



## System Interface Products

### RET25/40 – Reference Extractor Thru Tee

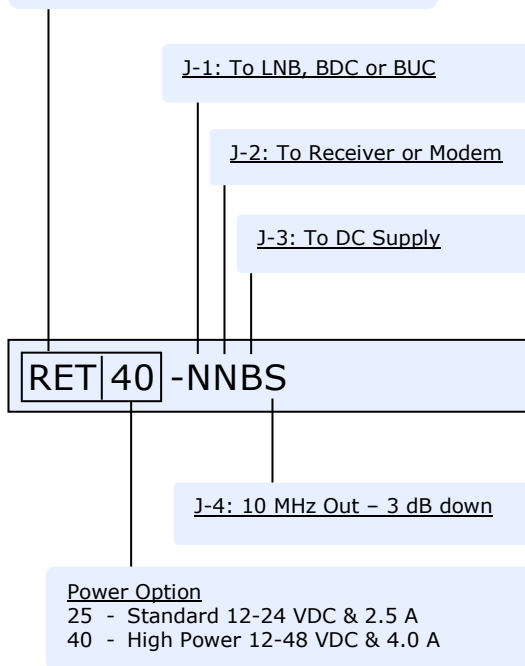


## Bias Tee Throughplexer with Coupled 10 MHz from modem

### How to order an RET25/40 – Reference Extractor Thru Tee

#### Module

RET - Reference Extractor Thru Tee



#### Connectors available:

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

S - SMA, 50Ω      F - F, 75Ω  
 N - N, 50Ω

#### J3: DC Supply

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

#### J4: 10MHz

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

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 a higher power BUC, but your modem cannot supply adequate DC. You need a bias tee and a separate power supply. Plus you need the 10 MHz signal to be split, half continuing through to the BUC and the other half for the system. Conventional Bias Tees shunt the 10 MHz reference signal to AC ground.

The Orbital Reference Extractor Thru Tee is a unique device, an industry first, that passively extracts and filters the 10 MHz from the modem, then divides the 10 MHz with over 30 dB of isolation between outputs, and only 3.5 dB of splitting loss, all without adding phase noise. One 10 MHz output is fed back to the BUC insertion circuits, and the second output is fed back to J4 for use as you see fit.

As with standard Orbital Bias Tees, the Reference 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

- Operates 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
- Blue Anodized Mil-Spec finish for corrosion protection
- Excellent RF shielding and grounding
- RoHS & REACH compliant

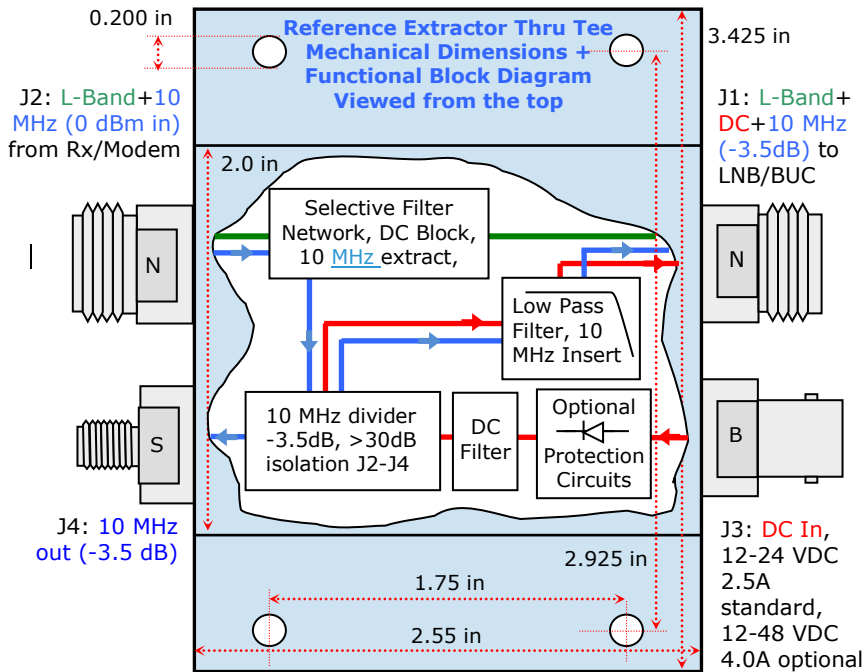
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# RET25/40 – Reference Extractor Thru Tee Specifications



## Electrical Specifications

### L Band

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

### 10 MHz

Both coupled & pass through are 3.5 dB down

### DC

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

## Mechanical Specifications

Measurements: Tolerance  $\pm 0.005$  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 & frost

## Power Specifications

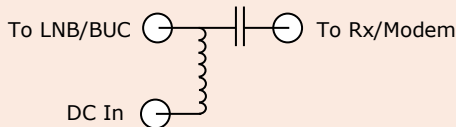
Input DC Voltage: Passive Device. No power required  
 Power Capacity: 12 to 24VDC - 2.5A  
 12 to 48VDC - 4.0A high

## Switching Power Supply

### (not included with 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 family of Mux/Tees are specifically designed for sensitive satellite applications of injecting DC and multiplexing 10 MHz into the circuit.

As they age, satellites and BUCs lose power. The VSAT that once served you well now does not have enough power for your link budget. The two solutions are a bigger dish, or a bigger BUC. The new BUC is cheaper and faster to install than a new dish, but your modem cannot supply the higher current needed by the new BUC. You need an independent, high quality power supply. But you also want your 10 MHz signal for other parts of your system.

The Reference Extractor Thru Tee replaces Orbital's MT25/40 - Mux Tee L band filter with a filtered 10 MHz bandpass and a filtered L band, 900-2100 MHz selective band pass system that will allow injection of up to 4 amps at 12 to 48 VDC, and will pass the L band signal AND the 10MHz reference signal from the modem to the BUC with less than a single dB of insertion loss. After the 10 MHz signal is extracted, it is split, having one leg pass through to the BUC (at 3.5 dB down), Plus a separate, 10 MHz signal (3.5 dB down) that can be utilized at output J4.

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 - 50 $\Omega$  to LNB/BUC, 50 $\Omega$  to Rx/modem  
 V7 - 75 $\Omega$  to LNB/BUC, 75 $\Omega$  to Rx/modem

Only V5 & V7 available at this time.

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