



# **AW400**

## **Configuration Example**

**Version 1.0.**

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# AW400 CONFIGURATION

Paying attention to a few factors and selecting such system that suits your surveying needs and business strategy enables you to improve the performance, enhance the cost-effectiveness, and increase the user-satisfaction of your RTK survey system.

The highest AW400 power RF output available and correct installed antenna allow you to obtain maximal distance range between base and rover.

## Antenna Installation

Select the type of antenna that best fits your application and the one that offers the highest dB gain. In addition, setup your system in the highest possible location to minimize obstacles between the transmitting and receiving systems. Always place the antenna on the highest point available. At a minimum, set the antenna to at least ten feet above the terrain using an antenna mast.

Some antennas intended to be attached to the pole mount adaptor (p/n PT-10003) are designed to be operated with a ground plane and some without it. Antennas operating without ground plane marked in our catalogue as NGP, e.g. UHF NGP Antenna 1/2, 2.4 dB gain, NMO:

- p/n AT-30024 UHF NGP Antenna 406-430 MHz, 1/2, 2.4 dB, NMO
- p/n AT-30025 UHF NGP Antenna 430-450 MHz, 1/2, 2.4 dB, NMO
- p/n AT-30026 UHF NGP Antenna 450-470 MHz, 1/2, 2.4 dB, NMO

This antennas are NO GROUND PLANE antennas with gain 2.4 dB and NMO specified connector type with should match with your antenna adapter (pole mount or magnet mount). Antennas designed to be operated with ground plane

- p/n AT-30008 UHF Antenna 406-430 MHz, 5/8, 5 dB, NMO
- p/n AT-30009 UHF Antenna 430-450 MHz, 5/8, 5 dB, NMO
- p/n AT-30010 UHF Antenna 450-470 MHz, 5/8, 5 dB, NMO

provide better gain, but to achieve the best performance of your antenna, add a UHF Antenna Ground Plane Disk (p/n PT-10016) to the bottom of the antenna for a ground plane. UHF antenna Ground Plane disk improves VSWR and as result increase RF power delivered from transmitter to antenna and system distance range.

To install antenna with ground plane disc (see pictures below):

1. Unscrew the cone-shaped cable part;
2. Place the ground plane disc between cable parts and screw all parts together;
3. Attach cable with ground plane to the UHF antenna;

## AW400 Configuration

### Antenna Installation

4. Place the antenna on the pole.



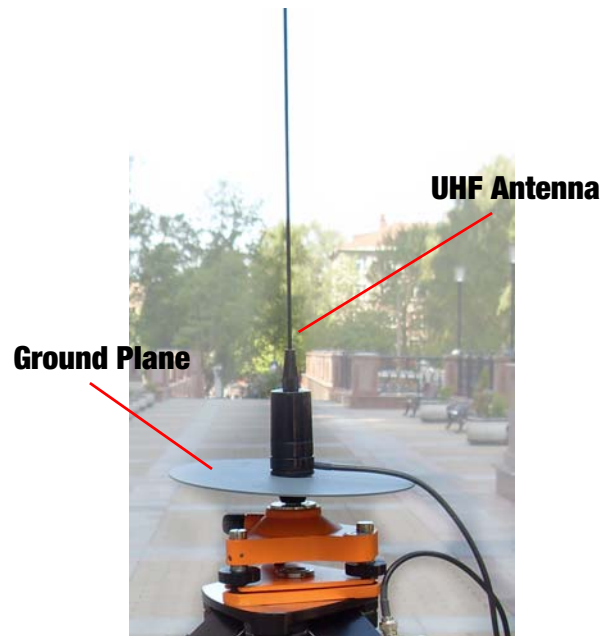
**1** Unscrew the cone-shaped cable part



