Using the Click 512

The Click 512 monitors per-vehicle lane, speed, length, direction, and class information from a SmartSensor HD.

The Click 512 compares the per-vehicle data from SmartSensor HD to a set of user-configured speed and length thresholds. There are separate thresholds for each of the eight possible outputs. The Click 512 also forwards data from the relevant lanes to the front serial port for data logging and/or troubleshooting. If a detected vehicle exceeds or is less than the given criteria, then an alert will be triggered on the digital output corresponding to that channel (or to a Click 104 output). Digital outputs 1 and 2 are contact closure outputs and can be wired to a traffic cabinet contact closure input or to an electrical relay. The Click 120 relay provides a simple way to turn on or off an AC or DC powered load based upon the alert output.

Note. *Wrong way detection is done using the under-speed condition. Once the under-speed condition is selected and the condition is met, an alert will trigger through the contact closure and an ASCII string will be transmitted through the DB-9 port.*

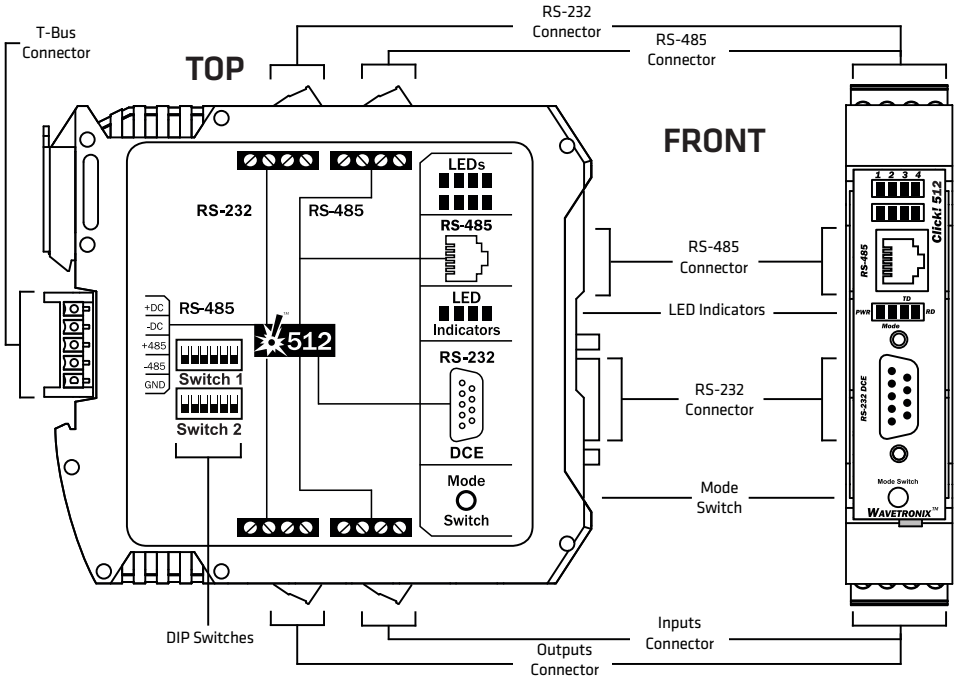
A possible application for the Click 512 is to warn specific drivers of a potentially dangerous roadway. If a vehicle is detected to exceed the user-configured speed and length thresholds, the Click 512 can trigger a warning sign that tells the driver to slow down. For example, if the length threshold is set to 13 ft. and the speed threshold is set to 65 mph, a vehicle that is detected to be 14 ft. long and going 70 mph will trigger an alert, as would any vehicle that is both faster than 65 mph or longer than 13 ft.

Note. *Timing of the warning sign alert is important to the application. Three methods of trigger synchronization are presented later in this document. Typically you will need a distance of 300–600 feet between the sensor and the warning sign.*

The Click 512 utilizes the Click Supervisor software for user configuration of vehicle speed and length thresholds and output variables. Communication between the Click 512 and Click Supervisor is easy to set up and use.

Physical Features

The Click 512 is based upon the Click 500 platform, so it has the same physical features as the Click 500.



