

Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot



This workflow shows how to use the Carlson SS900 Base Radio and Carlson Explorer 600+ with SS900 radio pack to control the Topcon robotic instruments. This method reduces the amount of cables and radio accessories at the pole. It also provides a high performance, low power consumption base radio module at the tripod.

SS900 Radio System

- 6100.426 Carlson Explorer 600+ Jett Pack Connect
- 6100.427 Carlson Explorer 600+ SS900 Rover Radio
- 6100.428 Carlson Explorer 600+ SS900 Base / Repeater Radio

Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

The photo below shows the SS900 Rover Radio Pack product #6100.427 (The black insert with the Carlson logo). The Radio Pack inserts into the Jett Pack Connect, product # 6100.426. (The blue tray that connects to the back of the Explorer 600+.)

This assembly interfaces with the Explorer 600+ on Com 2.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

1. Connect the SS900 base radio to the robotic instrument by connecting a cable from the 9-pin serial port of the base radio to the com port of the robotic instrument.



2. Power on the robotic instrument, level the instrument and allow the instrument to go through the self check procedure.

Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

3. From the main menu screen, we need to verify some robotic communication settings. Go to F1 for Prog.



4. Press F6 to page down.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

5. Select F3 EXT. Link.



6. Go to F2 Setting.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

7. Within the External Link Setting, select Cable from F1.



8. Use F3 or F4 to scroll through the options until Cable is seen in the display. Then press F1 to Set.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

9. Verify that the instrument is configured to CABLE. To verify this, go to, F2 to change the settings on the Cable protocol. We suggest 9600, 8, N, 1.



10. Press Esc, from the screen above, to go back to the External Link screen, press F1, Execute. This will execute the communication through the RS-232 cable connection to the SS900 base radio.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

11. Before leaving the instrument, verify the “Remote control is being done from the controller.” Screen, seen below.



Carlson Software Technical Bulletin

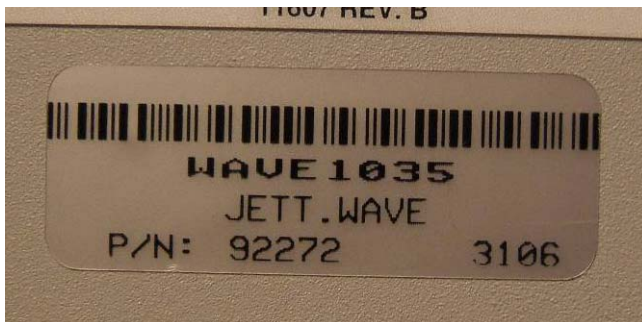
SS900 Radio system with Topcon Robot

Setting up the base and rover radios

(See SS900 User Manual for more details)

1. Use the SS900 utility to configure the communication parameters of the rover and base radios.

Note: When the base and rover radios were packaged for shipping they were programmed with the serial number of the base radio. The serial number of the base radio can be found on the back of the base. (Example below is #1035) This 4-digit serial number is used to program the radios to be a mated pair. This prevents any radio step-on by other Carlson SS900 radios. Review the directions at the end of this document if you need to alter the serial number for some reason. A possible reason would be to use more than one rover off the same base radio.



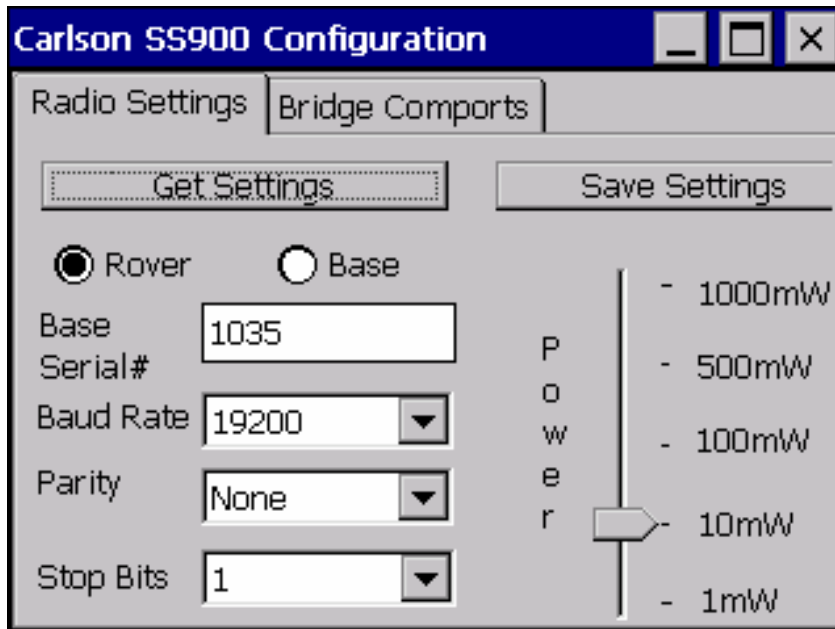
From the desktop screen select the Carlson SS900 icon, or from the Programs list select Carlson SS900.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

