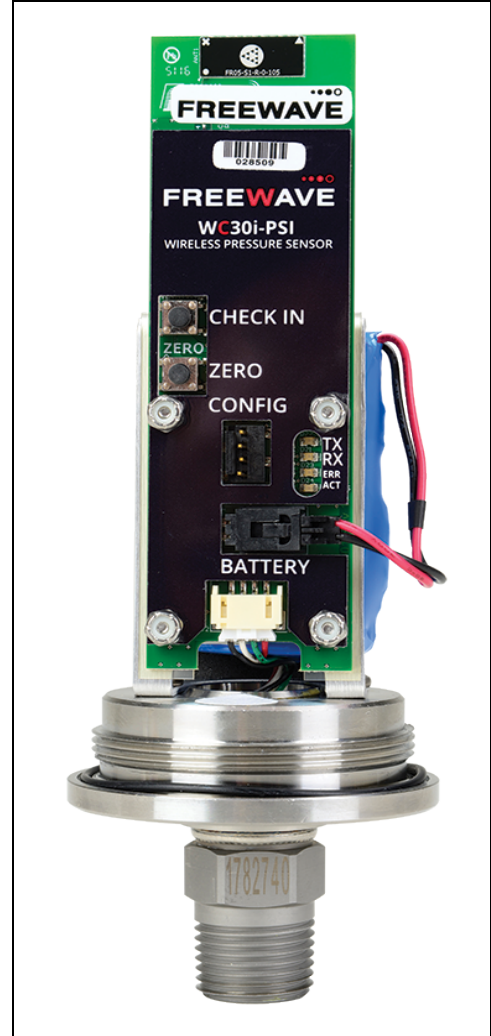5. Connect the USB end of the 4-pin to USB programming cable to the computer.

Figure 1: WC30i Battery Cable connection

6. If this is the first time the WC30i is installed, wait for the drivers to install.

> **Important!**: Depending on the computer and connection, the driver installation can take 3-6 minutes.

7. Continue with WC Toolkit Installation (on page 1).

WC Toolkit Installation

> **Note**: The images in this procedure are for Windows® 7 and/or Firefox®. The dialog boxes and windows may appear differently on each computer.

1. Click http://support.freewave.com/.
    The **FreeWave Support** site opens.

> **Important!**: Registration is required to use this website.

2. Enter the **User Name** and **Password**.

3. Click ![Log In].
A successful Login message briefly appears.
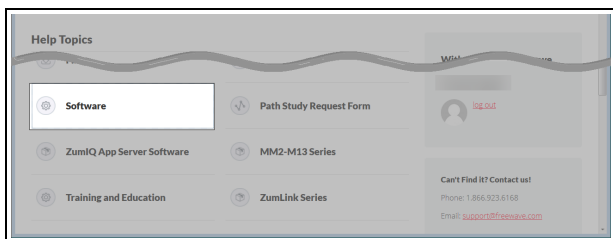The **Help Topics** window opens.
4. Click the **Software** link.

Figure 2: Help Topics window

The **Software** window opens.
5. Click the **WAVECONTACT Toolkit** link.
The available software appears in the window.
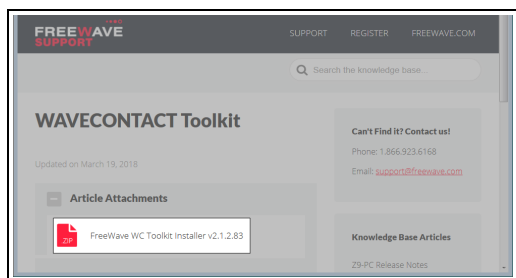6. Select and click the attachment.

Figure 3: WAVECONTACT Toolkit window

The **Opening** dialog box opens.

> **Note**: This procedure shows Firefox® dialog boxes. Other browsers will have different dialog boxes and procedures.

