

150/150IS LINE AMPLIFIER

RNG-AMP, RIS-AMP



Varis' Smart Com 150 and Smart Com 150IS Line Amplifiers compensate for Leaky Feeder cable and splitting losses. Varis 150 Line Amplifiers provide 16 simultaneous noise-free voice radio channels (no third order intermodulation products) and a 54 Mbps downstream, 41 Mbps upstream Ethernet connection using standard cable modems. Local/Remote Diagnostics, Ethernet, video and accurate Automatic Gain Control (AGC) without Return Pilot noise buildup are built-in to every amplifier. Smart Com 150/150IS line amplifiers have proven 500 m spacing, with over 1000 km installed since 1997.



RNG-AMP (left), RIS-AMP (right)

Product Specifications

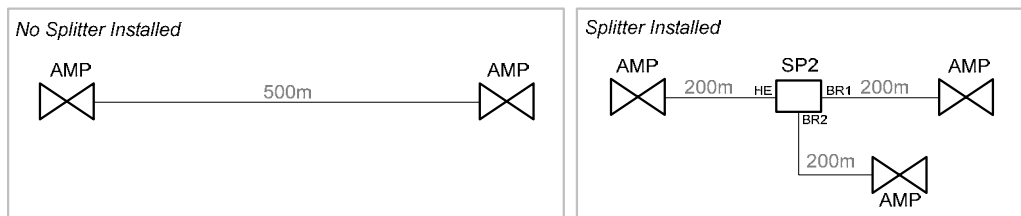
	LINE AMPLIFIER	IS LINE AMPLIFIER
Part Number	RNG-AMP	RIS-AMP
Physical		
Construction	Single Printed Circuit Board	
Enclosure	NEMA 4x (IP66), Polycarbonate	NEMA 4x (IP66) Fiberglass reinforced polyester plastic
Dimensions (L x H x W)	323 x 90 x 180 mm (12.7 x 3.5 x 7.1 in)	323 x 121 x 250 mm (12.7 x 4.8 x 9.8 in)
Weight (nominal)	1.00 kg (2.20 lbs)	3.20 kg (7.05 lbs)
Connectors	Two 3 Terminal Lug Connectors, PG21 cable grips Two test BNC jack ports	
Conformal Coating	No	2 coats, CTI > 100
Environmental		
Temperature Range	-20 to +60° C (-4 to +140 °F)	
Electrical		
Input Voltage	5.5 - 36 Vdc	5.5 -12.5 Vdc
Current Consumption	128 mA @ 12 Vdc 73 mA @ 36 Vdc	128 mA @ 12 Vdc
DC Blocking	Jumper Selection on Board Input/Output	
RF Characteristics		
Input Impedance	75 ohms	
Leaky Cable Types	Varis RNG-500, Varis RNG-501	
Downstream		
Gain	10-25 dB	
Gain Adjust Range	15 dB (MGC and AGC)	
Gain Control	MGC, AGC (No Upstream Pilot required)	
Bandwidth (3 dB)	15 MHz	
3 dB Bandpass	145-160 MHz	
3 rd Order Intermod free	16 Voice/Data, 8 Video (2 per main branch)	
Channel Capacity	6.0 MHz	

DOCSIS 2.0 data rate	54 Mbps	
Third Order Intercept (3IP)	+31 dBm	
Upstream		
Gain	13-28 dB	
Gain Adjust Range	15 dB (MGC and AGC)	
Gain Control	MGC, AGC (No Upstream Pilot required)	
Bandwidth (3 dB)	15 MHz	
3 dB Bandpass	170-185 MHz	
Ethernet Bandpass	6.4 MHz	
DOCSIS 2.0 data rate	41 Mbps	
Third Order Intercept (3IP)	+29 dBm	
Diagnostics		
Power On, RF Level OK	Green LED	
Power On, RF Level Low	Red LED	
Power On, RF Level High	Yellow LED	
Remote Diagnostics Data	DC Line Voltage Downstream RF Power AGC/MGC Mode Attenuator Setting	
Amplifier Spacing		
Minimum Cable Length	250 m (820 ft)	
Maximum Cable Length	500 m (1640 ft)	
Approvals		
Intrinsic Safety	No	MSHA, Approval #23-A050001-0, Sertium
CE Certification	Yes	n/a

Installation

Use the following guidelines to ensure proper installation of Line Amplifiers:

- Install 250 m (820 ft) to 350 m (1148 ft) of cable between the first line amplifier on a branch and the basestation. Reduce cable length as required if splitters are installed between the first amplifier and basestation.
- Install 250 m (820 ft) to 500 m (1640 ft) of cable between each subsequent line amplifier. Reduce cable length as required if splitters are installed between amplifiers. See Smart Com 150/Smart Com 150IS manual for more information.



- Ensure amplifier is installed in properly configured voltage cell. See Smart Com 150/Smart Com 150IS manual for more information.
- Once the amplifier is installed and powered, ensure that the Green OK light is on (Downstream pilot must be present).
- Amplifiers report the following data to the Remote Diagnostic receiver:
 - DC Line Voltage
 - Downstream RF Power
 - AGC/MGC Mode
 - Attenuator Setting
- Whenever possible install an amplifier before a splitter instead of after (closer to Base Station).
- There must be a minimum of 3 m (10 ft) Leaky Feeder cable between an amplifier and splitter.

WARNINGS



The Smart Com 150IS Line Amplifier (RIS-AMP) is approved for use only when installed according to the requirements of Varis Mine Technology System Layout Drawing MSHA-IS-01.



Any changes in the Intrinsically Safe circuitry or components may result in an unsafe condition.

