AZ120
Telco Satellite Modulator
Azimuth Product Family

AZIMUTH SERIES

Description

The AZ120 is a state-of-the-art satellite modulator designed for fixed-rate telco voice and data applications over satellite in full compliance with the DVB standards. The AZ120 can be used in conjunction with the telco satellite demodulator AZ920.

The AZ120 interfaces directly with terrestrial data and voice networks through a standard G.703 interface.

In its default configuration, the AZ120 supports E1 rates. The support of E2, T2, E3 and T3(DS3) rates are available as configuration option.

It is also possible to configure the modulator with a secondary G.703 input, for the implementation of a redundant configuration or to allow the modulator to be compatible with two different transmission rates.

At the output of the modulator, the signal is available on an L-band interface. IF- and RF-band as well as BUC power supply and reference frequency are available as configuration options, providing a compact and cost effective solution.

This modulator is fully compliant with the DVB-S and DVB-S2 standards and provides exceptional performance and bandwidth efficiency. When activated, the unique linear and non- linear predistortion option Equalink™ provides an additional link margin improvement of up to 2,5dB, truly unleashing the full efficiency of higher modulation schemes such as 16 and 32 APSK.

Key features

- DVB-S2 and DVB-DSNG/S compliant
- QPSK, 8PSK, 16APSK and 32APSK
- G.703 interface with E1, T2, E2, E3 or T3 (DS3) rates
- L-band monitoring output
- Programmable amplitude slope equalizer
- Optional integrated RF upconverter
- Optional 10 MHz reference input/output
- Optional Linear and non-linear predistortion (Equalink™)
- Featured-based pricing and software upgradability

Main advantages

- Lower operational costs thanks to highest bandwidth efficiency
- High compactness
- Fully compatible with the satellite DVB standards

Applications

- Telephony backbone
- Data backbone
- Mobile telephony backhauling
- Cable restoration
- Leased lines in the sky

Related products

AZ420 Telco Satellite Modem
AZ920 Telco Satellite Demodulator

AZ7x0 Frequency converters
AZ210 1+1 Modulator Redundancy Switch
AZ200 Universal Switching System

Related Documents

White paper Equalink™
Care Pack Brochure

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Specifications – AZ120(R6)

Input interface

G.703 input :

rate	: 2.048 ; 6.312 ; 8.448; 34.368 ; 44.736 Mbit/s
connector	: BNC (F)
impedance	: 75 ohms

Clock stability - G703 :

2 Mbit/s	: ± 50 ppm
6 & 8 Mbit/s	: ± 30 ppm
34 & 44 Mbit/s	: ± 20 ppm

Line coding

fully compliant to the ITU-T G.703 standard
HDB3 for E1, E2, and E3
B3ZS for DS-3 (T3)

Adaptive equalizer with 4 preset values, compensating cable lengths up to 1350ft

Modulation

Supported modulation schemes and FEC

- DVB-S/DSNG:
  Outer/Inner FEC: Reed Solomon / Viterbi
  MODCODs:
  QPSK:1/2, 2/3, 3/4, 5/6, 7/8
  8PSK: 2/3, 5/6, 8/9
  16QAM: 3/4, 7/8
- DVB-S2:
  Outer/Inner FEC: BCH/ LDPC
  MODCODS:
  QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
  8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
  16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
  32APSK: 3/4, 4/5, 5/6, 8/9, 9/10

Baud rate range

- DVB-S2 50 kBaud – 45 Mbaud
- DVB-S/DSNG 50 kBaud – 45 Mbaud

Frame length

- DVB-S/DSNG 188 bytes
- DVB-S2 Short Frames 16200 bits
- DVB-S2 Normal Frames 64800 bits

Roll-off factor

- 20 % - 25% -35%

Output interfaces

L-band output (default):

- Connector SMA (F), 50 ohms
- Return loss > 10 dB
- Level -50/-7 dBm (+/- 2dB)
- Frequency 950 - 1750 MHz (50 Hz steps)

IF-band (optional):

- Connector BNC (F) - 75 ohms (intermateable with 50 ohms)
- Return loss 50 ohms : > 14 dB
  75 ohms : > 20 dB
- Level -30/+5 dBm (± 3 dB)
- Frequency 50 - 180 MHz (50 Hz steps)

L-band + IF (optional)

