

Newtec

FRC0740 L-BAND BLOCK UPCONVERTER FRC0750 ACTIVE L-BAND COMBINER AND UPCONVERTER



Description

The FRC0740 L-band Block Upconverter is a High Performance frequency Block Upconverter designed for a wide range of Broadcast, Telco and IP satellite applications. The FRC0740 translates frequencies from L-band to a wide range of RF frequencies such as C-, Ku- and DBS-band.

The FRC0740 guarantees the best signal quality thanks to a very high frequency stability and very low spurious characteristics.

The FRC0740 is the ideal solution when the Block Upconverter cannot be included in the modulator.

The FRC0740 has a 30-dB variable gain control on one L-band input and one L-band monitoring output. There is a second input with fixed 10-dB gain. The signals on the two L-band inputs can be combined inside the unit before being up-converted.

The high output frequency stability is provided by an internal 10 MHz reference clock. For applications requiring a very high frequency stability (such as for very low data rate carriers), an optional very high stability reference clock can be ordered.

The FRC0750 Active L-band Combiner and Block Upconverter is primarily designed to bring together several L-band carriers in a single satellite channel. To equalize the level of the incoming signals, each input has its own amplifier/ attenuator. The FRC0750 can also be used as an active switching device for signal routing purposes or redundancy switching operations.

In its default configuration, the FRC0750 combines up to four different L-band signals into one L-band signal. As an option it is possible to combine up to eight different L-band signals within the same unit.

Newtec's range of Frequency Converters consists of a **complete portfolio** for broadcast, telco and IP satellite applications. It contains easy to operate and monitor Upconverters, Downconverters, Up & Down-converters, L-band Upconverters and Combiners.

These Up & Downconverters offer the **highest signal quality**, thanks to the high frequency stability, very low spurious characteristics and high linearity over the entire bandwidth; as well as extensive coverage of all transponder frequencies (IF, L, C, Ku and DBS band).

A DC power supply and a reference frequency are also available on the L-band output, providing a compact and cost effective solution when the FRC0750 is used in combination with an outdoor RF upconverter and/or amplifier.

The FRC0750 can be delivered with an integrated block upconverter as an option. In this configuration, the FRC0750 converts the L-band output signal of the combiner to C-, Ku- or DBS-band.

Both the FRC0740 and FRC0750 are 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 FRC0750 via Newtec's proprietary RMCP protocol or via SNMP.

SPECIFICATIONS

Key Features

FRC0740

- Wide choice of RF frequency ranges covering C, Ku and DBS-bands
- Converts Extended L-band (950-2150 MHz) to Extended C-band (5,85-7,05 GHz)
- Very high frequency stability
- Very low spurious characteristics
- Two L-band inputs and one L-band output
- One L-band input with 30dB variable gain range
- Integrated signal combiner
- Very high linearity
- Very good gain flatness over the entire bandwidth

FRC0750

- Up to eight L-band inputs
- Each input is switchable and gain adjustable
- Optional upconversion to C-, Ku- or DBS-band
- Optional 10 MHz +DC power for BUC
- Optional 10 MHz reference input/output
- Advanced monitoring and control

Applications

- Broadcast primary distribution
- Broadcast contribution
- Direct-To-Home (DTH) uplinks
- Telco and trunking satellite infrastructures
- VSAT hubs
- Generic satcom applications

Our Professional Equipment

Care Pack Basic and Care Pack Enhanced are the Newtec service and support packages protecting your Newtec equipment over a three-year period.

Related Products

- M6100 Broadcast Satellite Modulator
- MDM6100 Broadcast Satellite Modem
- MDM6000 Satellite Modem

- FRC0710 Upconverter
- FRC0720 Downconverter
- FRC0730 Up and Down Converter

- USS0202 Universal Redundancy Switch

FRC0740

Interfaces

INPUT INTERFACE UPCONVERTER (L-BAND):

- Connector SMA (F), 50 ohms
- Return loss >18dB
- Maximum input power for no damage +13 dBm

SECONDARY INPUT INTERFACE UPCONVERTER (L-BAND):

- Connector SMA (F), 50 ohms
- Return loss >12dB
- Maximum input power for no damage +13 dBm

OUTPUT INTERFACE (L-BAND MONITORING):

- Connector SMA (F), 50 ohms
- Return loss >12 dB
- Gain follows RF output gain

OUTPUT INTERFACE (RF):

- Connector RF-band out SMA (F), 50 ohms
- Return loss >15dB

10 MHZ REFERENCE INPUT / OUTPUT

- Connector BNC (F), 50 ohms
- Input level -3dBm up to 7dBm
- Output level +7dBm +/- 2dB

Channel characteristics (L-band to RF-band)

- Output Frequency ranges

Band	Input freq (MHz)	Output freq (GHz)	LO freq (MHz)
C-band:	950-2150	5.85 - 7.05	4900
Ku-band:	950-1450	12.75 - 13.25	11800
Ku-band:	950-2000	13.75 - 14.80	12800
DBS-band:	950-1750	17.30 - 18.10	16350
DBS-band:	950-1750	17.60 - 18.40	16650

- Gain 0 to 30dB
- Gain step size 0.1dB
- Gain stability/day ±0.25dB
- Gain stability/temperature ±1dB (0-40°C)
- Amplitude response/RF band ±1dB
- Gain flatness ±0.35dB/72MHz max
- Output @1dB compression

