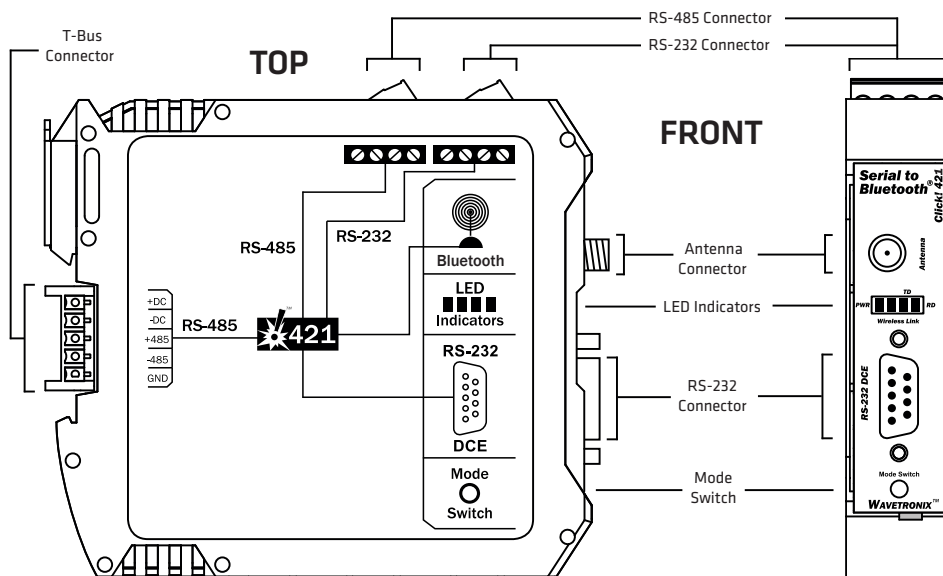The Click 421 serial to Bluetooth radio converts half-duplex two-wire RS-232 and 485 communication to Bluetooth and vice versa. Use this device in a cabinet to transfer data from a sensor to your computer via a wireless Bluetooth connection.

Physical Features

The Click 421 has several communication ports, plus features for configuration.

Communication Ports

The back of the Click 421 features a 5-position connector that plugs into a T-bus connector and provides power and RS-485 communication to the device. It also passes that RS-485 communication to all other devices on the T-bus.

The top of the device has two pluggable screw terminal blocks. The first block features -485, +485 and two ground screw terminals for wiring RS-485 communication. (It will not be necessary, however, to wire RS-485 through the screw terminal block if the device is connected to a T-bus with uninterrupted RS-485 communication.)

The second block features RTS, CTS, TD, and RD screw terminals for RS-232 communication. Both of these screw terminal blocks can be removed for easy preinstallation wiring.

The front of the Click 421 features a DB-9 connector for RS-232 communication. A straight-through cable can be used to connect from this port to a computer so that the device can be configured using Click Supervisor.

Any data on one port will be transmitted simultaneously on all other ports.

Antenna

The Click 421 has a reversed polarity SMA antenna connector. An external antenna can be mounted on the exterior of the traffic cabinet or up on a pole for maximum range. A whip antenna can also be used inside the cabinet. If the antenna is installed inside a metal cabinet, the range will be diminished.

Configuration Features

The other three LEDs are activity indicators.

- PWR (red) lights up when the device has power.
- Bluetooth Link (blue) lights up when a link is successfully made over Bluetooth to an external device.
- TD (green) lights up when the device is transmitting data.
- RD (yellow) lights up when the device is receiving data.

The LEDs are also used to indicate operation modes, which will be discussed later in the On-device Configuration section of this document.

The front also has a push-button labeled **Mode Switch**, which is used to cycle the Click 421 through operation modes. This will be discussed later in the On-device Configuration section.

On-device Configuration

The Click 421 can be configured using the push-button on the lower part of the faceplate. Press and hold the push-button to cycle through the different operation modes; release the button when the desired mode is reached. A quick press and release of the push-button will exit out of any mode and return the unit back to normal operation. The table below and the following sections describe the different operating modes.

Mode	LED	Definition
Autobaud	Green (solid)	To autobaud the Click 421, press the push-button, then release when the green LED turns on. The Click 421 is autobauding when the green LED is on and the red LED is blinking.
Link Test (Server)	Blue (flashing)	To set the Click 421 in Link Test mode as a server, press the push-button, then release when the blue LED is blinking. The Click 421 is transmitting data if the red LED comes on and the green LED blinks.
Reset	Red (flashing)	To reset the Click 421 to factory defaults, press the push-button, then release when the red LED is blinking.

Autobaud (green solid)

The Autobaud mode is used to match baud rates with an external device. By default, the module will attempt to match baud rates with a SmartSensor on the bus; however, the device can be configured to autobaud with any device that supports a serial interface.

