SightLine APPLICATIONS

EAN-Setup-1500-RAB

PN: EAN-Setup-1500-RAB

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Alerts

The following notifications are used throughout the document to help identify important safety and setup information to the user:

△ **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

ⓘ **IMPORTANT:** Identifies specific information that will assist with setup and configuration procedures and/or prevents damage to the hardware components.

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1 Overview

This engineering application note describes a basic setup of the 1500-OEM for use with the 1500-RAB radio adapter board and the Microhard Nano DDL radio.

1.1 Associated Documents

EAN-Panel Plus User Guide: Provides descriptions of all the settings in the Panel Plus application. (Located in the Panel Plus application in the *Help* menu.)

EAN-Startup Guide 1500-OEM: Describes steps for connecting, configuring, and testing the 1500-OEM video processing board on the 1500-AB accessory board.

1.2 Software Compatibility

Windows 7, 8, or 10 required for use with the Panel Plus software.

1.3 Hardware Compatibility

Standard Ethernet network connection to the SightLine hardware.

1.4 Sightline Software Requirements

Panel Plus software and firmware versions:

1500-OEM board - Panel Plus and Firmware 2.22.27 or higher

> ⓘ **IMPORTANT:** The Panel Plus software version should match the firmware version running on the board.

1.5 Microhard Radio Features

The Microhard Nano DDL provide Ethernet and Serial over a radio connection over long distances. This can be used for:

- Command and control
- Video streaming
- Connect 3rd party devices serial ports
- Ethernet to serial passthrough to camera

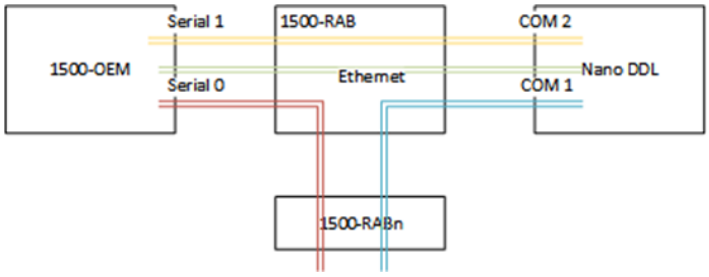


Figure 1: Microhard Nano DDL Connection Diagram

Serial 0:	Command and control to 1500-OEM
COM 1:	Data port input and output to the modem
Serial 1:	Passthrough to the Modem COM 2
Ethernet:	The 1500-OEM connects to the Ethernet lines of the modem

Note: *For questions about Microhard radio and antenna operations, contact Microhard.*

1.6 Items Needed

SightLine:

- 1500-OEM
- SLA-CAB-1515
- 1500-RAB
- SLA-CAB-MMSS
- 1500-RABn
- SLA-CAB-SMA2BNC
- SLA-PWR-B05V
- Screws and standoffs (optional)
- 1500-nAB (optional)

Microhard Radio:

- NANO DDL IPnDDL2450
- MHS031111 DA-2458-02 antenna:
  - 2.5-2.5GHz 2dBi
  - 5.1-5.8GHz 3dBi
  - SMA PLUG RP

Microhard for Ground Station:

- NANO DDL IPnDDL-ENC
- Power supply
- Ethernet cable

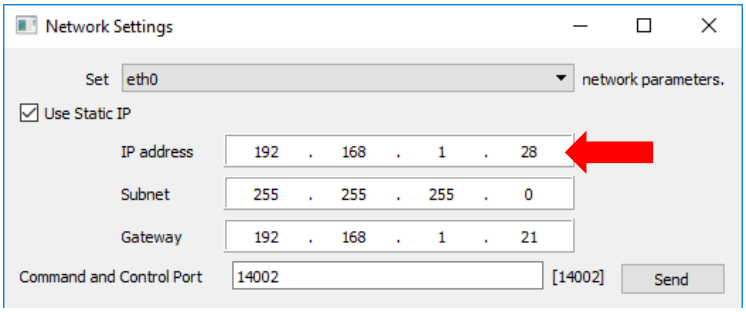
2 Procedure Overview

1. Configure 1500-OEM for a static IP address (192.168.1.28)
2. Configure Microhard ground station as master (192.168.1.21)
3. Configure Nano DDL as slave (192.168.1.22 and use 192.168.1.21 as gateway)
4. Configure PC for static IP address (192.168.1.42)
5. Setup hardware for final test and integration

2.1 Configure 1500-OEM

Configure the 1500-OEM for a static IP address (192.168.1.28):

1. Connect the host PC and 1500-OEM + 1500-AB to a common network.
2. Open Panel Plus and connect to the 1500-OEM board.
3. Main menu » *Configure* » *Network Settings*.
4. Configure Static IP Address and click *Send*. Close the dialog window when complete.



