

# Telecom: Ka-band Compact Frequency Receiver and Converter

Beyond Gravity Space Compact Frequency Receiver and Converter for Ka-band payloads meet the highest performance and reliability requirements. Application of new technology enables small size, low mass and efficient manufacturing.

## Heritage

Beyond Gravity Space has been supplying high performance and highly reliable microwave communication equipment for telecom satellites for more than 35 years.

Delivery record for telecom payloads:

- > 1300 FSS/BSS Units delivered
- > 700 Ka-band Channels delivered
- > 10 000 years accumulated operational time in orbit

## Key features

### Compact frequency Receiver and Converter for Ka-band payloads

The Compact Ka-band Frequency Receiver and Converter for 30 GHz-to-20 GHz Conversion (and 24-to-17 GHz) includes internal LO generation and EPC for most satellite Bus standards. The equipment is built using the latest MMIC technologies for excellent RF performance. The Compact design facilitates adaptation to LO frequencies up to 12 GHz.

## Interfaces

RF input:	WR34 or WR28 Waveguide (or coaxial with adapter)
RF output:	SMA-K
DC & TM/TC:	MDM-25

## Modularity

The modular design allows the equipment to be configured for different frequency plans as well as for a variety of DC and TM/TC interfaces.

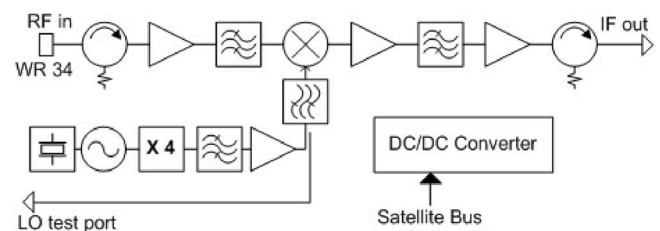
## Compact design

Extensive use of MMIC and miniaturization technologies are employed to give small size and low mass. The high level of integration result in improved producibility and short lead times.

## Production

- Well-known technologies and established processes
- Extensive clean-room facilities
- Highly automated testing and data collection
- Inhouse facilities for environmental testing

## Compact Receiver and Converter block diagram



## Technical data

Parameter	Typical Performance
<b>Frequency range, Input</b>	24.5 - 25.5 GHz (24/17 Converter / Receiver) 27.5 - 31.0 GHz (30/20 Converter / Receiver)
<b>Frequency range, Output</b>	17.3 - 17.8 GHz (24/17 Converter / Receiver) 17.7 - 21.2 GHz (30/20 Converter / Receiver)
<b>LO Frequency range</b>	7 - 12 GHz
<b>Input Power:</b>	Converter: -20 dBm (nom/carrier) Receiver: -50 dBm (nom/carrier)
<b>Gain</b>	Converter: 27 - 33 dB Receiver: 58 - 62 dB
<b>Transmit Band Gain</b>	Converter <-20 dB Receiver: < 0 dB
<b>OIP3</b>	30 dBm (24/17 Converter / Receiver) 32 dBm (30/20 Converter / Receiver)
<b>Noise figure</b>	< 2.3 dB Receiver < 14 dB Converter
<b>Temperature range</b>	-20°C to + 70°C
<b>Supply Voltage</b>	28-100 V
<b>Power consumption</b>	10 W
<b>Mass</b>	0.77 kg
<b>Size</b>	142 x 104 x 54 mm