Datasheet

CableFree
Wireless Excellence

Microwave Radio (MW)

Microwave Radio

Overview

About CableFree

Founded in 1997 and with headquarters in London, UK, CableFree is a leading designer and supplier of broadband Wireless communication equipment.

With a complete range of solutions including Radio, Microwave, Millimeter-Wave, Free Space Optics, WiFi and WiMax solutions, customers in over 60 countries have chosen CableFree as the "one stop shop" solution of choice for dependable wireless networking.

About Microwave

Using the latest RF technology, our microwave links operate in all the popular bands from 6-38GHz, distances over 40km and net throughput up to 311 and 622Mbps. Our advanced Indoor units provide a common platform with flexible IP/Ethernet, Gigabit Ethernet, PDH (16xE1/T1) and optional SDH interfaces, to which traffic can be allocated under software control.

Flexibility, performance and low cost of ownership are ensured.

System Features

- Compact, split Indoor-Outdoor configuration
- Spectrally Efficient, Software-Defined IDU
- Powerful Forward Error Correction (FEC)
- Adaptive Power Control
- Capacity up to 311 and 622Mbps
- Mix SDH, PDH and IP/Ethernet Interfaces
- Rugged & proven telecom-grade design
- 1+0, 1+1, ring, star and mesh architectures

Applications

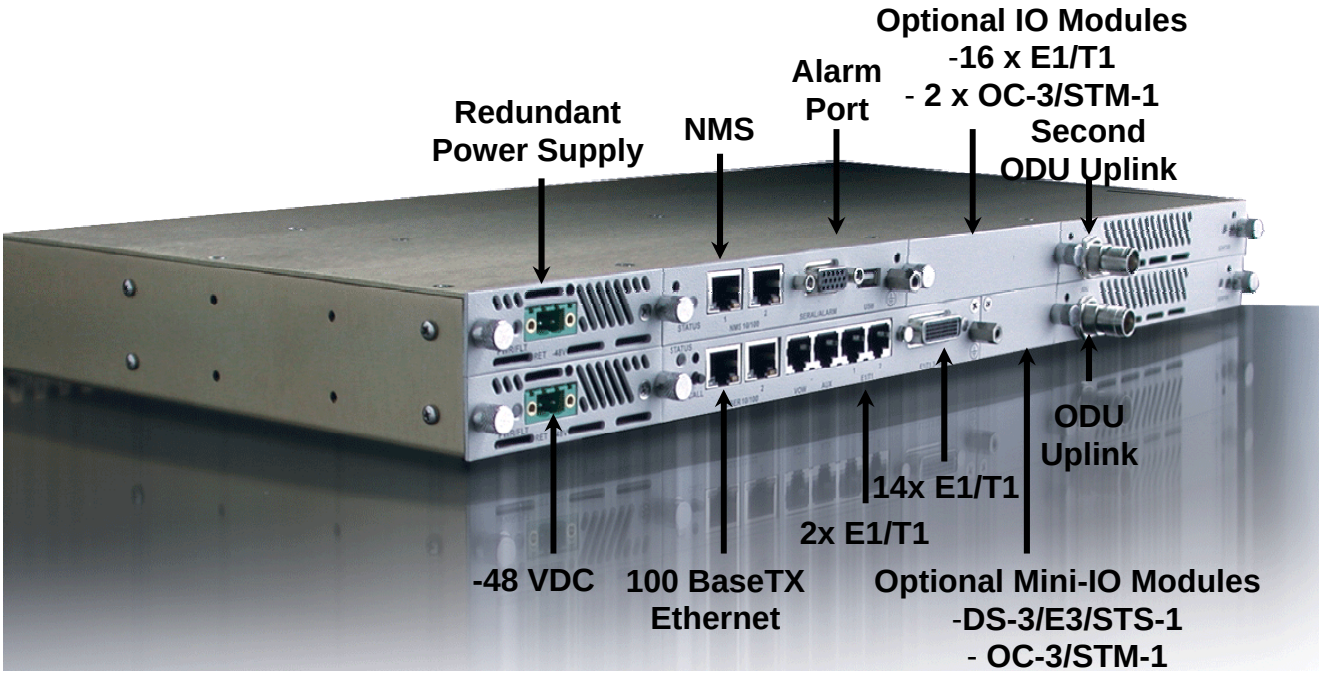
- Point-to-Point Wireless networking
- Corporate backbone or Telecom service provider
- Resilience for Fibre links
- Fast Roll-out & Temporary Deployment

CableFree Microwave radios are high performance, modern generation wireless networking platforms supporting mixed IP/Ethernet, SDH and PDH interfaces, operating from 3.5 to 38GHz frequency bands and payloads from 16 to 311 and 622Mbps. CableFree has pioneered the use of Software-Defined Radio which enables in-service upgrades, remote configuration, low equipment costs. CableFree Microwave systems offer users maximum useful lifespan and minimal capital and operating expenditure (CAPEX and OPEX).
Advanced networking features in the CableFree Microwave IDU include scalable Ethernet capacities up to 622Mbps, SDH support and PDH switching to add/drop op to 160 E1 channels between "East", "West" and "Front Panel" ports which radically reduces costs and increases flexibility in a modern cellular network operator network, with ring, star and mesh configurations. High availability configurations include 1+1 protection.
Operating distances vary depending on local weather conditions, specifically link frequency and rain intensity. Planning for microwave wave spectrum use must take into account the propagation characteristics of radio signals at this frequency range. While signals at lower frequency bands can propagate for tens of miles, higher frequency microwave signals can travel only a few miles or less. Higher frequency microwaves can permit more densely packed communications links, with very efficient spectrum utilization.

