OPAL
IP Gateway

The OPAL TNM-5200, the latest generation of Thales' successful IP Gateway, is transformed into a fully integrated and compact 2RU platform, offering unmatched performance and reliability. OPAL enables broadcasters to offer a wide range of data services over any satellite, cable or terrestrial DVB or ATSC-compliant network.

Key Benefits

- Compact and standalone 2RU design
- IP frames encapsulation per DVB or ATSC specifications
- Outstanding performance - up to 160 Mbps of IP datagrams
- Impressive front panel LCD for user-friendly control and basic set-up
- Powerful IP filtering management
- Unique automatic analysis of the upstream network traffic
- Full management of PSI/SI and PSIP tables
- Optimal bandwidth management with OptiMux® technology
- Optional IP level encryption
- Full 1+1 or N+1 redundancy management
- End-to-end IP broadcasting capabilities with Thales' OpenStream Content Delivery System
- Integrates with Thales' Web Network Management Solution, LAZULITE

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Highest Performance

OPAL offers extensive performance capabilities with a full range of available versions (10, 40, 80 and 160 Mbps) allowing broadcasters to select the IP gateway that best meets their needs, at a price that makes sense.

Unmatched Reliability

The fully embedded 2RU design of the OPAL does not have a hard drive resulting in low maintenance operation. Additionally, Thales offers, as an option, a complete 1+1 or N+1 redundancy management system, enhancing product superior reliability and long-term stability.

Enhanced IP Encapsulation

The OPAL gateway encapsulates IP frames into an MPEG-2 transport stream, with the lowest overhead in the industry, and handles the following protocols simultaneously:

- Data Piping
- Data Streaming
- DVB Multi Protocol Encapsulation
- ATSC Addressable Sections
- JSAT

OPAL also features a powerful MAC addresses management system, with several options to configure MAC addresses (SNMP, API, files or through OPAL's GUI).

Remote Configuration & Supervision

OPAL features a dedicated Ethernet port for system management and control. The OPAL GUI displays all MPEG-2 DVB and ATSC parameters, and provides powerful supervision of all IP inputs. Additionally, OPAL also performs an automatic analysis and display of the upstream network traffic.

An Application Programming Interface (API) is available for controlling the OPAL IP gateway from a dedicated user application via TCP/IP.

An optional advanced SNMP agent is available for both supervision and configuration (IP filters, rate management, MAC/IP associations, etc.).

OPAL can be integrated into Thales' Web Network Management Solution, LAZULITE. An event log file registers all errors and warning information, providing further configuration and supervision options.

Local Front Panel

The OPAL front panel provides several unique features: an impressive front panel LCD with real-time graphical display of IP traffic, quick access keys for easy start-up and basic configuration and alarms reporting.

Powerful IP Filtering

OPAL offers the following filtering options for each PID:

- IP source/destination addresses
- MAC source/destination addresses
- Protocol type (TCP, UDP…)
- TCP/UDP source/destination port number
- Different type of protocols
- Different type of services
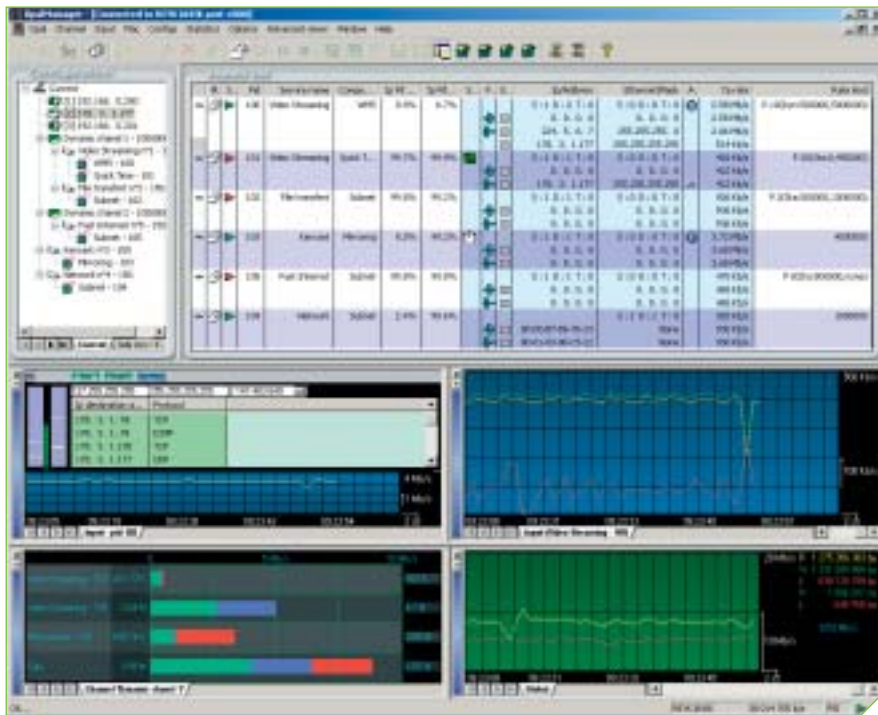
OPAL features a powerful data logging system for statistical analysis or billing purposes.

Opportunistic Data Insertion

As an option, OPAL supports OptiMux, a powerful and patented Thales technology. OptiMux enables bandwidth optimization by inserting data along with Audio and Video in the unused bandwidth of the broadcast stream. With this innovative technology, the broadcaster can now offer different types of bandwidth allocation- fixed guaranteed (constant bit rate even with ODI mode), variable guaranteed (min – max windows) or pure variable- to best meet the customers' service expectations. OPAL has the ability to flow-control a multicast server, using SMPTE325 or Thales' TCP/IP proprietary protocol.

Bandwidth Management (Virtual Channels)

OPAL allows the multiplexed bandwidth to be divided into several independent virtual channels with each channel, containing several services or PIDs. The bandwidth of a virtual channel is dynamically allocated to each service depending on its parameters and priority.

Ethernet Encapsulation

As an option, OPAL performs an Ethernet bridge through MPEG-2 Network using the MPE (Multi Protocol Encapsulation) or Addressable Sections specifications. The Ethernet bridge enables the connection of physically separated Ethernet LANs.

UDLR Management

As an option, OPAL supports the UDLR server (Uni-Directional Link Routing) features, and manages the GRE bridge and the DTCP Hello generation.

MPEG-2 DVB and ATSC Tables Management

The OPAL gateway is fully compliant with DVB/ATSC standards, and generates:
- MPEG-2 PSI tables (PAT, CAT and PMT)
- DVB SI tables (NIT, SDT and TDT)
- ATSC PSIP tables (MGT, VCT and STT)

Input & Output Features

- Up to 6 10/100 Mbps Ethernet inputs
- Up to 160 Mbps of IP datagrams
- 50 different IP inputs simultaneously
- ATM board adapter and Gigabit Ethernet inputs (optional)
- Live ASI input for ODI (optional)
- MPEG-2 transport stream output at a rate of up to 160 Mbps
- ASI output interface

Physical & Environmental

- Dimensions: (W x D x H) 445 x 525 x 88 mm (17.5" x 20.7" x 2RU)
- Weight: Approx. 13 kg (28 bits)
- Power supply: 100-240 VAC, 50-60 Hz
- Operating Temperature: 0°C to 50°C (32°F to 122°F)

Ordering Information

Ordering number	Description
TNM-5200-10	OPAL, 10 Mbps – 15 services
TNM-5200-40	OPAL, 40 Mbps – 25 services
TNM-5200-80	OPAL, 80 Mbps – 50 services
TNM-5200-160	OPAL, 160 Mbps – 50 services

Please contact us at the numbers below for further details on OPAL's available options.

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