SENSYS networks

Quick Start Guide: FlexRepeat3 Solar Repeater

1 Assemble

FlexRepeat3 Solar Installation Parts

A FlexRepeat3 Solar assembly requires a single FlexRepeat3 Solar and the mounting kit.

Warnings

Lithium Batteries

Sensys Networks uses Lithium Thionyl Chloride batteries in the following products:

- SENSORS (VSN240-F-2/M-2/MP-2/T-2 series)
- REPEATERS (RP240, FLEX-RP, and FLEX-RPT3 series (contains additional 18650 Li-Ion batteries))

Lithium batteries are widely used in electronic products because they contain more energy per unit-weight than conventional batteries. However, the same properties that deliver high energy density also contribute to potential hazards if the batteries are damaged. Improper use or handling of the batteries may result in leakage or release of battery contents, explosion, or fire.

Following are the recommendations of the battery manufacturer for proper use and handling of batteries in the Sensys Networks devices mentioned above:

- DO NOT CHARGE OR ATTEMPT TO RECHARGE THE BATTERIES
- DO NOT CRUSH OR PUNCTURE BATTERIES
- DO NOT SHORT-CIRCUIT THE BATTERIES
- DO NOT FORCE OVER-DISCHARGE OF THE BATTERIES
- DO NOT INCINERATE OR EXPOSE BATTERIES TO EXCESSIVE HEATING
- DO NOT EXPOSE BATTERY CONTENTS TO WATER
- DO DISPOSE OF BATTERIES AND DEVICES CONTAINING BATTERIES IN ACCORDANCE WITH LOCAL REGULATIONS

Sensys Networks sensors contain no serviceable parts and should never be disassembled. Installation and removal of sensors from pavement should only be done by trained personnel and care should be taken to insure that the sensor casing is not punctured or crushed.

Additional safety information is available from the battery's manufacturer:

- Sensor battery cell: http://sensysnetworks.com/sensorbattery
- Repeater battery cell: http://sensysnetworks.com/repeaterbattery

2 Turn On Repeater

Unscrew Power Jumper Cap

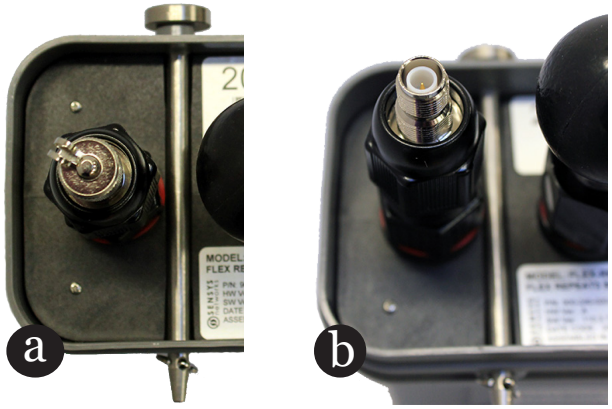
Unscrew the black cap to expose the red jumper and LED indicator.

WARNING: DO NOT open repeater. Removing top could damage unit.

Remove Red Jumper

Remove the red jumper (a) and place the jumper on one pin (b). Wait approximately five seconds for LED light to blink red to ensure unit is turned on. After ensuring the unit is properly turned on, screw on the black cap.

Note: To turn off, return jumper to original position.



