VS2.5

nautel

Quick Start Guide

For Commissioning of Nautel VS2.5 Transmitter

Refer to the VS2.5 Installation Manual on the provided USB if you require further details on any installation task. Please ensure you have read the pre-installation manual and have prepared your transmitter site accordingly. Failure to do so may void your transmitter's warranty. All interfacing connections for the VS2.5 are located on the rear of the transmitter. See the safety notice before attempting to install your transmitter.

What's in the box:

VS2.5 transmitter	Installation kit	Proof of performance
Quick Start Guide	Ancillary kit	Safety notice
Technical manual set (USB)	Transmitter mounting brackets and rails	Deviation sheet (if applicable)

**VS2.5 Issue 1.2, April, 2016**

1

What You Need for Installation

You will need the following parts (included with your VS2.5) for installation. Parts are separately bagged and identified by their Nautel Part # (e.g., HB14). Locate and set aside all parts before you begin. Additional parts included with your transmitter are not utilized in the scope of this Quick Start Guide.

Installation Kit

A HB14 12 x 10-32 ¾ screw, flat

B HU36 4 x #10 panel washer, black

C HMSP21 8 x M4 12 mm screw

D HMSP19 6 x M4 8 mm screw

E HMW03 8 x M4 flat washer

F HMW33 8 x M4 split washer

G HMN03 8 x M4 nut

H HAL20 4 x 10-32 nut retainer

I HMW05 16 x M6 flat washer

J HMW35 16 x M6 split washer

K HMN05 16 x M6 nut

L HY121 4 x 0.05" spacer

M HM05 8 x #10 flat washer

N HM15 8 x #10 split washer

O HL06 8 x 10-32 nut

LP23 4 x 85.7 mm ferrite

211-5060 1 x interlock jumper

LXP38 4 x 38 mm ferrite

In the box — Transmitter mount (10 pcs)
MOUNTING DEPTH: 26 inch min. 42 inch max.

2 x rack slider assembly (4 pcs.)

2 x rack mount assembly (6 pcs.)
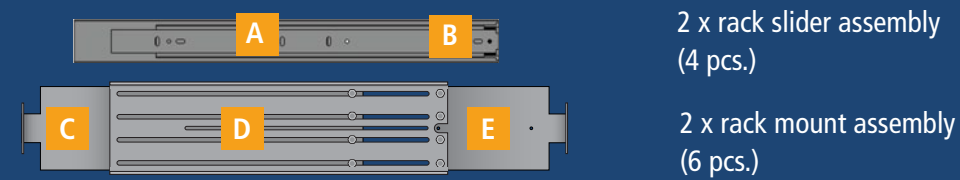
Tools Needed for Installation of VS2.5 (user supplied)

✓ #1 and #2 Phillips head screwdrivers   ✓ 7 mm nut driver (suitable for M4 hardware)

2

Rack Slider Assembly

1 Separate slider assembly parts A and B by pressing the quick release button and pulling apart.

2 Assemble parts C, D and E of the rack mount assembly. Tighten hardware connecting parts D and E. Leave the hardware connecting parts C and D finger tight to allow for rack depth adjustment. When exact rack depth is known, tighten the hardware. Repeat for opposite side.

x8 (I J K)

3 Attach part A of the rack slider assembly to rack mount assembly parts C, D and E. Repeat for opposite side. Tighten all hardware.

Note: Use spacer L between slider and rack mount assembly as necessary to secure hardware passing through part D only.

x4 (E F G)

x4 (C)

4

FRONT OF NAUTEL RACK

Install nut retainers in these locations

x4 (H)

Note: For Nautel racks, install four nut retainers H on the rack rails to align with four holes in the front of the VS2.5. Non-Nautel (threaded) racks do not require the nut retainers.

3

Mounting the Transmitter

Install the slide brackets between the front and rear rack rails using A screws and M, N, O securing hardware. Use the appropriate rack rail holes to center the slide bracket between the nut retainers installed previously. Tighten all hardware.

x8 (A)

x8 (M N O)

Note: Front screws may have been installed in previous step.

