



Exhibit 10 – Parts List/Tune up Procedure

**SpectraPoint Wireless LLC
SP2000 Series Node Transmitter**

FCC ID: NNSTX2000-HG-99

Model Number: TX2000-28-HG-510

Information Provided in this Exhibit:

- a) High Gain Node Transmitter Assembly drawing and parts list – Page 2
- b) Product Information Primer – Pages 3-6. There are no tune up procedures for the hardware device itself. During installation, the hardware is positioned for best signal transmission and reception as well as proper polarization. The Product Information Primer supplies information for this installation and adjustment operation.

SpectraPoint 2000 Series Transmitters

Model No.

Product Information Primer

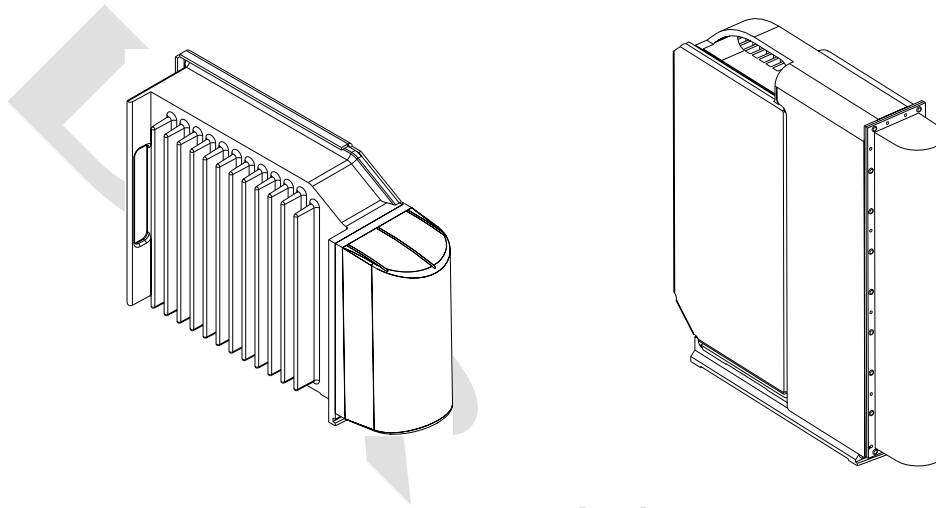


Figure 1. Basic Transmitter and High Gain Transmitter

Transmitters broadcast signals from the Base Channel Group in the 28 GHz band to multiple Customer Premise Equipment (CPE). There are two type of transmitters (Basic and High Gain) and two polarities (horizontal and vertical). The available Transmitter models are listed in [Table 1](#).

Table 1. Transmitter Models

Model Number	Product Name
TX2000-28-510-V	BasicTransmitter-Vertical
TX2000-28 510-H	Basic Transmitter-Horizontal
TX2000-28-HG-510-V	High Gain Transmitter-Vertical
TX2000-28-HG-510-H	High Gain Transmitter-Horizontal

Install Transmitters



Attention

All the TXs in a Sector must be of the same polarity (either vertical or horizontal) and of the opposite polarity from the RXs. TX housings appear identical and use the same types of mounts and connectors. Horizontally and vertically polarized units also appear identical.



Warning!

Installation may require equipment or personnel to be suspended over the edge of a structure. Installers will obey all safety instructions including wearing restraining equipment and securing equipment with safety leads during mounting.



Attention

The RS-485 cable carries –48 V DC power to the TX. Before replacing or servicing a TX, always disconnect power by removing the RS-485 cable.

1. Position the unit flat on the mounting platform.
2. Align the tab on the front edge of TX with the mounting plate on the front edge of the mounting platform (see [Figure 2](#)).
3. Slide the unit into the TX Mounting Plate. Ensure that the tab on the front of the TX slides under the mounting plate.
4. Secure the unit by capturing the retaining tab attached to the rear of the unit in the latch hook and securing the latch.

