



PPC-100 Series Wireless LAN Bridge



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Elva-1 PPC-100 Series of mm-wave digital radios are designed to provide 100 Mbps/155 Mbps connectivity to a wide variety of application. As an IP-packet transparent wireless bridge Elva-1 is easily deployed in point-to-point configurations with modular flexibility accepting either 100 Base Tx (RJ-45) or 100 Base Fx / STM-1 SC multimode Fiber Optic connector.

Space efficient Cassegrain antennas optimized to enhance the already peerless performance of each Elva-1 kit provide the solid reliability expected for your mission critical application. At Elva-1 we bring the future of communication to you today.

PPC-100 Series Features

- Frequency band: 40.5-43.5 GHz, 71-76/81-86 GHz, 92-95 GHz
- Fast Ethernet / STM-1 / 1xFE + 8xE1
- SNMP v.1, v.2, v.3; SNMP MIB - MIB-II and DOK Enterprise MIB
- True Full Duplex Operation
- Secure communication due inability to intercept the laser-like beam transmission at free air
- Solid reliability with Fiber-like Performance
- Easily installed, Zero maintenance
- Compact Cassegrain type antennas
- Quasi-optical (laser-like) propagation of millimeter wave emission
- EMI interference free

Fast Ethernet / STM-1 / xE1 Connectivity in a Wireless World

Wireless broadband is the leading sector of the wireless communication community. Millimeter wave links provide large bandwidths of interference-free-operation accommodating ever increasing speed rates for connecting data systems. Wireless backhaul for the last mile is more cost effective than with fiber for Enterprise, WiFi, SAN, LAN/WAN and host of other applications.

Among basic PPC-100 model with 100 Mbps Fast Ethernet interface, we offer 155 Mbps models – PPC-100/STM-1 and PPC-100/STM-1/FE/8E1. The primary applications for PPC-100/STM-1 with STM-1 interface are wireless SDH/ATM rings. PPC-100/STM-1 systems provide an STM-1 optical interface, allowing these links to be a part of optical SDH ring. Especially in urban areas where it is difficult to bring optical fiber due to cable trenching problems, PPC-100/STM-1 links make a quick and cost-effective installation possible.

PPC-100/STM-1/FE/8E1 Wireless LAN Bridges with Optical Multiplexers (1 port 100Mbit Fast Ethernet + 8 ports E1) is another modification of PPC-100. The main channel is full-duplex 100Mbit Fast Ethernet plus 8x E1 additional channels transmitting simultaneously. The total link throughput is 155Mbit, which is coming to uplink port of optical mux "1xFE + 8xE1". The link kit shipment includes two optical multiplexers "1xFE + 8xE1" among two mm-wave radios (one for each side of the link).

For PPC-100/STM-1/FE/8E1 model, the primary application is interconnection between base station sites in cellular networks (GSM/GPRS/UMTS). PPC-100/STM-1/FE/8E1 provides an ideal intranet-intranet and intranet-public network connection solution as well as any LAN/WAN connection where there is a requirement to combine data and voice services in one link.