7. Click **OK**.
The **Enter name of file to save to** dialog box opens.
8. Search for and select a location to save the **.zip** file to and click **Save**.
The **Enter name of file to save to** dialog box closes.
9. Open a Windows® Explorer window and find the location where the **.zip** file was saved.
10. Double-click the **.zip** file.
11. Extract the **.exe** file from the **.zip** file into a parent location.
12. Double-click the **.exe** file to run the WC Toolkit installer.
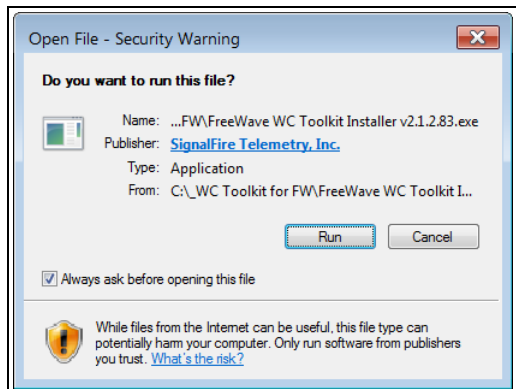The **Open File - Security Warning** dialog box opens.

Figure 4: Open File - Security Warning dialog box

13. Click **Run**.
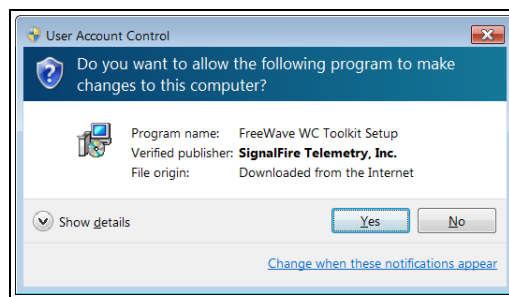The **User Account Control** dialog box opens.

Figure 5: User Account Control dialog box

14. Click **Yes**.
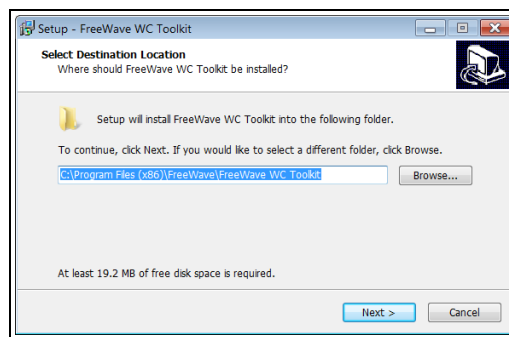The **WC Toolkit Setup Wizard** starts.

Figure 6: WC Toolkit Setup Wizard - Select Destination Location window

15. Click **Next** to continue.
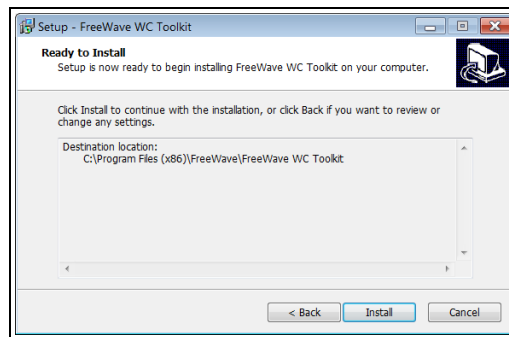The **Ready to Install** window opens.

Figure 7: WC Toolkit Setup Wizard - Ready to Install window

16. Click **Install**.
The install process is very quick.
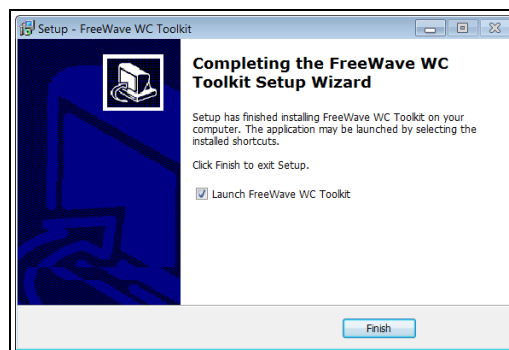The **Installation Complete** window opens.