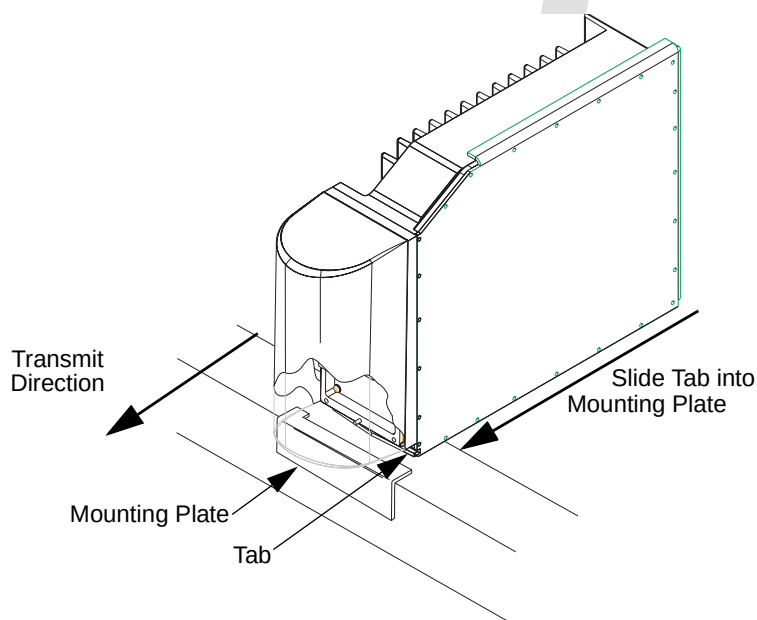


Figure 2. Sliding the Tab into the Mounting Plate

Transmitter Cabling

Three cables connect each transmitter (TX) to the Sector Radio Interface Unit (SRIU). Attach the cables from the SRIU to the transmitter as indicated in [Figure 3](#) and described in [Table 2](#).

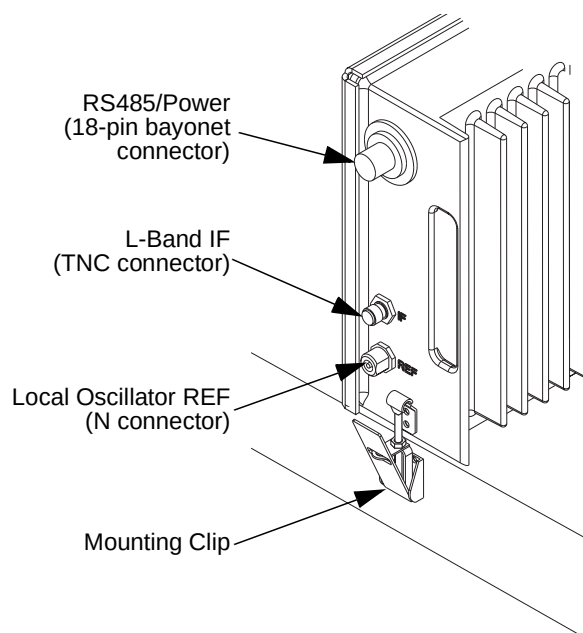


Figure 3. Transmitter Connectors

Table 2. Transmitter Cabling

Cable Name	SRIU Connector	TX Connector	Description
RS-485/Power	18-Pin Bayonet G&H BL06F-18PN	18-Pin Bayonet G&H BL06F15-18SN	Provides RS-485 communication and reset. Supplies –48 V DC. Built on-site.
L-Band IF	TNC	TNC	Payload Coaxial Cable Built on-site.
Local Oscillator	N	N	960 MHz Local Oscillator Reference. Coaxial Cable Built on-site.

Connector Pinout

The IF and REF cables are coaxial. The RS-485 pinout is described in [Table 3](#).

Table 3. RS-485 Cable Pinout, SRIU to TX

Description	SRIU Pin	TX/RX Pin	Color	AWG
Data Out Positive	1	A	Black	22
Data Out Negative	2	B	Red	22
Data In Positive	3	C	Black	22
Data In Negative	4	D	Red	22
Data Enable Positive	5	E	Black	22
Data Enable Negative	6	F	Red	22
Master Reset Positive	7	G	Black	22
Master Reset Negative	8	H	Red	22
Device ID Bit 0	9	J	Black	22

Table 3. RS-485 Cable Pinout, SRIU to TX (Continued)

Description	SRIU Pin	TX/RX Pin	Color	AWG
Device ID Bit 1	10	K	Red	22
Device ID Bit 2	11	L	Orange	22
Device ID Bit 3	12	M	Yellow	22
Device ID Bit 4	13	N	Blue	22
Signal Ground	14	P	Black	22
–48 V DC Power	15	R	Red	20
–48 V DC Power Return	16	S	Black	20
–48 V DC Heater Supply	17	T	Red	20
–48 V DC Header Return	18	U	Black	20
SRIU Shield Ground and jumper wire	24	n/c	Shield	(20)

Transmitter Specifications

Table 4 describes the specifications for Transmitters.

Table 4. Transmitter Specifications

Parameter		Description
Frequency Range		27.35 to 28.5 GHz
Transmit Power		+13 to +30 dbm
Operating Temperature		–40 to 46° C
Effective Transmission Area		–45 to +45° Azimuth +6 to –13° Elevation
Operating Voltage		–38.5 to –56.7 V DC
Power Required	Electronics	–48 V DC, 1.5 A
	Radome Heater	–48 V DC, 1.0 A
	Total	120 W at –48 V DC
Size	Basic Model	11/12/4 in (28/30/10 cm)
	High Gain Model	18/14/5 in (46/36/13 cm)

