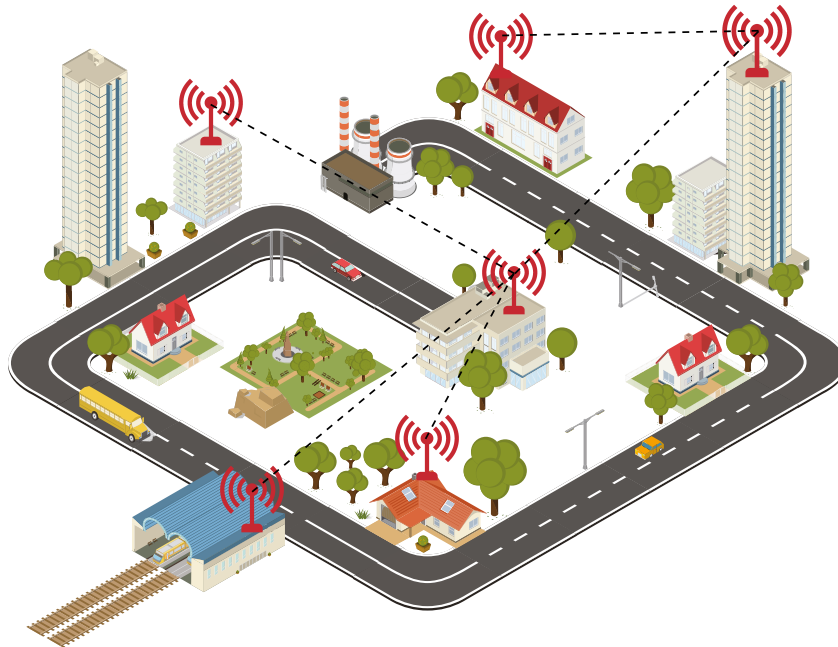




EC SYSTEM

EC-Link Profi

4.9 – 6.4 GHz
Frequency Bands



EC-Link Profi is **EC SYSTEM**'s most recent addition to our wireless portfolio. It is a record-breaking and innovative Point-to-Point solution in the sub-7 GHz frequency band, boasting the best-in-breed spectral efficiency, higher-than-ever-before processing power and distance vs. performance ratio. Reaching a peak of 480 Mbps of net throughput in 40 MHz of spectrum, and more than 100 Mbps in only 10 MHz, it is the fastest Point-to-Point system available in the marketplace today.

Available with a wide range of integrated antennas, as well as a connectorized version for use with 3rd party external antennas, and coupled with improved transmit power and sensitivity, the **Profi** family will fit perfectly into a large array of applications such as backhaul in the telecom market, education, oil and gas, smart cities, video surveillance and public safety.

Applications

- ▶ HIGH CAPACITY SHORT-, MEDIUM- AND LONGHAULS FOR 3G/4G OPERATORS AND SERVICE PROVIDERS
- ▶ FULL-FLEDGED FIBRE/FSO/MILLIMETRE-WAVE REPLACEMENT, EXTENSION OR BACKUP
- ▶ LOS AND NLOS MACRO- AND SMALL-CELL BACKHAUL
- ▶ VIDEO SURVEILLANCE OVER MEDIUM AND LONG DISTANCES
- ▶ DISASTER RECOVERY
- ▶ BUILDING-TO-BUILDING CONNECTIVITY
- ▶ RURAL/SUBURBAN LAST MILE ACCESS





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Key Features

HIGHEST SPECTRAL EFFICIENCY

Best-in-class 13 bps/Hz
In excess of 100 Mbps net throughput even in only 10 MHz channel width
Innovative radio technology for NLOS and reflected signal conditions
1 million packets-per-second processing power
Full capacity at any packets sizes and for any type of traffic

HIGH CAPACITY

Net performance of 240 Mbps in 20 MHz and 480 Mbps in 40 MHz

LONGEST REACH

Distances in excess of 30 km with integrated antennas, and more than 100 km with external high gain antennas
High-power transmitter and high sensitivity even at highest modulations, ensuring maximal link budget
Unprecedented system gain of 177 dB even with integrated antennas

SEEMLESS INTEGRATION

Extended QoS support
Two Gigabit Ethernet ports
SFP optical port
IEEE 1588
Full-fledged L2 switching

FLEXIBILITY

Available in connectorized configuration and with integrated from 23 to 28 dBi flat-panel dual-polarity antennas
Easy-to-align and easy-to-install
Fully configurable uplink/downlink ratio
Very small footprint

ULTRA-LOW LATENCY

Ultra-low consistent 0.5 ms latency at any distance
Configurable frame size

RELIABILITY & ROBUSTNESS

Ruggedized aluminium cast IP66 and IP67 enclosure
Extended temperature range of -40° to +60°C, with 100% humidity
No link degradation even in harsh weather conditions
Built-in surge protection

IMPROVED NOISE IMMUNITY / INTERFERENCE AVOIDANCE

On-site synchronization for best spectrum utilization
-40 dB adjacent channel separation