Communication Ports

The Click 512 provides four communication ports:

- RS-485 T-bus connection port
- RS-232 front DB-9 connection port
- RS-232 top screw terminal connection port
- RS-485 top screw terminal connection / front RJ-11 jack connection port

The back of the Click 512 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 RS-485 communication to all other devices on the T-bus. Usually, the RS-485 T-bus connection port is the primary connection to the SmartSensor HD.

The RS-232 DB-9 port on the front of the module is used when interacting with a computer, using Click Supervisor or a serial terminal program like HyperTerminal.

Note. *With older versions of the Click 500 series module, it is necessary to remove pin 4 from the serial cable to prevent the device from going into Program mode. If it enters Program mode, all of the faceplate LEDs will turn off, and you'll need to power cycle the device.*

The other two communication ports can be accessed via the screw terminal blocks on the top of the device. However, in many Click 512 applications these ports are unused. The first block has -485, +485 and two ground screw terminals for wiring RS-485 communication. These ports are used to talk to a Click 112 or 114. The RS-485 communication lines of this block are physically connected to the RJ-11 jack on the front of the module, so a connection can be made with the RJ-11 jack or by wiring the RS-485. The second block has a -232, +232 and two ground screw terminals for wiring RS-232 communication.

Note. *The Click 512 communicates over the RS-485 T-bus to SmartSensor HD at baud rates between 9600 bps (default) and 115200 bps. Communication to Click Supervisor is done via the RS-232 front port (Device Setup Mode) or RS-232 top port (Run Mode) at 9600 bps. Data forwarding is done via the RS-232 front port (Run Mode) at 9600 bps. Communication to a Click 104/112/114 is done via the RS-485 top/front port at 9600 bps.*

The Click 500 series module has two DIP switches on the left side of the module. The DIP switches are used to program or reprogram the unit; however, for all Click 512 applications, these DIP switches are unused.

Note. *The sixth switch of DIP switch 1 controls the mode of the device. Make sure that this switch is in the OFF position. If it gets turned on, the device will enter Program mode and all of the faceplate LEDs will turn off when a serial connection is made. To exit Program mode, power will need to be cycled on the device.*

Configuration Features

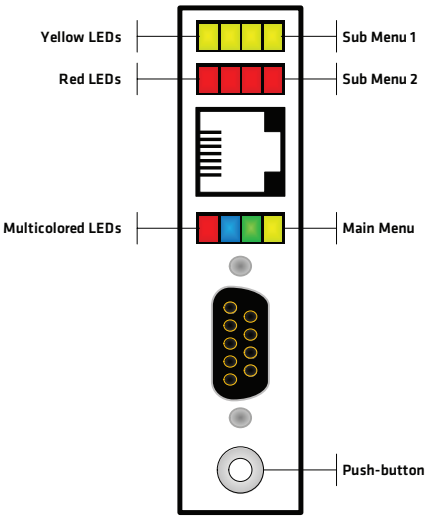
There are three banks of LEDs located on the front of the Click 512.

The yellow and red banks of LEDs display submenu selections and application information. See the Operating Modes section of this document for more information.

The system LEDs (multicolored bank in the middle of the module) have dual functions: they are activity indicators, reporting system status information, and they are also used in selecting operation modes from the main menu.

The blue LED does not have an activity-indicating function. The other three LEDs indicate system status as follows:

- PWR (red) lights up when the device has power.
- TD (green) lights up when the device is transmitting data.
- RD (yellow) lights up when the device is receiving data.



If the Click 512 receives data via one port it will forward (transmit) the data to the other ports. However, only the RD (yellow) light will flicker in this case. The TD (green) light is reserved for data originating from the Click 512.

Located on the front of the module below the DB-9 connector is a push-button labeled **Mode Switch**. The push-button allows you to make selections from the menu. See the Operating Modes section of this document for more information.

Installation

Make sure that the Click 512 is installed on a T-bus with active power and RS-485 communication.

If you are going to use your Click 512 in conjunction with a computer serial port and terminal program, the RS-232 DB-9 port on the front of the device can be used to make a connection between the Click 512 and the computer.

Obtain the desired serial terminal program and follow the distributor's instructions to install.

Operating Modes

The Click 512 has three operating modes: **Run**, **Device Setup**, and **Serial Convert**. These modes are accessed through the mode menu, which is controlled via the push-button; the system (multicolored) LEDs light up to show which mode you're currently on. The table below shows the LED color and state associated with each operating mode or task.

