AZ130
WAN Satellite Modulator
Azimuth Product Family

AZIMUTH SERIES

Description

The AZ130 is a state-of-the-art DVB satellite modulator designed to interconnect two parts of a Wide Area Network (WAN) using routers with HSSI interfaces. The AZ130 can be used in conjunction with the WAN satellite demodulator AZ930.

The AZ130 interfaces directly with terrestrial routers through an HSSI interface with bit rates up to 52 Mbit/s (standard HSSI) or 110 Mbit/s (extended HSSI).

At the output of the modulator, the signal is available on an L-band interface. IF 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
- HSSI interface
- Max data rates up to 52 or 110 Mbit/s
- L-band monitoring output
- Programmable amplitude slope equalizer
- Optional integrated RF up converter
- Optional Linear and non-linear predistortion (Equalink™)
- Optional 10 MHz reference input/output
- Featured-based pricing and software upgradability

Main advantages

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

Applications

- Satellite interconnection of routers
- High speed satellite links

Related products

AZ930 WAN Satellite Demodulator

AZ7x0 Frequency converters

AZ210 1+1 Modulator Redundancy Switch
AZ200 Universal Switching System

Related Documents

White paper Equalink™

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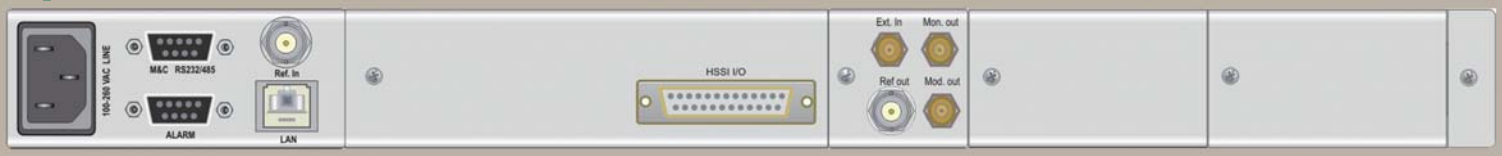
R3/04.2009

Specifications – AZ130(R6)



Input interface

HSSI interface

connector	sub-D (F)
rate	0.05 - 110 Mbit/s
output levels	ECL-10 kH (330 Ω ; -5 V)
input levels	0.15 - 1 Vptp (diff. 110 Ω)

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 0,05 – 45 Mbaud
- DVB-S/DSNG 0.05 – 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
- Frequency 950 - 1750 MHz (50 Hz steps)
- Level -50/-7 dBm (+/- 2dB)

IF-band (optional):

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

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 @ -10 dBm output level

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

AZ130 WAN Satellite Modulator		Order n°
Default Configuration		
DVB modulator with HSSI interface, SNMP Modulation & Baud rate: DVB-S Q/8PSK DVB-S2 Q/8PSK 45Mbaud Input interface: HSSI 52 Mbit/s Output interface: L-band (950-1750 MHz)		AZ130
Configuration options Category	Max. 1 option per category	
Input HSSI Interface	max 52 Mbit/s	Default
	max 110 Mbit/s (extended)	AG-08
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 & Baud rate	DVB-S/S2 Q/8PSK 45Mbaud *	Default
	DVB-S/S2 Q/8PSK,16QAM, 16APSK 45Mbaud *	AB-12
	DVB-S/S2 Q/8PSK,16QAM, 16/32APSK 45Mbaud *	AB-16
Additional options Category	Max. 1 option per category	
10MHz reference In/Out	High stability	GR-01
	Very high stability	GR-02
Predistortion	Equalink *	AC-01

(*) upgradeable via license key

Other configurations and options such as RF output modules or 68 Mbaud rate are available on request.
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