

# CISCO RF Gateway DS-384



## UNIVERSAL EDGE QAM LINE CARD

The Cisco RF Gateway Downstream 384 (RFGW-DS384) line card is an 8-port, 384-channel universal edge quadrature amplitude modulation (U-EQAM) modulator designed for operation in the Cisco RF Gateway 10 platform. The Cisco RF Gateway Downstream 384 Universal Edge QAM Line Card provides dramatically increased density and functionality as compared to the Cisco RF Gateway DS48-1G Universal Edge QAM Line Card.

In the 10-slot Cisco RF Gateway 10 platform, the Cisco RFGW-DS384 line cards can be configured with 1:N redundancy (up to 1:9), or 2:N redundancy (up to 2:8), resulting in a fully protected, high-capacity, and highly dense edge QAM solution.

## FEATURES

<b>DOCSIS</b>	
Designed to meet CableLabs® DOCSIS 3.0 and M-CMTS specifications	Industry-recognized common specifications with multivendor interoperability
Fully tested with the Cisco uBR10012 M-CMTS solution	Full-featured and tested end-to-end M-CMTS solution offering stability, scalability, and availability
Supports downstream external PHY interface (DEPI) control plane features	Simplifies setup and operations in an M-CMTS environment
<b>UNIVERSAL EDGE QAM</b>	
Concurrent support for video and DOCSIS on the same line card	Allows amortization of expenditures for video and DOCSIS edge QAM resources by sharing a common platform and universal edge QAM line card
Standards-based universal edge QAM resource management	Designed to support CableLabs-defined universal edge QAM specification for multiple vendor interoperability
Concurrent support for Annex A, B, and C operations on the same line card	Can support mixed annex environments on the same line card with granularity per port (for example, Annex B for DOCSIS, Annex A for video)
384 QAM channels per line card, 640 replicated QAMs per line card, up to 128 QAMs per port, up to 10 line cards per Cisco RF Gateway 10 chassis (up to 3840 QAMs per chassis)	High capacity edge QAM solution reduces the total number of devices to manage and provides
Non-adjacent frequency support	Allows flexibility on assigning output frequencies
Optional integrated Cisco PowerKEY® and Digital Video Broadcasting (DVB) encryption	Minimizes cost and complexity of deploying encrypted services
Flexible licensing of QAM capacity and encryption	Supports pay-as-you-grow
<b>HIGH AVAILABILITY</b>	
Supports high availability for universal edge QAM applications	Industry's first carrier-class edge QAM platform provides continuous service availability and reduces the duration of planned service outages
<b>OPERATIONS AND MANAGEMENT</b>	
Software based on QNX microkernel-based real-time, high-performance operating system	As in the Cisco Carrier Routing System 1 (CRS-1) range of products, QNX is the basis of the Cisco RFGW-DS384 software architecture, providing a very stable, scalable, and efficient operating system

## SPECIFICATIONS

HARDWARE	
Physical	Occupies a single RF slot in the Cisco RF Gateway 10 chassis
RF ports	8 RF ports with up to 128 QAM channels per port for a total of 384 QAMs
Dimensions (H x W x D)	1.28 x 15.35 x 15 in. (33 x 390 x 381 mm)
Weight	9.5 lb (4.32 kg)
Power consumption	270W
Environmental	<ul style="list-style-type: none"> <li>Operating altitude: -60 to 3000m</li> <li>Storage temperature: -40 to 158°F (-40 to 70°C)</li> <li>Operating temperature, nominal: 32 to 104°F (0 to 40°C)</li> <li>Operating relative humidity: 10 to 85%, noncondensing</li> </ul>
LEDs	Status, alarm, traffic, Gigabit Ethernet port link and activity
ETHERNET UPLINK INTERFACES	
Uplinks	2 x Gigabit Ethernet and 2 x 1 Gigabit Ethernet or 10 Gigabit Ethernet
Uplink optic types	Small Form Factor Pluggable (SFP) Gigabit Ethernet and Enhanced SFP (SFP+) 10 Gigabit Ethernet
DOCSIS SPECIFICATIONS	
CableLabs specifications supported	DEPI DEPI-CP DOCSIS Timing Interface (DTI) M-CMTS Operations Support System Interface (OSSI) ERMI-1 and 2 Converged Cable Access Platform (CCAP)
RF SPECIFICATIONS	
DOCSIS Downstream RF Interface (DRFI)	CM-SP-DRFI-I10-100611
SYSTEM REQUIREMENTS	
Chassis compatibility	Cisco RFGW-10
Software	Cisco IOS® XE Software version 3.2.0 SQ
REGULATORY COMPLIANCE	
Network Equipment Building Standards (NEBS) and European Telecommunications Standards Institute (ETSI)	UL 60950/CAN/CSA-C22.2 No. 60950, EN 60950, IEC 60950, TS 001, AS/NZS 3260
Electromagnetic compatibility (EMC)	FCC Part 15 (CFR 47) Class A, ICES-003 Class A, EN55022 Class A, AS/NZS CISPR22 Class A, AS/NZS 3548 Class A, VCCI Class A, ETS 300 386, EN 55022, KN22, EN 61000-3-2, EN 61000-3-3
Electromagnetic interference (EMI)	EN550082-1, EN55024, EN61000-4-2, EN61000-4-3, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11, EN61000-6-1
Safety	GR-1089-Core Level 3, ETS 300 019 Storage Class 1.1, ETS 300 019 Transportation Class 2.3 (pending), ETS 300 019 Stationary Use Class 3.1, ETS 300 386
Industry EMC, safety, and environmental standards	Designed to meet NEBS standard GR-63-CORE and GR-1089-CORE
Other industry standards	Cisco corporate compliance standards

## ORDERING INFORMATION

PRODUCT NUMBER	PRODUCT DESCRIPTION
<b>RF Line Cards and Cables</b>	
RFGW-DS384(=)	RFGW DS384 Universal Downstream EQAM Card, base hardware
SWLIC-DS384	QAM DS-384 Single QAM License (minimum 64)
CAB-RFGW3G60QTIMF(=)	Ten quad-shield RF cables in UCH-2, RFGW/3G60 to HFC, 3m
<b>eDelivery Upgrade Licenses</b>	
L-DS384-SWLIC=	Container product number for upgrade licenses applicable to DS384
L-DS384	1 Count QAM License for RFGW-DS384