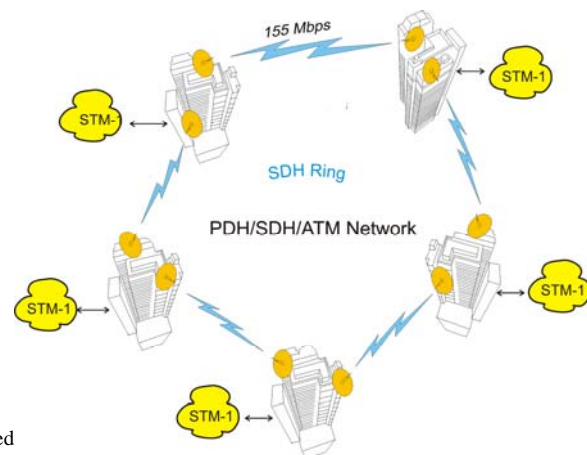
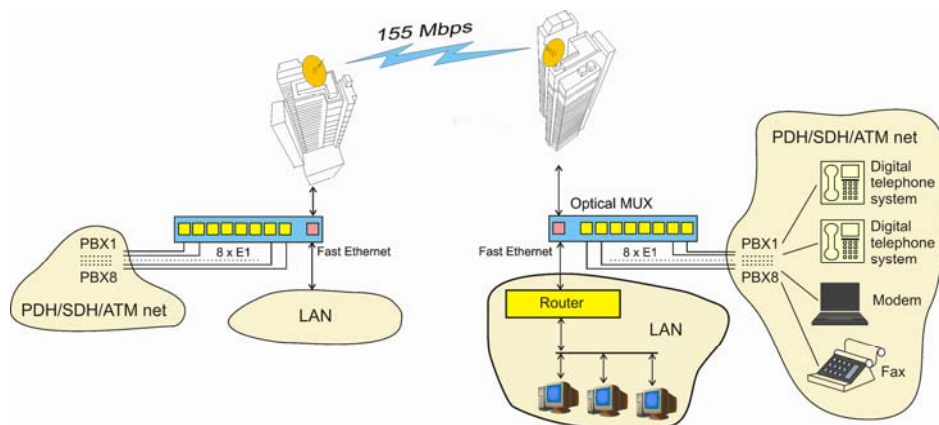
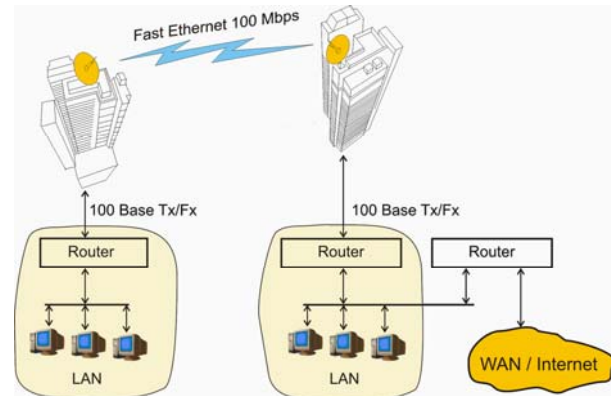


PPC-100 Brief Technical Description

The wireless bridge is based on two mm-wave transceivers installed to communicate along a path in the atmosphere. Each radio is equipped with hermetically sealed weather resistant case that also firmly supports our integrated Cassegrain type antenna. There are both azimuth and elevation adjustment on the mounting clamps to speed the alignment process of the antennas with our digital alignment meter.

All of the parts necessary to install and optimize the link are included in each kit. This includes mounting clamps, alignment wrench, cabling, outdoor connectors, junction boxes, power supply and many other items – even monitoring software. PPC-100 radios operate at temperatures from -40°C to +50°C (-40°F to +122°F) and do not require any additional protection from direct sunlight, rain or snow conditions. Radome covers for our antennas are included to protect the dish surface from accumulated precipitation.

Profile and size of transceiver case is the same for all frequency bands however antenna size is dependant on the gain required and increases with gain. Some of the choices include 300 mm, 450 mm and 600 mm in diameter. Higher gain antennas improve path performance and minimize climatic losses impact on the link.





Product Specifications

Specifications PPC-100 Fast Ethernet

Frequency Band	Q-band		E-band	W-band
Bandwidth	40.5-43.5 GHz		71-76/81-86 GHz (74-76/84-86 GHz for Czech Republic)	92-95 GHz
Capacity	100 Mbps Full duplex		100 Mbps Full duplex	100 Mbps Full duplex
Modulation Type	QPSK	ASK	ASK	ASK
Allocated Bandwidth	125 MHz + 125 MHz, 250 MHz in total	468 MHz + 468 MHz, 936 MHz in total		
Rx Sensitivity at BER 10 ⁻⁶	-104 dBW (-74 dBm)	-96 dBW (-66d Bm)	-92 dBW (-62 dBm)	-92 dBW (-62 dBm)
Output Power	-12 dBW (18 dBm, 60 mW)	-12 dBW (18 dBm, 60 mW)	-13 dBW (17 dBm, 50 mW)	-13 dBW (17 dBm, 50 mW)
Max Distance with 60cm antenna in clear sky	>20 km (12 mile)	>20 km (12 mile)	>20 km (12 mile)	>20 km (12 mile)
Max Distance with 60cm antenna at 10 mm/h rain	10.5 km (6.5 mile)	8 km (5 mile)	5.1 km (3.2 mile)	5.1 km (3.2 mile)
Network Management	SNMP v.1; v.2; v.3; MIB-II and DOK Enterprise MIB; WEB			
Interface	100 Base-SX / 100 Base-LX			
Diagnostics Port	100 Base-Tx			
Remote Parameters Monitoring	Proprietary adapter in ODU with software application (Windows 98/2000/XP Vista/W7)			
MTBF	150 000 hours			
Polarization	Vertical / horizontal - optional			