For Use of External Antenna Only

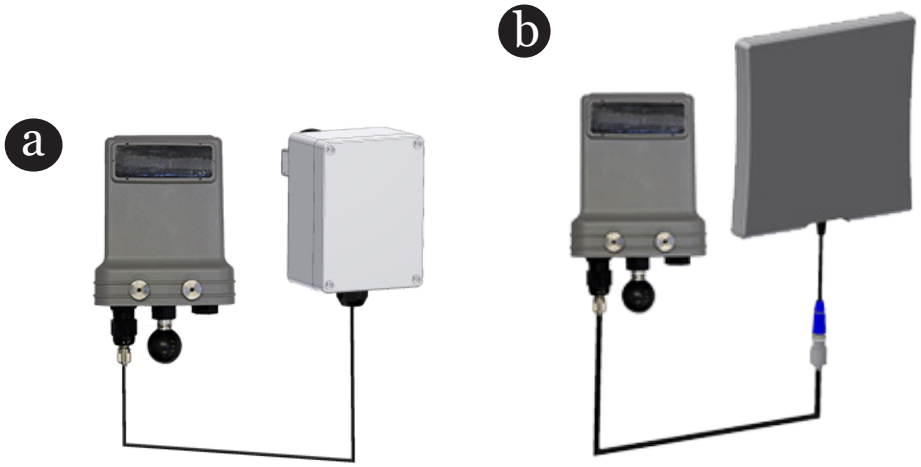
Unscrew the metal cap for the external antenna cable outlet (a) and discard (b).

Note: If the FlexRepeat3 Solar is not used with a external antenna then do not remove cap.

3 Mount FlexRepeat3 Solar on Pole

Mount The FlexRepeat3 Solar

Assemble the mounting kit onto the pole. Attach mounting arm to the mounting plate. Attach the FlexRepeat3 Solar to the mounting arm with the *Towards Sensors* side facing the sensors and access point or supporting repeater. Ensure the mounting arm is tightened so the repeater cannot move. Note that the mounting arm can be oriented to adjust the location of the FlexRepeat3 Solar.



Connect External Antenna (Optional)

Connect to one of the external antenna options with a coax cable. Two options are supported: (a) the FLEX-ANT-1 with the same RF range as the internal antenna and (b) the FLEX-ANT-2 with Long Range RF range. Point the external antenna towards the sensors. The roles of the internal and external antenna can also be switched.

4 Connect to Access Point

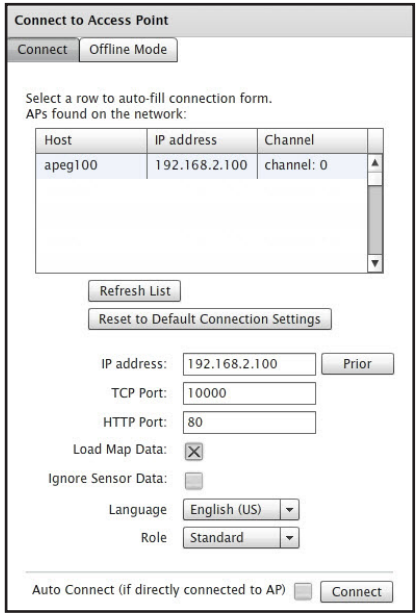
Run TrafficDOT

Click the icon to start TrafficDOT2.

Select IP address

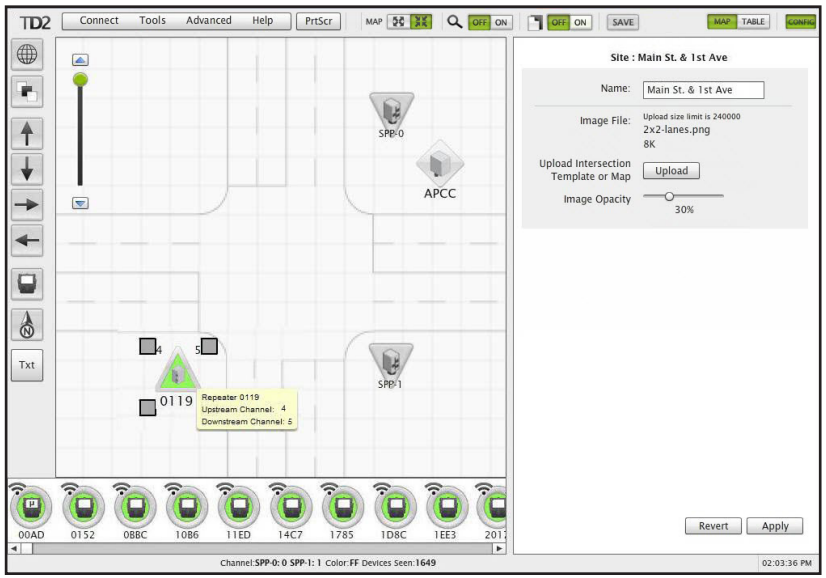
Select an access point from the list of APCCs and Access Points and click **Connect**.