Figure 8: WC Toolkit Setup Wizard - Installation Complete window

17. Click **Finish** to open WC Toolkit.
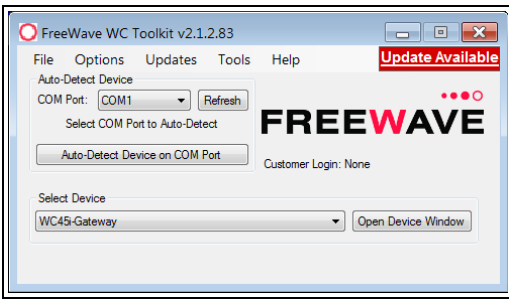An **Update** message appears in the WC Toolkit window is an update is available.

Figure 9: WC Toolkit - Update Available message

18. Continue with the WC Toolkit Update (on page 3) procedure.

WC Toolkit Update

If the WAVECONTACT device is connected to the internet, WC Toolkit automatically searches for an update for either the WC Toolkit itself or the connected device's firmware.

An **Update Available** message appears if an update is available.

> **Note**: An **Update Available** message also appears in the Device Configuration window for any connected WAVECONTACT device when an update is available for that device.
> The update procedure is the same for the device and WC Toolkit.

1. Open the **WC Toolkit** software.
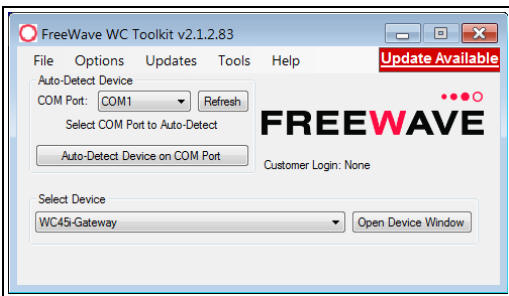   The **Update Available** message appears in the window. (Figure 10)

Figure 10: WC Toolkit - Update Available message

2. Click the **Update Available** message link.

Figure 11: Click the Update Available message link

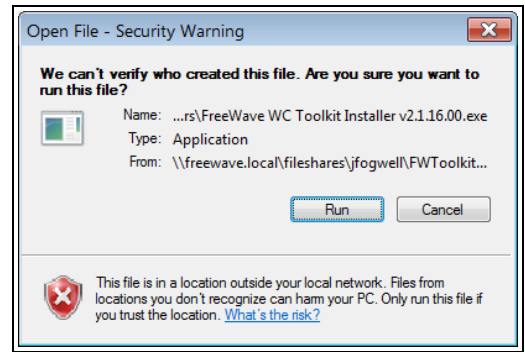The **Open File - Security Warning** dialog box opens.

Figure 12: Open File - Security Warning dialog box

3. Click **Run**.
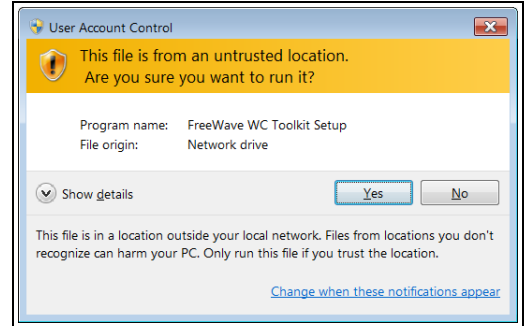   The **User Account Control** dialog box opens.

Figure 13: User Account Control dialog box

4. Click **Yes**.
   The WC Toolkit update process is very quick.
   When the update is completed, WC Toolkit re-opens the **Select Device** window showing the updated software version in the WC Toolkit window. (Figure 14)
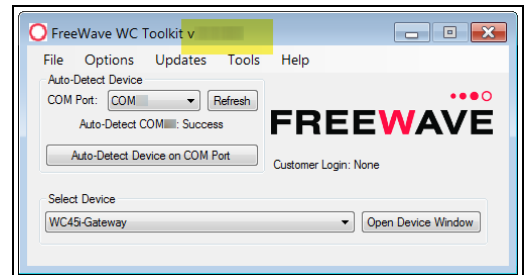

Figure 14: Select Device window

5. Continue with Configuration of the WC30i Wireless Pressure Sensor.

Configuration

> **Note**: The terms node and Endpoint are used interchangeably in this document.

