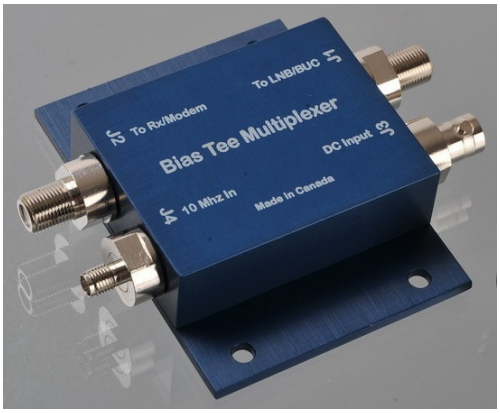


System Interface Product

Bias Tee Multiplexer (Mux/Tee)

Orbital Research.net

10MHz Multiplexer and Bias Tee in one package

How to order an Orbital Mux/Tee

Module
MT - Mux/Tee

J-1: To LNB, BDC or BUC

J-2: To Receiver or Modem

J-3: To DC Supply

MT 25 -FNBS

J-4: To 10MHz Source

Power Option
25 - Standard, 12-24 VDC & 2.5A
40 - High Power, 12-48 VDC & 4.0A
60 - High Current, 12-24 VDC @ 6.0A

Connectors available:

J1, J2: L-Band: To LNB/BUC & Receiver/Modem

F - F, 75Ω
S - SMA, 50Ω
N - N, 50Ω

J3: DC Supply

B - BNC (preferred)
F - F
N - N
ft - Feedthrough

J4: 10MHz

S - SMA (recommended)
B - BNC
N - N

BNC-to-pigtail adapters and BNC-to-binding post adapters sold separately. See SIP price list for part number and price.

Orbital Design:

Orbital Research introduces a System Interface Product (SIP) that can be used as 6 different products. The Mux/Tee can be used as a Bias Tee, Diplexer or Mux/Tee to inject DC and/or 10MHz into the L-Band signal. But it can also be installed backwards to strip out DC, 10MHz or both. So it effectively is 6 products in one.

Orbital Features:

Warranty: 3 years, repair or replace defective product

Specifications

- Highpass filtered L band:
  rolloff below 900MHz, flat 950 thru 2100MHz
  Assures DC block to Rx port and 10 MHz port
- Filtered 10MHz
- DC: 2.5A (12 to 24V) standard; 4.0A (12 to 48V) high power; 6.0A (12 to 24V) high current
- Any combination of 50Ω and 75Ω in/out Impedance transforms, (eg. 75Ω J-1 to 50Ω J-2)
- Very high Rx port to 10MHz port isolation, no leakage back to rx
- Will not degrade phase noise performance
- Exceptionally low insertion loss

Functional

- Will operate with LNBs, BDCs, VSATs, BUCs, and Modems
- Will operate in S-Band with 0.7 dB insertion loss (max) and in C-Band (3.4 to 4.2 GHz) with 1.0 dB insertion loss (max)
- Connectors O ring sealed for weather resistant operation
- Will not cause loss of lock
- Will not impair bit error rate