**2** Place the Ground Plane between cable parts and screw all together



**3** Attach to the UHF Antenna



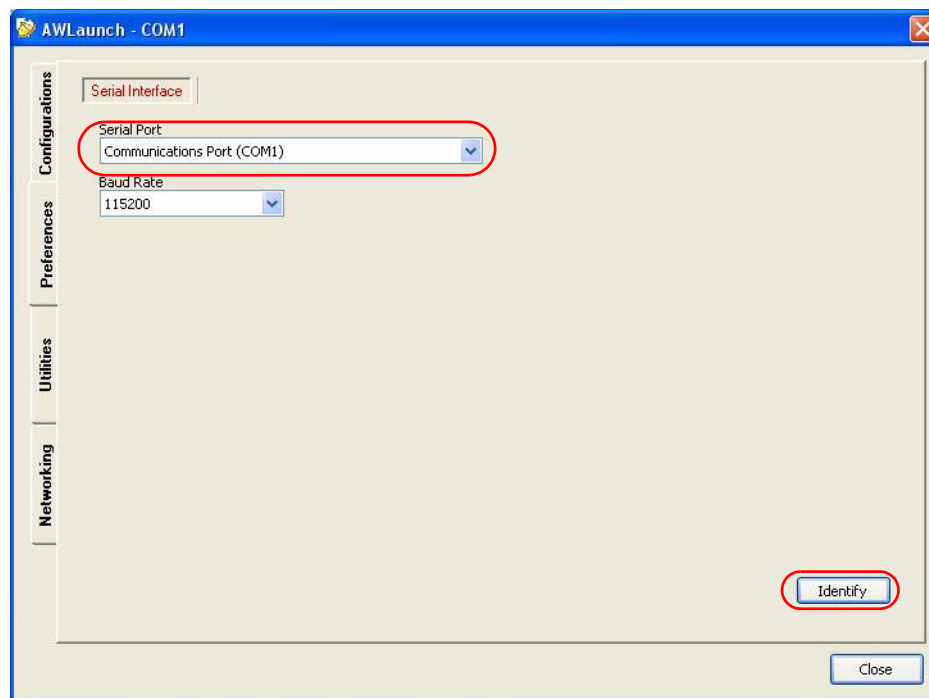
Use coaxial cable and connectors that are impedance-matched with the radio equipment, and make sure to use the shortest length of cable to move the signal between the radio and the antenna, e.g.

- p/n PT-10002 Accessory UHF Ant Cable TNC/Magn Mount, 12ft<sup>1</sup>
- p/n PT-10017 Accessory UHF Ant Cable BNC/Mini-Magn Mount, 12ft<sup>1</sup>
- p/n PT-10003 Accessory UHF Ant Cable TNC/Pole Mount, 12ft

1. For this type of antenna a metal surface, e.g. car roof, serves as ground plane.

## AW400 as Base Station Radio Configuration

1. Connect the serial port of the computer or USB-to-Serial adapter to the serial port of the modem at the switched off power supply by using of a cable.
2. Place the external UHF antenna of AW400 as high as possible<sup>1</sup>.
3. Turn on your computer.
4. Power AW400.
5. Start AWLaunch.
6. Open the *Preferences* tab and select the COM port the modem is connected to (Figure 1), and click *Identify*.



**Figure 1. Connect to AWLaunch**

7. Once the connection is established in the *Configurations* tab *Identification* subtab the unit's information will appear, i.e. unit serial number, firmware, hardware and boot loader versions.
8. In the *Configurations* tab, *Wireless* subtab, set the following parameters (Figure 2 on page 6):
  - Protocol: Base. Simplex Transmitter or Simplex Transmitter with Repeater
    - Simplex Transmitter - is used for modem on Base side when the transmission goes from Base direct to Rover without Repeater.
    - Simplex Transmitter with Repeater - is used for modem on Base side when the Repeater is used in transmission between Base and Rover. Enable the *Repeater* check box on the right.
  - Modulation Type: DQPSK
  - Frequency Channel (MHz): 406 to 470<sup>2</sup>

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1. Tune the antenna according manufacturers recommendations.  
2. For both Base and Remote modems the frequency must be the same.

