



# PPC-1000 Series

## Gigabit Ethernet MM-wave Link

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In response to market demand for ultra-wide broadband communication equipment, Elva-1 offers new PPC-1000 series of Gigabit Ethernet radios.

The Gigabit Elva-1 radio bridge was designed for a wide range of applications such as Wi-Fi, WiMAX, LTE or mobile network extension and backhaul links, business WAN or IP telephony gateway connections, FSO backup, metropolitan area networks and rapid-deployment emergency communications. The operating frequencies cover 40.5-43.5 GHz and 71-76/81-86 GHz. These are ECC licensed bands recently released by ECC for commercial use in wireless point-to-point communication.

Elva's PPC-1000 is a full-duplex Gigabit point-to-point link especially designed according to ECC requirements. It provides interconnection between remote LAN segments at ultra high speed and utilizes Gigabit Ethernet protocol, which is the evolving standard for switches and routers available from a variety of telecommunication equipment manufacturers. The PPC-1000 product has 1000 Base-LX (optional 1000 Base-SX) connections at each end of the wireless link and transparently establishes the link outputs. The resulting connection can replace a fiber-optics cable physically connected end-to-end. The wireless mm-wave Gigabit link provides fiber equivalent performance, reliability and security but with no high deployment cost associated with outdoor fiber installations.

### Features:

- Frequency band: 71-76/81-86 GHz (74-76/84-86 GHz for Czech Republic), 40.5-43.5 GHz
- 1250 Mbps Gigabit Ethernet Interface
- SNMP v.1; v.2; v.3; MIB-II and DOK Enterprise MIB; WEB
- True Full Duplex Operation
- Secure communication due inability to intercept the laser-like beam transmission at free air
- Solid reliability with Fiber-like Performance
- Distance ranges of up to 5 mile (8 km) at 10mm/h rain for 71-76/81-86 GHz frequency band
- Distance ranges of up to 6.7 mile (10.8 km) at 10mm/h rain for 40.5-43.5 GHz frequency band
- Easily installed, Zero maintenance
- Compact Cassegrain type antennas
- Quasi-optical (laser-like) propagation of millimeter wave emission
- EMI interference free



# PPC-1000 Series



## Specifications PPC-1000

### Specifications

Frequency Band	ECC E-band	ETSI Q-band
Bandwidth	71-76/81-86 GHz (74-76/84-86 GHz for Czech Republic)	40.5-43.5 GHz
Capacity	1250 Mbps Full duplex	
Modulation Type	QPSK	
Allocated Bandwidth	1250 MHz + 1250 MHz, 2.5 GHz in total	
Rx Sensitivity at BER 10 <sup>-6</sup>	-97 dBW (-67dBm)	-97 dBW (-67dBm)
Output Power	-10 dBW (20dBm, 100mW)	-8 dBW (22dBm, 150mW)
Max Distance with 600/900 mm antenna in clear sky	>20 km (12 mile)	>20 km (12 mile)
Max Distance with 600 mm antenna at 10 mm/h rain	7.2 km (4.5 mile)	9.3 km (5.8 mile)
Max Distance with 900 mm antenna at 10 mm/h rain	8 km (5 mile)	10.8 km (6.7 mile)
Link budget 300 / 450 / 600 / 900 mm	177 / 185 / 189 / 195 dB	165 / 173 / 177 / 185 dB
Network Management	SNMP v.1; v.2; v.3; MIB-II and DOK Enterprise MIB; WEB	
Ethernet Interface	1000 Base-SX / 1000 Base-LX	
Connector Type	Harting hybrid 2x fiber + 4x power (optional: hermetical cord installed)	
Diagnostics Port	100 Base-Tx (RJ - 45)	
Forward Error Correction	Reed-Solomon (204,188)	
Latency	50 µs	
Polarization	Vertical / horizontal - optional	
MTBF	150 000 hours	

### Antenna

Antenna Type	Cassegrain type antenna with radome	
Antenna Gain/Beamwidth		
30 cm	45 dB/0.7°	38 dB/1.5°
45 cm	49 dB/0.5°	42 dB/1°
60 cm	51 dB/0.35°	44 dB/0.7°
90 cm	54 dB/0.25°	48 dB/0.5°

### 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 when heater is switched on)
DC Power	36 to 72 Volts DC
Power Connection Ethernet / Power connector	IP-65 [optional IP-68]
Operational Temperature	-40°C to 50°C / -40°F to 122°F
Humidity	Any Rate

### Physical Dimensions

Outdoor unit size w/o antenna	340 x 230 x 120 mm
Weight (ODU w/o antenna)	6 kg max
Complete set	2 ODU + 2 antennas