Note: Ensure the box for *Load map data* is checked before clicking **Connect**.



Main Window

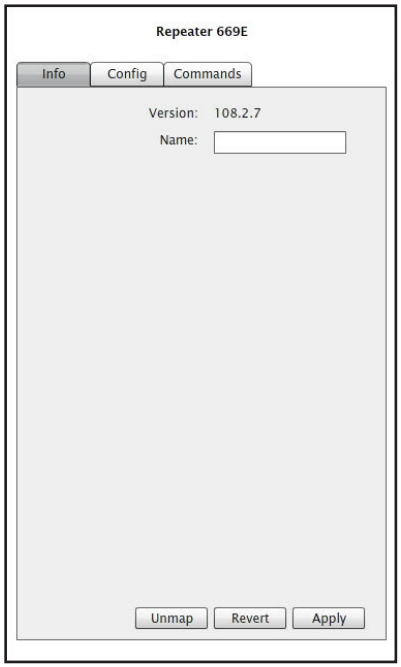
The *Main* window displays. The map on the *Main* window populates and configured equipment appears on the map and in the sensor tray at the bottom of the window.



Requirements

FlexRepeat3 Solar requires TrafficDOT2 software 2.12.12 or later.

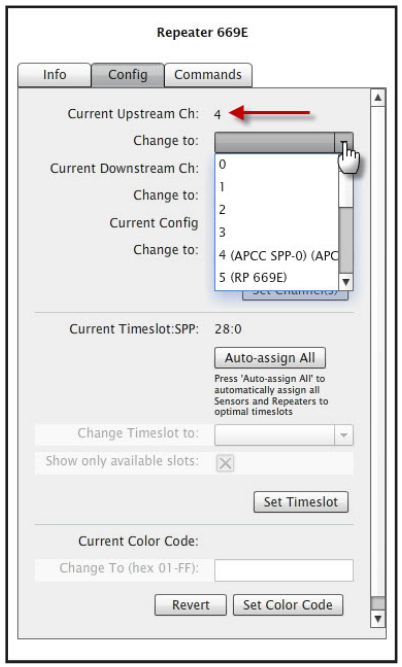
5 Configure Repeater



Repeater Configuration Window

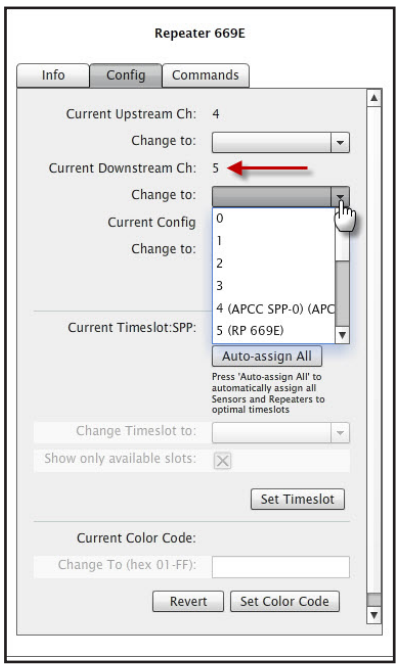
Select a repeater from the image map or tray to access the *Repeater Configuration* window with the *Info* tab open. The *Name* field allows the repeater's name to be user-defined.

Note: Repeater's firmware version is displayed for reference only.



Specifying Upstream Channel

Select an upstream channel by clicking the **Config** tab. Select an entry for the *Current Upstream Ch* field by clicking on the *Change to* drop-down list.



