System Interface Products

DET25/40
DC Extractor Thru Tee

Orbital Research.net

Bias Tee Throughplexer with Coupled DC

How to order a DET25/40 – DC Extractor Thru Tee

Module
DET - DC Extractor Thru Tee

J-1: To LNB, BDC or BUC

J-2: To Receiver or Modem

J-3: To DC Supply

DET 40 -NNBS

J-4: 10 MHz Out – 3 dB down

Power Option
25 - Standard 12-24 VDC & 2.5 A
40 - High Power 12-48 VDC & 4.0 A

Connectors available:

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

S - SMA, 50Ω
N - N, 50Ω
F - F, 75Ω

J3: DC Supply

B - BNC (preferred)
S - SMA
Ft - feedthru
N - N
T - TNC

J4: 10MHz

S - SMA (preferred)
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:

You need to pass the L-Band and possibly the 10 MHz signal, but you need to split out the DC for another application. You may even need more DC power than your modem can supply.

The Orbital DC Extractor Thru Tee is a unique device, an industry first, that passively extracts and filters the DC from the modem or uses an external power supply, then divides the DC between outputs. One DC output is fed to the LNB/BUC, and the second output is fed back to J4 for use as you see fit.

If DC is supplied from both the modem and an external source, the higher voltage device will be used.

As with standard Orbital Bias Tees, the DC Extractor Thru Tee allows the injection of up to 2.5A (standard) and 4.0A (high power) of current at 12 to 24 or 12 to 48 volts DC respectively.

Orbital Features:

Specifications

- Selective Filter Network: filtered 10 MHz bandpass and a filtered L band, 900-2100 MHz selective band pass system
- Lowpass filtered DC
- Low passband ripple
- Low L band through loss
- Superior Input and Output VSWR
- Preserves phase noise performance
- 10 MHz -3.5 dB out, >30 dB isolation

Functional

- Will operate with VSATs, LNBs, BDCs, BUCs, Rxs and Modems
- Connectors O ring sealed for weather resistant operation
- Secures against loss of lock
- Protects bit error rate

Structural

- Machined from solid aluminum block for strength and stability
- Anodized Mil-Spec finish for corrosion protection
- Excellent RF shielding and grounding
- RoHs & REACH Compliant

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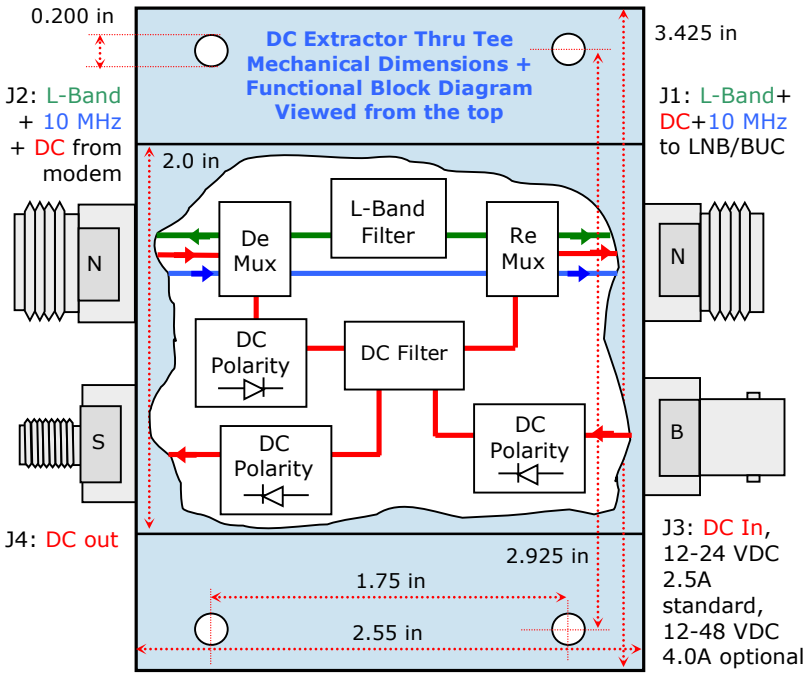
DET25/40 – DC Extractor Thru Tee Specifications



Electrical Specifications

L Band

Bandpass:	10 MHz & 900 to 2100 MHz
Thru Loss:	1.0 dB maximum
Ripple:	±0.5 dB maximum
Input VSWR:	1.5 : 1 maximum
Output VSWR:	1.5 : 1 maximum

10 MHz

Passband:	1-100 MHz (3 dB down)
Thru Loss:	0.3 dB 10 MHz to LNB port maximum

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 Anodized finish
Mounting holes:	3/8" (5mm)

Accepts standard rackmounting screws: 10/32 or 10/34

RoHs & REACH Compliant

Environmental Specifications

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

Power Specifications

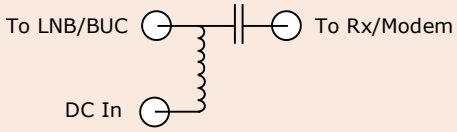
Input DC Voltage:	Passive Device. No power required
Power Capacity:	12 to 24VDC - 2.5A 12 to 48VDC - 4.0A high

Switching Power Supply

(not included with DC Extractor Thru Tee)

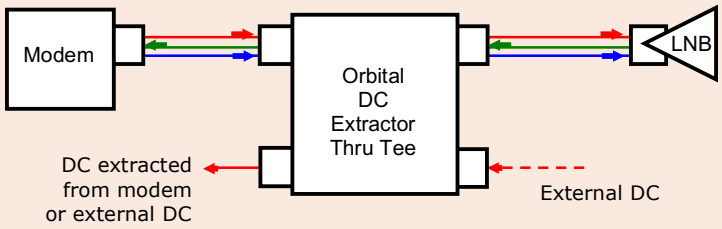
See: PS1 brochure for North America
PS2 brochure for Global

Standard Bias Tees are not designed for Satellite applications. They are very simple circuits, and will short the 10 MHz to ground:



Orbital's Mux/Tee is specifically designed for sensitive satellite applications of injecting DC and multiplexing 10 MHz into the circuit.

The objective of the DET25/45 is to pass and filter the L band signal and the 10 MHz reference signal between the Modem at J-2 and the LNB or BUC at J-1. Primary DC supply comes from the modem J-2 and is split to extract DC at J-4 but continue to supply LNB or BUC power at J-1. In addition, J-3 continues to function as an external DC input to alternately power the LNB or BUC, and to feed DC to J-4 from the external DC supply if desired. Ports are polarity protected so that DC cannot be fed back to the modem, or back into the external power supply.



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:

V5 - 50Ω to LNB/BUC, 50Ω to Rx/modem
V7 - 75Ω to LNB/BUC, 75Ω to Rx/modem

Only V5 & V7 available at this time.

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