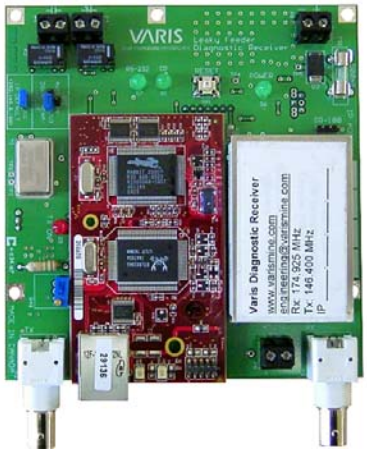
150 DIAGNOSTIC RECEIVER
RNG-DRX

Varis' Remote Diagnostics (RD) allows you to remotely troubleshoot your Smart Com 150/150IS and Smart Com Ethernet systems via the mine's own local area network (LAN). Regardless of the size of the system, Remote Diagnostics can improve uptime and provide confidence in the system.

All Varis amplifiers periodically send RD data back to the DRX located in the Base Station. The DRX then sends this data to the PC or Server on the mine's LAN that runs the Varis RD web server software. Mine personnel can then simply point their web browser to the RD web server in order to view the status of the system. The DRX also provides immediate notification of system faults (emailed alarms, alarm/no alarm relays), an on-board downstream pilot and MultiCOM compatibility. Please see Remote Diagnostics Manual for more information.



RNG-DRX

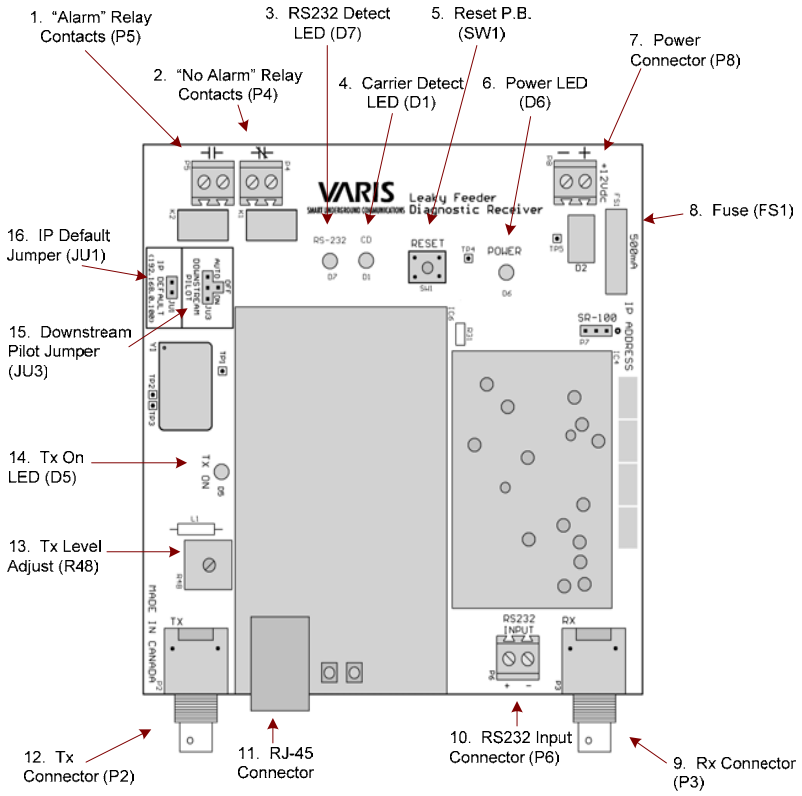
Product Specifications

Part Number	RNG-DRX
Physical	
Construction	Single Printed Circuit Board
Board Dimensions (L x H x W)	120 x 38 x 148 mm (4.7 x 1.5 x 5.8 in)
Board Weight	0.18 kg (0.40 lbs)
Conformal Coating	No
Environmental	
Temperature Range	-20 to +60º C (-4 to +140 ºF)
Electrical	
Input Voltage	12 VDC
Current Consumption	330 mA
Fuse	500 mA/250V, 2AG, Fast Acting, Sub-Mini (Replacement P/N 0225.500HXP)
Interfaces	
Alarm Relay	
Rated Load	0.50 A at 125 VAC, 1A 24 VDC
Type	NO (No Alarm present)
Connector	Two position terminal block
No Alarm Relay	
Rated Load	0.50 A at 125 VAC, 1A 24 VDC
Type	NC (No Alarm present)
Connector	Two position terminal block
RS232 Input	
Signals	Rx, GND (Custom cable provided)
Indicator	"RS232 Detect" LED
Connector	Two position terminal block