> **FREEWAVE Recommends**: Install and configure the **WC45i** Gateway before any Endpoints to ensure the Endpoints have connectivity after installation.

Warning! Perform the Configuration steps in a safe location only.
AVERTISSEMENT: Suivez les étapes de cette section (Configuration) dans un endroit sûr uniquement.
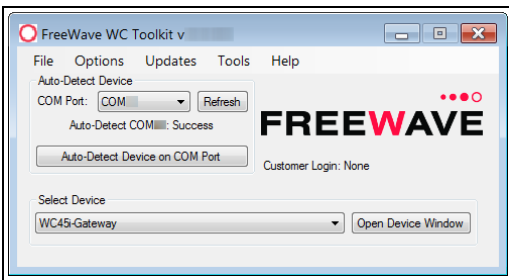
Warning! Debug and configuration information is available if the 4-pin to USB programming cable is connected to the **RS232 Config / Debug** connector using the debug port on the main board. The USB converter cable (FreeWave Part #WC-USB-4PIN) must be used for this interface. Debug and configuration is done using the WC Toolkit.

Warning! Only connect to the Config / Debug connector port in a safe area! **AVERTISSEMENT**: Branchez le port de déboggage que dans une zone secure.
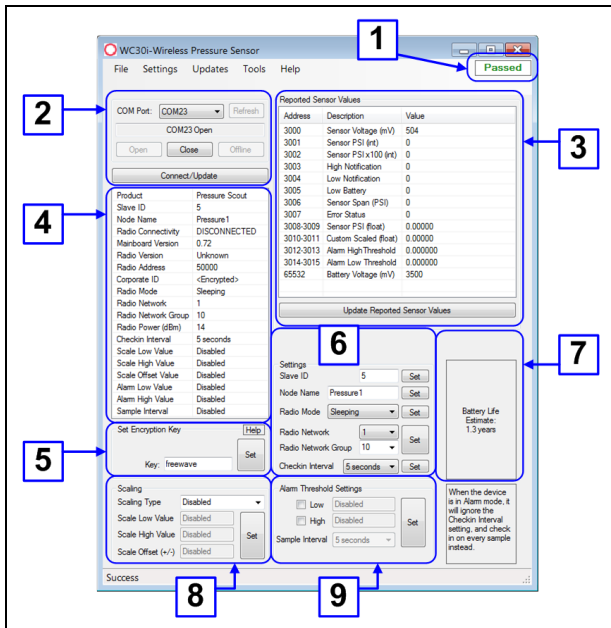
Note: The screenshots are examples only.
The dialog boxes and windows appear differently on each computer.

1. Verify the WC Toolkit software is installed on the computer connected to the WC30i.
2. Verify the Gateway is installed and configured before continuing with the Endpoint configuration.
3. Connect the WC-USB-4PIN - 4-pin to USB programming cable to the computer and the WC30i.
4. Open the **WC Toolkit** software.
   The **Select Device** window opens. (Figure 15)

Figure 15: Select Device window

5. Click the **Refresh** button to have WC Toolkit search for and list the available COM ports reported by Windows and connected devices in the **COM Port** list box.
6. Click the **COM Port** list box arrow and select the COM port on the computer associated with the connected WC30i Wireless Pressure Sensor.
7. Click the **Auto-Detect Device on COM Port** button to have WC Toolkit connect the device to the COM Port selected in the **COM Port** list box.
   The **Device Configuration** window opens for the selected device.

Figure 16: Device Configuration window: WC30i

8. In the **Set Encryption Key** area (#5), change these settings:

   a. In the **Key** text box, enter the encryption key for the device using 6 to 16 characters.
   b. Click the **Set** button to save the information.

   Important!: A Key CANNOT contain spaces or angle brackets.
   The Gateway and Endpoints only communicate if they are configured with the same **Key**.
   When setting up a new network, use this same encryption Key on all the devices.

   Note: When the WC30i drops its network, it attempts to join networks using the same encryption **Key**.