Band	Output
DBS-band	>+10dBm
C- and Ku-band	>+13dBm

- 3rd order IMD <-50dBc @ 0dBm
- Noise figure @ maximum gain 15dB
- Noise spectral density <-82dBm/4kHz
- In-band spurious

Non signal related	Signal related for @ 0dBm output
<-75dBm	DBS-band (for rate >200Kbaud) <-66dBc/4KHz
	C- and Ku-band <-65dBc

- RF output mute >60dBc
- Phase noise

	DBS-band	C- and Ku-band
@ 10 Hz	<-30 dBc/Hz	<-50 dBc/Hz
@ 100 Hz	<-60 dBc/Hz	<-70 dBc/Hz
@ 1 KHz	<-75 dBc/Hz	<-80 dBc/Hz
@ 10 KHz	<-85 dBc/Hz	<-90 dBc/Hz
@ 100 KHz	<-95dBc/Hz	<-100 dBc/Hz

- Residual group delay 1 ns peak-to-peak

FRC0740



FRC0750



FRC0750

Interfaces

INPUT / OUTPUT INTERFACE: L-BAND

- Connector SMA (F), 50 ohms
- Return loss (50 ohms) >14dB
- Frequency range 950 to 1750 MHz
- Max input power -10 dBm

OUTPUT INTERFACE: RF, (OPTIONAL)

- Connector RF-band out SMA (F), 50 ohms
- Return loss >12dB

OUTPUT L-BAND MONITORING (WITH UPCONVERTER OPTION)

- Connector SMA (F), 50 ohms
- Return loss >12 dB
- Gain 0 dB

10 MHz REFERENCE INPUT / OUTPUT (OPTIONAL)

- Input level -3dbm up to 7dBm
- Output level +7 dBm ± 2 dB
- Connector BNC (F) - 50 ohms

BUC POWER AND REFERENCE FREQUENCY (OPTIONAL)

- Connector N(F) - 50 ohms
- Max. current 4 A
- Voltage 24V, 48V
- Frequency 10MHz
- Stability see Internal Reference Frequency

L-band channel characteristics

- Gain -30 to 10dB
- Output 1dB compression +10dBm
- Gain flatness over 36MHz <± 0.25 dB
- Gain flatness over L-band <± 1dB
- Spurious(@-10dBm output power) <-65 dBc/4KHz
- L-band output mute >60 dBc
- Crosstalk >60 dBc

L-band to RF-band channel characteristics

- 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
- Gain (over temperature and frequency) -20 to +20 dB
- Output 1dB compression Ku-band >+13dBm
- Output 1 dB compression C and DBS >+10dBm
- Gain flatness ±0.45dB/36MHz max
- In-band spurious
 - Non signal related <-80dBm
 - Signal related for rate >200 kbaud (up to 0dBm output) <-66dBc/4kHz

- RF output mute >60dBc
- Phase noise

	DBS-band	C- and Ku-band
@ 10 Hz	<-30 dBc/Hz	<-50 dBc/Hz
@ 100 Hz	<-60 dBc/Hz	<-70 dBc/Hz
@ 1 KHz	<-75 dBc/Hz	<-80 dBc/Hz
@ 10 KHz	<-85 dBc/Hz	<-90 dBc/Hz
@ 100 KHz	<-95 dBc/Hz	<-100 dBc/Hz
- Residual group delay 1 ns peak-to-peak

FRC0740 & FRC0750

Internal Reference frequency

- High Stability

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

AVAILABLE ALARMS (FRC0740)

- 10 MHz alarm
- Power supply alarm
- Temperature alarm
- Synthesizer out-of-lock

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

Newtec FRC0740 L-band Block Upconverter		Ordering n°
Default configuration		
L-band to RF, SNMP 10MHz reference In/Out: High stability		FRC0740
Configuration Options Category		
Select 1 option		
Output frequency	C-band (5,850 GHz - 7,05 GHz)	FA-12
	Ku-band (12,75 - 13,25 GHz)	FA-13
	Ku-band (13,75 - 14,80 GHz)	FA-14
	DBS-band (17,30-18,10 GHz)	FA-07
	DBS-band (17,60-18,40 GHz)	FA-08
Select 1 option		
10MHz reference In/Out	High stability	Default
	Very high stability	GR-02
Services Category		
Max. 1 option per category		
Support	Care Pack 3 Basic	GA-08
	Care Pack 3 Enhanced	GA-09

Newtec FRC0750 Active L-band Combiner and Upconverter		Ordering n°
Default configuration		
4-Input L-band combiner, SNMP Output interface: 950 - 1750MHz		FRC0750
Configuration Options Category		
Select 1 option		
Input interface	4-Input L-band	Default
	8-Input L-band	FE-02
Select 1 option		
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-13
	L+Ku-band (13,75 - 14,50 GHz)	FA-14
	L+DBS-band (17,30-18,10 GHz)	FA-07
L+DBS-band (17,60-18,40 GHz)	FA-08	
Additional Options Category		
Max. 1 option per category		
10MHz reference In/Out	High stability	GR-01
	Very high stability	GR-02
Services Category		
Max. 1 option per category		
Support	Care Pack 3 Basic	GA-08
	Care Pack 3 Enhanced	GA-09

Contact your sales representative for details (sales@newtec.eu).

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