5. Main menu *Parameters* » *Save to board*.
6. Power down the 1500-OEM board.

2.2 Configure Microhard Ground Station

Configure Microhard ground station as master (192.168.1.21). Follow the instructions in Chapter 2.0 of the Quick Start section in the Nano DDL Operating Manual v1.2 from Microhard.

Note: *Update the IP addresses to the current network.*

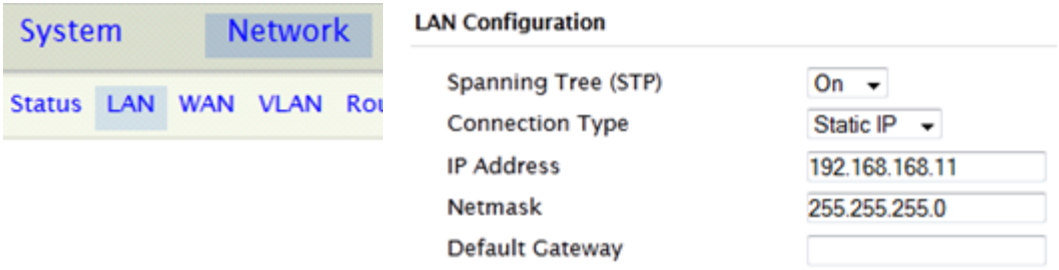
2.3 Configure Nano DDL

Configure Nano DDL as slave (192.168.1.22 and use 192.168.1.21 as gateway). Follow the instructions in Chapter 2.0 Quick Start of Nano DDL Operating Manual v1.2.

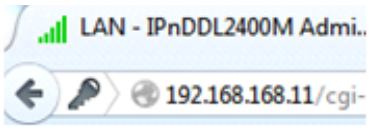
Note: *Update the IP addresses to the current network.*

Example: Configure PC to 192.168.168.10.

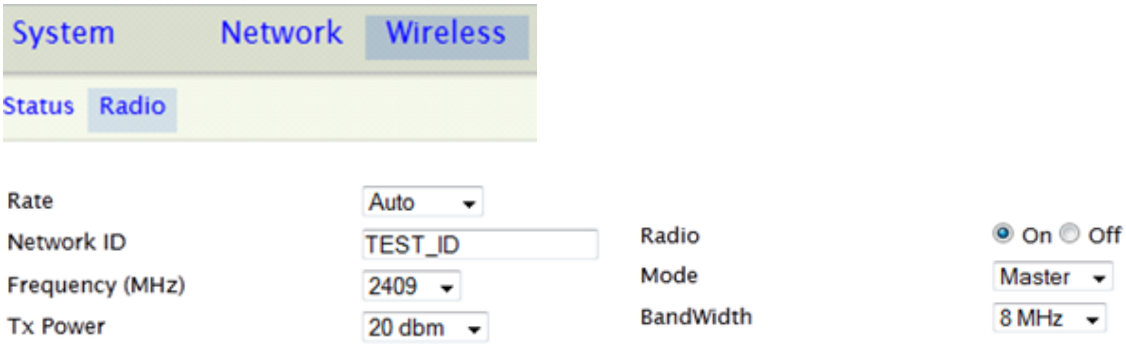
1. Use the Google Chrome browser to connect the Microhard Ground Station IP address.
2. Go to *Network* » *LAN*.



3. Click *Submit*. Re-enter new master IP address in the browser.



4. Configure the Wireless Radio network.

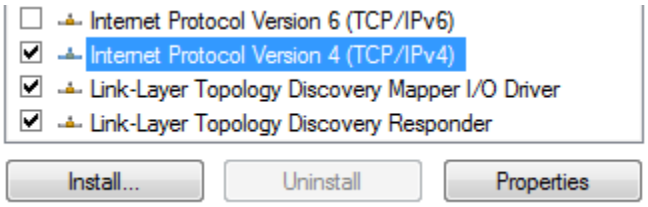


5. Click *Submit*.
6. Configure the slave unit that will be connected to the 1500-RAB board.

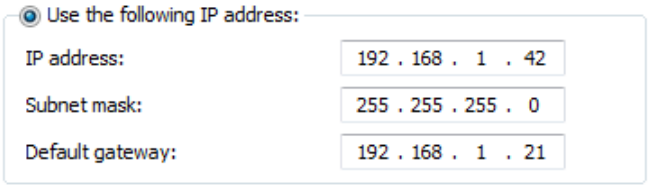
2.4 Configure PC

Configure PC for static IP address (192.168.1.42).

