

**VULCAN400 SERIES Product Family Description**  
**Long distance High capacity Point to Point Backhaul, Point to Multi-Point 450MHz to 500 MHz**  
**Outdoor OFDM/TDMA Subscriber Radios with External Antenna.**

VULCAN400a\_PFD\_ENB02W

### Applications

- High capacity backhaul in long distances up to 40 Km.
- 5/10MHz adjustable channel bandwidth Multi session.
- Cost effective alternative to wired network environment.
- Redundant link between buildings.
- Dedicated ISP connections for high-reliability subscribers.
- Enterprises or Institutions LAN and PBX extension for high-reliability subscribers.
- Mobile CPE version for applications up to 80Km/h.
- IP-68 Enclosure rating for harsh environments.



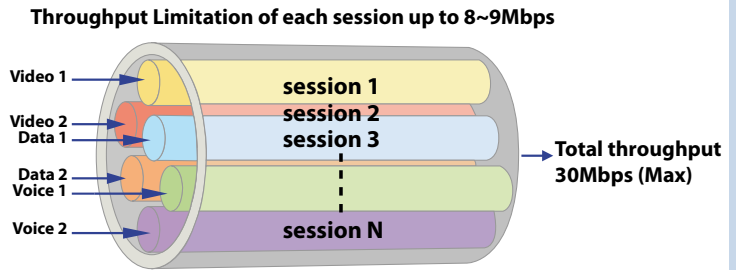
**VULCAN400 SERIES Product Family Description**  
**Long distance High capacity Point to Point Backhaul, Point**  
**to Multi-Point 450MHz to 500 MHz Outdoor OFDM/TDMA**  
**Subscriber Radios with External Antenna.**

The VULCAN400 Series by LanPro are an ideal solution for high capacity point-to-point (PtP) backhaul for 450 MHz to 500 MHz band wireless deployment for distances up to 40 Km and Point to multi Point (PtmP) and Mobile applications. Frequencies available are: 450.0MHz, 455.0MHz, 460.0 MHz, 465.0MHz, 470.0MHz, 475.0 MHz, 480.0MHz, 485.0MHz, 490.0MHz, 495.0MHz, 500.0MHz.

The use of an external antenna lets the user select the appropriate pattern for the application. A high gain Yagi antenna would suit long distance PtP, a Panel or sector antenna for covering a wide area with PtmP, or Omni for mobile CPE's PtmP applications.

The basic radio hardware permits a selection of 5/10/20/40 MHz adjustable channel bandwidth (only 5/10MHz available in 400MHz radio via web interface). This provides flexibility of deployment to channel plan and high capacity backhaul – truly total accumulated throughput (uplink + downlink) of up to 8Mbps with 5MHz channel BW and 18Mbps with 10MHz channel BW, larger throughputs like 30Mbps with 20MHz BW, or 50+ Mbps with 40 MHz BW are more applicable to standard Vulcan radios which operate in higher frequencies.

This is a multi-session radio, more sessions bring larger capacity. In a PtmP configuration, the AP limits the overall throughput of the CPE's, the whole throughput of the AP must be divided between the CPE's sessions, and because each CPE is located at a different location, the total output depends on distance and path characteristics. The VULCAN400 family of radios can be used in mobile applications up to a speed of 60 to 80Km/h in the mobile version of the CPE.



The Vulcan400 series utilizes OFDM – TDMA technology which allows an Upload Stream Time Ratio web configurable from the default 50%, adjustable from 20 to 80% uplink / downlink tunnels in a single channel with least collision and highest efficiency. This feature is only available in the Base station mode. The Ethernet products are primarily designed to provide standard Ethernet interface in a wireless link between distant sites.

The VULCAN400 Series of radios have powerful security management because they use a proprietary protocol and support WPA-PSK, WPA-TKIP and WPA2 (AES-128bits) encryption, MAC address filter at the same time. As an advanced security, the Disable Broadcast SSID and Wireless Client Security Separation (Layer 2 Isolation) add to these functions to make the network much more secure and reliable.

## A Product Highlights

- **Effective spectrum utility / variable capacities**

The VULCAN400 series has 2 levels of channel bandwidth (5/10MHz) options, they are adjustable via software. This function provides flexibility to channel plans and variable capacities for different applications.

- **High output power OFDM/TDMA technology with external antenna**

The Vulcan400 series gives users the inherent flexibility of antenna selection for the applications.

- **(Audible antenna alignment)**

The site survey function provides the RSSI (signal strength) info to indicate the status of antenna alignment. Customers can also aligning the antenna by using the headphone of mp3 player, quite easy and simple.

