

MAIN FEATURES

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



DESCRIPTION

This high performance upconverter is intended for use in professional applications in X-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 TCP/IP over Ethernet (remote control).

SPECIFICATIONS

GENERAL	
RF output frequency	8000-8500 MHz
IF input frequency	720MHz
Type	Double conversion without inversion
Number of channels	1
Local source	Internal LO source
RF OUTPUT CHARACTERISTICS	
RF output frequency	8000-8500 MHz
Output VSWR	≤ 1.3
Nominal output impedance	50Ω
In-band spurious:	
Signal related	≤ -60 dBc
Signal independent	≤ -65 dBm
LO leakage	≤ -70dBm
RF output monitor level	-20 dBc±3dB with reference to RF output
IF INPUT CHARACTERISTICS	
IF input frequency	720MHz
IF bandwidth	±200MHz
Noise figure	≤ 15dB @ maximum gain
Input VSWR	≤ 1.3
Nominal input impedance	50Ω
Max. input power level (nondestructive)	> +5dBm

TRANSFER CHARACTERISTICS	
Conversion gain	+30 dB
Attenuation range	0 to 30 dB in 1 dB steps
Gain ripple within full RF band	$\leq \pm 1.5$ dB
Gain ripple in any 36 MHz RF band	$\leq \pm 0.6$ dB
Group delay variation	< 1.2ns over 240 MHz
Image rejection	> 65 dB
Carrier mute	> 80 dB rejection
INPUT FREQUENCY REFERENCE	
Frequency	The equipment shall lock on 5MHz, 10MHz and 100MHz (There is a <5min. warm-up time at the return to internal reference.)
Connector	BNC female
Level	0dBm $\pm$ 6dB
VSWR	$\leq 1.5/50\Omega$
LOCAL OSCILLATOR CHARACTERISTICS	
Step size	1kHz
Frequency accuracy	0Hz considering a perfect external frequency reference
Frequency stability	± 0.005 ppm within temperature range on internal reference
Frequency drift per day	± 0.001 ppm per day on internal reference
Frequency aging	± 0.05 ppm/year
Local oscillators monitor level	> -10dBm
Local oscillator monitor ports VSWR	$\leq 1.5/50\Omega$
Phase Noise	@100Hz -75dBc/Hz typ., -72dBc/Hz max.
	@1kHz -95dBc/Hz typ., -88dBc/Hz max.
	@10kHz -100dBc/Hz typ., -92dBc/Hz max.
	@100kHz -104dBc/Hz typ., -100dBc/Hz max.
	@1MHz -120dBc/Hz typ., -115dBc/Hz max.
LO spurious content:	
Frequency dependent	< -60dBc
Frequency independent	< -70dBc
NON-LINEAR BEHAVIOUR	
3 rd order intermodulation	≤ -50 dBc with two carriers ($\Delta f = 2$ MHz) at 0dBm at RF output at maximum gain
CONTROL & MONITORING	
Control and monitoring interface	Keypad and LCD display for local M&C TCP/IP over 100Mbps Ethernet for remote control
Controls	ON/OFF switch, output frequency, output power, mute, ALC mode
Monitoring	Output frequency, output power, input power, mute, reference source, PLL status, local/remote status
Warnings	Local oscillator fault, reference frequency fault, digital fault, general alarm

MECHANICAL CHARACTERISTICS	
Dimensions	1U 19" rack (364mm depth)
Front and rear panel finishing	Light grey (RAL7035) powder coating
Weight	4.75 kg approx.
RF output connector	N female (rear panel)
IF input connector	N female (rear panel)
RF output monitor connector	N 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 RS232 and RS422 for test purposes
POWER SUPPLY	
Voltage	90-264VAC
Frequency	47-63 Hz
Power consumption	≤25VA
Fuse value	T1.6A (1.6A, 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)

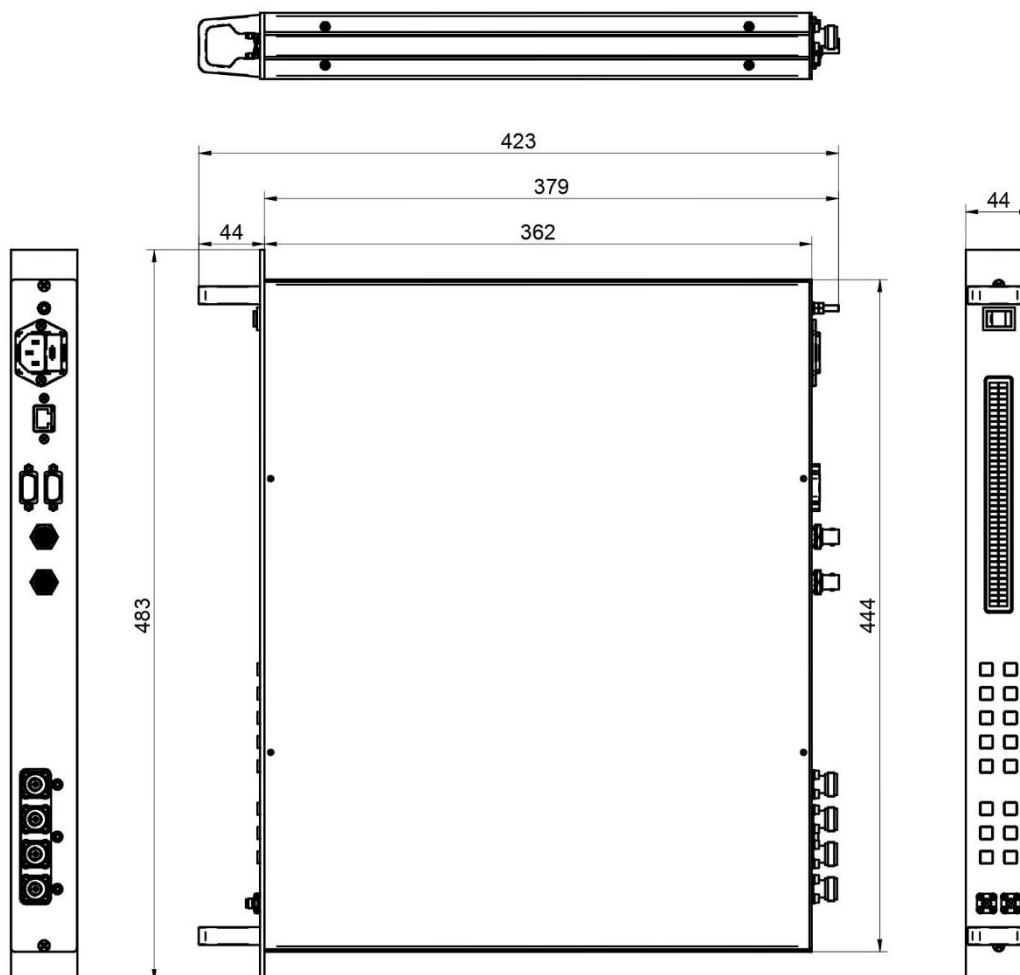


Figure 1. Outline drawing



BMCU105

X-band Upconverter 720MHz to 8000-8500MHz

ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
K11521BMCU105	BMCU105 X-band upconverter 720 MHz to 8000-8500 MHz

DOCUMENT REVISION

DOCUMENT NAME	REVISION	DATE
BMCU105-LM-K11521	V01	2025/04/08