1. Windows *Start* » *Control Panel* » *Network and Sharing Center*.
2. In the left-hand panel go to *Change adapter settings*.
3. Right-click on *Local Area Connection*.
4. Click *Properties*.



5. Click *OK* and then click *Close*.



6. Unplug network cable from network and plug into the NANO DDL IpnDDL-ENC.

2.5 Setup Hardware

Setup hardware for final test and integration.

Note: *Insert the MicroSD card prior to attaching the 1500-OEM board to the 1500-RAB with screws. Once the OEM board has been mounted, the MicroSD card cannot be access without removing the OEM board.*

1. Attach 1500-OEM J4 to 1500-RAB J40. Insert three (3) standoffs and three (3) M1.6 screws to lock the 1500-OEM in place (Figure 2).

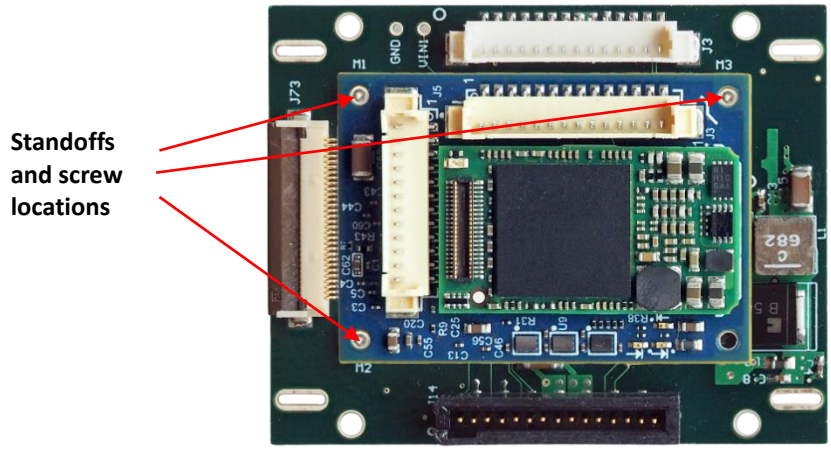


Figure 2: 1500-OEM + 1500-RAB

2. Turn the 1500-RAB board assembly over. Line up the connector with the antenna symbol on the 1500-RAB board with antenna connector on the Nano DDL board as shown in Figure 3.
3. Connect the 1500-RAB board to the Microhard Nano DDL radio board.