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

## PPC - 1000 - QXX / YY

Q - 40.5 - 43.5 GHz  
E - 71-76/81-86 GHz

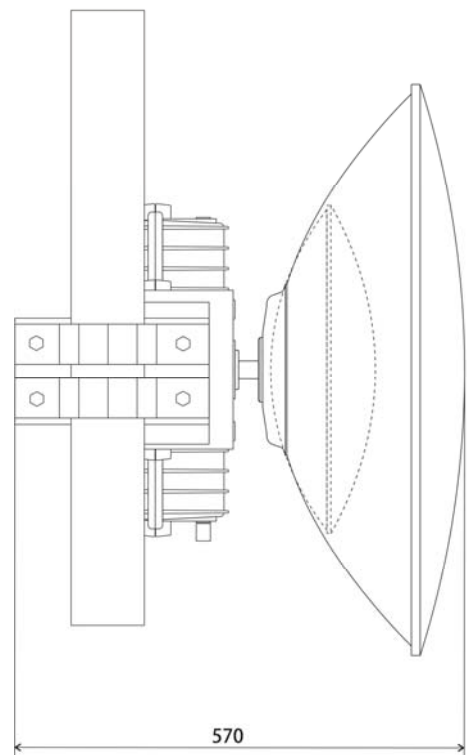
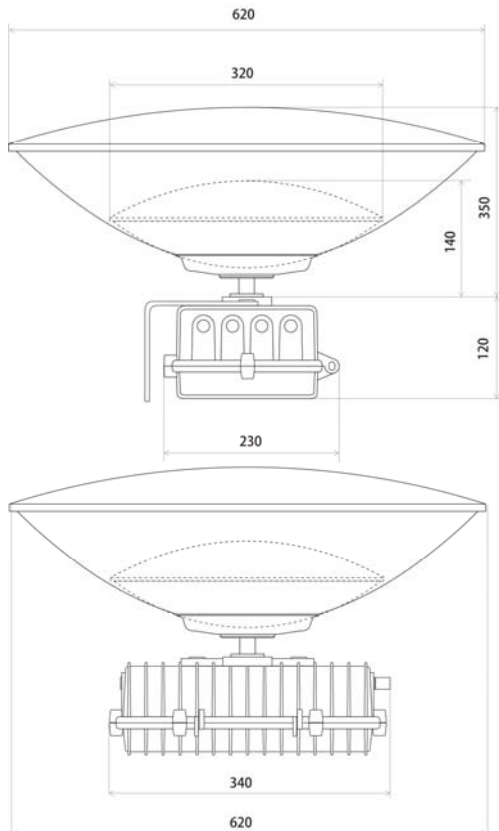
30 - 30 cm  
45 - 45 cm  
60 - 60 cm  
90 - 90 cm

SM - singlemode fiber  
MM - multimode fiber

For example, PPC-1000 link with 60 cm antenna diameter and single mode fiber optic cable for 40.5 – 43.5 GHz frequency band has product code PPC-1000-Q60/SM.

Your Local Elva-1 Representatives:

