

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)



features and benefits |

Multi-frequency/multiservice RF transport platform	Accommodates LTE technology. Two model-dependent bands per enclosure
Cost-effective high power	Optimizes and reduces the number of antennas required to cover open outdoor areas by offering 46 dBm composite power per frequency band
Operator-grade operation	Advanced signal handling, RF filtering and management ensures operator-grade performance
SISO/MIMO support	Supports either SISO or MIMO service in a single compact enclosure
Unique, space-saving, non-obtrusive design	Blends into the environment and avoids costly tower builds outdoors when covering campus scenarios, parking lots, tunnels, and indoor-adjacent outdoor spaces
Designed to withstand harsh environments	Fully sealed remote unit (RU) enclosure ensures superior performance in harsh environments and worry-free electronics maintenance. Compliant to NEBS OSP Class 4 rated standard
Management and control	Alarm forward to NOC or standard EMS via SNMP, software-controlled output power, and optical link auto gain control

GX products offer scalable, cost-effective 40 W (46 dBm) high-power remote outdoor coverage solutions for Corning distributed antenna systems (DAS).

GX remotes compliment both the MA1000/MA2000 platform and the Corning® optical network evolution (ONE™) solution, sharing a common equipment headend and element management system (EMS) with the other system remotes.

GX is a fiber-fed, dual-band, multioperator remote designed to complement lower power, standard remotes. GX can also be installed as a dedicated solution for new sites, providing complete RF coverage in large open indoor, tunnel, and adjacent outdoor spaces.

Using low-loss fiber optic cabling, GX remote units can distribute multiple BTS signal sources for WCS and 2.5 GHz TDD to multiple remote locations between 2 to 15 km from the headend to remotes. GX efficiently supports all operator modulations with linear MCPA (multicarrier power amplifier) up to 40 W.

GX remotes offer high RF power coverage capabilities with compact design for added space savings and weather-resistant enclosures to fit various site needs.



GX Dual-Band Unit | Figure 1

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)



system description |

Figure 2 illustrates a scenario including the dual-band GX MIMO remote supporting the WCS and 2.5 GHz TDD bands and two quad-band GX remote units each supporting ESMR/CELL, PCS, 700 LTE, and EAWS deployed with the the Corning® optical network evolution (ONE™) solution.

The MIMO1 and MIMO2 RF signals, received from the BTS, are conditioned by the headend unit (HEU), ensuring a constant RF level. The conditioned MIMO1 and MIMO2 signals are then transferred via the interface unit* (IFU) and routed through two separate optical modules of the optical central hub (OCH)†. For the TDD band, an integrated IF clock module (pilot), installed in the IFU, enables transmitting the converged wideband RF/IF and pilot signals through the interface box to the OCH. The OCH converts the RF signal to an optical signal for transport over low-loss fiber cabling to/from multiple GX remotes, where they are converted to high-level RF signals. The GX includes an internal combiner so that both WCS and 2.5 GHz TDD bands services are transmitted via a single output port (SISO) or two for MIMO.

An external low-loss combiner is used to combine the dual-band GX with the quad-band GX to support six bands services on a single output port.

The GX remotes (and OCH) are managed and controlled via the headend control module (HCM)‡ installed in the headend chassis, enabling local and remote management and providing single-source, centralized common headend controls of all installed elements.

**Each interface box supports connections to up to two HEUs or integrated headend units (IHUs) via ERFCv2 cables.*

†RF connections between the interface box and the OCH are performed using QMA-to-QMA cables (accessory kit part number: AK-RIU4-OCH-CABLES).

‡In deployments with the ONE solution, GX remotes require an SC-450 interfacing between the OCH and HCM for management capabilities.

