Optical Master Unit Mk. II

OMU II - RF to Fibre Optic Conversion System

Key features

- Supports Cellular 2G, 3G, 4G services up to 2700 MHz & FM/VHF/UHF/LMR public safety services in the same enclosure.
- Single enclosure supports up to eight MBF 40 and/or BSF 3604 remote units.
- MIMO support.
- Web based remote management of the OMU is via Ethernet or optional wireless modem.
- Flexible configuration to support up to 8 sectors via single, 3U 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.

Configuration.

Each OMU II has 12 slots in the front panel to support the optical transceiver modules and the RF Splitter and Combiner Modules which distribute the RF signal to and from the optical transceivers. The front panel also hosts a dedicated control card (with optional wireless modem), an alarm and battery backup card, and a rack communication board (RCB) which handles communication between the fibre optic modules and the control module. Each OMU II chassis is fitted with two, internal power supplies, AC or DC depending upon model.

The OMU II can support up to 8 of our standard high powered MBF 40 or BSF 3604 fibre-fed remotes or a combination of both.

Automatic Optical Gain Setting.

PBE Axell's fibre optic system puts a clear focus on user friendliness and ease of installation and commissioning. Our automatic optical gain setting simplifies the commissioning process and personnel training schedule thus reducing the time it takes to put the equipment into service.

Remote Supervision.

The system is monitored and controlled via PBE Axell's network management software tool, Active Element Manager (AEM) which is a robust element management platform designed to provide complete alarm monitoring and control of every element in the network.

AEM communicates with each fibre-fed remote unit via the OMU over the same single mode fibre link that carriers the RF as Optical signals and which results in a very reliable supervision of the radio link. Optional built-in RF modems are available.

The OMU II supports a wide range of public safety services, cellular bands for EMEA and APAC and LTE700, 850, PCS and AWS and is always used in combination with one or several fibre fed repeaters.

Technical specification

RF Parameters		
Frequency bands		68-512 / 380-2200 / 680-2700MHz
Gain flatness		typical 2 dB (p-p)
Composite Input power to OMU with RF splitter/combiner		Nominal power 10 dBm Maximum power +23 dBm (without damage)
Composite Input power to a Fibre Module		Nominal power -3 dBm Maximum power +10 dBm (without damage)
Number of optical modules		1 to 8
Number of supported remote units		1 to 8
RF Ports		N-type female connector
Optical Parameters		
Downlink wavelength (± 10 nm)		1310 nm or 1330 nm
Uplink wavelength (± 3 nm)		1510 nm or 1530 nm or 1550 nm or 1570 nm or 1590 nm
Optical Module Output power		+5 ± 2 dBm
Maximum Optical Input Power		+5 dBm
Output Power (TX) max		+7 dBm
Operating Temperature		+5 °C to +45 °C (+41 °F to 113 °F)
Fibre optic loss compensation		Automatic
Optical ports		SC/APC
Laser class		Class 1
Power Requirements		
Input voltage (model dependant)		230VAC 50 Hz or 115 VAC 60 Hz or -48 VDC
Power Consumption		Typical 50 W (fully equipped)
AC/DC Mains Input		IEC Connector to internal PSU modules
External alarm and control interfaces		
Local Maintenance Terminal		RS232
External alarms		Via Front panel
Modem connector		RJ45 or RJ11
Modem antenna connector		SMA
Ethernet connector		RJ45
Mechanical and Environmental specifications		
Dimensions (W x H x D)		444 mm x 132.5 mm x 291 mm (17.5” x 5.2” x 11.4”) 3U, 19” rack
Weight (fully equipped)		15 kg (33 lbs.)
IP rating		IP20
Humidity		0 to 95% RHNC
Lifetime (MTBF)		>70000 hrs.
Compliance		
RoHS		EU 2015/863 European RoHS 3 directive.
2014/53/EU Radio Equipment Directive (RED)	Safety	EN 62368-1, EN 60825-1, EN 50385
	EMC	EN 301 489-1, EN 301 489-5, EN 301 489-11, EN 301 489-50