RF Transmit Port	
Impedance	50 Ohm
Connector	BNC jack
Indicator	“Tx On” LED
Center Frequency	Channel Plan 2.0: 154.500 MHz Channel Plan 3.0: 148.275 MHz Channel Plan 3.1: 146.400 MHz
Output Range	+14 dBm (max) to +3 dBm
Second Harmonic	< -50 dBm
Third Harmonic	< -50 dBm
RF Receive Port	
Impedance	50 Ohm
Connector	BNC jack
Indicator	“Carrier Detect” (CD) LED
Center Frequency	174.925 MHz
Sensitivity	-115 dBm
Ethernet Port	10Base-T, RJ-45
Approvals	
Intrinsic Safety	No
CE Certification	Yes (See Engineering Bulletin #16)

Hardware Overview

The following diagram shows the layout of the RNG-DRX board. Please refer to the Smart Com 150 Remote Diagnostic Manual for more information.



RNG-DRX Hardware Overview

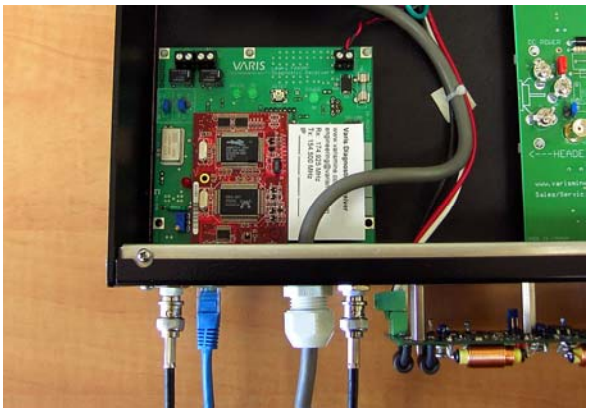
1. **“Alarm” Relay Contacts:** Contacts close when an alarm condition is detected (“No Alarm” contacts open).
2. **“No Alarm” Relay Contacts:** Contacts close when there is no alarm condition present (“Alarm” contacts open).

3.	**RS232 Detect LED:**	Led will energize when a diagnostic packet is received from a MultiCOM amplifier through the RS232 connector.
4.	**Carrier Detect (CD) LED:**	Led will energize when an incoming Varis diagnostic packet is detected.
5.	**Reset P.B.:**	Performs a board software reset.
6.	**Power LED:**	Indicates the presence of Input Voltage (+12 Vdc).
7.	**Power Connector**:	Input Voltage Connector (+12 Vdc).
8.	**Fuse:**	500 mA/250V, 2AG, Fast Acting, Sub-Mini (Replacement P/N 0225.500HXP)
9.	**Rx Connector:**	50 Ohm BNC connector. Connects to receive port 16 of RNG-RF16.
10.	**RS232 Input Connector:**	Provides an interface between Varis' Remote Diagnostic receiver and MultiCOM receivers. Use DB9 to fly lead cable provided.
11.	**RJ-45 Connector:**	Connects the DRX to the mine's LAN.
12.	**Tx Connector:**	50 Ohm BNC connector. Connects to transmit port 16 of RNG-RF16. Please note that some units may be fitted with an external Low Pass Filter. This filter must remain in place for proper operation.
13.	**Tx Level Adjust:**	Adjustment for the output signal level of the on-board transmitter.
14.	**Tx On LED:**	Indicator LED for on-board transmitter.
15.	**Downstream Pilot Jumper:**	The position of this jumper determines whether the on-board pilot is being controlled locally (ON or OFF position) or remotely through the Remote Diagnostic Web interface (AUTO position).
16.	**IP Default Jumper:**	Used to restore default network settings.