# AW400 Configuration

## AW400 as Base Station Radio Configuration

- Scrambling: ON
- RF Power (dBm/W): 33/20.00

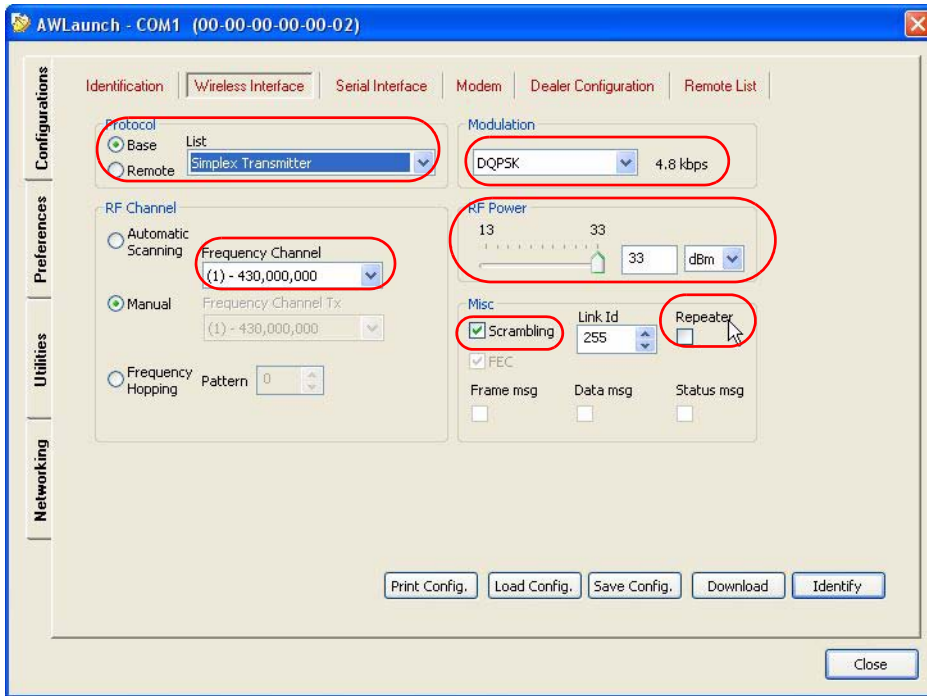
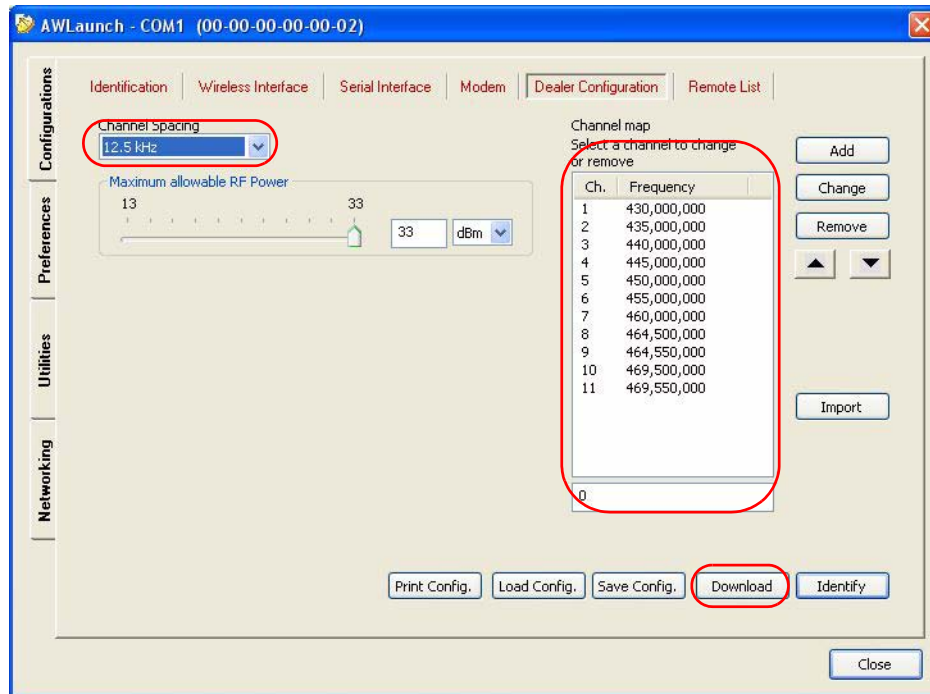


