

# AZ928

## High Speed Telco Satellite Demodulator

### Azimuth Product Family

# AZIMUTH SERIES

#### Description

The AZ928 High Speed Telco Satellite Demodulator is to be used in pair with the High Speed Telco Modulator AZ128 to establish fixed rate 155.52 Mbit/s point to point satellite links. The equipment interconnects seamlessly with standard terrestrial SDH / SONET networks via a STM-1 or OC-3 interface. The satellite transmission can be operated on 54 MHz or 72 MHz transponders.

The modulation is fully compliant with the DVB-S2 standard and provides exceptional power and bandwidth efficiency. When activated on the modulator, the linear and non-linear predistortion option Equalink™ provides an additional link margin improvement of up to 2dB. An adaptive channel equalizer compensates linear link distortion.

In standard configuration the AZ928 operates with a 16APSK modulation scheme.

The AZ928 is equipped with a dual L-band input (950-2150 MHz). The standard L-band input has the option to deliver 10 MHz over the L-band inter-facility link to the LNB. Optionally one L-band input can be replaced by an IF (50-180 MHz) input. At the output the signal is converted to an electrical G.703 or an optical single or multi mode signal.

#### Key features

- 155 Mbit/s transmission on a 54 or 72 MHz satellite transponder
- 16 APSK modulation schemes
- Electrical G.703 and optical interfaces
- Full remote control and monitoring capability that easily integrates with market leading network management systems

#### Main advantages

- Highest link availability: the AZ928 provides the most efficient link budget available on the market
- Lowest operational costs: full SDH/SONET link in a 54 MHz transponder
- Lowest infrastructure cost: the high power efficiency requires smaller antennas

#### Applications

- Cable restoration
- Cable back up
- Disaster recovery
- Business continuity
- Internet backbone
- WAN interconnection

#### Related products

AZ128 High Speed Telco Satellite Modulator

AZ720 Downconverter

AZ730 Up & Downconverter

AZ290 1+1 Demodulator Redundancy Switch

#### Related Documents

White paper "Equalizing and Predistortion: the Equalink concept"  
Care Pack Brochure



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# Specifications – AZ928(R6)

## Input interface

### Dual L-band input (default)

- Connector 2 x F-type (F), 75 ohms
- Return loss > 7 dB
- Level -65/-25dBm
- Frequency 950 - 2150 MHz
- Adjacent signal < (Co+7) dBm/Hz where Co = signal level density

### IF-band input (optional, replaces one L-band input)

- Connector BNC (F) - 75 ohms
- Return loss > 15 dB
- Level -55 to -15 dBm
- Frequency 50 - 180 MHz
- Adjacent signal < (Co+7) dBm/Hz where Co = signal level density

### LNB power and control

- max. current 350 mA (on selected IFL input)
- voltage 11,5 -14 V (Vertical polarization)  
16 -19 V (Horizontal polarization)  
& additional 22 kHz +/- 4KHz (band selection according to universal LNB for Astra satellites)
- 10 MHz reference

## Reference interfaces

### External 10.0 MHz reference input (optional):

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

### LNB reference frequency output (optional, only available with L-band)

- frequency 10 MHz
- stability  $\pm 5 \times 10^{-8}$  over 0°C to 65°C
- warm up time 5 min ( $\pm 100$  ppb)
- ageing  $\pm 15$  ppb/day  
 $\pm 300$  ppb/year

## Demodulation

### Satellite baud rate

Modul.	FEC	Rate (Mbaud)
16APSK	8/9	44.14
16APSK	9/10	43.60

### BER performance for QEF

Config	EN302307 Simulations(**)		Measured performance (*)
	Es/No	Es/No	BER ~ 5E-8
16APSK- 8/9	12.89	13.3	
16APSK- 9/10	13.13	13.6	

(\*) Measured over Ku-band (with LNB type : SMW PLL) in linear channel

(\*\*) REF BER=1E-10

### Synchronisation:

- Carrier acquisition range  $\pm 8.75$  MHz max
- Clock acquisition range  $\pm 200$  ppm max.
- Average acquisition time < 3 sec, 90% probability, carrier freq. offset <  $\pm 2.5$  MHz ptp and BER<5E-8

## Output interfaces

### Electrical G.703

- Connector BNC female @ 75 ohms transformer
- Coupling CMI
- Line coding 1 Vptp (nom.)
- Level

### Optical multi mode

- Connector SC
- Fiber 1300 nm multi mode  
62.5/125 mm
- Spectral width 58 nm rms (typ.)
- Transmit power -14 dBm (max.)  
-20 dBm (min.)
- Received power -14 dBm (max.)  
-30 dBm (min.)

### Optical single mode

- Connector SC
- Fiber 1300 nm single mode
- Spectral width 7.7 nm rms (max.)
- Transmit power -8 dBm (max.)  
-15 dBm (min.)
- Received power -8 dBm (max.)  
-31 dBm (min.)
- Interface rate: 155.52 Mbit/s +/- 20 ppm

## Internal Reference frequency

- High Stability (optional)  
Stability  $\pm 5 \times 10^{-8}$  over 0°C to 70°C  
Ageing:  $\pm 15$  ppb/day  
 $\pm 300$  ppb/year
- Very High Stability (optional)  
Stability  $\pm 2 \times 10^{-9}$  over 0°C to 65°C  
Ageing:  $\pm 0.5$  ppb/day  
 $\pm 500$  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

- Very compact: 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

AZ928 High Speed Telco Satellite Demodulator		Order n°
<b>Default Configuration</b>		
DVB-S2 16 APSK demodulator with STM-1/OC3 interface, SNMP Input interface : L-band (950-2150 MHz)		AZ928
<b>Configuration options <sup>1</sup></b>		
Category		Max. 1 option per category
Input Interface	L-band	Default
	IF + L-band	AJ-03
<b>Additional options <sup>1</sup></b>		
Category		Max. 1 option per category
10 MHz reference In/Out	High stability	GR-01
	Very high stability	GR-02
<b>Services</b>		
Category		
Assistance	Care Pack Basic	GA-06
	Care Pack Extended	GA-07

<sup>1</sup> Other configurations and options such as 10 MHz on L-band for LNB are available on request. Contact your sales representative for details (sales@newtec.eu).