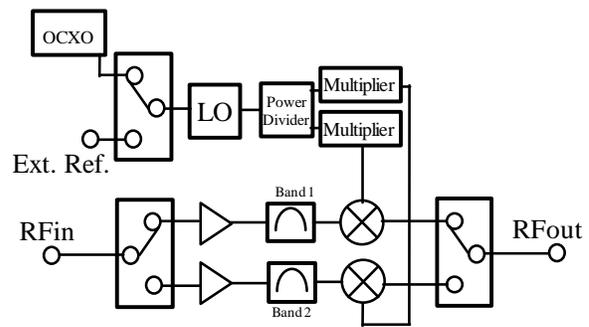


# How A Down Converter May Help Your Next System Design



Block diagram of a wide band down converter.

Down converters offer the system designer the ability to translate a band of signals at one frequency to another frequency. This can be very useful since it is generally easier and lower cost to process signals at lower frequencies than at higher frequencies. Furthermore, the down conversion process can be used to channelize portions of a frequency band to improve dynamic range or to minimize interference from undesired signals. For these reasons, and others, you should consider a down converter for your next system design.

## **What Is A Down Converter?**

A down converter is a set of electronics that are normally contained in a module box that convert a set of signals at a high frequency to a lower frequency. The importance of this function may not be immediately apparent, but a down converter can extend the range of a low frequency receiver so that it can cover a much broader range. For instance, this means that a receiver operating in the 2-6GHz range can be used to receive signals in the 28-40GHz range by adding a down converter similar to the one shown in the figure above.

## **Mixers Are Important For Down Converters**

In many ways, the mixer is the heart of a down converter. This is because it is the circuit that is responsible for the actual down conversion of the signal from the higher frequency range to a lower frequency range. The output frequency from the mixer depends on the LO frequency and the input frequency and follows the mixing theory  $F_{OUT} = F_{IN} \pm nF_{LO}$  where  $n$  is the mixing index.

## **Advantages Of MPT Down Converters**

Our down converters offer three things that provide benefits our customers expect. First, MPT down converters use more affordable manufacturing methods so that our down converters are normally a more economical alternative. We have leveraged the latest component and assembly methods to create greater value for our customers while maintaining high quality. Second, our millimeter-wave down converters use advanced integrated circuit, packaging, and assembly methods that allow us to achieve performance levels that other systems cannot achieve. It is important to remember that a module only perform as well as their electronic packaging allows. Third, our customer service gives our customers peace of mind knowing that we are here to help them succeed. Our solutions create value for our customer.

## **For More Information**

For more information about how MPT can help with your down converter needs, feel free to contact us today at [www.mptcorp.com](http://www.mptcorp.com)