Operating Mode/Task	Selection LED State	Operating LED State
Run	Blue solid	Blue solid
Device Setup	Green solid	Green solid
Serial Convert	Yellow solid	Yellow solid
Reset	Red solid	–

The LED state during the mode selection process can be either flashing or solid. If the current mode is a flashing mode, the corresponding LED will flash during mode selection. However, after a flashing mode is selected, the selected mode LED will not flash—the red LED will flash instead.

Navigating the Menu via the Push-Button

The menu is navigated via the push-button using hold and press actions:

- **Hold –** Pressing and then holding for at least 1½ seconds allows you to enter the Click 512 mode selection process.
- **Press –** Pressing and then quickly releasing the push-button allows you to make a selection in the menu.

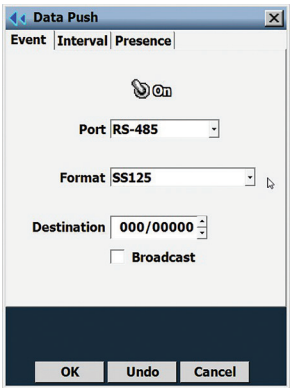
The menu is used to select and run an application's operating modes. Select a mode by navigating through the main menu (multicolored LEDs) and the submenus (yellow and red LEDs) as described below:

1. Enter the main menu by holding the push-button down. Continue holding the push-button to cycle through the entire menu.
2. Release the push-button once the cycle reaches the desired mode (see Table 9.1).
3. Press the push-button again to select the mode. Once the mode is selected it will start running. If you selected to reset the device, the submenu of yellow LEDs will start (the first LED will light up).
4. Hold the push-button to cycle through the options of the submenu.
5. Release the push-button once the desired option is displayed.
6. Press the push-button again to select the option. The mode will now start running.

Run Mode (blue solid)

Run mode is the first mode presented in the mode selection process. Once you have configured the device using Click Supervisor (see the Device Setup Mode section below), use the push-button to select Run mode (blue solid).

Note. *The SmartSensor HD should be configured beforehand, using SmartSensor Manager HD (SSMHD), to push event data (see the image below and the* SmartSensor HD User Guide *for more information).*



While in Run mode, every time an event is received from the SmartSensor HD a submenu LED will light up if it exceeds or is less than the thresholds configured for one of the eight channels. The yellow row of LEDs corresponds to Click 512 channels 1–4 and the primary output LEDs 1–4 on the Click 104. The red row of LEDs corresponds to Click 512 channels 5–8 and the primary output LEDs 5–8 on the Click 104.

You can also manually cause an output to trigger on all eight channels by pressing the push-button while in Run mode (this will cause the submenu LEDs to light up based upon the timing settings). Manual outputs are not entered into the log data stream.

In Run mode, when the Click 512 triggers an output on channel 1 (or 2), the digital output DO1 (or DO2) on the bottom of the device is closed. If you are using a Click 104/112/114, the top/front RS-485 port of the Click 512 sends a message to the attached contact closure device. Channels 3–8 are not signaled on the Click 512, but are only signaled on the attached contact closure device.

For data verification purposes the event-data messages pushed by SmartSensor HD are translated into readable text strings. This information is forwarded as ASCII text messages over the RS-232 ports of the Click 512. The text strings are in a comma-delimited format and include the timestamp, lane number, speed, length, duration, range and class information. The following text string illustrates a vehicle detection entry:

2009:05:28,23:04:04.902,00,0070.5,0073.9,00000773,0163.1,03

This text string contains the following information:

- The date is May 28, 2009
- The time is 11:04:04.902 p.m.
- The lane is lane number 0, the lane closest to the sensor (this value is zero-based, while the values in the software are one-based)
- The speed is 70.5 mph (based upon HD selection of Standard units)
- The length is 73.9 feet (based upon HD selection of Standard units)
- The duration of the detection is 773 milliseconds
- The range to the vehicle is 163.1 feet
- The length-based classification is group 3

A Wrong-way detection event text string is illustrated in the following text string:

2014:01:14,20:53:22.283,00,-47.6,0016.9,00000316,0028.0,02

This text string contains the following information:

- The date is January 14 2014
- The time is 8:53:22.283 P.M.
- The lane number 0, the lane closest to the sensor (this value is zero-based, while the values in the software are one-based)
- The speed is -47.6 mph. The - sign indicates the vehicle was going the wrong way, meaning the opposite direction of the normal flow of traffic (based upon HD selection of Standard units)
- The length of the vehicle is 16.9 feet (based upon HD selection of Standard units)
- The duration of the detection is 316 milliseconds
- The range to the vehicle is 28.0 feet
- The length-based classification group is 2

The Click 512 sends a heartbeat message approximately every ten seconds. The following text string illustrates the heartbeat or check command that is sent out:

2014:01:14,20:58:45.849,00,0000.0,0000.0,00000000,0000.0,00

The text string contains the following information:

- The date is January 14, 2014
- The time is 8:58:45.849 p.m.
- The rest of the 0s differentiate the heartbeat string from an event string

The timing of when alert outputs are triggered is important to the application. For example, motorists will need to see the warning message activate several seconds before they arrive at the warning sign.

The following information gives an overview on different trigger methods that advise motorists in a timely and effective way. There are three basic methods to synchronize this trigger:

- Trigger at an ETA to the sign
- Trigger at a point upstream of the sign
- Trigger as soon as possible (ASAP)

Note. *If you have an overspeed application that requires an immediate trigger, but does not require lane resolution or vehicle-length resolution, consider using SmartSensor Advance with a Click 100 and Click 120. This system will have less than 100 ms of delay.*

The ETA trigger method is recommended in order to provide a uniform experience for motorists traveling at different speeds. With this method, drivers will see the sign turn on when they are a specified number of seconds from reaching the sign. The sign can remain activated until they reach it, or it can be turned off before they reach the sign (if it is no longer in their line of vision). This method can require a setback distance of several hundred feet between the location of the SmartSensor HD unit and the warning sign. If the setback distance is smaller, you may consider the method which triggers activation as soon as possible.

Example. *A warning sign system needs to be designed for a roadway where the maximum vehicle length anticipated is 100-feet long and the maximum speed anticipated is 100 feet per second (almost 70 mph). The sign should activate when a driver is 2 seconds from the sign and deactivate when a driver is 1 second from the sign. In this case, the setback distance will need to be 400 feet (3 seconds at 100 feet per second pulse 100-foot vehicle length).*

Note. *If a vehicle exceeds the anticipated maximum speed and length, then the detection event may not be generated until the vehicle's ETA is less than the desired value. In this case, the output will activate upon reception (without any additional delay).*

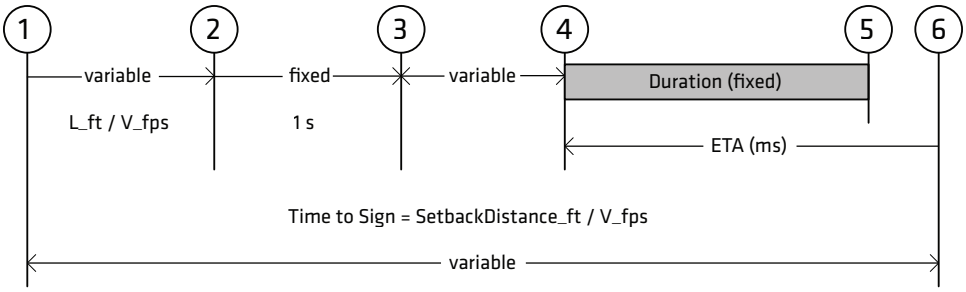
In order to trigger an ETA to a sign:

1. Select the Automatic (English) configuration options.
2. Specify the corresponding setback distance in feet. In this case, the setback distance is from the location of the SmartSensor HD unit to the location of the warning sign.
3. Specify the ETA in milliseconds.
4. Specify the duration in milliseconds.

Note. *If your SmartSensor HD unit is configured in Metric units, select the* **Automatic (Metric)** *configuration option. In this case, the setback distance is specified in decimeters instead of feet.*

Since vehicles travel at different speeds, the amount of time from when the front edge of the vehicle enters the beam until it reaches the warning sign is variable. In addition, the amount of time the vehicle is in the beam is also variable (based upon vehicle speed and length).

The following diagram illustrates the basic timing of this option as a series of six steps. Some portions of the timing are variable and others are fixed.