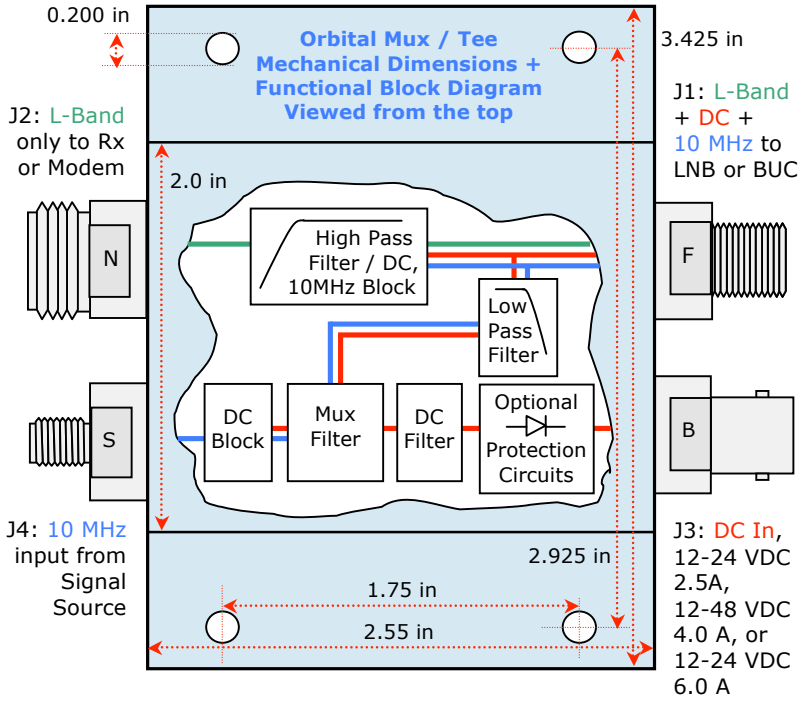
Structural

- Machined from solid aluminum block for strength, stability and endurance
- Anodyzed blue finish for corrosion and scratch protection, and excellent RF shielding/grounding
- Labels are laser etched for durability
- RoHS and REACH compliant

David Zuvic
Tel: (604) 856-0305,
dzuvic@orbitalresearch.net

Doug Macdonald
Tel: (647) 992-1210
doug.macdonald@orbitalresearch.net
www.orbitalresearch.net

System Interface Product: MT25/40/60 - Mux Tee Specifications



Electrical Specifications

L Band

Bandpass:	900 to 2100 MHz From 2.1 to 3.4 GHz with 0.7 dB insertion loss (maximum) From 3.4 to 4.2 GHz with 1 dB insertion loss (maximum)
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:	0.3 dB 10 MHz to LNB port maximum
Isolation:	>90 dB 10 MHz to Rx port

DC

Filtering:	Hash filter, low pass filter
Resistance:	0.132 ohms (average)

Mechanical Specifications

Measurements:	Tolerance ±.005 in.
Size (case):	3.425l x 2.55w x 0.88h in.
Size (with conn):	3.425l x 3.8w x 0.88h in.
Weight:	5 oz
Paint / Colour:	Blue Anodyzed finish MIL-STD-595
Mounting holes:	0.200" (5mm) Accepts standard rackmounting screws: 10/32 or 10/34

RoHs Compliant

Environmental Specifications

Operating Temp:	-40 to +60° Celsius
Relative Humidity:	Up to 100% condensation and frost
MTBF:	>125,000 hours

Power Specifications

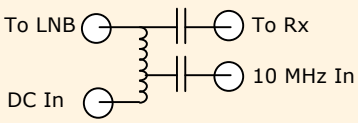
Input DC Voltage:	Passive Device. No power required
Power Capacity:	12 to 24 VDC - 2.5A, 12 to 48 VDC - 4.0A, or 12 to 24 VDC - 6.0A

Switching Power Supply

(not included with Mux/Tee)

See: PS1 brochure for North America
PS2 brochure for Global

Standard Mux/Tees are not designed for Satellite applications. They are very simple circuits.



Orbital's Mux/Tee is designed specifically for sensitive Satellite applications. We filter and condition the line between LNB and receiver so your equipment works as it should (as shown in the diagram at the top). The 10MHz goes only to the LNB and is highly isolated from the receiver. Any DC or 10MHz coming from the modem (J-2) is blocked. This ensures that there's no mixing of DC or 10 MHz between the modem and J-3 or J-4.

Each connector type has an impedance of either 50 or 75 ohms. Orbital uses 1 of 4 distinct boards to achieve the appropriate impedance transform between the LNB/BUC interface and Rx/Modem interface:

V1 - 50Ω to LNB/BUC, 50Ω to Rx/modem
V2 - 75Ω to LNB/BUC, 50Ω to Rx/modem
V3 - 75Ω to LNB/BUC, 75Ω to Rx/modem
V4 - 50Ω to LNB/BUC, 75Ω to Rx/modem

Orbital Research Ltd.,
14239 Marine Drive
White Rock, BC Canada V4B 1A9