Attach part B of the rack slider assembly to the transmitter ensuring correct orientation. See ⚠ Once mounted in the rack, secure the transmitter using A screws and B washers.

(D)

(B A)

Note: Rack not included with VS2.5 transmitter. User supplied component.

4

Connecting RF Output and Ground

User Supplied Components

- Adequately rated RF feed line with appropriate termination connector
- Low impedance copper conductor (4" copper strap recommended)
- Hardware for ⅞" EIA connector to RF OUT (if applicable)

1. Install 85.7mm ferrite (part# LP23) x2 around RF feed line near transmitter end.
2. Connect RF feed line to RF OUT connector.

1

2 Your transmitter will be equipped with one of the following RF output connectors.

7/16 DIN   **7/8" EIA**
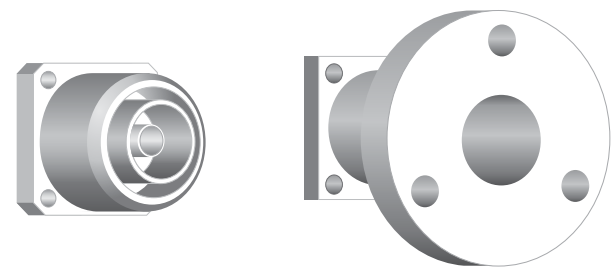
3. Connect a continuous, low impedance copper conductor to ¼" threaded stud (E1) located under AC INPUT receptacle. Secure copper conductor to E1 using pre-existing hardware on stud.
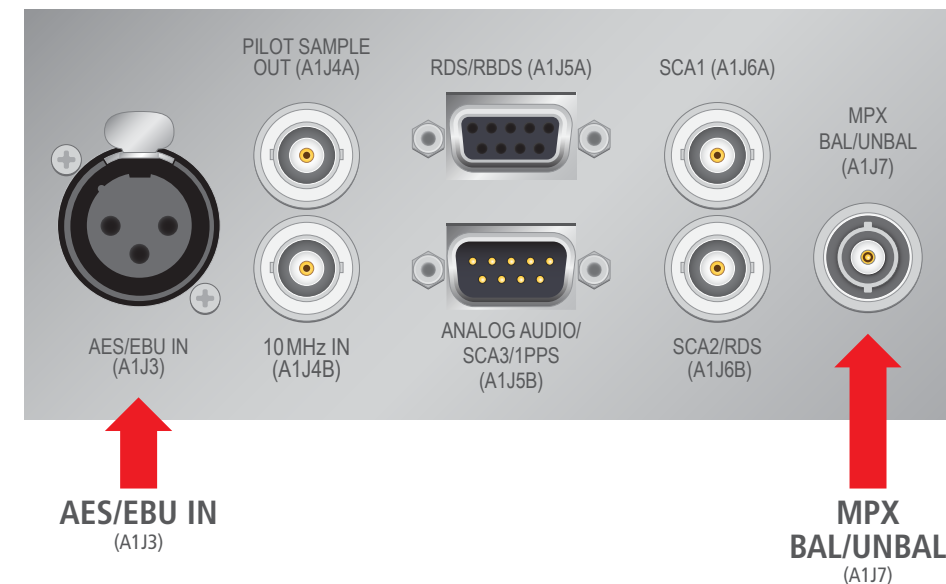4. Ensure opposite end of low impedance copper conductor is securely connected to station reference ground.

⚠ **CAUTION:** Do not allow conductor to contact the transmitter or host cabinet chassis at any point other than ¼" threaded stud (E1).

5

# Connecting Program Input

User Supplied Components

- XLR cable and connector

OR

- MPX cable and BNC connector

Connection

PILOT SAMPLE OUT (A1J4A)   RDS/RBDS (A1J5A)   SCA1 (A1J6A)

MPX BAL/UNBAL (A1J7)

AES/EBU IN (A1J3)   10 MHz IN (A1J4B)   ANALOG AUDIO/ SCA3/1PPS (A1J5B)   SCA2/RDS (A1J6B)

AES/EBU IN (A1J3)

MPX BAL/UNBAL (A1J7)

Default MPX input configuration is balanced (BAL). Refer to pre-installation manual to configure for unbalanced (UNBAL).