1. Front edge of vehicle enters beam.
2. Back edge of vehicle leaves beam. The time from point 1 to point 2 is variable and is based on the length and speed of the vehicle.
3. Detection event is generated one second after the vehicle leaves the beam. This one-second delay is fixed.
4. Output is activated.
5. Output is deactivated at the end of the duration.
6. Front-edge of vehicle reaches the sign (assuming constant speed).

Note. *You can have a maximum of five vehicles concurrently being monitored from steps 3 to step 4. If you have extremely high traffic flow conditions where multiple over-speed/over-length vehicles are possible, consider dedicating a single output to each lane to prevent dropping detections.*

Note. *The 35-byte serial communication delay from the sensor to the Click 512 is 3 ms at 115.2 kbps. The 9-byte serial communication delay from the Click 512 to the Click 104/112/114 is 2 ms. This is a total of 0.005 seconds of additional delay (not depicted in preceding graph). At 9600 bps, this increases to up to 0.038 seconds of additional delay.*

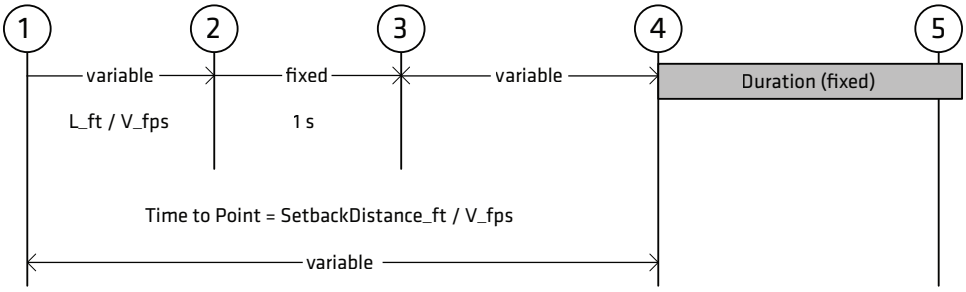
The second method, the point trigger method, also provides a certain level of uniformity, in that the warning sign is activated when vehicles reach a certain point. However, the warning sign will deactivate at different points since the duration is a predetermined fixed period of time. This method can require a setback distance of 300 (or more)

feet between the location of the SmartSensor HD and the warning sign.

In order to trigger at a point upstream of a sign:

1. Select the Automatic (English) configuration options.
2. Specify the corresponding setback distance in feet. In this case, the setback distance is from the location of the SmartSensor HD unit to the selected trigger point (upstream of the warning sign).
3. Specify the duration in milliseconds.

The following diagram illustrates the basic timing of this option as a series of 5 steps. Some portions of the timing are variable and others are fixed.



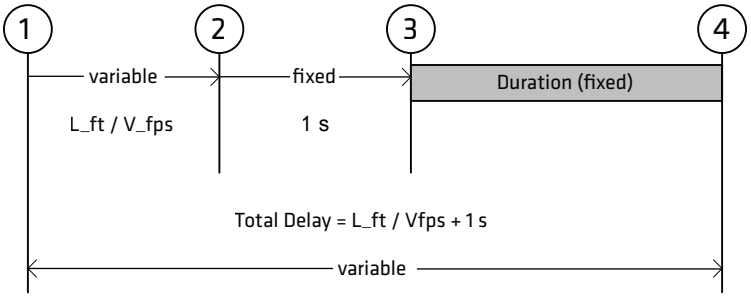
1. Front edge of vehicle enters beam.
2. Back edge of vehicle leaves beam. The time from point 1 to point 2 is variable and is based on the length and speed of the vehicle.
3. Detection event is generated one second after the vehicle leaves the beam. This one-second delay is fixed.
4. Output is activated when front-edge of vehicle reaches the selected trigger point (assuming constant speed).
5. Output is deactivated at the end of the duration.

The third method, the ASAP trigger method, provides a less uniform response because the trigger is not synchronized. However, this method may be useful when the setback distance is limited.

In order to trigger as soon as possible:

1. Select the None (Trigger Sync) configuration options.
2. Specify the duration in milliseconds.

The following diagram illustrates the basic timing of this option as a series of four steps. Some portions of the timing are variable and others are fixed.



