

450 HEAD END UHF-H00



Varis' Smart Com 450 Head End is the interface between Base Station equipment (Repeaters, CMTS, Head end server) and the Smart Com 450 Leaky Feeder network. The Head End also provides a downstream pilot, bi-directional remote diagnostics, local diagnostics and a single downstream channel calibration utility.



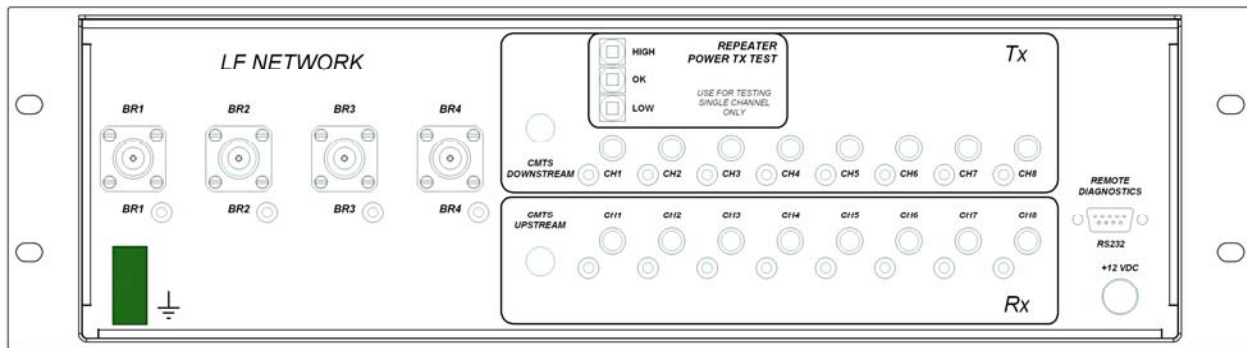
UHF-H00 Head End

Product Specifications

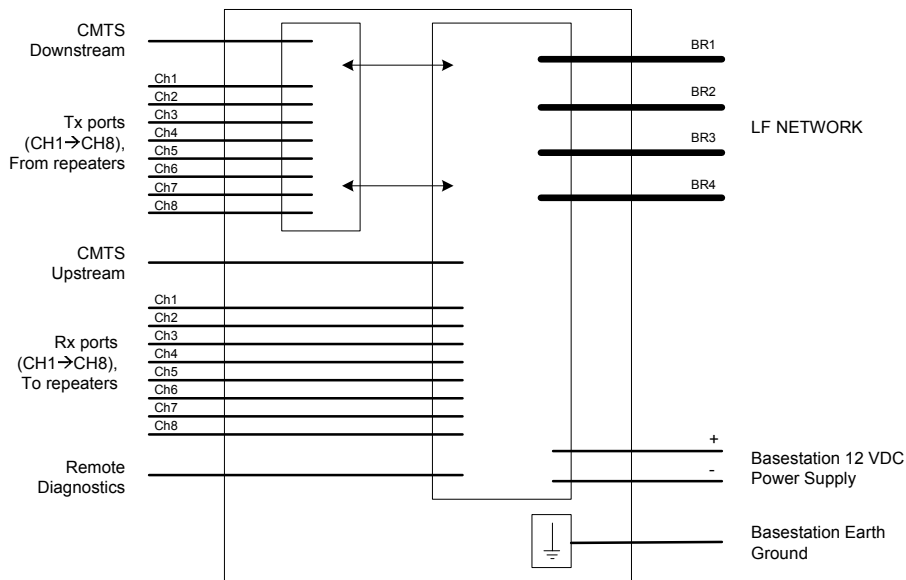
Part Number	UHF-H00
Physical	
Construction	Rack mount enclosure
Enclosure	19" 3U, Steel enclosure
Dimensions (W x H x D)	483 x 132 x 356 mm (19 x 5.2 x 14 in)
Weight (nominal)	6.5 kg (14.33 lbs)
Connectors	BR1 → BR4: N-type Jack CH1 → CH8 Tx/Rx: SMA Jack CMTS Downstream/Upstream: F Jack Head End Server: DB9 Base station Power: 16 AWG Wire Earth Ground: 2-14 AWG Wire
Environmental	
Temperature Range	-20 to +60° C (-4 to +140 °F)
Electrical	
Input Voltage	12-14 VDC
Output Voltage	No
Current Consumption (nominal)	240 mA
DC Blocking	All ports
RF Characteristics	
Impedance	BR1 → BR4 ports: 50 ohm Rx/Tx CH1 → CH8 ports: 50 ohm CMTS Downstream/Upstream ports: 75 ohm
Leaky Cable Types	UHF-175
Voice Downstream	
Loss (nominal)	35 dB
Bandwidth (1 dB)	5 MHz
1 dB Band pass	475 → 480 MHz
3 rd Order Intermod free	8 Voice/Data
Channel Capacity	
Max input power	1W (30 dBm)
Voice Upstream	
Loss (nominal)	22 dB
Bandwidth (1 dB)	5 MHz
1 dB Band pass	450-455 MHz
CMTS Downstream	
Loss (nominal)	14 dB
Bandwidth	45 MHz
Band pass	140 → 185 MHz
Channel Bandwidth	6 MHz
MER	≥ 40 dB
BER	< 1.0E-10 Pre-FEC

