

## Why do I need an Orbital Mux/Tee?

### Orbital MT1 Mux/Tee



#### 'The Big Little Box'

If the integrity of your signal is your goal, then this little box does a big job. Dollar for dollar it is the best investment you can make in your signal quality.

All this for under \$300 -your choice of connectors, mounts 'back-o-rack', and you can use it to make your impedance transforms.



The MT1 Mux/Tee also uses our replaceable, 'Murray Style', floating pin connectors for the highest quality connections.

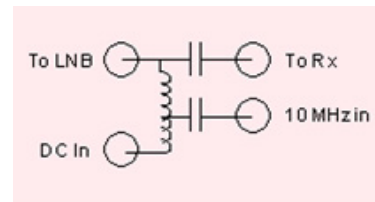
The product can be combined with, or integrated with other Orbital Systems Interface Products.

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#### Because:

In satellite applications there are three distinct signals linking the LNB/BUC, the receiver/modem, the power supply, and the 10 MHz external reference oscillator. These signals have to move on the same wire and not interfere with each other. These signals have enormously different amplitudes, frequencies, and bandwidths. The problems are these

- Standard Mux/Tees are not designed for Satellite applications - they are very simple circuits:



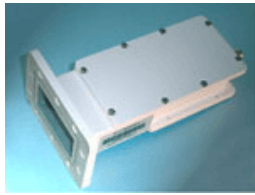
- DC must be isolated from the Receiver/Modem or the Rx/Modem could be harmed.
- DC must be filtered to provide clean power to the LNB or BUC without degrading the L-Band signal from the LNB or to the BUC.
- The external reference 10 MHz signal must not be contaminated.
- The signal from the LNB or to the BUC must be transferred to/from the receiver/modem with minimal loss, degradation, tilt, ripple, or out-of-band signals.
- The 10 MHz external reference signal must get from the source to the LNB/BUC with minimal loss, no added interference, and no added noise.
- The 10 MHz signal is a million times more powerful than the L-Band signal - Orbital's Mux/Tee provides 90 dB of isolation, reducing the 10 MHz signal by a billion times, so that it is 1/1000 of the L-Band at the Receiver/Modem port.

### Orbital's Solution?

- Your choice of connector types
- Any combination of 50 $\Omega$  and 75 $\Omega$  in/out Impedance transforms.
- Highpass filtered L band: rolloff below 900MHz, flat through 2100MHz, assuring DC block to Receiver port and 10MHz port.

- Filtered 10 MHz
- Low through loss from 10MHz input to LNB
- Lowpass filtered DC, 2.5 Amp standard for LNBs, BDCs, and low watt transmitters, 5.0 Amp optional for transmitters
- Very low bandpass ripple
- Very low L band through loss
- Very high Receiver port to 10MHz port isolation - no leakage back to receiver/modem
- Superior input and output VSWR
- Will not degrade phase noise performance
- Exceptionally low insertion loss
- Will operate with LNBs, BDCs, VSATs, BUCs, and Modems
- Connectors O ring sealed for weather resistant operation
- Will not cause loss of lock
- Will not impair bit error rate

### MT1 Mux/Tee



1. From LNB or to BUC  
(any of:)

F connector 75 ohm  
N connector 50 ohm  
SMA connector 50 ohm

#### Electrical Specifications:

##### L Band

Bandpass: 900 to 2100 MHz  
Thru Loss: 0.5 dB maximum  
Ripple: ±0.3 dB maximum  
Input VSWR: 1.3 : 1 maximum  
Output VSWR: 1.3 : 1 maximum

##### 10 MHz

Passband: 1-100 MHz (3 dB down)  
Thru Loss: 0.1 dB 10 MHz to LNB port  
Isolation: >90 dB 10 MHz to Rx port

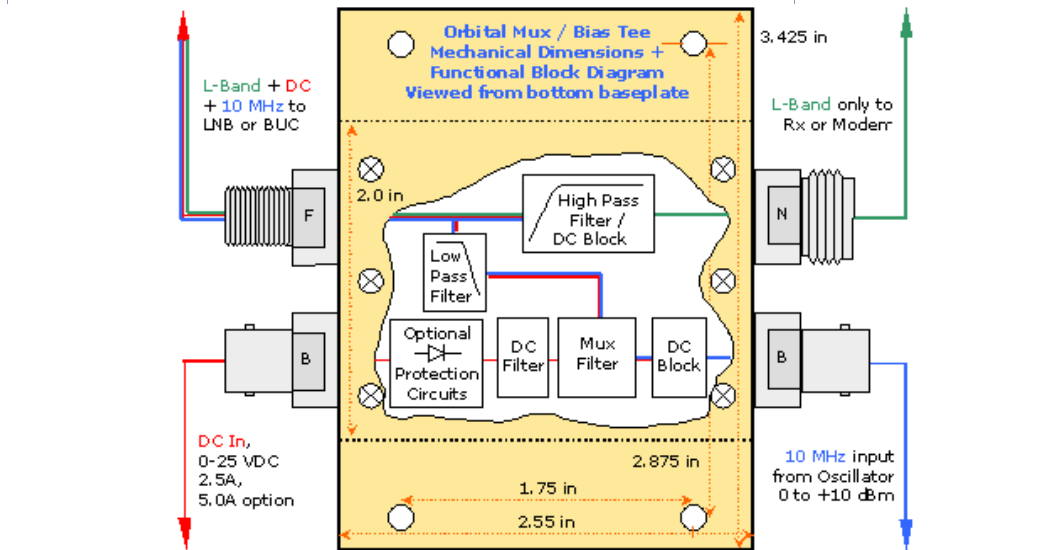
##### DC

Filtering: Hash filter, low pass filter



3. To Receiver or from  
Modem (any of:)

F connector 75 ohm  
N connector 50 ohm  
SMA connector 50 ohm



2. Power for LNB/BUC  
from DC Power Supply

BNC connector 50 ohm  
BNC plus Binding Post  
BNC plus Pigtail

#### Environmental Specifications:

Operating Temp: -40 to +60° Celsius  
Relative Humidity: Up to 100%  
condensation and  
frost

4. From 10 MHz Source  
(any of:)

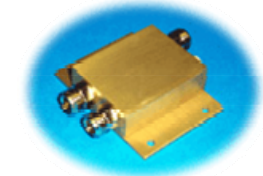
BNC connector 50 ohm  
F connector 75 ohm  
N connector 50 ohm



Power Specifications:

#### Mechanical Specifications:

Input Interface: N, SMA, F, BNC, or TNC  
Output Interface: N, SMA, F, BNC, or TNC  
Size: 3.5 x 3.8 x 0.85 inches  
Weight: 5 ounces  
Paint/Color: Gold Allodyne finish



Switching Power Supply (Optional):

Input DC Voltage: 0 to +25 V supplied via DC  
input connector  
Current Capacity: 2.5 Amps maximum, 5.0 Amps  
optional

Input Voltage: 90 to 240 VAC  
Power Out: 18 VDC 650 mA  
(Powers 1 LNB)  
Output connector: BNC, male