During the autobaud process, the green LED will stay on and the red LED will flash after every autobaud cycle (the cycle time increases as latency is added after each cycle). If the autobaud was successful, the red LED will turn off and the green and yellow LEDs will flash; if the autobaud is not successful after a few minutes of trying, the yellow LED will come on.

Link Test in Server Mode (blue flashing)

In Server mode, the Click 421 performs a link test, pushing a series of characters—the alphabet—to a connected Bluetooth device. Follow the steps below to perform a link test:

Note. *Before you perform a link test, you must use your handheld computer, laptop or other external device to establish a connection with the Click 421.*

1. Press the push-button on the faceplate of the device, then release when the blue LED blinks. While the link test is running, the red LED will glow solid and the green LED will blink.

2. Watch the LEDs. The blue LED will come on to indicate that there is a connection to the external Bluetooth device you are connected to. If the connection is no longer valid, the blue LED will never come on and the device LEDs will remain in the state outlined in step 1.

3. To check if the data being pushed to the laptop or handheld is good, open a terminal emulation program such as HyperTerminal and connect to the Bluetooth signal. Observe the data being received. It should be the alphabet repeated continuously; if nothing comes or any letters are missing, the data is not being received or is corrupted.

4. To stop the link test and return the Click 421 to normal operation, press the push-button once.

Factory Reset (red flashing)

The Factory Reset operation will erase all user-configured fields, meaning that after the reset, the Click 421 may have to be reconfigured to work properly in its current application. If a device is not responding and not communicating, resetting the device may fix the problem. Once the device is responding, restore the configuration needed for its current application.

To reset the Click 421 to factory defaults, release the push-button when the red LED begins flashing. The red LED should blink slowly, then the green and yellow LEDs will flicker. When the red LED glows solid, the module has the original factory configuration.

Computer Configuration

The Click 421 can be configured more exactly using the Click Supervisor software. See the knowledge base article *0514 Installing and Using Click Supervisor* for instructions on how to download and install Click Supervisor and how to connect to your device using the software.

The Click 421 can be configured using one of two drivers (see the figure below).

WAVETRONIX
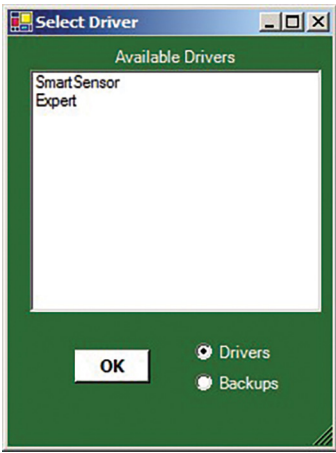
If you intend to connect from your computer to the Click 421 to a sensor, use the SmartSensor driver.

To see advanced settings, use the Expert driver. This driver, which exposes every available field for the Click 421, should only be used under the direction of Wavetronix Support.

After you have made configuration changes on a driver and saved it to the Click device, the word "current" will appear after that driver to indicate the driver that is currently loaded onto the device.

Note. *Changing any of the settings on any driver and saving them to the Click device will change those settings on all drivers.*

The Backups option can be used to read configurations that have previously been saved to file.

SmartSensor Driver

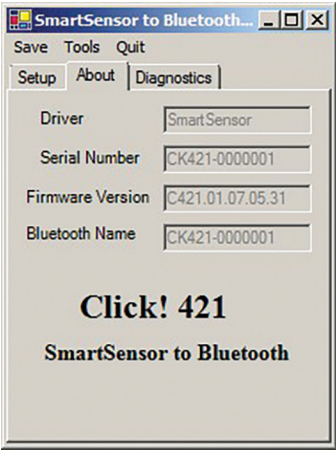When you open the SmartSensor driver, you will see three tabs: **Setup**, **About**, and **Diagnostics**.

Under the **Setup** tab, you can change the settings affecting the setup of the Click device (see figure and table below).
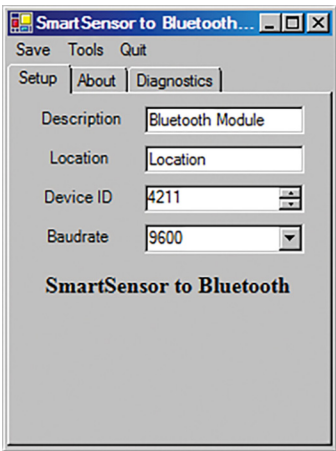
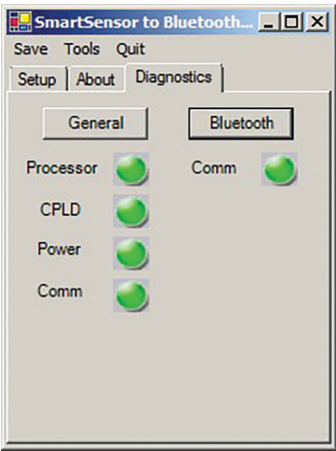| Setting	Description
Description	Shows a description of the device being configured. This is only for your information and does not affect the operation of the device.
Location	Displays the location of the device being configured. This is only for your information and does not affect the operation of the device.