Figure 2. Preferences Tab. Wireless subtab settings

9. In the *Dealer Configuration* subtab set the frequency in band 406-470 MHz and channel spacing (Figure 3).



**Figure 3. Preferences Tab. Dealer Configuration subtab settings**

10. Click *Download* button to download the current configuration settings into the unit.
11. Press *Save Config.* button to save the current configuration parameters into PC.
12. When finished, click *Close*.

## AW400 Configuration

AW400 as Rover Radio Configuration

# AW400 as Rover Radio Configuration

Perform the steps 1-8 described in “AW400 as Base Station Radio Configuration” on page 5.

1. In the *Configurations* tab, *Wireless* subtab, set the following parameters (Figure 4):
  - Protocol: Remote. Simplex receiver
  - Modulation Type: DQPSK
  - Frequency Channel (MHz): 406 to 470<sup>1</sup>
  - Scrambling: ON

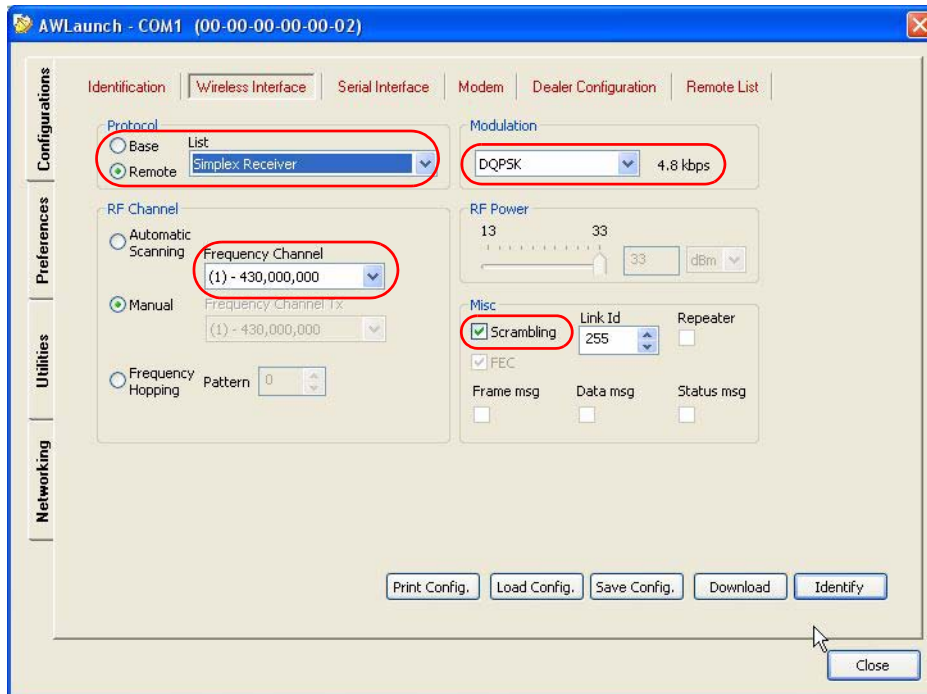
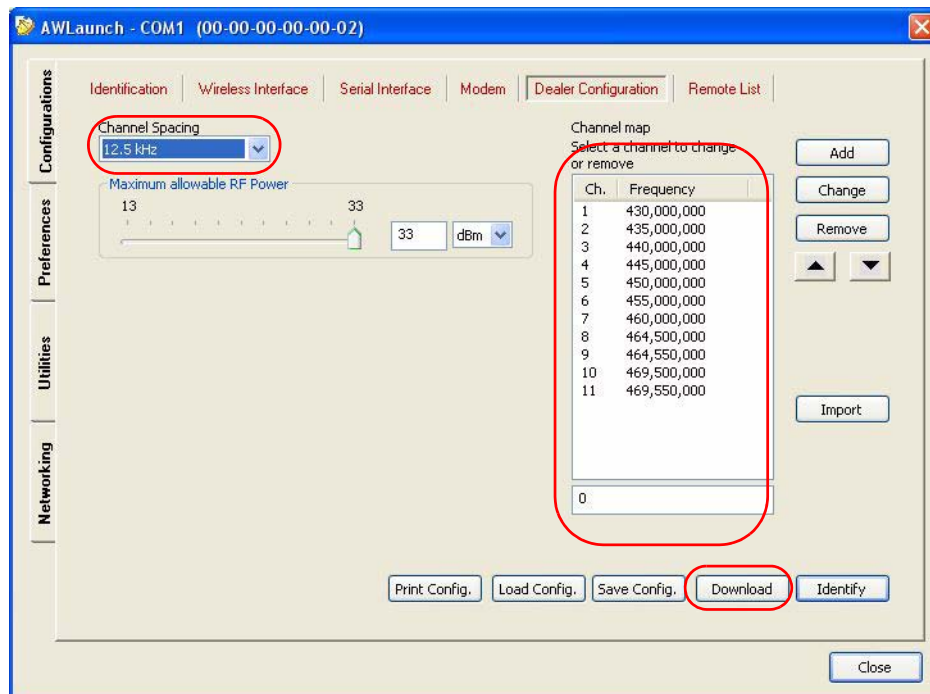


