

# AZ710

## Upconverter

### Azimuth Product Family

# AZIMUTH

SERIES

#### Description

The AZ710 is a high performance frequency Upconverter designed for a wide range of broadcast, telco and IP satellite applications. The AZ710 offers advanced and unique features such as a calibrated high linearity over the entire bandwidth combined with a very high frequency stability. These features make the AZ710 the perfect solution for a wide range of transmissions ranging from very small carriers to full transponder applications.

In its default configuration, the AZ710 converts IF to L-band signals. The IF input frequency is switchable between 70MHz and 140MHz. The L-band output frequency ranges from 950MHz up to 1750MHz in steps of 48Hz. Optionally, the AZ710 can be delivered with a C, Ku or DBS-band with an L-band monitoring output.

The high output frequency stability is provided by an internal 10 MHz reference clock. For applications requiring a very high frequency stability such as very low data rate carriers, an optional reference clock of 0,01ppm can be ordered separately.

A DC power supply and a reference frequency on the L-band output are also available as options, providing a compact and cost effective solution when the AZ710 is used in combination with an outdoor RF Upconverter and/or amplifier.

The AZ710 is easy to operate and monitor. All control and monitoring parameters are available locally on the front panel and remotely through a web interface. It is also possible to control or monitor the AZ710 via RMCP or SNMP.

#### Key features

- Agile IF to L-band Upconverter
- Optional up-conversion to C, Ku or DBS-band
- Ultra fine L-band frequency resolution (48Hz)
- IF input frequency switchable between 70 MHz & 140 MHz
- Switchable spectrum inversion
- Very high frequency stability
- Very low spurious characteristics
- Phase noise compliant with Intelsat IBS/ Eutelsat SMS
- High linearity over the entire bandwidth
- Optional 10 MHz + DC power for BUC

#### Main advantages

- Highest signal quality
- Extensive coverage of all transponder frequencies
- High flexibility

#### Applications

- Earth Stations
- DTH uplinks
- DSNG uplinks
- Telco and trunking satellite infrastructures
- VSAT hubs
- Generic satcom applications

#### Related products

AZ720 Downconverter  
AZ730 Up & Down Converter  
AZ740 Indoor L-band Block Upconverter  
AZ750 L-band Combiner

AZ270 1+1 Frequency Converter Redundancy Switch  
AZ200 Universal Switching System

#### Related documents

White paper Equalink™  
Care Pack Brochure



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# Specifications – AZ710(R8)



## Interfaces

### Input interface (IF):

- Connector BNC (F), 50 ohms
- Return loss >15dB
- Frequency range 70 MHz +/- 18MHz  
140 MHz +/- 36 MHz
- Input level IF (typical) -35 to +5 dBm

### Output interface (L-band):

- Connector SMA (F), 50 ohms  
N(F), 50 ohms with option FA-09 and FA-10)
- Return loss >15dB
- Frequency range 950 to 1750 MHz
- Frequency step size 48 Hz
- Output level -30 to +10 dBm

### Output interface (RF) (optional) :

- Connector RF-band out SMA (F), 50 ohms
- Return loss >12dB
- Output level Ku-band >0 dBm
- output level C & DBS-band >+10dBm
- Connector L-band monitoring: SMA (F), 50 ohms
- Frequency range RF-band
  - C-band 5.85 – 6.65 GHz
  - Ku-band 12.75 – 13.25 GHz
  - Ku-band 13.75 – 14.50 GHz
  - DBS band 17.30 – 18.10 GHz
  - DBS band 17.60 – 18.4 GHz

### 10 MHz reference input / output

- Connector BNC (F), 50 ohms
- Input level -3dBm up to 7dBm
- Output level +7dBm
- Stability  $\pm 5 \times 10^{-8}$  over 0°C to 70°C

### BUC power and reference frequency (optional)

- Max. current 3 A
- Voltage 24V, 48V
- Frequency 10 MHz
- Stability  $\pm 5 \times 10^{-8}$  over 0°C to 70°C

## Channel characteristics

### Gain

- Programmable IF gain -15 to 20dB
- IF gain step size 0.1 dB
- Programmable L-band gain -20 to +20dB
- L-band gain step size 0.1dB
- Programmable RF gain (Ku) -20 to +20 dB( $\pm 5$ dB)
- Programmable RF gain (C & DBS-band) -10 to +30dB
- RF-band gain step size 0.1dB
- Gain variation over 36/72 MHz BW (L-band) 1.2dB peak-to-peak
- Gain variation over 36/72 MHz BW (RF) 2.6dB peak-to-peak

### Linearity

- Output 1dB compression (L-band) >+10dBm
- Output 1dB compression (Ku-band) >+0 dBm
- Output 1 dB compression (C & DBS-band) >+10dBm
- Third order intermod <-60 dBc (typical)
- Third order intercept (L-band) >+26dBm
- Third order intercept (Ku-band) >+10 dBm
- Third order intercept (C & DBS-band) >+20dBm
- AM/PM conversion (L-band) 0.1°/dB max@0dBm

## Switching

- Spectrum inversion Selectable
- Output switching suppression <-80 dBm

## Noise

- Noise figure <20 dB (typical)
- In-band spurious <-65 dBc  
(@ -10 dBm output level and for rates > 200 Kbaud)
- Phase noise
 

	L-band	RF
@ 10 Hz	<-50 dBc/Hz	<-35 dBc/Hz
@ 100 Hz	<-70 dBc/Hz	<-60 dBc/Hz
@ 1KHz	<-80 dBc/Hz	<-75 dBc/Hz
@ 10 KHz	<-85 dBc/Hz	<-85 dBc/Hz
@ 100 KHz	<-95 dBc/Hz	<-95 dBc/Hz

## Group delay:

	@ 72 MHz BW	@ 36 MHz BW
Linear group delay	0.05 ns/MHz	0.03 ns/MHz
Parabolic group delay	0.0035 ns/MHz <sup>2</sup>	0.01 ns/MHz <sup>2</sup>
Residual group delay	1 ns peak-to-peak	1 ns peak-to-peak

## Internal Reference frequency

- High Stability 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

### Available Alarms

- 10 MHz alarm
- Power supply alarm
- Temp. alarm
- Synthesizer out-of-lock
- Input Overload warning (adjustable threshold)
- Input underload alarm (adjustable threshold)

## 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

AZ 710 Upconverter		Order n°
<b>Default Configuration</b>		
IF 70MHz or 140MHz to L-band Upconverter, SNMP Upconverter output: L-band (950 - 1750MHz) 10MHz reference In/Out High stability		AZ710
<b>Configuration options</b>		
Category Max. 1 option per category		
Output Interface	L-band (950 - 1750 MHz)	Default
	L-band + 10MHz for BUC	FA-02
	L-band + 10MHz + 24Vdc for BUC	FA-09
	L-band + 10MHz + 48Vdc for BUC	FA-10
	L+C-band (5,85 - 6,65 GHz)	FA-11
	L+Ku-band ( 12,75 - 13,25 GHz )	FA-05
	L+Ku-band ( 13,75 - 14,50 GHz )	FA-06
	L+DBS-band (17,30-18,10 GHz)	FA-07
L+DBS-band (17,60-18,40 GHz)	FA-08	
10MHz reference In/ Out	High stability	Default
	Very high stability	GR-02
<b>Services</b>		
Category		
Assistance	Care Pack Basic	GA-06
	Care Pack Extended	GA-07

- Other configurations and options, such as RF-band amplifiers and L-band splitters, are available on request.
- Contact your sales representative for details (sales@newtec.eu)

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