

## Laser Based Free Space Optical Communication System

### FEATURES

- Free Space, Wireless Communication
- Compact System Design
- Full Duplex Wire Speed Connectivity
- Wide Selection of Industry Standard Interfaces
- Secure Data Transmission
- Transparent Operation
- Quick Installation and Re-deployment
- Built-in signal monitoring



### OVERVIEW

The PINTO series products are the second generation of compact free space laser based systems from LaserBit designed to deliver easy-to-use and cost-effective solution for high speed wireless connections. The applied technology is based on the highly successful PICO series products featuring extra lightweight compact mechanical design with factory-set optical system that requires no adjustment or configuration on site. In addition PINTO systems cover larger distances and can be ordered with IP based management option. The laser transmission carries the data using the concentrated laser beam and a unique modulation technique is employed to ensure error free data transfer over distances up to 400 meter. The transparent and wire speed data transfer together with virtually zero latency assures the easy integration of the system in all environment. Because they use infrared light as transmission medium, LaserBit systems do not require frequency licenses and the transmission is not affected by electro-magnetic interference. The concentrated laser beam is extremely hard to tap, even to discover. Basically, the LaserBit link can be considered as a virtual fiber in the air.

### APPLICATIONS

Typical applications for the PINTO series devices include:

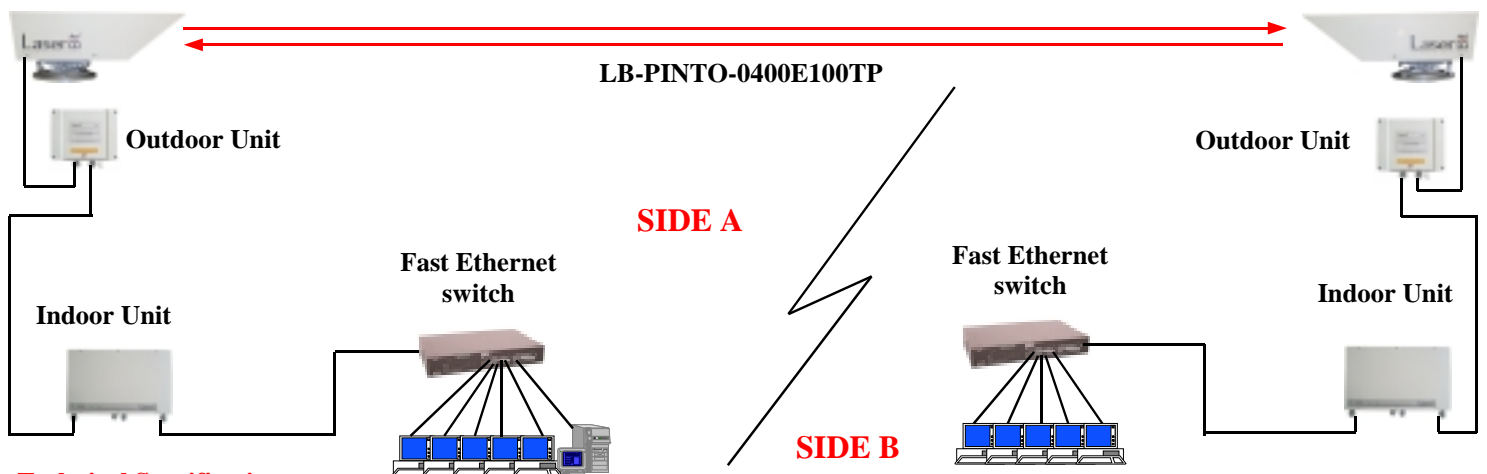
- Replace lower speed leased lines or radio links
- Interconnect LAN's in campus or industrial environment
- PABX to PABX connection
- High bandwidth connection to the Internet
- VoIP applications
- Temporary installations
- Emergency backup

