Newtec BWC0900 Bandwidth Canceller

Description

The Newtec BWC0900 is the state-of-the-art Bandwidth Canceller unit optimized for data applications over satellite, ranging from IP Trunking, Backbone and Backhaul to Government networks. By combining the forward and return transmissions in the same satellite bandwidth up to 30% extra capacity can be made available. This extra capacity gives room for considerable OPEX savings or deployment expansions by adding services within the same available bandwidth.

Supports a large number of network topologies

The Newtec BWC0900 Bandwidth Canceller supports a large number of network topologies over satellite, including point-to-point links, point-to-multipoint, inclined orbit satellite and mesh networks.

The wide range of configuration options and supported bandwidth types up to 72 MHz makes the bandwidth canceller the perfect fit for your existing or new networks.

Increased efficiency

To obtain maximum efficiency in the satellite link the bandwidth cancellation technology can be combined with Newtec's professional IP modems (such as the MDM6000 and EL470), the Newtec HUB6000 Satellite Hub and and Newtec's FlexACM®.

FlexACM® is the unique and market proven end-to-end solution combining a range of cutting edge technologies to optimize satellite links in the most efficient way at optimal availability.

Flexibility and scalability matching market's business models

The Bandwidth Canceller is available in three carrier frequency options (IF70MHz, IF140MHz and L-band) and comes with comprehensible remote management, performance monitoring and logging tools to facilitate quick configuration, easy set-up and quick reaction to situations at hand.

The Newtec BWC0900 Bandwidth Canceller combines forward and return satellite transmissions in the same satellite bandwidth and achieves up to ***30% efficiency*** *gain in Point-to-Point and Point-to-Multipoint Satellite links.*

Key features

- Supports multiple bandwidths up to 72 MHz
- Supports multiple network configuration types: SCPC, MCPC and inclined orbit
- Compliant with Newtec's FlexACM ®
- Operating Frequencies: IF70MHz, IF140MHz and L-band
- Remote Management and Monitoring tools

Main advantages

- First-in-class cancellation performance with up to 30% efficiency gain
- Multiple satellite network configuration options
- Lower operational costs and room for extra service within same available bandwidth
- Fast Return-on-Investment
- Modem & physical layer agnostic (best performance with Newtec IP professional equipment)

Architecture

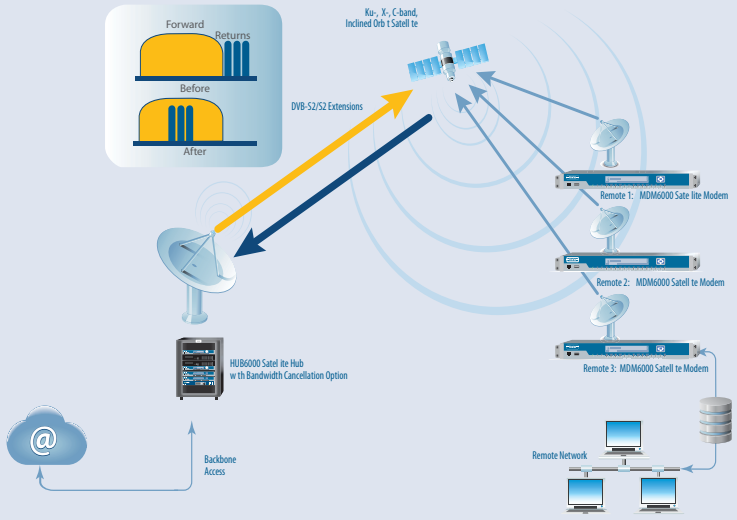

Figure 1: Point-to-Multipoint network with BWC0900 Bandwidth Canceller as on option on the HUB6000 Satellite Hub

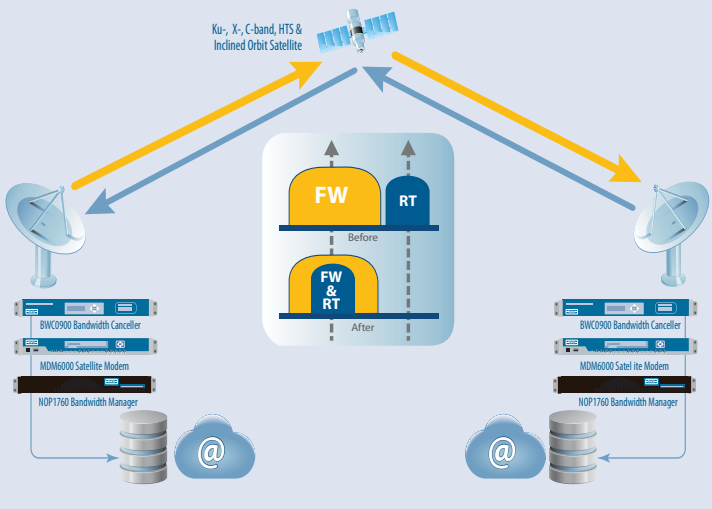

Figure 2: Point-to-Point network with BWC0900 Bandwidth Canceller at both sides of the satellite link