1. Front edge of vehicle enters beam.
2. Back edge of vehicle leaves beam. The time from point 1 to point 2 is variable and is based on the length and speed of the vehicle.

3. Detection event is generated one second after the vehicle leaves the beam. This one-second delay is fixed. Output is activated as soon as the event is received by the Click 512.
4. Output is deactivated at the end of the duration.

Note. *In run mode, it is now possible to configure the Click 512 thresholds and other settings using Click Supervisor without changing to Device Setup Mode. This allows the settings to be updated remotely. For remote management, an IP connection via a Click 301 (or equivalent device) needs to be available via the RS-232 top port. Only the RS-232 top port is available for remote management when in the Run mode.*

Device Setup Mode (green solid)

Device Setup mode is the second mode presented in the mode selection process. This mode allows you to configure threshold variables and set up communications with the Click 104/112/114.

First put the device in Device Setup mode (solid green). Once in Device Setup modem, use submenu 1(yellow LEDs) to select which connection you will use to connect Click Supervisor:

- **First LED solid –** This is the primary mode for connection and will be the option you select most often. You can connect to Click Supervisor over the serial RS-232 port and do necessary troubleshooting.
- **Second LED solid –** The second mode is a backup mode if there are no other means to connect to the device. You can connect to Click Supervisor over the RS-485 port. This mode will not forward information correctly to the Click 104; after the Click Supervisor configuration, the device will need to be changed to submode 1.

The Click 512 is then configured 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.

How to use Click Supervisor to work with your device will be covered in the Computer Configuration section of this document.

Next, connect the Click 104/112/114 device via the RS-485 top/front port. When using a Click 104, you will need to use a gray T-bus to isolate communications sent from the RS-485 top/front port (so they do not collide with communications on the Click 512 RS-845 T-bus port). When using a Click 112/114, patch across using an RJ-11 jumper cable.

Once the Click 104/112/114 device is connected, you will need to autobaud it and then put it in Actuation mode. This can only be done when the Click 512 is in the Device Setup Mode.

Serial Convert Mode (yellow solid)

Serial Convert mode is the third menu option. This mode acts as a serial converter between all the different communications ports, which may be useful for debugging communication links.

Note. *The baud rate for serial conversion will match the baud rate set for communications to SmartSensor HD (the default is 9600 bps).*

Reset (red flashing)

The red flashing mode resets the Click 512 to factory defaults. If a device is not responding and not communicating, resetting the device may fix the problem. Once in reset mode, use submenu 1 (yellow LEDs) to select which level of settings should be reset:

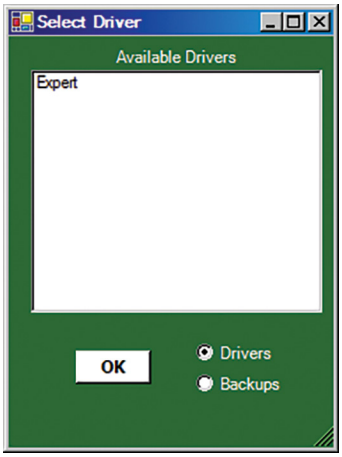
- **First LED solid –** Reset all settings except serial number and XML variable map.
- **Second LED solid –** Reset all settings except serial number.

After being reset, the Click 512 will return to the last mode that it was in.

Computer Configuration

The Click 512 must be configured 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 512 can be configured using the Expert driver (see the figure below).



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.*

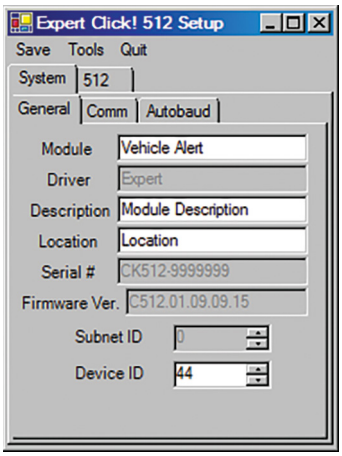
The Backups option can be used to read configurations that have previously been saved to file.

Expert

The Expert driver allows you to configure the Click 512. The driver is divided into two tabs, **System** and **512**.