### PPC -1000 unit size with antenna

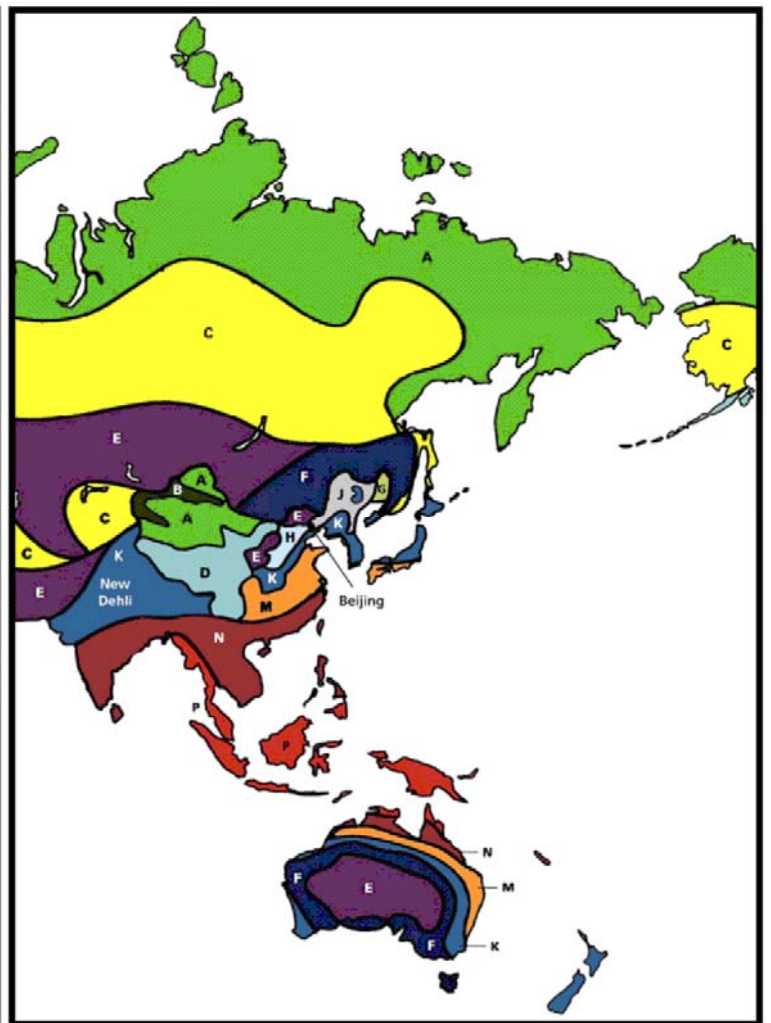




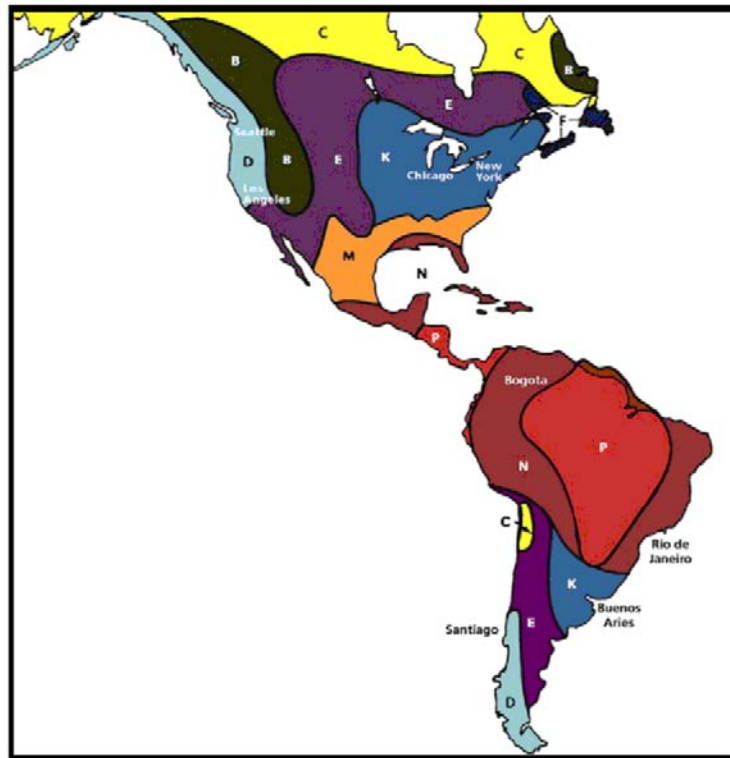
*Rain zone versus availability dimensions*



Europe/Africa Rain Regions



Asia-Pacific Rain Regions



Americans Rain Regions

Region	Distance PPC-1000 Q-Band with 600 / 900 mm antenna (km)		Distance PPC-1000 E-Band with 900 mm antenna (km)	
	99.9%	99.99%	99.9%	99.99%
A	>20 / >20	17,2 / 19,4	16,2 / 18,5	13,0 / 14,1
B	16,2 / 18,7	9,0 / 10,8	14,8 / 16,6	8,2 / 9,0
C	13,9 / 15,8	7,5 / 9,0	13,9 / 15,1	7,0 / 7,5
D	11,9 / 13,7	6,4 / 7,5	12,3 / 13,5	5,6 / 6,4
E	10,5 / 12,5	5,8 / 7,0	11,2 / 12,2	4,6 / 5,2
F	10,3 / 12,3	5,2 / 6,2	10,6 / 11,6	4,5 / 4,9
G	9,8 / 11,5	4,8 / 5,8	10,2 / 11,1	4,2 / 4,7
H	8,9 / 10,8	4,8 / 5,6	9,2 / 9,8	4,0 / 4,4
J	8,9 / 10,8	4,3 / 5,1	7,9 / 8,6	4,0 / 4,4
K	7,3 / 8,9	3,8 / 4,6	6,4 / 6,9	3,9 / 4,2
L	6,3 / 7,5	3,5 / 4,2	5,6 / 6,1	3,6 / 4,0
M	5,2 / 6,2	3,4 / 3,9	4,5 / 5,0	3,5 / 3,8
N	4,2 / 5,0	3,1 / 3,5	4,3 / 4,9	3,0 / 3,2
P	3,6 / 4,3	2,5 / 3,0	3,5 / 4,0	2,4 / 2,7
Q	3,4 / 3,9	2,0 / 2,7	3,3 / 3,8	1,9 / 2,2