

MAIN FEATURES

- ❖ Indoor upconverter for Ku-band
- ❖ Tuneable in 1kHz steps
- ❖ Excellent phase noise parameters
- ❖ Low intermodulation distortion
- ❖ Low group delay ripple
- ❖ Low unwanted spurious level
- ❖ High stability internal reference
- ❖ Local/remote control



DESCRIPTION

This high performance upconverter is intended for use in professional applications in Ku-band such as satellite earth stations. This device includes a double conversion upconverter module with low phase noise local oscillators, a microprocessor based monitor and control circuitry, a front panel with control keys and status display and internal AC / DC power supply. The equipment can be controlled from the front panel (local control) and via Ethernet, RS232 and RS422 (remote control).

SPECIFICATIONS

GENERAL	
RF output frequency [MHz]	12750-14500MHz
IF input frequency	70MHz
Type	Double conversion without inversion
No. of Channels	1
Local source	Internal LO source
RF OUTPUT CHARACTERISTICS	
RF output frequency	12750-14500MHz
Output return loss	≥20dB
Nominal output impedance	50Ω
Output P1dB	≥ +10dBm (+15dBm typ.) @ maximum gain
Signal related spurious	≤ -60dBc
Signal independent spurious	≤ -70dBm
LO leakage	≤ -70dBm
RF output monitor level	-20dBc±3dB with reference to RF output

IF INPUT CHARACTERISTICS		
IF input frequency	70MHz	
IF bandwidth (-1dB points)	±18MHz	
Noise figure	≤14dB @ maximum gain	
Input return loss	≥20dB	
Nominal input impedance	50Ω	
Input operational signal level	-100dBm to -30dBm	
Max. input power level (nondestructive)	> +10dBm	
IF input monitor level	-20dBc±3dB with reference to IF input	
TRANSFER CHARACTERISTICS		
Nominal conversion gain	35dB±1dB	
Attenuation range	0dB to 25dB attenuation	
Attenuation step	0.25dB	
Attenuation accuracy	≤±0.5dB	
Gain ripple within RF band	≤±1dB	
Gain ripple in any 36MHz range	≤±0.3dB, typ. ±0.5dB	
Gain ripple within IF band	≤±0.3dB, typ. ±0.5dB	
Gain stability	<0.25dB/day @ constant temperature	
Image rejection	>70dB	
Carrier mute	>60dB rejection	
Group delay within IF band	Linear	≤0.03ns/MHz (within ±18MHz band)
	Parabolic	≤0.01ns/MHz ² (within ±18MHz band)
	Ripple	≤1ns peak-peak (within ±18MHz band)
INPUT FREQUENCY REFERENCE		
Frequency	The equipment shall lock on 5MHz, 10MHz and 100MHz	
Connector	BNC female	
Level	0dBm±6dB	
Return loss	>10dB	
LOCAL OSCILLATOR CHARACTERISTICS		
Step size	1kHz	
Frequency accuracy	±10Hz considering a perfect external frequency reference	
Frequency stability	±0.005ppm within temperature range on internal reference	
Frequency drift per day	±0.001ppm per day on internal reference	
Frequency aging	±0.1ppm/year	
Local oscillators monitor level	> -10dBm	
Local osc. monitor ports return loss	≥10dB	

LOCAL OSCILLATOR CHARACTERISTICS	
	@100Hz ≤ -67
	@1kHz ≤ -87
	@10kHz ≤ -97
	@100kHz ≤ -97
	@1MHz ≤ -107
NON-LINEAR BEHAVIOUR	
3 rd order intermodulation	≤ -50dBc with two carriers ($\Delta f = 2\text{MHz}$) at 0dBm at RF output at 0dB attenuation
AM/PM conversion	≤ 0.1°/dB at 0dBm RF output power
CONTROL & MONITORING	
Control and monitoring interface	Keypad and LCD display for local M&C Ethernet, RS232 and RS422 for remote M&C
Controls	ON/OFF switch, output frequency, gain, mute
Monitoring	output frequency, gain, mute, reference source, PLL status, local/remote status
Warnings	local oscillator fault, reference frequency fault, digital fault, general alarm, dry contact summary alarm on RS422 control connector
MECHANICAL CHARACTERISTICS	
Dimensions	1U 19" rack (364mm depth)
Front and rear panel finishing	Light grey (RAL7035) powder coating
Weight	5.9kg
RF output connector	SMA female (rear panel)
IF input connector	BNC female (rear panel)
RF output monitor connector	SMA female (rear panel)
IN input monitor connector	BNC female (rear panel)
Reference input connector	BNC female (rear panel)
LO monitor connectors	SMA female (front panel)
AC mains input connector	IEC C14 inlet
Control connector	RJ45 for Ethernet, DSUB-9 for RS232 and RS422
POWER SUPPLY	
Voltage	90-264VAC
Frequency	47-63 Hz
Power consumption	≤ 100VA
Fuse value	T4A (4A, Slow blow)
ENVIRONMENT	
Operating temperature range	0°C ... +50°C
Storage temperature range	-30°C ... +70°C
Humidity	95% (not condensing)
Ingress protection level	IP50
Vibration	according to MIL-STD-810G Method 514.6-Cat 4
Shock	½ sinus 30g, 11msec on 3 axis

Specifications are subject to change without notice.