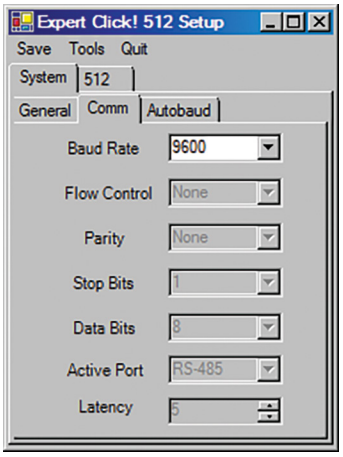
The System tab is divided into three subtabs: **General**, **Comm**, and **Autobaud**.

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



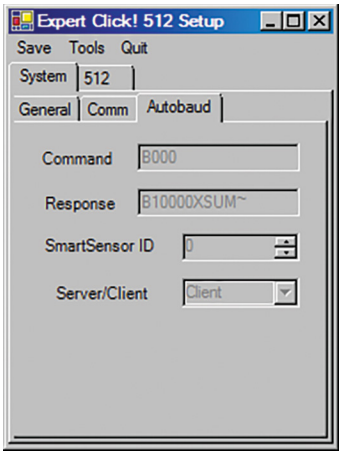
Setting	Description
Module	Shows the name of the Click device.
Driver	Names the driver you are currently working with.
Description	Shows a description of the device being configured. This is only for your information and does not affect the operation of the device.
Location	Displays the location of the 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 listens for data pushed from the SmartSensor HD. It also changes the baud rate in serial convertor mode. It does not affect the baud rate for Click Supervisor communications or data forwarding, which are always at 9600 bps. It does not affect the baud rate of communications with a Click 104/112/114.
Flow Control	Is used for configuring hardware handshaking. This option is currently not available.
Parity	Allows you to set parity error checking. This option is currently not available.
Stop Bits	Allows you to set the number of stop bits. This option is currently not available.
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.

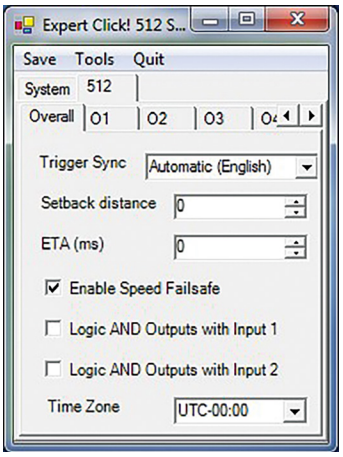
The **Autobaud** subtab allows you to configure how the device autobauds (see the figure and table below). As none of these options can currently be changed, you would only use this tab if you needed to look at how the device's autobaud function is currently set up.



Setting	Description
Command	Allows you to set the command sent from the device during the autobaud process. This option is currently not available.
Response	Shows the response the device is expecting from the above command. This option is currently not available.
SmartSensor ID	Shows the ID number of the sensor with which the Click device is currently communicating. This option is currently not available.
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.

When you open the **512** tab, you will see ten tabs. The first is labeled **Overall**. This tab allows you to configure values for the speed and length thresholds (see the figure and table below).

Note. *Values in Click Supervisor will be displayed according to the units (English or metric) selected in SSMHD.*



Setting	Description
Trigger Sync	Sets the method of trigger synchronization. The options are: Automatic (English), Automatic (Metric) or None.
Setback distance	Distance between the sensor and a downstream location on the roadway. Depending upon the trigger method, the downstream location may be the actual location of the roadway sign, or somewhere in between. If units are English, this distance is in feet; if Metric, then the distance is in decimeters.
ETA (ms)	If you are not using the ETA trigger method, leave this value at 0. Otherwise, this is the ETA to the downstream location.