For alternate audio input sources, please refer to the Installation Manual on the USB provided with your transmitter.

For instructions on setting up IP audio, refer to the back side of this guide.

Feed audio input cable through 38 mm ferrite (Part # LXP38) x2. If possible, make multiple turns of cable through ferrite.

6

Installing Interlock

Your VS transmitter contains an electrical interlock which can be used to externally disable RF. You may defeat the interlock by installing the optional interlock jumper.

Upper Remote I/O Conector A1J2A
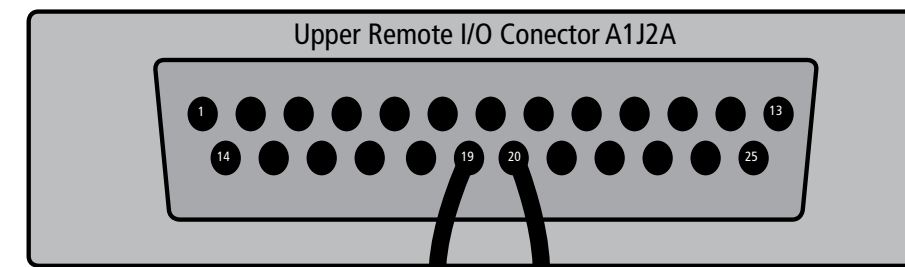
Install the interlock jumper (Part # 211-5060) between pins 19 and 20 of the REMOTE I/O–A (A1J2A) connector.

Note: If your system is using this connection for remote control, pins 19 and 20 of your D-sub connector need to be connected via a suitable interlock circuit or jumper. Also ensure 38mm ferrite (part# LXP38) x2 are installed around the remote cable near the transmitter end. If possible, make multiple turns of cable through ferrite.

⚠ **WARNING:** If a jumper is placed between external interlock pins 19 and 20 of the Remote I/O-A (A1J2A) connector on the rear of the VS transmitter, safety features controlled by the external interlocks will be disabled. A fail safe method of alerting personnel to this fact should be implemented. Voltages which are dangerous to life will be present on the RF output stages and the antenna system if the transmitter is turned on.

7

Applying AC to transmitter

Turn off ac power at the service entrance before connecting wires to the AC INPUT terminal block. Feed AC wires (user supplied) through 85.7 mm ferrite (Part # LP23) x2. If possible make multiple turns of wires through ferrite.

1 Strip insulation (⁷/₁₆") and insert Line 1, Line 2/Neutral and AC Ground wires into AC INPUT terminal block (see silkscreen on rear panel).

2 Use slotted torque screwdriver to tighten terminal block connections to 11 in-lbs.

7/16"

3 Toggle POWER circuit breaker switch up to apply power.

Note: Wire should be secured such that pulling on the wire will not release it from terminal block.

Ensure proper strain relief is applied when routing AC wires to rear of Tx to avoid tripping hazards or accidental disconnection of AC power.
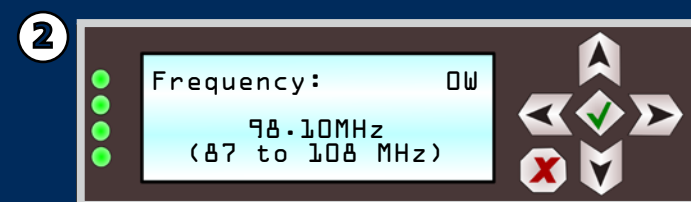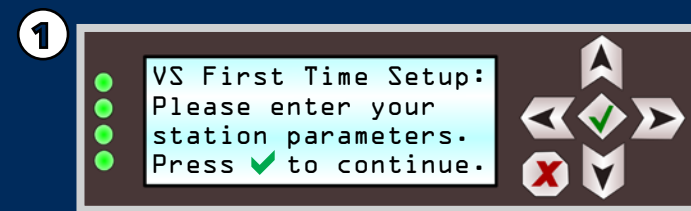
Setup and Going On-Air

Note: If your VS transmitter is part of an HD Radio installation please refer to your VSHD manual to complete the set-up of your transmitter.