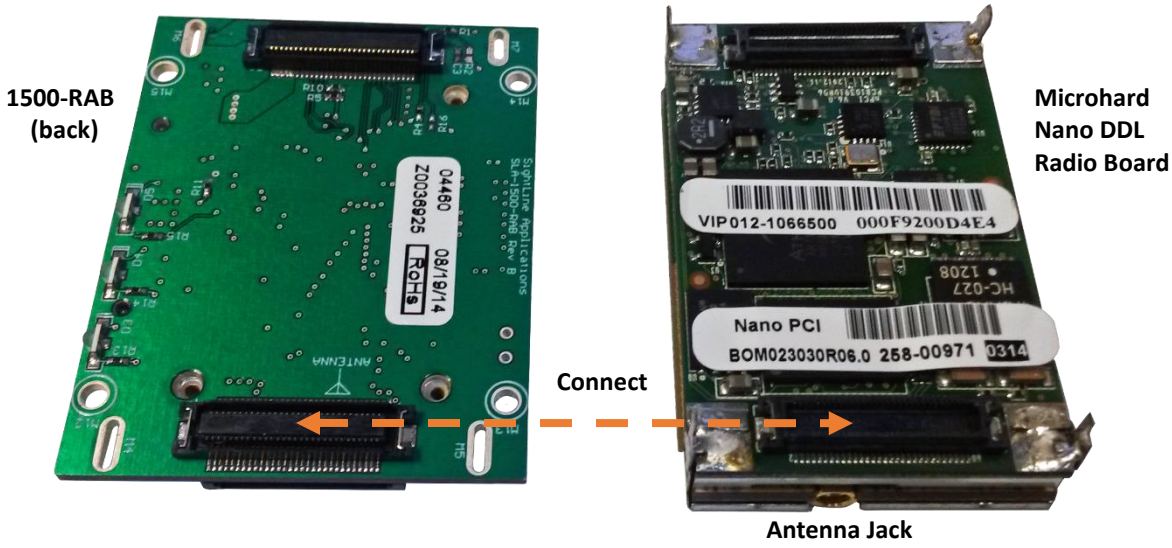


Figure 3: 1500-RAB and Microhard Nano DLL Radio Board Connection

4. Insert SLA-CAB-1515 into 1500-OEM J3. Insert SLA-CAB-1515 into 1500-RAB J3.
5. Attach Microhard antenna (MMCX connector) to the Nano DLL at the antenna jack.
6. Attach 1500-RAB (J14) to 1500-RABn (J14) with Samtec cable (SLA-CAB-MMSS).
7. Attach video cable (SLA-CAB-SMA2BNC) to 1500-RABn VIN0 (J1).
8. Attach SLA-CAB-SMA2BNC to camera. Apply power to the camera.
9. Attach SLA-PWR-B05V power supply 1500-RABn board. Connect to power.
10. Verify lights:
    - ✓ 1 blue light on the NANO DLL radio board will indicate power up.
    - ✓ 3 lights on the 1500-RAB will illuminate when it has full network connection (1 or 2 lights indicate lower signal strength).
11. The-1500-OEM should now be accessible from the host PC. Stabilization, Tracking, H.264 video, and other features can now be configured through Panel Plus.

Note: *A sufficient boot-delay on the 1500-OEM is necessary or it will not find the DHCP. To allow for this, the application can be restarted from the serial port (if not in silent mode) or a static IP address can be set on the 1500-OEM (preferred).*