Specifying Downstream Channel

Select a entry for the *Current Downstream Ch* field by clicking the *Change to* drop-down list.

Channel Notes

- The default radio channel for access point to repeater communications is 4.
- The default radio channel for repeater to sensor communications is 5.
- Never use the same channel for both access point and sensor communications.

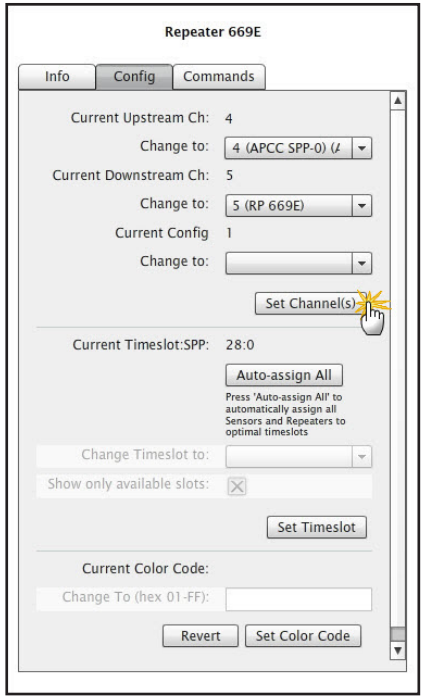
Refer to *Sensys Network VDS240 Wireless Vehicle Detection System TrafficDOT Set Up and Operating Guide* for more information.

Config Notes

- When an installation contains multiple repeaters with more than 20 sensors, changing one or more repeaters from *Current Config 0* to *Current Config 1* allows the access point to communicate with up to 40 sensors through the repeaters.

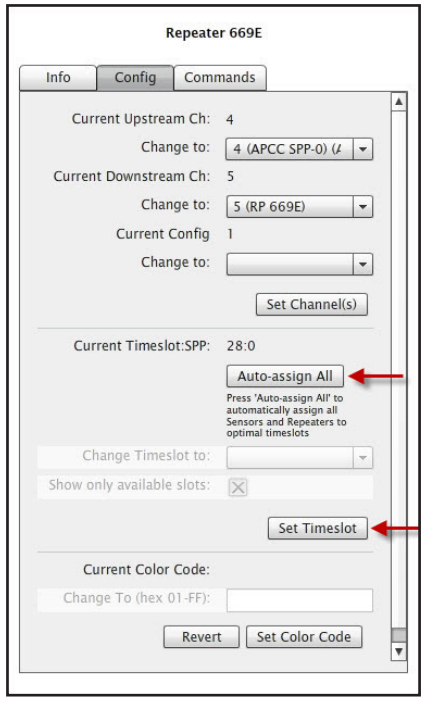
Refer to *Sensys Network VDS240 Wireless Vehicle Detection System TrafficDOT Set Up and Operating Guide* for more information.

Configure Repeater (cont.)



Save Configuration

Click **Set Channel(s)** to accept configuration changes.



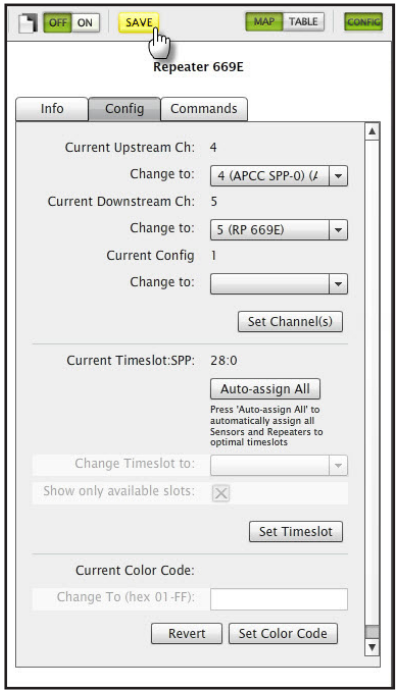
Specifying Time Slot

Click the **Auto-assign All** button to automatically assign all Sensors and Repeaters to optimal timeslots.