- L-band: same as above
- IF: fixed 70 or 140 MHz frequency
  -34/+1 dBm (+/- 3 dB) output level

RF band (optional)

- Connector SMA (F), 50 ohms
- Return loss > 12 dB
- Frequencies 5.85-6.65 GHz
  12.75-13.25 GHz
  13.75-14.5 GHz
- Level -50/-7 dBm (+/- 3dB)
- Frequencies 17.30-18.10 GHz
  17.60-18.40 GHz
- Level -40/+3 dBm (+/- 3dB)

L-band monitoring output (default):

- Connector SMA (F), 50 ohms
- Return loss > 7 dB
- Frequency default: identical to L-band output. with options AA-02 / AA-06: 1080 MHz
- Level -45 dBm

BUC power and reference frequency (optional)

- Max. current 1,5 A
- Voltage 24V
- Frequency 10MHz
- Stability ±5x10-8 over 0°C to 65°C

Spurious performance

- better than -65 dBc/4 kHz @ -10 dBm level and > 256 kbaud

10 MHz reference input / output (optional)

- Connector BNC (F) – 50 ohms
- Input level -3dbm up to 7dBm
- Output level +7dBm

Internal Reference frequency

- High Stability (optional)
  Stability ±5x10-8 over 0°C to 70°C
  Ageing: ± 15 ppb/day
  ± 300 ppb/year
- Very High Stability (optional)
  Stability ±2x10-9 over 0°C to 65°C
  Ageing: ± 0.5 ppb/day
  ± 500 ppb/10 year

Generic

Monitor and control interfaces

- Web based GUI
- Diagnostics report, alarm log
- RMCP over TCP-IP/UDP and RS232/RS485
- SNMP v2c

Alarm interface

- Electrical dual contact closure alarm contacts
- Connector 9-pin sub-D (F)
- Logical interface and general device alarm

Physical

- 1RU, width: 19", depth 51 cm, 6 kg
- Power supply: 90-130 & 180-260 Vac, 105 VA, 47-63 Hz
- Temperature
  - Operational: 0°C to 40°C
  - Storage: -40 to +70°C
- Humidity: 5% to 85% non-condensing
- CE label

Ordering information

AZ120 Telco Satellite Modulator		Order n°
Default Configuration		
DVB Modulator with G.703 interface, SNMP Modulation: DVB-S Q/8PSK, DVB-S2 Q/8PSK Input interface: G.703 2,048 Mbit/s Output interface: L-band (950-1750 MHz)		AZ120
Configuration options Category	Max. 1 option per category	
Rate	2,048 Mbit/s (E1)	Default
	6,312 Mbit/s (T2)	AK-02
	8,448 Mbit/s (E2)	AK-03
	34,368 Mbit/s (E3)	AK-04
	44,736 Mbit/s (T3/DS3)	AK-05
Output Interface	L-band (950-1750 MHz)	Default
	IF (50-180 MHz)	AA-02
	L-band + 10MHz for BUC	AA-03
	L-band + 10MHz + 24Vdc for BUC	AA-04
	IF+ L-band	AA-06
	L + C-band (5,85-6,65 GHz)	AA-07
	L+ Ku-band (12,75-13,25 GHz)	AA-08
	L+ Ku-band (13,75-14,50 GHz)	AA-09
	L + DBS-band (17,30-18,10 GHz)	AA-10
	L + DBS-band (17,60-18,40 GHz)	AA-11
Modulation	DVB-S/S2 Q/8PSK	Default
	DVB-S/S2 Q/8PSK, 16QAM, 16APSK*	AB-12
	DVB-S/S2 Q/8PSK,16QAM, 16/32APSK*	AB-16
Additional options Category	Max. 1 option per category	
Secondary input	2,048 Mbit/s (E1)	AH-01
	6,312 Mbit/s (T2)	AH-02
	8,448 Mbit/s (E2)	AH-03
	34,368 Mbit/s (E3)	AH-04
	44,736 Mbit/s (T3/DS3)	AH-05
10MHz reference In/Out	High stability	GR-01
	Very high stability	GR-02
Predistortion	Equalink *	AC-01
Services Category		
Assistance	Care Pack Basic	GA-06
	Care Pack Extended	GA-07

(*) upgradeable via license key

Other configurations and options such as RF output modules are available on request.
Contact your sales representative for details (sales@newtec.eu).