Flexible Modular System Configuration

CableFree Microwave radios feature a scalable, flexible Indoor Unit platform. Indoor units can be configured with single or dual ODU uplinks for 1+1 resilient links or 2+0 repeater sites; Dual Redundant power options; additional E1/T1 or SDH network modules. The modular design allows for future upgrade to Gigabit Ethernet with the dual 311Mbps available. The flexible "mix and match" choice of network interfaces allows for any combination of:

- 1-100 Mbps full duplex Ethernet (scalable to multiple rates)
- 1-16 x E1/T1
- 1-2 x STM-1 Electrical
- 1-2 x STM-1 Optical / OC-3
- Additional 1-16 x E1/T1 (for a total of 32x E1/T1)
- STM1 to E1/T1 Mux/Demux integrated in a single 1RU SDIDU
- Fractional Gigabit Ethernet (311 or 622Mbps)



Typical configuration examples include:

- 100 Mbps full duplex Ethernet + 2 x E1/T1
- 50 Mbps full duplex Ethernet + 16x E1/T1
- 311 or 622Mbps full duplex Fractional Gigabit Ethernet + 2 x E1/T1

This flexibility is ideal in a modern service provider environment, handling mixed IP and TDM traffic, for example GSM + 3G base stations, plus WiFi hotspot overlay.

The CableFree Microwave IDU works alongside a complete range of Outdoor Units (ODU) for various frequency bands. The ODU determines the frequency band supported. Examples include:

	Frequency Band (GHz)											
Band	6	7	8	11	13	15	18	23	26	28	32	38
Frequency Range	6.5-7.1	7.1-7.9	7.9-8.5	10.7-11.7	12.7-13.3	14.4-15.4	17.7-19.7	21.2-23.6	24.2-26.5	27.5-29.5	31.8-33.4	37.0-40.0

And available capacities using ETSI-recommended modes of operation for PDH and SDH payloads:

Modulation Type	Channel Bandwidth (MHz)			
	7	14	28-30	40-56
QPSK	4E1 8Mbps	8E1 16Mbps	16E1, E3 34Mbps	-
16QAM	8E1 16Mbps	16E1, E3 34Mbps	2E3 68Mbps	STM-1 155.52 Mbps
32QAM	8E1 16Mbps	16E1, E3 34Mbps	2E3 68Mbps	STM-1 155.52 Mbps
64QAM	-	-	-	STM-1 155.52 Mbps
128QAM	-	-	STM-1 155.52 Mbps	2x STM-1 311.04 Mbps

Specifications

System Variant	CFMW-311
System Parameters	
Frequency Band	7, 8, 10/11, 13, 15, 18, 23, 38GHz depends on ODU
Bandwidth	7, 14, 28-38, 40-56MHz depends on ODU
Capacity	16 up to 311 or 622Mbps Full duplex
Modulation Type	BPSK, QPSK, 16 up to 256QAM
Rx Sensitivity	Depends on specific ODU and modulation
Output Power	Up to 27dm – depends on specific ODU and modulation
Forward Error Correction	Trellis-Coded Modulation concatenated with Reed-Solomon Coding.
Network Management	SNMP Enabled
Remote Parameters Monitoring	Full range of SNMP, HTTP/web, CLI, serial
Data and Aux Interface	
IP/Ethernet Interface	100Base-T (Standard IEEE 802.3), optional 1000Base-T Gigabit Ethernet
PDH	Nx E1/T1 120ohm twisted pair (ITU G.703)
SDH	STM-1 120ohm twisted pair (ITU G.703)
Diagnostics Port	10/100Base-T and RS-232
Antenna	
Antenna Type	Cassegrain type antenna with radome
Antenna Gain/ beamwidth	Depends on specific antenna and frequency chosen
Power / Environment	
DC Power	36 to 60 Volts DC
Power Supply AC	Input 88-132 / 176-264 Volts, 50/60 Hz [with manual voltage range switch]
Power Consumption	50-75W (depends on ODU type)
Power Connector	IP-65 [optional IP-68]

Ethernet / Power Connector	
Operational Temperature (IDU)	-5°C to 55°C
Operational Temperature (ODU)	-33°C to 55°C ETS 300 019-2-4 Class 4M5
Humidity	0 to 95%, non-condensing

Physical Dimensions

Dimensions (IDU)	1RU, ETSI compliant
Dimensions (ODU w/o antenna)	267 diameter x 89mm
Weight (IDU)	5 kg max
Weight (ODU w/o antenna)	5 kg max

See price list for product codes.

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