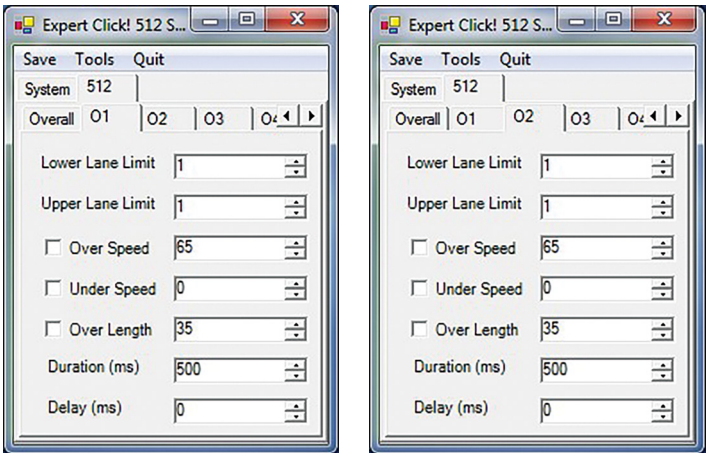
Enable Speed Failsafe	In a small percentage of cases, the SmartSensor HD may not report a valid speed. Check this box if you want vehicles that have an invalid speed (but that exceed the length threshold) to trigger an output.
Logic AND Outputs with Input 1	Allows you to gate the activation of outputs based upon an external signal wired to digital input 1.
Logic AND Outputs with Input 2	Allows you to gate the activation of outputs based upon an external signal wired to digital input 2.
Time Zone	Sets the time zone of the timestamp on the data; you can view this using HyperTerminal or another serial terminal program. The time of events is time stamped using SmartSensor HD's real-time clock, which is set to UTC (GMT). Using this setting, you can tell the Click 512 to convert that time into the time zone of your choice.

The SmartSensor HD timestamps are referenced to the time that the front-edge of the vehicle enter the detection beam. However, the event message itself will not be reported until about one second after the back-edge of the vehicle leaves the detection beam.

Note. *Invalid speed entries will show a value of 512 mph in the serial transmitted text strings.*

There are nine other tabs you can access. They correspond to the eight possible contact closure outputs the Click 512 can be configured to deal with. The other eight tabs are labeled **O1** through **O8**. These tabs allow you to configure the following for each alarm: the lanes affected, over speed and under speed thresholds, length thresholds, the duration of the contact closure, and the delay between detection and output.

All nine of these tabs have the following settings:



Setting	Description
Lower Lane Limit	In conjunction with the Upper Lane Limit, this allows you to filter which lanes are mapped to this output. Lanes are assigned a number 1 through 10, with 1 being closest to the sensor. Lanes greater than or equal to the lower lane limit will be mapped to the associated output (There are 8 outputs labeled O1 to 08 on the tabs.)
Upper Lane Limit	In conjunction with the Lower Lane Limit, this allows you to filter which lanes are mapped to this output. Lanes less than or equal to the Upper Lane Limit will be mapped to the associated output. For example, if the Upper Lane Limit and Lower Lane Limit are both equal to 4, then only detections from lane 4 can trigger the output.
Over Speed	Sets the default value for the over speed threshold. When enabled, vehicles that have a speed that exceeds this value will trigger an output. When disabled the speed threshold is ignored.

Under Speed	Sets the default value for the under speed threshold. When enabled, vehicles that have a speed that is less than this value will trigger an output. When disabled, the speed threshold is ignored. It is important to note that under-speed conditions also detect cars going the wrong direction.
Over Length	Sets the default value for the over length threshold. When enabled, vehicles that exceed this length will trigger an output. When disabled, the length threshold is ignored.
Duration (ms)	An output stays on for at least the number of milliseconds specified here. As long as the time headway between vehicles that meet the alert criteria is longer than the specified duration, there will be a pulse for each vehicle that meets the criteria. However, if the alert conditions are met by two vehicles with a time-headway less than the specified output duration, then the output will be combined into a single pulse with a duration equal to the specified duration plus the time-headway between the vehicles.
Delay (ms)	If the trigger sync method is None, this setting controls the time that will elapse before the activation of the output (after the detection). If the trigger sync method is Automatic, this setting controls the time that will elapse before the activation of the output (after the ETA criteria has been reached).

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 > 512 > User. You can also select **Save to Device** to save your settings to your Click 512.

Note. *If you do not save your settings to your Click 512, 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 512, 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.

Connecting to a Contact Closure Device

Once you have finished the computer configuration, connect the Click 512 to a contact closure device, specifically the Click 104, Click 112, or Click 114. Enter Device Setup mode through the menu selection process (green solid), attach the device via the RS-485 top port, then put the contact closure device in AC (Actuation) mode (see the knowledge base articles *0516 Using the Click 104* and *0518 Using the Click 112/114* for information on how to enter actuation mode for the Click 104/112/114).