

## Liberator-E1000e

The future of wireless backhaul

### Liberator-E1000e

#### Applications

Gigabit 3G & LTE Backhaul  
Campus & Site Connectivity  
Fiber Extension  
Wireless Video Surveillance

#### Highlights

Up to 4 km with 1 Gigabit Full-Duplex  
All-Outdoor & Small Form Factor  
Optimized for low-profile deployments  
Robust Aluminium Housing  
SyncE & 1588 Compliant  
Optional 256 bit AES encryption

#### About 70/80 GHz

The 70/80 GHz band is a 10 GHz wide band allowing much higher throughputs than traditional microwave. Compared to the 60 GHz band it offers longer transmission distances under any environmental condition. Multiple channel options in the 70/80 GHz band allow deployments without interference and support high capacity backhaul.

Sub10's combination of innovative design and Carrier Class features, gives the Liberator E-Series outstanding performance in many networks around the world.



### Gigabit Full-Duplex over distances up to 4 km

The Liberator E1000e is an easy-to-deploy and cost effective all-outdoor wireless Ethernet link operating in the 70/80 GHz band delivering a Full-Duplex bandwidth of 1 Gigabit over distances of up to 4 km. The Liberator E1000e has been designed to increase the data capacity in the carrier and enterprise sector offering various advanced features like Adaptive Modulation, Multi-Channel, Low Latency and AES 256-bit encryption.

Two antenna options (30 cm and 60 cm dishes), optimization for low profile installations and high net throughput of 1 Gigabit make the E1000e a perfect solution for last mile backhaul applications in metropolitan networks such as Fiber Replacement, Small Cell & Macro Cell Backhaul and Wireless Video Surveillance. The integrated patent-pending „Snapback“ SyncE & 1588 help to turn the E1000e into an integrated part of a modern 3G & LTE and Enterprise Network.

For more information please contact us!

[www.sub10systems.com](http://www.sub10systems.com)

## Technical specifications for Liberator-E1000e

<b>Frequency Bands</b>	71-76 / 81-86 GHz paired
<b>Modulation</b>	8-PSK / QPSK / BPSK
<b>Range</b>	up to 4000 Meter
<b>Ethernet throughput</b>	1 Gbps (full duplex, 8-PSK)
<b>Max Tx Power</b>	+6 dBm
<b>Sensitivity</b>	-61 dBm
<b>Channel width</b>	250 MHz / 500 MHz
<b>Antenna gain</b>	45 dBi / 51 dBi
<b>Link adaptation</b>	Adaptive coding & modulation, ATPC
<b>Interference immunity</b>	Channel switch capability
<b>Availability</b>	Up to 99.999% (use Sub10 Link Availability Calculator)
<b>MTBF</b>	25 years
<b>Wind load</b>	160 km/h (operating) and 200 km/h (survival)
<b>Ethernet frame size</b>	64 bytes up to 9,600 bytes
<b>Latency</b>	< 200 microseconds
<b>Synchronisation</b>	SyncE, IEEE 1588v2, patent pending snapback technology
<b>VLAN for management</b>	IEEE 802.1Q
<b>QoS</b>	Flow control, 802.1p, DiffServ, 8 queues
<b>Network management</b>	SNMP v1, v2c, v3
<b>GUI</b>	HTTP web-browser
<b>Encryption</b>	AES 256 bit as an option available
<b>Connector</b>	RJ-45 (outdoor gigabit Ethernet seal kit included)
<b>Voltage alignment port</b>	Waterproofed QMA socket
<b>ODU</b>	Terminal size 182 x 182 x 68mm
<b>Weight</b>	2,5 kg
<b>Power supply</b>	Power Over Ethernet ("Ultra-PoE" / PoE++), consumption 30W
<b>Operating temperature</b>	-40°C to +55°C

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