

TropoFusion

Man-pack Troposcatter terminal combining BUC, Modem, LNB, and 1m manual flyaway antenna.



Introducing the TropoFusion™ Series: Revolutionizing Beyond Line-of-Sight Communication The TropoFusion™ Series, a **collaborative innovation by IRT Technologies and Datum Systems**, sets a new standard in man-pack troposcatter communication. **This fully integrated solution combines BUC, Modem, LNB, and RF Filters** in a ruggedized, compact package, offering unprecedented portability and performance.

Man-packable Tropo-BUC (NanoTopo™ Series) provides up to 20W saturated output power and 20W minimum linear output power in ultra-compact and light package perfectly suitable for man-pack application. It also comes in integrated with the best in class **M7 Tropo Dual or Quad-Diversity Modem**. TropoFusion™ Series features best in class RF characteristics, embedded output isolator, extensive monitor and control capabilities, enabled via Ethernet, Serial and/or Analog Interfaces.

New IRT Technologies and Datum Systems Man-pack Troposcatter is designed for BLOS links with min. 5 Mbps data rates at minimum distance of 60 km.

1m manual flyaway antenna is highly portable and designed to meet beyond line of sight communication requirements in harsh environments. The antenna features a multi-segmented carbon fiber composite reflector. Assembly time is less than 10-15 minutes. The elevation-over-azimuth pedestal provides excellent stiffness characteristics and convenience for the user when pointing and peaking to a remote terminal. The system is designed to meet international performance specifications for Compact Trans Horizon Communication System Digital Loop Carrier System for Over the Horizon Communication/ BLOS.



Key Features

- **Ultra – compact design and light weight for up to 40W Psat and 20W linear output power**
 - Ultra-Lightweight design: 8 lbs (3.62 kg)
 - Compact package: 6.25"x7.5"x3.75" (160mm x 190mm x 95mm)
- **Superior RF performance**
 - Superior Phase Noise: 8 dB better than IESS308/309 recommendation
 - Low Noise Power density below -80dBm/Hz
 - Spurious emission below -60 dBc
 - Wide range Gain Control
 - Highest Linearity and small back – off
- **Input and output True RMS power detection**
- **Field upgradable software**
- **Status LED**
- **DVBS2X**
- **LDPC Backwards Compatible**
- **Adaptive and ACM Control**
- **Auto Uplink Power Control**
- **Two Sigma/Tau Performance**
- **Just Beyond LOS Microwave**
- **Integrated BUC & Modem Solution**
- **Dual and Quad Diversity Modes**
- **DCCL, Line-of-Sight (LOS), Obstructed Line-of-Sight (OLOS), Over-The-Horizon (OTH) Communications**
- **Designed for 0–70-mile range.**
- **Designed to be packed in ruggedized cases.**
- **Setup and operational in 15 minutes.**

BUC Parameters	
Output Frequency Band, GHz	4.4-5.0GHz
Input L band Frequencies. MHz	950 – 1550 MHz
LO Frequency, MHz	5.95GHz (single conversion; inverted)
Linear Power Plin	40dBm (10W) min. / 43dBm (20W) typ.
Conversion Gain, dB	68 minimum, 70 typ.
Gain Flatness, dB	+/-1 typical +/-1.5 maximum over full band +/-0.4 maximum over any 40MHz
Gain Stability, dB	+/-1.5 maximum over full temperature range
Linearity at Pout=Plin: 2 tone IMD Spectral Regrowth	-25dBc max -30dBc for QPSK at 1.5xsymbol rate
Phase Noise, dBc/Hz	-70 @ 100Hz; -80 @ 1kHz; -90 @ 10kHz -95 @ 100kHz -115 @ 1MHz
Modem Parameters	
Modulator Outputs	1 or 2, Modulation Common to Both Carriers, Freq Independent
Diversities	Single, Dual or Quad
Maximal Ratio Combiner	Freq Domain Combiner/Equalizer
Min Symbol Rate / Max Symbol Rate	1Msps / 80 Msps
Max Data Rate	Up to 529.9 Mbps (Modcod Dependent)
Freq Range L-Band	950 to 2250 MHz, 1 Hz Steps
Mod Roll-Off Factor %	20, 25, 30, 35, 40, 45 (%)
Modulation Types	QPSK,8APSK,8PSK,16APSK,32APSK,64APSK,128APSK,256APSK
FEC Type	DVB-S2X
FEC Block Sizes	Short: 16k, Normal: 64k (Bits)
Fast ACM and Adaptive Modcodes	Seamless ACM/Adaptive Data Rate
Interleaver	0-200ms
Mechanical & Environment	
Cooling	Forced Air
Size BUC module only	6.25"x7.5"x3.75" (160x190x95mm)
Size BUC and Modem integrated	6.25"x7.5"x4.75" (160x190x120mm)
Weight BUC module only	8lbs (3.62kg)
Weight BUC and Modem Integrated	12lbs (5.44kg)
Operating temperature / Relative Humidity	-40°C .. +60°C / Up to 100% condensing
TROPOSCATTER-BAND PLL LNB	
Frequency Band (GHz)	4.4 – 5.0
L.O. Frequency (GHz)	3.45
IF Frequency (MHz)	950 - 1550
1 M Troposcatter Antenna	
Reflector	1 M Carbon Fiber
Reflector Configuration	1 M - 8 Piece Symmetrical
Frequency (GHz)	4.4-5.0GHz
Gain (Midband, dBi)	32.0
VSWR	1.30:1
Antenna Travel Azimuth	+/-180° continuous with fine adjust
Antenna Travel Elevation	-10° to +90° of reflector bore sight
Antenna Travel Polarization	± 90° (std manual drive)
Pedestal Height	1.5 m
Packaging (Compression Molded Case) Weight	37.5"x 27"x 13.5" (95 x 68.5 x 34.3 cm)
Antenna / Pedestal / Feed Weight	40 lbs (18.2 kg)
Packed in Case Weight	79 lbs (35.9 kg)

Specifications are subject to change without notice