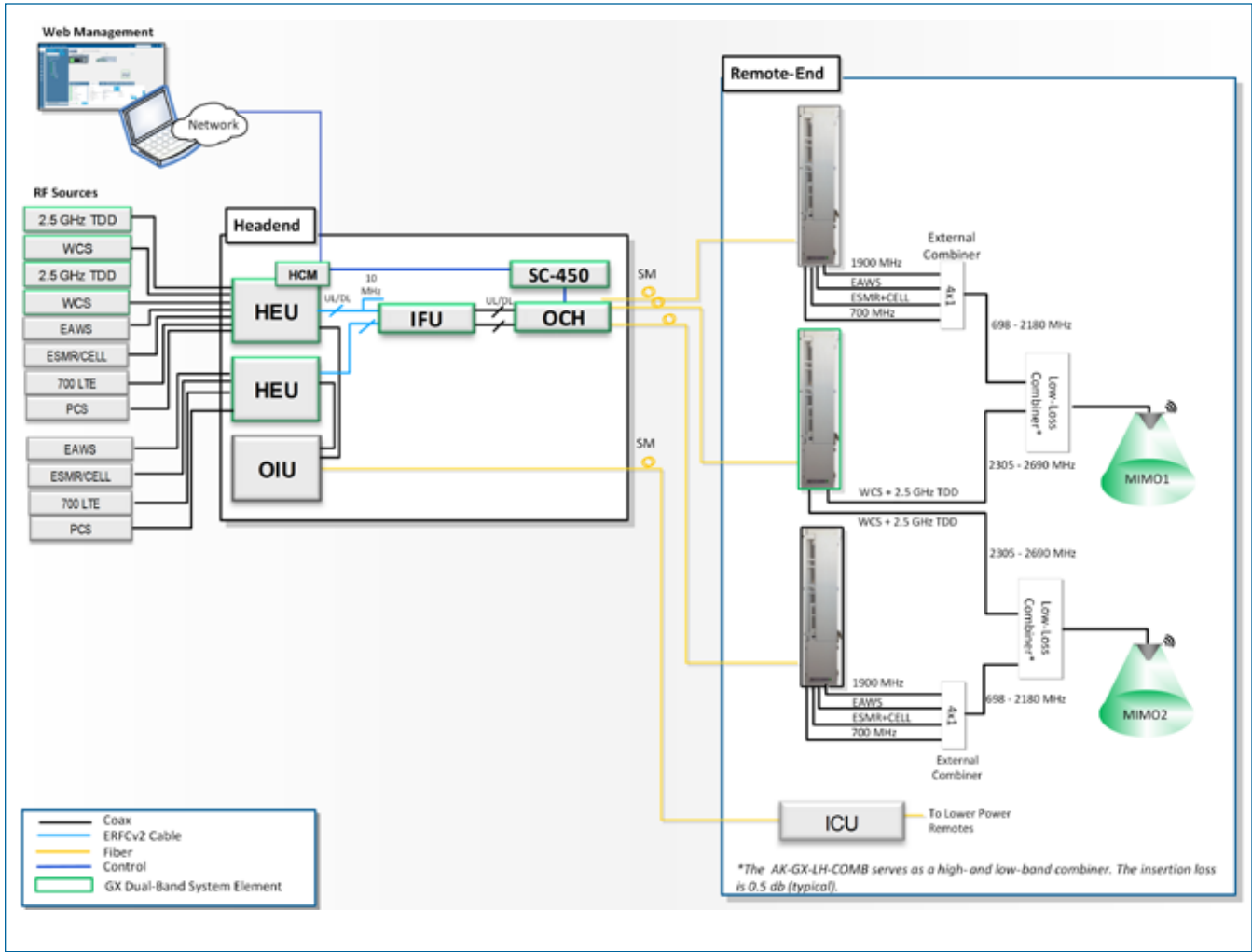
Note: Only extended radio interface modules (RIMe) support GX-E17E85P19L70-40-AC and GX-E17E85P19L70-40-DC. See ordering information in this document for relevant part numbers.

The dual-band GX with WCS and 2.5 GHz TDD support is supported by SC-450 v7.6 and higher and ONE™ v3.3 and higher.

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)



system description | (continued)



Example of GX Dual-Band with Quad-Band Remotes in Corning® Optical Network Evolution (ONE™) System Deployment - MIMO Configuration | Figure 2

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)

The CORNING logo is displayed in white, uppercase letters within a solid blue square.

system description | (continued)

Figure 3 illustrates a GX dual-band remote MIMO scenario deployed with an MA1000/2000 headend alongside two GX quad-band remotes providing MIMO coverage for the CELL/ESMR, PCS, EAWS, and 700 LTE bands.