   Caution: It is possible to hide the encryption **Key** so it cannot be read. This is the most secure option, but if the **Key** is forgotten, there is **no way to recover it**.
   The **Key** must be reset on every device on the network.

9. Optional: Click the **Settings** menu and select **Set Encryption Key Unrecoverable** to permanently hide the key.
10. In the **Settings** area (#6), change these settings:

   Note: The **Network** settings are used to create separate networks using multiple Gateways (that are in close proximity to one another).

   Important!: The **Radio Network** and **Radio Network Group** settings are selected by the user but MUST MATCH the existing Gateway network for successful communication between the Gateway and Endpoint.

   a. In the **Slave ID** column / text box, enter the remote source Endpoint Modbus Slave ID.

   Note: Each remote device connected to the Gateway MUST have a unique Modbus Slave ID (1-240).

   Important!: Verify there are no duplicate Slave IDs in a given network. The Gateway only caches one set of data for each Slave ID. A duplicate is overwritten.

   b. Click the **Set** button to save the information.
   c. In the **Node Name** text box, enter a name for the Endpoint using a maximum of 10 characters.
   d. Click the **Set** button to save the information.
   e. Click the **Radio Mode** list box arrow and select either **Sleeping** or **Non-Sleeping**.

   Caution: Do NOT use the **Non-Sleeping** option with the WC30i because of rapid depletion of battery life.

   f. Click the **Set** button to save the information.
   g. Click the **Radio Network** list box arrow and select 0 (zero) to 7 for the assigned number.
   h. Click the **Set** button to save the information.
   i. Click the **Radio Network Group** list box arrow and select 0 (zero) to 29 for the network group assigned number.
   j. Click the **Set** button to save the information.
   k. Click the **Checkin Interval** list box arrow and select how often the Endpoint wakes up, reads the sensor values, and transmits the data to the Gateway.
   l. Click the **Set** button to save the information.
11. Optional: In the **Scaling** area (#8), customize the reported pressure using any range of numbers.
   a. Click the **Scaling Type** list box arrow and select the measurement unit to report the pressure sensor data in.

   Example: Scaling can be used to scale PSI to inches of H2O.

   b. In the **Scale Low Value** text box, manually enter the sensor's lower range value.

c. In the **Scale High Value** text box, manually enter the sensor's upper range value.

   d. In the **Scale Offset (+/-)** text box, enter an offset to add to or subtract from the reported scaled value.

   e. Click the **Set** button to save the information.

12. Optional: In the **Alarm Threshold Settings** area (#9), define the pressure alarm threshold and interval time.

> **Note**: The **Low** and **High Alarm Thresholds** are enabled individually. When above the high alarm threshold or below the low alarm threshold is crossed, the WC30i checks in immediately at the selected **Sample Interval** time.

   a. Select the **Low** check box and, in the **Low** text box, enter the pressure below which a low alarm is triggered.

   b. Select the **High** check box and, in the **High** text box, enter the pressure above which a high alarm is triggered.

   c. Click the **Sample Interval** list box arrow and select either 5 or 15 seconds as the rapid pressure interval.

   d. Click the **Set** button to save the information.

13. On the , press the **Check-in** button to .

14. Verify the Gateway is communicating with the Endpoints.

> **Note**: A successful connection on the WAVECONTACT Endpoint is indicated with Green blinking ⊖ TX and ACT lights and a Red blinking ⊖ light for RX. If the connection is NOT successful, a Green blinking ⊖ TX light appears for 10 seconds.

> **FREEWAVE Recommends**: Install and configure the **WC45i** Gateway before any Endpoints to ensure the Endpoints have connectivity after installation.

15. Close the WC Toolkit software.

16. Remove the WC-USB-4PIN 4-pin to USB programming cable from the computer and the WC30i.

17. Screw the cover back onto the WC30i base.

18. Use the ½" male MNPT process fitting to mount the WC30i directly to the pressure source.

> **FREEWAVE Recommends**: It is strongly recommended to mount the WC30i Wireless Pressure Sensor so it is vertically orientated with the pressure fitting facing down.