OUTLINE DRAWING (mm)

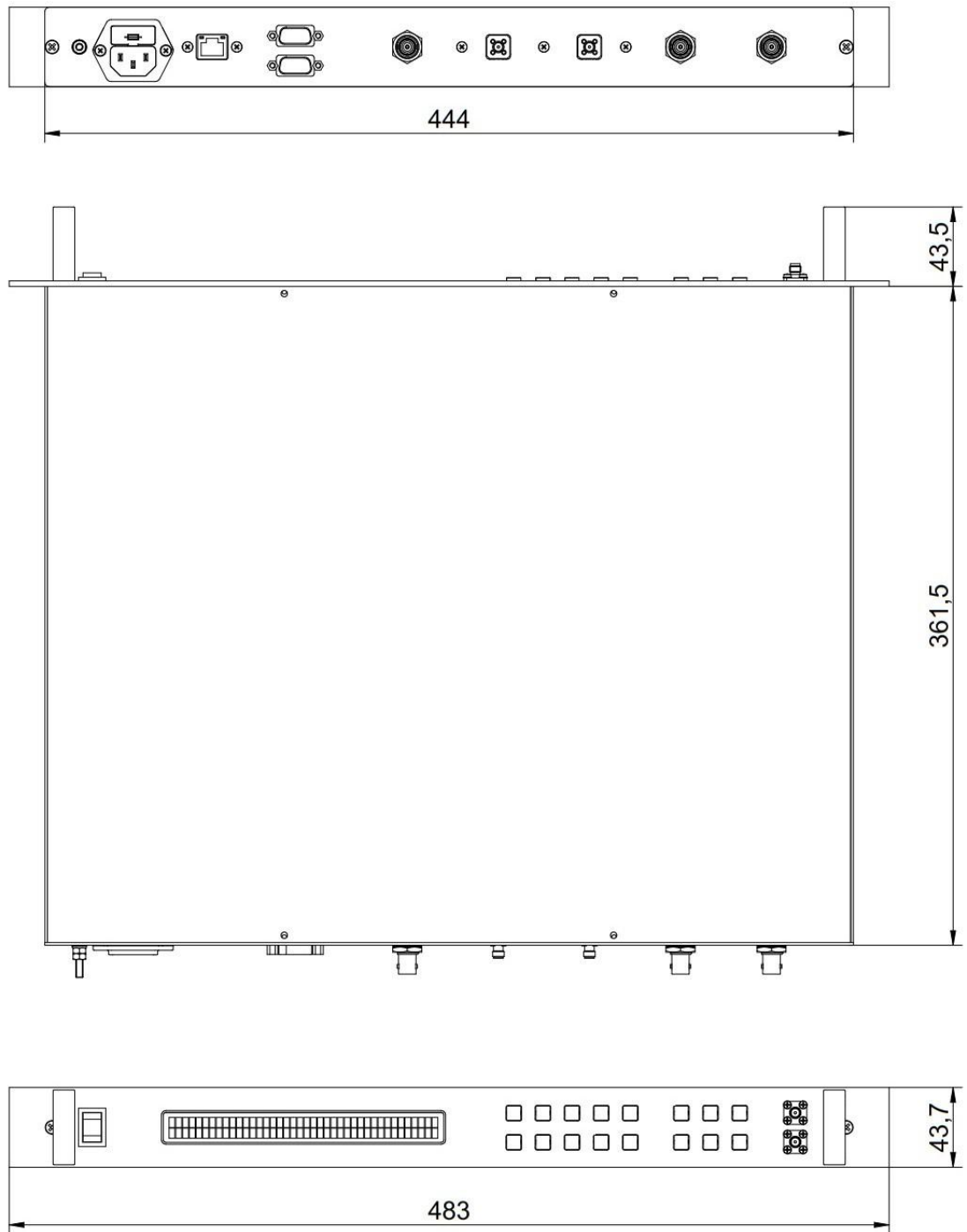


Figure 1. Outline drawing



BMCU101 Ku-band Upconverter 70MHz to 12750-14500MHz

ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
BMCU101K11349	BMCU101 Ku-band upconverter, 70MHz to 12750-14500MHz, BW+/-18MHz, 19" 1U rack

DOCUMENT REVISION

DOCUMENT NAME	REVISION	DATE
BMCU101-LM-K11349	V02	26/02/2024