

450/450IS LINE AMPLIFIER 450-AMP, 450IS-AMP



Varis' Smart Com 450 and Smart Com 450IS Line Amplifiers compensate for Leaky Feeder cable and splitting losses. Varis 450/450IS Line Amplifiers provide 8 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 (no frequency conversion required). Local/Remote Diagnostics, Ethernet, video and accurate Automatic Gain Control (AGC) without Return Pilot noise buildup are built-in to every amplifier. Smart Com 450 and Smart Com 450IS line amplifiers also have 350 m spacing.



450-AMP (left), 450IS-AMP (right)

Product Specifications

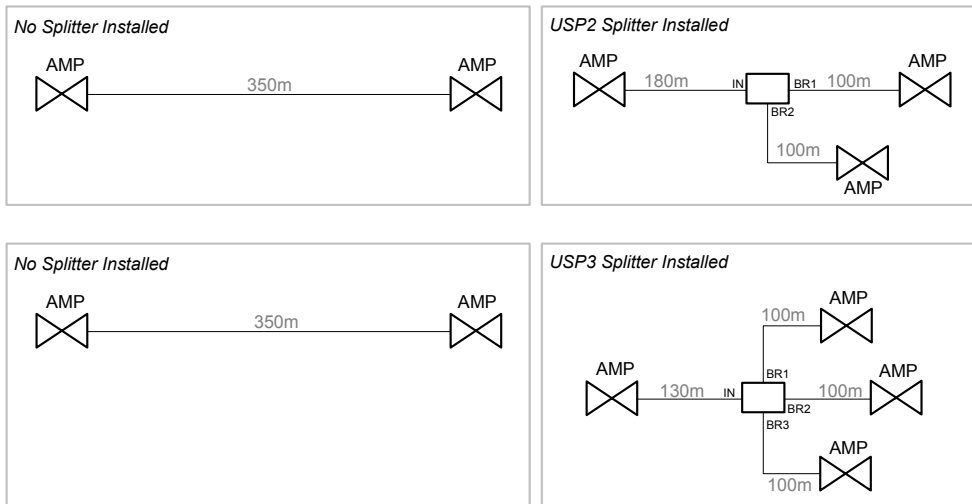
	LINE AMPLIFIER	IS LINE AMPLIFIER
Part Number	450-AMP	450IS-AMP
Physical		
Construction	Single Printed Circuit Board	
Enclosure	NEMA 4x (IP66), Fiberglass reinforced polyester plastic	
Dimensions (L x H x W)	257 x 91 x 120 mm (10.1 x 3.6 x 4.7 in)	
Weight (nominal)	1.36 kg (3.0 lbs)	
Connectors	Two N-type Jack Bulkheads	
Conformal Coating	No	2 coats, CTI > 100
Environmental		
Temperature Range	-20 to +60° C (-4 to +140 °F)	
Electrical		
Input Voltage	6 → 16 Vdc	6 → 12 Vdc
Current Consumption (typical)	210 mA @ min Vdc 85 mA @ 16 Vdc	210 mA @ min Vdc 105 mA @ 12 Vdc
DC Blocking	No	
RF Characteristics		
Input Impedance	50 ohms	
Output Impedance	50 ohms	
Leaky Cable Types	Varis UHF-175	
<u>Voice/Data Downstream</u>		
Gain	10-25 dB	
Gain Adjust Range	15 dB (MGC and AGC)	
Gain Control	MGC, AGC	
Bandwidth (1 dB)	5 MHz	
1 dB Bandpass	475-480 MHz	
3 rd Order Intermod free	8 Voice/Data	
Channel Capacity		
<u>CMTS Downstream</u>		
Gain	7-15 dB	
Gain Adjust Range	8 dB (MGC and AGC)	
Gain Control	MGC, AGC	
Channel Bandwidth	6 MHz	
Bandpass	140-185 MHz	
DOCSIS 2.0 data rate	54 Mbps	
MER	>40 dB	

Voice/Data Upstream		
Gain		10-25 dB
Gain Adjust Range		15 dB (MGC and AGC)
Gain Control		MGC, AGC
Bandwidth (1 dB)		5 MHz
1 dB Bandpass		450-455 MHz
CMTS Upstream		
Gain		7-11 dB
Gain Adjust Range		4 dB (MGC and AGC)
Gain Control		MGC, AGC
Channel Bandwidth		3.2 MHz, 6.4 MHz
Bandpass		20-42 MHz
DOCSIS 2.0 Data rate		41 Mbps
MER		>40 dB
Diagnostics		
Power On, RF Level OK		Green LED
Power On, RF Level Low		Red LED
Power On, RF Level High		Yellow LED
Remote Diagnostic Tx/Rx		All LEDs On
Remote Diagnostics Data		DC Line Voltage Downstream RF Power AGC/MGC Mode Attenuator Settings Upstream RSSI at Head End
Amplifier Spacing		
Minimum Cable Length		175 m (574 ft)
Maximum Cable Length		350 m (1148 ft)
Approvals		
Intrinsic Safety	No	Pending
CE Certification	No	No

Installation

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

- Install 175 m (574 ft) to 350 m (1148 ft) of cable between the each line amplifier. Reduce cable length as required if splitters are installed. See Smart Com 450/Smart Com 450IS manual for more information.



- Ensure amplifier is installed in properly configured voltage cell. See Smart Com450/Smart Com 450IS 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 Settings (Upstream Voice, Downstream Voice, Downstream CMTS, Upstream CMTS).
 - Upstream RSSI (upstream power level measured at the Head End).
- 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.