Note: GX quad-band models GX-E17E85P19L70-40-AC and GX-E17E85P19L70-40-DC do not support coexistence with other GX models. The quad-band services must be routed through separate RF paths (i.e., different RIU-12 sector and optical module).

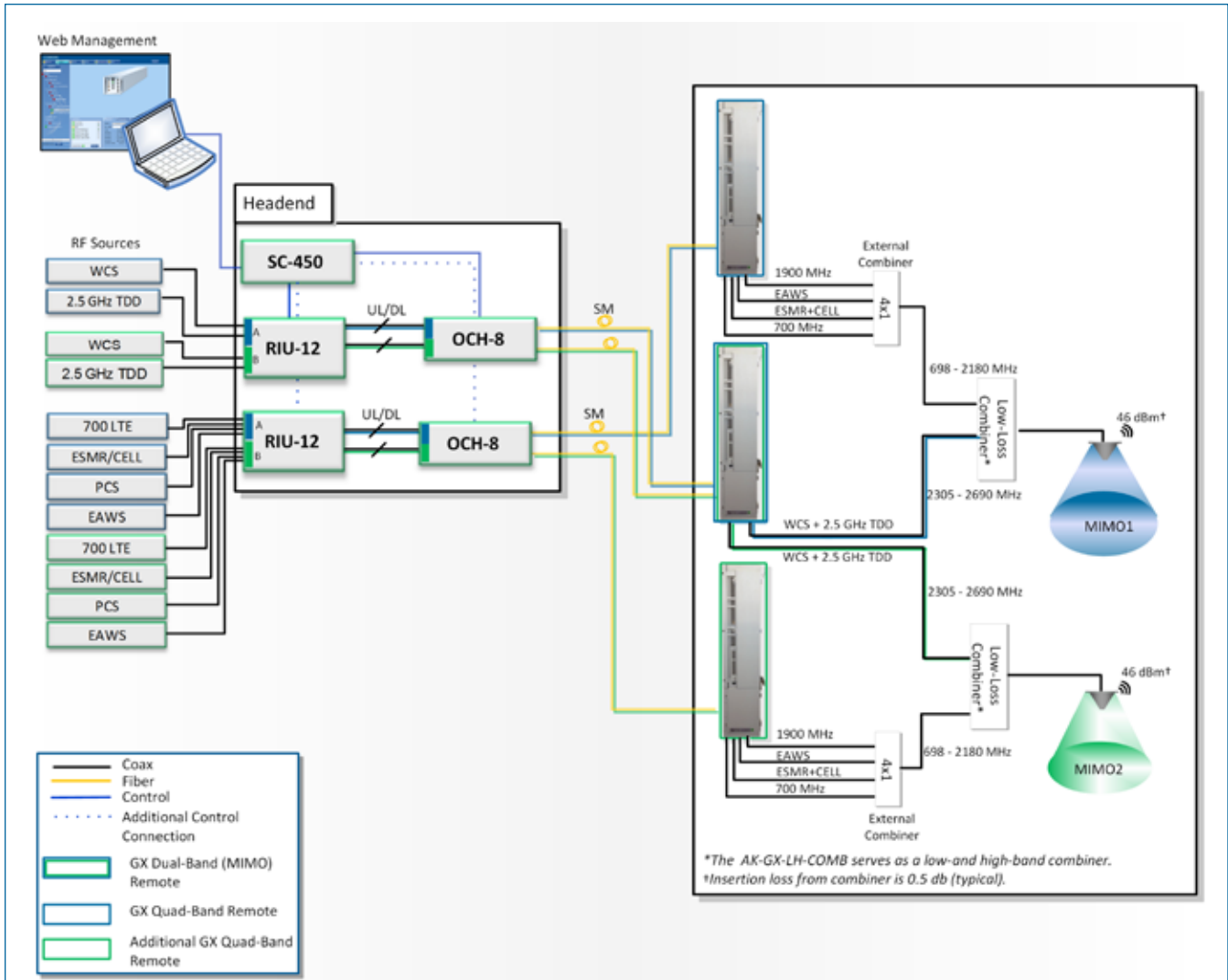
The MIMO1 and MIMO2 services are conditioned via two independent sectors in the RIU-12 units, ensuring a constant RF level for each MIMO stream. The conditioned MIMO1 and MIMO2 signals are routed through separate optical modules in the OCH. Each optical module converts the RF signal to an optical signal for transport over low-loss fiber cabling to/from connected GX remote, where they are converted to high-level RF signals.

