OMU II
Optical Master Unit

Key features:

- Supports Cellular 2G, 3G, 4G services up to 2700MHz & public safety services FM/VHF/UHF/LMR on the same enclosure
- Single enclosure to support high power (MBF-40) and low power (MBF-20) remote units
- MIMO support
- Web based remote management via wireless modem
- Flexible configuration to support up to 8 sectors via single chassis
- Simple integration to AEM or any other 3rd party NOC via SNMP traps

The OMU II is used to convert signals from RF to light when fibre-fed repeaters are used at the remote end of the optical link. The OMU II is a headend system that can be connected directly to a base station or off-air device such as a digital repeater or bi-directional amplifier. For larger venues with multiple services and multiple bands, a Point Of Interface (POI) unit may be required to condition Uplink and Downlink RF signals between the BTS/Off-air Repeater and the OMU. In the downlink direction, the OMU picks up the signal from the BTS, converts it into an optical signal and transfers it over a fibre optical cable to the repeater. In the uplink direction, the OMU receives the signal from the remote repeater via the fibre optical cable, converts it to a RF signal and sends it back to the base station.

Architecture

Each OMU II has a dedicated control card, alarm and battery backup card, rack communication board (RCB), optional modem card and 2 AC/DC power supplies on the back of the chassis. It has 12 slots in the front to support the Opto Module cards and Signal Conditioning Card- Optical Splitter Module (OSM). The OSM cards include a 1:4 optical splitter hence it can support up to 4 MBF-20 units from a single OSM.

The OMU II can support up to 8 of our standard high powered MBF-40 or 24 low powered MBF-20 remotes. For the maximum number on MBF-20 remote units, 6 Opto Modules and 6 OSM are used which may be configured according to the number of sectors used in the project – up to 6 sectors in this configuration. If only MBF-40 units are required, up to 8 Opto Module cards are used (no OSM cards) which may be configured according to the number of sectors used in the project – up to 8 sectors in this configuration. You can mix and match between the MBF-40 and MBF 20 remote units. Please refer to the 2nd page for all the available options.

Automatic Optical Gain Setting

The fibre optic system Axell Wireless has designed puts a clear focus on user friendliness and ease of installation and commissioning. Through an automatic optical gain setting, the commissioning is easily performed, thus reducing the time it takes to put the equipment in service. This also means that the training is significantly simplified and the need for installation effort is decreased.

Remote Supervision

Only one modem is needed to communicate with an OMU II and its fibre fed repeaters. The modem types available are GSM, UMTS, CDMA 1x, PSTN, and TCP/IP. The modem is found inside the OMU II and communication with the fibre-fed remote units is transparently handled via the fibre that connects them. The system can be monitored and controlled via the Axell Wireless' network management software tool called AEM. AEM communicates with each fibre remote unit via the OMU over the same single mode fibre strand that carries the RF signals. Both data communications and the RF signals are managed over the same fibre link which results in a very reliable supervision of the radio link.

The OMU Mark II supports: public safety services (VHF, UHF, TETRA, SMR 700/800/900), cellular bands for EMEA and APAC (800 / 900 / 1800 / 2100 / 2600) and LTE700, 850, PCS and AWS for Americas and is always used in combination with one or several fibre fed repeaters.

Technical specifications

RF Parameters			
Frequency bands	68-500 / 380-2200 / 700-2700 MHz		
Gain flatness	typical 2 dB (p-p)		
Nominal RF input power	+10 dBm composite power		
Absolute maximum RF input power	+23 dBm composite power		
Number of optical modules	1-24 (depends on low/high power configuration)		
	MBF-40 (high power)	MBF-20 (low power)	The table to the left lists the various high (MBF-40) and low (MBF-20) power remote unit configurations and how it affects the total number of links supported. *For example:* if the OMU II supports two high power fibre remotes, then the available low power links = 20
	8	0	
	7	4	
	6	8	
	5	12	
	4	16	
	3	16	
	2	20	
	1	20	
	0	24	
Laser class	Class 1		
Optical module electrical specification			
Optical wavelength Downlink (± 10 nm)	1310		
Optical wavelength Uplink (± 3 nm)	1510 or 1530 or 1550 or 1570 or 1590		
Maximum optical input power	+5 dBm		
Output power (Tx) max	+7 dBm		
Automatic fibre optic loss compensation	Yes		
Optical Splitter Module (OSM) electrical specification			
Optical splitter (OSM) input power	+5 ± 1 dBm		
Insertion loss	7dBo		
Power requirements			
Power requirements	230/115 VAC, 50/60 Hz,-48 VDC		
Power consumption	Typical 50 W (fully equipped)		
External electrical interfaces			
Local maintenance terminal	Ethernet, USB, RS232		
RF ports	N-type Connector Female for 1-2 sectors. SMA connectors for 8 sectors		
Optical ports	SC/APC		
AC/DC mains input	AC: IEC Connector with main lead supplied according to the region. DC: flying leads for connection to terminal block		
External alarms	Via Front panel		
Modem connector	RJ45 for wireless modem , RJ11 for PSTN modem		
Modem antenna connector (Wireless modem)	SMA		
Ethernet connector	RJ45		
Mechanical specifications			
Dimensions (W x H x D)	17.5 x 5.2 x 11.4 in (444 x 132.5 x 291 mm) 19” rack		
Weight	33 lbs (15 kg) (fully equipped)		
IP rating	IP20		
Environmental			
Operating temperature	+41 to 113° F (+5 to +45°C)		

About Axell Wireless

Axell Wireless is one of the top global providers of wireless coverage solutions and the market leader in the provision of solutions for the public safety market worldwide. Our equipment has been deployed in some of the most technologically challenging environments in the world, providing coverage for tunnels, metros, buildings, stadiums and transportation systems all over the world. With its headquarters in the UK, Axell Wireless has been operating for over 40 years and has an international footprint. A proven track record combined with a reputation for providing innovative and high-quality products has made Axell Wireless a truly global player in the wireless coverage industry.