EC-Link Profi Technical Specifications

PERFORMANCE

Throughput	Up to 480 Mbps, net aggregate
Packet performance	More than 1 million packets per second (line rate)
Latency	0.5-3 ms one-way, typical (depending on air frame period)

RADIO TECHNOLOGY

Modulation	Cyclic single carrier
Modulation schemes	Ten modulation/coding schemes from QPSK to QAM256, as well as QAM1024
Frequency bands	4.9-6.0 GHz 6.0-6.425 GHz Other frequency bands will be supported in future releases
Channel widths	10, 20 and 40 MHz
Spectral efficiency	Up to 13 bps/Hz
Output power	Up to 27 dBm (average, per Tx chain) @ QPSK to QAM64 Up to 25 dBm @ QAM256, Up to 18 dBm @ QAM1024
Receiver sensitivity	-94 dBm @ 10 MHz, QPSK
System gain	Up to 177 dB (based on a 28 dBi integrated antenna in 10 MHz channel width)
Duplex Scheme	TDD, Hybrid-FDD
Antenna	- Integrated: dual-polarization flat panel 23, 24, 26, 27, 28 dBi (selectable at time of ordering and model-dependent) - Connectorized: 2x N-type (Female) connectors for external dual-polarization antenna
Maximal range	In excess of 100 km in clear line-of-sight conditions, with use of high gain external antennas

AIR PROTOCOL

Air frame	Configurable, 1 to 10 ms
Uplink/downlink ratio	Configurable, from 50:50 to 90:10 in any direction
Automatic modulation control	Fully supported
Automatic ranging	Fully supported
TDD synchronization	Fully supported, via built-in GLONASS/GPS receiver or IEEE1588 PTP

WIRED INTERFACES

Ethernet	2x 10/100/1000-BaseT copper ports, RJ-45: GE0 – Data+PoE input GE1 – Data only SFP port: various 3rd party single and multi-mode fibre module sare supported Either of the ports can be configured independently for management, user data or for a hybrid mode
PoE	802.3at or EC SYSTEM proprietary “passive” PoE
Cable length	Copper Ethernet cable length: up to 100 m between outdoor unit and the primary network connection Fibre cable length: up to 300 m or more depending on the SFP module type

QOS AND NETWORK PROTOCOLS

QoS	4 queues
Prioritization	“Strict” and “weighted” modes
Packet classification	802.1p
Network protocols	VLAN, IGMP, STP
Timing Transport	IEEE 1588 v2, transparent clock

MANAGEMENT AND INSTALLATION

LED Indication	Power status, wireless and wired link status, RSSI indication, TDD sync status
Management Protocols	HTTP, telnet, SNMP v1/2c/3 (MIB-II and proprietary MIBs)
Installation Tools	Antenna alignment tool

PHYSICAL

Weight and dimensions	Please refer to the model matrix
Operating temperature range	-40° to +60°C
Dust and water protection	IP66, IP67
Wind load	160 kph, operational; 200 kph, survival
Power supply	IDU-BS-G: 90-240 VAC, 50/60 Hz, 0°C to +40°C, 124x72x38 mm, 0.3 kg
Input DC range	±43 to ±56 VDC
Consumption	Up to a maximum of 30 W

COMPLIANCE

Safety	EN 60950-1:2006, UL 60950-1 2nd ed.
Radio	EN 301 893 v.1.8.1, EN 302 502, v.1.2.1, FCC part 15.247
EMC	ETSI EN 301 489-1, ETSI EN 301 489-17, FCC Part 15 Class B
RoHS	Directive 2002/95/EC

MODEL RANGE

Integrated Antenna Models

PART NUMBER	FREQUENCY BAND	INTEGRATED ANTENNA	WEIGHT AND SIZE	
ECM-P5-A23R500-500M	4900-6000 MHz	Flat-panel, 23 dBi, 10x10 deg	305x305x59 mm 2.4 kg	
ECM-P6-A24R500-500M	6000-6425 MHz	Flat-panel, 24 dBi, 8.5x8.5 deg	305x305x59 mm 2.4 kg	
ECM-P5-A26R500-500M	4900-6000 MHz	Flat-panel, 26 dBi, 8x8 deg	371x371x83 mm 3.1 kg	
ECM-P5-A28R500-500M	4900-6000 MHz	Flat-panel, 28 dBi, 5x5 deg	600x600x75 mm 6.2 kg	
ECM-P6-A27R500-500M	6000-6425 MHz	Flat-panel, 27 dBi, 5x5 deg		

External Antenna Models

PART NUMBER	FREQUENCY BAND	ANTENNA CONNECTION	WEIGHT AND SIZE	
ECM-P5-CR500-500M	4900-6000 MHz	2xN-type (Female)	253x240x86 mm 2.1 kg	
ECM-P6-CR500-500M	6000-6425 MHz			