When setting frequency, power and audio source:

- Press the ▲ or ▼ button to edit values or view alternate selection options.
- Press the ✔ or ▶ to save the displayed value or option and continue to the next screen.
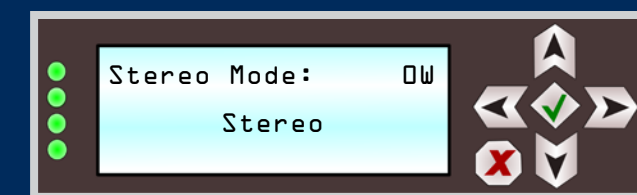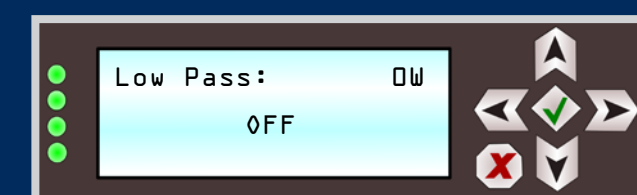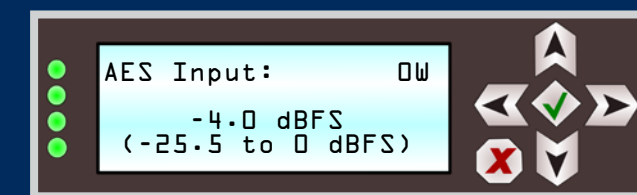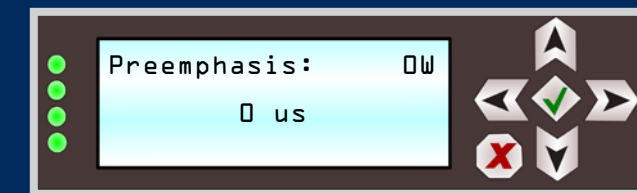
Start Up, Setting Frequency and Power

①
```
VS First Time Setup:
Please enter your
station parameters.
Press ✔ to continue.
```

②
```
Frequency:      0W
   98.10MHz
  (87 to 108 MHz)
```

③
```
Output Power:    0W
       0W
    (0 to 2800 W)
```

See panel 2 and 3 for step **④** Choose Audio Input

(Setup and Going On-Air continued)

④ Choose Audio Input

Setting up AES

```
Audio Source:    0W
      AES
```

```
Preemphasis:     0W
      0 us
```

```
AES Input:       0W
    -4.0 dBFS
  (-25.5 to 0 dBFS)
```

```
Low Pass:        0W
      OFF
```
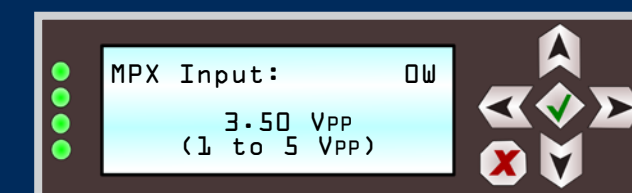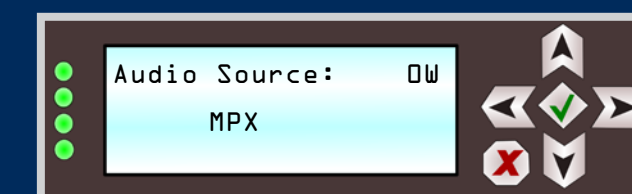
```
Stereo Mode:     0W
     Stereo
```
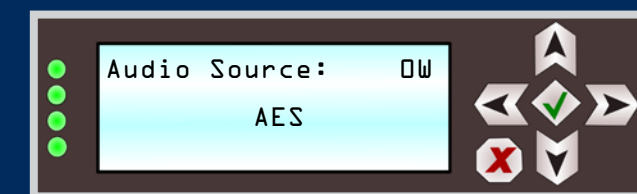
Choose Audio Input continued on panel 3.

