

# 2440

## Occam Networks 2440 Series Optical Network Terminal GPON Triple Play Gateway

- > High Definition Access™ Triple Play Gateway (RG)
- > ITU-T G.984 GPON Compliant
- > Multiple Services Ready (VoIP, Data, RF Video, IP Video, Lifeline POTS)
- > Environmentally Hardened Enclosure

OCCAM

The ON 2440 series of Optical Network Terminals (ONTs) provides GPON fiber access termination for the BLC 6000 Broadband Loop Carrier system.



The future of Telco services puts new demands on the access network. DSL growth with Internet streaming content, fiber to the home, residential video and Triple Play, enterprise Ethernet, VoIP, and expansion into new service areas will all have a major impact. For carriers to remain profitable while service offerings become more complex, the network must get simpler.

Making the network simpler requires new thinking. Occam's BLC 6000 Broadband Loop Carrier uses IP as a simple, common service delivery protocol for all services and uses Ethernet transport to provide economical, highly scalable bandwidth. The BLC 6000 integrates the functions of an NGDLC, DSLAM, OLT, Optical Mux, Ethernet switch, and VoIP gateway into an environmentally hardened loop carrier system to simplify the network and deliver all services to all customers from a single platform.

The BLC 6000 is the industry's first complete loop carrier system designed to economically scale from dozens to thousands of users, deliver narrowband to gigabit services, and leverage the power and cost effectiveness of IP and Ethernet.

– Preliminary –  
The information is  
subject to change

### Design Philosophy

The ON 2440 can be mounted outside a residence or business delivering voice, video and data services to homes, SOHO and small enterprises. The electronics are in a separate replaceable module which is hinged and secured with a security tool.

### Flexible Service Delivery

Multiple high-definition TV channels and streaming Internet applications can exceed 100 Megabit bandwidth. The ON 2440 ONT with its industry-standard 2.5 Gbps downstream/1.2 Gbps upstream GPON optical link can easily accommodate the need for multiple bandwidth-hungry applications.

### Lifeline POTS and VoIP

The ON 2440 series of ONTs is designed to deliver two Lifeline POTS lines, as well as VoIP using 10/100/1000 Ethernet. This capability allows cost-effective delivery of multiple voice lines.

### 10/100/1000 Ethernet

All members of the ON 2440 series of products include one 10/100/1000 Gigabit Ethernet port and three 10/100 Fast Ethernet ports.

### RF Coax Video and HPNAv3

Some ON 2440 models include F-type coaxial cable connectors for HPNAv3 and/or RF video services.

### Subscriber Security Protected

Occam's IP Security Management allows for dynamic "hands-free" network security. Leveraging the scalability of IP, the simplicity of dynamic configuration with DHCP and OMCI, and the economy of GPON, Occam brings a cost-effective solution to the challenge of Authentication, Authorization and Accounting (AAA) of subscriber traffic. With IP Security Management the end-to-end network is more secure than a traditional ATM circuit-oriented architecture, and the simplicity of DHCP, IP and Ethernet reduce OPEX and CAPEX.

## Specifications

### Features

- > FTTP GPON Customer Located Equipment (CLE) Multiple services delivery: voice (Lifeline POTS and VoIP), data, and IP video

### Superior Voice and Video Quality

- > Voice priority
- > Layer 3 TOS marking
- > 802.1p
- > 802.1q

### Lifeline POTS

- > Two POTS FXS ports
- > 5 REN per POTS line (distance-dependent)
- > Supports SIP directly to softswitch

### Enhanced Layer 2 Switching

- > VLANs
- > 802.1q
- > RTP and RSTP
- > IGMP snooping
- > Layer 2 QoS
- > Web-based interface configuration at OLT
- > Enhanced voice
- > Remote automatic bulk provisioning

### Outdoor version

- > Hardened for extended temperature use
- > Wall mounted enclosure
- > UPS-powered for protection from AC power outage

### VoIP Protocols

- > SIP to softswitch (contact Occam for compatibility)

### Voice CODECs

- > ITU G.711 (mu-law)
- > Automatic fax/modem detection
- > Caller ID and Call Waiting
- > RTP voice packet encapsulation

### Enhanced Voice

- > Automatic tone generation: dial, busy, ring-back, stutter, distinctive ring
- > DTMF detection and generation
- > Call forwarding, hold, three-way calling

### Routing and Provisioning

- > IPSec / VPN pass-through
- > RFC 2068 HTTP
- > Static and dynamic IP address assignment
- > Dynamic Host Configuration Protocol (DHCP) server, client and relay

### Quality of Service

- > 16 802.1q VLANs
- > VLAN tagging: 802.1q
- > Voice and video priority over data: 802.1p
- > Traffic shaping

### Video

- > IGMPv2 snooping with fast leave
- > Supports up to four simultaneous video streams
- > IP over HPNAv3 to set-top box or media converter (ON 2445 only)

### PON Interface

- > ITU-T G.984.1, G.984.2, G.984.3, G.984.4
- > Input wavelength -- 1480 nm (nominal)
- > GPON -- single 9/125um fixed, non-removable laser (single mode)
- > Input signal strength -- minimum -27dBm, maximum -8 dBm
- > Output wavelength -- 1310 nm (nominal)
- > Optical output power -- minimum 0.5 dBm, maximum 5.0 dBm
- > Output RF wavelength -- 1555 nm (nominal)
- > Output RF power -- minimum 16 dBm, maximum 32 dBm

### LAN Interface

- > Three 10/100BaseTX ports
- > One 10/100/1000BaseTX port
- > RJ-45 connectors

### LAN Cabling

- > 10BaseT UTP, CAT3 or CAT5, 333 feet (100 meter) maximum
- > 100BaseTX UTP, CAT5, 333 feet (100 meter) maximum

### HPNA Interface (ON 2445 only)

- > F-connector
- > Up to 320Mbps data rate
- > HPNA v3.1 compliant (ITU G.9954)
- > Concurrent operation with RF video

### RF Video (ON 2444 and ON 2445 only)

- > F-connector
- > 75 ohms impedance (nominal)
- > Analog bandwidth -- minimum 54 MHz, maximum 550 MHz
- > Analog RF CATV
- > Digital bandwidth -- minimum 550 MHz, maximum 865 MHz
- > Digital video

### Management

- > Web-based management with GUI
- > IP configuration
  - Static
  - Dynamic using DHCP
- > Secure software download/upgrade via OMCI

### General Dimensions

- > Enclosure 12.6" (32 cm) high x 9.75" (24.8 cm) wide x 3" (7.6 cm) deep
- > Electronics enclosed and separately replaceable

### Power (Contact Occam for recommended power system)

- > Local UPS battery backup
- > Input voltage 12VDC (nominal)
- > Input current 750mA (nominal)
- > 8 hours battery backup time rated capacity
- > 110-240VAC, 47-70Hz input
- > Optional power meter ring for use with outdoor UPS

### Environmental

- > Operating temperatures: -40C to +55C (-40F to +131F)
- > Operating Humidity: 10% to 90% non-condensing
- > Wind-driven rain protection, salt-, fog- and dust-resistant

### Emissions and Safety Regulations

- > FCC Class B, UL, CUL, CE



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