- **Robust Construction**

Prepared for harsh environments, the IP-68 rating ensures long life operation.

## B Specifications

RADIO				
Operating Channels	450~500 MHz			
Channel Bandwidth	Software selectable channel bandwidths of 5 AND 10 MHz			
Output power and Rx Sensitivity  <b>RX sensitivity: Packet Error Rate: 10%</b>  *	<b>Data Rte</b>	<b>Modulation</b>	<b>Tx Output pwr</b>	<b>Rx sensitivity</b>
	54Mbps@OFDM	64QAM 3/4	33(±1.5) dBm	-90 dBm
	36Mbps@OFDM	16QAM 3/4	33(±1.5) dBm	-98 dBm
	18Mbps@OFDM	QPSK 3/4	36(±1.5) dBm	-101 dBm
	6Mbps@OFDM	BPSK 1/2	37(±1.5) dBm	-103 dBm
Frequency Stability	±10 ppm			
Modulation	OFDM			
Range	Up to 40 Km.			
EFFECTIVE THROUGHPUT				
Effective Throughput	Single Stream throughput		Streams throughput aggregated	
5MHz Channel BW	6 Mbps		8 Mbps	
10MHz Channel BW	11 Mbps		18 Mbps	
Upload Stream Time Ratio supporting	20 – 80 %			
INTERFACES				
RF (antenna) connector	N-type (Jack)			
Ethernet	IEEE 802.3(10Base-T) / IEEE 802.3u(100Base-Tx)			
MANAGEABILITY				
Management and setup	Web-based configuration			
Operating mode	Base station / CPE (PTMP)			
SNMP agents	MIBII			
Protocol	TCP/IP, IPX/SPX, NetBEUI			
QOS	CPE data flow control			
DHCP supports	DHCP client			
Other features	VLAN(IEEE 802.1Q); Spanning tree protocol (802.1d)			
SECURITY				
Data Encryption	64/128/152 bits WEP encryption, WPA-PSK, WPA-TKIP, WPA2-AES 128bits			
Authorization	MAC Address Access Filter			
Advanced Security	Disable broadcast SSID			
	Wireless Client Security Separation (Layer 2 Isolation)			
ENVIRONMENT				
Operating Temperature	-10 °C to 60 °C without heather plates / -30 °C ~ 60 °C with heather plates			
Heather Plates power consumption	12 Watt, adjustment threshold: 18 °C turn on at < 18 °C			
Storage Temperature	-30°C~70°C			
Humidity	95% non-condensing			
IP Enclosure Rating	LP-V0405a137 / LP-V0405a237 IP-68 rated		LP-V0405a337 (Not IP rated)	
POWER SUPPLY SOLUTIONS				
DC 24 V, AC 100-264 VAC, 50-60 Hz (Includes a 48 VDC/24 VDC converter and a 110 VAC/48 VDC converter power supply).				
DC 48V includes a 48 VDC/24 VDC converter.				

POWER SUPPLY SOLUTIONS				
LP-V0405a137 / LP-V0405a237	AC 100-264v, 50-60Hz, DC 24V; DC+/-48V, optional			
LP-V0405a337	Wide range power input (10-30VDC), optional for Vehicle unit purpose			
POWER CONSUMPTION				
	Radio		Calefactor	
	Tx	Rx	ON	OFF
	16W	9W	12W	0W
POWER CONSUMPTION Max, Min, Average				
Máx: radio (Tx) with heater ON	16W+12W		28W	
Mín: Radio (Rx) with heater OFF	9W+0W		9W	
Average	With heater OFF: 12W to 14W (In cold weather with heater ON most of the time, depends on duty circle)			
PHYSICAL				
Model name	LP-V0405a137 / LP-V0405a237	LP-V0405a337		
Dimensions	259 (L) x 250 (W) x 75 (H); mm	230 (L) x 198 (W) x 60 (H); mm		
Weight	2.2 Kg	2.3 Kg		
WARRANTY				
1 year				
ADVANCE				
Base Station Scanning				
Ethernet Surge Protection				
IMPORTANT NOTICE :				
All specifications are typical values and subject to change without prior notice.				

**C How to order:**

**LP-V0405a137 450 to 500MHz, 37dBm (5W) VULCAN 400 TDMA/TDD Outdoor Radio (AC 100-264V) (IP-68 rated).**

**LP-V0405a237 450 to 500MHz, 37dBm (5W) VULCAN 400 TDMA/TDD Outdoor Radio (DC 48V) (IP-68 rated).**

**LP-V0405a337 450 to 500MHz, 37dBm (5W) VULCAN 400 TDMA/TDD Vehicle Unit (10-30 VDC).**