Newtec BWC0900 Bandwidth Canceller

IF-70MHz and 140MHz Electrical Specification

Port	Parameter	Value
USB	Interface	USB-B Male (SW upgrade only)
Fault	Interface	RS232, DB9-Male
M & C	Interface	RS232, DB9-Male
Hout	Output Impedance	75Ω, BNC-Female
	Output Return Loss	> 10 dB
	Output Level	Hin -4 dB
Hin	Center Frequency	70 +/- 18 MHz, user selectable in 1 kHz increments 140 +/- 36 MHz, user selectable in 1 kHz increments
	Input Impedance	75Ω, BNC-Female
	Input Return Loss	> 10 dB
	Input Level	0 dBm to -30 dBm
Amon	Output Impedance	75Ω, BNC-Female
	Output Return Loss	> 10 dB
	Output Level	10 dB below Ain
Ain	Center Frequency	70 +/- 18MHz, user selectable in 1 kHz increments 140 +/- 36 MHz, user selectable in 1 kHz increments
	Input Impedance	75Ω, BNC-Female
	Input Return Loss	> 10 dB
	Input Level	-30 to -60 dBm > -30 to -60 dBm for any single A or R carrier
Rout	Output Impedance	75Ω, BNC-Female
	Output Return Loss	> 10 dB
	Output Level	-30 dBm to -50 dBm
Rmon	Output Impedance	75Ω, BNC-Female
	Output Return Loss	> 10 dB
	Output Level	10 dB below Rout

L-Band Electrical Specification

Port	Parameter	Value
USB	Interface	USB-B Male
Fault	Interface	RS232, DB9-Male
SNMP	Interface	RJ45 Female
Serial	Interface	RS232, DB9-Male
10MHz	Input Reference	SMA Female
HinL	Input Frequency	L band
	Input Impedance	50Ω, N Female
	Input Return Loss	> 10 dB
	Input Level	0 dBm to -30 dBm
Hin	Input Frequency	70 MHz
	Input Impedance	50Ω, BNC Female
	Input Return Loss	> 10 dB
	Input Level	-3 dBm
Hmon	Output Frequency	L band
	Output Impedance	50Ω, SMA Female
	Output Return Loss	> 10 dB
	Output Level	10 dB below HinL
AinL	Input Frequency	L band
	Input Impedance	50Ω, N Female
	Input Return Loss	> 10 dB
	Input Level	Max -5dBm total power in 950MHz-1750MHz BW -20 dBm to -50 dBm in desired 25MHz BW (Maximum input power reduces by 3dB for each halving of desired BW)
Ain	Input Frequency	70 MHz
	Input Impedance	50Ω, BNC Female
	Input Return Loss	> 10 dB
	Input Level	-3 dBm
Amon	Output Frequency	L band
	Output Impedance	50Ω, SMA Female
	Output Return Loss	> 10 dB
	Output Level	10 dB below AinL
RoutL	Output Frequency	L band
	Output Impedance	50Ω, N Female
	Output Return Loss	> 10 dB
	Output Level	-20 to -50 dBm
Rout	Output Frequency	70 MHz
	Output Impedance	50Ω, BNC Female
	Output Return Loss	> 10 dB
	Output Level	-20 dBm
Rmon	Output Frequency	L band
	Output Impedance	50Ω, SMA Female
	Output Return Loss	> 10 dB
	Output Level	10 dB below RoutL

Performance Specifications

Parameter	Value
Processing Bandwidth	190 kHz to 72 MHz – Depending on Model
Cancellation	30 dB MIN, 35 dB typical
Median Synchronization Time	< 15 s, from initial power on < 4.5 s, from interruption of Hin signal > 0.5 s < 1.5 s, from interruption of Hin signal < 0.5 s
Maximum Number of H Carriers	Up to 30 optional
Maximum Number of R Carriers	Any
Maximum Delay Variation	+/- 140 ns/s

Processing Latency

Bandwidth range (Mhz)	A-path processing delay during cancellation	
		72MHz
27.27-72		48μs
13.63-27.27		≈76μs
6.81-13.63		≈138μs
3.4-6.81		≈260μs
1.7-3.4		≈502μs
0.85-1.7		≈1.2ms
0.42-0.85		≈2.2ms
0.21-0.42		≈4.2ms
<0.21		≈8.0ms

Input Signal Conditions

Parameter	Value
Signal Format	• Receive signals from satellite (contains combined forward(s) and return(s)) • Transmitted signal towards satellite (modulator signal) • Echo cancelled version of Receive signals from satellite
Symbol Rate	1MBaud to 65MBaud (Dependent on Model)
Modulation Formats	BPSK, QPSK, OQPSK, 8PSK, 16QAM, 16APSK, 32APSK, 64QAM
Spectral Roll-off	10 – 35%
SSB Phase Noise of A Signal	–42 dBc/Hz at 10 Hz –72 dBc/Hz at 100 Hz –81 dBc/Hz at 1 kHz –90 dBc/Hz at 10 kHz and above
Linear Distortion of Hd, relative to H	Amplitude: 0.5 dB peak-to-peak over symbol rate bandwidth Group delay: 0.2 symbol periods peak-to-peak over symbol rate bandwidth
Dynamic Range of Hin Signal	30 dB
Dynamic Range of Ain Signal	30 dB composite
Expected Path Delay	230 — 290 ms
Ain Frequency offset from expected	< 8 kHz, 16kHz, 32kHz, 64kHz, 128kHz selectable.

Ordering Information

BWC0900 Bandwidth Canceller	
Configuration options Category	Max. 1 option per category
RF Options	L-band (Default)
	IF-70 MHz
	IF-140 MHz
Additional options Category	Max. 1 option per category
Network Type	Large SCPC Links
	MCPC Links
	Inclined Orbit Links
Required Bandwidth	6 / 12 / 18 / 25 / 36 / 54 / 72 MHz* (*depending on selection RF Options)
Redundancy	