



## Applications

- OFDM Wireless Camera Systems
- Broadcast Industry
- OEM Equipment/System
- Diversity receiver systems

## Features

- Main and Diversity channels
- No external programming required - 16 Channels user selectable via dipswitch
- Access to SPI interface provides synthesiser control if desired
- Small footprint 47 x 68 x 12mm
- Phantom power capable (optional)

## Description

The DDC (Dual Downconverter) provides two downconverters utilising a single on-board Local Oscillator. The DDC is supplied with 16 pre-programmed frequency channels, which are selectable by means of a 4 way dual-in-line switch, located between the RF input connectors. Frequencies and channel spacing for the 16 channels can be changed on request.

Alternatively the synthesiser can be programmed directly using the SPI interface available via the 6 pin header.

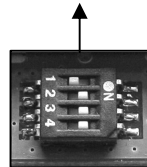
Power and logic control is supplied via a 6 pin 2.54mm pitch header. The DDC also optionally supports phantom power feed by injecting the supply voltage onto the IF Main output from the receiving end. This allows the DDC to be installed close to the antenna allowing the effects of cable loss to be reduced.

LEDs provide power good indication for each downconverter channel.

## Channel Selection

The LO frequency is selected by setting DIP switch (SW) as shown in the table below:-

SW#	CHANNEL NUMBER															
	0	1	2	3	4	5	6	7 ?	8	9	10	11	12	13	14	15
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON
2	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON
3	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON
4	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
LO Freq	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780



This example shows DIP switch set to channel 7

Example:-

The IF output frequency versus channel number for an RF Freq of 1300MHz is shown in the table below:-

PORT	CHANNEL NUMBER															
	0	1	2	3	4	5	6	7 •	8	9	10	11	12	13	14	15
RF	1300															
IF	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480

- Indicates default setting

## RF Inputs

RF inputs are made via right angle SMA connectors. These can be changed to MCX, or other compatible connectors on request.

## IF Outputs

The IF outputs are made via right angle SMA connectors. These can be changed to MCX, or other compatible connectors on request.

## Power/Logic Connections

These are made via a 6 pin single-in-line 2.54mm pitch header (PL1)

The pin-outs are given below. (Pin 1 is indicated by the marking 'Vin')



Pin Number	Signal	Description
1 ('Vin')	+V	Positive Supply Input 6V to 12V max (500mA Max)
2	SPI_LE	SPI Latch Enable Input (3.3V logic)
3	GND	Negative Supply Input
4	/EXT	External SPI Interface Enable. Must be tied low when using external SPI interface
5	SDI	SPI Serial Data Input (3.3V logic)
6	SCLK	SPI Serial Clock Input (3.3V logic)

## Specifications

Parameter	MIN	TYP	MAX	UNITS	NOTES
RF i/p operating frequency range	1150		1400	MHz	
IF o/p frequency range	300		550	MHz	
Conversion Gain	13	14	15	dB	Can be set from 10dB to 22dB at time of manufacture
NF		2		dB	
IIP3		0		dBm	
LO SSB phase noise @10khz		-90		dBc/Hz	
LO frequency programmability	1630	1700	1780	MHz	10MHz channel spacing on standard unit
Operating Voltage	6	6.5	12	Volts (dc)	If operated at >8V then additional heatsinking is recommended (see notes)
Operating Current		370		mA	
Phantom Power Operating Voltage	6	6.5	12	Volts (dc)	
Phantom Power Operating Current		370		mA	
Spurious Emissions RF Port			-57	dBm	
Spurious Emissions IF Port			-57	dBm	
Frequency Stability		+/-2.5		ppm	(-10 to +70°C)
Operating Temperature	-10		+55	°C	With adequate heatsinking
Dimensions	W = 47	L = 68	H =12	mm	Including the height of SMA connectors

## Notes

Phantom Power Operation: Additional components need to be fitted to allow phantom power operation. Please consult adaptiveRF Ltd about this.

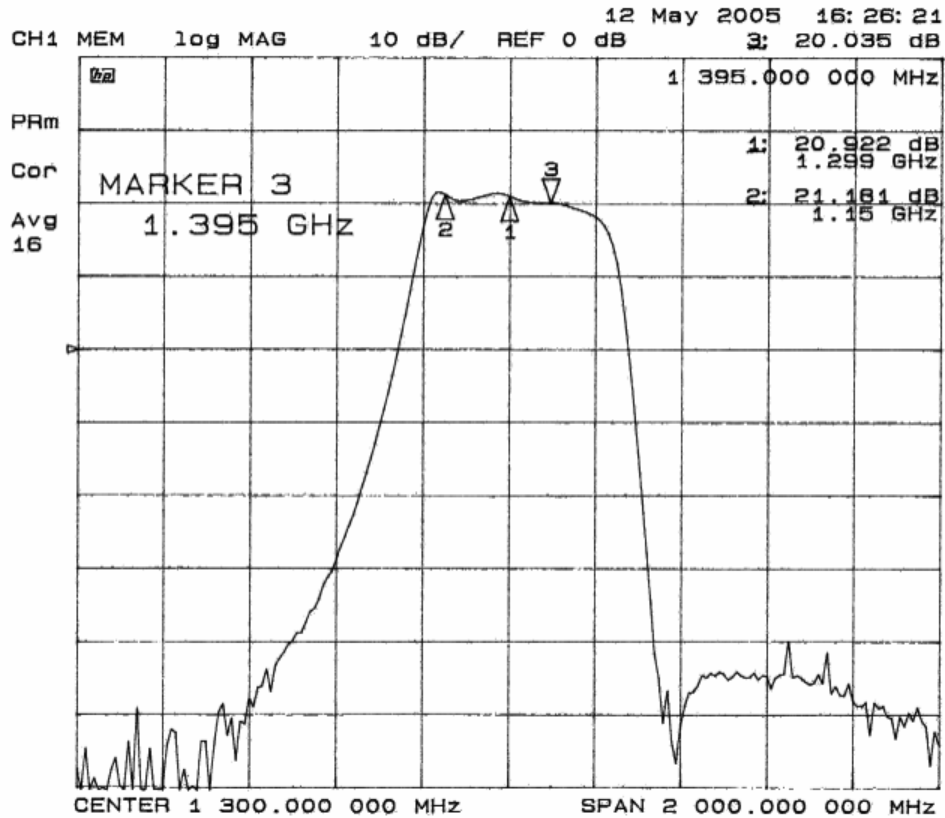
RF Connectors: The unit is fitted with Right Angled SMA connectors as standard. Alternative connectors with similar footprints i.e. MCX can be fitted on request.

Operating Voltage: Linear regulators are used on the board to derive the on-board +5V supply voltage. +6V is required at the connector. To avoid power wastage and extra heat being generated on the PCB it is recommended that the supply voltage be kept low ie between +6V and +7V if possible.

## Dimensions

See adaptiveRF website for dimensional drawing pdf.

Typical Filter Response



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