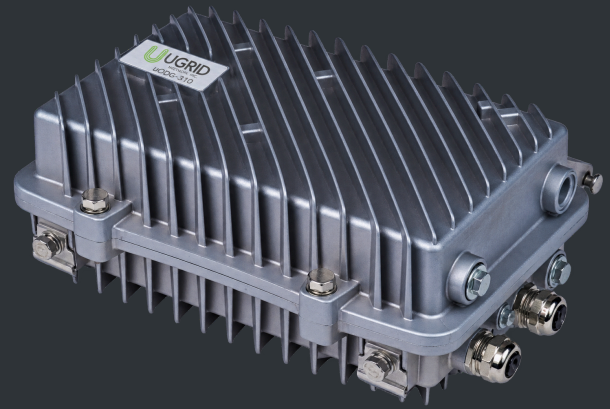


OUTDOOR DOCSIS 3.1 GATEWAY

uODG310

DOCSIS 3.1 · 1.2 GHz FBC · AC or HFC Cable Powered · 4× GE PoE

Temperature-hardened outdoor DOCSIS 3.1 gateway that powers PoE devices from the HFC plant.



DOCSIS 3.1

2×2 OFDM/OFDMA, 32×8 SC-QAM

1.2 GHz

FULL-BAND CAPTURE

4× GE

802.3af/at POE, 75 W TOTAL

−40~60 °C

IP67 HARDENED OUTDOOR

6 kV

SURGE PROTECTION, IEEE C62.41

01 OVERVIEW

The UGRID uODG310 is a temperature-hardened outdoor DOCSIS gateway for HFC networks, built in an IP67 housing for operation in extreme outdoor temperatures. Compliant with the DOCSIS 3.1 and 3.0 specifications, it receives 2 OFDM and 32 SC-QAM downstream channels through an integrated 1.2 GHz full-band capture front end and transmits on 2 OFDMA and 8 SC-QAM upstream channels. Four Gigabit Ethernet ports deliver IEEE 802.3af/at PoE, each configured separately — 30 W on two ports and 15.4 W on two, 75 W in total — for small cells and IP video cameras. It draws 60/90 VAC line power from the HFC coaxial cable through a 40–120 VAC wide-range input, or runs from 110–220 VAC mains with the AC power supply option. A real-time spectrum analyzer and operating-parameter and tamper monitoring give operators visibility into the unit in the field.

Small cell powering

802.3at PoE ports power small cells and connect them over DOCSIS 3.1.

IP cameras

PoE links to outdoor IP video surveillance cameras over the LAN cable.

HFC-powered outdoor PoE

Draws 60/90 VAC line power from the HFC coax and delivers up to 75 W of PoE.

DEPLOYMENT SCENARIOS

Small cells

IP video surveillance

HFC cable power

Outdoor PoE

Remote PoE management

Spectrum monitoring

02 KEY FEATURES

- ✓ DOCSIS 3.1 & 3.0 compliant**
 2 OFDM + 32 SC-QAM downstream and 2 OFDMA + 8 SC-QAM upstream; 85/108 or 204/258 MHz split.
- ✓ 1.2 GHz full-band capture**
 Full-band capture front end across the 1.2 GHz range, with an integrated real-time spectrum analyzer.
- ✓ Four-port PoE powering**
 4× GE IEEE 802.3af/at ports: 30 W on two, 15.4 W on two, 75 W in total; remote PoE Mode A/B selection.
- ✓ AC or HFC cable powered**
 Draws 60/90 VAC line power from the HFC cable (40–120 VAC wide-range input), or 110–220 VAC mains.
- ✓ Operating-parameter & tamper monitoring**
 Monitors system power, temperature, RF power level and PoE voltage, current, class and detection; tamper switch.
- ✓ Temperature-hardened design**
 IP67 dust and water resistant, operates from −40 °C to 60 °C, with 6 kV surge protection per IEEE C62.41.