Installation

Hardware Installation

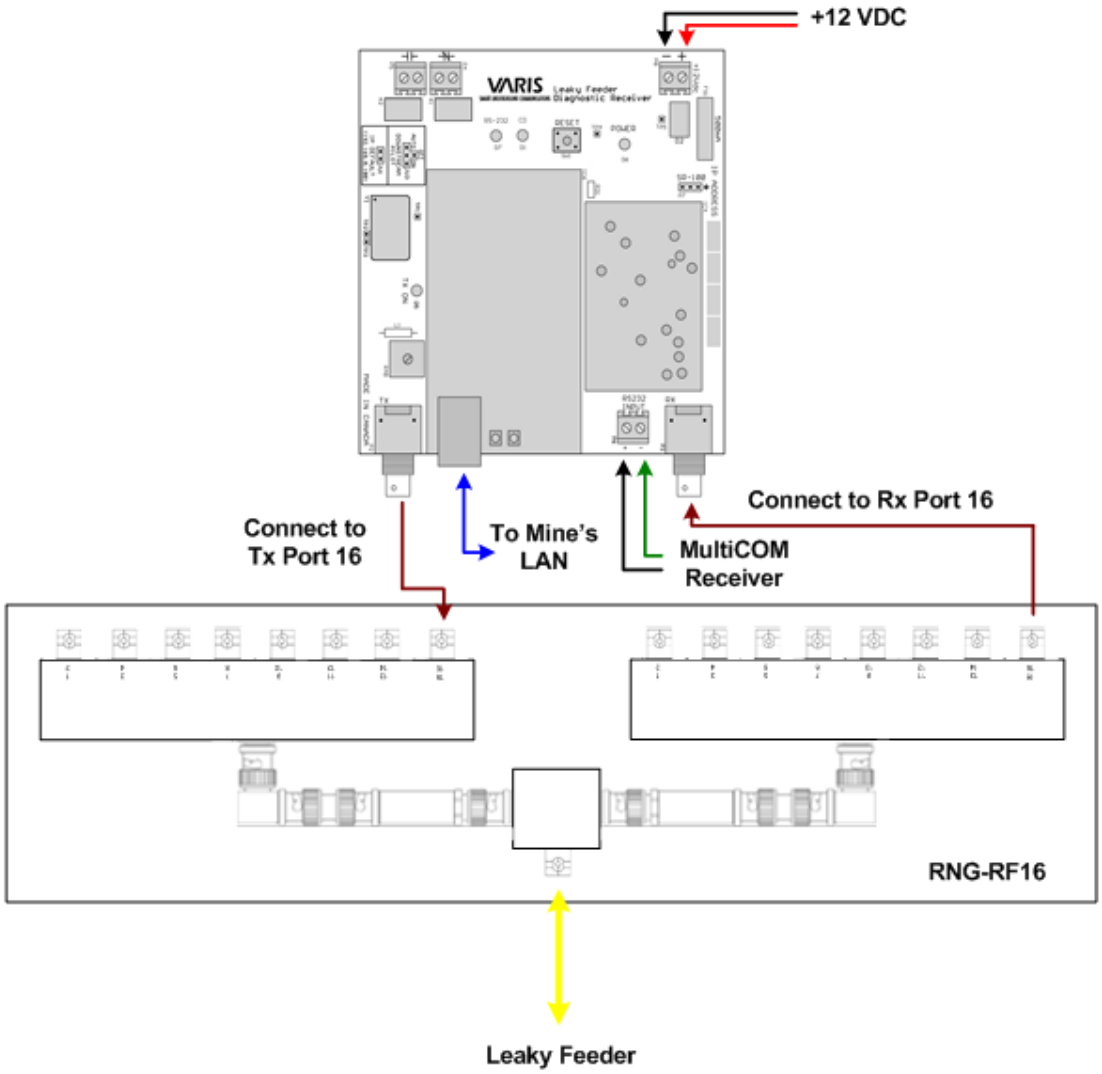
1. If you have been supplied with a DRX in its own enclosure, mount the enclosure in the base station cabinet and skip to Step 4.
2. Otherwise, remove the cover of the head end enclosure.
3. Remove the nuts and washers from the bulkhead BNC connectors. Place the DRX in the enclosure as shown. Replace BNC fasteners.



RNG-DRX Wiring

Connections

4. Connect the DRX power leads to the Base Stations 12 Vdc terminal block or power supply.
5. Connect a coaxial cable (1 m/3.3 ft, 50 ohm, BNC) between the DRX "Rx" connector and receive port 16 of the RNG-RF16.
6. Connect a coaxial cable (1 m/3.3 ft, 50 ohm, BNC) between the DRX "Tx" connector and transmit port 16 of the RNG-RF16. Please note that some units may be fitted with an external Low Pass filter. This filter must remain in place for proper operation.
7. If MultiCOM diagnostics are required, connect the provided DB9 connector between the MultiCOM receiver and connector P6 (RS232 Input) on the DRX board. Observe connector polarity.
8. Connect a Cat5 cable between the RJ-45 connector and the mine's LAN.



RNG-DRX Connections

CE