2. Program the base and rover radio Baud Rate, Parity and Stop Bits To do this, select Base or Rover Radio, and then “Get Settings” button. Then, fill in the Base Serial number field with the correct serial number displayed on the back of the base radio. This example is serial #1035. Select the proper Baud Rate, Paity, and Stop Bit to correspond with the robotic instrument. Press “Save Settings”, and the selected parameters will be written back to the radio.



In order the program the base radio, you must connect the 600+ to the base radios via a null modem cable. See the picture below.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

Setting up the data collector

1. Enter SurvCE and select Topcon 800/8000 Remote from the Instrument list.

The screenshot shows the SurvCE software interface. At the top, the title bar reads "JOB:topcon robotic" and includes a "MAP" button. Below the title bar are menu tabs: "File", "Equip", "Surv", "COGO", and "Road". The "Equip" tab is selected. A dialog box titled "Instrument" is open, featuring "OK" and "Cancel" buttons. The "Instrument:" label is followed by a dropdown menu currently displaying "Topcon 800/8000 Series Remote". Below the dialog box, a grid of buttons is visible: "4 Receiver Utilities", "9 Peripherals", "5 Localization", and "0 About SurvCE".

2. Go to Equip – Comm Setup

The screenshot shows the SurvCE software interface with the "Equip" menu selected. The title bar reads "JOB:topcon robotic" and includes a "MAP" button. The menu tabs are "File", "Equip", "Surv", "COGO", and "Road". The "Equip" menu is open, showing a list of options: "1 Instrument", "2 Settings", "3 Tolerances", "4 Comm Setup", and "5 About SurvCE". The "4 Comm Setup" option is highlighted with a dotted border.

Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

3. In Comm Setup, select Com 2 (Radio Pack on back of Explorer 600+), 9600, 8, None, 1, and press OK.

Comm Setup [OK] [Cancel]

Port Number: **COM2** ▼

This is a Bluetooth port [Find Bluetooth Port]

Bluetooth Driver: **Atinav** ▼

Baud Rate: **9600** ▼ Parity: **None** ▼

Char Length: **8** ▼ Stop Bits: **1** ▼

[Defaults]

4. Then go to Equip – Settings.

JOB:topcon robotic [Icon] [MAP]

