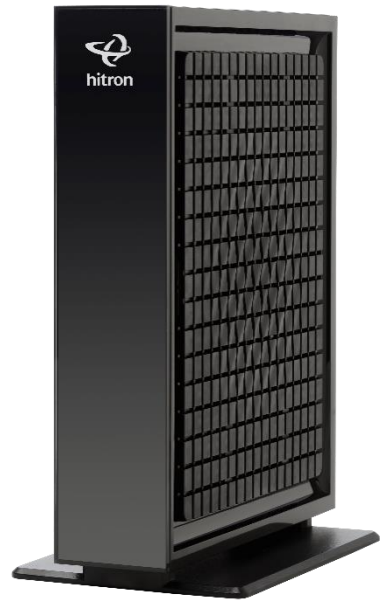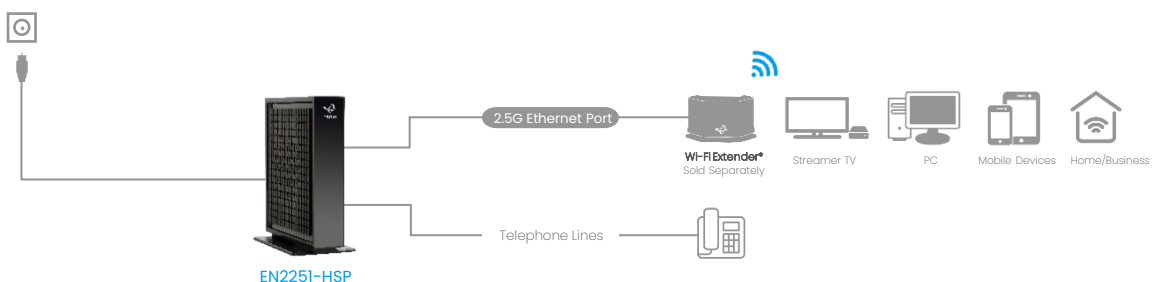# DOCSIS 3.1 Cable Modem
## with Voice

**EN2251–HSP**

With support for DOCSIS 3.1, residential and business customers will enjoy the ultimate digital experience, today and tomorrow, with richer ultra-HD video streaming, faster online gaming, virtual reality applications, more reliable video conferencing and more. And one 2.5GigE port provides the fastest wired speeds to connect a Wi-Fi router, computer or other wired device.

**DOCSIS 3.1**

DOCSIS 3.1 speeds up to 5 Gbps* downstream

**2.5GigE**

Ultra-fast 2.5GigE wired ports

Two HD Voice Ports

## Key Features

- DOCSIS 3.1 2x2 OFDM/OFDMA
- DOCSIS/EuroDOCSIS 3.0 32x8 Channel Bonding
- Switchable Upstream 5-85MHz/5-204MHz
- One 2.5GigE Port
- Supports Business Services over DOCSIS
- Two HD Voice Ports, SIP and MGCP Support

## Application

2.5G Ethernet Port

Wi-Fi Extender*
Sold Separately

Streamer TV

PC

Mobile Devices

Home/Business

Telephone Lines

EN2251-HSP

# Specifications

## Reception-Demodulation

- DOCSIS 3.1/3.0/2.0 with EuroDOCSIS compliant
- DOCSIS 3.1 Demodulation: Multi-carrier OFDM 16 to 4096QAM
- DOCSIS 3.1 Data Rate: Up to 5Gbps*
- DOCSIS/EuroDOCSIS 3.0 Demodulation: 64QAM, 256QAM
- DOCSIS/EuroDOCSIS 3.0 Data Rate: Up to 1.3/1.7 Gbps with 32 Bonded Downstream Channels
- Frequency (edge-to-edge): 258 -1218Mhz
- Channel Bandwidth: 6MHz/8MHz (DOCSIS/EuroDOCSIS)
- Signal Level: -15dBmV to 15dBmV

## Transmitter-Modulation

- DOCSIS 3.1/3.0/2.0 with EuroDOCSIS compliant
- DOCSIS 3.1 Modulation: Multi-carrier OFDMA BPSK to 4096QAM
- DOCSIS 3.1 Data Rate: Up to 1 Gbps with OFDMA 96MHz Upstream Channels
- DOCSIS/EuroDOCSIS 3.0 Modulation: QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM (SCDMA only)
- DOCSIS/EuroDOCSIS 3.0 Data Rate: Up to 320Mbps with 8 bonded Upstream Channels
- Frequency: Switchable 5-85/5-204 MHz Upstream Transmit Signal Level: +11 to 65dBmV

## Voice

### General Voice Features

- SIP v2 Call, SIP v2 Call Control
- MGCP
- DNS SRV
- Hook Flash Event Signaling
- RTP Audio Transport
- RFC2833 RTP Payload
- SIP INFO
- InBand DTMF Mode
- HD Voice Ports with 16kHz sampling rates

### Voice Audio Codecs

- G.711 (a-law and mu-law)
- G.722 (HD codec)
- G.723.1
- G.726
- G.728
- G.729
- AMR (narrowband)
- Adaptive Jitter Buffer
- G.167 Acoustic Echo Cancellation

### FAX Relay Protocols Compliance

- T.38 Pass-through and over IP Fax/Modem Detection Control
- T.28 (IP) Compliant Group 3 and SG3 Fallback to Transport T.30
- V.34 Fax and Modem Bypass
- Automatic Fallback to G.711 support

### CLASS Calling Features

- Call Waiting
- Call Hold
- Call Resume
- Call Forward Unconditional, Call Forward on Busy
- Caller ID
- 3-Way Conference
- Call Consultant
- Call Transfer and Network-initiated Class Services – MWI messaging, VMWI via FSK

## Management

- Protocol Support: TR-069, TFTP, SSHv2, SNMP v2, v3
- Web-based GUI Control, Configuration and Management
- Power-on Self-Diagnostic
- Hitron-proprietary MIBs for Extended Support on DOCSIS, Router Management, Wi-Fi Management
- HitronCloud cloud-based platform backend support

## Interfaces

- 1x RF F-Type 75Ω Female Connector
- 1x RJ-45 1/2.5GBASE-T Ethernet Port

## Mechanical

- LEDs: 5 (Power, DS, US, Status, LAN)
- Factory Default Reset Button
- Dimensions: 204mm (H) x 177mm (W) x 45mm (D)
- Net Weight: 650 +/- 10g

## Environmental

- Operating Temperature: 0°C (32°F) ~ 40°C (104°F)
- Operating Humidity: 10% ~ 90% (Non-condensing)
- Storage Temperature: -40°C ( -40°F) ~ 60°C (140°F)

## Electrical

- Input Power: 12VDC, 2A
- Power Adaptor: 100-240VAC, 50/60Hz
- Power Consumption: 8.23W (power saving), 9.68W (link.), 16.93W (Max)
- Surge Protection
  - RF Input sustains at least 4KV
  - Ethernet RJ-45 sustains at least 4KV

## Regulatory Compliance

- RoHS
- CableLabs
- FCC Part 15 Class B Subpart B, Part 15.247, Part 15.407, Part 2.1091
- ICES-003 Issue 6, Class B
- RSS-102 Issue 5
- IC RSS-247 Issue 2, 2017-02 and RSS-Gen Issue 5, 2018-4 Canada RSS-Gen Issue 5, Amendment 1, Mar 2019
- UL 62368-1
- cUL 62368-1-14
- CE

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