(Setup and Going On-Air continued)
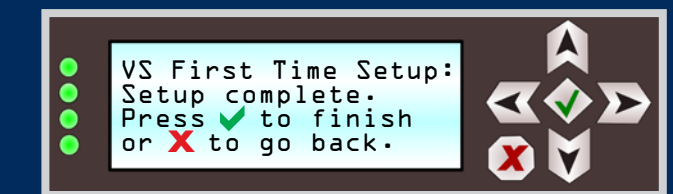
④ Choose Audio Input (continued)

Setting up MPX

```
Audio Source:    0W
      MPX
```

```
MPX Input:       0W
    3.50 Vpp
   (1 to 5 Vpp)
```

See panel 4 for step **⑤** Finishing Setup and step
⑥ Place Transmitter On Air

(Setup and Going On-Air continued)

⑤ Finishing Setup

```
VS First Time Setup:
Setup complete.
Press ✔ to finish
or ✘ to go back.
```

⑥ Place Transmitter On Air

```
15:50  P1 Fwd:  0W
RF OFF LCL Rf1:  0W
98.10MHz  Set:   50W
X+↑ for RF On/Off
```
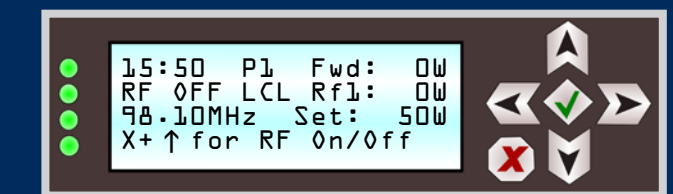
Press ✔ to finish transmitter setup or ✘ to go back. Press and hold ✘ and ▲ to enable RF.

If you have any questions concerning the installation of your VS Series transmitter please refer to the Installation Manual on the CD included with your transmitter.

If your transmitter is configured with the Orban Inside audio processor card, please refer to the "Operating the Transmitter" section of the VS Operations and Maintenance Manual for information on selecting and configuring your Orban Inside card.

Note: Actual user interface screen images may not appear exactly as shown in the Quick Start Guide.

VS Series
Network Setup

Before proceeding with any network setup we recommend you consult with your network administrator to determine whether your network has an active DHCP server.

Configuring your network settings will allow you to log into your VS transmitter remotely through the AUI and utilize the transmitter's advanced IP features.

Note: If no network is being used, set DHCP to OFF (see step B) and assign a static IP address of 0.0.0.0 to disable network-related alarms.

Accessing Network Settings:

From the front panel display select:
User Settings ➪ Network Settings

```
MAC Address:     0W
00:50:C2:59:44:1B
```
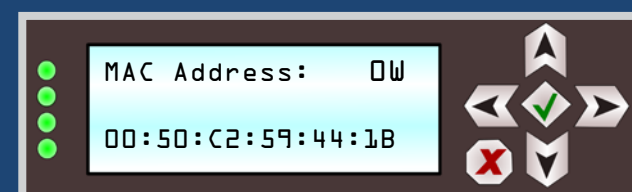
Your transmitter's MAC address is set at the factory and cannot be modified.

Using the Front Panel:

Use the up and down buttons to move the cursor to the desired parameter and then press the right arrow button to enable editing of the setting. Within any of the editing screens, use the left and right buttons to select a character for editing and then use the up and down buttons to edit a setting. Press the accept (✔) button to save the change. Press the cancel (✘) button to return to the previous menu.

If your network has a visible DHCP server proceed to (A) on panel 2.

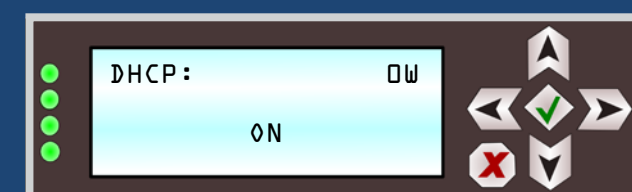**If your network does not have a DHCP server or you wish to set a static IP address proceed to (B) on panel 3.**

(VS Series Network Setup Continued)

(A)

DHCP ON:

If your network has a DHCP server, set DHCP to ON and an IP address will automatically be assigned to your transmitter. Verify this has occurred by viewing the IP address sub menu.

```
DHCP:            0W
       ON
```

No additional network setup is required, you may now log into your VS transmitter remotely.

