



VHF CONVERTER MODEL U/D-10200R-1

Flexible IF and Baseband
Frequency Converter



FEATURES

- Synthesized frequency tuning
1 kHz step size,
10 kHz to 200 MHz tuning range
- Low phase noise
- Independent input and output
frequency selection
- Switchable bandwidths
10 kHz to 100 MHz in 1, 2 and 5 steps
- Storage for 10 preset configurations
- Automatic and manual gain control
- Level indicator
- RS485 remote control

OPTIONS

- Remote RS422, RS232 or IEEE-488

A highly flexible synthesized IF and Baseband converter, the Model U/D-10200R-1 provides an interface between external RF-to-IF converter outputs and the corresponding inputs for the signal analysis receivers and demodulators that make up the typical high performance communications receiving system. This unit features various filtering and gain options with independent input and output frequency selection, making it easier and more cost effective to configure new systems without changing existing hardware. The low phase noise design can accommodate both analog and digital signals. In addition, all operation modes can be uncoupled to provide maximum flexibility in obtaining the desired output response.

The converter has four modes of frequency translation:

IF to IF: Translation of signals from one IF frequency to another IF frequency.

IF to baseband: Double sideband conversion of an IF signal to baseband.

Baseband to IF: Double sideband conversion of a baseband signal to IF.

Baseband to baseband: No frequency translation.

SPECIFICATIONS

ALL MODES

Input/output frequency range	10 kHz to 200 MHz
Manual gain control	60 dB attenuation
Manual gain control steps	1 dB nominal
Interface	Short circuit protected, AC coupled
Nominal impedance	50 ohms
VSWR	2:1 maximum

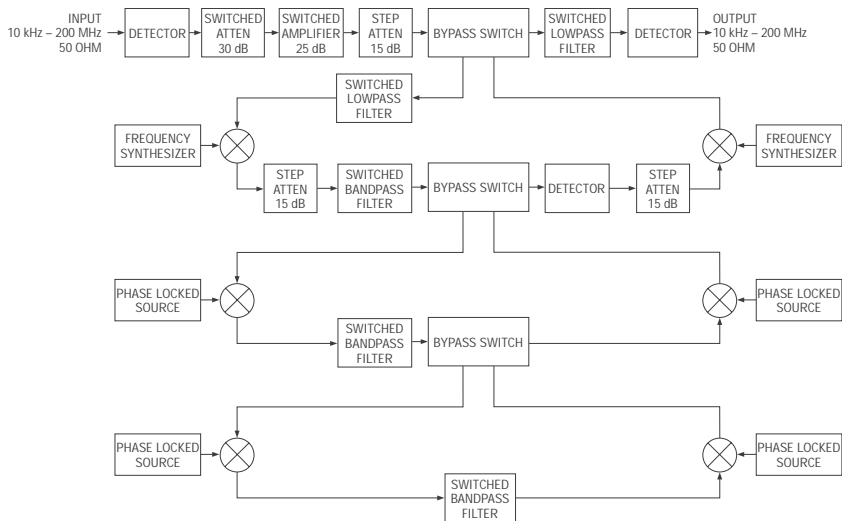
BASEBAND TO BASEBAND

Baseband filter bandwidths	5, 10, 15, 25, 50, 75, 100 and 200 MHz
Gain	0 dB nominal
Input third order intercept point	+18 dBm minimum (1 MHz minimum)
Noise figure	25 dB typical (minimum attenuation)
Input/output level	1 V peak-to-peak (+4 dBm)

IF TO IF, BASEBAND TO IF, IF TO BASEBAND

Frequency sense	Noninverting	
Frequency settings	Output frequency independent from input frequency	
Tuning step size	Adjustable, 1 kHz minimum	
IF filter bandwidths	10 kHz to 100 MHz in 1, 2 and 5 steps	
Selectivity	60 dB bandwidth: 3 dB bandwidth = 4.5:1	
Passband ripple	±0.5 dB over 50% of the bandwidth	
Phase linearity	±10° over 50% of the bandwidth	
Gain	45 dB nominal	
Noise figure	15 dB typical (minimum attenuation)	
Spurious outputs	60 dBc maximum (one octave bandwidth)	
Image rejection	60 dBc maximum (bandwidths less than 20 MHz)	
Output third order intercept point	20 dBm minimum (1 MHz minimum center frequency at 10 dB gain minimum)	
Automatic gain control	60 dB	
Time constant	Adjustable, .05 to 9.95 sec/dB	
Frequency stability	±2 x 10 ⁻⁸ , 0 to 50°C, ±5 x 10 ⁻⁹ /day typical (fixed temperature after 24 hour on time)	
Phase noise (1.0 Hz bandwidth)	Offset	Typical level
	1 kHz	-70 dBc/Hz
	10 kHz	-80 dBc/Hz
	100 kHz	-90 dBc/Hz
	1 MHz	-100 dBc/Hz
External reference input	5 MHz or 10 MHz, +4 ±3 dBm. Unit will automatically switch to the internal reference for external reference input levels below +1 dBm nominal.	

BLOCK DIAGRAM



OPTION

17. Remote control.
- A. RS422.
 - C. RS232.
 - F. IEEE-488.

Notes: Missing option numbers are not applicable to this product.

For literature describing local control and remote control (bus protocols), refer to MITEQ's Technical Note 25T057.

VHF CONVERTER

MODEL U/D-10200R-1

PRIMARY POWER REQUIREMENTS

Voltage	90–250 VAC
Frequency	47–63 Hz
Power consumption.....	100 W maximum

SUMMARY ALARM

Contact closure/open for DC voltage and/or local oscillator alarm
Status alarm readout on remote control bus

PHYSICAL

Weight	35 pounds nominal
Overall dimensions.....	19" x 5.25" x 22" maximum (chassis depth 20")
Rear panel connectors	
AC input connectors	IEC-320
RF connectors	BNC female
Summary alarm interface mating connector	DEM-9P
Remote interface connector	DEM-9S for RS485 and RS422, DB-25P for RS232, IEEE-488 receptacle for GPIB

ENVIRONMENTAL

Operating

Ambient temperature (Controller).....	0 to 50°C
Relative humidity	Up to 95% at 30°C
Atmospheric pressure	Up to 10,000 feet

Nonoperating

Temperature.....	-50 to +70°C
Atmospheric pressure	Up to 40,000 feet
Relative humidity	Up to 95% at 40°C
Shock and vibration.....	Normal handling by commercial carriers



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