Device ID	Gives the ID number of the device being configured, which is used to identify the device when you are connecting to it. By default, this number is the last five digits of the serial number, which can be found under the About tab or on the barcode sticker on the bottom of the device. It is recommended that you do not change this number unless another device on the network has the same ID number.
Baud Rate	Allows you to change the baud rate at which the device connects to the sensor.

Under the **About** tab, you can view information about your Click 421 (see the figure and table below).

Setting	Description
Driver	Names the driver you are currently working with.
Serial Number	Displays the serial number of your device.
Firmware Version	Shows the version of firmware your device currently has installed. If Click Supervisor detects a discrepancy between this version and the most current version it currently has access to, you will be prompted to upgrade when you connect to the device.
Bluetooth Name	Shows the name of the device, which is broadcast with the Bluetooth signal. This name can be changed in the Expert driver.

Under the **Diagnostics** tab, you can run diagnostics on your device (see the figure below). Click the **General** or **Bluetooth** buttons to run diagnostics on the items listed below each button. If a problem is detected, the program will display a red square next to the item in question. If no problems are detected, a green circle will appear.

Once you have finished, use the menu bar at the top of the screen to save your settings, return to the Select Driver screen, and more.

- The **Save** menu allows you to save your settings. Select **Save to File** to save your settings to a file. Selecting this

will open a directory box, allowing you to name your settings file. This file will always be saved in the Wavetronix folder created when you installed Click Supervisor, under Wavetronix > ClickHome > Drivers > 421 > User. You can also select **Save to Device** to save your settings to your Click 421.

Note. *If you do not save your settings to your Click 421, they will be lost the next time you power the device down.*
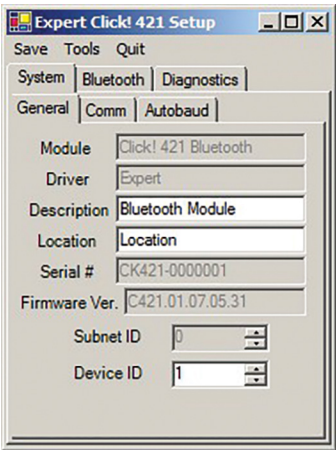
- The **Tools** menu contains five options for working with your device. **Reset > System** power cycles your device, while **Reset > Factory Default** restores your device to the settings with which it was shipped. **Restore** will restore the driver to the settings currently saved on the Click 421, erasing any unsaved changes. **Upgrade** can be used to manually upgrade to the most current firmware for your device. **Hex View** changes the view of certain settings in the driver to hexadecimal.

- Clicking the **Quit** menu exits the driver and returns you to the Click Supervisor main page.

Expert

The **Expert** driver allows you to see all possible settings and fields, both those available in the SmartSensor driver and those available only through this driver. The driver is divided into three tabs, **System**, **Bluetooth**, and **Diagnostics**.

The **System** tab is divided into three subtabs: **General**, **Comm**, and **Autobaud**.

The **General** subtab contains information about the device (see the figure and table below).

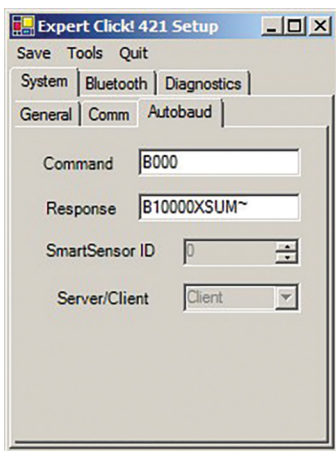| Setting	Description
Module	Shows the name of the Click device.
Driver	Names the driver you are currently working with.
Description	Shows a description of the device being configured. This is only for your information and does not affect the operation of the device.
Location	Displays the location of the device being configured. This is only for your information and does not affect the operation of the device.
Serial Number	Displays the serial number of your device.
Firmware Version	Shows the version of firmware your device currently has installed. If Click Supervisor detects a discrepancy between this version and the most current version it currently has access to, you will be prompted to upgrade when you connect to the device.
Subnet ID	Shows the subnet ID number. This option is currently not available.

Device ID	Gives the ID number of the device being configured, which is used to identify the device when you are connecting to it. By default, this number is the last five digits of the serial number, which can be found under the About tab or on the barcode sticker on the bottom of the device. It is recommended that you do not change this number unless another device on the network has the same ID number.

