

# EtherHaul™ Microwave Series

## 1Gbps FD 17/24GHz Radio – Outstanding Reliable Wireless Connectivity

The EH-1107F & EH-1104F deliver the most reliable and stable microwave links up to 1Gbps Full Duplex, on busy sites in challenging conditions.

### Applications for a Wide Range of Vertical Markets

- Backbone for countries where E-Band is not permitted
- Last Mile microwave link
- Back-up link for EtherHaul™ ExtendMM™ links
- Security / Surveillance
- Long distance links

### Up to 1Gbps Over Longer Distances

EH1107F and EH1104F are high-speed, point- to-point microwave links. Thanks to their exceptional resistance to interference, the EH1107F and EH1104F provide the most stable links even on busy sites. A Full Outdoor Radio, it is ideal where high performance links with maximum reliability are required. Designed with attention to details and implementing all relevant state-of-the- art concepts, this high-quality microwave link provides excellent performance in every conditions.

### Superior Radio Performance

EH1107F and EH1104F are designed to work in challenging conditions, offering the highest network throughput in any environment and leading resistance to interference. With their narrow channels, EH1107F and EH1104F provide high speed links over extreme distances and can also be used when only limited spectrum is available.

### Asymmetrical Channel Flexibility to Maximize Spectrum Use and Reuse

The EH1107F and EH1104F allow optimization of available spectrum. The built in Spectrum analyzer allows the user to identify and maximize free channel availability which especially useful for free band applications. Standard microwave links can only use the same bandwidth and data speed in both directions while the EH1107F and EH1104F offer the option of different bandwidth and different data speeds in each direction, allowing the user to make a full use of the available spectrum. On a busy site this could make the difference between a microwave link being installed or not. With EH1107F and EH1104F, multiple links can be easily deployed on the same site.

### Small Size, Easy to Deploy & Manage

The all-outdoor radio has a small footprint and is light weight which makes site acquisition a breeze. The product comes pre-configured out of the box with no license to download greatly simplifying the time and cost for installation. The low power consumption and voltage requirement perfectly meets remote sites installation and it is even solar ready. The intuitive web GUI manages local and remote units to enable fast alignment commissioning and configuration.

### Security Above All

Advanced Physical, Management, Access control and Data security mechanisms (AES), maintaining network integrity in line with the robust modern demands of today's cyber security. Peer stations can be paired and permanently monitored against a unique serial number. Different Management access options are available, based on customer preference, allowing different levels of secure access.

# EtherHaul™ - 1107F & 1104F Specifications



Frequency range	EH-1107F:17.10 – 17.30 GHz; EH-1104F: 24.00 – 24.25 GHz		
Channel spacing	3.5, 5, 7, 10, 14, 20, 28, 40, 56, 80, 100, 112 MHz		
Channel duplex spacing	Flexible, min.18 MHz between channel edges		
Gross data rate	2.7 – 1002 Mbps		
<b>Modulation</b>	<b>3.5 MHz</b>	<b>56 MHz</b>	<b>112 MHz</b>
QPSK_S (Speed / Sensitivity)	2.7 Mbps / -99.0 dBm	48 Mbps / -88.0 dBm	97 Mbps / -85.0 dBm
QPSK	5.0 Mbps / -94.5 dBm	81 Mbps / -84.5 dBm	161 Mbps / -81.5 dBm
16 QAM	9.5 Mbps / -88.5 dBm	168 Mbps / -77.5 dBm	334 Mbps / -74.5 dBm
32 QAM	11 Mbps / -85.0 dBm	213 Mbps / -73.5 dBm	426 Mbps / -70.5 dBm
64 QAM	15 Mbps / -82.0 dBm	267 Mbps / -70.5 dBm	536 Mbps / -67.5 dBm
128 QAM	17 Mbps / -79.0 dBm	319 Mbps / -67.5 dBm	636 Mbps / -64.5 dBm
256 QAM	19 Mbps / -76.0 dBm	366 Mbps / -64.5 dBm	730 Mbps / -61.5 dBm
512 QAM	22 Mbps / -73.0 dBm	413 Mbps / -61.5 dBm	823 Mbps / -58.5 dBm
1024 QAM	23 Mbps / -69.5 dBm	459 Mbps / -58.5 dBm	918 Mbps / -55.5 dBm
2048 QAM (7 - 112 MHz)	-	501 Mbps / -55.5 dBm	1002 Mbps / -52.5 dBm
4096 QAM (14 - 56 MHz)	-	540 Mbps / -52.5 dBm	-
ACM	Hitless		
RF Output power	-30 to +10 dBm		
ATPC	Yes		
MTU	10240 B		
Latency (RFC 2544)	≤198 μs		
Synchronization	Synchronous Ethernet; 1588v2 transparent clock		
<b>Electrical</b>			
Primary power	PoE, IEEE 802.3at; PoE passive 20 – 60 VDC, floating		
Power consumption	typ. 22.5 W (w/o SFP)		
<b>Interfaces</b>			
Ethernet	1× 10/100/1000 Base-T Auto MDI/MDIX / RJ45		
SFP	1× 10/100/1000 Base-T/1000Base-SX/1000Base-LX (power max. 1.25 W)		
USB	USB 2.0 / Host A		
RSS voltage	Two-contacts socket		
Antenna Options	17GHz/24GHz 40 cm – 34.6/37.4dBi antenna gain 68 cm – 38.6/42dBi antenna gain 90 cm – 41.4/44dBi antenna gain		

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Reach	1000Mbps: 4km @ 99.95% availability (112MHz, rain zone K, 2ft ANT.) 100Mbps: 20KM @ 99.95% availability (112MHz, rain zone K, 2ft ANT.)
<b>Environmental</b> IP Code (Ingress Protection) MTBF (Mean Time Between Failure) Operating temperature Operating humidity	IP66 > 750.000 hours (> 85 years) - 30 to + 55°C (ETSI EN 300019-1-4, class 4.1.) 5 to 95% non-condensing
<b>Mechanical</b> Casing Size Weight Mounting	Rugged die-cast aluminium 160 H x 245 W x 245 D mm (6.3 x 9.6 x 9.6 in) 2.6 kg (5.7 lbs), ODU only FOD, direct mounting to antenna
<b>Diagnostic</b> Real time monitoring Diagnostic tools History charts Statistics Antenna alignment SNMP	RSS, MSE, BER Spectrum analyzer, Pinger, Constellation diagram Temperature, Power voltage, RSS, MSE, BER, Data rate, RF Output power RMON counters for all interfaces RSS voltage, web v2c including configurable TRAPs
<b>Security</b> Management Access accounts Encryption	HTTP, HTTPS, SSH, Telnet, 3 levels (Guest, Admin, Super) AES256, 192, 128
Approvals	CE

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