Note: The grayed out options can be made accessible by enabling *Advanced Mode* using the *Advanced* drop-down menu.

To manually set the time slot, TrafficDOT filters the contents of the drop-down list so that only available time slots are displayed. Click an entry from the *Change Timeslot to* drop-down list and then click **Set Timeslot** to accept changes.

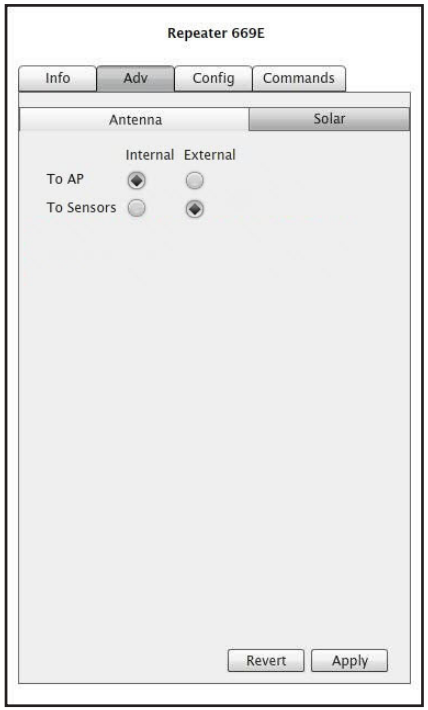
To change the drop-down list to include all time slots in the network (both assigned and unassigned), remove the check in the *Show only available slots*.



Save Configuration

Click **SAVE** to save changes made to the access point.

Configure Repeater (cont.)



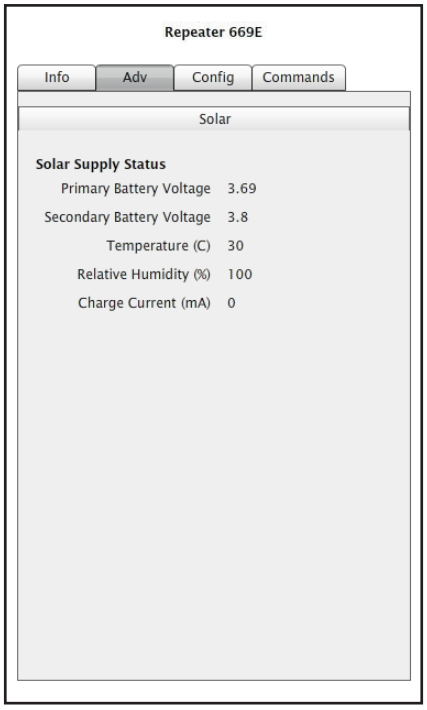
Adv Tab

If the repeater is connected to an external antenna, then it can be configured via the *Adv* tab. From the *Antenna* panel, select either *To AP* or *To Sensors* to configure an internal/external antenna.

Click **Apply** to accept configuration changes.

Click **SAVE** at the top of the screen to save changes made to the access point.

Note: Recommended setting for external antenna is *To Sensors*.



Solar Tab

Click the **Solar** tab to view the solar supply status.

Adv Tab Notes

- A failsafe error message occurs should you choose the external antenna option when there is no external antenna installed.
- If FlexRepeat3 Solar is installed with or without the external antenna, and the *Antenna* panel options are left unchecked, the internal antenna is used for both *To AP* and *To Sensors* channels.
- If *Discover Mode* is not ON the following warning will display: *Advanced setting values shown are either not set or last known current value because discover not on. Value(s) will not be updated until discover turned on.*
- If *Discover Mode* is OFF at connection time for TrafficDOT the *Adv* tab displays *Not Set* values. Turn *Discover Mode* ON for true values to display.

Refer to *Sensys Network VDS240 Wireless Vehicle Detection System TrafficDOT Set Up and Operating Guide* for more information.