03 TYPICAL APPLICATION

The uODG310 connects to a CMTS / CCAP headend across the HFC plant, draws its operating power from the coaxial cable, and powers and connects small cells and IP cameras over its four PoE ports.

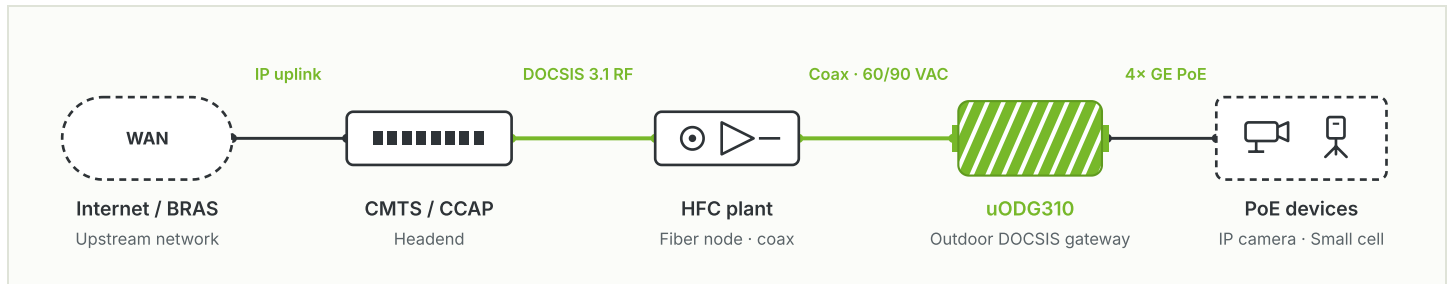


Figure 1 — End-to-end DOCSIS 3.1 HFC architecture (uODG310 highlighted).

04 HARDWARE SPECIFICATIONS

GENERAL

DOCSIS standard	DOCSIS 3.1 and DOCSIS 3.0
Full-band capture	1.2 GHz full-band capture front end; integrated real-time spectrum analyzer
Operating parameters monitor	System power consumption, tamper, temperature, RF power level; PoE voltage, current, class and detection

DOWNSTREAM

Frequency range (edge to edge)	108/258–1218 MHz (85/108 or 204/258 MHz split)
Input impedance	75 Ω
Input return loss	≥ 8 dB across the frequency range

DOWNSTREAM SC-QAM CHANNELS

Number of channels	32 maximum
Modulation	64-QAM and 256-QAM
Level range (one channel)	North America (64-QAM and 256-QAM): –15 to +15 dBmV EURO (64-QAM): –17 to +13 dBmV EURO (256-QAM): –13 to +17 dBmV
Symbol rate (nominal)	North America (64-QAM): 5.056941 Msym/s North America (256-QAM): 5.360537 Msym/s EURO (64-QAM and 256-QAM): 6.952 Msym/s
Channel bandwidth	North America: 6 MHz (64-QAM / 256-QAM, $\alpha = 0.18 / 0.12$) EURO: 8 MHz (64-QAM / 256-QAM, $\alpha = 0.15$)
Throughput	1600 Mbps (8 MHz, 32-channel bonding)

DOWNSTREAM OFDM CHANNELS

Number of channels	2
Maximum channel bandwidth	192 MHz
Modulation	QPSK, 16-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, 4096-QAM
Throughput	3600 Mbps (2 OFDM channels)

04 HARDWARE SPECIFICATIONS (CONTINUED)

UPSTREAM

Frequency range (edge to edge)	5–85/204 MHz (85/108 or 204/258 MHz split)
Output impedance	75 Ω
Maximum transmit level	+65 dBmV
Output return loss	≥ 8 dB