Figure 4. Preferences Tab. Wireless subtab settings

1. For both Base and Remote modems the frequency must be the same.

2. In the *Dealer Configuration* subtab set the frequency in band 406-470 MHz and channel spacing (Figure 5).



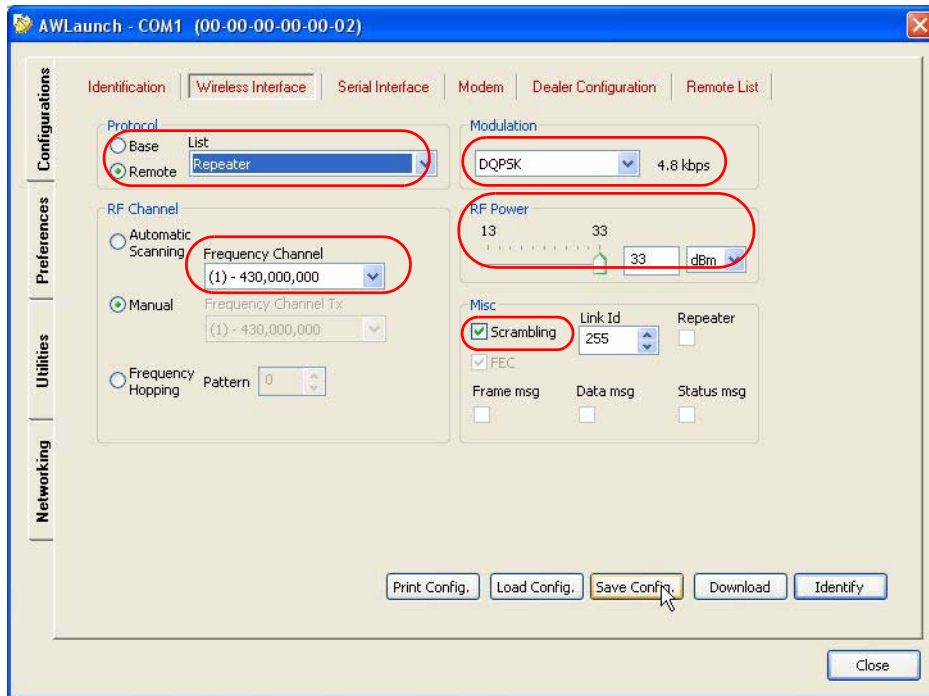
**Figure 5. Preferences Tab. Dealer Configuration subtab settings**