To determine the IP address assigned to your transmitter navigate to the following screen from the front panel display:

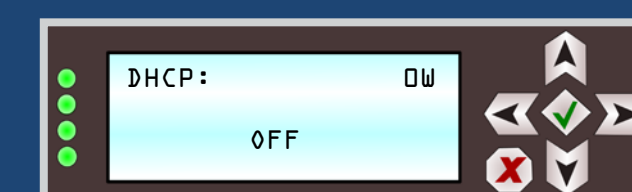**User Settings ➪ Network Settings ➪ IP Address**

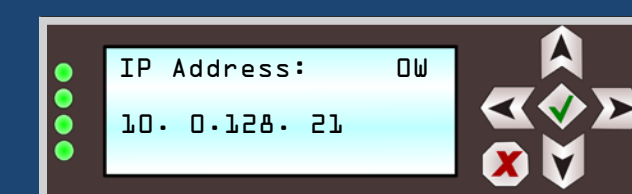**(VS Series Network Setup Continued)**

(B)

DHCP OFF:

If your network does not have a DHCP server, or you wish to assign a static IP address for your transmitter, turn DHCP to OFF and proceed to the steps below.
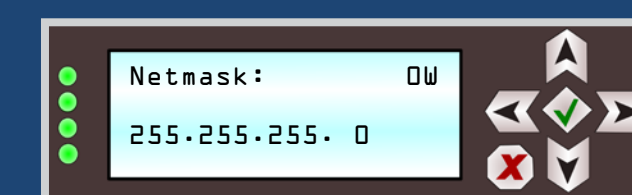
```
DHCP:            0W
      OFF
```

IP Address:

Set your transmitter's static IP address as provided by your network administrator.

```
IP Address:      0W
10. 0.128. 21
```

Netmask:

Once an IP address has been assigned, set the netmask for your transmitter.

```
Netmask:         0W
255.255.255. 0
```
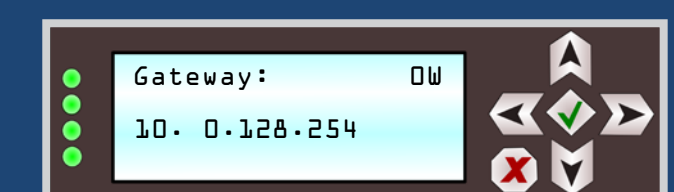
DHCP OFF continued on panel 4

**(VS Series Network Setup Continued)**

(B) (continued)

Gateway:

Setting gateway may not be necessary depending on your network configuration. Consult with your network administrator to determine if a gateway is required and set if applicable.

```
Gateway:         0W
10. 0.128.254
```

Nameserver:

A nameserver translates a host name to an IP address. Specify a nameserver (or DNS) IP address to enable the use of host names (e.g., mail.nautel.com). If no nameserver is entered, only direct IP addresses can be used to configure the email server or Shoutcast streams.
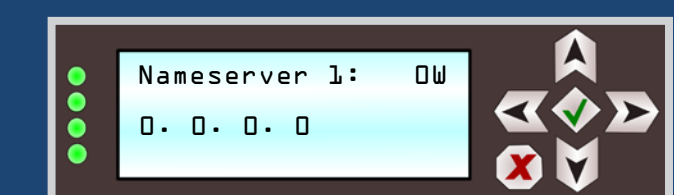
```
Nameserver 1:    0W
0. 0. 0. 0
```

No additional network setup is required, you may now log into your VS transmitter remotely.

To access the AUI simply enter your transmitter's IP address (established in steps A or B) into your web browser and you will be prompted to enter a username and password. The default username is Nautel (note: capital 'N') and the password field is left blank.