

## External Reference or PLL?

If you have low-speed data, a beacon receiver, or if you need instant lock after losing and reacquiring a signal, then you need an external reference LNB or BDC, and an external reference source.

Even though you may have a low-drift PLL LNB or BDC, it will have an initial offset, and its drift measurement centres on its initial offset. That initial offset may put you outside your acceptable range, even though your device is operating well within its specifications. It should also be remembered that a PLL product requires up to 15 minutes for it to warm up and for its compensation networks to bring it back within specified operating parameters. This is all normal for Phase Lock Loop Products, and this can happen after sudden temperature changes due to a rain shower, or the sun breaking through on an intermittently cloudy day.

If you require instant reacquisition after a loss of lock, or maximum data throughput and the lowest possible bit error rate. Or you are operating a beacon receiver, then you need an external reference LNB or BDC.

A more complete discussion and description of this issue is available at:

[http://www.orbitalresearch.net/Aging\\_Drift\\_Offset.htm](http://www.orbitalresearch.net/Aging_Drift_Offset.htm)



### C, Ku, and Ka Band External Reference LNBs and BDCs

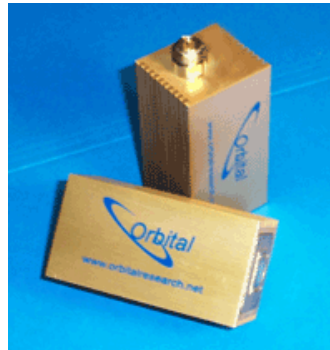
Orbital produces the highest quality PLL and external reference BDCs modules and LNBs, and has available a wide range of Local Oscillator values, bandwidths, and possible connector configurations.

BDC modules come in back-o-rack and in the rack styles.

### Lots of Options

Whether you are designing a new system, or trying to update an aging one, it is great to have the ability to integrate as seamlessly as possible - even when adding new capabilities, such as dual power, or external DC, an always on oscillator for instantaneous lock, or an alarm reporting module built into your LNB.

With today's aging satellite fleet, and the increasing need for beacon receivers, or just because you are required to switch your BDC or LNB, external reference enables instantaneous reacquisition of your signal, thus minimizing downtime and data loss.

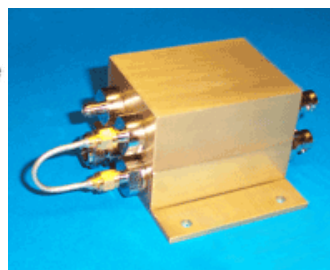


### BDC Modules or Racks

We manufacture BDCs as modules for integration into your own system, or integrate them into racks containing single BDC, or up to three to cover the entire Ku band. They can be in redundant pairs, or even in switchable racks and using them with our Systems Interface Products, you can build your system up out of modules.

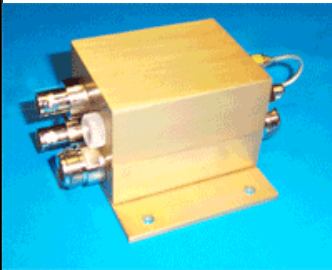
### Orbital Oscillators...

Are built specifically for the satellite industry and are available in standalone versions, or integrated with other Orbital Systems Interface Products. Our most popular models have a Master Oscillator or Precision Oscillator combined with one or two of our three-in-one Mux Tees. Our MuxTees can be used as a bias tees, mux tees, or duplexers, and can be used to either insert or extract the 10 MHz signal, or the DC power, or the L Band signal, and they come in standard and high power versions.





**Our BDCs, LNBs  
and Our  
Systems Interface  
Products  
Are built to be used  
Together  
to provide an  
Optimally matched  
and integrated  
Solution**

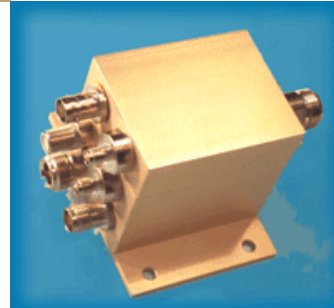


**External Reference:**

**Lowest drift**

**Low phase noise**

**Low bit error rate**



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