3. Click *Download* button to download the current configuration settings into the unit.
4. Press *Save Config.* button to save the current configuration parameters into PC.
5. When finished, click *Close*.

# AW400 as Repeater Configuration

Perform the steps 1-8 described in “AW400 as Base Station Radio Configuration” on page 5.

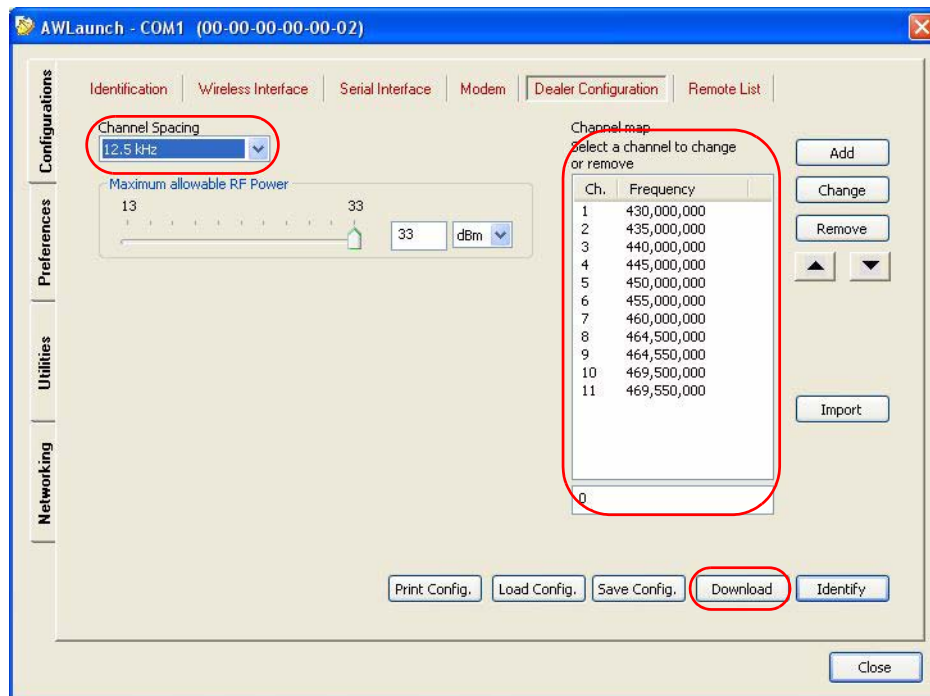
1. In the *Configurations* tab, *Wireless* subtab, set the following parameters (Figure 6):
  - Protocol: Remote. Repeater
  - Modulation Type: DQPSK
  - Frequency Channel (MHz): 406 to 470 <sup>1</sup>
  - Scrambling: ON
  - RF Power (dBm/W): 33/20.00



**Figure 6. Preferences Tab. Wireless subtab settings**

1. For both Base and Remote modems the frequency must be the same.

2. In the *Dealer Configuration* subtab set the frequency in band 406-470 MHz and channel spacing (Figure 7).



**Figure 7. Preferences Tab. Dealer Configuration subtab settings**

3. Click *Download* button to download the current configuration settings into the unit.
4. Press *Save Config.* button to save the current configuration parameters into PC.
5. When finished, click *Close*.



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