The GX dual-band remote includes an internal combiner so that both WCS and 2.5 GHz TDD band services are transmitted via a single output port (SISO) or two for MIMO. In addition, an external low-loss combiner is used to combine the dual-band GX with the quad-band GX to support six bands services on a single output port.

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system description | (continued)



Example of GX Dual-Band Alongside GX Quad-Band Remotes in an MA2000 System Deployment | Figure 3

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)



specifications |

Supported Services

Services	Frequency Range (MHz)		
	Band	Uplink (UL)	Downlink (DL)
LTE	WCS	2305-2315	2350-2360
LTE	2.5 GHz TDD	2496-2690	2496-2690

RF Parameters per Service

Notice: The manufacturer's rated output power of this equipment is for the composite band or a single carrier operation. For situations when multiple carrier signals are present, the rating for each carrier would have to be reduced by $10 \cdot \log(N)$, where N is the number of the transmitted channels. The gain reduction for each carrier shall be done on the headend, and not by an attenuator, at the output of the device.

LTE WCS		
RF Parameters	DL	UL
Nominal Bandwidth (MHz)	10	10
Mean Output Power (dBm)	46	
Maximum Output Power (dBm)		
1 Carrier	46	
2 Carriers	43	
4 Carriers	40	
Nominal Passband Gain (dB)	66 (OCH to GX)	50 (GX to OCH)
Mean Gain (dB)	66	50
Gain Range (dB)	30	30
Maximum Pin (dBm) at AGC Threshold	-20 (at OCH)	-54
Maximum Intermod Distortion (dBm)	-13	
NF (dB) at Maximum Gain		5
VSWR	1.5:1	
Gain Flatness/Ripple (dB)	+/-2.0	

LTE 2.5 GHz TDD		
RF Parameters	DL	UL
Nominal Bandwidth (MHz)	60 MHz Between 2496 to 2690	60 MHz Between 2496 to 2690
Mean Output Power (dBm)	46	
Maximum Output Power (dBm)		
1 Carrier	46	
2 Carriers	43	
4 Carriers	40	
Nominal Passband Gain (dB)	66 (OCH to GX)	50 (GX to OCH)
Mean Gain (dB)	66	50
Gain Range (dB)	30	30
Maximum Pin (dBm) at AGC Threshold	-20 (at OCH)	-54
Maximum Intermod Distortion (dBm)	-13	
NF (dB) at Maximum Gain		5
VSWR	1.5:1	
Gain Flatness/Ripple (dB)	+/-2.0	

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)



specifications | (continued)

Coupling Specifications

Frequency (MHz)	Typical Coupling* (dB)
WCS	-50.0
2.5 GHz TDD	-50.0

*Depending on the band, the actual coupling value may slightly vary.

Optical Specifications

Maximum Optical Budget	6 dBo
Optical Return Loss	> 50 dB
Optical Loss per Mated-pair Connectors	0.5 dB (maximum)
Optical Connector	OptiTap® fiber optic waterproof connector
Optical Automatic Gain Control Range	-2 to -10 dBm
Fiber Type	Single-mode: 9/125 μm
Wavelength	1310 nm, 1550 nm + WDM

High-Power 40 W Dual-Band SISO/MIMO DAS Remote Unit (GX)



specifications | (continued)

Physical Specifications

Ports	<ul style="list-style-type: none">• OptiTap® fiber optic waterproof connector• RF DIN female connector: One for SISO and two for MIMO• Two 1/4-in grounding screws for AWG #18 GND cable• One RJ45 waterproof LAN connector		
Power		Dual-Band SISO	Dual-Band MIMO
	AC Input: VAC 100-240/47-63 Hz		
	Maximum power consumption:	750 W	1100 W
	DC Input: VDC (-40) to (-57)		
	Maximum power consumption:	750 W	1100 W
Physical Dimensions	Weight: 147 lb (66.6 kg) Mounting: Wall-mounting and pole-mounting Dimensions (H x W x D): 53.15 x 8.9 x 12.4 in (1350 x 226.06 x 314.96 mm)		
Cooling Feature	Active heat dissipation (fan)		