File **Equip** **Surv** **COGO** **Road**

1 Instrument

2 Settings

3 Tolerances

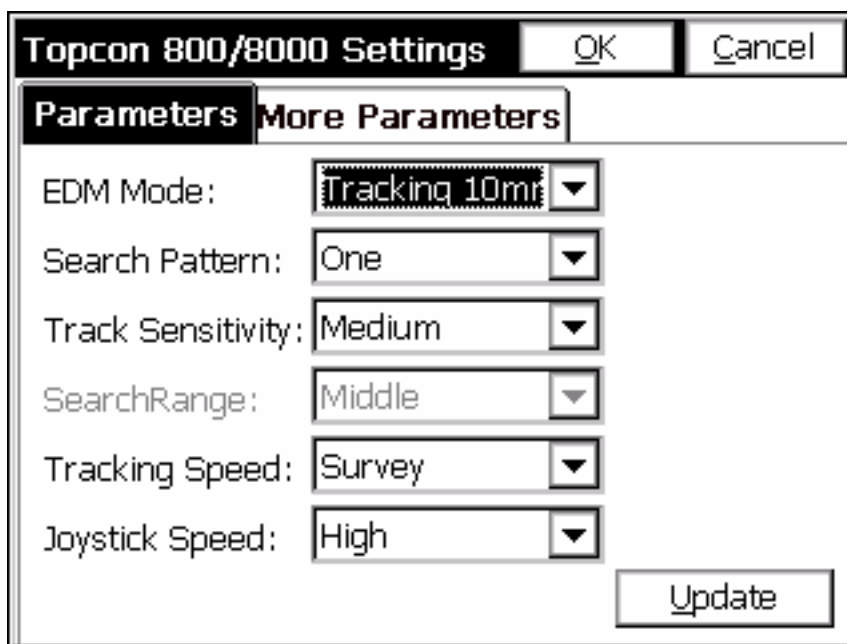
4 Comm Setup

5 About SurvCE

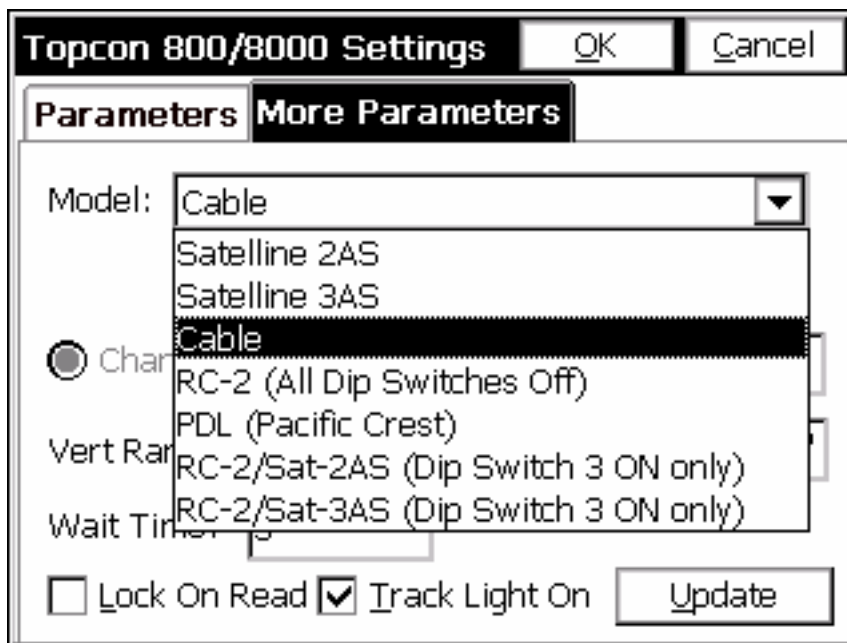
5. Confirm your desired Parameters and then go to More Parameters tab.

Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot



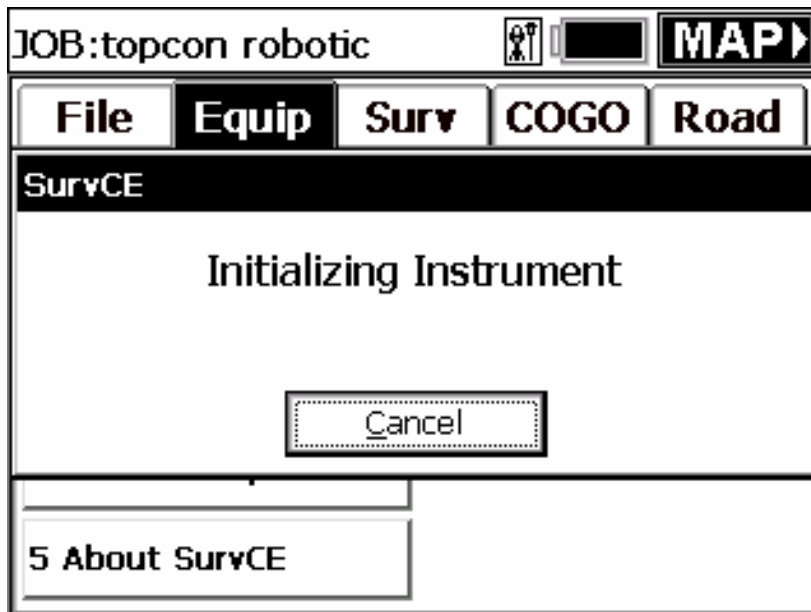
6. In More Parameters, select Cable from the “Model” list. The SS900 radios will function as a very long cable connection and control the robotic functions as if you had a very long cable connected.



Carlson Software Technical Bulletin

SS900 Radio system with Topcon Robot

7. Press OK to leave the Parameters screen and the parameters should update while “Initializing Instrument” screen is shown.



8. If you receive an error message, the Com parameters were not matched between the Robotic Instrument and the Rover Radio Pack.