UPSTREAM SC-QAM CHANNELS

Number of channels	8 maximum
Signal type	TDMA, S-CDMA
Modulation	QPSK, 8-QAM, 16-QAM, 32-QAM, 64-QAM, 128-QAM
Minimum transmit level	Pmin = +17 dBmV at ≤ 1280 kHz symbol rate Pmin = +20 dBmV at 2560 kHz symbol rate Pmin = +23 dBmV at 5120 kHz symbol rate
Throughput	200 Mbps (8-channel bonding)

UPSTREAM OFDMA CHANNELS

Number of channels	2, independently configurable
Maximum channel bandwidth	96 MHz
Minimum occupied bandwidth	6.4 MHz (25 kHz subcarrier spacing); 10 MHz (50 kHz subcarrier spacing)
Subcarrier spacing	25 kHz, 50 kHz
Modulation	BPSK, QPSK, 8-QAM, 16-QAM, 32-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, 4096-QAM
Throughput	850 Mbps (2 OFDMA channels)

ETHERNET & POE

Ethernet	4× RJ45 Gigabit Ethernet
Ethernet cable	CAT-5E or better
PoE standard	IEEE 802.3af and IEEE 802.3at
PoE ports	1/2/4, configurable; each port configured separately
PSE output	30 W maximum on 2 ports + 15.4 W maximum on 2 ports, configurable; 75 W total
Power at PD	25.5 W maximum on 2 ports + 12.95 W maximum on 2 ports
Output voltage / current	+54 V; 600 mA maximum per port
PoE mode	Mode A (pins 1, 2, 3, 6) and Mode B (pins 4, 5, 7, 8); remote Mode A/B selection
PoE default	Semi-auto (factory default setting)

POWER

Cable power (V1)	60/90 VAC HFC line power; 40–90 VAC cable power, 40–120 VAC wide-range input; 50/60 Hz, sine or quasi-square wave
AC mains (V3)	110–220 VAC
Power consumption	8 W typical, 15 W maximum (excluding PoE load)
Surge protection (RF port)	IEEE C62.41-1991 Cat. A3 ring wave, 6 kV / 200 A; Cat. B3 combination wave, 6 kV / 3 kA

PHYSICAL & ENVIRONMENTAL

Dimensions (L × W × H)	285 × 200 × 120 mm
Ingress protection	IP67, dust and water resistant
Operating environment	–40 °C to +60 °C; 10%–90% RH, non-condensing
Storage environment	–40 °C to +85 °C; 5%–90% RH, non-condensing

05 MONITORING & POE MANAGEMENT

Management

- Web, Telnet and console management
- SNMP remote monitoring and configuration
- FTP remote upgrade
- Dual image backup and image rollback

Monitoring

- Real-time spectrum analyzer (1.2 GHz full-band capture)
- System power consumption, temperature and RF power level
- Tamper switch monitoring

PoE Management

- Each PoE port configured separately (1/2/4 ports)
- PoE voltage, current, class and detection monitoring
- Remote PoE Mode A/B selection
- Semi-auto default (factory setting)

06 ORDERING INFORMATION

SELECTED CONFIGURATION · MODEL NUMBER KEY

uODG

Outdoor DOCSIS gateway series

310

DOCSIS 3.1

S1 / S2

85/108 or 204/258 MHz split

04

4× GE PoE ports

V1 / V3

Cable power or AC mains

PART NO.

DESCRIPTION

uODG310

Outdoor DOCSIS 3.1 gateway, 1.2 GHz FBC, 4× GE 802.3af/at PoE (75 W total), IP67

Specify bandwidth split (S1 = 85/108 MHz, S2 = 204/258 MHz) and power supply (V1 = cable power 40–90 VAC, V3 = AC mains 110–220 VAC) when ordering. Contact UGRID Network Inc. to confirm the full part number.

07 REVISION HISTORY

REVISION	DATE	DESCRIPTION
R01	2026-10-23	Initial release.

Specifications are subject to change without notice. Actual performance may vary with network configuration and environment. © 2026 UGRID Network Inc. All rights reserved.