Modulation Mode	QAM 64, QAM 256
Max Input Power	60 dBmV
CMTS Upstream	
Loss (nominal)	14 dB
Bandwidth	22 MHz
Band pass	20→42 MHz
Channel Bandwidth	3.2, 6.4 MHz
MER	≥ 40 dB
BER	< 1.0E-10 Pre-FEC
Target Input Power Level @ CMTS	-21 dBmV
Diagnostic Leds	
HI	> 31 dBm
OK	≤ 31 dBm, ≥ 28 dBm
LO	< 28 dBm
UD (Upstream Diagnostics)	Upstream Diagnostics ON
DD (Downstream Diagnostics)	Downstream Diagnostics/Pilot ON
Approvals	
Intrinsic Safety	No
CE Certification	No

Hardware Overview



Head End Back Panel



Head End Connections

CMTS Downstream:	Connects to CMTS Downstream port.
CMTS Upstream:	Connects to CMTS Upstream port.
TX PORTS:	Connects to Base station repeaters.
RX PORTS:	Connects to Base station repeaters.
Remote Diagnostics:	Provides connection between the head end and head end server through a serial crossover cable.
+12 VDC:	Connects to Base station's 12 VDC power supply.
Ground Lug:	Connects to Base station earth ground using a 2-14 AWG wire.
LF Network:	Connects directly to the LF cable on branches 1 to 4.
Repeater Power Tx Test:	The HI, OK and LO Leds located on the head end back panel enable single channel power level testing.
Upstream Diagnostics:	Led lights when upstream remote diagnostic data is detected at the head end.
Downstream Diagnostics:	Led lights when the downstream pilot is on.

Installation

- Mount head end enclosure in base station cabinet.
- Ensure that required transmit ports (CH1 to CH8) are connected to base station repeaters. Terminate unused ports. If the output power level of these channels needs to be adjusted to 1W (30 dBm), the *Repeater Power Tx Test* leds can be used.

Repeater Power Tx Test:

1. Ensure that all transmit ports but one are terminated (i.e., terminate CH2 → CH8). Terminate the CMTS downstream port.
 2. Connect the repeater transmitter under test to the un-terminated port (i.e., CH1). Adjust the transmitter power level so that the OK led is lit. The power level ranges for these leds are as follows:
 - HI Led: > 31 dBm
 - OK Led: ≤ 31 dBm, ≥ 28 dBm
 - LO Led: < 28 dBm

NOTE: These Leds will only show the power level for one channel at a time. During normal operation with more than one downstream channel active, the Hi led will be lit.
 3. Repeat for remaining repeater transmitters.
- Ensure that the receive ports (CH1 to CH8) are connected to base station repeaters. Terminate unused ports.
 - Ensure that required LF branches are connected to LF network ports BR1 → BR4. Terminate unused ports.
 - Connect CMTS downstream and upstream ports to the base station CMTS if needed. Otherwise, ensure these ports are terminated.
 - Connect ground lug to base station earth ground (2-14 AWG wire).
 - Connect power leads to the base station 12V power supply.
 - Ensure that a serial cross-over cable is connected between the head end and head end server. Remote diagnostics requires no further setup.