Specifications PPC-100/STM-1 and PPC-100/STM-1/FE/8E1

Frequency Band	Q-band		E-band	W-band
Bandwidth	40.5-43.5 GHz		71-76/81-86 GHz (74-76/84-86 GHz for Czech Republic)	92-95 GHz
Capacity	155 Mbps Full duplex		155 Mbps Full duplex	155 Mbps Full duplex
Modulation Type	QPSK	ASK	ASK	ASK
Allocated Bandwidth	180 MHz + 180 MHz, 360 MHz in total	468 MHz + 468 MHz, 936 MHz in total		
Rx Sensitivity at BER 10 ⁻⁹	-101 dBW (-71 dBm)	-93 dBW (-63 dBm)	-89 dBW (-59 dBm)	-89 dBW (-59 dBm)
Output Power	-12 dBW (18 dBm, 60 mW)	-12 dBW (18 dBm, 60 mW)	-13 dBW (17 dBm, 50 mW)	-13 dBW (17 dBm, 50 mW)
Max Distance with 60cm antenna in clear sky	>20 km (12 mile)	>20 km (12 mile)	>20 km (12 mile)	>20 km (12 mile)
Max Distance with 60cm antenna at 10 mm/h rain	9.8 km (6.1 mile)	7.4 km (4.6 mile)	4.8 km (3.0 mile)	4.8 km (3.0 mile)
Network Management	SNMP v.1; v.2; v.3; MIB-II and DOK Enterprise MIB; WEB			
Interface	STM-1			
Diagnostics Port	100 Base-Tx			
Remote Parameters Monitoring	Proprietary adapter in ODU with software application (Windows 98/2000/XP Vista/W7)			
MTBF	150 000 hours			
Polarization	Vertical / horizontal - optional			



PPC-100 Series

Product Specifications

Antenna

Antenna Type	Cassegrain type antenna with radome		
Frequency Band	Q-band	E-band	W-band
Antenna Gain/Beamwidth			
30 cm	38 dB/1.6 ⁰	45 dB/0.7 ⁰	45 dB/0.7 ⁰
45 cm	42 dB/1.0 ⁰	49 dB/0.5 ⁰	48 dB/0.5 ⁰
60 cm	44 dB/0.7 ⁰	51 dB/0.35 ⁰	50 dB/0.4 ⁰

Power / Environment

Power Supply AC	Input 88-132 / 176-264 Volts, 50/60 Hz (with manual voltage range switch)
Transceiver Power Consumption	35 W (+60 W heating)
DC Power	36 to 60 Volts DC
Power Connection Ethernet / Power connector	IP-65 [optional IP-68]
Operational Temperature	-40 ⁰ C to 50 ⁰ C / -40 ⁰ F to 122 ⁰ F
Humidity	Any Rate

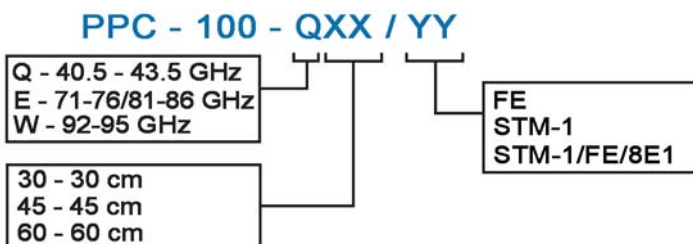
Physical Dimensions

	PPC-100/FE and PPC100/STM-1	PPC-100/STM-1/FE/8E1
Outdoor unit size w/o antenna	340 x 230 x 120 mm	
Indoor unit size	-	for 19' rack
Weight (ODU w/o antenna)	5.8 kg	
Complete set	2 ODU + 2 antennas	2 ODU + 2 antennas + 2 IDU

PPC-100 Model Matrix

PPC-100 is a true 100Mbps fiber substitute for Cellular or WiFi backhaul and most last mile applications. Customers can choose from PPC-100 models according to frequency band and distance range they require. ELVA-1 radios will improve network availability and resilience to failure while reducing the costs of installation, network integration, administration and maintenance.

To choose the right model by its product code please use the following encoding schema:



For instance, the code PPC-100-E60/STM-1/FE/8E1 means that it is model of 71-76/81-86 GHz frequency band PPC-100 radiolink with antenna diameter 600 mm, STM-1 interface and multiplexers 1xFE + 8xE1.

Version 5 from 30-01-2012