### PRODUCT DESCRIPTION

The LaserBit PINTO system comprises of two Laser Heads, two Outdoor Interconnection Units (OIU) and two optional Indoor Interconnection Units (IIU) – one at each end. The Laser Heads are installed outdoors, where a clear optical path exists between the two sites. Next to the head the Outdoor Interconnection Unit provides fast and easy interconnection between the laser head and the cable coming from the network equipment. Moreover the OIU houses the Power Supply Unit (PSU) of the system and the network interface. The PSU provides the low voltage power required to operate the laser head while the data port offers direct connectivity for standard network equipments. A variety of standard copper and fiber interfaces are available for Ethernet, Fast Ethernet and protocol transparent links. The system contains built-in signal monitoring unit, which features a visual signal strength indicator and LINK status information accessible on the rear of the head assembly. The optional Indoor Interconnection Unit contains the IP Based Management Hardware (LB-MGM). The bar graph of the LB-MGM displays the actual signal strength level while the LED indicators show the presence of Minor or Major alarm condition. With the help of the relay contacts an external alarm monitoring equipment may be connected to the system to further process the alarm signals. In addition to the above the LB-MGM allows the monitoring of the link's operation through a PC-based software (LaserBit View) via Ethernet or RS-232 ports.

### INVESTMENT PROTECTION

By utilizing standard network interfaces, LaserBit systems protect the customers' investments in long-term projects. Moreover, PINTO systems offer high level of network flexibility due to their extremely fast and easy installation method, which makes them ideal to follow network topology changes.



### Technical Specifications

Model Number	LB-0150 series	LB-0400 series
Interfaces: G.703, 10BaseT, 100BaseTX, MM fiber (1300 nm), SM fiber (1300 nm)		
<b>Electrical Characteristics</b>		
Light source	Laser Diode	
Laser diode power (mW)	70	
Detector	Si PIN or APD Photodiode	
Dynamic range	>40 dB	
Bandwidth	1 — 100 Mbps depending on model	
BER	$< 10^{-9}$	
System latency	< 50 ns	
<b>Data In/Out</b>		
Fast Ethernet	RJ-45 socket	
Transparent Channel	62.5/125 MM fiber at 1300 nm with SC connectors (SM optional)	
<b>Power</b>		
Power required	230 VAC, 50 W max. (110 VAC and 48 VDC optional)	
Power to head	2x12 VDC, 2x1 A max.	
<b>Optical Characteristics</b>		
Wavelength	785 nm	
Beam divergence	0.5 - 15 mrad	
Receiver acceptance angle	8.5 mrad	
<b>Physical Characteristics</b>		
Head Housing	Stainless steel	
Weight	6.5 kg	
Dimensions (with cover and Alignment Unit, mm)	485 x 216 x 175	
<b>Environment</b>		
Operating temperature	- 25 to + 60 Centigrade	
Storage temperature	- 40 to + 80 Centigrade	
Humidity	95% non condensed	
Protection rating	IP65 for Head Assembly and Outdoor Unit, IP20 for Indoor Unit	

### Ordering Information

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<b>LB-PINTO-0150E100TP</b>	LaserBit LINK with Fast Ethernet (100BaseTX) interface. Maximum 150 m distance between heads.
<b>LB-PINTO-0150TC50</b>	LaserBit LINK with transparent operation up to 50 Mbps. Multimode FO interface (1300 nm SC). Maximum 150 m distance between heads.
<b>LB-PINTO-0150TC100</b>	LaserBit LINK with transparent operation up to 100 Mbps. Multimode FO interface (1300 nm SC). Maximum 150 m distance between heads.
<b>LB-PINTO-0400E100TP</b>	LaserBit LINK with Fast Ethernet (100BaseTX) interface. Maximum 400 m distance between heads.
<b>LB-PINTO-0400TC50</b>	LaserBit LINK with transparent operation up to 50 Mbps. Multimode FO interface (1300 nm SC). Maximum 400 m distance between heads.
<b>LB-PINTO-0400TC100</b>	LaserBit LINK with transparent operation up to 100 Mbps. Multimode FO interface (1300 nm SC). Maximum 400 m distance between heads.
<b>Optional Modules</b>	
<b>LB-ALARM-MON</b>	Alarm and Monitoring module, ten segment display, Minor and Major alarm indicators and relay contacts.
<b>LB-MGM-AC*</b>	IP based NM interface incl. Head Agent Module, Indoor Unit with indicators and alarm relay contacts.

\*Also available with DC PSU. BitView software is required for PC based monitoring (not included)

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