PAV
free space optical solutions

PAVLight 155 Free Space Optical System

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PAVLight 155Mbps FSO Communications System

PAVLight 155 is a free space optical system designed to enable high speed communication of voice, data and video over distances up to 4km between link heads which have a clear line of sight between them.

This system can transmit data rates of up to 155Mbps and is available in 500m, 2km or plus 2km configurations. The 500m and 2km systems use one laser transmitter and one receiver, while the plus 2km system uses three transmitters to provide extra power for the greater distance.

The PAVLight Linkhead (Outdoor Unit)

Benefits

- Simple rapid installation within hours
- No frequency license allocation required
- Modular design - modules easily changed
- High availability
- High bandwidth
- Redeployable – moves with your network
- Interfaces with fibre optic or copper cable
- High security system – inherent in FSO technology
- Full technical support provided
- Warranty extension available
- Compact all weather design for permanent outdoor use
- Optional Indoor Unit to monitor system status
- Rapid payback (ROI)
- No ongoing leasing costs or licensing costs
- No environmental disruption for infrastructure

Features

The 500m configuration uses a pin diode in the receiver while the 2km and plus 2km configurations use APDs.

- Digital electronics
- Indicator LEDs on link head and on optional IDU
- Safety interlocks designed to ensure greater safety for installers
- Clear LED information and Alarm relay outputs
- Integrated retiming (CDR without IDU)

Applications

- Building to building connectivity
- Wireless backhaul for mobile operators
- Last mile connection to fibre optic network
- Substitution for fibre optic cable or copper wire
- LAN extension
- Broadband internet access
- Integration of voice, data and video on a single link
- Disaster Recovery / Business Continuity

Options

Indoor unit

The provision of an indoor unit, which consists of a 19" rack mounted unit, enables system status monitoring by non-technical staff who can read the link status and see any fault conditions immediately. It also enables upgrades to the link with no need to access the link head. The IDU houses the Personality Interface Module (PIM) which specifies the speed and physical presentation of the interface. It also adds retiming/regeneration functionality on systems with a data rate greater than 100Mbps.

The PAVLight Indoor Unit (IDU)

SNMP Management system

An optional SNMP Management Unit (Proxy) is available for those customers who require SNMP management of the link.

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Specification for PAVLight 1.5 – 155

Outdoor unit				**1 Tx System**	**3 Tx System**
Product Code				PL100/ 155 1TX	PL 100/155 3TX
Performance	Effective Data Rate			1.5 – 155 Mbps	1.5 – 155Mbps
	Range (metres)			2000	up to 4000
	Bit Error Rate			>10E^{-10}	>10E^{-10}
	MTBF (hours)			105,000	105,000
Transmitter	Number of Transmitters			1	3
	Light Source			Laser Diode	Laser Diode
	Laser Class			1M	3B
	Wavelength		(nm)	910	910
	Output Power		(dBm)	20	25
	NOHD/ENOHD@^{d63}	(IEC60825-1)	(m)	0/30	6/65
	NHZ/NHZ-Aided@^{d63}	(IEC60825-12)	(m)	0/30	6/65
	Beam Divergence		(mrad)	11	11 x 3
Receiver	Detector Type	(2km/500m)		APD / PD	APD
	Field of View	(2km/500m)		15°	15°
	Sensitivity	(2km/500m)	(dBm)	-45 to -10 / -35 to +20	-45 to -10
Client Interface	Presentation			UTP, Fibre Optic	
	Connectors			RJ45, Dual SC	
	Systems			155ATM, STS-3, STM-1,100Mbps Ethernet (n x E1, n x E1 plus Ethernet via multiplex)	
	Cable			1300nm MM or 1300nm SM Fibre	
Power Supply	Input Voltage			18 - 52 V DC	
	Power Consumption (Watts)			10	15
Environmental Information	Operating Temperature		(°C)	-40 to +65	
	Operating Humidity			95% (non condensing)	
	Enclosure			IP66	
Mechanical Design	Link Head Dimensions W x L x H		(mm)	350 x 550 x 198	350 x 550 x 390
	Mounting bracket			200 x 200 x 76	200 x 200 x 76
	Height including mounting bracket			274	469
	Weight		(kg)	8.5	14.9
Indoor Unit (Optional)					
ODU Interface	Presentation			Fibre Optic	
	Connectors			Dual SC	
	Cable			Multimode or Single Mode Fibre	
Client Interface	Presentation			UTP, Fibre Optic	
	Connectors			RJ45, Dual SC	
	Systems			155ATM, STS-3, STM-1, 10/100Mbps Ethernet	
	Cable			1300nm MM or 1300nm SM Fibre	
Power Supply	Input Voltage		(V)	90-240VAC (Autoranging)	
	Power Consumption		(Watts)	10	
Environmental Information	Operating Temperature		(°C)	0 to +40	
	Operating Humidity			90% (non condensing)	
	Enclosure			IP30	
Mechanical Design	Dimensions W x L x H		(mm)	435 x 44 x 253	
	Weight		(kg)	2	
Indicator LEDs	ODU Rx Data	(Green)		Retiming Sync	(Orange)
	Client Rx Dta	(Green)		ODU Rx Data	(Yellow)
	Power Input	(Green)			
Alarm LEDs (Red)	ODU Power Fail, ODU Rx Fail, ODU Tx Fail				
Alarm Relay Output	ODU Power Fail, ODU Rx Fail, ODU Tx Fail, Signal Loss, Optical Rx Fail, Optical Tx Fail				

PW Comms maintain a continuous process of research and development, and as such, all specifications within this document are subject to change without notice.

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