Environmental Specifications

Operating Temperature	-40 to +70°C (-40 to +158°F)
Humidity	≤ 95%
Enclosure	NEBS OSP Class 4 rated (Enclosure protected from elements and waterproofing)

Standards and Certifications

Safety	CB: IEC 60950-1; NRTL: UL 60950-1; CAN/CSA: C22.2 NO 60950
EMC	FCC: Part 15 subpart B
Radio	FCC: Part 27
ISO	ISO 9001: 2000 and ISO 13485: 2003

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ordering information |

GX Remote Units

Services Supported	Part Number	Description
WCS/2.5 GHz TDD MIMO	GX-WCSM2500M-40	GX Dual-Service MIMO for WCS and 2.5 GHz TDD solution supporting 40 W output for AC powering
	GX-WCSM2500M-40-DC	GX Dual-Service MIMO for WCS and 2.5 GHz TDD solution supporting 40 W output for DC powering
WCS/2.5 GHz TDD SISO	GX-WCSS2500S-40	GX Dual-Service SISO for WCS and 2.5 GHz TDD solution supporting 40 W output for AC powering
	GX-WCSS2500S-40-DC	GX Dual-Service SISO for WCS and 2.5 GHz TDD solution supporting 40 W output for DC powering

Optical Central Hub (OCH)

Part Number	Description
OCH-4-WDM	Optical Central Hub for SISO services, supporting four SISO remote units, single-mode (WDM)
OCH-8-WDM	Optical Central Hub for SISO or MIMO services, supporting eight SISO or four MIMO remote units, single-mode (WDM)

Extended Radio Interface Modules (RIMe)

Note: GX remotes deployed with the Corning® optical network evolution (ONE™) solution are supported by extended radio interface modules (RIMe) only.

Part Number	Description
RIMe-25T	Extended Radio Interface Module with support for the 2500 MHz TDD band; RF Input: -11 to 37 dBm
RIMe-W23	Extended Radio Interface Module with support for the WCS 2300 MHz band; RF Input: -11 to 37 dBm

SC-450 Controller

Note: GX dual-band remotes require an SC-450 controller for management purposes in both MA1K/MA2K and Corning optical network evolution (ONE) solution deployments.

Part Number	Description
SC-450	System Controller

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ordering information | (continued)

Accessories

Part Number	Description
AK-GX-LH-COMB	GX Accessories 2-to-1 External Diplexer for low- and high-band
ERFCv2-OCH	Extender RF Cables from RIX to IFU
AK-ONE-HE-GX-INTBOX	GX Accessories ONE™ Headend to GX Interface Box
AK-RIU4-OCH-CABLES	Accessory Kit Cables for RIU-4 to OCH, four QMA to QMA R/A cables, 1 m
AK-GX-QUAD-PWR-CABLE	GX AC Electrical Power Cable for US GX quad-band
AK-GX-QUAD-ELEC-ADP-AC	AC Electrical Junction Adapter IP67 rated
AK-GX-QUAD-BRKT-INDOOR	GX Accessory Kit including bracket for wooden pole-mounting option
AK-GX-QUAD-BRKT-WDPOLE	GX Accessory Kit including bracket with ground support for indoor concrete wall-mounting option

Corning OptiTap® Cables

Part Number	Description
434401EB4R2005M-P	OptiTap to SC APC Cable Assembly, 5 m
434401EB4R2030M-P	OptiTap to SC APC Cable Assembly, 30 m
434401EB4R2100M-P	OptiTap to SC APC Cable Assembly, 100 m
434401UB4H3005M-P	OptiTap to SC APC Cable Assembly, indoor/outdoor riser-rated, 5 m
434401UB4H3030M-P	OptiTap to SC APC Cable Assembly, indoor/outdoor riser-rated, 30 m
434401UB4H3100M-P	OptiTap to SC APC Cable Assembly, indoor/outdoor riser-rated, 100 m

Note: The listed OptiTap cables are available on demand within a week of the order. Custom length cables require longer lead times. For more information, contact your Corning account manager.

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notes |

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The logo consists of a solid blue square with the word "CORNING" written in white, uppercase, sans-serif font centered within the square.

notes |

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