The **Comm** subtab allows you to configure how the Click device communicates (see the figure and table below).
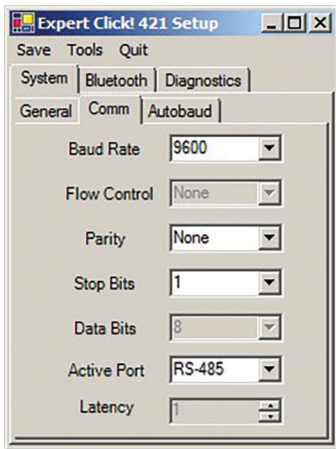
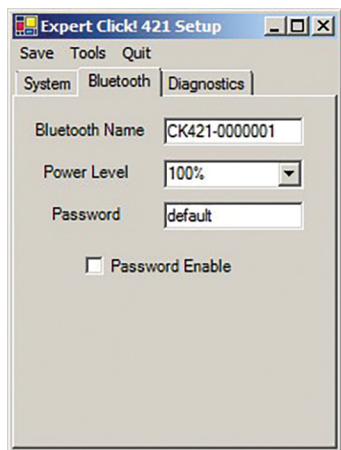| Setting	Description
Baud Rate	Allows you to change the baud rate at which the device connects to the sensor.
Flow Control	Is used for configuring hardware handshaking. This option is currently not available.
Parity	Allows you to set parity error checking.
Stop Bits	Allows you to set the number of stop bits.
Data Bits	Shows you the number of data bits being sent. This option cannot be changed.
Active Port	Indicates on which port you are communicating with the sensor. This option cannot be changed.
Latency	Indicates the latency between the sensor and the Click device. This option cannot be changed.

The **Autobaud** subtab allows you to configure how the device autobauds (see the figure and table below).

Setting	Description
Command	Allows you to set the command sent from the device during the autobaud process. Don't change these values unless instructed to by Wavetronix Technical Services.
Response	Shows the response the device is expecting from the above command. Don't change these values unless instructed to by Wavetronix Technical Services.

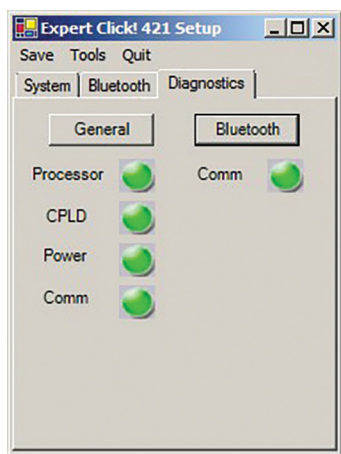|	
SmartSensor ID	Shows the ID number of the sensor with which the Click device is currently communicating. This only shows the number after you have autobauded the Click device; when the Click device is not communicating with a sensor, this option will display a 0.
Server/Client	Allows you to set whether the device is a server or client in a point to multipoint setup (this option is not related to device autobauding). This option is currently not available.

The **Bluetooth** tab allows you to configure your device's Bluetooth communications (see the figure and table below).

Setting	Description
Bluetooth Name	Allows you to change the name of your Bluetooth device, which is broadcast with the Bluetooth signal.
Power Level	Lets you change the power level of the Bluetooth signal; the options are 25%, 50%, 75% and 100%.
Password	Provides a field to enter the password to be used, if you have enabled the use of a password on the Bluetooth signal.
Password Enable	Enables the use of a password on the signal.

Note. *If you decide to password protect your Click 421, be sure to keep a good record of the password you choose. Wavetronix is not able to recover passwords or remove password protection from a device, so if the password is ever forgotten or lost, it will render the module unusable.*

Under the **Diagnostics** tab, you can run diagnostics on your device. Click the **General** or **Bluetooth** buttons to run diagnostics on the items listed below each button. If a problem is detected, the program will display a red square next to the item in question. If no problems are detected, a green circle will appear.

Once you have finished, use the menu bar at the top of the screen to save your settings, return to the Select

Driver screen, and more.

- The **Save** menu allows you to save your settings. Select **Save to File** to save your settings to a file. Selecting this will open a directory box, allowing you to name your settings file. This file will always be saved in the Wavetronix folder created when you installed Click Supervisor, under Wavetronix > ClickHome > Drivers > 421 > User. You can also select **Save to Device** to save your settings to your Click 421.

Note. *If you do not save your settings to your Click 421, they will be lost the next time you power the device down.*

- The **Tools** menu contains five options for working with your device. **Reset > System** power cycles your device, while **Reset > Factory Default** restores your device to the settings with which it was shipped. **Restore** will restore the driver to the settings currently saved on the Click 421, erasing any unsaved changes. **Upgrade** can be used to manually upgrade to the most current firmware for your device. **Hex View** changes the view of certain settings in the driver to hexadecimal.

- Clicking the **Quit** menu exits the driver and returns you to the Click Supervisor main page.