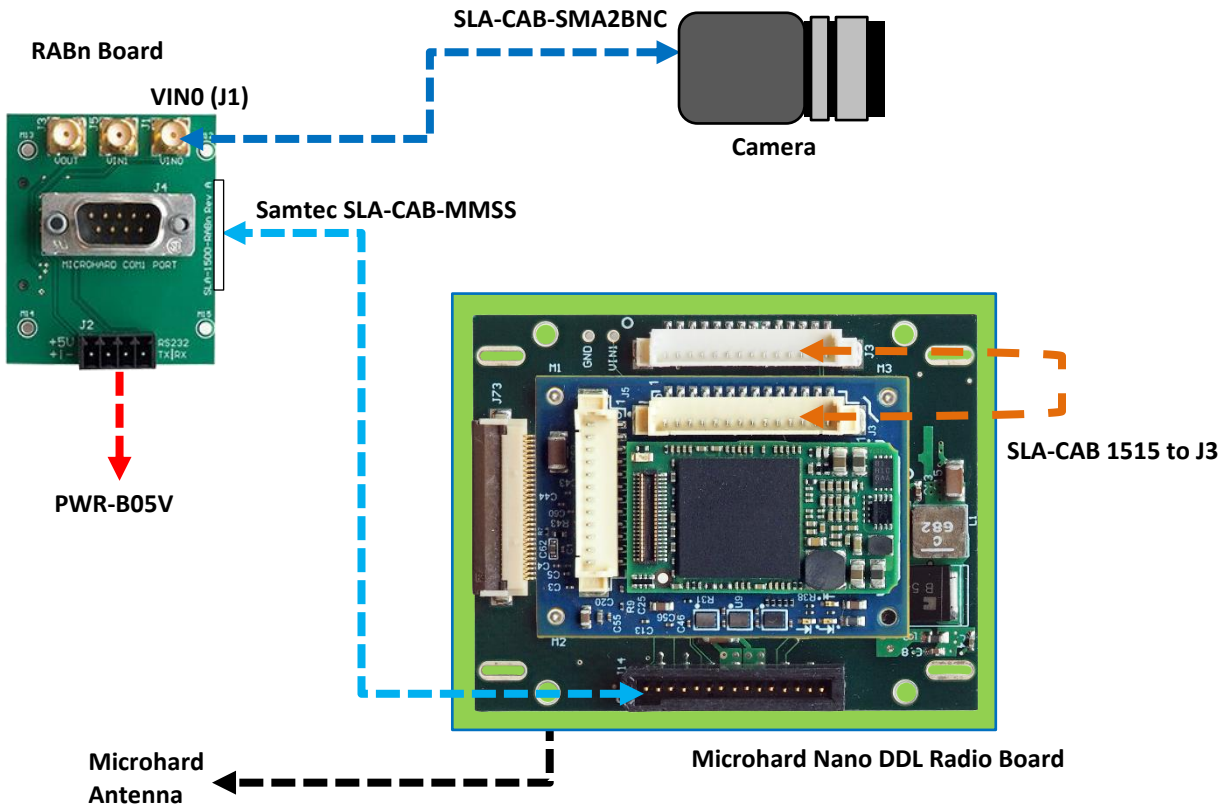


Figure 4: Hardware Connection Diagram

3 Microhard Radio Factory Reset

A factory reset erases the information and settings in the Microhard radio and restores it to its original factory configuration when it was purchased.

The CONFIG pin of the radio is active low. In normal mode, pulling the pin low and holding for more than eight seconds upon power up will put the module into recovery mode and reset the radio to the factory default settings.

This can be done by using a pair of precision anti-static ESD stainless steel tweezers to short the R1 resistor to ground during power up as shown in Figure 5.

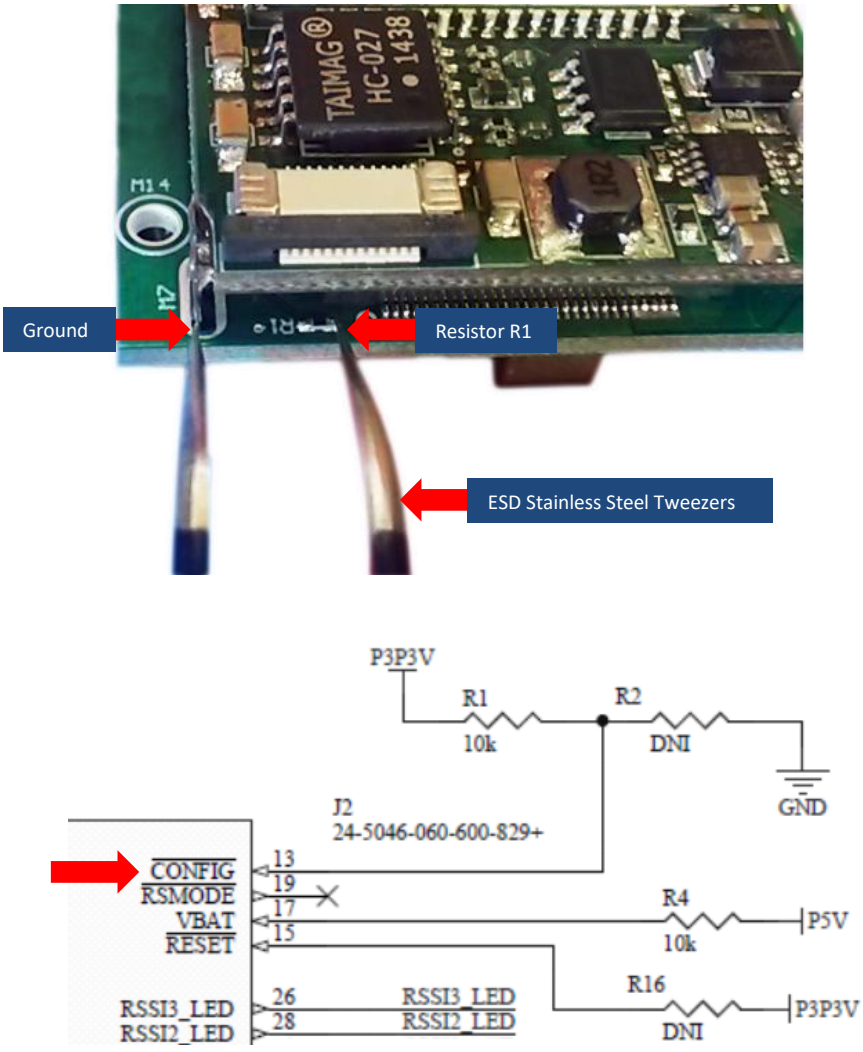


Figure 5: Factory Reset

4 Questions and Additional Support

If you are still having issues and require additional support, please contact Technical Support. Additional support, documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications website.